

SIEMENS



HVAC products and building automation systems

Product Catalog 2014



↑ KENNENLERNEN
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Wichtiges über
Drohnen und
VHS Kurse

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A low-angle shot of a modern glass skyscraper. The glass panels reflect a highly detailed, ornate historical building with a central dome and classical architectural elements. The sky is blue with some light clouds. In the foreground, there are green trees and bushes. A semi-transparent dark blue box is overlaid on the middle of the image, containing white text.

Can old buildings be just as energy-efficient as new ones?

Intelligent and energy-efficient building technologies from Siemens reduce emissions and costs, in any building.

Intelligent building and room automation with the user in mind

Dear Customers and Partners,

Energy efficiency is a constant topic of discussion in business, politics and society. Some European countries have already decided to phase out nuclear energy, while others have placed the transition to the new energy policy high on their political agendas. But switching to renewable energy alone will not protect our climate. It is vital that we use existing resources more efficiently in order to maintain or even improve productivity and quality of life.

With innovative and environmentally friendly technologies, Siemens Ltd has been promoting environmental protection and the conscientious use of energy in buildings and rooms. All products and systems are designed for maximum climatic conditions and minimum energy consumption. This includes the new flush-mounted Symaro™ sensors, which increase efficiency and room comfort thanks to their accurate measuring technology.

To continuously ensure quality and control accuracy, all applications are tested and optimized in our 800 m² in-house laboratory. These applications network the HVAC building technology from the basement to the individual rooms and smoothly coordinate the entire system. Integrating room users makes it possible to achieve additional energy savings. Energy consumption is monitored with the energy indicator, and a red leaf symbol on the room controller alerts users to inefficient settings. The HomeControl app lets users access the HVAC installation remotely and check the settings or change the room parameters.

Siemens provides comprehensive support through tools and new apps for smart phones and tablet PCs so that you can quickly find the right product from our extensive product range. A wide selection of brochures and technical materials is also available.

Benefit from our comprehensive range of innovative products, systems and tried-and-tested applications to enhance energy efficiency in rooms and to protect the environment.

BACS efficiency classes – EN 15232

High energy performance
BACS and TBM

A

Advanced
BACS and TBM

B

Standard
BACS

C

Non-energy-efficient
BACS

D

BACS Building Automation and Control System
TBM Technical Building Management System

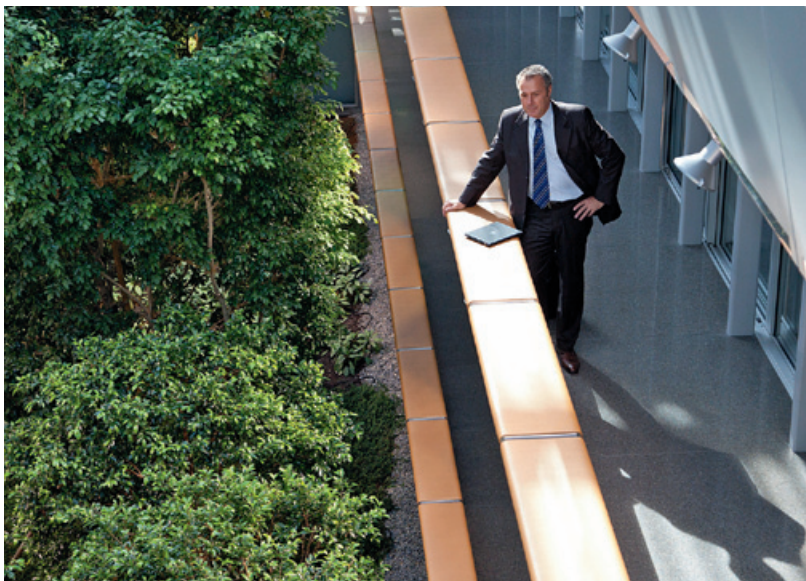


Building automation and control – impact on energy efficiency

About 40 percent of the world's energy is consumed by buildings. Worldwide, buildings also account for 21 percent of the greenhouse gas emissions. Building owners now face growing pressure globally to reduce energy consumption and minimize impact that such consumption has on the environment.

Energy savings of up to 30 percent thanks to intelligent building automation
Siemens as a leading company and specialist for energy efficiency of buildings offers a comprehensive portfolio of products, systems and solutions for increased energy efficiency. The key is intelligent and integrated building and room automation solutions that lead to significant and measurable energy savings without loss of comfort, thus generating cost savings. When installing an optimized building automation and control system, the energy efficiency of heating, ventilation and air conditioning plants in commercial buildings, for instance, can be increased by up to 30 percent.

This corresponds to efficiency class A according to the European Standard EN 15232, "Building Automation – Influence of Building Automation and Control and Building Management", which defines the standard for the effectiveness of building automation and control systems. It distinguishes between four efficiency classes (A through D) in building automation. The systems supplied by Siemens deliver all prerequisites needed to attain efficiency class A. The flexible and energy-efficient systems provide all important building functions from lighting to shading and from heating and ventilation to air conditioning and cooling plants. The constant logging of energy consumption data enables building owners and facility managers to find potential saving opportunities and to check the success of the measures taken so far.



Significant energy savings thanks to eu.bac-certified room controllers

The installation of demand-based electronic individual room control in connection with radiator heating systems, fan coil units, VAV systems or chilled ceilings represents a considerable saving potential. Thanks to their high control accuracy, the Desigo™ RX individual room controllers, for example, are certified by the European Building Automation and Controls Association (eu.bac). Excellent control accuracy optimizes the room climate and enhances comfort. A difference in setpoint of only 1 °C results in energy savings of up to 6 percent. This means that the energy savings achieved by individual room controllers are 8 percent higher than those reached by "lowest in class" eu.bac-certified controllers.

For more information, visit www.siemens.com/energyefficiency

	Saving potential (thermal)					
	D-A	D-B	D-C	C-A	C-B	B-A
Offices	54%	47%	34%	30%	20%	13%
Lecture halls	60%	40%	19%	50%	25%	33%
Educational buildings (schools)	33%	27%	17%	20%	12%	9%
Hospitals	34%	31%	24%	14%	9%	5%
Hotels	48%	35%	24%	32%	15%	20%
Restaurants	45%	37%	19%	32%	23%	12%
Commercial and retail buildings	62%	53%	36%	40%	27%	18%
Residential buildings	26%	20%	9%	19%	12%	8%

	Saving potential (electric)					
	D-A	D-B	D-C	C-A	C-B	B-A
Offices	21%	15%	9%	13%	7%	6%
Lecture halls	16%	11%	6%	11%	6%	5%
Educational buildings (schools)	20%	13%	7%	14%	7%	8%
Hospitals	9%	7%	5%	4%	2%	2%
Hotels	16%	11%	7%	10%	5%	5%
Restaurants	12%	8%	4%	8%	4%	4%
Commercial and retail buildings	16%	12%	7%	9%	5%	4%
Residential buildings	15%	14%	7%	8%	7%	1%

Saving potential according to efficiency classes



Communicating HVAC control for the entire building

Synco supports the entire life cycle of small to medium-size buildings. The controllers can be extended and adapted at any time, thanks to their modular design and backward compatible communication. This way, investments can also be made in steps.

Synco™ offers suitable solutions for all requirements

Synco offers matching solutions for all kinds of requirements: From simple temperature control to comprehensive control of HVAC plants, from the control of heat and cooling energy production to their distribution including individual room control. The product range offers both stand-alone and communicating controllers, which control and monitor plant via KNX® communication. The communicating controllers exchange energy-related information, meaning that aggregates, such as heating boilers, chillers or pumps, are switched on only when required to maintain the required comfort level. This approach increases energy efficiency and helps attain efficiency class A as per EN 15232.

Thanks to Synco's easy-to-understand and efficient operation, the system excels in user and service friendliness. Pretested applications and energy saving functions are integrated. These save time and lower costs during the planning, engineering and commissioning phases.

Flexibility during modernization thanks to modular system components

Owing to its modular design, the system can be easily extended via additional controllers, allowing Synco to be straightforwardly adapted when usage of the building changes.



Energy-efficient room automation without sacrificing comfort

Room users and facility managers can considerably influence the consumption of energy, e.g. by shutting down the plant when not in use, or by matching room temperatures and scheduler programs to current occupancy times. The communicating room controllers RXB and RXL and communicating room thermostats RDG and RDF enable room users to straightforwardly adjust the comfort temperature in the individual rooms. The RDG and RDF room thermostats excel in elegant, modern design and innovative functions. The built-in scheduler programs help save additional energy.

Energy indicator enhances the usability

What's more, Synco supports room users with its intelligent functions, such as the energy indicator. This facility monitors the settings made by the end user, shows when limit values are crossed and – via e-mails or apps – sends the respective information to the occupants at regular intervals. A leaf symbol indicates the room's energy status depending on the settings made: Green means that the settings are correct from the point of view of energy efficiency, when the leaf symbol changes to orange, the settings are unfavorable. Hence, deviations are transparent and visible at any time. Using a PC or smartphone, access via the Web or Home-Control app enable users to check their settings from any location, any time.

For more detailed information, please visit: www.siemens.com/synco

Highlights

- Efficient installation thanks to flexibly applicable and modular HVAC controller range
- Energy efficiency thanks to energy saving functions and exchange of energy-related information via KNX
- Enhanced comfort owing to individual room climate
- Higher energy efficiency as a result of reminder function and reporting of energetically unfavorable conditions



Efficient technology for a comfortable room climate

Complete portfolio for efficient building automation

Many heating, ventilation and air conditioning products – from variable speed drives and sensors to damper actuators – help users enjoy a comfortable room climate and also save energy.

A complete range of top quality products

Our complete range of energy-efficient building automation products covers everything you need for a comfortable “green” building. The products are coordinated with standard HVAC applications.

All products feature high quality and reliability. The components are systematically tested under real-life conditions in our own HVAC lab. A long product life cycle helps protect your investments.

Optimum operation at minimum cost
All products are designed for easy installation, which speeds up commissioning. Simplified handling also facilitates maintenance, and modifications can be carried out faster and more cost-effectively.

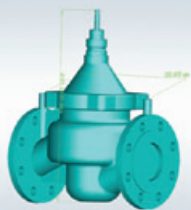
Highlights

- Fully coordinated products ensure the best possible energy efficiency
- High quality and reliability and a long life cycle protect your investment
- High flexibility permits the integration of third-party devices, step-by-step installation and backward compatibility
- Easy installation minimizes maintenance costs



Tool support facilitates installation design

CAD data



- Ideal for facility planning
- True to scale for any DN level
- Available for all products
- The following formats are available: stp and .dwg
- Can be downloaded free of charge

G120P speed adjuster



- Easy and fast conversion of frequency into speed and vice versa
- Conversion takes place according to the number of poles
- User-friendly and very easy to read
- High quality and long service life thanks to laminated surfaces



Acvatix™ valve sizer



- Simplifies dimensioning
- Customers such as planners and installers have appreciated and used the valve sizer for decades
- Excellent overview of all valve series (threaded and flanged valves)

OpenAir product selection guide



- Well-organized selection tool for damper actuators
- Compact format, robust quality
- Detailed competitor comparison
- User-friendly and easy to read

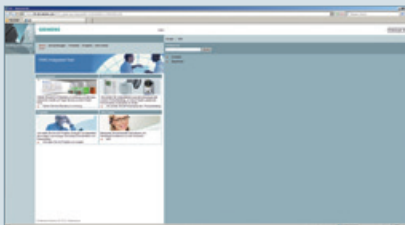
Please contact your local Siemens representative to order these tools.

Tools and apps

The Siemens tools and apps support users not only when planning new projects, but also when calculating potential energy savings through modernization of the building automation and control system. Using the Siemens applications, the matching product can be easily found and the building's potential energy savings can be calculated, either online or via smartphone. This relieves you of routine work and saves time when it comes to finding the right products.

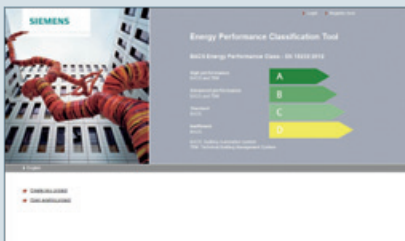
> All Siemens apps can also be found under www.siemens.com/bt/apps

HIT – HVAC Integrated Tool



HIT supports energy performance standard EN 15232. The tool offers more than 300 preconfigured HVAC standard applications, classified according to potential energy savings. This allows users to select the application that best meets the requirements. The documents are linked to the applications and also show the prerequisites required to achieve the relevant efficiency class as per EN 15232. For more information, visit www.siemens.com/hit

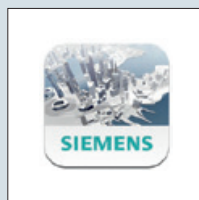
EPC – Energy Performance Classification Tool



The EPC Tool supports the user when determining the current state of an existing building automation and control system and then assigns it to one of the four efficiency classes A through D. When upgraded, the tool also determines the new state of the plant.

Other functions of the EPC Tool are considerations regarding the profitability of modernization and fast production of customized documentation.

Siemens Building Technologies Download Center – iPhone app



In the download center, all brochures, instructions, specifications and data sheets produced by the Building Technologies Division of Siemens can be conveniently downloaded to your iPhone/iPad.

Old2New replacement guide for HVAC products – iOS app



Old2New is a database containing a list of all former HVAC products produced by Landis+Gyr, Staefa Control System and Landis & Staefa, together with pictures and detailed information about the successor products. This app supports you when selecting replacement products, also presenting the respective data sheets.

For more information, visit www.siemens.com/bt/old2new

Combi Valve Sizer – iOS app



With the Combi Valve Sizer app from Siemens, it's easy to select a matching Acvatix combi valve and actuator. By entering the required maximum volumetric flow and other features, such as type of threaded connection or DN class, the ideal combi valve is recommended. The selection of actuator is just as easy. What's more, all data sheets are made available.

The app also works the other way: If you want to find the maximum volumetric flow resulting from a certain presetting, the calculation is made.

SINAMICS Support – app for smart phones



The app converts the frequency (Hz) of a variable speed drive to the speed (rpm) to be set on the motor. The conversion also works the other way: revolutions per minute become hertz.

HomeControl for Room Automation – app for smart phones



The HomeControl app from Siemens offers you intuitive and straightforward operation of your heating, ventilation and air conditioning plants, including control of lighting and shading systems.

Type Overview

Product Number	Description	Datasheet	Page
2WR605-MBE	Ultrasonic heat meter 0.6 m ³ /h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-20
2WR605-MBG	Ultrasonic heat meter 0.6 m ³ /h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR605-MHE	Ultrasonic heat meter 0.6 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR605-MHG	Ultrasonic heat meter 0.6 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR621-MBE	Ultrasonic heat meter 1.5 m ³ /h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-21
2WR621-MBG	Ultrasonic heat meter 1.5 m ³ /h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR621-MHE	Ultrasonic heat meter 1.5 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR621-MHG	Ultrasonic heat meter 1.5 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR636-MBE	Ultrasonic heat meter 2.5 m ³ /h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-21
2WR636-MBG	Ultrasonic heat meter 2.5 m ³ /h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR636-MHE	Ultrasonic heat meter 2.5 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR636-MHG	Ultrasonic heat meter 2.5 m ³ /h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
421314160	Cable holder for protection pocket mounting	N1831	6-20
428488060	Sealing gland complete, stem diameter 10 mm, sealing material EPDM		7-72
428616520	Water trap pipe	N1915	6-48
5TC9 220	Cover plates for room thermostat, NC/CO, electro white		5-13
5TC9 222	Cover plates for room thermostat, 3-position switch, electro white		5-13
5TC9 224	Cover plates for room thermostat, direct floor heating, electro white		5-13
5TC9 251	Cover plates for room thermostat, NC/CO, carbon metallic		5-13
5TC9 253	Cover plates for room thermostat, 3-position switch, carbon metallic		5-13
5TC9 255	Cover plates for room thermostat, direct floor heating, carbon metallic		5-13
5TC9200	Room thermostat 1 NC contact		5-11
5TC9201	Room thermostat, 1 NO contact		5-11
5TC9202	Room thermostat, 3-position switch		5-12
5TC9203	Room thermostat, direct floor heating		5-12
5TC9221	Cover plates for room temperature controllers, NC/CO, titanium white		5-13
5TC9223	Cover plates for room temperature controllers, 3-position switch, i-system, titanium white		5-13
5TC9225	Cover plates for room temperature controllers, direct floor heating, titanium white		5-13
5TC9250	Cover plates for room temperature controllers, NC/CO, i-system, aluminum metallic		5-13
5TC9252	Cover plates for room temperature controllers, 3-position switch, i-system, aluminum metallic		5-13
5TC9254	Cover plates for room temperature controllers, direct floor heating, aluminum metallic		5-13
7411100280	Terminal covers		2-11
7424200000	Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5		7-72
7428400610	Replacement sealing gland, stem diameter 10 mm, sealing material FEPM		7-72
9060944001	Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm		10-22
9060944002	Sealing disk G 3/4", for threaded connection R 1/2"		10-19
9060944003	Sealing disk G 1", for threaded connection R 3/4"		10-19
9060944004	Sealing disk G 1 1/4", for threaded connection R 1"	N5324	10-27
9060944024	Sealing disk for flange DN 40	N5324	10-27
9060944025	Sealing disk for flange DN 50	N5324	10-27
9060944026	Sealing disk for flange DN 65	N5324	10-27
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9060944028	Sealing disk for flange DN 100	N5324	10-27
9060948	Sealing disc 1/2" made of copper		10-22
9089885	Service-key for calibration modus	N5324	10-28
9930127002	Mounting kit for sensor Ø 5.2x45 mm		10-22
9930128002	Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm		10-21
9956186001	Self-lock seal with sealing wire	N5324	10-28
9956230	Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings		10-19
99T01130	Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets		10-21
99T34110	Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets		10-21
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ACS790	Commissioning and plant operating software	N5649	2-7
ACT20	Parameterizing and diagnostics software		10-33
ACT21	Parameterization software	N2870	10-31

NEW PRODUCT

1

Type Overview

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ACT50-HEAT	Parameterization and diagnostics software for heating energy meters		10-17
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ADN20	Two-port seat lockshield valve, PN10, DN20, kvs 0..3.0	N2107	7-98
AEN10	Angle lockshield valve, PN10, DN10, kvs 0..1.8	N2107	7-98
AEN15	Angle lockshield valve, PN10, DN15, kvs 0..2.5	N2107	7-98
AEN20	Angle lockshield valve, PN10, DN20, kvs 0..3.0	N2107	7-98
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AEW36.2	AMR pulse adapter	N2873	10-30
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AGS2S.200/109	Conduit box with surge protection for solar panel sensor	N2488	1-25
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AL41	Adapter for tamper-proof fitting for STA.., STP.. actuators	N4878	7-35
AL431	Theft protection	N4884	7-30
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ALE11	Measuring lines and tips for Siemens combi valves		7-165
ALF41B100	Bypass extension, flanged connections, DN100	N4404	7-129
ALF41B125	Bypass extension, flanged connections, DN125	N4404	7-129
ALF41B15	Bypass extension, flanged connections, DN15	N4404	7-132
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ALG122	Malleable cast iron fitting G ¾" / Rp ¾", set of 2		7-118
ALG123	Malleable cast iron fitting G ¾" / Rp ¾", set of 3		7-119
ALG132	Brass fitting G ½" / R ¾", set of 2		7-118
ALG133	Brass fitting G ½" / R ¾", set of 3		7-119
ALG142	Brass fitting G ¾" / R ½", set of 2		7-118
ALG143	Brass fitting G ¾" / R ½", set of 3		7-119
ALG152	Malleable cast iron fitting G 1" / Rp ½", set of 2		7-118
ALG152B	Brass fitting G 1" / Rp ½", 100°C, set of 2		7-118
ALG153	Malleable cast iron fitting G 1" / Rp ½", set of 3		7-119
ALG153B	Brass fitting G 1" / Rp ½", 100 °C, set of 3		7-119
ALG202	Malleable cast iron fitting G 1¼" / Rp ¾", set of 2		7-118
ALG202B	Brass fitting G 1¼" / Rp ¾", 100 °C, set of 2		7-118
ALG203	Malleable cast iron fitting G 1¼" / Rp ¾", set of 3		7-119
ALG203B	Brass fitting G 1¼" / Rp ¾", 100 °C, set of 3		7-119
ALG252	Malleable cast iron fitting G 1½" / Rp 1", set of 2		7-118
ALG252B	Brass fitting G 1½" / Rp 1", 100 °C, set of 2		7-118
ALG253	Malleable cast iron fitting G 1½" / Rp 1", set of 3		7-119
ALG253B	Brass fitting G 1½" / Rp 1", 100 °C, set of 3		7-119
ALG322	Malleable cast iron fitting G 2" / Rp 1¼", set of 2		7-118
ALG322B	Brass fitting G 2" / Rp 1¼", 100 °C, set of 2		7-118
ALG323	Malleable cast iron fitting G 2" / Rp 1¼", set of 3		7-119
ALG323B	Brass fitting G 2" / Rp 1¼", 100 °C, set of 3		7-119
ALG402	Malleable cast iron fitting G 2¼" / Rp 1½", set of 2		7-118
ALG402B	Brass fitting G 2¼" / Rp 1½", 100 °C, set of 2		7-118
ALG403	Malleable cast iron fitting G 2¼" / Rp 1½", set of 3		7-119
ALG403B	Brass fitting G 2¼" / Rp 1½", 100 °C, set of 3		7-119
ALG502	Malleable cast iron fitting G 2¾" / Rp 2", set of 2		7-118
ALG502B	Brass fitting G 2¾" / Rp 2", 100 °C, set of 2		7-118

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
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ALG503B	Brass fitting G 2 3/4" / Rp 2", 100 °C, set of 3		7-119
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ALI15VBI60/61	Insulation cover for VBI60/61, DN15		7-194
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ALI20VBI60	Insulation cover for VBI60, DN20		7-198
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ALI25VAI60/61	Insulation cover for VAI60/61, DN25		7-197
ALI25VBI60/61	Insulation cover for VBI60/61, DN25		7-194
ALI32VAI60/61	Insulation cover for VAI60/61, DN32		7-197
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ALI40VAI60/61	Insulation cover for VAI60/61, DN40		7-197
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ALI50VAI60/61	Insulation cover for VAI60/61, DN50		7-197
ALI50VBI60/61	Insulation cover for VBI60/61, DN50		7-194
ALP45	Spare nipples for VPI45.., set of 2, for VPI45..		7-165
ALP46	Blanking plug for P/T ports		7-165
ALP47	Drain ball valve inclusive O-ring		7-165
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M3FB15LX15/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN15, kvs 1.5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB20LX/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN20, kvs 5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB25LX/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN25, kvs 8, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB32LX	Diverting/2-port refrigerant valve, solder connection, PN32, DN32, kvs 12, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FK15LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN15, kvs 3, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
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M3P80FY	Mixing/2-port magnetic control valve, flange, PN16, DN80, kvs 80, AC 24 V, DC 0/2...10 V / 4...20 mA	N4454	7-138
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MKB532.15-0.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 230 V, 3P	N4387	7-85
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MKB532.15-1.6G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-2.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 230 V, 3P	N4387	7-85
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MKB532.15-3.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-4G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-10G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-5G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-6.3G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 230 V, 3P, steam	N4389	7-88
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MKB532.25-8G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 2800 N, AC 230 V, 3P, steam	N4389	7-88
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MKB532.40-16G	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 2800 N, AC 230 V, 3P, steam	N4389	7-88
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MKB562.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86

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MKB562.15-1.6	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1.6G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
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MKB562.15-2.5G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-3.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-3.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-4G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-10G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-5G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-6.3G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-8	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-8G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-12	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-12G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-16	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-16G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-20	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-20G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-25	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-25G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB632.15-0.19	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.19, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.3, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.45	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.45, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.7	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.7, 2800 N, AC 230 V, 3P	N4388	7-90

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MKB632.15-1.9	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.9, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 3, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.25-5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 5, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.25-7.5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 7.5, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.40-12	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 12, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.40-19	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 19, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.50-31	Control device, safety function DIN EN 14597, flanged, PN40, DN50, kvs 31, 2800 N, AC 230 V, 3P	N4388	7-90
MKB662.15-0.19	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.19, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.45	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.45, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.7	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.7, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-1.2	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-1.9	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.9, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.25-5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.25-7.5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 7.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.40-12	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 12, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.40-19	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 19, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.50-31	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 31, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC632.100-124	Control device, safety function DIN EN 14597, flanged, PN40, DN100, kvs 124, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.125-200	Control device, safety function DIN EN 14597, flanged, PN40, DN125, kvs 200, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.150-300	Control device, safety function DIN EN 14597, flanged, PN40, DN150, kvs 300, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.65-49	Control device, safety function DIN EN 14597, flanged, PN40, DN65, kvs 49, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.80-78	Control device, safety function DIN EN 14597, flanged, PN40, DN80, kvs 78, 2800 N, AC 230 V, 3P	N4388	7-91
MKC662.100-124	Control device, safety function DIN EN 14597, flanged, PN40, DN100, kvs 124, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.125-200	Control device, safety function DIN EN 14597, flanged, PN40, DN125, kvs 200, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.150-300	Control device, safety function DIN EN 14597, flanged, PN40, DN150, kvs 300, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.65-49	Control device, safety function DIN EN 14597, flanged, PN40, DN65, kvs 49, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.80-78	Control device, safety function DIN EN 14597, flanged, PN40, DN80, kvs 78, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
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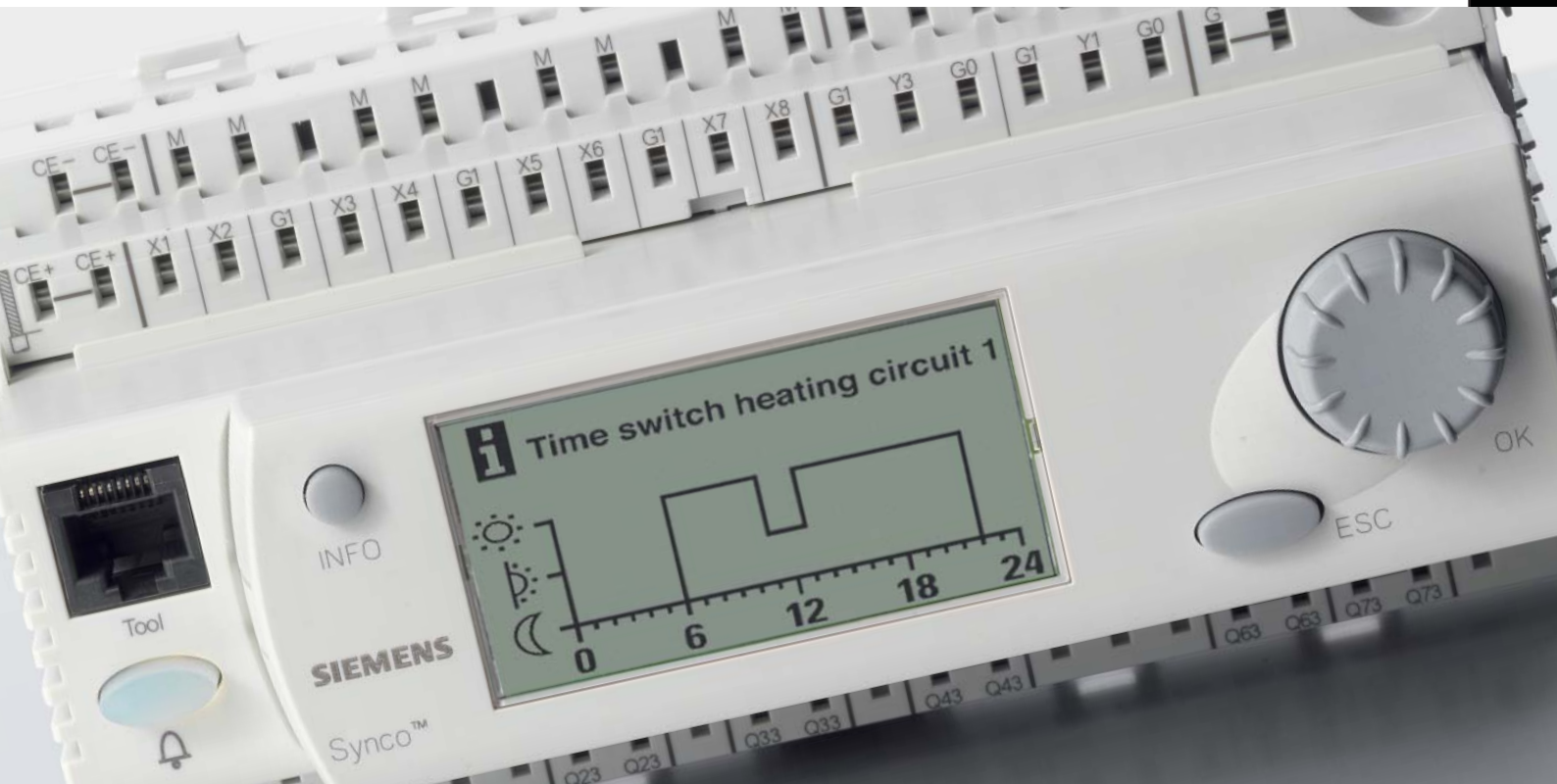
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WZX-UA-SFP	UltraAssist Standard, second license, dongle as PCMCIA card		10-19
WZX-UA-SFU	UltraAssist Standard, second license, with dongle for USB interface		10-19
Z155/100	Blanking flange, DN100		7-139
Z155/15F	Blanking flange, DN15		7-137
Z155/20F	Blanking flange, DN20		7-137
Z155/25F	Blanking flange, DN25		7-137
Z155/32F	Blanking flange, DN32		7-137
Z155/40	Blanking flange, DN40		7-137
Z155/50	Blanking flange, DN50		7-137
Z155/65	Blanking flange, DN65		7-137
Z155/80	Blanking flange, DN80		7-139
Z366	Stem heating element for media temperatures 0 °C, 30 W, AC 24 V		7-160
ZM101/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	7-213
ZM111	Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	7-213
ZM121/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	7-213
ZM250	Replacement electronic for M3P..FY..	N4454	7-138

Standard controllers



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1 Standard controllers

Overview and selection tools

Overview of product details

Overview of heating controllers product details



Preferential applications	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Heating group	■	■			■	■	■	■	■	■	■		■	■	■	■	■
Boiler control					■	■											
1-stage					■	■											
2-stage								■	■	■	■		■	■	■		
Multi-boiler system																	■
Domestic hot water	■	■	■	■		■			■	■	■			■	■		
Domestic water solar			■	■				■	■	■	■			■	■		
2nd heating group										■	■	■				■	
3rd heating group												■				■	

Operation system	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Type of operation																	
analog	■	■	■		■	■						■	■	■	■	■	■
digital				■			■	■	■	■	■	■	■	■	■	■	■
Heating curve bar												■	■	■	■		
Time switch					■	■						■	■	■	■	■	■
analog					■	■						■	■	■	■	■	■
digital					1)	1)	■	■	■	■	■	■	■	■	■	■	■
Programmed plant types	6	3	7	7			2	3	3	6	6	1	6	29	21	41	18
Yearly clock							■	■	■	■	■	■	■	■	■	■	■

1) Variant

Communication	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Controller network							LPB	LPB		LPB		LPB	LPB	LPB	LPB	KNX	KNX
Web operation							OZW672..			OZW672..		OZW672..				OZW772..	
Fax, SMS and pager function							OCI611..			OCI611..		OCI611..				OZW771..	

Sensors	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Outside sensor QAC22	■	■			■	■	■	■	■	■	■	■	■	■	■	■	■
Outside sensor QAC32					■	■	■	■	■	■	■	■	■	■	■	■	■
Strap-on temp. sensor QAD22			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Immersion temp. sensor QAE2..			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Cable temp. sensor QAP2..			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Room temp. sensor QAA24							■	■	■	■	■	■	■	■	■	■	■
Room temp. sensor 1)							■	■	■	■	■	■	■	■	■	■	■
Solar sensor QLS60															■	■	■

1) AQR2531..NW

Room units	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Room unit analog QAW50					■	■	■	■	■	■	■	■	■	■	■		
Room unit analog QAW50.03										■	■						
Room unit digital QAW70					■	■	■	■	■	■	■	■	■	■	■		
Room unit digital QAW740																■	■

Overview of district heating controllers product details



Preferential applications	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Heating group	■	■	■	■	■	■	■	■
District heat exchanger	■	■	■	■	1)	1)	1)	■
Domestic hot water	■	■	■	■			■	■
Domestic water solar		■	■	■			■	
2nd heating group				■				■
3rd heating group								■

1) Variant: For the description of the controllers see chapter 1 „Communicative heating controllers“.

Operation system	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Type of operation analog								
Type of operation digital	■	■	■	■	■	■	■	■
Heating curve bar						■	■	
Time switch analog								
Time switch digital	■	■	■	■	■	■	■	■
Programmed plant types	3	8	28	14	2	6	29	41
Yearly clock	■	■	■	■	■	■	■	■

Communication	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Controller network			LPB	LPB	LPB	LPB	LPB	KNX
M-bus slave			■	■				
Web operation	ext. Modbus-Interface	ext. Modbus-Interface	OZW672..		OZW672..	OZW672..		OZW772..
Fax, SMS and pager function			OCI611..		OCI611..	OCI611..		OZW771..

Sensors	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Outside sensor QAC22	■	■	■	■	■	■	■	■
Outside sensor QAC32	■	■	■	■	■	■	■	■
Strap-on temp. sensor QAD22	■	■	■	■	■	■	■	■
Immersion temp. sensor QAE2..	■	■	■	■	■	■	■	■
Cable temp. sensor QAP2..	■	■	■	■	■	■	■	■
Room temp. sensor QAA24					■	■	■	■
Room temp. sensor 1)					■	■	■	■
Solar sensor QLS60								■
Pressure sensor QBE2002..		■	■	■				

1) AQR2531..NW

Room units	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Room unit analog QAW50	■	■	■	■	■	■	■	
Room unit analog QAW50.03				■				
Room unit digital QAW70	■	■	■	■	■	■	■	
Room unit digital QAW740								■

1 Standard controllers

Overview and selection tools

Overview of product details

Overview of HVAC controllers product details



	RLM..	RLA..	RWD..				RLU..				RMU..	RMS..	RMZ..					
	162	162	32	82	62	68	202	220	232	236	710	720	730	705	785	787	788	
	Air duct temperature controller	Room temperature controller	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2AO	Universal controller, 1 control loop, 1AO, 1DO	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2AO	Universal controller, 2 control loops, 2AO, 2DO	Universal controller, 2 control loops, 3AO, 2DO	Universal controller, 2 control loops, 3AO, 6DO	Modular universal controller, 1 control loop	Modular universal controller, 2 control loops	Modular universal controller, 3 control loops	Switching and Monitoring Device	Universal module, 8UI	Universal module, 4UI, 4DO	Universal module, 4UI, 2DO, 2AO
Option modules for RMU7.., RMS705												4 ²⁾	4 ²⁾	4 ²⁾	4 ²⁾	1 ²⁾	2 ²⁾	2 ²⁾
Operation	■	■	■	■	■	■	■	■	■	■	■	■ ¹⁾	■ ¹⁾	■ ¹⁾	■ ¹⁾			
KNX communication												■	■	■	■			
7-day time switch and holiday/special day program												■	■	■	■			
Supervision												■	■	■	■			
Logic functions												■	■	■	■			

Outputs

Step switch							■		■	■	■	■	■	■				
Relay	1	1 ⁴⁾	2	2		1	2		2	2	6	2	4	6	6		4	2
3-position			1 ³⁾	1 ³⁾			1 ³⁾		1 ³⁾									
DC 0...10 V	2	2			2	1		2	2	3	3	2	3	4	4			2

Universal inputs

T1							■	■	■	■	■	■	■	■	■	■	■	■
Pt1000			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DC 0...10 V			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Digital							■	■	■	■	■	■	■	■	■	■	■	■
LG-Ni 1000			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Number of universal inputs	-	-	2	2	2	2	4	4	4	5	5	6	8	8	8	8	4	4

Fixed inputs

DC 0...10 V	1	1																
Digital	2	1	1	1	1	1	1	1	1	2	2							
LG-Ni 1000	1	1																
Integrated LG-Ni 1000 sensor	1	1																

Controlled variable

Universal			■	■	■	■	■	■	■	■	■	■	■	■				
Temperature °C	■	■	■	■	■	■	■	■	■	■	■	■	■	■				

Control mode

PID							■	■	■	■	■	■	■	■				
P/PI	■	■	■	■	■	■	■	■	■	■	■	■	■	■				

Control loops

Cascade			■	■	■	■	■	■	■	■	■	■	■	■				
Number	1	1	1	1	1	1	1	1	2	2	2	1	2	3	3			

■ ¹⁾ Optional operation:
 RMZ790: Plug-in operator unit
 RMZ791: Detached operator unit
 RMZ792: Bus operator unit

²⁾ Maximum number of option modules
 RMZ78x per controller
³⁾ 2 Relays or one 3-position
⁴⁾ RLA162.1 variant

AO Analog output
 DO Digital output
 UI Universal inputs

Differential temperature controllers

RLE127..

Compact electronic controllers with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for mains connection and controller out-put need to be laid. Supplied with protection pocket for indirect temperature sensing.



Application:

Differential temperature controller, with 2-position control signal and auxiliary relay. The RLE127 is ideally suited for control of the following heating plants:

- Solar energy plants with storage tanks
- Swimming pool heating systems with solar panels
- Heat storage plants with several storage tanks
- Multiboiler plants

Features:

- Pre-configured application types selected by DIP switch
- Changeover to a secondary heat source upon demand
- Minimum charging temperature option
- Absolute temperature setpoint
- Maximum temperature limitation
- Remote setpoint adjustment
- Test mode as commissioning aid
- Frost protection

Data sheet	N3337
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	4 VA
Analog input, signal	LG-Ni1000 0...1000 Ohm
Relay outputs	Changeover contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	0...30 K
Immersion length	150 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 x 152 x 78 mm

Range overview RLE127..

Product Title	Data sheet	Stock No.	Product No.
Differential temperature controller, AC 230 V, 2-position output	N3337	BPZ:RLE127	RLE127
Differential temperature controller, AC 230 V, 2-position output, with additional temperature sensor	N3337	BPZ:RLE127.QAZ	RLE127.QAZ

Field devices for RLE127..

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	BSG-Z
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor, passive	N1781	BPZ:QAE21..	QAE21..
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2

RLE132



Immersion temperature controller, AC 230 V, 3-position output

Compact electronic controller with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for mains connection and controller output need to be laid. Supplied with protection pocket for indirect temperature sensing.

Application:

Modulating temperature controller, with 3-position control signal and auxiliary relay. The RLE132 is ideally suited for control of the following heating plants:

- Domestic hot water temperature
- Flow temperature control
- Calorifiers or heat exchangers

Features:

- Values for both normal and reduced temperature can be set
- Setpoint changeover via external contact or time switch
- Optional legionella function
- Auxiliary digital output for heat demand
- Connection for remote setting unit
- Minimum limitation of boiler return temperature
- Minimum or maximum limitation of the return temperature
- PI control (selectable)
- Service mode

Data sheet	N3334
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	4 VA
Analog input, signal	LG-Ni1000 0...1000 Ohm
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	2 A
Setpoint setting range	0...130 °C
Setpoint readjustment range	0...50 K
Immersion length	150 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 x 152 x 78 mm

Stock No.

Product No.

BPZ:RLE132

RLE132

Field devices for RLE132

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	BSG-Z
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22

Immersion temperature controller, AC 24 V, DC 0...10 V output

RLE162

Compact electronic controller with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for power supply connection and controller output need to be laid. Supplied with threaded nipple for direct temperature sensing.



Applications:

Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals and auxiliary relay.

The RLE162 is used for control and limiting of temperature in hot water, heating or cooling plants:

- Domestic hot water temperature
- Heating flow temperature
- Closed circuit heat exchangers
- Water-side control of HVAC units
- Chilled water temperature

Features:

- High or low temperature limitation
- Auxiliary digital output
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Optional legionella function

Data sheet	N3333
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	-10...130 °C
Setpoint readjustment range	0...60 K
Immersion length	130 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 x 152 x 78 mm

Stock No. Product No.

BPZ:RLE162 RLE162

Field devices for RLE162

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	BSG-Z
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	BPZ:ALT-SB150	ALT-SB150

Standard controllers

Autonomous heating controllers

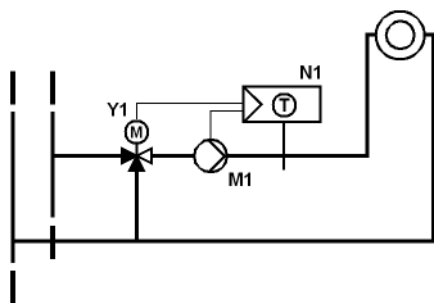
Application examples RLE..

Application examples Synco™ 100

These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLA.. / RLE.. / RLM..
More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLA.. / RLE.. / RLM.. data sheet.

RLE132

H0C003 LE1 HQ

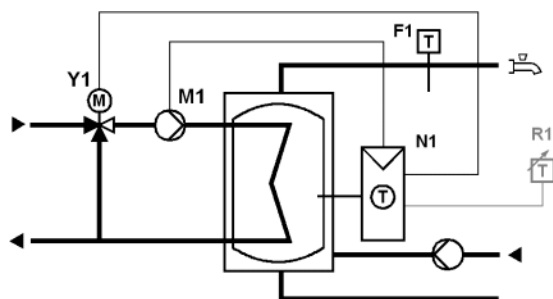


Heating Plant, Flow Temperature Control

- Controller (N1) with immersion built-in sensor to control the heating flow temperature via modulating control of the mixing valve (Y1)

RLE162

H00B01 LE1 HQ

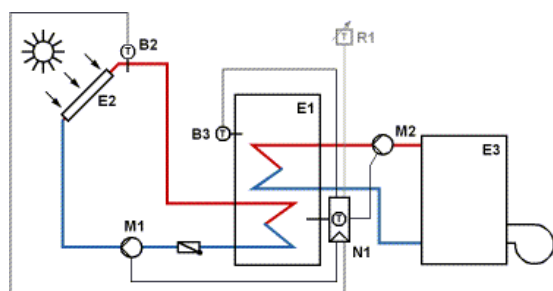


Domestic Hot Water Plant

- Controller (N1) with built-in immersion sensor to control the d.h.w. storage temperature via modulating control of the primary d.h.w. heating valve (Y1) and the circulating pump (M1).

RLE127

SA0002 LE1 HQ



Domestic Hot Water Plant

- Controller (N1) acquires the temperature in the hot water storage tank (E1) via its built-in immersion detector, and the temperature of the solar collector (E2) measured by the temperature detector B2.
- The measured temperature differential is compared with the desired Dt set-point set on the controller. If the measured differential exceeds the set value, the controller switches ON the circulating pump (M1) to load the storage tank.

Differential temperature controller, AC 230 V, with 2 relay outputs

RWD32S

Differential temperature controller, for use in solar heating applications, where water-side control takes place depending on a selected temperature differential.



Application

Differential temperature controller, with 2-position control signals. The RWD32S is ideally suited for control of the following heating plants:

- Solar energy plants with storage tanks
- Swimming pool heating systems with solar panels
- Heat storage plants with several storage tanks

Features

- Pre-configured applications
- Saving energy counter
- Changeover to a secondary heat source upon demand
- Minimum charging temperature option
- Absolute temperature setpoint
- Maximum temperature limitation
- Frost protection
- Relay output with delay time adjustable

Data sheet	N3344
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	6.5 VA
Digital input, contact query	DC 15 mA DC 15 V
Relay outputs	Changeover contacts, potential-free
Relay output, switching voltage	AC 24...230 V DC 5...30 V
Relay output, switching current	AC 0.02...4 (3) A DC 0.1...4 A
Degree of protection	IP20
Dimensions (W x H x D)	130 x 114 x 57 mm

Stock No. Product No.

BPZ:RWD32S RWD32S

Field devices for RWD32S

Product Title	Data sheet	Stock No.	Product No.
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor, passive	N1781	BPZ:QAE21..	QAE21..
Cable temperature sensor (6 x 40.5 mm) for HVAC applications	N1831	BPZ:QAP2..	QAP..

Standard controllers

Autonomous heating controllers

Application examples RWD..

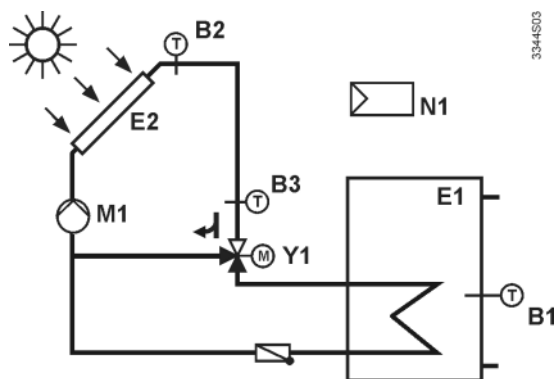
Application examples RWD..

These are only a few examples of many applications that can be done with the with controllers RWD..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RWD.. data sheet.

RWD32S

SA0003 WD3 HQ



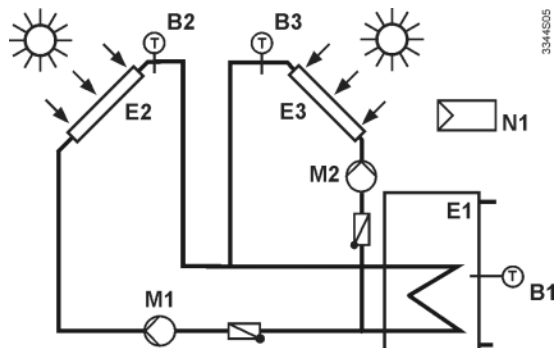
3344503

Solar System with Diverting Valve (Bypass)

- Differential temperature control of a storage tank with an additional sensor (B3) in the flow from the collector and a bypass valve (Y1).
- This application is used where the collector is a long way from the storage tank (e.g. on a high roof) and prevents cool water in the pipe work from being fed into the tank (typically on morning start up or after long periods without solar energy).

RWD32S

SA0005 WD3 HQ



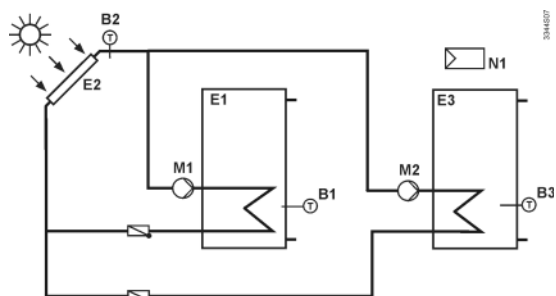
3344505

Hot water storage tank with solar heating, charging pump and non-return valve

- Basic differential temperature control of a hot water storage tank.
- This application allows differential temperature control of the storage tank by two different solar collectors (e.g. East and West facing) maximizing the solar energy throughout the day.

RWD32S

SA0007 WD3 HQ



3344507

Two independent hot water storage tanks and solar heating

- Basic differential temperature control of a hot water storage tank (each with charging pump and non-return valve).
- This application uses a single solar collector to charge two storage tanks. It is typically used where the sun's energy is very high or can be used for long periods.

RVP201..



Heating controller with analog operating elements

Heating controllers for use in residential or smaller commercial buildings that have their own heat generation. Easy-to-understand analog operating elements for the enduser.

Key functions

Weather-compensated flow or boiler temperature control, with or without room influence or room temperature control. Control of 3- or 2-position actuators or direct control of a burner.

Additional settings

- Control of the heating pump
- Quick setback and boost heating
- Heating curve
- Room temperature influence
- Frost protection for the plant and the room
- Automatic ECO function for switching the heating system on and off depending on demand
- Maximum limitation of the flow or boiler temperature
- Pump overrun and pump kick
- Remote switching of operating mode via room unit or external switch

Operating modes

The following operating modes can be selected with the slider: Automatic/Protection, Automatic/Reduced, Setback, Normal operation and Protection.

Data sheet	N2464
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 x 96 x 115 mm

Range overview RVP201..

Product Title	Data sheet	Stock No.	Product No.
Heating controller without time switch	N2464	BPZ:RVP201.0	RVP201.0
Heating controller with analog 24-hour time switch	N2464	BPZ:RVP201.1	RVP201.1

Standard controllers

Autonomous heating controllers

Heating controller RVP2..

RVP211..



Heating controller incl. DHW heating

Heating controller for use in residential or smaller commercial buildings that have their own heat generation and own DHW heating. Easy-to-understand analog operating elements for the enduser.

Key functions (same as RVP201)

Other settings (same as RVP201)

DHW heating functions

- Storage tank charging by control of a charging pump:
 - Absolute priority: Heating circuit pump remains locked during DHW charging
 - No priority (parallel): Heating circuit pump and DHW charging pump operate parallel
- Storage tank charging by control of a diverting valve
- Frost protection for DHW
- DHW temperature can be acquired via a temperature sensor or thermostat

Operating modes

The following operating modes can be selected with the slider: Automatic/Protection, Automatic/Reduced, Setback, Normal operation, Protection, or DHW heating only.

Data sheet	N2464
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 x 96 x 115 mm

Range overview RVP211..

Product Title	Stock No.	Product No.
Heating controller without time switch, with d.h.w. heating	BPZ:RVP211.0	RVP211.0
Heating controller with analog 24-hour time switch, with d.h.w. heating	BPZ:RVP211.1	RVP211.1

Accessories for RVP2..

Product Title	Data sheet	Stock No.	Product No.
Analog 24-hour time switch	N2464	BPZ:AUZ3.1	AUZ3.1
Analog 7-day time switch	N2464	BPZ:AUZ3.7	AUZ3.7
Digital time switch	N2464	BPZ:AUD3	AUD3

Field devices for RVP2..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Digital room unit	N1635	BPZ:QAW50	QAW50
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..

Standard controllers

Autonomous heating controllers

Application examples RVP2..

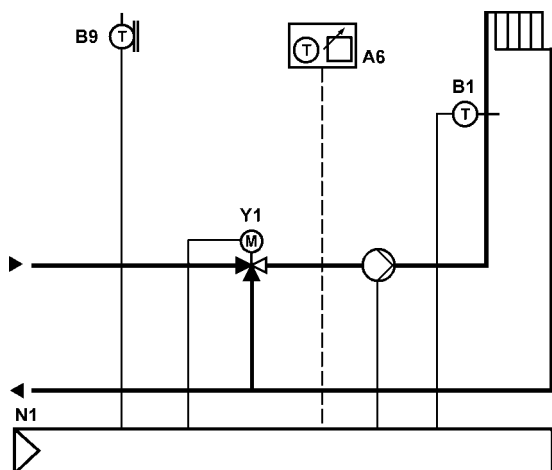
Application example RVP2..

These are only a few examples of many applications that can be done with the family of controllers: RVP2...

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVP2.. data sheet.

RVP201.1

HOC001 VP2 HQ b

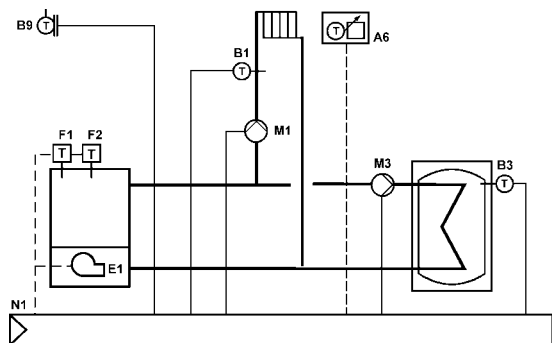


Weather-compensated heating system, one heating circuit

- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Time program with analog 24-hour time switch
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only)
- Maximum limitation of flow temperature

RVP211.1

HAAA01 VP2 HQ b



Weather-compensated heating system, heat generation, one heating circuit, d.h.w.

- Weather-compensated flow temperature control acting on boiler with single-stage burner
- Control of d.h.w. supply via pump-charged storage tank
- Frost protection for building and plant
- Time program with analog 24-hour time switch
- ECO function switches off heating depending on outside temperature

Heating controller for 1 heating circuit and d.h.w., without communication

RVP351

Weather-compensated flow temperature control of heating circuit with or without room influence, d.h.w. heating and demand based boiler temperature control (like RVP350).
RVP351 without LPB communication for standalone applications.



Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 7 x 1(1) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Stock No.	Product No.
S55370-C138	RVP351

Heating controller for 2 heating circuits and d.h.w., without communication

RVP361

Weather-compensated flow temperature control of 2 independent heating circuits with or without room influence, d.h.w. heating and demand based boiler temperature control (like RVP360).
RVP361 without LPB communication for standalone applications.



Data sheet	N2546
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	8 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 9 x 1(1) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Stock No.	Product No.
S55370-C140	RVP361

Standard controllers

Autonomous heating controllers

Heating controller RVP3..

Field devices for RVP3..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Digital room unit	N1635	BPZ:QAW50	QAW50
Digital room unit with address selector	N1635	BPZ:QAW50.03	QAW50.03
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW

Heating controller for 1 heating circuit

RVP340

Weather-compensated flow temperature control of heating circuit with or without room influence.

Key functions:

- 2 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Weather-compensated flow temperature control through control of valve (mixing) in a heating circuit
- Weather-compensated flow temperature control through control of the 2-port valve in the primary return of a heating circuit with district heat connection (substation)



Additional functions

The RVP340 provides the following functions (no submodules or extra devices required):

- Optimum start / stop
- Quick setback and boost heating
- Automatic ECO function, depending on the outside temperature and the type of building construction
- One 7-day program with 3 heating periods per day
- Yearly time program for holidays
- Digital setting of the heating curve
- Pump kick and pump overrun
- Minimum and maximum limitation of the flow temperature
- Multifunctional outputs
- Digital input for remote control of operating mode
- Communication with other controllers via LPB data bus (RVP3.., RVL4.. and RVD2..)

Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	4 x 2(2) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Stock No. Product No.

S55370-C136 RVP340

RVP350



Heating controller for 1 heating circuit and d.h.w.

Weather-compensated flow temperature control of heating circuit with or without room influence, d.h.w. heating and demand based boiler temperature control.

Key functions

In addition to the functions of the RVP340, the RVP350 provides the following:

- 3 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Weather-compensated flow temperature control through control of valve (mixing) in a heating circuit
- Demand based control of the boiler temperature through control of the burner
- D.h.w. heating with charging pump, electric immersion heater and solar collector

D.h.w. control

D.h.w. control independent of the heating circuit. Control can be enabled as follows:

- According to its own 7-day program
- According to the program of the heating circuit
- According to the programs of the zone controllers on the data bus
- Permanently (24 hours a day)

D.h.w. heating features a legionella function, which can be deactivated. Legionella protection is activated once a week. The d.h.w. temperature is acquired with sensors or thermostats.

Boiler temperature control

Boiler temperature control operates as demand-dependent 2-position control. The boiler temperature is controlled through cycling of a 1- or a 2-stage burner (direct burner control). When there is no heat request, the boiler will either be shut down or maintained at the minimum temperature (selectable). Both minimum and maximum limitation of the boiler temperature are adjustable.

Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 7 x 1(1) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Stock No.

Product No.

S55370-C137

RVP350

Heating controller for 2 heating circuits and d.h.w.

RVP360

Weather-compensated flow temperature control of 2 independent heating circuits with or without room influence, d.h.w. heating and demand-dependent boiler control.



Key functions

In addition to the functions of the RVP350, the RVP360 provides the following:

- 6 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Control of 2 mixing heating circuits
- Control of 1 pump heating circuit and 1 mixing heating circuit

Data sheet	N2546
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	8 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 9 x 1(1) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Stock No.

Product No.

S55370-C139

RVP360

Field devices for RVP3..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Digital room unit	N1635	BPZ:QAW50	QAW50
Digital room unit with address selector	N1635	BPZ:QAW50.03	QAW50.03
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW

Standard controllers

Communicating heating controllers

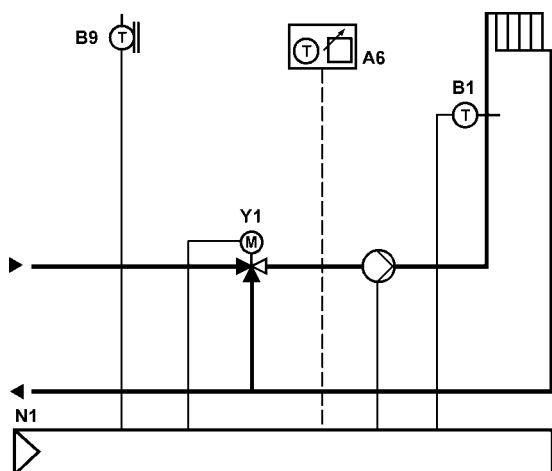
Application examples RVP3..

Application examples RVP3..

These are only a few examples of many applications that can be done with the family of controllers: RVP3...

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVP3.. data sheet.

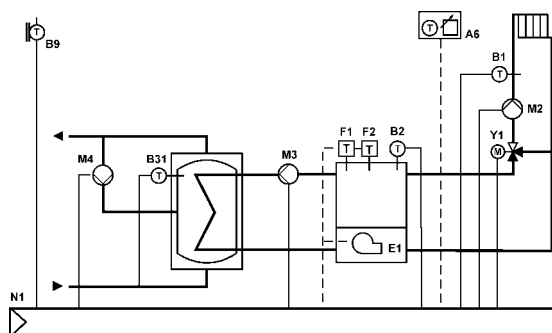
RVP340



Weather-compensated heating system, one heating circuit

- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- Time switch program with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

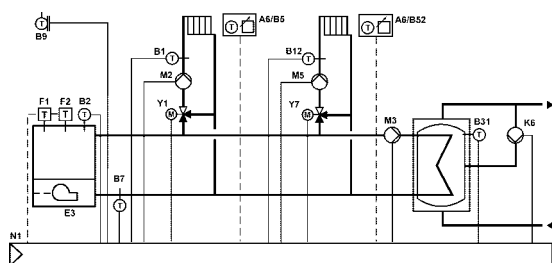
RVP35..



Weather-compensated heating system, heat generation, one heating circuit and d.h.w

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependent flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

RVP36..



Weather-compensated heating system, heat generation, two heating circuits and d.h.w.

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependent flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 2 time switch programs, each with 3 heating periods
- Separate time switch program for d.h.w.
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

Multifunctional Heating Controllers

RVL4..

Multifunctional heating controller for use in all types of residential and nonresidential buildings, configured for all standard heating applications. The RVL controllers provide weather-compensated flow temperature control and preprogrammed plant types with automatic assignment of the functions required for each type of plant.

The RVL controllers are characterized by the easy-to-understand user interface, large display and setting features:

- Analog heating curve
- Room temperature setpoint knob
- Proven operating line principle
- Setting level for the heating engineer
- Communication facilities
- Remote operation

Operating voltage	AC 230 V
Frequency	50 Hz
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 x 144 x 113 mm

Heating controller for 1 heating circuit or boiler temperature control

RVL480

Key functions

Weather-compensated flow temperature control, with or without room influence
 6 preprogrammed plant types are provided



Plant system

- Control of a mixing valve serving a heating zone (space heating)
- Control of a burner (1- or 2-stage)
- Control of a valve in the primary return of a heating zone with district heat connection
- Demand-dependent control (precontrol) of a mixing valve / of the boiler temperature / of a heat exchanger (heat demand signal via data bus)

Additional functions

The RVL480 offers the following functions (no submodules or extra devices required):

- Display of parameters, actual values, operating states and fault status signals
- 7-day program with 3 heating periods per day
- 2 additional programs, each with 3 switching periods per day
- Automatic summer/winter changeover
- Holiday program (up to 8 holiday periods per year)
- Optimum start/stop in accordance with the heating program (with or without room influence)
- Automatic ECO function, depending on the outside temperature and the type of building construction
- Optional remote selection of operating modes (via room unit or external switch)
- Scalable DC 0...10 V output for passing on the heat request to other devices
- Quick setback and boost heating
- Preselection of flow temperature setpoint via external contact
- Minimum and maximum limitation of the flow temperature
- Minimum and maximum limitation of the return temperature (shifting / constant)
- Maximum limitation of the room temperature
- Communication with other devices via the data bus
- Limitation of the return temperature differential (DRT) for district heat applications
- Frost protection and pump protection
- Flow temperature alarm

Data sheet N2540

Power consumption 7 VA

Stock No. Product No.

BPZ:RVL480 RVL480

RVL481



Heating controller for boiler temperature control and d.h.w. heating

Key functions

Weather-compensated flow temperature control, with or without room influence, with simultaneous demand-compensated boiler and DHW control.

29 preprogrammed plant types can be selected from a combination of 6 heating applications and 5 DHW applications.

Heating circuit plant types

- Control of a mixing valve serving a heating circuit (space heating)
- Control of a burner (1- or 2-stage)
- Control of a valve in the primary return of a heating zone with district heat connection
- Demand-dependent control (precontrol) of a mixing valve / of the boiler temperature / of a heat exchanger (heat demand signal via data bus)

DHW plant types

- Charging of DHW storage tank through control of a charging pump.
- Charging of DHW storage tank through control of a mixing valve
- Charging of DHW storage tank through control of a diverting valve
- DHW heating via heat exchanger through control of a 2-port valve in the primary return
- DHW heating with electric immersion heater only
- DHW heating with solar collector

Additional functions

In addition to the functions of the RVL480, the RVL481 offers the following functions (no submodules or extra devices required):

- 2 programs for heating and DHW, each with 3 heating periods per day
- 1 multifunctional relay for switching on/off the plant according to various parameters and functions

Data sheet N2541

Power consumption 9 VA

Stock No.

Product No.

BPZ:RVL481

RVL481

Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating

RVL482



Key functions

Weather-compensated flow temperature control, with or without room influence, with simultaneous demand-compensated boiler and DHW control.

21 preprogrammed plant types can be selected from a combination of 5 heating applications and 4 DHW applications.

Heating circuit plant types

- Control of space heating through control of a mixing valve in the heating circuit
- Control of space heating through control of a mixing valve with simultaneous demand-dependent control of the boiler temperature
- Control of space heating through control of mixing valve and boiler, plus minimum limitation of the boiler return temperature with own mixing valve
- Demand-dependent control (precontrol) of the boiler temperature (heat demand signal via bus)
- Demand-dependent control (precontrol) of the boiler temperature with minimum limitation of the boiler return temperature via mixing valve (heat demand signal via bus)

DHW plant types

- Charging of DHW storage tank through control of a charging pump.
- Charging of DHW storage tank through control of a mixing valve
- DHW heating via heat exchanger through control of a 2-port valve in the primary return
- DHW heating through electric immersion heater only
- DHW heating with solar collector

Additional functions

In addition to the functions of the RVL480 and RVL481, the RVL482 offers the following functions:

- 2 scalable DC 0...10 V inputs for heat demand signals from external consumers
- Connection facility for solar and wind sensor (refer to chapter "Sensors")
- Control of a boiler or circulating pump
- Optional selection of circulating pump/bypass pump
- Three 7-day programs, each with 3 heating periods per day

Data sheet N2542

Power consumption 9 VA

	Stock No.	Product No.
	BPZ:RVL482	RVL482

RVL479



Heating controller for a second heating circuit

Application

Heating controller for use in all types of buildings that require specific control of a second heating zone at an attractive price.

Key functions

The RVL479 operates with a partner unit, for independent weather-compensated control of a second heating zone.

1 preprogrammed heating application: Space heating via control 3-position of a mixing valve.

Additional functions

- Dedicated control of the second heating zone makes it possible to use an independent user interface for diagnostics
- Separate 7-day program with 3 heating periods per day
- Separate holiday program
- Dedicated display of parameters for the second zone (operating state and fault status signals)
- Independent optimum start/stop for the second heating zone
- Minimum and maximum limitation of the flow temperature
- Minimum limitation of the return temperature
- Maximum limitation of the room temperature
- Communication with other devices via LPB data bus
- Transmission and common usage of data (outside temperature, heat demand, alarms, etc.)
- Frost protection and pump protection

Data sheet N2543

Power consumption 7 VA

Stock No.

Product No.

BPZ:RVL479

RVL479

Suitable partner units for RVL479

Product Title	Data sheet	Stock No.	Product No.
Heating controller for 1 heating circuit or boiler temperature control	N2540	BPZ:RVL480	RVL480
Heating controller for boiler temperature control and d.h.w. heating	N2541	BPZ:RVL481	RVL481
Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating	N2542	BPZ:RVL482	RVL482

Field devices for RVL4..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Solar sensor	N1943	BPZ:QLS60	QLS60
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Digital room unit	N1635	BPZ:QAW50	QAW50
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..
Conduit box with surge protection for solar panel sensor	N2488	BPZ:AGS2S.200/1091	AGS2S.200/109

Standard controllers

Communicating heating controllers

Room units QAW..

QAW50



Digital room unit

With 3 analog operating elements:

- Operating mode selector
- Occupancy button
- Knob for setpoint readjustments

Data sheet N1635

Setpoint readjustment range ± 3 K
 Measuring range, temperature 0...32 °C
 Degree of protection IP30
 Communication PPS
 Connection cable 2-wire

Stock No. Product No.

BPZ:QAW50 QAW50

QAW50.03



Digital room unit with address selector

Same function as QAW50, but addressable

Data sheet N1635

Stock No. Product No.

BPZ:QAW50.03 QAW50.03

QAW70..



Multifunctional room operator unit

Programmable unit with display of date, time of day, room temperature, outside temperature, setting values and current 7-day program. With knob for manual setpoint readjustments and presence button for manually activating the savings program

Data sheet N1637

Range overview QAW70..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room unit, instructions in en, de, fr, it	N1637	BPZ:QAW70-A	QAW70-A
Multifunctional room unit, instructions in nl, sv, el, pl	N1637	BPZ:QAW70-B	QAW70-B

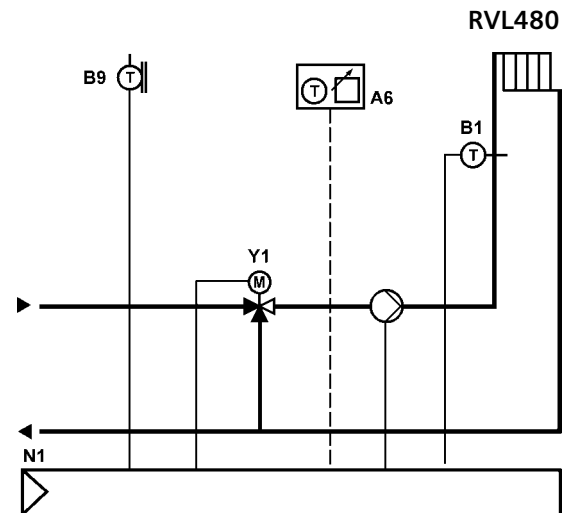
Application examples RVL4..

These are only a few examples of many applications that can be done with the family of controllers: RVL4..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVL4.. data sheet.

Weather-compensated heating system, one heating circuit

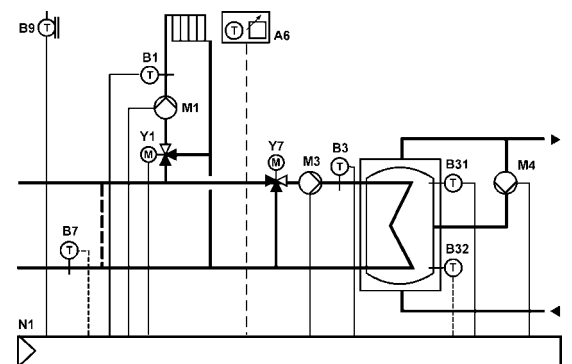
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- Time switch program with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve



RVL480

Weather-compensated heating system, one heating circuit and d.h.w

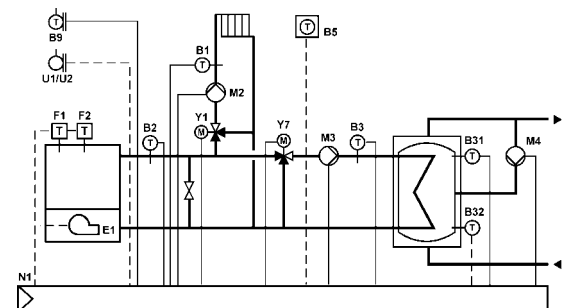
- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve and room temperature setpoint



RVL481

Weather-compensated heating system, heat generation, one heating circuit, d.h.w.

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependent flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve and room temperature setpoint



RVL482

Standard controllers

Communicating heating controllers

Heating controllers RMH..

RMH760B..



Heating controller

- Heating controller as primary controller or main controller (district heat) or heating circuit controller
- Boiler temperature control
- Control of max. 3 heating circuits and DHW heating (7 variants available) with optional extension modules
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 heating controller and offer extra functions. Controller and extension modules are interconnected via plug-in connectors. The extension modules are attached to the controller and do not operate autonomously. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:

2 heating circuit modules RMZ782B

1 DHW module RMZ783B

1 universal module RMZ787

2 universal modules RMZ789

A total of 4 extension modules can simultaneously be used with the Synco 700 heating controller.

Available operator units:

- Plug-in type operator unit RMZ790

- Detached operator unit RMZ791

- Bus operator unit RMZ792

Data sheet	N3133
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	6
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 NTC 575 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	5
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)

Range overview RMH760B..

Product Title	Data sheet	Stock No.	Product No.
Heating controller with languages de, fr, it, es	N3133	BPZ:RMH760B-1	RMH760B-1
Heating controller with languages de, en, fr, nl	N3133	BPZ:RMH760B-2	RMH760B-2
Heating controller with languages da, fi, sv, no	N3133	BPZ:RMH760B-3	RMH760B-3
Heating controller with languages pl, cs, sk, hu, ru, bg	N3133	BPZ:RMH760B-4	RMH760B-4
Heating controller with languages sr, hr, sl, ro, el, tr	N3133	BPZ:RMH760B-5	RMH760B-5

RMK770..



Boiler sequence controller

Modular heating controller with integrated control and supervisory functions for:

- Up to 6 boilers
- Multistage or modulating burners
- Precontrol
- Heating circuit
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 boiler sequence controller and offer extra functions. The extension modules are attached to the controller. They do not operate autonomously. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:

- 3 universal modules RMZ785
- 3 universal modules RMZ787
- 3 universal modules RMZ788
- 3 universal modules RMZ789

A total of 3 extension modules can simultaneously be used with the Synco 700 boiler sequence controller.

Available operator units:

- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791
- Bus operator unit RMZ792

Data sheet	N3132
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	8
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Digital inputs, number	2
Digital inputs	Potential-free input signal
Digital input, contact query	5 mA DC 15 V
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	7
Relay outputs	AC 19...265 V, max. 4(3) A Potential-free switching contact
Communication	KNX (KNX TP1)

Range overview RMK770..

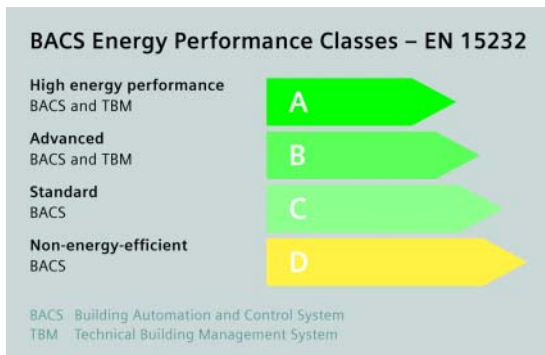
Product Title	Data sheet	Stock No.	Product No.
Boiler sequence controller with languages de, fr, it, es	N3132	BPZ:RMK770-1	RMK770-1
Boiler sequence controller with languages de, fr, en, nl	N3132	BPZ:RMK770-2	RMK770-2
Boiler sequence controller with languages da, fi, sv, no	N3132	BPZ:RMK770-3	RMK770-3
Boiler sequence controller with languages pl, cs, sk, hu, ru, bg	N3132	BPZ:RMK770-4	RMK770-4
Boiler sequence controller with languages sr, hr, sl, ro, el, tr	N3132	BPZ:RMK770-5	RMK770-5

Standard controllers

Communicating heating controllers

Application examples RMH.. and RMK..

Application examples RMH760B.. and RMK770..



These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMH760B.. / RMK770..

More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMH760B.. / RMK770.. data sheet.

The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".

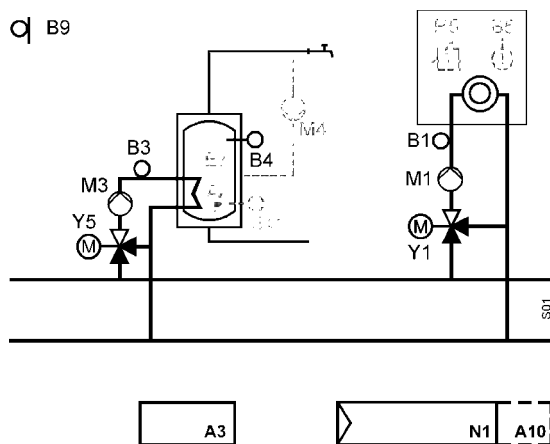
Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.

www.siemens.com/hit

RMH760B..

HOCB02 H6B HQ

Q B9



To fulfill the classification, the plant must be equipped with all indicated functions.

Weather-compensated heating control, one heating circuit, d.h.w

- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Economy and Protective Mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to 16 periods
- 7-day program (maximum six switching points per day)
- Time switch program for the heating circuit
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Control of the storage tank charging temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control "by occupancy, air quality, etc." (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- Variable temperature depending on the load (Heat demand signal required)

Weather-compensated heating control, heat generation, 2 heating circuits, d.h.w.

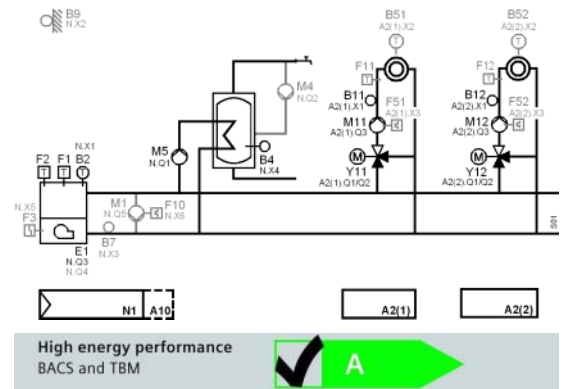
- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Economy and Protective Mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to 16 periods
- 7-day program (maximum six switching points per day)
- Time switch programs for heating circuits 1 and 2
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Control of the storage tank temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating
- Demand-compensated boiler temperature control
- Protective boiler startup by reducing the consumer setpoints
- Control of a single-stage or 2-stage burner
- Control of the boiler temperature via modulating burner with DC 0...10 V control
- Burner fault contact

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control "by occupancy, air quality, etc." (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- enerator; Variable temperature depending on the load

RMH760B..

HCDA01 H6B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

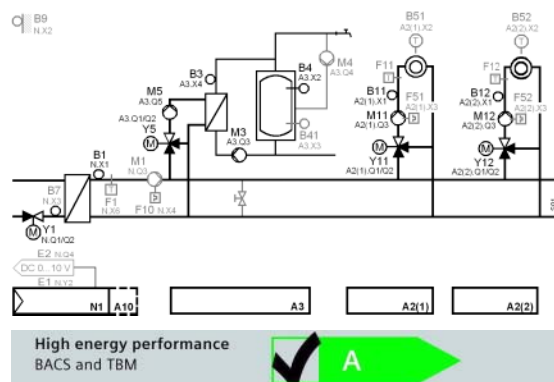
Standard controllers

Communicating heating controllers

Application examples RMH.. and RMK..

RMH760B..

DADC04 H6B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Weather-compensated heating system, district heating connection, 2 heating circuits, d.h.w

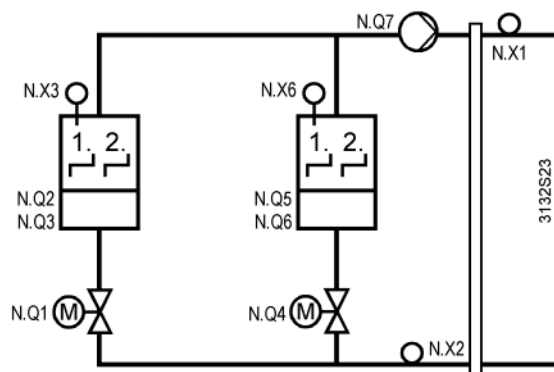
- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Economy and Protective mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to [SoftReturn]16 periods
- 7-day program (maximum six switching points [SoftReturn]per day)
- Time switch programs for the heating circuits
- Control of the storage tank charging temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Demand-compensated primary control

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control "by occupancy, air quality, etc." (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- Intermittent control of emission and/or distribution, automatic control with optimum start/stop
- Generator; Variable temperature depending on the load

RMK770..

K2.2



Boiler cascade, 2 boilers with 2-stage burners

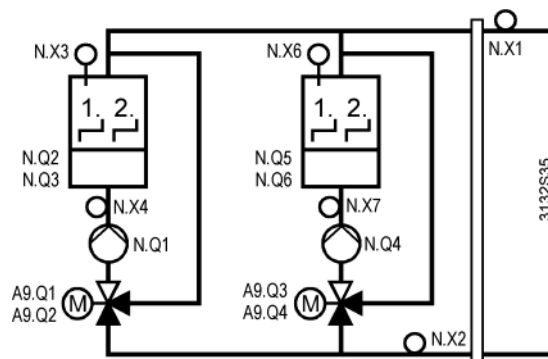
- Control of the boiler temperature via 2-stage burner
- Control of the shutoff valves
- Common flow and return temperature control
- Control of the main pump

Boiler cascade, 2 boilers with 2-stage burners

RMK770..

K6.2

- Control of the boiler temperature via 2-stage burner
- Controlled boiler return temperature with 3-port valve and 3-position or DC 0...10 V actuator
- Control of the boiler pumps
- Common flow and return temperature control
- Extension module RMZ789 needed

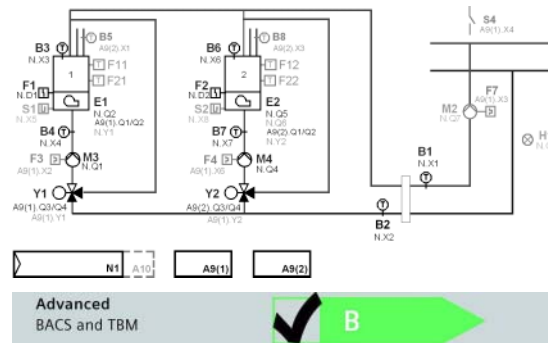


Dual-boiler plant, boiler pumps, boiler return with 3-port valve

RMK770..

HFF003 MK7 HQ

- Control of the boiler sequence
- Automatic changeover of lead boiler depending on the number of boiler operating hours
- Control of the boiler pumps
- Control of the boiler temperature via modulating burner with 3-position or DC 0...10 V control
- Burner fault contact
- Limitation of the burner's minimum on time
- Controlled maintained boiler return temperature with 3-port valve and 3-position or DC 0...10 V actuator
- Protective boiler startup
- Maximum and minimum limitation of the boiler temperature
- Selection of boiler operating mode
- Flue gas measuring mode, boiler testing mode
- Burner hours run and burner startup counter
- Minimum and maximum limitation of the flow temperature
- Automatic changeover to summer operation
- (heating OFF)
- Pump overrun, pump kick
- Valve overrun, valve kick
- Acquisition and evaluation of heat requisition signals via Konnex bus



To fulfill the classification, the plant must be equipped with all indicated functions.

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- In connection with an application that fulfils the energy efficiency class B, necessary for:
- Emission control
 - Control of distribution network hot water temperature (supply or return)
 - Control of distribution pumps
 - Intermittent control of emission and/or distribution

Standard controllers

Communicating heating controllers

Extension modules and operator units – Synco 700

RMZ790



Plug-in type operator unit

- Operator unit plugs into the Synco™ 700 controllers
- For displaying and changing plant data for service staff and enduser
- Clear-text operation
- Can be plugged in and removed during operation
- Power supply via the controller

Data sheet

N3111

Stock No.

Product No.

BPZ:RMZ790

RMZ790

RMZ791



Detached operator unit with 3 m cable

Like plug-in type operator unit, but:

- Other mounting choices (typically for control panel door or wall mounting)
- Larger display
- Connection via a prefabricated 3 m cable, supplied as standard

Data sheet

N3112

Stock No.

Product No.

BPZ:RMZ791

RMZ791

RMZ792



Bus operator unit

Communicating operator unit for operating up to 150 controllers, room units and central units from the Synco™ 700 range via KNX bus.

Favorite pages can be freely defined. Designed for fixed installation or mobile use.

Data sheet

N3113



Stock No.

Product No.

BPZ:RMZ792

RMZ792

QAW740



Room unit with KNX bus

Configurable unit with display of operating mode, timer, temperatures and fault.

With 3 operating elements:

- Knob for setpoint readjustments
- Operating mode button
- Timer button

Data sheet

N1633



Setpoint readjustment range

±3 K

Measuring range, temperature

0...50 °C

Degree of protection

IP20

Communication

KNX TP1 EE

Connection cable

2-wire

Stock No.

Product No.

BPZ:QAW740

QAW740

Universal modules

RMZ78..

Additional inputs and outputs required by the Synco™ 700 controllers can be provided by these modules. A description of the functions is given with the relevant controller module.



Data sheet	N3146
Power consumption	2 VA
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A

Range overview RMZ78..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Stock No.	Product No.
8	0	0	BPZ:RMZ785	RMZ785
4	0	4	BPZ:RMZ787	RMZ787
4	2	2	BPZ:RMZ788	RMZ788
6	2	4	BPZ:RMZ789	RMZ789

Heating circuit module

RMZ782B

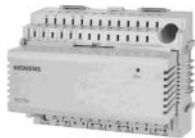
- Weather-compensated flow temperature control via heating circuit's mixing valve
- Control of heating circuit pump

The available heating circuit control and supervisory functions are the same as those of the RMH760B



Data sheet	N3136
Voltage supply	Supply from controller module
Power consumption	2 VA
Universal inputs, number	3
Universal input, signal	LG-Ni1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Pt1000 NTC 575 T1 (PTC)
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	3
Relay outputs	Switching contact, potential-free
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A

Stock No.	Product No.
BPZ:RMZ782B	RMZ782B

RMZ783B**DHW module**

- Control of the storage tank temperature
- Storage tank charging with integrated coil, with pump or mixing valve
- Storage tank charging with detached heat exchanger, with pump and mixing valve
- Storage tank charging according to a time program
- Control of the circulating pump according to a time program

The technical data correspond to the heating circuit module RMZ782B, except:

Data sheet N3136

Universal inputs, number 4

Analog outputs, number 1

Relay outputs, number 5

Stock No.

Product No.

BPZ:RMZ783B

RMZ783B

RMZ780**Module connector**

Module connector for detached mounting of extension modules within the control panel.

Distance for detached mounting: Maximum 10 m.

Data sheet N3138

Stock No.

Product No.

BPZ:RMZ780

RMZ780

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	QAD26.220
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Immersion temperature sensor Ø 6 mm with cable and fitting	N1790	BPZ:QAE26.9	QAE26.9
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22
Solar sensor	N1943	BPZ:QLS60	QLS60
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	FGT-PT1000

Monitors

Product Title	Data sheet	Stock No.	Product No.
Flow switch for use in hydraulic systems, PN10, DN32...200	N1592	BPZ:QVE1900	QVE1900
Thermal reset limit thermostat	N1202	BPZ:RAK-TW.1..H	RAK-TW.1..H
Temperature limiter	N1206	BPZ:RAK-TB.1..M	RAK-TB.1..M
Safety limit thermostat	N1204	BPZ:RAK-ST..M	RAK-ST..M

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	QAA27
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	AQR2531BNW
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	QAA64
Room unit with KNX bus	N1633	BPZ:QAW740	QAW740

Transformers

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	SEM62..

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	OCI700.1

RVD12..



District heating controller

Control of district heat substations, space heating and d.h.w. heating.
Optimized for low return temperatures in district heating networks.

- 3 ready programmed and preselected plant types
- Straightforward, easy-to-understand operation
- Analog adjustment of room temperature setpoint, other adjustments with operating lines
- Display of time of day, time program, setpoints, actual values, limitations, errors, etc.
- Optional remote operation via room unit
- 2 independent switching programs each with 3 occupancy times per day
- Holiday function (via room unit)
- DRT limitation for the reduction of peak loads
- Maximum limitation of the return temperature on the primary side
- Minimum and maximum limitation of the flow temperature
- Automatic summer / winter changeover
- Automatic ECO function
- Pump protection
- Legionella function
- Frost protection function
- Automatic monitoring of sensors with alarm indication
- Relay and sensor tests, manual operation
- Locking function for district heat parameters
- Communication via Modbus
- Display with background lighting

Plant-specific

- 1 pump heating circuit, control of the flow temperature, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating:
 - Storage system with integrated heat exchanger and 1 storage tank sensor
 - Charging pump

Data sheet	N2510
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	5.5 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital outputs	3 × AC 230 V 1(1) A 1 × AC 230 V 2(2) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD12..

Product Title	Data sheet	Stock No.	Product No.
Controller, 3 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	S55370-C109	RVD120-A
Controller, 3 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	S55370-C110	RVD120-C

District heating controller

RVD14..



Same functionality as the RVD120, but with the following extra features:

- 8 ready programmed and preselected plant types
- Solar d.h.w. heating
- D.h.w. heating with electric immersion heater
- Refill function

Plant-specific

- Precontrol of internal control loops
- 1 pump or mixing heating circuit, flow temperature control, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating:
 - Instantaneous system
 - Storage tank charging system with 1 or 2 storage tank sensors
 - Storage system with integrated heat exchanger
 - 2 charging pumps
 - Circulating pump
 - Solar d.h.w. heating

Data sheet	N2510
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	LG-Ni1000 NTC 575 DC 0...10 V
Digital inputs, number	1
Digital inputs	Flow switch
Digital outputs	5 × AC 230 V 1(1) A 4 × AC 230 V 2(2) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD14..

Product Title	Data sheet	Stock No.	Product No.
Controller, 8 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	S55370-C113	RVD140-A
Controller, 8 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	S55370-C114	RVD140-C

Standard controllers

Autonomous district heating controllers

District heating controllers RDV1..

Field devices for RVD..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Digital room unit	N1635	BPZ:QAW50	QAW50
Digital room unit with address selector	N1635	BPZ:QAW50.03	QAW50.03
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	QBE2002-P..

Application examples RVD1..

These are a few examples of applications that can be done with the controllers RVD1..

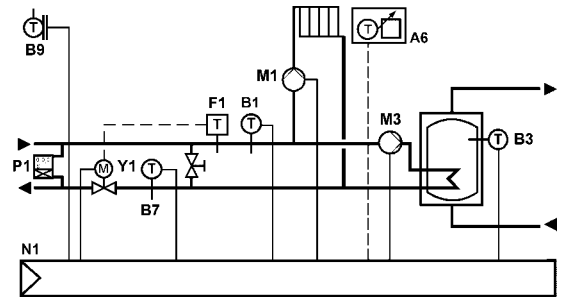
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVD1.. data sheet.

Direct system, weather-compensated heating and d.h.w.

- Weather-compensated flow temperature control with pump heating circuit
- Demand-dependent flow temperature control with 3-position actuator acting on two-port valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- Digital 7-day time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent quick setback (with room sensor or with building model)
- Optional remote operation via room unit

RVD12..

DAAA01 VD1 HQ

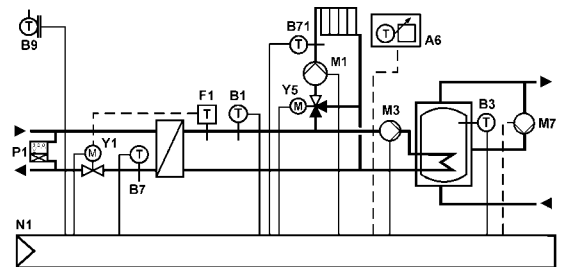


Indirect system, weather-compensated heating and d.h.w.

- Demand-dependent flow temperature control with 3-position actuator acting on primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- Digital 7-day time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor or with building model)
- Optional remote operation via room unit

RVD14..

DACA01 VD1 HQ



RVD25..



District heating controller

Multifunctional heating controller for use in district heating substations and district heating plants with LPB and M-bus communication. Suited for one heating circuit with d.h.w. heating in instantaneous systems or with storage tank. 28 programmed plant types. Operating voltage AC 230 V.

Key features:

- Optimized for low return temperatures in district heating networks.
- Display of time of day, time program, setpoints, actual values, limitations, errors, etc.
- Optional remote operation via room unit
- 2 independent switching programs each with 3 occupancy times per day
- Yearly clock with automatic summer- / wintertime changeover
- Power and / or volumetric flow limitation in combination with heat meter
- Pump and valve protection
- Automatic monitoring of sensors with display of alarm
- Locking function for district heat parameters
- Optional suppression of hydraulic creep
- Frost protection function
- DRT limitation for the reduction of peak loads and of idle heat
- Maximum limitation of the return temperature on the primary side
- Minimum and maximum limitation of the flow temperature
- Optimum start / stop control of the heating system
- Automatic ECO function
- Legionella function
- Forced charging function for plant with storage tank
- Cooling down protection for the primary supply lines
- Solar d.h.w. heating
- D.h.w. heating with electric immersion heater
- Refill function
- Selectable heating period

Plant-specific:

- Precontrol internal and interconnected
- 1 mixing or pump heating circuit
- D.h.w. heating with selectable priority:
 - Instantaneous systems
 - Storage charging system
 - Storage system with integrated heat exchanger
 - 2 charging pumps
 - Circulating pump

Data sheet	N2513
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	5.5 VA
Analog input, signal	DC 0...10 V LG-Ni1000 NTC 575
Digital inputs, number	1
Digital inputs	Pulse transmitter Status contact
Digital outputs	1 × PWM, DC 12 V 2 × AC 230 V 2(2) A 8 × AC 230 V 1(1) A
Communication	LPB (interconnected controller) M-bus (slave)
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD25..

Product Title	Data sheet	Stock No.	Product No.
Controller, 28 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2513	S55370-C125	RVD250-A
Controller, 28 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2513	S55370-C126	RVD250-C

District heating controller

Multifunctional heating controller for use in district heating substations and district heating plants with LPB and M-bus communication. Suited for 2 heating circuits with d.h.w. heating in instantaneous systems or with storage tank. 14 programmed plant types. Operating voltage AC 230 V.

RVD26..



Same functionality as RVD250, but with the following extra features:

- 2 heating circuits
- Without precontrol in interconnected systems
- 3 independent switching programs each with 3 occupancy times per day

Plant-specific:

- Precontrol internal control loops
- 2 heating circuits (mixing and / or pump heating circuit): Control of flow temperature, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating with selectable priority:
 - Instantaneous systems
 - Storage charging system
 - Storage system with integrated heat exchanger
 - Charging pump
 - Circulating pump

Data sheet	N2515
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	DC 0...10 V LG-Ni1 000 NTC 575
Digital inputs, number	1
Digital inputs	Pulse transmitter Status contact
Digital outputs	1 × PWM, DC 12 V 2 × AC 230 V 2(2) A 8 × AC 230 V 1(1) A
Communication	LPB (interconnected controller) M-bus (slave)
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD26..

Product Title	Data sheet	Stock No.	Product No.
Controller, 14 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2515	S55370-C129	RVD260-A
Controller, 14 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2515	S55370-C130	RVD260-C

Standard controllers

Communicating district heating controllers

District heating controllers RVD2..

Field devices for RVD..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	QAC32
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Digital room unit	N1635	BPZ:QAW50	QAW50
Digital room unit with address selector	N1635	BPZ:QAW50.03	QAW50.03
Multifunctional room operator unit	N1637	BPZ:QAW70..	QAW70..
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	QBE2002-P..

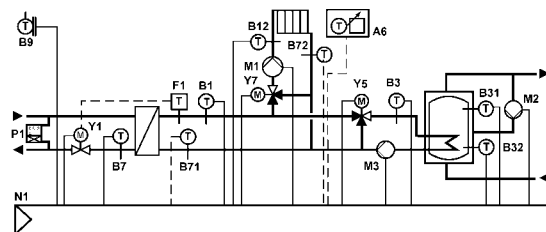
Application examples RVD2..

These are a few examples of applications that can be done with the controllers RVD2...
 More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVD2.. data sheet.

Indirect system, weather-compensated heating with mixing circuit and d.h.w

- Demand-dependent flow temperature control acting on 3-position actuator with primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank with mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)
- Control of d.h.w. circulation pump

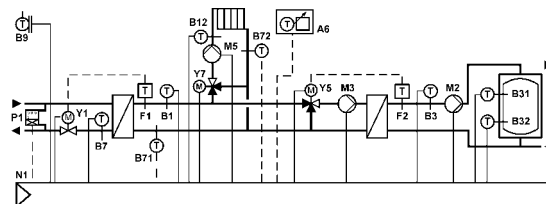
RVD25..



Indirect system, weather-compensated heating with mixing circuit and d.h.w

- Demand-dependent flow temperature control acting on 3-position actuator with primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank with exchanger and mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)

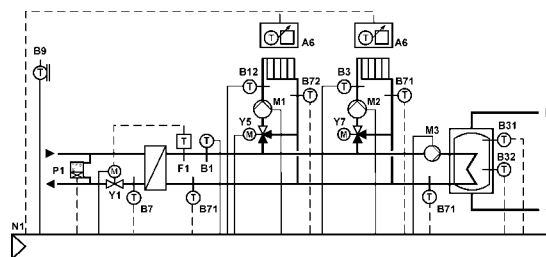
RVD25..



Indirect system, weather-compensated heating with 2 mixing circuits and d.h.w

- Demand-dependent flow temperature control with 3-position actuator acting on primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)

RVD26..



Standard controllers

Autonomous HVAC controllers

Duct temperature controllers RLM..

RLM162



Air duct temperature controller, AC 24 V, 2 outputs DC 0...10 V

Compact electronic controller with integral duct mounted temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for power supply connection and controller output need to be laid. Supplied complete with mounting flange.

Application:

Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLM162 is used for control and limiting of extract or supply air temperatures in small HVAC plants:

- Restaurants, conference rooms, store rooms
- Lecture theatres, classrooms
- In conjunction with central air handling units

The following units can be controlled:

- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters
- DX cooling units

Features:

- Auxiliary digital output
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Heating/cooling changeover via external contact

Data sheet	N3332
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	0...50 °C
Setpoint readjustment range	0...10 K
Probe length	400 mm
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	125 x 152 x 78 mm

Stock No.

Product No.

BPZ:RLM162

RLM162

Field devices for RLM162

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22

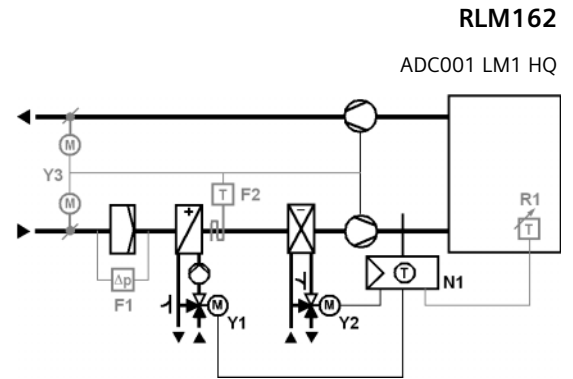
Application examples Synco™ 100

These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLA.. / RLE.. / RLM..

More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLA.. / RLE.. / RLM.. data sheet.

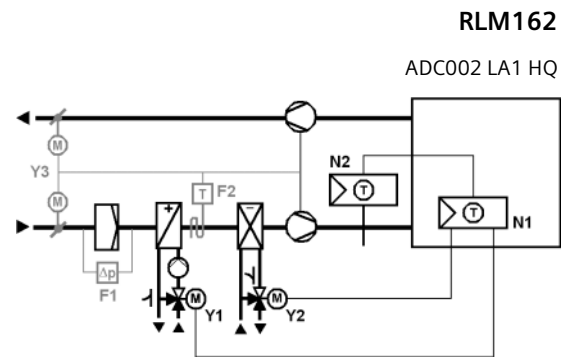
Supply air temperature control

- Controller (N1) with built-in sensor to control the room temperature via sequential control of the heating valve (Y1) or the cooling valve (Y2)
- Frost protection with frost thermostat F2 (independent of controller) to open the heating valve (Y1), close the outside air dampers (Y3) and deactivate the fans
- Air damper actuator with spring return (Y3) to control the fans with an auxiliary switch



Room temperature control with limitation of supply air temperature

- Room temperature control via control of the heating valve and the cooling valve
- Limitation of supply air temperature
- Outside temperature compensation



Standard controllers

Autonomous HVAC controllers

Room temperature controllers RLA..

RLA162



Room temperature controller, AC 24 V, 2 outputs DC 0...10 V

Electronic controller designed for room mounting applications. It is configurable for heating and/or cooling applications and can operate as a single controller or together with duct mounted units (RLM) for limiting.

Application:

Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLA162 is used for control and limiting of room temperatures in small HVAC plants.

The following units can be controlled:

- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters

Features:

- Low limitation input (supply air temperature)
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch

Data sheet	N3331
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Setpoint setting range	8...30 °C
Setpoint readjustment range	0...10 K
Degree of protection	IP30
Dimensions (W x H x D)	97 x 114 x 43 mm

Stock No.

Product No.

BPZ:RLA162

RLA162

Field devices for RLA162

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Air duct temperature controller, AC 24 V, 2 outputs DC 0...10 V	N3332	BPZ:RLM162	RLM162

Room temperature controller, AC 24 V, 2 outputs DC 0...10 V, operating mode selector

RLA162.1



Electronic controller designed for room mounting applications. It is configurable for heating and/or cooling applications with or without separate LG-Ni 1000 sensor.

Application:

Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLA162.1 is used for control and limiting of room temperatures in small HVAC plants.

The following units can be controlled:

- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters

Features:

- Compensation via active outside sensor
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Operating mode selector
- External temperature sensor input (LG-Ni 1000)

Data sheet	N3336
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	8...30 °C
Setpoint readjustment range	0...10 K
Degree of protection	IP30
Dimensions (W x H x D)	97 x 114 x 43 mm

Stock No.	Product No.
BPZ:RLA162.1	RLA162.1

Field devices for RLA162.1

Product Title	Data sheet	Stock No.	Product No.
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	QAC3161
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22

Standard controllers

Autonomous HVAC controllers

Universal controller RLU..

RLU..



Universal controllers

- Tested, predefined applications
- Flexible configuration
- Suited for the controlled variables temperature, relative / absolute humidity, pressure / differential pressure, air flow rate, indoor air quality, etc.
- Autonomous sequence controllers with P, PI or PID mode
- Integrated operation
- No commissioning tool required (optional)

Data sheet	N3101
Operating voltage	AC 24 V
Frequency	50/60 Hz
Digital inputs	Potential-free input signal
Digital input, contact query	5 mA DC 15 V
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20

Range overview RLU..

Digital inputs, number	Universal inputs, number	Analog outputs, number	Relay outputs, number	Control loops, number	Stock No.	Product No.
1	4	0	2	1	BPZ:RLU202	RLU202
1	4	2	0	1	BPZ:RLU220	RLU220
1	4	2	2	2	BPZ:RLU222	RLU222
2	5	3	2	2	BPZ:RLU232	RLU232
2	5	3	6	2	BPZ:RLU236	RLU236

Accessories for RLU..

Product Title	Data sheet	Stock No.	Product No.
Front panel mounting frame	N3101	BPZ:ARG62.201	ARG62.201

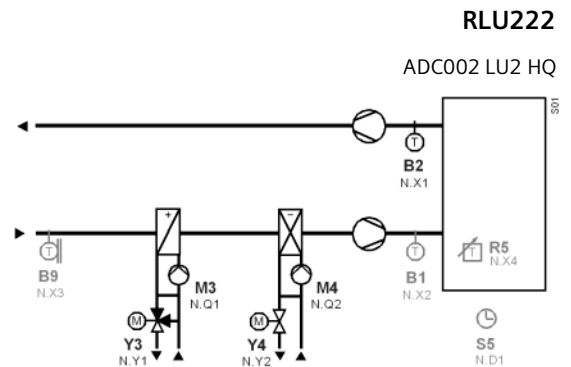
Application examples Synco™ 200

These are only a few examples of many applications that can be done with the with Synco™200 controllers: RLU..

More Synco™200 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLU.. data sheet..

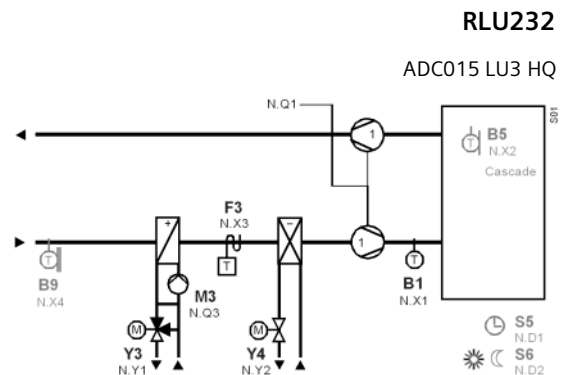
Extract air (room) temperature control

- Extract air (room) temperature control via the heating coil valve and cooling coil valve in sequence
- Control of the heating coil and cooling coil pumps
- Operating mode selection Comfort / Protection



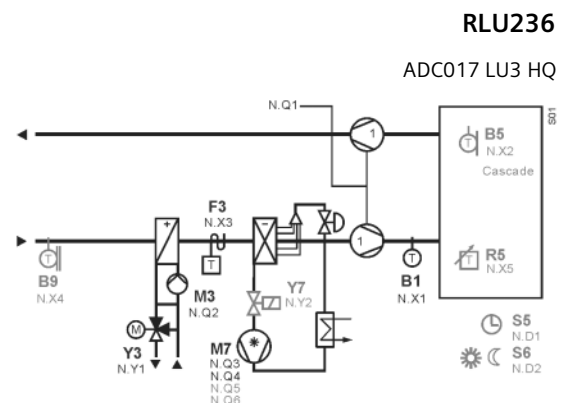
Supply air temperature control with frost protection and release of fan

- Supply air temperature control via the heating coil valve and cooling coil valve in sequence
- Control of the heating coil and cooling coil pumps
- Fan release via relay output
- Frost protection with frost protection monitor
- Operating mode selection Comfort / Protection
- Operating mode selection Comfort/Economy



Supply air (room) temperature control with frost protection and release of fan

- Supply air temperature control via the heating coil valve and the direct expansion evaporator in sequence
- Control of the heating coil pump
- Fan release via relay output
- Frost protection with frost protection monitor
- Operating mode selection Comfort / Protection
- Operating mode selection Comfort/Economy



Standard controllers

Autonomous HVAC controllers

Field devices for RLU..

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	QAC3161
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	QAD26.220
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.015	QAE2120.015
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	QAE2121.010
Immersion temperature sensor 100 mm DC 0...10 V	N1782	BPZ:QAE2164.010	QAE2164.010
Immersion temperature sensor 150 mm DC 0...10 V	N1782	BPZ:QAE2164.015	QAE2164.015
Immersion temperature sensor Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	QAE26.9..
Duct temperature sensor 400 mm, Pt1000	N1761	BPZ:QAM2112.040	QAM2112.040
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	QAM2120.040
Duct temperature sensor 2000 mm, LG-Ni1000	N1761	BPZ:QAM2120.200	QAM2120.200
Duct temperature sensor 6000 mm, LG-Ni1000	N1761	BPZ:QAM2120.600	QAM2120.600
Frost sensor, modulating, capillary tube 2000 mm	N1821	BPZ:QAF63.2	QAF63.2
Frost sensor, modulating, capillary tube 6000 mm	N1821	BPZ:QAF63.6	QAF63.6
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22
Window pane temperature sensor	N1830	BPZ:QAT22	QAT22
Solar sensor	N1943	BPZ:QLS60	QLS60
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	QBE61.3-DP..
Differential pressure sensors for liquids and gas (DC 0...10 V)	N1920	BPZ:QBE63-DP..	QBE63-DP..
Differential pressure sensor for liquids and gases (DC 0...10 V) 0...400 kPa	N1921	BPZ:QBE64-DP4	QBE64-DP4
Pressure sensor for refrigerants (0...10 V)	N1907	BPZ:QBE2001-P..U	QBE2001-P..U
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	QBE2002-P..
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	QBM3020..
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	QBM2030..

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Duct sensor for humidity (DC 0...10 V)	N1864	BPZ:QFM2100	QFM2100
Duct sensor for humidity (0...10 V) and temperature (Ni1000)	N1864	BPZ:QFM2120	QFM2120
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1864	BPZ:QFM2160	QFM2160
Duct sensor for humidity (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3100	QFM3100
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3160	QFM3160
Duct sensor for humidity (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	QFM4160
Duct air quality sensor CO ₂ / temperature / rel. Humidity / VOC	N1962	BPZ:QPM21..	QPM..
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Setpoint adjuster, passive, temperature ranges: -20...20 °C; 20...60 °C; -3...3 K	N1991	BPZ:BSG21.5	BSG21.5
Active setpoint adjuster 0...100 %, for flush panel mounting	N1992	BPZ:BSG61	BSG61
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	FGT-PT1000
Duct sensor for air velocity	N1932	BPZ:QVM62.1	QVM62.1

Monitors

Product Title	Data sheet	Stock No.	Product No.
Frost monitor, air side, 2-point	N1283	BPZ:QAF64..	QAF64..
Frost monitor, 2-point	N1284	BPZ:QAF81..	QAF81..
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	QFA1000
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	QFA1001
Duct hygrostat, setpoint setting range 15...95 % r.h.	N1514	BPZ:QFM81.2	QFM81.2
Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device	N1514	BPZ:QFM81.21	QFM81.21
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	QXA2601
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	QXA2602
Differential pressure monitor	N1552	BPZ:QBM81..	QBM81..
Changeover thermostat, changeover, 30 °C / 19 °C, IP54	N1295	BPZ:RYT182	RYT182

NEW PRODUCT

Standard controllers

Autonomous HVAC controllers

Field devices for RLU..

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	AQR2531BNW
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	QAA25
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	QAA27
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	QAA64
Room sensor for humidity (DC 0...10 V)	N1857	BPZ:QFA2000	QFA2000
Room sensor for humidity (DC 0...10 V) and temperature (LG-Ni1000)	N1857	BPZ:QFA2020	QFA2020
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	QFA2060
Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	QFA3100
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	QFA3160
Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	BPZ:QFA4160	QFA4160
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	QPA84
Room air quality sensor CO ₂ / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	QPA..

Step switches, signal converters, transformers and display

Product Title	Data sheet	Stock No.	Product No.
Digital time switch, 1-channel, with 7-day program	N5243	BPZ:SEH62.1	SEH62.1
Variable Speed Drive for pumps and fans	N5111	BPZ:G120P..	G120P..
Transformers	N5536	BPZ:SEM62..	SEM62..
Current valve	N4937	BPZ:SEA45.1	SEA45.1
Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V	N5102	BPZ:SEM61.4	SEM61.4
Signal converter with preprogrammed applications	N5146	BPZ:SEZ220	SEZ220
Universal digital indicator	N5312	BPZ:BAU200	BAU200

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	OCI700.1

Universal controller for HVAC systems

RWD Universal..

Universal controller with P or PI action for heating, ventilation and air conditioning.



Auxiliary functions

- PI limiter function (absolute and relative limit)
- Remote setpoint
- Setpoint compensation
- Winter/summer mode changeover (analogue or digital input)
- Cascade control
- Maximum priority for cooling / dehumidifying

Frequency	50/60 Hz
Digital inputs	Potential-free input signal
Digital input, contact query	DC 15 mA DC 15 V
Digital inputs, number	1
Universal inputs, number	2
Universal input, signal	LG-Ni1000 DC 0...10 V Pt1000
Degree of protection	IP20

Range overview RWD..

Operating voltage [V]	Analog outputs, number	Relay outputs, number	Control loops, number	Data sheet	Stock No.	Product No.
AC 230		2	1	N3341	BPZ:RWD32	RWD32
AC 24		2	1	N3341	BPZ:RWD82	RWD82
AC 24	2		1	N3342	BPZ:RWD62	RWD62
AC 24	1	1	1	N3343	BPZ:RWD68	RWD68

Accessories for RWD..

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	SEM62..
Touch Panel	N3974	S55620-H100	QAX160
Modbus interface for RWD	N3099	S55370-C120	SEZ50MB
Remote I/O expansion module	140-1138	S55664-J111	PPM-1U32.MPR

Field devices for RWD..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	QAM2120.040
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1

Standard controllers

Autonomous HVAC controllers

Universal controllers RWD..

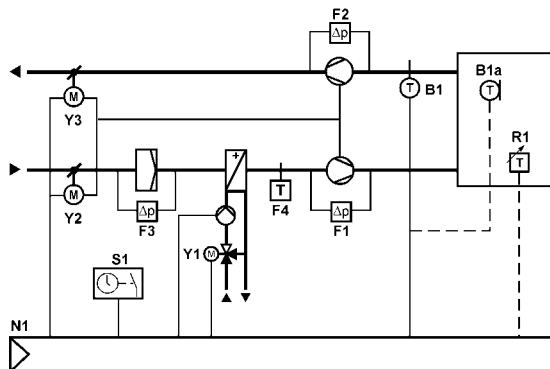
Application examples RWD..

These are only a few examples of many applications that can be done with the with controllers RWD..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RWD.. data sheet.

RWD62

ADA002 WC6 HQ a

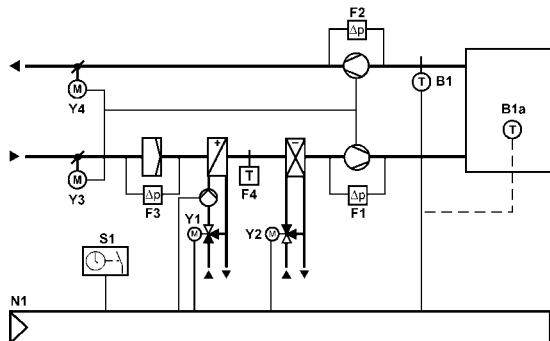


Return air temperature control

- Room temperature control by modulating the heater battery valve
- Frost protection with frost protection thermostat (independent of controller) when tripped, heater battery valve fully opens, dampers close, fan switches off

RWD62

ADC003 WC6 HQ a



Return air temperature control

- Return air temperature control by modulating the heater battery valve and the cooler battery valve in sequence
- Frost protection with frost protection thermostat (independent of controller): when tripped, heater battery valve fully opens, supply and extract fans switch off, outside air and extract air dampers close
- Use of an external time switch to provide day/night settings
- Summer compensation

Temperature controllers for heat pump, heating and cooling applications

RWD Heat Pump..

- Multistage heating and cooling temperature controllers
- Programmable controllers with standard pre-configured applications
- Programmable via push buttons or a software tool
- Suitable for 1, 2 or 3 compressor units
- Heat/cool or reversing valve output configuration
- Adjustable compressor time delays
- Selectable alarm inputs
- Economizer "Open Air" control for improved comfort and energy savings
- LED indicators for heat/cool



Auxiliary functions

The second analog input is used for the following functions:

- Standby (on/off)
- Remote setpoint adjustment
- Alarm
- Filter alarm
- Setpoint compensation
- Sensor averaging
- Winter/summer setpoint changeover (analog or digital input)
- Sensor select
- Active sensor

Digital functions

- Day/night changeover
- Standby
- Alarm
- Filter alarm

Frequency	50/60 Hz
Relay outputs, number	4
Relay outputs	potential-free switching contact AC 24...230 V 4(3) A
Mounting location	Panel mounting
Degree of protection	IP20
Dimensions (W x H x D)	130 x 106 x 56.5 mm

Range overview Heat Pump controller RWD..

Operating voltage	Universal inputs, number	Digital inputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
AC 230	2	1	4	N3346	BPZ:RWD34	RWD34
AC 24	2	1	4	N3346	BPZ:RWD44	RWD44

Accessories for RWD..

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	SEM62..
Touch Panel	N3974	S55620-H100	QAX160
Modbus interface for RWD	N3099	S55370-C120	SEZ50MB
Remote I/O expansion module	140-1138	S55664-J111	PPM-1U32.MPR

Standard controllers

Communicating HVAC controllers

Universal controllers RMU..

RMUB..



Universal controller

- Universal controllers with integrated control and supervisory functions
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Suited for the controlled variables temperature, relative / absolute humidity, pressure / differential, air flow rate, indoor air quality, etc.
- Autonomous sequence controllers with P, PI or PID mode
- Functions can be extended (extension modules)
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 universal controllers and offer extra functions. The extension modules are attached to the controller. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:

- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

Total maximal 4 extension modules per RMU7..B can be connected.

Available operator units:

- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791
- Bus operating unit RMZ792

Data sheet	N3150
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)
Dimensions (W x H x D)	173 x 90 x 80 mm

Range overview RMU7..B..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Control loops, number	Loaded languages	Stock No.	Product No.
6	2	2	1	de, fr, it, es	BPZ:RMU710B-1	RMU710B-1
6	2	2	1	de, en, fr, nl	BPZ:RMU710B-2	RMU710B-2
6	2	2	1	da, fi, sv, no	BPZ:RMU710B-3	RMU710B-3
6	2	2	1	cs, hu, pl, sk, ru, bg	BPZ:RMU710B-4	RMU710B-4
6	2	2	1	sr, hr, sl, ro, el, tr	BPZ:RMU710B-5	RMU710B-5
6	2	2	1	zh	S55370-C159	RMU710B-6
8	3	4	2	de, fr, it, es	BPZ:RMU720B-1	RMU720B-1
8	3	4	2	de, en, fr, nl	BPZ:RMU720B-2	RMU720B-2
8	3	4	2	da, fi, sv, no	BPZ:RMU720B-3	RMU720B-3
8	3	4	2	cs, hu, pl, sk, ru, bg	BPZ:RMU720B-4	RMU720B-4
8	3	4	2	sr, hr, sl, ro, el, tr	BPZ:RMU720B-5	RMU720B-5
8	3	4	2	zh	S55370-C160	RMU720B-6
8	4	6	3	de, fr, it, es	BPZ:RMU730B-1	RMU730B-1
8	4	6	3	de, en, fr, nl	BPZ:RMU730B-2	RMU730B-2
8	4	6	3	da, fi, sv, no	BPZ:RMU730B-3	RMU730B-3
8	4	6	3	cs, hu, pl, sk, ru, bg	BPZ:RMU730B-4	RMU730B-4
8	4	6	3	sr, hr, sl, ro, el, tr	BPZ:RMU730B-5	RMU730B-5
8	4	6	3	zh	S55370-C161	RMU730B-6

Standard controllers

Communicating HVAC controllers

Application examples RMU..

BACS Energy Performance Classes – EN 15232

High energy performance BACS and TBM	A
Advanced BACS and TBM	B
Standard BACS	C
Non-energy-efficient BACS	D

BACS Building Automation and Control System
TBM Technical Building Management System

Application examples RMU710B..

These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMU710B..

More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU710B.. data sheet.

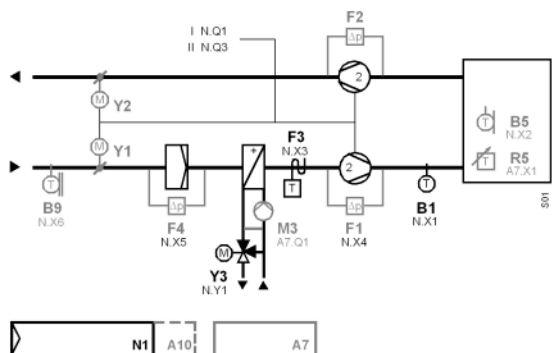
The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".

Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.

www.siemens.com/hit

RMU710B..

ADA001 U1B HQ

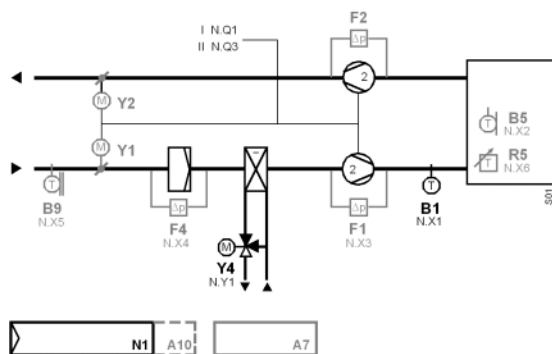


Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

RMU710B..

ADB001 U1B HQ



Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the cooling coil valve
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level on demand (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply temperature control, variable set point with load dependant compensation
- Humidity control (Not applicable, as no humidity control)

To fulfill the classification, the plant must be equipped with all indicated functions.

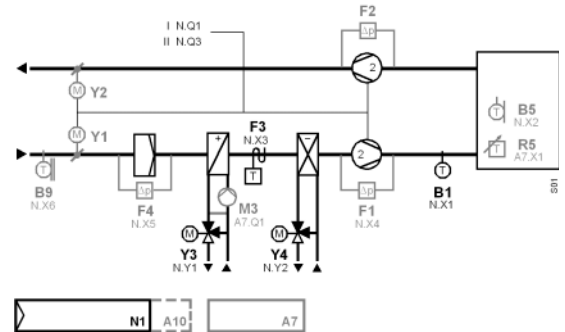
Advanced BACS and TBM **B**

Room-supply air temperature cascade control

RMU710B..

ADC001 U1B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and the cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

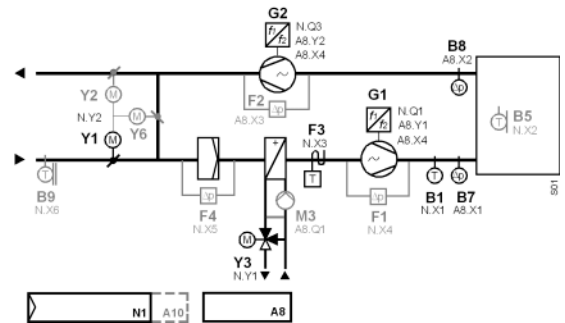


Room-supply air temperature cascade control

RMU710B..

AEA001 U1B DE

- 7-day time switch with holiday / special day program
- Control of a variable-speed fan
- Control of the supply air temperature via the mixed air dampers and the heating coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor



The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling (Not applicable due to lack of cooling sequence)
- Humidity control (Not applicable, as no humidity control)
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A



To fulfill the classification, the plant must be equipped with all indicated functions.

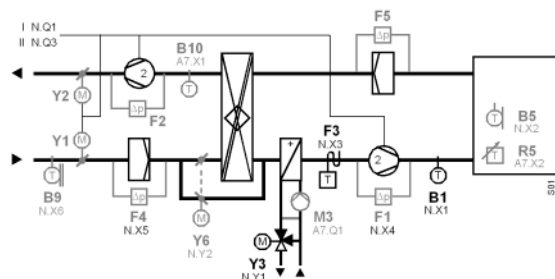
Standard controllers

Communicating HVAC controllers

Application examples RMU..

RMU710B..

ADAE01 U1B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system and the heating coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- Heat exchanger overheating control
- Supply Temperature control (Variable set point with load dependant compensation)

Application examples RMU720B..

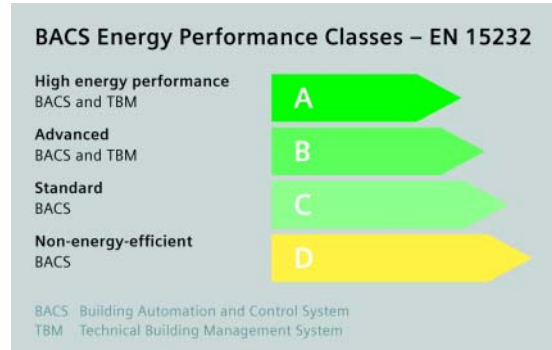
These are only a few examples of many applications that can be done with the Synco™700 controllers: RMU720B..

More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU720B.. data sheet.

The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".

Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.

www.siemens.com/hit



Room-supply air temperature cascade control

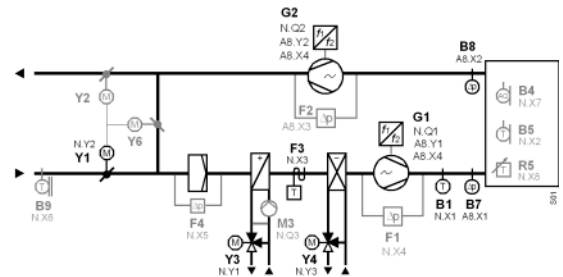
RMU720B..

AEC001 U2B DE

- 7-day time switch with holiday / special day program
- Control of a variable-speed fan
- Control of the supply air temperature via the mixed air dampers, the heating coil valve and cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply temperature control, variable set point with load dependant compensation



N1 A10 A8

High energy performance
BACS and TBM

A

To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade control

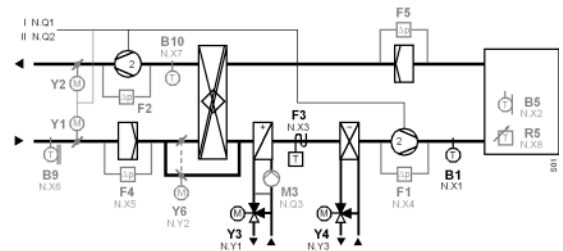
RMU720B..

ADCE01 U2B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and the cooling coil valve in sequence
- Frost protection with the frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filter with a differential pressure sensor

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation



N1 A10 A7

Advanced
BACS and TBM

B

To fulfill the classification, the plant must be equipped with all indicated functions.

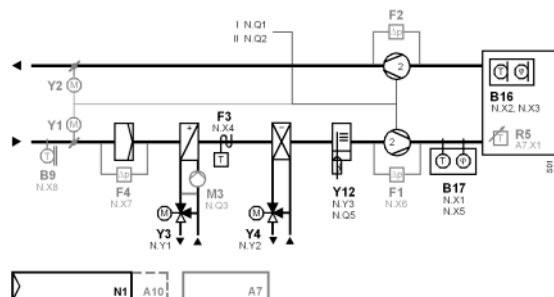
Standard controllers

Communicating HVAC controllers

Application examples RMU..

RMU720B..

ADFB01 U2B HQ

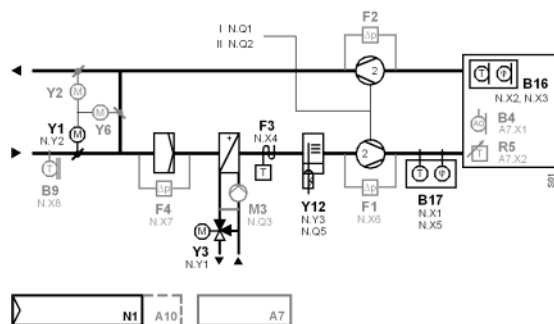


Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with differential pressure sensors
- Limitation of supply air humidity

RMU720B..

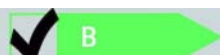
AEDB01 U2B HQ



Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the mixed air dampers and the heating coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

Advanced
BACS and TBM



To fulfill the classification, the plant must be equipped with all indicated functions.

The indicated energy efficiency classification can be attained only if the following functions are implemented:

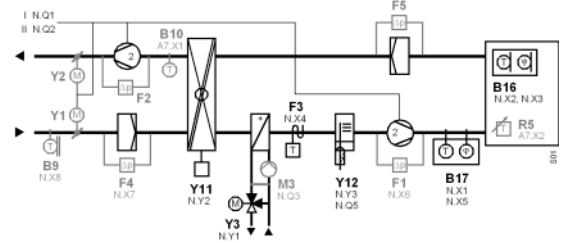
- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

Room-supply air temperature cascade and humidity control

RMU720B..

ADDP01 U2B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system and the heating coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors
- Limitation of supply air humidity



Advanced BACS and TBM

B

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

To fulfill the classification, the plant must be equipped with all indicated functions.

Application examples RMU730B..

These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMU730B.. More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU730B.. data sheet.

The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool". Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online. www.siemens.com/hit

BACS Energy Performance Classes – EN 15232

High energy performance BACS and TBM	A
Advanced BACS and TBM	B
Standard BACS	C
Non-energy-efficient BACS	D

BACS Building Automation and Control System
TBM Technical Building Management System

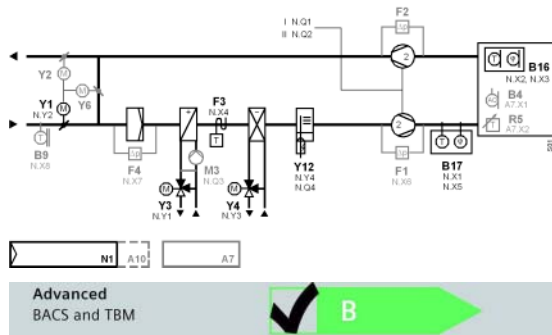
Standard controllers

Communicating HVAC controllers

Application examples RMU..

RMU730B..

AEFB01 U3B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade and humidity control

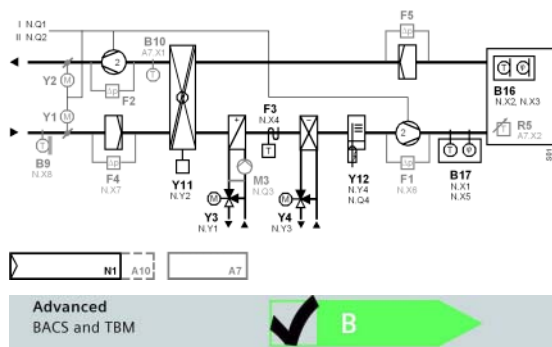
- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the mixed air dampers, the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

RMU730B..

ADFP01 U3B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system, the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors
- Limitation of the supply air humidity

The indicated energy efficiency classification can be attained only if the following functions are implemented:

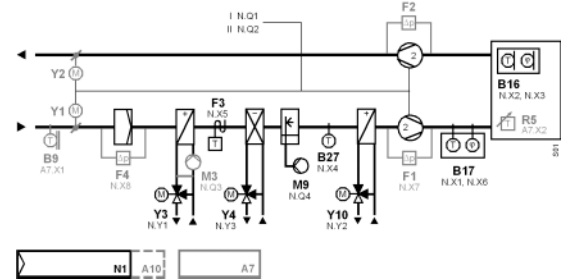
- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the reheater valve and the cooling coil valve in sequence
- Control of the dewpoint temperature via the preheater valve and the cooling coil valve in sequence
- Control of room humidification via the air humidifier (on command)
- Control of room dehumidification by changing the outputs of dewpoint temperature control
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity by shutting down the preheater and by switching off the air humidifier in sequence

RMU730B..

ADZA01 U3B HQ

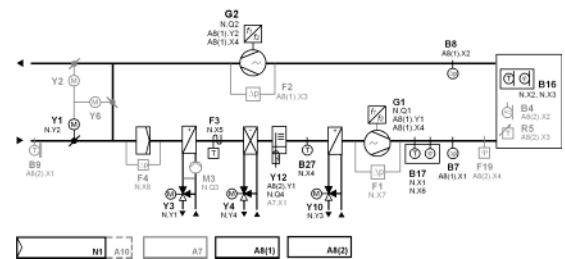


Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of variable speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the mixed air dampers, the reheater valve and cooling coil valve in sequence
- Control of the dewpoint temperature via the mixed air dampers, the preheater valve and cooling coil valve in sequence
- Control of room humidification via the air humidifier (on command)
- Control of room dehumidification by changing the outputs of dewpoint temperature control
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

RMU730B..

AEZH01 U3B DE



To fulfill the classification, the plant must be equipped with all indicated functions.

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A

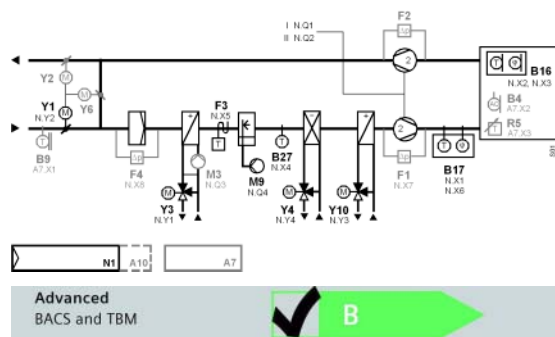
Standard controllers

Communicating HVAC controllers

Application examples RMU..

RMU730B..

AEZH02 U3B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the mixed air dampers, the reheater valve and the cooling coil valve in sequence
- Control of the dewpoint temperature via the mixed air dampers and the pre-heater valve in sequence
- Control of room humidification via the air humidifier (on command) and the cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity by switching off the air humidifier in sequence

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- With supply air humidity control

Switching and monitoring device

RMS705B..



In connection with the function blocks, the RMS705B complements the range of Synco700 products as a freely configurable unit for

- control and supervisory functions in heating, ventilation and refrigeration plant
 - non-standard applications
- and, for this reason, offers no predefined standard applications.

The RMS705B is especially suited for the following functions:

- Connection of additional universal alarm inputs
- Adding free inputs for display and supervision
- Event logging (e.g. legionella function)
- Additional time programs (ON / OFF) for basic functions
- Maximum and minimum selection
- Calculation of average
- Calculation of enthalpy, enthalpy differential, absolute humidity, dewpoint and wet bulb temperature
- Logic function blocks for switching on / off depending on different conditions
- Lead / lag control of pumps, fans, motors, chillers, etc., with automatic changeover
- Step switch with linear, binary or flexible functionality
- Autonomous sequence controllers with P, PI or PID mode

Available extension modules:

- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

Total maximal 4 extension modules per RMS705B can be connected.

Suitable types of operator units:

- Plug-in operator unit type RMZ790
- Detached operator unit type RMZ791
- Bus operating unit type RMZ792

Data sheet	N3124
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	8
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 0...1000 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog outputs, number	4
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	6
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)
Degree of protection	IP20
Dimensions (W x H x D)	173 x 90 x 80 mm

Standard controllers

Communicating HVAC controllers

Switching and monitoring device RMS..

Range overview RMS705B..

Product Title	Data sheet	Stock No.	Product No.
Switching and monitoring device with languages de, fr, it, es, pt	N3124	S55370-C100	RMS705B-1
Switching and monitoring device with languages de, fr, nl, en	N3124	S55370-C101	RMS705B-2
Switching and monitoring device with languages da, fi, no, sv	N3124	S55370-C102	RMS705B-3
Switching and monitoring device with languages pl, cs, hu, ru, sk, bg	N3124	S55370-C103	RMS705B-4
Switching and monitoring device with languages el, ro, sl, sr, hr, tr	N3124	S55370-C104	RMS705B-5
Switching and monitoring device with language zh	N3124	S55370-C105	RMS705B-6

Plug-in type operator unit

RMZ790

- Operator unit plugs into the Synco™ 700 controllers
- For displaying and changing plant data for service staff and enduser
- Clear-text operation
- Can be plugged in and removed during operation
- Power supply via the controller



Data sheet N3111

	Stock No.	Product No.
	BPZ:RMZ790	RMZ790

Detached operator unit with 3 m cable

RMZ791

- Like plug-in type operator unit, but:
- Other mounting choices (typically for control panel door or wall mounting)
 - Larger display
 - Connection via a prefabricated 3 m cable, supplied as standard



Data sheet N3112

	Stock No.	Product No.
	BPZ:RMZ791	RMZ791

Bus operator unit

RMZ792

Communicating operator unit for operating up to 150 controllers, room units and central units from the Synco™ 700 range via KNX bus. Favorite pages can be freely defined. Designed for fixed installation or mobile use.



Data sheet N3113



	Stock No.	Product No.
	BPZ:RMZ792	RMZ792

Room unit with KNX bus

QAW740

Configurable unit with display of operating mode, timer, temperatures and fault.

- With 3 operating elements:
- Knob for setpoint readjustments
 - Operating mode button
 - Timer button



Data sheet N1633

Setpoint readjustment range ±3 K
 Measuring range, temperature 0...50 °C
 Degree of protection IP20
 Communication KNX TP1 EE
 Connection cable 2-wire



	Stock No.	Product No.
	BPZ:QAW740	QAW740

Standard controllers

Communicating HVAC controllers

Extension modules and operator units for RMU.. and RMS..

RMZ78..



Universal modules

Additional inputs and outputs required by the Synco™ 700 controllers can be provided by these modules. A description of the functions is given with the relevant controller module.

Data sheet	N3146
Voltage supply	Supply from controller module
Power consumption	2 VA
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A

Range overview RMZ78..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Stock No.	Product No.
8	0	0	BPZ:RMZ785	RMZ785
4	0	4	BPZ:RMZ787	RMZ787
4	2	2	BPZ:RMZ788	RMZ788

RMZ780



Module connector

Module connector for detached mounting of extension modules within the control panel.
Distance for detached mounting: Maximum 10 m.

Data sheet	N3138
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Stock No.	Product No.
BPZ:RMZ780	RMZ780

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	QAC22
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	QAC3161
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	QAD22
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	QAD26.220
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	QAE2120.010
Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.015	QAE2120.015
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	QAE2121.010
Immersion temperature sensor 150 mm LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.015	QAE2121.015
Immersion temperature sensor 100 mm DC 0...10 V	N1782	BPZ:QAE2164.010	QAE2164.010
Immersion temperature sensor 150 mm DC 0...10 V	N1782	BPZ:QAE2164.015	QAE2164.015
Immersion temperature sensor Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	QAE26.9..
Duct temperature sensor 400 mm, Pt1000	N1761	BPZ:QAM2112.040	QAM2112.040
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	QAM2120.040
Duct temperature sensor 2000 mm, LG-Ni1000	N1761	BPZ:QAM2120.200	QAM2120.200
Duct temperature sensor 6000 mm, LG-Ni1000	N1761	BPZ:QAM2120.600	QAM2120.600
Frost sensor, modulating, capillary tube 2000 mm	N1821	BPZ:QAF63.2	QAF63.2
Frost sensor, modulating, capillary tube 6000 mm	N1821	BPZ:QAF63.6	QAF63.6
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	QAP21.2
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	QAP21.3
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22
Window pane temperature sensor	N1830	BPZ:QAT22	QAT22
Solar sensor	N1943	BPZ:QLS60	QLS60
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	QBE61.3-DP..
Differential pressure sensors for liquids and gas (DC 0...10 V)	N1920	BPZ:QBE63-DP..	QBE63-DP..
Differential pressure sensor for liquids and gases (DC 0...10 V) 0...400 kPa	N1921	BPZ:QBE64-DP4	QBE64-DP4
Pressure sensor for refrigerants (0...10 V)	N1907	BPZ:QBE2001-P..U	QBE2001-P..U
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	QBE2002-P..

Standard controllers

Communicating HVAC controllers

Field devices for RMU.. and RMS..

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	QBM3020..
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	QBM2030..
Duct sensor for humidity (DC 0...10 V)	N1864	BPZ:QFM2100	QFM2100
Duct sensor for humidity (0...10 V) and temperature (Ni1000)	N1864	BPZ:QFM2120	QFM2120
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1864	BPZ:QFM2160	QFM2160
Duct sensor for humidity (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3100	QFM3100
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3160	QFM3160
Duct sensor for humidity (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	QFM4160
Duct air quality sensor CO ₂ / temperature / rel. Humidity / VOC	N1962	BPZ:QPM21..	QPM..
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	BSG21.1
Setpoint adjuster, passive, temperature ranges: -20...20 °C; 20...60 °C; -3...3 K	N1991	BPZ:BSG21.5	BSG21.5
Active setpoint adjuster 0...100 %, for flush panel mounting	N1992	BPZ:BSG61	BSG61
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	FGT-PT1000
Duct sensor for air velocity	N1932	BPZ:QVM62.1	QVM62.1

Monitors

Product Title	Data sheet	Stock No.	Product No.
Frost monitor, air side, 2-point	N1283	BPZ:QAF64..	QAF64..
Frost monitor, 2-point	N1284	BPZ:QAF81..	QAF81..
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	QFA1000
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	QFA1001
Duct hygrostat, setpoint setting range 15...95 % r.h.	N1514	BPZ:QFM81.2	QFM81.2
Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device	N1514	BPZ:QFM81.21	QFM81.21
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	QXA2601
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	QXA2602
Differential pressure monitor	N1552	BPZ:QBM81..	QBM81..
Temperature controller	N1205	BPZ:RAK-TR.1..H	RAK-TR.1..H
Thermal reset limit thermostat	N1202	BPZ:RAK-TW.1..H	RAK-TW.1..H
Temperature limiter	N1206	BPZ:RAK-TB.1..M	RAK-TB.1..M
Safety limit thermostat	N1204	BPZ:RAK-ST..M	RAK-ST..M
Temperature controller / thermal reset limit thermostat	N1191	BPZ:RAZ-TW.1..	RAZ-TW.1..
Temperature controller / safety limit thermostat	N1192	BPZ:RAZ-ST..	RAZ-ST..
Changeover thermostat, changeover, 30 °C / 19 °C, IP54	N1295	BPZ:RYT182	RYT182

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	AQR2531BNW
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	QAA25
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	QAA27
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	QAA64
Room unit with KNX bus	N1633	BPZ:QAW740	QAW740
Room sensor for humidity (DC 0...10 V)	N1857	BPZ:QFA2000	QFA2000
Room sensor for humidity (DC 0...10 V) and temperature (LG-Ni1000)	N1857	BPZ:QFA2020	QFA2020
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	QFA2060
Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	QFA3100
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	QFA3160
Room sensor for humidity (DC 0...10V) and temperature (DC 0...10V) with calibration certificate	N1859	BPZ:QFA4160	QFA4160
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	QPA84
Room air quality sensor CO ₂ / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	QPA..

Step switches, signal converters and transformers

Product Title	Data sheet	Stock No.	Product No.
Variable Speed Drive for pumps and fans	N5111	BPZ:G120P..	G120P..
Transformers	N5536	BPZ:SEM62..	SEM62..
Current valve	N4937	BPZ:SEA45.1	SEA45.1
Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V	N5102	BPZ:SEM61.4	SEM61.4
Signal converter with preprogrammed applications	N5146	BPZ:SEZ220	SEZ220
Universal digital indicator	N5312	BPZ:BAU200	BAU200

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	OCI700.1

Standard controllers

Various electrical accessories

Interfaces SEA.. / SEM.. / SEZ..

SEA45.1



Current valve

For modulating output control of electric air heater batteries or triac control with zero-point switching. Galvanic separation. Control panel mounting, DIN rail mounting.

Data sheet	N4937
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	0.5 VA
Positioning signal	AC 24 V (pulse / pause)
Triac outputs	Potential-free
Triac output, switching voltage	AC 42...660 V
Triac output, switching current	Max. 25 A
Triac output, switching output	0.04...10 kW
Degree of protection	IP20
Dimensions (W x H x D)	45 x 103 x 103 mm

Stock No.

Product No.

BPZ:SEA45.1

SEA45.1

SEM61.4



Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V

For converting a DC 0...10 V or DC 0 / 10 V input signal to a pulse-width modulated output signal AC 24 V for the control of maximum 20 current valves

Data sheet	N5102
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	1 VA
Analog input, signal	DC 0...10 V
Digital input, contact query	DC 0/10 V
Triac output, switching voltage	AC 24 V
Dimensions (W x H x D)	36 x 90 x 60 mm

Stock No.

Product No.

BPZ:SEM61.4

SEM61.4

SEZ91.6



Signal converter DC 0...20 V Phs to DC 0...10 V

For the conversion of DC 0...20 VPh signals to DC 0...10 V signals

Data sheet	N5143
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	0.5 VA
Analog output, signal	DC 0...10 V
Analog input, signal	DC 0...20 V Phs
Dimensions (W x H x D)	57 x 22 x 18 mm

Note: Use type SEZ91.PU-K4 for signals from RDE2, RDN2, PU-K4!

Stock No.

Product No.

BPZ:SEZ91.6

SEZ91.6

Power amplifier for thermal actuators AC 24 V, PWM

UA1T

The UA1T power amplifier is used to allow the connection of additional valve actuators to controllers with an AC 24 V output signal.



Data sheet	N3591
Operating voltage	AC 24 V
Dimensions (W x H x D)	55 x 18 x 22 mm

Stock No. Product No.

BPZ:UA1T UA1T

Signal converter with preprogrammed applications

SEZ220

- Maximum and minimum selection
- Calculation of average
- Calculation of enthalpy, enthalpy differential, absolute humidity, dewpoint
- Flexible adaptation, limitation, inversion and conversion of input signal
- Tested preselected applications
- Flexible configuration



Data sheet	N5146
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	5 VA
Universal inputs, number	5
Universal input, signal	0...1000 Ohm DC 0...10 V LG-Ni1000 Pt1000 T1 (PTC)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Dimensions (W x H x D)	123 x 90 x 86 mm

Stock No. Product No.

BPZ:SEZ220 SEZ220

Standard controllers

Various electrical accessories

Setpoint adjuster BSG..

BSG21..



Passive setpoint adjusters, for flush panel mounting

Setpoint adjuster for flush panel mounting 48 x 48 mm, with 2 adjustable stops for setpoint limitation. With transparent plastic cover and scales according to the temperature ranges.

Data sheet	N1991
Degree of protection	IP42
Dimensions (W x H x D)	48 x 48 x 46 mm

Range overview BSG21..

Temperature range	Analog output, signal	Data sheet	Stock No.	Product No.
**Various	0...1000	N1991	BPZ:BSG21.1	BSG21.1
0...50 °C	LG-Ni1000	N1991	BPZ:BSG21.2	BSG21.2
10...30 °C	LG-Ni1000	N1991	BPZ:BSG21.3	BSG21.3
-20...20 °C	LG-Ni1000	N1991	BPZ:BSG21.5	BSG21.5
20...60 °C				
-3...3 K				

For BSG21.1: Scale 0...50 °C included as standard. Additional scales are available as BSG-Z accessories

BSG61



Active setpoint adjuster 0...100 %, for flush panel mounting

Setpoint adjuster for flush panel mounting 48 x 48 mm, with 2 adjustable stops, for setting or limiting a setpoint or positioning signal. With transparent front cover and exchangeable scales, depending on requirements. Supplied with 0...100 % scale (other scales available as accessories under BSG-Z).

Data sheet	N1992
Operating voltage	AC 24 V DC 15...24 V
Power consumption	0.3 W
Analog output, signal	DC 0...10 V
Connection cable	Max. 2.5 mm ² 4-wire
Degree of protection	IP42
Dimensions (W x H x D)	48 x 48 x 46 mm

Stock No. Product No.

BPZ:BSG61 **BSG61**

Accessories for setpoint adjusters BSG21.1 and BSG61

Product Title	Data sheet	Stock No.	Product No.
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	BSG-Z

Touch Panel

QAX160

Central device in mini standard system
 - Colorful LCD display and touch screen for easy operation
 - Offer in-built standard application to connect with RWD62/68+SEZ50MB, RDF302, PPM-1U32.MPR as a system



Data sheet	N3974
Operating voltage	DC 24 V
Power consumption	15 W
Ambient temperature, operation	0...45 °C
Communication	Modbus RTU
Display	TFT LCD, LED backlight
Display size	10.2"
Keyboard	Resistive touch screen
Degree of protection	IP65
Mounting	Panel
Dimensions (W x H x D)	274 mm x 40 mm x 193 mm

Stock No.	Product No.
S55620-H100	QAX160

Modbus interface for RWD

SEZ50MB

Adaptor to equip all standalone RWD primary control products with communicative functions via Modbus



Data sheet	N3099
Operating voltage	AC 24 V
Power consumption	3 A
Ambient temperature, operation	0...50 °C
Communication	Modbus
Degree of protection	IP20
Dimensions (W x H x D)	113.8 mm x 56.4 mm x 106 mm

Stock No.	Product No.
S55370-C120	SEZ50MB

Remote I/O expansion module

PPM-1U32.MPR

Remote device to extend the quantity of I/Os in system via Modbus.
 AC 24 V power supply, 1 universal input, 3 digital inputs and 2 relay digital outputs, Modbus interface



Data sheet	140-1138
Operating voltage	AC 24 V
Power consumption	7 VA
Digital outputs	2 normally open relays
Digital inputs, number	3
Relay output, switching current	AC 230V
Relay output, switching voltage	5 (2) A
Universal inputs	1...10 kΩ Type II NTC Thermistor or dry contact
Universal inputs, number	1
Summary	Communicating expansion I/O module
Dimensions (W x H x D)	154 mm x 40 mm x 114 mm

Stock No.	Product No.
S55664-J111	PPM-1U32.MPR

Standard controllers

Various electrical accessories

Display/ Time switches/ Transformers BAU / SEH.. / SEM..

BAU200



Universal digital indicator

Universal single point digital indicator

- Suitable for front-mounting in control panel
- With LED display
- Input signal (type of signal and measuring range) can be set with buttons
- For all Siemens Building Technologies sensors (LG-Ni 1000, T1, PT100, PT 1000, 0 ... 10 V)

Data sheet	N5312
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	<8 VA
Analog output, signal	DC 0...10 V
Analog input, signal	DC 0...10 V LG-Ni1000 Pt100 Pt1000 T1 (PTC)
Degree of protection	IP50
Dimensions (W x H x D)	96 x 48 x 83 mm

Stock No.

Product No.

BPZ:BAU200

BAU200

SEH62.1



Digital time switch, 1-channel, with 7-day program

Programmable as 24-hour or 7-day time switch. Wall or DIN rail mounting.

Data sheet	N5243
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	3 VA
Buffer time	72 h
Display	LCD
Degree of protection	IP20
Dimensions (W x H x D)	79 x 106 x 56 mm
Digital input, contact query	8 mA DC 24 V
Digital input, application	Countdown timer

Stock No.

Product No.

BPZ:SEH62.1

SEH62.1

Transformers

SEM62..

Transformer with housing, providing a reduction in voltage from AC 230 V to AC 24 V (output power 30 VA)

- Self-resetting fuse integrated on the primary side
- Secondary On/Off switch and replaceable fuse (SEM62.2 only)
- Plug-in screw terminals
- Two secondary output plug-in terminals



Data sheet	N5536
Frequency	50/60 Hz
Primary voltage	AC 230 V
Secondary voltage	AC 24 V
Power output	30 VA
Degree of protection	IP20
Dimensions (W x H x D)	114 x 106 x 57 mm
Mounting	On DIN rail With screws

Range overview SEM62..

Product Title	Stock No.	Product No.
Standard version	BPZ:SEM62.1	SEM62.1
Standard version incl. switch and exchangeable fuse on the secondary side	BPZ:SEM62.2	SEM62.2

Standard controllers

Various electrical accessories

KNX - System components

N 146/02



IP router

- LEDs for indicating that the device is ready-to-run, KNX communication, IP communication
- Electronics powered via an external nominal 24 V AC/DC power supply unit
- Power consumption at 24 V DC 57 mA
- Power supply for the electronics via "Power over Ethernet" according to IEEE 802.3af
- Integrated bus coupling units
- Bus connection via bus terminal
- Ethernet connection via RJ45 socket
- Plug-in terminal block for the connection of an external power supply unit
- Supports KNXnet/IP
- Line coupler function (Routing)
- 4 Interface functions (Tunneling)
- 1 Interface functions (object server)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Data sheet	2.11.1.13
Voltage supply	Power over Ethernet or external SELV power supply AC/DC 24 V nominal
Operating voltage	AC 12...24 V DC 12...30 V
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated bus coupling units Via bus terminal
Communication	Bus: KNX (S-mode and LTE mode) Ethernet, RJ45 socket

Stock No.

Product No.

5WG1146-1AB02

N 146/02

N 148/22



IP interface

- LEDs for indicating that the device is ready-to-run, KNX communication, IP communication
- Electronics powered via an external nominal 24 V AC/DC power supply unit
- Power consumption at 24 V DC, 57 mA
- Power supply for the electronics via "Power over Ethernet" according to IEEE 802.3af
- Integrated bus coupling units, Bus connection via bus terminal
- Ethernet connection via RJ45 socket
- Plug-in terminal block for the connection of an external power supply unit
- Supports KNXnet/IP
- 4 Interface functions (Tunneling)
- 1 Interface functions (object server)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Data sheet	2.11.1.14
Voltage supply	Power over Ethernet
Operating voltage	AC 12...24 V DC 12...30 V
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated bus coupling units Via bus terminal
Communication	Bus: KNX Ethernet, RJ45 socket

Stock No.

Product No.

5WG1148-1AB22

N 148/22

USB interface

N 148/11

- Electronics powered via bus voltage or via USB by a connected PC
- Integrated bus coupling units
- Bus connection via bus terminal or contact system to data rail
- Transmission PC – USB USB 1.1 or higher
- Electrically isolated access to the bus line via integrated socket USB (Typ B)
- Access to all bus devices in the system
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.11.1.12
Voltage supply	USB KNX bus
Dimension width (1 MW = 18 mm)	1 MW
Bus connection	Integrated bus coupling units Via bus terminal Via data rail
Communication	Bus: KNX (S-mode and LTE mode) USB1.1

Stock No.

Product No.

5WG1148-1AB11

N 148/11

Standard controllers

Various electrical accessories

KNX - Line couplers

N 140/.3

Line/backbone coupler

- For data exchange between two KNX bus lines with telegrams of up to 64 byte
- For use as line coupler for connecting a line to the main line or as backbone coupler for connecting a main line to the backbone line or as repeater for connecting two segments of the same line, with electrical isolation of the two bus lines
- Loadable filter table for control of the data exchange between the two bus lines
- Additional loadable filter table for telegrams with LTE addressing
- Detection of a communication fault on the lower-level line and signaling to the higher-level line
- 3 LEDs for display of availability and receipt of a telegram per line
- Power supply from the main line
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Voltage supply

KNX bus

Communication

Bus: KNX (S-mode and LTE mode)

N 140/03



Line/backbone coupler for data rail

Bus connection to the line and to the main line via bus terminal

Data sheet

2.11.1.12

Dimension width (1 MW = 18 mm)

1 MW

Bus connection

Via bus terminal

Via data rail



Stock No.

Product No.

5WG1140-1AB03

N 140/03

N 140/13



Line/backbone coupler

With bus connection to the line via contact system for data rail and to the main line via bus terminal

Data sheet

2.14.3.3

Dimension width (1 MW = 18 mm)

2 MW

Bus connection

Via bus terminal



Stock No.

Product No.

5WG1140-1AB13

N 140/13

Power supply unit

N 125/..2

- Integrated chokes
- Bus connection via bus terminal or contact system to data rail
- Rated operational voltage 120...230 V AC 50...60 Hz, 220 V DC
- Output voltage 29 V DC
- Additional unchoked output for 29 V DC, for powering a second bus line via an external choke (e. g. N 120/02)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.14.4.4
Operating voltage	AC 120...230 V DC 220 V
Dimension width (1 MW = 18 mm)	4 MW
Bus connection	Integrated choke Via bus terminal Via data rail

Range overview power supply units instabus EIB N 125/..2

Product Title	Stock No.	Product No.
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	5WG1125-1AB02	N 125/02
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	5WG1125-1AB12	N 125/12
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	5WG1125-1AB22	N 125/22

Choke, 640 mA

N 120/02

- For operation with a KNX power supply without integrated choke or for connection to the unchoked output of the KNX N 125/x2 power supplies
- Contact system for data rail
- Low-voltage terminal for unchoked voltage and bus
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.14.2.2
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated choke Via bus terminal Via data rail

	Stock No.	Product No.
	5WG1120-1AB02	N 120/02

Software and central communication units



Overview and selection tools	Overview of product details	2-2
Operating, service and alarm software	For HVAC plants: ACS790 / OCI700.1	2-7
Central communication units	For remote control via KNX: OZW7..	2-9
	For remote control via LPB: OCI611..	2-13
	For remote control via LPB: OZW672..	2-15

Software and central communication units

Overview and selection tools

Product range overview

2

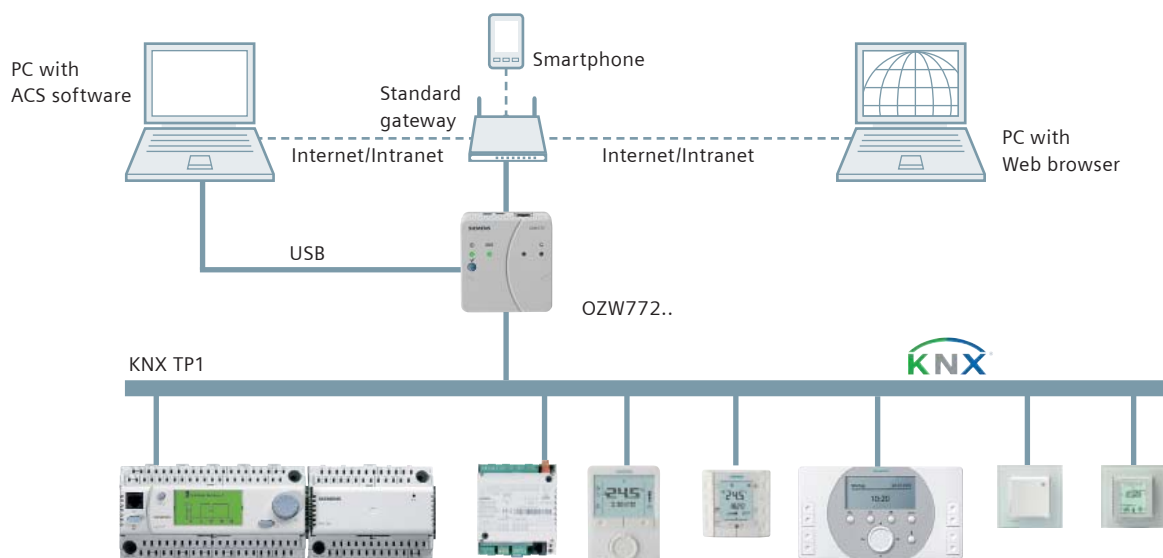
Overview standard systems

Communication	KNX (Konnex)	LPB (Local process bus)
Standard systems for:	Heating, ventilation or air conditioning	Heating plants
Communication central unit	OZW771.. OZW772..	OCI611.. OZW672..
Software	ACS790	ACS790
Service Tool	OCI700.1	OCI700.1
Heating controllers	Synco™ ■ RMH760 Heating controllers ■ RMK770 Boiler sequence controllers	■ RVL4.. Heating controllers ■ RVP3.. Heating controllers ■ RVD2.. District heating controllers
Ventilation and air conditioning controllers	Synco™ series ■ RMU700 Universal controllers	
Switching and Monitoring Device	Synco™ ■ RMS705	
Room controllers	Synco™ ■ RMB795 Control center ■ RXB / RXL Room controllers	
Home Automation System	Synco™ living ■ QAX903, QAX913	
Thermostats	Synco™ ■ RDF301, RDF301.50, RDF600KN ■ RDG100KN, RDG160KN, RDG400KN ■ RDU341	
Flush-mount room thermostat	■ AQR253.. ■ AQR257..	
Wall-mount room thermostat	■ QMX3.P30 ■ QMX3.P70	

KNX system

Standard systems for heating, ventilation or air conditioning Synco™ (KNX)

Low engineering system to easily build complex applications with flexible and modular combinations of standard controllers Synco™ 700. Standard Systems for HVAC plants are capable to be remote operated and can generate alarms to service centers. Full control without extensive engineering.



Communication central units	OZW772			
	OZW772.01	OZW772.04	OZW772.16	OZW772.250
Device versions	OZW772.01	OZW772.04	OZW772.16	OZW772.250
No. of comm. devices ¹⁾	1	4	16	250
Plant operation				
ACS software	Yes			
Web Browser	Yes			
Interface	Ethernet, USB			
Alarming				
Max. message receivers	4			
ACS alarm via PC	No			
Fax	No			
Pager	No			
SMS	No			
e-Mail	Yes (Ethernet)			
Offline trend function	Yes			
Digital inputs (potential free)	None			
Universal inputs (UI)	None			
As alarm input	No			
As pulse counter	No			
As counter (operating hours)	No			
Digital output	None			
Local device operation	Button / Switch			
Bus power supply	No			
General device data				
Operating voltage	AC 230 V ±10 %			
Frequency	50/60 Hz			
Power consumption	3 VA			
Degree of protection	IP30			

¹⁾ Synco™ controller series 700, QAW740, RXB.. / RXL.., RDG.., RDF.., RDU.., Synco™ living QAX9..

Software and central communication units

Overview and selection tools

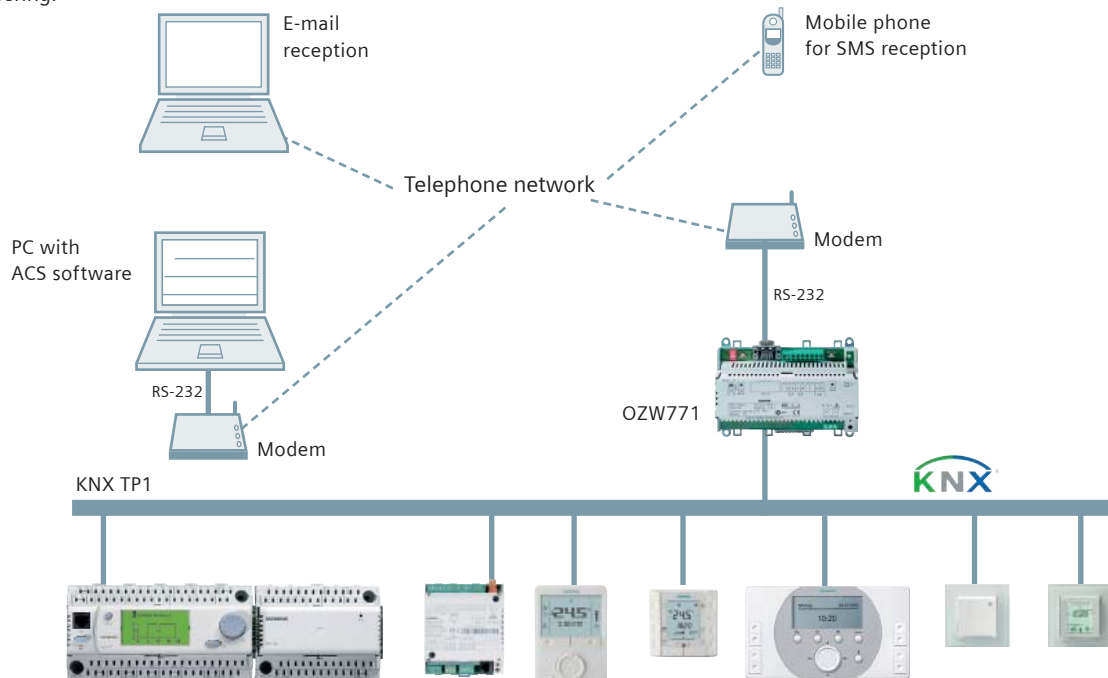
Product range overview

2

KNX system

Standard systems for heating, ventilation or air conditioning Synco™ (KNX)

Low engineering system to easily build complex applications with flexible and modular combinations of standard controllers Synco™ 700. Standard Systems for HVAC plants are capable to be remote operated and can generate alarms to service centers. Full control without extensive engineering.



Communication central units	OZW771		
Device versions	OZW771.04	OZW771.10	OZW771.64
No. of comm. devices ¹⁾	4	10	64
Plant operation			
ACS software	Yes		
Web Browser Interface	No		
	RS232		
Alarming			
Max. message receivers	2		
ACS alarm via PC	Yes		
Fax	with SMS via GSM		
Pager	Yes		
SMS	Yes		
e-Mail	with SMS via GSM		
Offline trend function	No		
Digital inputs (potential free)	2		
Universal inputs (UI)			
As alarm input	Yes		
As pulse counter	No		
As counter (operating hours)	No		
Digital output	None		
Local device operation	Button / Switch		
Bus power supply	No		
General device data			
Operating voltage	AC 230 V ±10 %		
Frequency	50/60 Hz		
Power consumption	5 VA		
Degree of protection	IP20 ²⁾		

¹⁾ Synco™ controller series 700, QAW740, RXB.. / RXL.., RDG.., RDF.., RDU.., Synco™ living QAX9..

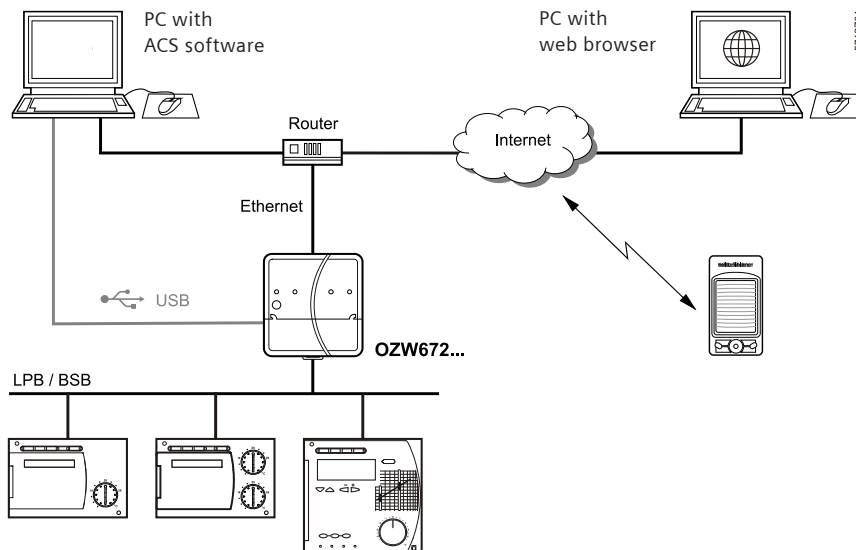
²⁾ IP30 with terminal covers

2-4

Web-Server

Standard system for heating plants (LPB)

Low engineering system to easily build complex applications with flexible combinations of standard controllers Series RVL4..., RVP3..., and RVD2... Standard Systems for heating plants are capable to be remote operated and can generate alarms to service centres: Full control without extensive engineering.



Communication central units	OZW672		
Device versions	OZW672.01	OZW672.04	OZW672.16
No. of comm. devices ¹⁾	1	4	16
Plant operation			
ACS software	Yes		
Web Browser	Yes		
Interface	Ethernet, USB		
Alarming			
Max. message receivers	4		
ACS alarm via PC	No		
Fax	No		
Pager	No		
SMS	No		
e-Mail	Yes (Ethernet)		
Offline trend function	Yes		
Digital inputs (potential free)	2		
Universal inputs (UI)	None		
As alarm input	2		
As pulse counter	No		
As counter (operating hours)	No		
Digital output	None		
Local device operation	Button / Switch		
Bus power supply	No		
General device data			
Operating voltage	AC 230 V ±10 %		
Frequency	50/60 Hz		
Power consumption	3 VA		
Degree of protection	IP30		

¹⁾ RVL4...,RVP3...,RVD2...,RVP5..

Software and central communication units

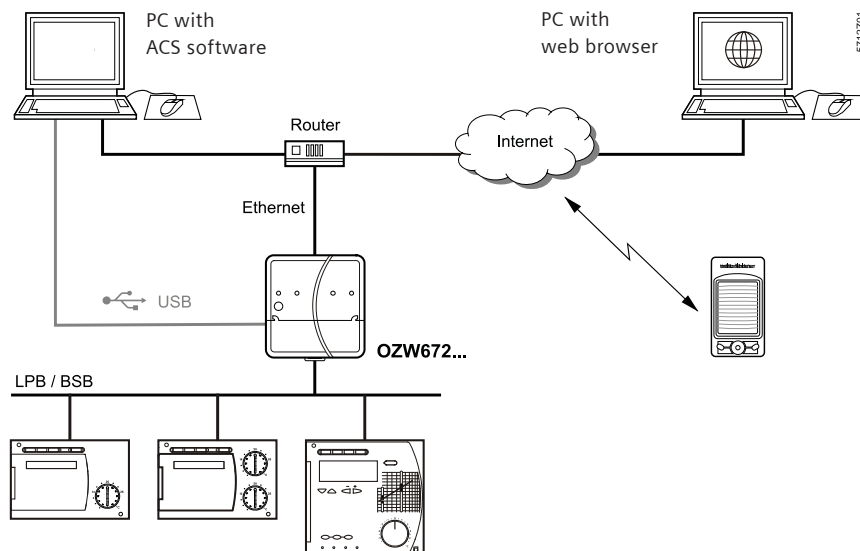
Overview and selection tools

Product range overview

LPB system

Standard system for heating plants (LPB)

Low engineering system to easily build complex applications with flexible combinations of standard controllers Series RVL4..., RVP3..., and RVD2... Standard Systems for heating plants are capable to be remote operated and can generate alarms to service centres: Full control without extensive engineering.



Communication central units	OCI611		
	OCI611.01	OCI611.05	OCI611.16
Device versions			
No. of communication controllers	1	5	16
No. of external meter modules			
No. of ext. temperature sensor adapters			
Plant operation			
ACS software		Yes	
Interface		RS232	
Alarming			
Max. message receivers		2	
ACS alarm via PC		Yes	
Fax		mit SMS via GSM	
Pager		mit SMS via GSM	
SMS		Yes	
Printer		No	
e-Mail		with SMS via GSM	
Offline trend funktion		No	
Digital inputs (potential free)		2	
As alarm input		Yes	
As counter (operating hours)		No	
Digital outputs		None	
Local device operation		Button / Switch	
Bus power supply		No	
General device data			
Operation voltage		AC 230 V ±10 %	
Frequency		50/60 Hz	
Power consumption		5 VA	
Degree of protection		IP20 ¹⁾	

¹⁾ IP30 with terminal covers
2-6

Commissioning and plant operating software

PC software for commissioning, operating and supervision of HVAC plants.
 Consists of 2 programs: ACS-Tool and ACS-Alarm.

ACS-Tool:

for plant commissioning, operating and service

- Popcard (standard and customized)
- Plant diagram (standard and customized)
- Plant view (standard and customized)
- Trend functions (online and offline)
- File transfer
- Parameter settings
- Commissioning protocol

ACS-Alarm:

- For receiving and managing alarms



Commissioning and service via OCI700 service interface

Compatible devices see OCI700.1.

Plant operation and supervision for

KNX systems

- Central units: OZW771, OZW772
- Synco™ living: QAX9...
- Controllers: Synco™700, Synco RXB/RXL
- Thermostats: RDF..., RDG..., RDU341
- Sensors: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB systems

- Central units: OCI611, OZW672
- Controllers: RVD2..., RVL4..., RVP3..

Data sheet N5649

	Stock No.	Product No.
	S55800-Y100	ACS790

2

OCI700.1



Service tool for KNX / LPB

The service tool consists of:

- ACS790 CD-ROM
- OCI700 service interface
- USB cable
- Service cable for Synco™ controllers
- Service cable for SIGMAGYR® and ALBATROS controllers

Commissioning and diagnostics of the following devices:

KNX devices:

- Central communication units OZW771, OZW772
- Heating controllers RMH of the 700-series
- Boiler sequence controllers RMK of the 700-series
- Universal controllers RMU of the 700-series
- Universal controllers RLU of the 200-series
- Switching and monitoring devices RMS of the 700-series
- Room unit QAW740
- Central control units RMB of the 700-series
- Individual room controllers RXB.. / RXL..
- Signal converter SEZ220
- Synco™ living central apartment unit QAX9..
- Synco™ thermostats RDF., RDG., RDU341
- Sensores: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB devices:

- Central communication units OCI611 and OZW672
- Heating controllers RVL of the 4..-series
- Heating controllers RVP of the 3..-series
- District heating controllers RVD of the 2..-series

Data sheet

N5655

	Stock No.	Product No.
	BPZ:OCI700.1	OCI700.1

KNX standard systems main components

The KNX standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	ACS790
Central communication unit OZW771..	N3117	BPZ:OZW771..	OZW771..
Web server for KNX devices	N5701	BPZ:OZW772..	OZW772..
Heating controller	N3133	BPZ:RMH760B..	RMH760B..
Boiler sequence controller	N3132	BPZ:RMK770..	RMK770..
Universal controller	N3150	BPZ:RMUB..	RMUB..
Switching and monitoring device	N3124	BPZ:RMS705B..	RMS705B..
Central control unit RMB795B for RXB/RXL room controllers and room thermostats RDG/RDF/RDU	N3122	BPZ:RMB795B..	RMB795B..
Room unit with KNX bus	N1633	BPZ:QAW740	QAW740
Room controller for 3-speed fan	N3873	BPZ:RXB21.1/FC-10	RXB21.1/FC-10
Room controller for 3-speed fan	N3873	BPZ:RXB21.1/FC-11	RXB21.1/FC-11
Room controller with 3-speed fan and electric heating coil	N3873	BPZ:RXB22.1/FC-12	RXB22.1/FC-12
Room controller for chilled ceilings and radiators	N3874	BPZ:RXB24.1/CC-02	RXB24.1/CC-02
Room controller for fan-coil applications with KNX communication	N3875	S55373-C121	RXB39.1/FC-13

Software and central communication units

Central communication units

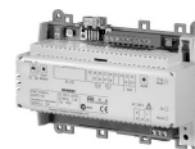
For remote control via KNX: OZW7..

KNX standard systems main components

The KNX standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	N3877	BPZ:RXL21.1/FC-10	RXL21.1/FC-10
Room controller for 3-speed fan	N3877	BPZ:RXL21.1/FC-11	RXL21.1/FC-11
Room controller with 3-speed fan and electric heating coil	N3877	BPZ:RXL22.1/FC-12	RXL22.1/FC-12
Room controller for chilled ceilings and radiators	N3878	BPZ:RXL24.1/CC-02	RXL24.1/CC-02
Communicating room controller for fan-coil applications with proprietary communication	N3876	S55373-C122	RXL39.1/FC-13
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	S55770-T104	RDF301
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment, four buttons for switching lights and blinds	N3171	S55770-T105	RDF301.50
Hotel Semi Flush-mount room thermostat with KNX, 2-/4-pipe fan coils or DX type equipment, four buttons hotel functions	N3171	S55770-T334	RDF301.50H
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	S55770-T293	RDF600KN
Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications	N3191	S55770-T163	RDG100KN
Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, fan (1-/3-speed, DC), valves (2-point, DC)	N3191	S55770-T297	RDG160KN
Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems	N3192	S55770-T165	RDG400KN
Semi Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application	N3172	S55770-T106	RDU341
VAV compact controller KNX, 24 V, 5 Nm, 150 s, 300 Pa	N3547	S55499-D134	GDB181.1E/KN
VAV compact controller KNX, 24 V, 10 Nm, 150 s, 300 Pa	N3547	S55499-D135	GLB181.1E/KN
Base module with KNX for temperature and humidity measurement	N1411	BPZ:AQR2570..	AQR2570..
Base modules with KNX for CO ₂ measurement	N1411	BPZ:AQR2576..	AQR2576..
Front modules for base modules	N1410	BPZ:AQR253..	AQR253..
Room sensor KNX for temperature	N1602	S55624-H103	QMX3.P30
Room sensor KNX for temperature, humidity, CO ₂	N1602	S55624-H104	QMX3.P70

OZW771..



2

Central communication unit OZW771..

The OZW771... central communication unit is a component of the Synco™ system. It is used for the remote operation and supervision of plants with Synco™ 700 Synco™ RXB... and Synco™ living units in KNX network systems.

Alarm messages can be delivered to

- ACS operating station (ACS alarm)
- SMS receivers
- Fax machines*
- Pagers
- E-mail receivers*

* Only possible with GSM modem, depending also on the telephone provider

Data sheet	N3117
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	5 VA
Digital inputs, number	2
Degree of protection	IP20
Dimensions (W x H x D)	161 x 110 x 62 mm

Range overview OZW771..

Product Title	Data sheet	Stock No.	Product No.
Central communication unit, max. 4 controllers	N3117	BPZ:OZW771.04	OZW771.04
Central communication unit, max. 10 controllers	N3117	BPZ:OZW771.10	OZW771.10
Central communication unit, max. 64 controllers	N3117	BPZ:OZW771.64	OZW771.64

Accessory for OZW771..

Product Title	Stock No.	Product No.
Terminal covers	BPZ:7411100280	7411100280

Refer to the central unit data sheet for details

OZW772..



Web server for KNX devices

Web server OZW772 allows for remote plant control and monitoring via the web.

- Operate web browser via PC/laptop and Smartphone
- Operate ACS (PC/laptop with ACS plant operating software)
- Connections: USB and Ethernet
- Display fault messages in the web browser
- Send fault messages to a maximum of 4 e-mail recipients
- Periodically send system reports to e-mail recipients
- Visualize the plants in the web browser based on standard plant diagrams and customized plant web pages
- Acquire and display consumption data
- Send consumption data file to 2 email recipients
- Function "Energy indicator" to monitor data points for energy-related limit values, or "Green limits"
- Web services for external applications via Web API (Web Application Programming Interface)
- Encrypted with https and TLS for emails
- Trend function with ACS790
- Direct commissioning with web browser or ACS service tool

Data sheet	N5701
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Communication	KNX TP1 (wire-Bus) Ethernet, RJ45 plug socket (shielded) USB V2.0 (universal serial bus)
Mounting	On DIN rails With Screws
Degree of protection	IP30
Dimensions (W x H x D)	87.5 x 90 x 40 mm

Range overview OZW772..

Product Title	Stock No.	Product No.
Web server for 1 KNX device	BPZ:OZW772.01	OZW772.01
Web server for 4 KNX devices	BPZ:OZW772.04	OZW772.04
Web server for 16 KNX devices	BPZ:OZW772.16	OZW772.16
Web server for 250 KNX devices	BPZ:OZW772.250	OZW772.250

LPB standard system main components

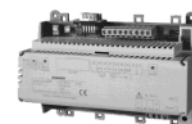
The LPB standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	ACS790
Central communication unit	N2533	BPZ:OCI611..	OCI611..
Web Server for LPB devices	N5712	BPZ:OZW672..	OZW672..
Heating controller for a second heating circuit	N2543	BPZ:RVL479	RVL479
Heating controller for 1 heating circuit or boiler temperature control	N2540	BPZ:RVL480	RVL480
Heating controller for boiler temperature control and d.h.w. heating	N2541	BPZ:RVL481	RVL481
Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating	N2542	BPZ:RVL482	RVL482
Heating controller for 1 heating circuit	N2545	S55370-C136	RVP340
Heating controller for 1 heating circuit and d.h.w.	N2545	S55370-C137	RVP350
Heating controller for 2 heating circuits and d.h.w.	N2546	S55370-C139	RVP360
District heating controller	N2513	BPZ:RVD25..	RVD25..
District heating controller	N2515	BPZ:RVD26..	RVD26..

Central communication unit

OCI611..

Interface for the communication between the devices connected to the bus and the operator PC with ACS790 software.



- Alarm messages can be delivered to
 - ACS operating station (ACS alarm)
 - SMS receivers
 - Fax machines*
 - Pagers*
 - E-mail receivers*
- * Only possible with GSM modem, depending also on the telephone provider
- 2 digital inputs
- Connected to:
 - RVL heating controllers of the 4.-series
 - RVP heating controllers of the 3.-series
 - RVP energy managers of the 5.-series
 - RVD district heating controllers of the 2.-series

Data sheet	N2533
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	5 VA
Degree of protection	IP20

Range overview OCI611..

Product Title	Data sheet	Stock No.	Product No.
Central communication unit, max. 1 controller	N2533	BPZ:OCI611.01	OCI611.01
Central communication unit, max. 5 controllers	N2533	BPZ:OCI611.05	OCI611.05
Central communication unit, max. 16 controllers	N2533	BPZ:OCI611.16	OCI611.16

Software and central communication units

Central communication units

For remote control via LPB: OCI611..

Accessory for OCI611..

Product Title	Stock No.	Product No.
Terminal covers	BPZ:7411100280	7411100280

Refer to the central unit data sheet for details

OZW672..



2

Web Server for LPB devices

Web server OZW672 allows for remote plant control and monitoring via the web

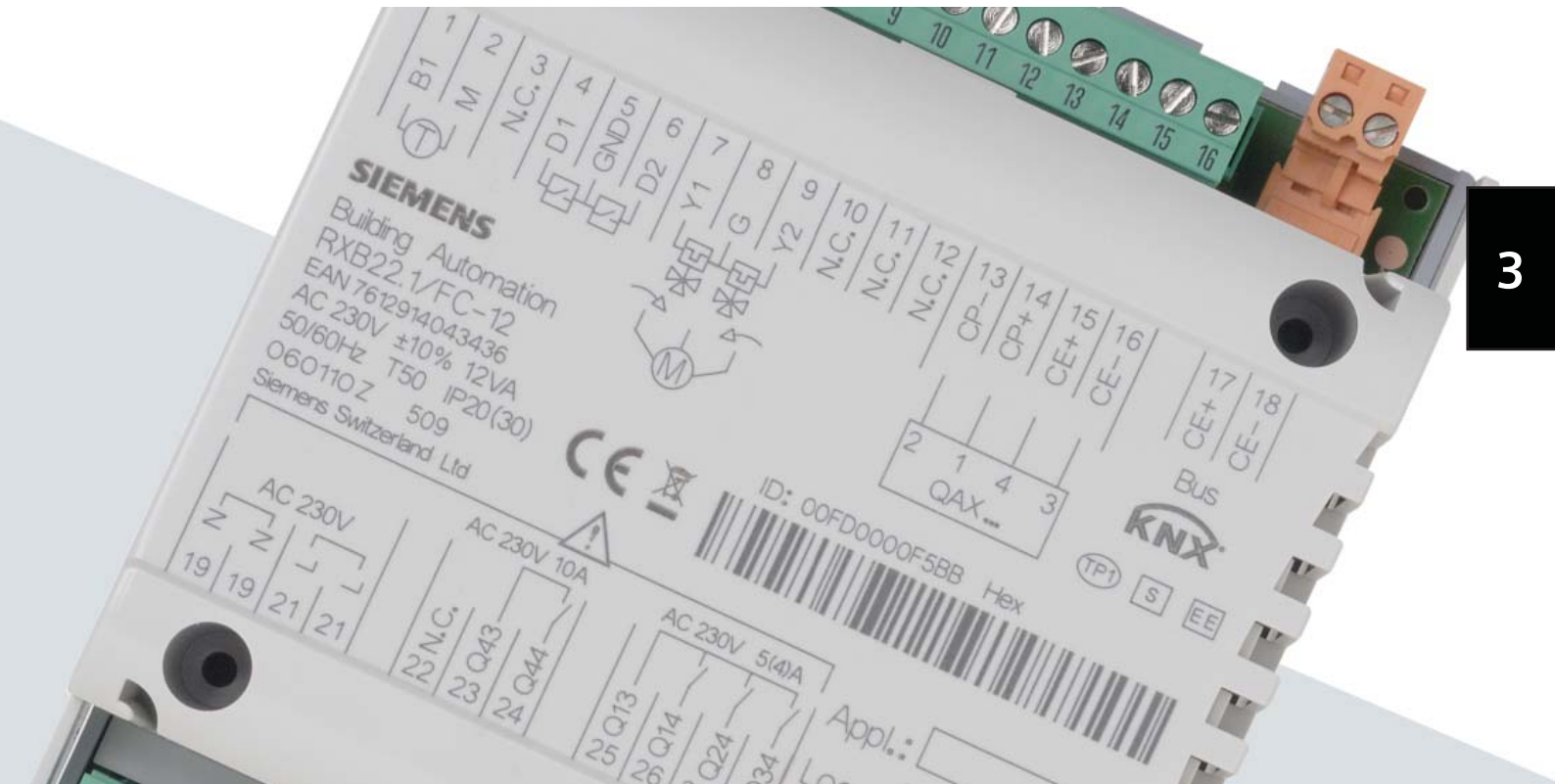
- Operate web browser via PC/laptop and Smartphone
- Operate via ACS790 PC tool
- Connections: USB and Ethernet
- 2 digital inputs for fault messages
- Display fault messages in the web browser
- Send fault messages to a maximum of 4 email recipients
- Periodically send system reports to email recipients
- Visualize the plants in the web browser based on standard plant diagrams and customized plant web pages
- Function "Energy indicator" to monitor data points for energy-related limit values, or "Green limits"
- Web services for external applications via Web API (Web Application Programming Interface)
- Encrypted with https and TLS for emails
- Trend function with ACS790

Data sheet	N5712
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Digital inputs, number	2
Communication	LPB/BSB (wire-Bus) Ethernet, RJ45 plug socket (shielded) USB V2.0 (universal serial bus)
Mounting	On DIN rails With Screws
Degree of protection	IP30
Dimensions (W x H x D)	87.5 x 90 x 40 mm

Range overview OZW672..

Product Title	Stock No.	Product No.
Web Server for 1 LPB/BSB device	BPZ:OZW672.01	OZW672.01
Web Server for 4 LPB devices	BPZ:OZW672.04	OZW672.04
Web Server for 16 LPB devices	BPZ:OZW672.16	OZW672.16

Room automation



Overview and selection guides	Product overviews and application recommendations	3-2
Communicating controllers - RXL (Bus)	For fan coil, radiator, chilled ceiling	3-9
Communicating controllers - RXB (KNX)	For fan coil, radiator, chilled ceiling	3-13
Communicating central control unit (KNX)	Central control unit RMB.. for room controllers	3-17
Room operating units	For controllers RX.. (EnOcean): QAX9.. / RXZ9..	3-19

Room automation

Overview and selection tools

Product range overview

3



Room Controller	RXL..	RXB..
Communication	Bus	KNX
Peripheral bus	PPS2	PPS2
Fan coil systems		
2-pipe system with changeover	■	■
2-pipe system with changeover and electric air heater battery	■	■
4-pipe system	■	■
4-pipe system with electric air heater battery	■	■
4-pipe system with supply air temperature limit	■	■
2-pipe system with changeover and outside air damper	■	■
4-pipe system with outside air damper	■	■
2-pipe system and radiator	■	■
4-pipe system, with one air damper	■	■
Heated/chilled ceilings and radiators		
Chilled ceiling with dewpoint monitoring	■	■
Chilled ceiling with dewpoint monitoring	■	■
Radiator with downdraft compensation	■	■

Room operation



	QAX..						AQR...			
	30.1	31.1	32.1	33.1	34.1	34.3	39.1	84.1	2570.. & 253..	2576.. & 253..
Features										
Display					■	■		■		■ ¹⁾
Mode selection			■	■	■	■		■		
Fan switch				■	■	■		■		
Setpoint adjuster		■	■	■	■	■	■	■		
Temperature sensor	■	■	■	■	■	■		■	■	■
Humidity sensor									■	■
Air quality sensor										■
Mounting										
Flush-mounted							■	■	■	■
Directly on wall	■	■	■	■	■	■				
Control panel(door)							■			
Communication										
PPS2	■	■	■	■	■	■	■	■		
KNX									■	■
Controller										
RXL..	■	■	■	■	■	■	■	■	■	■
RXB..	■	■	■	■	■	■	■	■	■	■

Wireless room operation



	95.4	96.4	97.4	98.4
Features				
Mode selection			■	■
Fan switch				■
Setpoint adjuster		■	■	■
Temperature sensor	■	■	■	■
Mounting				
Flush-mounted	■	■	■	■
Directly on wall	■	■	■	■
Communication				
∏ n∏ cean	■	■	■	■
KNX	■ ²⁾	■ ²⁾	■ ²⁾	■ ²⁾
Controller				
RXL..				
RXB..	■	■	■	■

¹⁾ LID ∏ or air quality indicator

²⁾ Suitable receiver: RX∏97.1/∏∏X

Room automation

Overview and selection tools

Product range overview

RXL applications

RXL – Powerful room controllers for temperature control in individual rooms

RXL ensures individual demand-based comfort in public buildings, offices, schools, hotels, etc. Flexible control of all types of equipment in individual rooms calls for economical and convenient solutions that can be integrated into existing or new systems and will retain their compatibility long into the future.

3

Communicating controllers for individual rooms

The communicating room controllers RXL21.1, RXL22.1 and RXL24.1 are used for temperature control in individual rooms. RXL39.1 support energy efficient EC fan-coils. Siemens actuator and sensor technology can be connected.

Easy commissioning with room operator unit

Commissioning and parameter-setting for RXL controllers is carried out directly on the controller, with the QAX34.3 room operator unit. There is no need for a network connection or a software tool. Mounting on a DIN rail is quick and simple.

User-friendly commissioning and service

The Service LED shows the operational status of the room controller at all times. For example, a flashing green LED is used to indicate normal, trouble-free operation, a continuous red LED for addressing mode and a flashing red LED to indicate a fault. With the service pin, all controllers can be easily identified for commissioning or maintenance purposes. As soon as the service pin is pressed, the red service LED on the controller lights up and the controller is displayed on a graphic of the building at the management station.

Complete range of standard room operating units

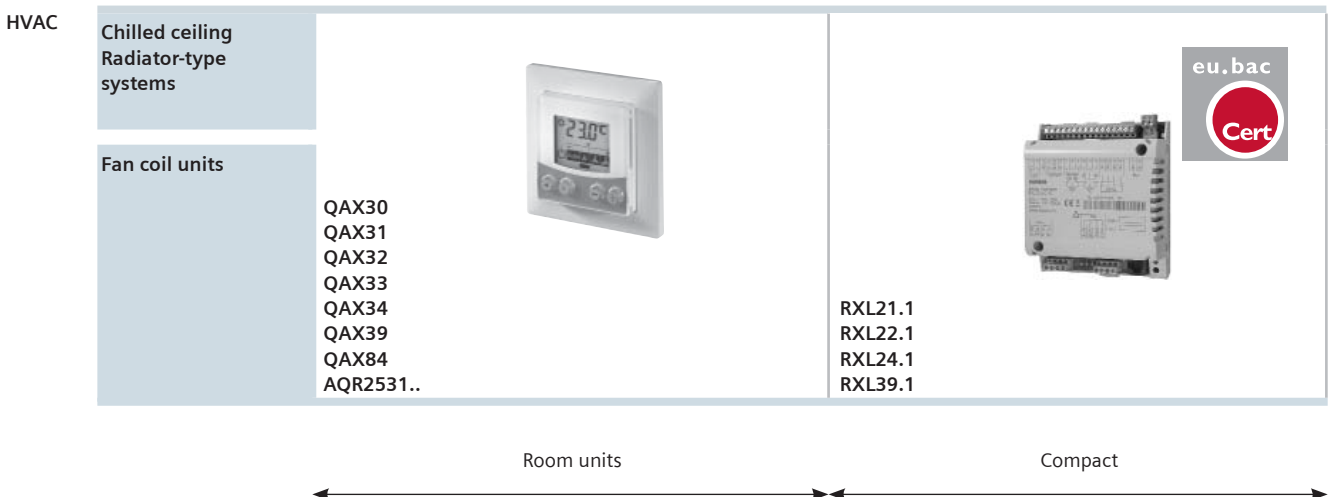
The extensive range of room operator units is available for direct operation and monitoring of setpoints and measured values in individual rooms. The range extends from very simple room temperature sensors to versatile room operator units with parameter-setting functions.

Integration into Synco™

The Synco™ central control unit RMB795 is used for controlling and monitoring the RXL controllers in a Synco™ system.

Connection to the Desigo building automation and control system

Desigo PX KNX allow for flexibly connecting RXL controllers to the Desigo building automation and control system, and hence acts as a gateway to BACnet. The connection provides access to other functions such as time schedules and central control of setpoints. RXL thus fits into the overall expandable modular system, and ensures long-term cost-efficiency.



Fields of application

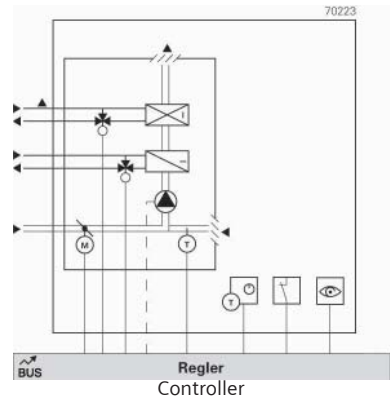
The scope of RXL is defined by the preprogrammed application software. The following pages provide an overview of the options and the corresponding devices. The devices are supplied preprogrammed with the applications. The required application can be selected by means of the Handy tool QAX34.3.

Due to the fact that the applications are predefined, engineering simply involves the definition of a small number of parameters, e. g.:

- ON / OFF or 3-point control of the valves and actuators
- Temperature setpoints
- Manual or automatic fan control

Fan coil systems

Application	Description	Devices
FNC02	2-pipe system with changeover	RXL21.1/FC-10
FNC03	2-pipe system with changeover and electrical reheater	RXL22.1/FC-12
FNC04	4-pipe system	RXL21.1/FC-10
FNC05	4-pipe system with electrical reheater	RXL22.1/FC-12
FNC08	4-pipe system with supply air temperature limitation	RXL21.1/FC-10
FNC10	2-pipe system with change over and outside air damper	RXL21.1/FC-11
FNC12	4-pipe system with outside damper	RXL21.1/FC-11
FNC18	2-pipe system with change over and radiator	RXL21.1/FC-11
FNC20	4-pipe system with air-side control	RXL21.1/FC-10
FNC02/03/04/08	2-pipe/4-pipe system with EC fan-coil support	RXL39.1/FC-13

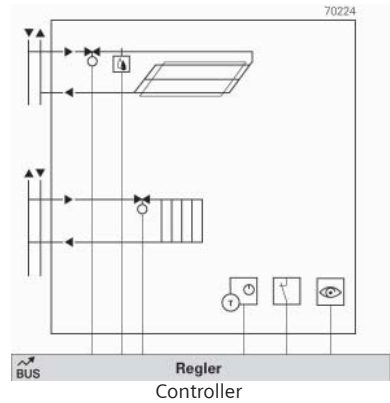


Common functions

- Window contact, occupancy detector, 4 operating modes
- Manual fan control with room unit
- Automatic fan control (RXL21.1/RXL22.1 three speed; RXL39.1 continuous speed 0...10 V)
- Options for 2-pipe systems: heating only, cooling only or changeover

Heated/chilled ceilings and radiators

Application	Description	Devices
CLC01	Chilled ceiling with dewpoint monitoring	RXL24.1/CC-02
CLC02	Chilled ceiling with dewpoint monitoring, radiator with downdraft compensation	RXL24.1/CC-02
RAD01	Radiator with downdraft compensation	RXL24.1/CC-02



Common functions

- Window contact, occupancy detector, 4 operating modes

Room automation

Overview and selection tools

Product range overview

3

RXB applications

RXB hardware

The product range comprises compact controllers and corresponding room units for comfortable control. The compact room controllers are optimized to the respective application with regard to input/output configuration. HVAC functions are operated via standard room units. Communication is based on KNX S-mode. The fan coil room controllers communicate also in KNX LTE mode. KNX LTE mode is used to communicate with control equipment from the Synco™ 700 product range.

RXB software

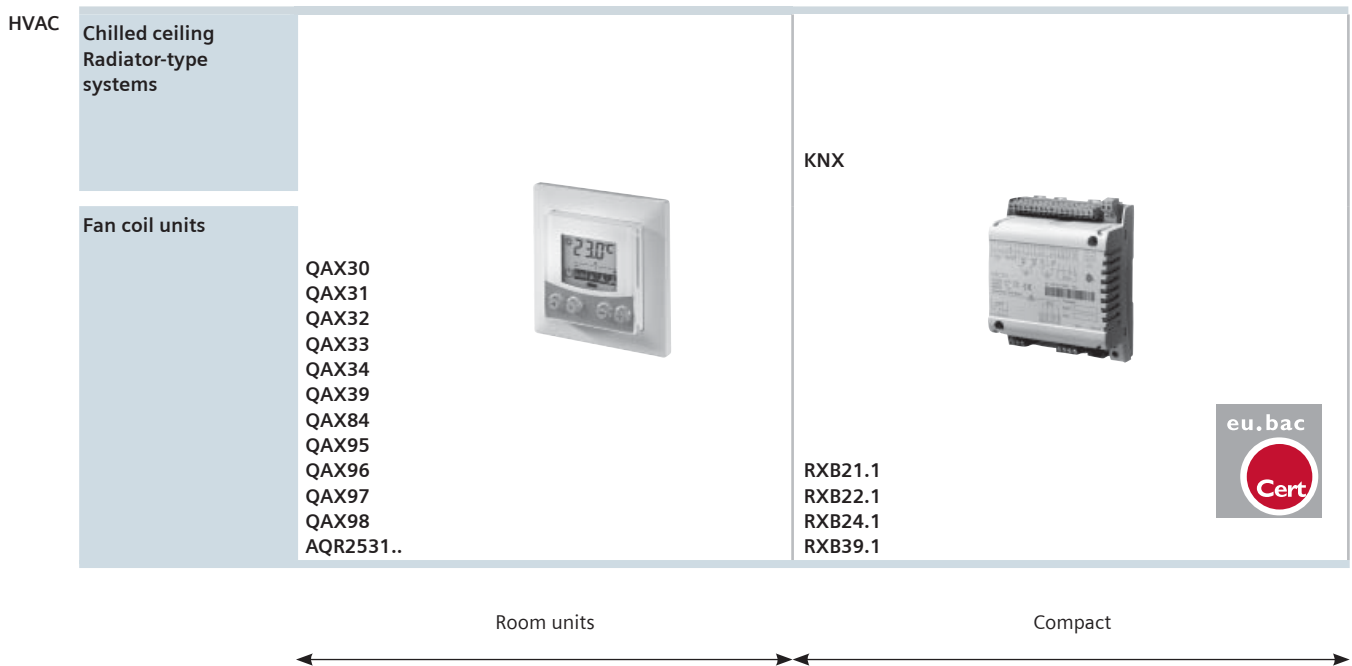
Each RXB unit comes with preloaded application software featuring one or several applications (see next page). The ETS software helps engineer and commission a network with RXB units. In addition, the Synco™ tool and room unit QAX34.3 by Siemens can be used for commissioning and parameterization.

Integration into Synco™

The Synco™ central control unit RMB795 is used for controlling and monitoring the RXB controllers in a Synco™ system.

Connection to the Desigo building automation and control system

Desigo PX KNX allow for flexibly connecting RXB controllers to the Desigo building automation and control system, and hence acts as a gateway to BACnet. The connection provides access to other functions such as time schedules and central control of setpoints. RXB thus fits into the overall expandable modular system, and ensures long-term cost-efficiency.



Fields of application

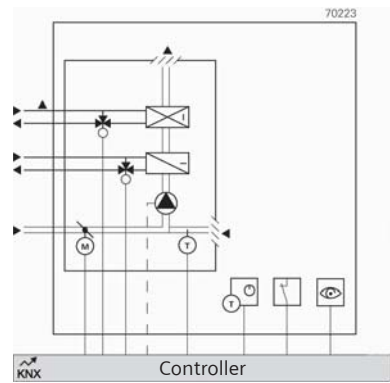
The scope of RXB is defined by the preprogrammed application software. The following pages provide an overview of the options and the corresponding devices, divided into different areas of application. The devices are supplied preprogrammed with the applications. The required application can be selected by means of the ETS, Synco™ tool or the Handy tool QAX34.3.

Due to the fact that the applications are predefined, engineering simply involves the definition of a small number of parameters, e. g.:

- ON / OFF or 3-point control of the valves and actuators
- Temperature setpoints
- Manual or automatic fan control

Fan coil systems

Application	Description	Devices
FNC02	2-pipe system with changeover	RXB21.1/FC-10
FNC03	2-pipe system with changeover and electrical reheater	RXB22.1/FC-12
FNC04	4-pipe system	RXB21.1/FC-10
FNC05	4-pipe system with electrical reheater	RXB22.1/FC-12
FNC08	4-pipe system with supply air temperature limitation	RXB21.1/FC-10
FNC10	2-pipe system with changeover and outside air damper	RXB21.1/FC-11
FNC12	4-pipe system with outside damper	RXB21.1/FC-11
FNC18	2-pipe system with change over and radiator	RXB21.1/FC-11
FNC20	4-pipe system with air-side control	RXB21.1/FC-10
FNC02/03/04/08	2-pipe/4-pipe system with EC fan-coil support	RXB39.1/FC13

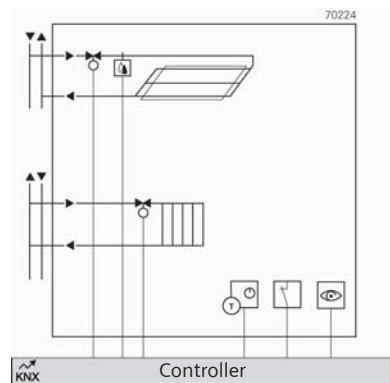


Common functions

- Window contact, occupancy detector, 4 operating modes
- Manual fan control with room unit
- Automatic fan control (RXB21.1/RXB22.1 three speed; RXB39.1 continuous speed 0...10 V)
- Options for 2-pipe systems: heating only, cooling only or change-over, via KNX bus

Heated/chilled ceilings and radiators

Application	Description	Devices
CLC01	Chilled ceiling with dewpoint monitoring	RXB24.1/CC-02
CLC02	Chilled ceiling with dewpoint monitoring and radiator	RXB24.1/CC-02
RAD01	Radiator with downdraft compensation	RXB24.1/CC-02



Common functions

- Window contact, occupancy detector, 4 operating modes

RXL2..



Room controller with bus communication

The controllers RXL2.. are used for temperature control in individual rooms.

- For 2-pipe with changeover or 4-pipe fan coil systems
- Control of thermic valve actuators AC 24 V, PDM, valve and damper actuators AC 24 V (3-position)
- Volt-free relay contacts for fan speed control
- Relay for electric heating (RXL22.1 only)
- Bus communication
- Connection to Desigo building automation and control system via PX KNX
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Application description fan coil: CM110677

Application description RAD/CLC: CM110676

Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	15 VA
Control algorithm	PI
Digital inputs, number	2
Triac outputs	ON/OFF PWM 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.5 A
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus Room unit: PPS2
Service plug	RXT20.1
Mounting location	Ceiling voids with cover Fan coil Panel
Mounting	On DIN rail With screws
Dimensions (W x H x D)	113 x 167 x 62 mm

Range overview RXL2..

Product Title	Triac outputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	4	3	N3877	BPZ:RXL21.1/FC-10	RXL21.1/FC-10
Room controller for 3-speed fan	4	3	N3877	BPZ:RXL21.1/FC-11	RXL21.1/FC-11
Room controller with 3-speed fan and electric heating coil	2	4	N3877	BPZ:RXL22.1/FC-12	RXL22.1/FC-12
Room controller for chilled ceilings and radiators	4	0	N3878	BPZ:RXL24.1/CC-02	RXL24.1/CC-02

The application determines the usable actuator (2-position /3-position) with the triac output

Communicating controllers - RXL (Bus)

For fan coil, radiator, chilled ceiling

RXL39.1/FC-13



Communicating room controller for fan-coil applications with proprietary communication

The RXL39.1 room controller is used for temperature control in individual rooms.

- For 2-pipe and 4-pipe fan coil systems with or without changeover
- PI control
- Proprietary bus communication
- Connection to Desigo building automation and control system via PX KNX
- DC 0...10 V control of valve and actuators, fan (ECM), and electric heater
- Potential-free relay contacts to release fan and electric heating
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Data sheet	N3876
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	12 VA
Control algorithm	PI
Digital inputs, number	4
Digital outputs, number	0
Analog inputs, number	2
Analog outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: Proprietär Raumgerät: PPS2
Service plug	ACS, HandyTool
Mounting	On DIN rail
Degree of protection	IP20
Dimensions (W x H x D)	152 x 120 x 62 mm

Stock No. Product No.

S55373-C122 **RXL39.1/FC-13**

Accessories for RXL..

Product Title	Data sheet	Stock No.	Product No.
Power amplifier for thermal actuators AC 24 V, PWM	N3591	BPZ:UA1T	UA1T
Terminal cover for RXA2../RXB2../RXL2../RXC2..	N3834	BPZ:RXZ20.1	RXZ20.1
Terminal cover for RXB3../RXL3../RXC3..	N3840	BPZ:RXZ30.1	RXZ30.1
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	2.14.4.4	5WG1125-1AB02	N 125/02
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	2.14.4.4	5WG1125-1AB12	N 125/12
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	2.14.4.4	5WG1125-1AB22	N 125/22

Room units for RXL..

Product Title	Data sheet	Stock No.	Product No.
Room unit with sensor and PPS2 interface	N1741	BPZ:QAX30.1	QAX30.1
Room unit with sensor, setpoint adjuster and PPS2 interface	N1741	BPZ:QAX31.1	QAX31.1
Room unit with sensor, setpoint and operating mode selector and PPS2 interface	N1641	BPZ:QAX32.1	QAX32.1
Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface	N1642	BPZ:QAX33.1	QAX33.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1645	BPZ:QAX34.1	QAX34.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	QAX34.3
Flush-mounted room unit complete with PPS2 interface and design frame	N1649	BPZ:QAX84.1/PPS2	QAX84.1/PPS2
Universal setpoint adjuster with PPS2 interface	N1646	BPZ:QAX39.1	QAX39.1

Temperature sensors for RXL..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	QAA64
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	QAM2120.040

For the complete flush mounting sensor offering including mounting plates and frames, see chapter 6

Dewpoint sensor for RXL..

Product Title	Data sheet	Stock No.	Product No.
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	QXA2601
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	QXA2602
Condensation monitor, AC 230 V	N3302	S55770-T327	QXA2603
Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T328	QXA2604

Valve actuators for RXL..

Product Title	Data sheet	Stock No.	Product No.
Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, PR	N4884	S55174-A115	STA73PR/00
Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, PR	N4884	S55174-A116	STP73PR/00
Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 24 V, 3P	N4893	BPZ:SSA81	SSA81
Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4891	BPZ:SSB81	SSB81
Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	BPZ:SSP81	SSP81

NEW PRODUCT

Room automation

Communicating controllers - RXL (Bus)

Field devices

Damper actuators for RXL..

Product Title	Data sheet	Stock No.	Product No.
Rotary air damper actuators 5 Nm, without spring return	N4634	BPZ:GDB..1E	GDB..1E
Linear air damper actuators 125 N, without spring return	N4664	BPZ:GDB..2E	GDB..2E
Rotary air damper actuators 10 Nm, without spring return	N4634	BPZ:GLB..1E	GLB..1E
Linear air damper actuators 250 N, without spring return	N4664	BPZ:GLB..2E	GLB..2E

Interfaces and tools RXB and RXL

Product Title	Data sheet	Stock No.	Product No.
Service unit with LCD	N3851	BPZ:RXT20.1	RXT20.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	QAX34.3

RXB2..



3

Room controller with KNX communication

The controllers are used for temperature control in individual rooms.

- For 2-pipe with changeover or 4-pipe fan coil systems
- For radiator and chilled ceiling (RXB24.1 only)
- Control of thermal valve actuators AC 24 V, PDM, valve and damper actuators AC 24 V (3-position) as well as KNX bus actuators
- Potential-free relay contacts for fan speed control
- Relay for electric heating (RXB22.1 only)
- KNX bus communication
- Connection to Desigo building automation and control system via PX KNX
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Application description fan coil: CM110672

Application description RAD/CLC: CM110671

Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	Max. 12 VA
Control algorithm	PI
Digital inputs, number	2
Triac outputs	ON/OFF PWM 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.5 A
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: KNX (S-mode and LTE mode) Room unit: PPS2
Service plug	RXT20.1
Mounting location	Ceiling voids with cover Fan coil Panel
Mounting	On DIN rail With screws
Dimensions (W x H x D)	113 x 167 x 62 mm

Range overview RXB2..

Product Title	Triac outputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	4	3	N3873	BPZ:RXB21.1/FC-10	RXB21.1/FC-10
Room controller for 3-speed fan	4	3	N3873	BPZ:RXB21.1/FC-11	RXB21.1/FC-11
Room controller with 3-speed fan and electric heating coil	2	4	N3873	BPZ:RXB22.1/FC-12	RXB22.1/FC-12
Room controller for chilled ceilings and radiators	4	0	N3874	BPZ:RXB24.1/CC-02	RXB24.1/CC-02

The application determines the usable actuator (2-position /3-position) with the triac output

Communicating controllers - RXB (KNX)

For fan coil, radiator, chilled ceiling

RXB39.1/FC-13



Room controller for fan-coil applications with KNX communication

The RXB39.1 room controller is used for temperature control in individual rooms.

- For 2-pipe and 4-pipe fan coil systems with or without changeover
- PI control
- KNX bus communication
- Connection to Desigo building automation and control system via PX KNX
- DC 0...10 V control of valve and actuators, fan (ECM), and electric heater
- 2 Potential-free relay contacts to release fan and electric heating
- Commissioning with ETS Professional, "Handy Tool" QAX34.3 or Synco ACS
- Operating voltage AC 230 V
- Plug-in screw terminals

Data sheet	N3875
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	12 VA
Control algorithm	PI
Digital inputs, number	4
Digital outputs, number	0
Analog inputs, number	2
Analog outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: KNX Room unit: PPS2
Service plug	ETS Professional, ACS, HandyTool
Mounting	On DIN rail
Degree of protection	IP20
Dimensions (W x H x D)	152 x 120 x 62 mm

	Stock No.	Product No.
	S55373-C121	RXB39.1/FC-13

Accessories for RXB..

Product Title	Data sheet	Stock No.	Product No.
Power amplifier for thermal actuators AC 24 V, PWM	N3591	BPZ:UA1T	UA1T
Terminal cover for RXA2../RXB2../RXL2../RXC2..	N3834	BPZ:RXZ20.1	RXZ20.1
Terminal cover for RXB3../RXL3../RXC3..	N3840	BPZ:RXZ30.1	RXZ30.1
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	2.14.4.4	5WG1125-1AB02	N 125/02
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	2.14.4.4	5WG1125-1AB12	N 125/12
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	2.14.4.4	5WG1125-1AB22	N 125/22

Room units for RXB..

Product Title	Data sheet	Stock No.	Product No.
Room unit with sensor and PPS2 interface	N1741	BPZ:QAX30.1	QAX30.1
Room unit with sensor, setpoint adjuster and PPS2 interface	N1741	BPZ:QAX31.1	QAX31.1
Room unit with sensor, setpoint and operating mode selector and PPS2 interface	N1641	BPZ:QAX32.1	QAX32.1
Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface	N1642	BPZ:QAX33.1	QAX33.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1645	BPZ:QAX34.1	QAX34.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	QAX34.3
Flush-mounted room unit complete with PPS2 interface and design frame	N1649	BPZ:QAX84.1/PPS2	QAX84.1/PPS2
Room unit with EnOcean interface	N1663	S55623-H104	QAX95.4
Room unit with EnOcean interface, setpoint adjuster	N1663	S55623-H105	QAX96.4
Room unit with EnOcean interface, setpoint adjuster, button and switch	N1663	S55623-H106	QAX97.4
Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages	N1663	S55623-H107	QAX98.4
Radio frequency receiver with Gateway EnOcean/KNX	N1662	S55842-Z101	RXZ97.1/KNX
Universal setpoint adjuster with PPS2 interface	N1646	BPZ:QAX39.1	QAX39.1

Temperature sensors for RXB..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	QAA24
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	AQR2531ANW
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	QAA64
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	QAP22
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	QAM2120.040

For the complete flush mounting sensor offering including mounting plates and frames, see chapter 6

Dewpoint sensors for RXB..

Product Title	Data sheet	Stock No.	Product No.
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	QXA2601
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	QXA2602
Condensation monitor, AC 230 V	N3302	S55770-T327	QXA2603
Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T328	QXA2604

NEW PRODUCT

Room automation

Communicating controllers - RXB (KNX)

Field devices

Valve actuators for RXB..

Product Title	Data sheet	Stock No.	Product No.
Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, PR	N4884	S55174-A115	STA73PR/00
Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, PR	N4884	S55174-A116	STP73PR/00
Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 24 V, 3P	N4893	BPZ:SSA81	SSA81
Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4891	BPZ:SSB81	SSB81
Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	BPZ:SSP81	SSP81

Damper actuators for RXB..

Product Title	Data sheet	Stock No.	Product No.
Rotary air damper actuators 5 Nm, without spring return	N4634	BPZ:GDB..1E	GDB..1E
Linear air damper actuators 125 N, without spring return	N4664	BPZ:GDB..2E	GDB..2E
Rotary air damper actuators 10 Nm, without spring return	N4634	BPZ:GLB..1E	GLB..1E
Linear air damper actuators 250 N, without spring return	N4664	BPZ:GLB..2E	GLB..2E

Interfaces and tools RXB and RXL

Product Title	Data sheet	Stock No.	Product No.
Service unit with LCD	N3851	BPZ:RXT20.1	RXT20.1
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	QAX34.3

RMB795B..



Central control unit RMB795B for RXB/RXL room controllers and room thermostats RDG/RDF/RDU

- Central control unit with integrated control and supervisory functions for individual room control with RXB and RXL room controllers and room thermostats RDG/RDF/RDU
- Individual time programs for room groups with RXB/RXL room controllers and room thermostats RDG/RDF/RDU
- Preselected operating modes and setpoints, minimum / maximum temperature supervision and supervision of RXB/RXL room controllers and room thermostats RDG/RDF/RDU
- Operation and monitoring of individual RXB/RXL room controllers
- Trend and fault reporting functions for the input variables temperature, relative / absolute humidity, pressure / differential pressure, volumetric air flow, indoor air quality, etc.
- Heating / cooling changeover function for operation with 2-pipe systems
- Flexible configuration
- Functionality can be extended (extension modules)
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the RMB795B central control unit and offer extra functions. The extension modules are attached to the RMB795B central control unit. Full operation from commissioning to enduser operation via operator unit.

Available extension modules:

- max. 1 universal module RMZ785
- max. 2 universal modules RMZ787

Available operator units:

- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791

Data sheet	N3122
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	6
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay outputs, number	4
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)

Room automation

Communicating central control unit (KNX)

Central control unit RMB.. for room controllers

Range overview RMB795B..

Product Title	Stock No.	Product No.
Central control unit RMB795B-1 with languages de, fr, it, es, pt	S55370-C162	RMB795B-1
Central control unit RMB795B-2 with languages de, fr, nl, en	S55370-C163	RMB795B-2
Central control unit RMB795B-3 with languages da, fi, no, sv	S55370-C164	RMB795B-3
Central control unit RMB795B-4 with languages cs, sk, pl, hu, ru, bg	S55370-C165	RMB795B-4
Central control unit RMB795B-5 with languages ro, sl, sr, hr, el, tr	S55370-C166	RMB795B-5
Central control unit RMB795B-6 with language zh	S55370-C167	RMB795B-6

Operator units for RMB..

Product Title	Data sheet	Stock No.	Product No.
Plug-in type operator unit	N3111	BPZ:RMZ790	RMZ790
Detached operator unit with 3 m cable	N3112	BPZ:RMZ791	RMZ791

Extension modules for RMB..

Product Title	Data sheet	Stock No.	Product No.
Universal module (8UI)	N3146	BPZ:RMZ785	RMZ785
Universal module (4UI, 4DO)	N3146	BPZ:RMZ787	RMZ787
Module connector	N3138	BPZ:RMZ780	RMZ780

Room unit with EnOcean interface

QAX95.4

- Acquisition of the room temperature
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:

- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication



Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 19 mm
Weight	0.05 kg

Stock No. Product No.

	S55623-H104	QAX95.4
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Room unit with EnOcean interface, setpoint adjuster

QAX96.4

- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:

- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication



Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No. Product No.

	S55623-H105	QAX96.4
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Room automation

For controllers RX.. (EnOcean): QAX9.. / RXZ9..

QAX97.4



Room unit with EnOcean interface, setpoint adjuster, button and switch

- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Freely-programmable button
- Step switch (2 stages)
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:

- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No. Product No.

S55623-H106 QAX97.4

QAX98.4



Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages

- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Freely-programmable button
- Step switch (5 stages)
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:

- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No. Product No.

S55623-H107 QAX98.4

Radio frequency receiver with Gateway EnOcean/KNX

RXZ97.1/KNX

- Evaluation of up to 32 EnOcean channels
- With RXB, other EnOcean functions may also be integrated: switches, window contacts, motion detectors
- Other EnOcean functions (dimming, blinds, light sensors) can be realized in KNX systems
- Powered via KNX bus
- With internal antenna



3

Data sheet	N1662
Operating voltage	DC 24 V
Voltage supply	KNX bus
Power consumption	0.6 VA
Ambient temperature, operation	-5...45 °C
Ambient humidity, operation	5...93 % r.H.
Degree of protection	IP20
Dimensions (W x H x D)	71 x 71 x 27 mm
Weight	0.07 kg

Stock No.

Product No.

S55842-Z101

RXZ97.1/KNX

Home automation – Synco living



4

Overview and selection tools	Overview of product details	4-2
Synco™ living	Central apartment unit QAX9..	4-5
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Home automation – Synco living

Overview and selection tools

Product range overview Synco living

Central apartment unit (1)



The heart and brain of the system. From here you can control all different functions for up to 12 rooms quickly and easily and monitor them via the display.

Room unit / room temperature sensor (2)



The room unit measures the room temperature and allows the settings entered into the central apartment unit, such as temperature and operating parameters, to be adjusted for individual rooms. The comfort settings can be extended at the push of a button.

The room temperature sensor measures the room temperature and communicates this by radio to the central apartment unit.

Radiator control actuator (3)



Receives the pre-set desired temperature for this room by radio signal from the central apartment unit and regulates room temperature by adjusting the radiator valve. It can also be regulate up to 5 additional radiators per room, thereby ensuring an even temperature between radiators.

Heating circuit controller / Multicontroller / Consumption data interface (4)



Compares the actual values and setpoints for each room communicated to the central apartment unit via RF and regulates the temperature by adjusting the valve settings of the heat distributor.

For precontrol of up to 2 independent hydraulic room groups (e.g. radiators, floor heating) or control of ventilation plant with up to 3 stages.

The consumption data interface collects consumption meter data of heat/cool, electricity, water and gas

Web server (5)



The web server connects the home automation system to the internet. It allows you to access and operate the system from a remote location via Smartphone, tablet or PC.

Alarm messages, reports and consumption data can be sent to email recipients as required.

Socket outlet switch (6)



For remote control of electrical appliances. Operated via central apartment unit, a handheld remote control unit or external button, all via KNX RF.

Meteo sensor (7)



Acquires the outside temperature and atmospheric pressure and communicates this via RF to the central apartment unit.

Lighting and blind control (8)



Wireless and therefore convenient control of lighting and blinds – centrally, locally in the room, or as a scene.

Naturally, the components can also be operated automatically, e.g. via time programs or simulation of presence.

Door / window contact (9)



Monitors the status of windows, doors and gates and transmits the relevant data to the central apartment unit. In the case of deviations from the norm, the system can alert you in a variety of ways, increases comfort.

Water monitor (10)



Supervision of laundry machine, dish washer, aquarium or any other potential source of water damage.

The water monitor with detached sensor for detecting water leaks sends its status by radio to the central apartment unit in the event of a water leakage.

Use Synco™ living – and technology becomes your valued companion in the house

Synco™ living is the new modular Homeautomation system from Siemens. It offers central operation and adapts all parameters for comfortable living, such as optimum room temperatures, air and light conditions, safety and security, plus economical use of energy and financial resources, to individual needs. The system can be dynamically matched to changing living conditions. Information within the system is transmitted either wire-bound (KNX TP1) or via radio (KNX RF).

To be able to satisfy all kinds of requirements in the residential sector, today's Homeautomation systems must be compatible with a large number of systems on the market. Synco™ living offers absolute openness. This means that – now or later – you can integrate almost any type of system into your Synco™ living configuration conforming to European standards.



Home automation – Synco living

Overview and selection tools

Product range overview Synco living

Synco™ living starter kit

The Synco living starter kit is a wireless room temperature control system for heating plants comprising up to 2 individual zones. A maximum of 6 radiator control actuators can be integrated in the system and the collected heat requests can be forwarded to heat generation.

KIT911



KIT914



4

Room unit (1)



Managed room heating control of up to 2 heating zones (rooms) and 6 SSA955 radiator control actuators. The unit ensures full control of the room heating functions and all data are clearly shown on the display. Furthermore, the QAW912 acquires the room temperature in the relevant room.

Radiator control actuator (2)



Receives the preset desired temperature for this room via radio signal from the room unit and regulates the room temperature by adjusting the radiator valve. It can also regulate up to 5 additional radiators per room, thereby ensuring even temperatures between radiators.

RF adapter plugs, switching (3) Heating circuit controller (3)

Receives the heat request from the room unit via radio signal and switches heat generation.



Central apartment unit with energy consumption data collection

QAX913..

The central apartment unit serves as an operator and display unit for an apartment. It manages individual room control (heating/cooling) of up to 12 rooms, comfort ventilation, precontrol and DHW control, control of air conditioning equipment, and acquires the consumption data of heat, water, electricity and gas. Additional functions include the control of lights and blinds. Door and window contacts plus smoke detectors and water monitors can be integrated for monitoring purposes.



- Management of heating and cooling control for one apartment
- Suited for heating and cooling plants with central distribution (e.g. underfloor heating) and radiators with decentral connections
- Selection of operating mode, timer and holidays / special day function for the apartment
- Independent time switches and operating modes for 12 rooms
- Flow temperature control of 2 independent room groups including limitation (min. / max.) and maintained return temperature (high / low)
- Increase of economy room temperature setpoint and minimum flow temperature setpoint depending on the composite outside temperature
- Collection of heat / cooling requests from the individual rooms and forwarding the requests to the heat/cooling sources via wired bus, heat/cooling demand relay or DC 0...10 V output to the RRV912 or RRV934
- Absence function (heating, cooling, ventilation, lights) with simulation of presence (lights)
- DHW heating with time switch and selection of operating mode
- Management of 3-stage ventilation plant via RRV934 multicontroller, incl. night cooling
- Control of air conditioners (split units) via universal outputs (locally and RRV91x) or via S-Mode (KNX TP1)
- Operation of lights and blinds via 4 softkeys, time switch and events
- Monitoring door contacts, window contacts and smoke detectors
- Display of meteorological data
- Presentation of key data on info pages
- Wireless communication with the devices of GAMMA wave and Hager tebis TX product ranges
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing

Data sheet	N2740
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP1 (wired bus)
Indoor wireless range	30 m
Display	Full graphic backlit display
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	1
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Home automation system – Synco living

Synco™ living

Central apartment unit QAX9..

Range overview QAX913..

Product Title	Data sheet	Stock No.	Product No.
Central apartment unit with energy consumption data collection, without instructions; plain text output in 23 languages Without instructions; Plain text output in bg, cs, de, dk, el, en, es, fi, fr, hr, hu, it, nl, no, pl, pt, ro, ru, sk, sl, sr, sv, tr	N2740	S55621-H126	QAX913-9
Central apartment unit with energy consumption data collection in German Instructions in de; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H111	QAX913-DE
Central apartment unit with energy consumption data collection in French Instructions in fr; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H114	QAX913-FR
Central apartment unit with energy consumption data collection Instructions in it; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H116	QAX913-IT
Central apartment unit with energy consumption data collection in Dutch Instructions in nl; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H120	QAX913-NL
Central apartment unit with energy consumption data collection in Polish Instructions in pl; plain text output in bg, cs, en, hu, pl, ru, sk	N2740	S55621-H122	QAX913-PL
Central apartment unit with energy consumption data collection in Czech Instructions in cs; plain text output in bg, cs, en, hu, pl, ru, sk	N2740	S55621-H124	QAX913-CS

Central apartment unit for HVAC and energy consumption data collection

QAX903..

The central apartment unit serves as an operator and display unit for an apartment.

It manages individual room control (heating/cooling) of up to 12 rooms, comfort ventilation, precontrol, control of air conditioning equipment, and acquires the consumption data of heat, water, electricity and gas.



- Management of heating and cooling control for one apartment
- Suited for heating and cooling plants with central distribution (e.g. underfloor heating) and radiators with decentral connections
- Selection of operating mode, timer and holidays / special day function for the apartment
- Independent time switches and operating modes for 12 rooms
- Flow temperature control of 2 independent room groups including limitation (min. / max.) and maintained return temperature (high / low)
- Increase of economy room temperature setpoint and minimum flow temperature setpoint depending on the composite outside temperature
- Collection of heat / cooling requests from the individual rooms and forwarding the requests to the heat/cooling sources via wired bus, heat/cooling demand relay or DC 0...10 V output to the RRV912 or RRV934

- Absence function (heating, cooling, ventilation)
- Management of 3-stage ventilation plant via RRV934 multicontroller, incl. night cooling
- Control of air conditioners (split units) via universal outputs (locally and RRV91x) or via S-Mode (KNX TP1)
- Display of meteorological data
- Presentation of key data on info pages
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing

Data sheet	N2741
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP1 (wired bus)
Indoor wireless range	30 m
Display	Full graphic backlit display
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	1
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Home automation system – Synco living

Synco™ living

Central apartment unit QAX9..

Range overview QAX903..

Product Title	Data sheet	Stock No.	Product No.
Central apartment unit for HVAC and energy consumption data collection, without instructions; plain text output in 23 languages Without instructions; plain text output in bg, cs, de, dk, el, en, es, fi, fr, hr, hu, it, nl, no, pl, pt, ro, ru, sk, sl, sr, sv, tr	N2741	S55621-H125	QAX903-9
Central apartment unit for HVAC and energy consumption data collection in German Instructions in de; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H110	QAX903-DE
Central apartment unit for HVAC and energy consumption data collection in French Instructions in fr; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H113	QAX903-FR
Central apartment unit for HVAC and energy consumption data collection in Italian Instructions in it; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H115	QAX903-IT
Central apartment unit for HVAC and energy consumption data collection Instructions in nl; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H119	QAX903-NL
Central apartment unit for HVAC and energy consumption data collection Instructions in pl; plain text output in bg, cs, en, hu, pl, ru, sk	N2741	S55621-H121	QAX903-PL
Central apartment unit for HVAC and energy consumption data collection Instructions in cs; plain text output in bg, cs, en, hu, pl, ru, sk	N2741	S55621-H123	QAX903-CS

Web-Server for QAX9..

Product Title	Stock No.	Product No.
Web server for 1 KNX device	BPZ:OZW772.01	OZW772.01
Web server for 4 KNX devices	BPZ:OZW772.04	OZW772.04
Web server for 16 KNX devices	BPZ:OZW772.16	OZW772.16
Web server for 250 KNX devices	BPZ:OZW772.250	OZW772.250

QAW910



Room unit

Wireless room unit.

The QAW910 is used for the operation and display of basic space heating functions. It also forwards the acquired room temperature to the central apartment unit QAX9.., either periodically or when changes occur. The room temperature is shown on the display of the QAW910.

- Operation and display of space heating functions
 - Selection of room operating mode, timer function and room temperature setpoint readjustment
 - Display of space heating function and status messages
- Acquisition of the room temperature
- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
 - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
 - Difficult wall-mounting situations (sandstone, glass, etc.)
 - Variable floor plans (different décors, furniture changes)
 - New houses and buildings
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2703
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	0...50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 130 x 23.6 mm

Stock No.	Product No.
BPZ:QAW910	QAW910



Home automation system – Synco living

Synco™ living

Room unit QAW91.. and room sensor QAA91..

QAA910



Room temperature sensor

Wireless room temperature sensor for acquiring the room temperature. During operation, the QAA910 forwards the acquired room temperature to the central apartment unit QAX9.., either periodically or in the case of changes.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
 - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
 - Difficult wall-mounting situations (sandstone, glass, etc.)
 - Variable floor plans (different décors, furniture changes)
 - New construction projects
- RF communication based on KNX standard (868 MHz, unidirectional)

Data sheet	N2701
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	0...50 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 23 mm

Stock No.	Product No.
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BPZ:QAA910	QAA910
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SSA955



Radiator control actuator

RF-based actuator for radiator valves.

The SSA955 controls the room temperature based on the data forwarded by the central apartment unit QAX9...

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Silent mode (e.g. for use in sleeping rooms)
- Automatic identification of valve stroke
- Parallel connection of multiple actuators possible
- Integrated temperature sensor
- For direct mounting with coupling nut (no tools required)
- Manual adjustment
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2700
Voltage supply	Mignon (3xAA) LR6
Battery life	3 years (2 years in silent mode)
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Sound power level	Silent mode: <25 dB (A) Normal mode: <30 dB (A)
Stroke	2.5 mm
Positioning force	110 N
Medium temperature	1...110 °C
Measuring range, temperature	0...50 °C
Ambient temperature, operation	1...50 °C
Connecting thread	M30 x 1.5
Degree of protection	IP40
Mounting position	Upright to 90° inclined
Dimensions (W x H x D)	48 x 95 x 80.6 mm

Suitable adaptors for valves of other manufacturers types AV5 . and AV6 ., see chapter " Valves and actuators for room- and zone applications"

	Stock No.	Product No.
	BPZ:SSA955	SSA955

RRV912



Heating circuit controller, 2 heating circuits

RF-based heating circuit controller for up to 2 heating circuits and DHW heating. In operation, the RRV912 maintains the required room temperature of the individual heating circuits. The central apartment unit QAX9.. forwards the relevant data via RF.

- Suited for use in heating and cooling plants
- With central distributors (e.g. underfloor heating or soft steel piping system)
- For use with motorized radiator valves (e.g. with sill covers)
- Heating circuit control with 2- or 3-position actuators
- 2 universal relay outputs, e.g. for control of the room group pump and DHW heating
- 1 universal input, e.g. for connection of a DHW temperature sensor or an alarm
- 1 universal output DC 0...10 V for forwarding the heat / cooling demand signal
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2705
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	2-position: PID, 3-position: PID
Triac output, switching voltage	AC 230 V
Triac output, switching current	30 mA
Triac outputs, number	2
Universal output, signal	DC 0...10 V
Universal output, current	max. DC 1 mA
Universal outputs, number	1
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	2
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	180 x 98 x 50 mm

	Stock No.	Product No.
	BPZ:RRV912	RRV912

RRV918



Heating circuit controller, 8 heating circuits

RF-based heating circuit controller for up to 8 heating circuits.

In operation, the RRV918 maintains the required room temperature of the individual heating circuits.
 The central apartment unit QAX9.. forwards the relevant data via RF.

- Suited for use in heating and cooling plants
- With central distributors (e.g. underfloor heating or soft steel piping system)
- For use with motorized radiator valves (e.g. with sill covers)
- Connection facility for up to eight 2-position actuators
- 1 Universal relay output, e.g. for control of the room group pump and DHW heating
- 1 Universal input, e.g. for connection of a DHW temperature sensor or an alarm
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2706
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	2-position PID
Triac output, switching voltage	AC 230 V
Triac output, switching current	30 mA
Triac outputs, number	8
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	1
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	245 x 98 x 50 mm

	Stock No.	Product No.
	BPZ:RRV918	RRV918

RRV934



Multicontroller

RF-based multicontroller for precontrol of up to 2 room groups or control of ventilation plant with up to 3 stages. All inputs and outputs are also suited for universal use. The relevant data are forwarded wirelessly by the central apartment unit QAX9...

- Suited for use in heating and cooling plants for precontrol of up to 2 room groups
- 2 primary controllers each with a DC 0...10 V actuator
- 1 primary controller with a DC 0...10 V actuator and 1 primary controller with a 3-position actuator
- Flow and return temperature limitation, optional control of room group pumps and DHW heating
- Suited for control of 3-stage ventilation plant incl. HR bypass, with impact from humidity, indoor air quality or CO₂- level, incl. fault monitoring
- Forwarding the heat / cooling demand signal to primary energy plant
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2709
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	Precontroller: PI
Universal output, signal	DC 0...10 V
Universal output, current	max. DC 1 mA
Universal outputs, number	2
Universal input, signal	Digital 0/1 LG-Ni1000 DC 0...10 V
Universal inputs, number	4
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0,02...2 (2) A
Relay outputs, number	4
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	245 x 98 x 50 mm

Stock No. Product No.

BPZ:RRV934 RRV934

WRI982



Consumption data interface

The consumption data interface collects consumption (meter) data and communicates these data using KNX RF directly to the central apartment unit (QAX913 or QAX903). Meters may be connected either via Impulse inputs or via M-Bus (wired). There is an additional interface for communication with the Synergry central communication device, OW30, for the purpose system migration.

- M-Bus MiniMaster for up to 3 M-Bus meters
- 2 Impulse inputs for impulse meters
- BatiBus communication to Synergry OZW30
- KNX RF communication to QAX913 or QAX903

Data sheet	N2735
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) BatiBus communication to Synergry OZW30
Indoor wireless range	30 m
Degree of protection	IP30
Mounting	On DIN rail or with screws
Dimensions (W x H x D)	120 x 90 x 50 mm

Stock No.	Product No.
S55621-H112	WRI982



QFP910



Water monitor

Wireless sensor for detecting water leaks.

The QFP910 sends its status (dry / water leak) to the Central Apartment Unit QAX913 periodically or if there is a change in status.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- External water leak sensor
- RF communication based on KNX standard (868 MHz, unidirectional)

Data sheet	N2732
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 23 mm

Stock No. Product No.

S55371-C100 **QFP910**

AFK914/C01



Handheld control

Handheld device for remotely operating predefined functions of the Central Apartment Unit QAX913

- Up to 4 different functions may be initiated, one for each of the four buttons
- The function of each button may be individually configured on the Central Apartment Unit
- Battery powered by commercially available lithium batteries, type CR2032 (contained in the scope of delivery)
- RF communication based on the KNX standard (868 MHz, bidirectional)
- Colored LEDs to indicate status and confirmation from the Central Apartment Unit

Data sheet	N2731
Voltage supply	Lithium button cell (1xCR2032)
Battery life	≥3 years (when operated 2.5 times per day)
Battery capacity	0.230 mAh
Communication	KNX RF-compatible, 868.3 MHz, bidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP41
Dimensions (W x H x D)	55 x 28 x 12 mm

Stock No. Product No.

S55621-H105-C901 **AFK914/C01**

Meteo sensor

QAC910



Wireless sensor for acquiring outside temperature and atmospheric pressure.
 In operation, the QAC910 forwards the acquired outside temperature and atmospheric pressure to the central apartment unit QAX9..., either periodically or when changes occur.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
 - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
 - Difficult wall-mounting situations (sandstone, glass, etc.)
 - Variable floor plans (different décors, other furniture)
 - New houses or buildings
- RF communication based on KNX standard (868 MHz, unidirectional)
 - 2-Wire cable between meteo sensor and transmitter required

Data sheet	N2702
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	-50...50 °C
Degree of protection	IP40
Additional info	Dimensions (W x H x D): Outside sensor: 80 X 92 x 50 mm RF transmitter: 84 x 84 x 23 mm

Stock No.	Product No.
BPZ:QAC910	QAC910

RF repeater

ERF910



Wireless RF repeater for extending plant.
 In operation, the ERF910 repeats the RF telegrams from the devices attuned to it.

- Extending and ensuring RF coverage in the Siemens Synco living system
- Especially suited for:
 - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
 - Difficult wall-mounting situations (sandstone, glass, etc.)
 - Variable floor plans (different décors, furniture changes)
 - New houses and buildings
- External power pack
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2704
Operating voltage	AC 230 V
Power consumption	0.2 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 23 mm

Stock No.	Product No.
BPZ:ERF910	ERF910

AP 260/11



Door/window contact wave with battery, titanium white

- For detecting the state (closed/open) of a door or window via the reed contact integrated in the device, with actuation of the reed contact through the supplied magnet for attachment to the moving part of the door or window
- Connection for an external floating contact
- 4 plug-in terminals for wire cross-sections (solid or finely stranded) of 0.14...0.5 mm² for connection of the external contact and to allow setting via a wire jumper, whether monitoring is to cover internal contact only, external contact only, or both contacts
- KNX-RF transmitter for 868.3 MHz
- Electronics powered by a lithium battery (1/2 AA 3.6 V), with a battery service life of approx. 5 years, with signaling of battery status every 24 hours, and with an LED that flashes every 10 seconds to indicate that the battery needs replacing
- Commissioning using a pushbutton located on the front of the sensor – no additional aids required
- Surface mounting
- Comprising one mounting plate for screw or adhesive fastening, clip-on radio sensor with integrated reed contact and trigger solenoid

Data sheet

TPI: Door/window contact wave AP 260

Dimensions (W x H x D)

87 x 36 x 27 mm

Battery included in delivery.

Stock No.

Product No.

5WG3260-3AB11

AP 260/11

KIT91..

Starter kit

Wireless starter kit for radiator application, consisting of:

- One QAW912 room unit - 2 heating zones
- One or 4 SSA955 radiator control actuators

The starter kit can be complemented by additional SSA955 - up to a total of 6

Data sheet	N2720
Communication	KNX RF-compatible, bidirectional, 868.3 MHz
Indoor wireless range	30 m



Range overview KIT91..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Starter kit with room unit and 1 radiator control actuator	1 x QAW912 + 1 x SSA955	N2720	S55621-H103	KIT911
Starter kit with room unit and 4 radiator control actuators	1 x QAW912 + 4 x SSA955	N2720	S55621-H104	KIT914

QAW912



Room unit with KNX RF for 2 heating zones

Wireless room unit

The QAW912 manages room heating control of up to 2 heating zones (rooms) and 6 SSA955 radiator control actuators. The unit facilitates full control of the room heating functions. All data are clearly shown on the display. Furthermore, the QAW912 acquires the room temperature in the relevant room.

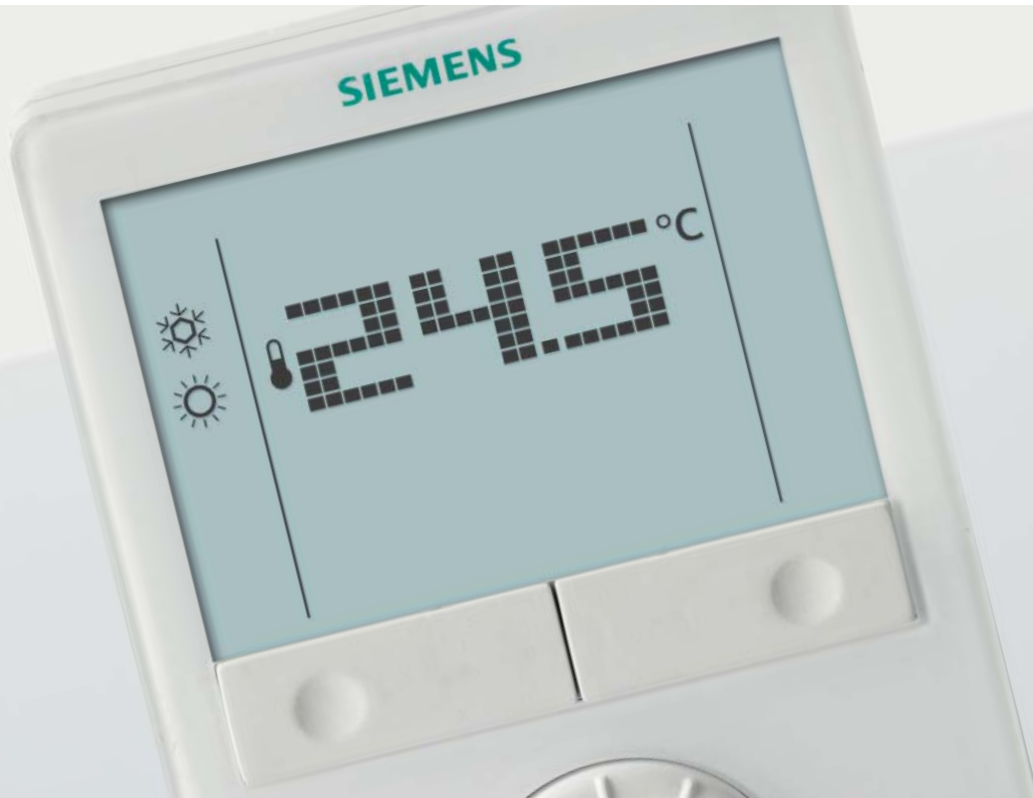
- Operation and display of the room heating functions of both heating zones:
 - Selection of room operating mode
 - Activation of comfort timer / absence timer
 - Setting of 7-day time switch, holiday period and room temperature setpoints
 - Display of room heating function and status messages (incl. all SSA955 connected via radio link)
- Acquisition of the room temperature in one room
- Battery-powered by commercially available 1.5 V batteries (supplied with the unit)
- Collection of heat requests from both rooms and forwarding them to heat generation via the RRV912
- Specifically suited:
 - For renovation projects (old building, museums, churches, historical building, etc)
 - When wall mounting is difficult (sandstone, glass, etc.)
 - If flexible floor plans are required (changing decor, different furniture)
 - For new buildings
- Radio communication based on KNX standard (868 MHz bidirectional)
- Commissioning via operating buttons - no tools required

Data sheet	N2720
Voltage supply	Mignon (2xAA) LR6
Battery life	Typically 2 years (with battery capacity ≥2.5 Ah)
Communication	KNX RF-compatible, bidirectional, 868.3 MHz
Indoor wireless range	30 m
Measuring range, temperature	0...50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 130 x 23.6 mm

Stock No. Product No.

S55621-H102 **QAW912**

Thermostats



Overview and selection tools	Overview of product details	5-2
Autonomous room thermostats	For heating and/or cooling systems - Standard RAA.. / RCU..	5-7
	For heating and/or cooling systems - Standard 5TC92..	5-11
	For heating and/or cooling systems - with display: RDD.. / RDH..	5-14
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	For fan coil units RDG1..	5-30
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Thermostats

Overview and selection tools

Overview

Room thermostats

Siemens is a leading supplier of room temperature controllers for a wide range of heating, ventilation and cooling applications in residential buildings, hotels, office and commercial buildings.











Siemens solutions meet every budget: Basic electromechanical on/off units, OpenTherm, RF-based or with infrared remote control, as well as thermostats with modulating outputs. Programmable thermostats with 24-hour or 7-day programs and non-programmable room temperature thermostats are available as analog or digital products with displays.

Quality, reliability, outstanding functionality, ease of installation and use: Our room controls satisfy your needs. The unique and acclaimed Siemens design is an additional stylish feature.

Proudly made around the world.

- Quality really is the issue
- Product lifecycles and environment in partnership
- Standards are not negotiable

5









Heating / Colling applications										
	Basic		With display		With time switch					
										
	RAA	RCU	RDD	RDH	RDE	RDG	RDG100T/H	RDJ	RAV	REV
Housing										
Setpoint knob	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Setpoint buttons			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Mechanical clock									<input checked="" type="checkbox"/>	
LED indicators	<input type="checkbox"/>								<input checked="" type="checkbox"/>	
Digital display			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Programming slider								<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Wiring										
Mains-independent	<input checked="" type="checkbox"/>									
Battery-powered			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mains-powered	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OpenTherm bus				<input type="checkbox"/>						
Radio frequency transmission				<input type="checkbox"/>				<input type="checkbox"/>		<input type="checkbox"/>
Modulating heating valve control		<input checked="" type="checkbox"/>				<input type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>
Remote control input										<input checked="" type="checkbox"/>
Analog output	<input type="checkbox"/>	<input type="checkbox"/>								
Relay output	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Functionalities										
Heating plants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cooling plants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic hot water control			<input type="checkbox"/>		<input type="checkbox"/>					
Time switch	Daily				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Weekly				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating mode	Comf. mode	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Eco mode		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Standby.		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Frost protect.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Holidays				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Control loop	2-point	2-point/PI	2-point	2-point	2-point	2-point/PI	2-point/PI	2-point	2-point PID	2-point/PID or PI





■ Valid for all variants

□ Depending on variants

★ Main feature

*Radio frequency receiver only

Fan-coils applications								
	Basic		With display		With time switch			
								
	RAB	RCC	RDG1xx	RDF3xx RDF600..	RDG100T	RDG100T/H	RDF210/IR	RDF4xx RDF600T
Housing								
Setpoint knob	■	■	■	■	■	■	■	■
LED indicators	□	★	■	■	■	■	■	■
Digital display	■	■	★	■	■	■	■	■
Auto fan speed	■	■	■	■	■	■	■	■
Semi-flush mounting	■	■	■	★	■	■	■	★
Wiring								
Mains-independent	★	■	■	■	■	■	■	■
Mains-powered	■	■	□	□	■	■	■	■
Multifunctional input	■	■	■	□	■	■	■	□
Sensor input	■	□	■	□	■	■	■	□
Changeover input	■	■	■	□	■	■	■	□
Analog output	■	□	□	□	■	■	■	■
Relay output (on/off)	■	□	□	□	■	■	■	■
Triac 2-p/3-p/PWM	■	■	□	■	■	■	■	■
ECM-Fan	■	■	□	■	■	■	■	■
Functionalities								
2-pipe-system	□	□	■	■	■	■	■	■
4-pipe system	□	□	■	□	■	■	■	□
Electric heater	■	□	□	□	■	■	■	□
Radiator	■	■	■	■	■	■	■	■
Time switch weekly	■	■	■	■	★	■	★	★
Comfort	■	■	■	■	■	■	■	■
Operating mode	■	■	■	■	■	■	■	■
Standby/Prot.	□	■	■	■	■	■	■	■
Frost protect.	■	□	■	■	■	■	■	■
Control loop	2-point	2-point/PI	2-point/PI	2-point	2-point/PI	2-point	2-point	2-point
Infrared remote control	■	■	■	□	■	■	■	□
KNX-Communication	■	■	□	□	■	■	■	■




Heat Pumps applications				
	Whit Display		With time switch	
				
	RDG110 / RDG160KN	RDF3xx / RDF600..	RDF4xx / RDF600T	RDF210/IR
Housing				
Digital display	■	■	■	■
Fan speed command	- / 1 / 3 / DC	1 / 3	1 / 3	3
Wiring				
Mains-powered	■	■	■	■
Sensor input	■	■	■	■
Relay output	■	■	■	■
Functionalities				
Electric heater	■	■	■	■
DX compressor	■	□	□	■
Manuel Heat / Cool changeover	■	■	■	■
Weekly time clock	■	■	■	■
Comf. mode	■	■	■	■
Operating mode	■	■	■	■
Eco mode	■	■	■	■
Standby.	■	■	■	■
Frost protect.	■	■	■	■
Control loop	2-point	2-point	2-point	2-point
KNX-communication	□	□	■	■

■ Valid for all variants □ Depending on variants ★ Main feature *Radio frequency receiver only ¹⁾suppress 5-3

Thermostats

Overview and selection tools

Overview

VAV applications			
	Basic	With display	
			
	RCU5x	RDU34..	RDG400..
Housing			
Setpoint knob	■		■
Digital display		■	■
Semi-flush mounting		■	
Wiring			
Mains-powered	■	■	■
Senor input		■	■
Changeover input	□	■	■
Analog output	■	■	■
Relay output		■	
Functionalities			
Manuel Heat / Cool changeover	□	■	■
External setpoint shift	□		
Vmin Cooling	■	■	■
Operating mode	■	■	■
Comf. mode	■	■	■
Eco mode	■	■	■
Sandby/Prot. mode	■	■	■
Frost protect.	■	■	■
Control loop	2-point	P/PI	P/PI
KNX-communication		□	□

■ Valid for all variants □ Depending on variants ★ Main feature

5

Overview

Type	Function				Setting range	Switching cap. AC 24...250 V	Approvals							IP	Set		Sensor element / mounting				Applications ⁴⁾														
	Control thermostat (TR)	Thermal reset thermostat (TW)	Limit thermostat (TB)	Safety limit thermostat (STB)			TR / TW: Set point [°C]	TB / STB: Setpoint cut-out temperature [°C]	Capillary length [mm]	1 - 2: 10 (2.5) A	1 - 3: 6 (2.5) A [TB / STB: 0.5 A]	1 - 2: 16 (2.5) A	1 - 3: 6 (2.5) A [STB: 2 (0.5) A]		CE (73/23/EEC, 89/336/EEC, EN60730)	ENEC (European Norms Elec. Certif.)	PED (Pressure Equipment Directive)	EN14597 (old approval: DIN3440)	ISPESL	C-Tick	Degree of protection (IP)	Pocket ALT-SB100 / ALT-DB100 (length mm)	Clamping band for piping up to Ø 105 mm	Clamping spring for piping Ø 9.5... 16 mm	Remote line – Sensor with capillary line	Surface thermostat – Sensor attached to housing	Ductwork – The entire capillary as sensor (at least 30 cm for detection)	Immersion – immersion sensor	Room thermostat – Helix sensor	Temperature control	Temperature limitation	Frost protection	Air conditioning	Heating boilers	Domestic hot water heating
RAK-ST.010FP-M					95	700										43	100																		
RAK-ST.020FP-M					100	700											43	100																	
RAK-ST.030FP-M					110	700											43	100																	
RAK-ST.1430S-M					80...100	1600											43																		
RAK-ST.1310P-M					90...110	700											43	100																	
RAK-ST.1300P-M					120...130	700											43	100																	
RAK-TB.1400S-M					45...60	700											43																		
RAK-TB.1410B-M					50...70	700											43	100																	
RAK-TB.1420S-M					65...80	700											43																		
RAK-TR.1000B-H					15...95	700											43	100																	
RAK-TR.1000S-H					15...95	700											43																		
RAK-TR.1210B-H					15...82	700											43	100																	
RAK-TW.1000B-H					15...95	700											43	100																	
RAK-TW.1000S-H					15...95	700											43																		
RAK-TW.1200B-H					40...120	700											43	100																	
RAK-TW.1200S-H					40...120	700											43																		
RAK-TW.5000S-H ³⁾					65...5	1600											43																		
RAK-TW.5010S-H ³⁾					50...-10	1600											43																		
RAK-TW.5000HS ³⁾					65...5	1600											65																		
RAK-TW.1200HP					40...120	700											65	100																	
RAK-TW.1000HB					15...95	700											65	100																	
RAK-ST.1600MP					95...130	700											65	100																	
RAK-ST.1385M					40...70	700											65																		
RAZ-ST.011FP-J					TR: 15...95 STB: 100	700											40	100																	
RAZ-ST.030FP-J					TR: 15...95 STB: 90...110	700											40																		
RAM-TR.2000M					20...90												20																		
RAM-TW.2000M					20...90												20	100																	
RAZ-ST.1510P-J					TR: 15...95 STB: 90...110	700											40	100																	
RAZ-ST.1500P-J					TR: 15...95 STB: 110...130	700											40	100																	
RAZ-TW.1000P-J					TR: 15...95 TW: 15...95	700											40	100																	
RAZ-TW.1200P-J					TR: 40...120 TW: 40...120	700											40	100																	
TKM2					20...110	-		10 (2) A									54	200																	
RYT182					Change-over Thermostat 30 °C, 19 °C	-		3 A									54																		
QAF63.2 ¹⁾				Sensor	0...15	2000	see Data sheet				nr	nr	nr	nr	nr	42																			
QAF63.6 ¹⁾				Sensor	0...15	6000	see Data sheet				nr	nr	nr	nr	nr	42																			
QAF64.2 ¹⁾					0...15	2000	see Data sheet				nr	nr	nr	nr	nr	42																			
QAF64.6 ¹⁾					0...15	6000	see Data sheet				nr	nr	nr	nr	nr	42																			
QAF81.3					-5...15	3000	10 (2) A				nr	nr	nr	nr	nr	54																			
QAF81.6					-5...15	6000	10 (2) A				nr	nr	nr	nr	nr	54																			
QAF81.6M					-5...15	6000	10 (2) A				nr	nr	nr	nr	nr	54																			
QAF65.3-J					-5...15	3000	16 (4) A				nr	nr	nr	nr	nr	43																			
TRG2 ²⁾					-5...50	-		10 (2) A								54																			
TRG22					-5...50	-		10 (2) A								54																			

¹⁾ Electronic frost protection unit with 0...10 V (0...15 °C) output signal / manual or automatic reset function
²⁾ With variable switching differential TRG2: 0,7..6 K
³⁾ An ALT-AB200 protection pocket is generally used for ductwork
⁴⁾ This field should not be considered complete or all encompassing. Various other applications are possible.
nr) not required

Thermostats
Autonomous room thermostats
For heating and/or cooling systems - Standard RAA.. / RCU..

Electromechanical room thermostats

RAA..1..

2-position controller for controlling the room temperature. The required temperature is adjusted with the setting knob on the front of the unit.

- Gas-filled diaphragm
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	8...30 °C
Switching differential	≤1 K
Switching voltage	AC 24...250 V
Switching current	0.2...6 (2) A

Electromechanical room thermostat, public sector model

RAA11

- Heating only or cooling only
- No operating elements on the front of the unit

Data sheet	N3561
Dimensions (W x H x D)	96 x 97 x 36 mm



	Stock No.	Product No.
	S55770-T219	RAA11

Electromechanical room thermostat, basic model

RAA21

- Heating only or cooling only
- Setpoint adjustment with knob

Data sheet	N3562
Dimensions (W x H x D)	96 x 97 x 35.3 mm



	Stock No.	Product No.
	S55770-T220	RAA21

Electromechanical room thermostat with large setpoint knob

RAA200

- Heating or cooling
- Specific large housing and setpoint knob

Data sheet	N3002
Dimensions (W x H x D)	105 x 124 x 44 mm



	Stock No.	Product No.
	BPZ:RAA200	RAA200

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - Standard RAA.. / RCU..

RAA31



Electromechanical room thermostat with on/off switch

- Heating only or cooling only
- Setpoint adjustment with knob
- On / off switch

Data sheet N3563

Dimensions (W x H x D) 96 x 97 x 35.3 mm

Stock No.

Product No.

S55770-T221

RAA31

RAA31.16



Electromechanical room thermostat with on/off switch and LED

Same functionality as RAA31 plus mode indication (red LED, needed AC 230 V)

Data sheet N3563

Operating voltage AC 230 V

Power consumption 0.5 VA

Dimensions (W x H x D) 98 x 97 x 35.3 mm

Stock No.

Product No.

S55770-T222

RAA31.16

RAA31.26



Electromechanical room thermostat with on/off switch and LED, auxiliary switch and LED

Same functionality as RAA31 plus 2 mode indications (red LED, needed AC 230 V) and additional independent on / off switch.

Data sheet N3563

Operating voltage AC 230 V

Power consumption 0.5 VA

Dimensions (W x H x D) 99 x 110 x 35.3 mm

Stock No.

Product No.

S55770-T223

RAA31.26

RAA41



Electromechanical room thermostat with selector heating/off/cooling, 1 output

- Heating or cooling
- Setpoint adjustment with knob
- Switch for cooling / off / heating

Data sheet N3564

Dimensions (W x H x D) 98 x 97 x 35.3 mm

Stock No.

Product No.

S55770-T224

RAA41

Thermostats
Autonomous room thermostats
For heating and/or cooling systems - Standard RAA.. / RCU..

Accessories for RAA..1..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	ARG70.1
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	ARG70.2

Universal room thermostat for heating and cooling systems

RCU.. Universal

- Electronic room temperature controller for heating and cooling operation
- PI control
- Operating mode changeover input for remote control
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range 8...30 °C
Dimensions (W x H x D) 97 x 114 x 43 mm

Universal room thermostat for 4-pipe systems, AC 230 V, positioning signal 2 pt or PWM

RCU10

- Heating and cooling sequence
- 2nd heating sequence
- Selectable P-band
(1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Selectable dead zone (2 K or 5 K)
- Frost protection function

Data sheet N3041

Operating voltage AC 230 V
Triac outputs PWM or ON/OFF
Triac output, switching voltage AC 230 V
Triac output, switching current 0.02...1 A



	Stock No.	Product No.
	BPZ:RCU10	RCU10

Universal room thermostat for 4-pipe systems, AC 24 V, positioning signal 2 pt or PWM

RCU15

Same functionality and technical data as RCU10

In addition:

- Optional control depending on the room or return air temperature (with sensor QAH11.1)

Data sheet N3048

Operating voltage AC 24 V
Triac outputs PWM or ON/OFF
Triac output, switching voltage AC 24 V
Triac output, switching current 0.02...1 A



	Stock No.	Product No.
	BPZ:RCU15	RCU15

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - Standard RAA.. / RCU..

RCU20



Universal room thermostat for 2-pipe systems, AC 230 V, positioning signal 3 pt

- Heating or cooling sequence
- Automatic heating / cooling changeover (with sensor QAH11.1)
- Fixed P-band (4 K heating, 2 K cooling)
- 3-position positioning signal output

Data sheet	N3042
Operating voltage	AC 230 V
Triac output, switching voltage	AC 230 V
Triac output, switching current	0.02...1 A
Triac outputs	3-position

Stock No.	Product No.
-----------	-------------

BPZ:RCU20	RCU20
-----------	-------

Accessories for RCU..

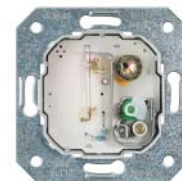
Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	ARG70.1
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	ARG70.2

Thermostats
Autonomous room thermostats
For heating and/or cooling systems - Standard 5TC92..

Room thermostat 1 NC contact

5TC9200

- Standard version with nighttime reduction
- For electric and warm water convectors, pumps and tank control
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- The temperature range is shifted downward by approx. 5 K during temperature reduction control
- Screwless connecting terminals



Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NC contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.	Product No.
5TC9200	5TC9200

Room thermostat, 1 NO contact

5TC9201

- Standard version
- For electric and warm water convectors, pumps and tank control
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off and the NO contact (cooling contact) will close
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- Screwless connecting terminals



Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free CO contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.	Product No.
5TC9201	5TC9201

5

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - Standard 5TC92..

5TC9202



Room thermostat, 3-position switch

- 3-position switch: automatic timing, constant day temperature, constant nighttime reduction
- For electric and warm water convectors, pumps and tank control
- The switch S1 can be used to preselect the temperature reduction between clock/day and night
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- The temperature range is shifted downward by approx. 5 K during temperature reduction control
- Screwless connecting terminals

Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NC contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.

Product No.

5TC9202

5TC9202

5TC9203



Room thermostat, direct floor heating

- With remote sensor
- NO switching contact
- For regulating floor storage heating systems and electric floor heating systems with heating mats
- Comprising two parts: Controller (for setting the desired floor temperature) and remote sensor (in the floor for monitoring the set temperature)
- Rotary knob for setting the floor temperature
- If the temperature drops below this value, the controller will request heat; this is indicated optically by a red LED
- A nighttime reduction can be activated via the connection (time switch); this is indicated by a green LED
- Temperature reduction approx. 5 K
- Screwless connecting terminals

Setpoint setting range	10...50 °C
Switch-off point	10...50 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NO contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.

Product No.

5TC9203

5TC9203

Thermostats
Autonomous room thermostats
For heating and/or cooling systems - Standard 5TC92..

Cover plates for room thermostat, NC/CO

5TC9 2..01

Cover plates for room temperature controllers:

- With rotary button to set the temperature

Degree of protection IP20
 Dimensions (W x H x D) 55 x 55 x 13 mm



Range overview 5TC92..01

Color	Stock No.	Product No.
Electro white	5TC9220	5TC9 220
Titanium white	5TC9221	5TC9221
Aluminum metallic	5TC9250	5TC9250
Carbon metallic	5TC9251	5TC9 251

Cover plates for room thermostat, 3-position switch

5TC9 2..02

Cover plates for room temperature controllers:

- With rotary button to set the temperature
- With 3-position switch, possible positions: Automatic timing, Constant day temperature, Constant nighttime reduction

Degree of protection IP20
 Dimensions (W x H x D) 55 x 55 x 13 mm



Range overview 5TC92..02

Color	Stock No.	Product No.
Titanium white	5TC9223	5TC9223
Aluminum metallic	5TC9252	5TC9252
Carbon metallic	5TC9253	5TC9 253
Electro white	5TC9222	5TC9 222

Cover plates for room thermostat, direct floor heating

5TC9 2..03

Cover plates for room temperature controllers:

- With rotary button to set the temperature
- With On/Off switch
- Nighttime reduction indicated by a green LED
- Heating indicated by a red LED

Degree of protection IP20
 Dimensions (W x H x D) 55 x 55 x 13 mm



Range overview 5TC92..03

Color	Stock No.	Product No.
Titanium white	5TC9225	5TC9225
Aluminum metallic	5TC9254	5TC9254
Carbon metallic	5TC9255	5TC9 255
Electro white	5TC9224	5TC9 224

5

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - with display: RDD.. / RDH..

RDD100..

Room thermostats with LCD

- 2-position control with on / off positioning signal output for heating
- Operating modes: Normal operation and energy saving mode
- Automatic operating mode changeover as an option
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range	5...35 °C
Switching differential	1 K
Relay outputs	Change-over contact, potential-free
Relay output, switching current	5 (2) A

RDD100

Room thermostat with LCD, AV 230 V



Data sheet	N1420
Operating voltage	AC 230 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.

Product No.

S55770-T275

RDD100

RDD100.1

Room thermostat with LCD, battery



Data sheet	N1420
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.

Product No.

S55770-T276

RDD100.1

RDD100.1DHW

Room thermostat with LCD, battery, Auto Timer, independent DHW



- 2-position control with on / off positioning signal output for heating
- Operating modes: Normal operation, energy saving mode and frostprotection
- Independent ON / OFF control for "Domestic Hot Water" boiler or equipment

Data sheet	N1421
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Stock No.

Product No.

S55770-T277

RDD100.1DHW

5

Semi flush-mounted room thermostat with LCD

RDD310



- Operating voltage AC 230 V
- 2-position control with On / Off control output
- Input for an external temperature sensor (QAH11.1 / QAA32)
- Temperature limitation function for heating, controlled by external temperature sensor (optional)
- Operating modes: Comfort, Energy Saving and Frost Protection
- Manual changeover of current operating mode
- Maximum and minimum setpoint limitation
- Backlit LCD
- Mounting on recessed rectangular conduit box, fixing center at 60.3mm (ARG71)

Data sheet	N3077
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Dimensions (W x H x D)	96 x 119 x 24 mm

Stock No.	Product No.
S55770-T107	RDD310

Accessories for RDD310

Product Title	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	S55770-T137	ARG71

Electronic room thermostat, LCD, setting knob

RDH..

Mains independent, battery powered electronic room temperature controller with 2-position output. The required temperature is adjusted with the large setting knob on the front of the unit.

- Easy operation by large setting knob and large display
- for heating or cooling
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)



Voltage supply	Mignon (2xAA)
Operating voltage	DC 3 V
Battery life	1 year
Setpoint setting range	5...30 °C
Relay outputs, number	1
Relay outputs	Change-over contact, potential-free
Relay output, switching voltage	24...250 V
Relay output, switching current	0.2...5 (2) A
Switching differential	1 K
Dimensions (W x H x D)	120 x 90 x 35 mm

Range overview RDH..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat, LCD, setting knob	N3069	BPZ:RDH10	RDH10
Room thermostat radio frequency set (transmitter and receiver), LCD, setting knob	N3070	BPZ:RDH10RF/SET	RDH10RF/SET

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - with display: RDD.. / RDH..

Accessories for RDH..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	ARG70.1
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	ARG70.2

REV..

**Electronic room thermostat with time switch, LCD and selection slider**

Mains-independent, battery-operated room temperature controllers featuring user-friendly operation, easy-to-read display and large numbers

- Self-learning two-position controller with PID response (REV13.., REV17.., REV24..)
- 3-position controller with PI response (for REV34..)
- Remote operation (REV13.., REV17.., REV24, REV24DC, REV34..)
- Override button
- Sensor calibration and reset function
- Frost protection function and minimum limitation of setpoint
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: grey RAL7038

Operating mode selection:

- Automatic modes with time switch program
- Automatic mode with one or two heating phases (REV13..)
- Automatic mode with up to three comfort phases (REV17.., REV24.., REV34..)
- Exception day mode with up to three comfort phases (REV17.., REV24.., REV34..)
- Continuous comfort mode
- Continuous energy saving mode
- Frost protection

Operating voltage	DC 3 V
Battery life	2 years
Setpoint setting range	3...35 °C
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	0.1...6 (2.5) A For RF versions: 0.2...16 (2) A

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - with time clock: REV.. / RDJ.. / RDE.. / RAV..

Range overview REV.. Slider

Product Title	Dimensions (H x W x D) [mm]	Data sheet	Stock No.	Product No.
Room thermostat with 2-point control and 24-hour time switch, batteries, only heating	130 x 94 x 30	N2201	BPZ:REV13	REV13
Room thermostat with 2-point control and 24-hour time switch, batteries, only heating, receive time signal DCF77	130 x 94 x 30	N2201	BPZ:REV13DC	REV13DC
Room thermostat with 2-point control and 7-day time switch, batteries, only heating	134.5 x 94 x 30	N2203	BPZ:REV17	REV17
Room thermostat with 2-point control and 7-day time switch, batteries, only heating, receive time signal DCF77	134.5 x 94 x 30	N2203	BPZ:REV17DC	REV17DC
Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling	134.5 x 94 x 30	N2205	BPZ:REV24	REV24
Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling, receive time signal DCF77	134.5 x 94 x 30	N2205	BPZ:REV24DC	REV24DC
Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling, receive time signal DCF77	134.5 x 94 x 30	N2206	BPZ:REV24RFDC/SET	REV24RFDC/SET
Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling	134.5 x 94 x 30	N2206	BPZ:REV24RF/SET	REV24RF/SET
Room thermostat with 3-point control and with 7-day time switch, batteries, only heating	134.5 x 94 x 30	N2208	BPZ:REV34	REV34
Room thermostat with 3-point control and with 7-day time switch, batteries, only heating, receive time signal DCF77	134.5 x 94 x 30	N2208	BPZ:REV34DC	REV34DC

RDJ..

**Electronic room thermostats with 24-hour time switch, LCD, setting knob**

Mains independent, battery powered electronic room temperature controller with 2-position output.

The required temperature is adjusted with the large setting knob on the front of the unit.

- Easy operation by large setting knob and large display
- for heating or cooling
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Voltage supply	Mignon (2xAA)
Operating voltage	DC 3 V
Battery life	1 year
Setpoint setting range	5...30 °C
Relay outputs	Change-over contact, potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	0.2...5 (2) A
Relay outputs, number	1
Switching differential	1 K
Dimensions (W x H x D)	120 x 90 x 35 mm

Range overview RDJ..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat with 24-hour time switch, LCD, setting knob	N3071	BPZ:RDJ10	RDJ10
Room thermostat radio frequency set (transmitter and receiver) with 24-hour time switch, LCD, setting knob	N3072	BPZ:RDJ10RF/SET	RDJ10RF/SET

Accessories for RDJ..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70

Room thermostats with 7-day time switch and LCD

RDE100..

- 2-position control with on/off output for heating
- Operating modes: Normal and energy-saving mode
- Programmable 7-day time switch and manual operation
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range	5...35 °C
Switching differential	1 K
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Room thermostat with 7-day time switch and LCD, AC 230 V

RDE100

Data sheet	N1422
Operating voltage	AC 230 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free



Stock No.	Product No.
S55770-T278	RDE100

NEW PRODUCT

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - with time clock: REV.. / RDJ.. / RDE.. / RAV..

RDE100.1



Room thermostat with 7-day time switch and LCD, battery

Data sheet	N1422
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free

Stock No.

Product No.

S55770-T279

RDE100.1

RDE100.1DHW



Room thermostat with 7-day time switch and LCD, battery, Auto Timer, independent DHW

- 2-position control with ON / OFF output for heating
- Independent ON / OFF control of DHW
- Operating modes: Auto, normal operation, energy saving and frost protection
- 7-day time switch and manual control

Data sheet	N1423
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free
Switching differential	1 K

Stock No.

Product No.

S55770-T280

RDE100.1DHW

RDE410



Semi flush-mounted room thermostat with 7-day time switch and LCD

- Operating voltage AC 230 V
- 2-position control with On / Off control output
- Input for an external temperature sensor (QAH11.1 / QAA32)
- Temperature limitation function for heating, controlled by external temperature sensor (optional)
- Operating modes: Comfort, Energy Saving and Frost Protection
- Manual changeover of current operating mode
- Maximum and minimum setpoint limitation
- Backlit LCD
- Mounting on recessed rectangular conduit box, fixing center at 60.3mm (ARG71)
- Auto Timer mode with 8 programmable timers
-

Data sheet	N3077
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Dimensions (W x H x D)	96 x 119 x 24 mm

Stock No.

Product No.

S55770-T108

RDE410

Accessories for RDE410

Product Title	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	S55770-T137	ARG71

room thermostat with 24-hour or 7-day time switch

RAV11..

- Mains-independent, electronic PID controller with 2-position output, battery-powered
- With analog 24-hour time switch
- Self-learning 2-position controller with PID control (patented)
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)



Operating modes:

- 24-hour or 7-day mode with heating periods according to the analog time switch
- Continuous Comfort mode
- Continuous Economy mode
- Standby with frost protection

Data sheet	N2224
Operating voltage	DC 3 V
Battery life	2.5 years
Setpoint setting range	5...30 °C
Relay outputs	N.O. contact, Potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	8 (3.5) A
Relay outputs, number	1
Dimensions (W x H x D)	128 x 104 x 37 mm

Range overview RAV11..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat with 24-hour time switch	N2224	BPZ:RAV11.1	RAV11.1
Room thermostat with 7-day time switch	N2224	BPZ:RAV11.7	RAV11.7

Thermostats

Autonomous room thermostats

For heating and/or cooling systems - Application examples REV..

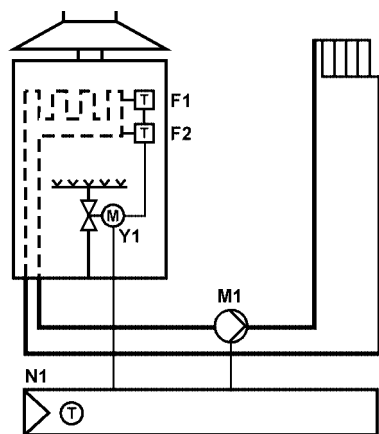
Application examples REV..

These are only a few examples of many applications that can be done with the thermostat REV..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the REV.. data sheet..

REV24

HAA001 EV2 HQ



Application examples REV..

Room temperature controller with 7-day time switch, acting on on/off device

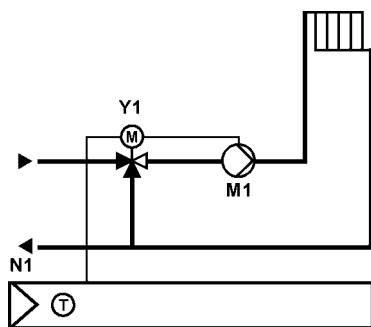
These are only a few examples of many applications that can be done with the thermostat REV..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the REV.. data sheet..

- 7-day time switch programme
- Three different 24-hour operating modes
- Continuous normal temperature mode
- Continuous economy temperature mode
- Standby with frost protection mode
- Holiday mode
- Override mode button
- Sensor calibration
- Installer parameter setting for pump kick and cooling
- Installer parameter setting for optimum start control in the morning
- Installer parameter setting for minimum limitation of set point
- Digital user interface
- Installer choice of algorithm: PID self learning; PID 12; PID 6; or 2-point

REV34

H0C002 EV3 HQ



Room temperature controller with 7-day time switch, acting on 3-position valve actuator

- 3-position controller with PI control
- 7-day time switch programme
- Three different 24-hour operating modes
- Continuous comfort temperature mode
- Continuous economy temperature mode
- Standby with frost protection mode
- Holiday mode
- Override mode button
- Digital user interface
- Sensor calibration
- Installer parameter setting for optimum start control in the morning
- Installer parameter setting for minimum limitation of set point
- Installer parameter setting for room size and heating capacity

Electromechanical room thermostats for fan coils

RAB..1..

Electromechanical room temperature controllers for fan coil for heating and/or cooling applications. Manual three-speed fan control. The required room temperature is adjusted with the setpoint knob on the front of the unit.

- Gas-filled diaphragm
- 2-position control
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	8...30 °C
Switching differential	≤1 K
Switching voltage	AC 250 V
Switching current	0.2...6 (2) A
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling

RAB11

- Heating or cooling applications
- Selector for heating or cooling mode
- Selector for manual 3-speed fan operation
- Manual fan operation or automatic fan operation parallel with the valve can be configured inside the unit

Data sheet	N3015
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Stock No.	Product No.
S55770-T225	RAB11

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling/fan only

RAB11.1

Same functionality and technical data as RAB11. Additional selector position for ventilation (heating and cooling inactive).

Data sheet	N3015
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Stock No.	Product No.
S55770-T226	RAB11.1

Electromechanical room thermostat for 2-pipe fan coils, basic model

RAB21

- Heating or cooling applications
- Selector for manual 3-speed fan operation
- Changeover function, heating or cooling (with external automatic aquastat)
- Manual fan operation or automatic fan operation parallel with cooling / heating mode can be configured inside the unit

Data sheet	N3016
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Stock No.	Product No.
S55770-T227	RAB21

Thermostats

Autonomous room thermostats

For fan coil units RAB..

RAB21.1



Electromechanical room thermostat for 2-pipe fan coils, selector heating-cooling/fan only

Same functionality and technical data as RAB21. Additional selector for changeover between heating / cooling and ventilation.

Data sheet N3016

Stock No. Product No.

S55770-T228 **RAB21.1**

RAB31



Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling

- Heating or cooling applications
- Selector for heating or cooling mode
- Selector for 3-speed fan operation
- Manual fan operation or automatic fan operation parallel with heating / cooling mode (depending on the selector's position) can be configured inside the unit

Data sheet N3017

Stock No. Product No.

S55770-T229 **RAB31**

RAB31.1



Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling/fan only

Same functionality and technical data as RAB31. Additional selector position for ventilation (heating and cooling inactive).

Data sheet N3017

Stock No. Product No.

S55770-T230 **RAB31.1**

RAB91



Fan speed switch, 3-stage

Selector for 3-speed fan operation

Data sheet N3018

Switching voltage AC 24...250 V

Stock No. Product No.

S55770-T231 **RAB91**

Accessories for RAB..1..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	ARG70.1
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	ARG70.2

Thermostats

Autonomous room thermostats

For fan coil units RCC..

RCC..

Electronic room thermostats for fan coils

- For heating and cooling applications
- Operating mode selector
- LEDs for indicating the operating state
- Setting knob for room temperature adjustment
- External operating mode changeover contact
- Various operating modes (normal and energy saving mode, etc.)

Setpoint setting range	8...30 °C
Relay output, switching voltage	AC 230 V
Dimensions (W x H x D)	97 x 114 x 43 mm

RCC10



Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor

- Heating or cooling sequence
- Automatic heating/cooling changeover (with sensor QAH11.1)
- Operating mode changeover input for remote control
- Outputs for 3-speed fan (0 / I / II / III)
- 2-position control
- Selectable switching differential (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Input for return temperature sensor (QAH11.1)
- Frost protection mode

Data sheet	N3021
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A
Relay outputs	Fan: 3-position switch with N.O. contacts, non-floating Valve: change-over contact, non-floating

Stock No. Product No.

BPZ:RCC10

RCC10

Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor, el. heater

RCC20

- Heating or cooling sequence
- Automatic heating/cooling changeover (with sensor QAH11.1)
- Operating mode changeover input for remote control
- Output for electrical heater
- 2-position control
- Selectable switching differential (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Selectable dead zone (2 K or 5 K)
- Input for return air temperature sensor (QAH11.1)
- Frost protection mode
- Outputs for 3-speed fan (0 / I / II / III)



Data sheet	N3022
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A Electric heater: 0.1...5.4 A
Relay outputs	Fan: 3-position switch with N.O. contacts, non-floating Valve and electric heater: NO contacts, non-floating

Stock No.	Product No.
BPZ:RCC20	RCC20

Room thermostat for 4-pipe fan coils, AC 230 V, positioning signal 2 2 pt, return air sensor

RCC30

- Heating and cooling sequence
- Operating mode changeover input for remote control
- 2-position control
- Selectable switching differential (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Input for return air temperature sensor (QAH11.1)
- Frost protection mode
- Selectable dead zone (2 K or 5 K)
- Outputs for 3-speed fan (0 / I / II / III)



Data sheet	N3023
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A
Relay outputs	Fan: 3-position switch with N.O. contacts Valve: N.O. contacts, non-floating

Stock No.	Product No.
BPZ:RCC30	RCC30

Field devices for RCC..

Product Title	Data sheet	Stock No.	Product No.
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1
Changeover cable holder for QAH11..	N3009	BPZ:ARG86.3	ARG86.3

Thermostats

Autonomous room thermostats

For fan coil units - Application examples RAB.. / RCC..

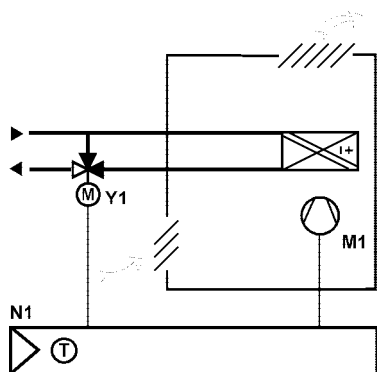
Application examples RAB..

These are only a few examples of many applications that can be done with the thermostat RAB..

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RAB.. data sheet.

RAB11

TAAE01 AB1 HQ

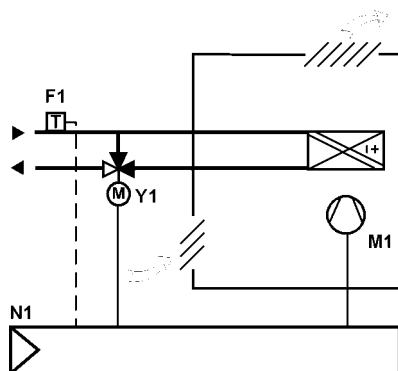


2-pipe fan coil, manual heating / cooling changeover

- 2-position control algorithm for heating or cooling systems
- Setting range of setpoint knob can be limited
- Operating mode selector for heating and cooling
- 4-position fan speed selector (I/III/III/off)

RAB21

TAAE01 AB2 HQ



2-pipe fan coil, automatic heating / cooling changeover

- 2-position control for heating or cooling systems
- Setting range of setpoint knob can be limited
- 4-position fan speed selector (I/III/III/off)
- Heating/cooling changeover (aquastat)

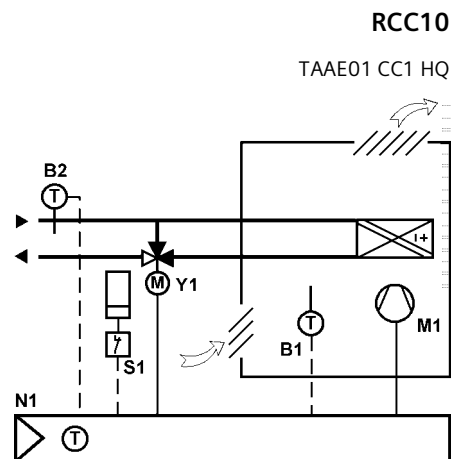
Application examples RCC..

These are only a few examples of many applications that can be done with the thermostat RCC...

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RCC.. data sheet.

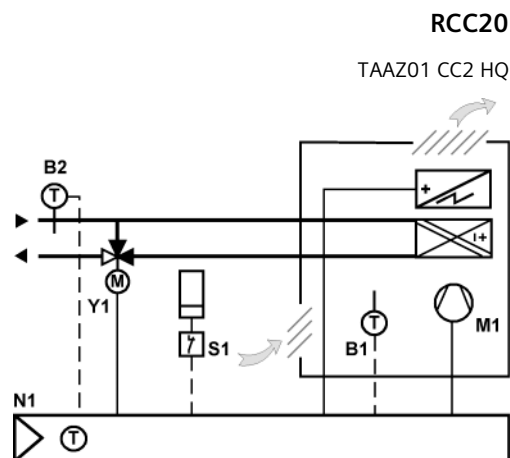
2-pipe fan coil, automatic heating / cooling changeover on/off output

- 2-position control algorithm for heating or cooling systems
- Output for ON/OFF valve actuator
- 4-position fan speed selector (I/II/III/standby)
- Status LED for heating, cooling and fan
- Setting range of setpoint knob can be limited
- Parameter setting by installer for: Fan control, operating mode changeover operating mode switch condition, frost protection, switching differential for heating or cooling
- Automatic heating/cooling changeover with external temperature sensor (QAH11.1)
- Operating mode changeover for remote control with external switch
- Temperature control according to integrated sensor or external temperature sensor QAH11.1 or QAA32)



2-pipe fan coil, automatic heating / cooling changeover and electrical heater

- 2-position control algorithm for heating or cooling systems
- Outputs for ON/OFF valve actuator and electrical heater
- 4-position fan speed selector (I/II/III/standby)
- Status LED for heating, cooling and fan
- Setting range of setpoint knob can be limited
- Parameter setting by installer for: Fan control, operating mode changeover operating mode switch condition, frost protection, switching differential for heating or cooling, dead zone, setpoint differential, operation of electrical heater in cooling or heating mode
- Automatic heating/cooling changeover with external temperature sensor (QAH11.1)
- Operating mode changeover for remote control with external switch
- Temperature control according to integrated sensor or external temperature sensor (QAH11.1 or QAA32)



Thermostats

Autonomous room thermostats

For fan coil units RDG1..

RDG1..

Room thermostats for fan coil units, universal applications and heat pump applications

- Operating modes: Comfort, Energy Saving and Protection
- 2-position, 3-position, PWM or DC 0...10V control outputs
- Automatic or manual fan speed
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater (only RDG100..)
- 2-stage heating or cooling system

Data sheet	N3181
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Digital inputs, number	1
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm

RDG100



Room thermostat, AC 230 V, for fan coil units and universal applications

Operating voltage	AC 230 V
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Triac output, switching current	Max. 1 A

Stock No.

Product No.

S55770-T158

RDG100

Room thermostat, AC 230 V, for fan coil units and heat pump applications

RDG110

Operating voltage	AC 230 V
Relay outputs, number	5
Relay outputs	Valve, compressor or el. heater: 2 outputs (SPDT), 2-position Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	Valve, compressor or el. heater: 5 (3) A Fan: 5 (4) A



Stock No.	Product No.
S55770-T160	RDG110

Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch

RDG100T..

- Operating modes: Auto timer, Comfort, Energy Saving and Protection
- Auto Timer mode with 8 programmable timers
- 2-position, 3-position or PWM control outputs
- Automatic or manual fan speed for 1-speed or 3-speed fan
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Infrared remote control receiver
- Backlit display
- Auto timer can be disabled (RDG100T/H)

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater
- 2-stage heating or cooling system

Data sheet	N3181
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching current	Max. 1 A
Triac output, switching voltage	AC 230 V
Dimensions (W x H x D)	93 x 128 x 30.8 mm



Thermostats

Autonomous room thermostats For fan coil units RDG1..

Range overview RDG100T..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, vertical	N3181	S55770-T159	RDG100T
Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, horizontal	N3181	S55770-T235	RDG100T/H

Accessories for RDG1..

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	IRA211
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	QAA32

Room thermostat

RDF..

- Electronic room temperature controller with LCD for fan coil units for compressors in DX-type equipment
- For heating and/or cooling applications
- ON/OFF
- Operating mode changeover input for remote control
- Various operating modes (normal, energy saving and stand-by)
- Outputs for 3-speed fan
- Selectable installation and control parameters
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: change-over contact, non-floating
Dimensions (W x H x D)	102 x 128 x 30 mm

Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor

RDF110

- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- Sensor input either for automatic heating / cooling changeover or return air temperature (with sensor QAH11.1)
- Automatic or manual three-speed fan control
- Operating modes: normal, energy-saving and standby
- Operating mode changeover input for remote control



Data sheet N3057

	Stock No.	Product No.
	BPZ:RDF110	RDF110

Room thermostat for 2-pipe fan coils or DX-type equipment

RDF110.2

- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- Manual heating/Cooling change-over
- Automatic or manual three-speed fan control
- Operating modes: normal, energy-saving and standby



Data sheet N3057

	Stock No.	Product No.
	BPZ:RDF110.2	RDF110.2

Thermostats

Autonomous room thermostats

For fan coil units RDF..

RDF210/IR



Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor, infrared remote control, 7-day time switch

- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Sensor input either for automatic heating / cooling changeover or return air temperature (with sensor QAH11.1)
- Operating modes: normal, energy-saving and standby
- Automatic or manual three-speed fan control
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- 8 Timers with a 7-day programmable schedule
- With infrared receiver for remote control; remote control not included

Data sheet

N3058

Stock No.

Product No.

BPZ:RDF210/IR

RDF210/IR

5

Accessories for RDF..

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	IRA211
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	ARG70
Mounting plate 96 x 120 mm for 2 x 4" housing	N3009	BPZ:ARG70.1	ARG70.1
Mounting plate 112 x 130 mm for surface wiring	N3009	BPZ:ARG70.2	ARG70.2
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1

Semi Flush-mount room thermostat

RDF..Semi Flush Mount

Semi Flush Mount room thermostat with LCD for 2-/4-pipe fan coil units and compressors in DX-type equipment

- For heating and/or cooling applications
- Outputs for 3-speed fan
- Selectable installation and control parameters

Setpoint setting range 5...40 °C
 Degree of protection IP30
 Additional info Infrared remote IRA211 not included. Order separately.

Semi Flush-mount room thermostat for round conduit box for 2-/4-pipe fan coils or DX type equipment, backlit LCD

RDF600



Semi Flush Mount room thermostat for round conduit box with LCD for fan coil units and compressors in DX-type equipment

- Output for 1-speed or 3-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet N3076

Operating voltage AC 230 V
 Relay output, switching voltage AC 230 V
 Relay output, switching current 5 (2) A
 Relay outputs Fan: N.O. contacts, non-floating
 Valve: N.O. contacts, non-floating

Type of fixing Recessed round conduit box diameter min. 60 mm
 Dimensions (W x H x D) 86 x 86 x 46 mm

Stock No. Product No.

	S55770-T291	RDF600
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NEW PRODUCT

Thermostats

Autonomous room thermostats

For fan coil units RDF.. Semi Flush Mount

RDF300



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment

- Output for 3-speed or 1-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No. Product No.

BPZ:RDF300 RDF300

RDF300.02



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment, backlit LCD

Same functionality and technical data as RDF300 and:

- Backlit display

Data sheet	N3076
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No. Product No.

BPZ:RDF300.02 RDF300.02

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment

RDF310.2



Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment

- 2-position control outputs
- 3-speed fan control: Automatic or manual
- Operation modes: Comfort and Protection
- Manual heating / cooling changeover or continuous Cooling only / Heating only
- Adjustable commissioning and control parameters
- Optional display of room temperature or setpoint
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Data sheet	N3067
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF310.2	RDF310.2

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, backlit LCD

RDF310.21



Same functionality and technical data as RDF310.2 and:

- Backlit display
- With infrared receiver for remote control, remote control not included

Data sheet	N3067
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF310.21	RDF310.21

Thermostats

Autonomous room thermostats

For fan coil units RDF.. Semi Flush Mount

RDF340



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils

Semi Flush Mount room thermostat for rectangular conduit box, with LCD for fan coil units

- Output for 3-speed or 1-speed fan
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 24 V
Analog output, signal	DC 0...10 V
Analog outputs	Heating/Cooling
Analog output, current	Max. ± 1 mA
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.

Product No.

BPZ:RDF340

RDF340

RDF600T



Semi Flush-mount room thermostat for round conduit box, for 2-/4-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD

Semi Flush Mount room thermostat for round conduit box with LCD for fan coil units and compressors in DX-type equipment

- Output for 1-speed or 3-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- With infrared receiver for remote control, remote control not included.
- Color of housing: signal white (RAL 9003)
- 8 Timers with a 7-day programmable schedule
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed round conduit box diameter min. 60 mm
Dimensions (W x H x D)	86 x 86 x 46 mm

Stock No.	Product No.
S55770-T292	RDF600T

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD

RDF410.21



Same functionality and technical data as RDF310.2 and:

- Backlit display
- With infrared receiver for remote control, remote control not included.
- 8 Timers with a 7-day programmable schedule

Data sheet	N3067
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contact, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF410.21	RDF410.21

NEW PRODUCT

Thermostats

Autonomous room thermostats

For fan coil units RDF.. Semi Flush Mount

RDF510.2



Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, DELTA lavie design

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment

- 2-position control outputs
- 3-speed fan control: Automatic or manual
- Operation modes: Comfort and Protection
- Manual heating / cooling changeover or continuous Cooling only / Heating only
- Adjustable commissioning and control parameters
- Optional display of room temperature or setpoint
- Minimum and maximum setpoint limitation
- Keypad lock function
- Color of housing: signal white (RAL 9003)

Data sheet	N3064
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O contacts, non-floating Valve: 1 x changeover contact (SPDT), non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 42 mm

Stock No.	Product No.
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S55770-T189	RDF510.2
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Accessories for RDF..Semi Flush Mount

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	IRA211
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	ARG70.3
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	ARG71
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	QAA32

Flush-mounting box ARG71 for RDF3.., RDF4.., RDF5..

Electronic room thermostat for VAV and CAV systems

RCU..VAV

- Electronic room thermostat for heating and cooling operation
- P control
- Setpoint shifting
- On/off, 3-position or modulating outputs
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Operating voltage	AC 24 V
Setpoint setting range	8...30 °C
Analog outputs	Heating or cooling
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Dimensions (W x H x D)	97 x 114 x 43 mm

Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V

RCU50

- Heating and cooling sequence
- Automatic heating / cooling changeover (with sensor QAH11.1)
- DC 0...10 V output (max. ±1 mA)
- Operating mode changeover input for remote control
- Adjustable minimum limitation for cooling output
- Active input for setpoint shift
- Normal, energy saving and frost protection mode

Data sheet	N3045
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	Stock No.	Product No.
	BPZ:RCU50	RCU50

Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V, manual changeover heating/cooling/off

RCU50.2

- Same functionality and technical data as RCU50
- Manual heating / cooling changeover and OFF position
 - Signal inversion of output signal
 - No setpoint shift
 - No operating mode changeover input for remote control
 - No adjustable minimum limitation for cooling output
 - No frost protection

Data sheet	N3045
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	Stock No.	Product No.
	BPZ:RCU50.2	RCU50.2

Thermostats

Autonomous room thermostats

For VAV systems: RCU.. / RDG.. / RDU..

RDG400



Room thermostat, AC 24 V, VAV heating and cooling systems

- KNX communications
- Output DC 0...10 V for VAV actuator and auxiliary output ON/OFF, PWM or 3-position or 3-position for VAV actuator and auxiliary output DC 0...10 V
- 3 multifunctional inputs for keycard contact, external room / return air temperature (1x, QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/oQAH11.1ff, dew-point monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Minimum and maximum limitation of air flow signal
- Output signal inversion (DC 0...10 V) as an option
- Backlit display

Application selectable:

- Single-duct system
- Single-duct system with electrical heater
- Single-duct system and radiator / floor heating
- Single-duct system with heating / cooling coil

Data sheet	N3182
Operating voltage	AC 24 V
Control algorithm	P / PI
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Analog outputs, number	1
Analog outputs	VAV actuator, electric heater, valve
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Triac outputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.

Product No.

S55770-T164

RDG400

Semi Flush-mount room thermostat for rectangular conduit box with LCD for VAV application

RDU340



- Output for a DC 0...10 V actuator and AC 230V electrical heater (ON-OFF)
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Adjustable minimum and maximum limitation for air flow signal DC 0...10V
- Output signal inversion as an option
- Mounting on recessed rectangular conduit box, 60.3 mm fixing centers

Application selectable:

- Single-duct system
- Single-duct system with electrical heater

Data sheet	N3078
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Relay outputs, number	1
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 230 V
Relay output, switching current	Max. 5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
BPZ:RDU340	RDU340

Accessories for RDU340

Product Title	Data sheet	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	ARG71
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	ARG70.3
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	QAA32

Thermostats

Autonomous room thermostats

Application examples for VAV systems RDG..

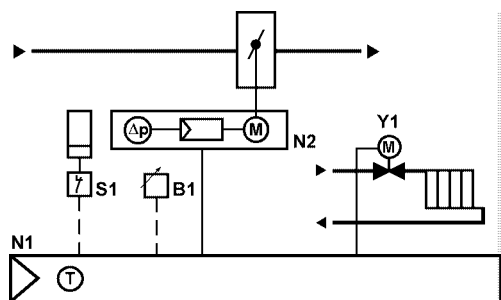
Application examples RDG..

These are only a few examples of many applications that can be done with the room thermostats RDG...

More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RDG.. data sheet

RDG400

TCCE01 DG4 HQ



VAV box, automatic heating/cooling changeover with radiator, mod. PI-control, DC 0...10 V for cooling

- Modulating PI control algorithm for heating and cooling systems
- Outputs for DC 0...10 V and ON/OFF, PWM, 3-position
- Setting range of setpoint knob can be limited
- Manual operating mode button
- Parameter setting by installer
- Temperature control according to integrated sensor
- Adjustable minimum limitation of cooling output (air flow)
- Operating mode changeover for remote control with external switch/sensor
- Operating voltage AC 24 V
- Backlit display

Thermostats
Communicating room thermostats
For fan coil units - Communicating KNX thermostat

Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications

RDG100KN



- KNX communications
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- 2-position, 3-position or PWM control outputs
- Automatic or manual fan speed for 1-speed, 3-speed fan
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater
- 2-stage heating or cooling system

Data sheet	N3191
Operating voltage	AC 230 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)

Stock No. Product No.

S55770-T163 **RDG100KN**

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Thermostats

Communicating room thermostats

For fan coil units - Communicating KNX thermostat

RDG160KN



Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, fan (1-/3-speed, DC), valves (2-point, DC)

- KNX communications
- For applications with DC control outputs and DC or 3-speed fan output
- For applications with 2-position control output with DC fan output
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual EC fan or 1-/3-speed
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 2-stage heating or cooling system

Data sheet	N3191
Operating voltage	AC 24 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Valve, compressor or el. heater: 2 outputs, 2-position Fan: 1- or 3-speed
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (4) A
Analog outputs, number	3
Analog outputs	Valve, el. heater: 2 Fan: 1 (ECM)
Analog output, signal	DC 0...10 V
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)

Stock No.

Product No.

S55770-T297

RDG160KN

Thermostats
Communicating room thermostats
For fan coil units - Communicating KNX thermostat

Semi Flush-mount room thermostats with KNX communications, 2-/4-pipe fan coils or DX type equipment

RDF..KNX Semi Flush Mount

Semi Flush Mount room thermostat with LCD for fan coil units and compressors in DX-type equipment

- KNX communications
- Operating modes: Comfort, Economy and Protection
- For heating and/or cooling applications
- 2 or 3-position control outputs
- Output for 1-speed or 3-speed fan
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display



Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3171
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Relay outputs, number	5
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Degree of protection	IP30
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Range overview RDF..KNX Semi Flush Mount

Product Title	Type of fixing	Dimensions (W x H x D) [mm]	Stock No.	Product No.
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	Recessed round conduit box diameter min. 60 mm	86 x 86 x 46	S55770-T293	RDF600KN
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T104	RDF301
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment, four buttons for switching lights and blinds	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T105	RDF301.50
Hotel Semi Flush-mount room thermostat with KNX, 2-/4-pipe fan coils or DX type equipment, four buttons hotel functions	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T334	RDF301.50H

NEW PRODUCT

Thermostats

Communicating room thermostats

For VAV systems - Communicating KNX thermostat

RDG400KN



Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems

- KNX communications
- Output DC 0...10 V for VAV actuator and auxiliary output ON/OFF, PWM or 3-position or 3-position for VAV actuator and auxiliary output DC 0...10 V
- 2 multifunctional inputs for keycard contact, external room / return air temperature (1x, QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- 1 input DC 0...10 V for damper position feedback
- Operating modes: Comfort, Economy and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Minimum and maximum limitation of air flow signal
- Output signal inversion (DC 0...10 V) as an option
- Backlit display

Application selectable:

- Single-duct system
- Single-duct system with electrical heater
- Single-duct system and radiator / floor heating
- Single-duct system with heating / cooling coil

Data sheet	N3192
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog input, signal	NTC 3k DC 0...10 V
Digital inputs, number	1
Analog outputs, number	1
Analog outputs	VAV actuator, electric heater, valve
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Triac outputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Stock No.

Product No.

555770-T165

RDG400KN

Thermostats
Communicating room thermostats
For VAV systems - Communicating KNX thermostat

Semi Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application

RDU341



Semi Flush-mount room thermostat for VAV application

- KNX communications
- Output for a DC 0...10 V actuator and AC 230V electrical heater (ON-OFF)
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Adjustable minimum and maximum limitation for air flow signal DC 0...10V
- Output signal inversion as an option

Application selectable:

- Single-duct system
- Single-duct system with electrical heater

Data sheet N3172

Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Relay outputs, number	1
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 230 V
Relay output, switching current	Max. 5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Stock No. Product No.

S55770-T106 **RDU341**

Thermostats

Communicating room thermostats

For fan coil units - Communicating Modbus thermostat

RDF302



Semi Flush-mount room thermostat for rectangular conduit box with Modbus communications, 2-/4-pipe fan coils or DX type equipment

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment

- For heating and/or cooling applications
- Modbus communications
- 2 or 3-position control outputs
- Output for 1-speed or 3-speed fan
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display

Application selectable:

- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3079
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Relay outputs, number	5
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 57 mm
Communication	Bus: Modbus RTU (RS 485)

Stock No. Product No.

S55770-T238 **RDF302**

Accessories for RDU.. / RDF302

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	ARG70.3
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	ARG71
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	QAH11.1
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	QAA32

Temperature controller

RAK-TR.1..H

External scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1205
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (2.5) A
Switching differential	6 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 72 mm



Range overview RAK-TR.1..H

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
15...95	PN 10, 100 mm, G ½"	700	S55700-P111	RAK-TR.1000B-H
15...95		700	S55700-P112	RAK-TR.1000S-H
15...82	PN 10, 100 mm, G ½"	700	S55700-P113	RAK-TR.1210B-H

Note to protection pocket: Brass, nickel-plated

Thermal reset limit thermostat

RAK-TW.1..H

Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1202
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 1-2: 0.1...16 (2.5) A Contact 1-3: 0.1...6 (2.5) A
Switching differential	6 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 64 mm



Range overview RAK-TW.1..H

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
15...95	PN 10, 100 mm, G ½"	700	S55700-P114	RAK-TW.1000B-H
15...95		700	S55700-P116	RAK-TW.1000S-H
40...120	PN 10, 100 mm, G ½"	700	S55700-P117	RAK-TW.1200B-H
40...120		700	S55700-P119	RAK-TW.1200S-H

Note to protection pocket: Brass, nickel-plated

Thermostats

Capillary and clamp-on thermostats

Temperature RAK.. / RAZ.. / RAM..

RAK-TW.1..H..



Thermal reset limit thermostat

Immersion, strap-on and remote thermostat in one

Data sheet	N1202
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact connection 1-2: 0.1...16 (2.5) A Contact connection 1-3: 0.1...6(2.5) A
Switching differential	6 K
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 64 mm

Range overview RAK-TW.1..H..

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
40...120	PN 10, 100 mm, G½"	700	S55700-P118	RAK-TW.1200HP
15...95	PN 10, 100 mm, G½"	700	S55700-P115	RAK-TW.1000HB

Note to protection pocket: Brass, nickel-plated

RAK-TB.1..M



Temperature limiter

Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1206
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 0.1...16 (2.5) A Contact 11-13: 2 (0.4) A
Reset temperature	Min. 15 K under the switch-off point
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 67 mm

Range overview RAK-TB.1..M

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
45...60		700	S55700-P108	RAK-TB.1400S-M
50...70	PN 10, 100 mm, G½"	700	S55700-P109	RAK-TB.1410B-M
65...80		700	S55700-P110	RAK-TB.1420S-M

Note to protection pocket: Brass, nickel-plated

Safety limit thermostat

RAK-ST..M

Internal scale, 1 changeover contact, failsafe capillary, immersion and strap-on thermostat in one, with ambient temperature compensation.

Data sheet	N1204
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 0.1...16 (2.5) A Contact 11-13: 2 (0.4) A
Reset temperature	Min. 15 K under the switch-off point
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 67 mm



Range overview RAK-ST..M

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
95	PN 10, 100 mm, G ½"	700	S55700-P100	RAK-ST.010FP-M
100	PN 10, 100 mm, G ½"	700	S55700-P101	RAK-ST.020FP-M
110	PN 10, 100 mm, G ½"	700	S55700-P102	RAK-ST.030FP-M
120...130	PN 10, 100 mm, G ½"	700	S55700-P103	RAK-ST.1300P-M
90...110	PN 10, 100 mm, G ½"	700	S55700-P104	RAK-ST.1310P-M
80...100		1600	S55700-P106	RAK-ST.1430S-M

Note to protection pocket: Brass, nickel-plated

Safety limit thermostat

RAK-ST.1..M..

Immersion, strap-on and remote thermostat in one

Data sheet	N1204
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 16 (2,5) A Contact 11-13: 2 (0,4) A
Reset temperature	~7 K under the switch-off point
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 67 mm



Range overview RAK-ST.1..M..

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
Adjustable: 95...130	PN 10, 100 mm, G ½"	700	S55700-P107	RAK-ST.1600MP
Adjustable: 40...70		700	S55700-P105	RAK-ST.1385M

Note to protection pocket: Brass, nickel-plated

Thermostats

Capillary and clamp-on thermostats

Temperature RAK.. / RAZ.. / RAM..

Protection pockets for RAK-T and RAK-S

Packaging unit	Protection pocket [LW7]	Material	PN class	Data sheet	Stock No.	Product No.
1 pc	100 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB100	ALT-SB100
1 pc	150 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB150	ALT-SB150
1 pc	200 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB200	ALT-SB200
1 pc	280 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB280	ALT-SB280
1 pc	450 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB450	ALT-SB450
1 pc	100 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS100	ALT-SS100
1 pc	150 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS150	ALT-SS150
1 pc	280 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS280	ALT-SS280
1 pc	450 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS450	ALT-SS450
1 pc	100 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF100	ALT-SSF100
1 pc	150 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF150	ALT-SSF150
1 pc	200 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF200	ALT-SSF200
1 pc	280 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF280	ALT-SSF280
1 pc	450 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF450	ALT-SSF450
1 pc	600 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF600	ALT-SSF600

Accessories for RAK-T and RAK-S

Packaging unit	Product Title	Material	Data sheet	Stock No.	Product No.
1 pc	Protection pocket, perforated, 200 mm	Steel, galvanized	N1193	BPZ:ALT-AB200	ALT-AB200
1 bag	Mounting kit for RAK../RAZ..		N1193	BPZ:ALT-C001	ALT-C001
1 pcs.	Mounting flange, adjustable depth	PA66GF35	N1193	BPZ:AQM63.0	AQM63.0
1 box	Terminal housing		N1207	S55700-P131	RAK-H-M

Temperature controller/ thermal reset limit thermostat

RAZ-TW.1..J

Combination of control thermostat (TR) and thermal reset limit thermostat (TW). Internal scale (TR), internal scale (TW), 2 changeover contacts. Immersion thermostat and wall mounting.



Data sheet	N1212
Sensing element	Liquid expansion sensor
Reset temperature	Min. 15 Kelvin under the switch-off point
Switching differential	6 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (4) A
Degree of protection	IP40
Dimensions (W x H x D)	120 x 106 x 70 mm

Range overview RAZ-TW.1..J

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
TR: 15...95 TW: 15...95	PN 10, 100 mm, G ½" 2x	700	S55700-P140	RAZ-TW.1000P-J
TR: 40...120 TW: 40...120	PN 10, 100 mm, G ½" 2x	700	S55700-P141	RAZ-TW.1200P-J

Double protection pocket 2x inner dia.7mm, brass nickel plated

Temperature controller/ safety limit thermostat

RAZ-ST..J

Combination of control thermostat (TR) and safety limit thermostat (STB). Internal scale (TR), internal scale (STB), 2 changeover contacts, failsafe capillary, STB with ambient temperature compensation. Immersion thermostat and wall mounting.



Data sheet	N1214
Sensing element	Liquid expansion sensor
Capillary length	700 mm
Reset temperature	Min. 20 Kelvin under the switch-off point
Switching differential	TR: 6 K STB: ±5 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	TR: 0.1...16 (4) A STB: Contact 1-2 0.1...16 (1) A Contact 1-4 max. 0.5 A (alarm contact)
Degree of protection	IP40
Dimensions (W x H x D)	120 x 106 x 70 mm

Thermostats

Capillary and clamp-on thermostats

Temperature RAK.. / RAZ.. / RAM..

Range overview RAZ-ST..J

Setpoint setting range [°C]	Switch-off point [°C]	Protection pocket [LW7]	Stock No.	Product No.
TR: 15...95 STB: 100	100	PN 10, 100 mm, G ½"	S55700-P136	RAZ-ST.011FP-J
TR: 15...95 STB: 110	110	PN 10, 100 mm, G ½"	S55700-P137	RAZ-ST.030FP-J
TR: 15...95 STB: 110...130	110...130	PN 10, 100 mm, G ½"	S55700-P138	RAZ-ST.1500P-J
TR: 15...95 STB: 90...110	90...110	PN 10, 100 mm, G ½"	S55700-P139	RAZ-ST.1510P-J

Double protection pocket 2x inner dia.7mm, brass nickel plated

Accessories for RAZ..

Product Title	Material	PN class	Data sheet	Stock No.	Product No.
Protection pocket 100 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P142	ALT-DB100J
Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P143	ALT-DB150J
Protection pocket 280 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P144	ALT-DB280J
Protection pocket 450 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P145	ALT-DB450J
Protection pocket, 100 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P146	ALT-DS100J
Protection pocket, 150 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P147	ALT-DS150J
Protection pocket, 280 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P148	ALT-DS280J
Protection pocket, 450 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P149	ALT-DS450J
Mounting kit for RAK../RAZ..			N1193	BPZ:ALT-C001	ALT-C001

Strap-on temperature controller, 20...90 °C, fixing spring, setpoint adjuster externally

RAM-TR.2000M

Electromechanical temperature control (TR) with single-pole changeover microswitch:

- Set point externally adjustable
- Controlled medium: water, oil



Data sheet	N1198
Sensing element	Bimetall
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Setpoint setting range	20...90 °C
Mounting location	Surface-mounted on pipes or storage tanks
Degree of protection	IP20
Dimensions (W x H x D)	38 x 105 x 42 mm

Stock No.

Product No.

BPZ:RAM-TR.2000M

RAM-TR.2000M

Strap-on temperature limitation, 20...90 °C, fixing spring, setpoint adjuster internally

RAM-TW.2000M

Electromechanical temperature limitation (TW) with single-pole changeover microswitch:

- Set point internally adjustable
- Controlled medium: water, oil



Data sheet	N1198
Sensing element	Bimetal
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Setpoint setting range	20...90 °C
Mounting location	Surface-mounted on pipes or storage tanks
Degree of protection	IP20
Dimensions (W x H x D)	38 x 105 x 42 mm

Stock No.

Product No.

BPZ:RAM-TW.2000M

RAM-TW.2000M

Thermostats

Capillary and clamp-on thermostats

Temperature RAK.. / RAZ.. / RAM..

RYT182



Changeover thermostat, changeover, 30 °C / 19 °C, IP54

For changeover of controller's operating action (heating / cooling) depending on the flow temperature.

Data sheet	N1295
Cooling mode *1)	$t_{VI} < 19\text{ °C}$
Heating mode *2)	$t_{VI} > 30\text{ °C}$
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	0.1...3 A
Degree of protection	IP54

Stock No.

Product No.

BPZ:RYT182

RYT182

Cooling mode: closed contact between white-blue

Heating mode: closed contact between white-black

TKM2



Thermal reset limit thermostat for air ducts, 20...110 °C; perforated protection pocket 200mm

Data sheet	N1291
Setpoint setting range	20...110 °C
Switching differential	2 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	Any
Ambient temperature head	Max. 100 °C
Ambient temperature, operation	120 °C
Ambient temperature sensor	Max. 10 % above setpoint setting range
Degree of protection	IP54
Dimensions (W x H x D)	60 x 120 x 55 mm

Stock No.

Product No.

BPZ:TKM2

TKM2

Accessory for TKM2

Product Title	Material	Packaging unit	Data sheet	Stock No.	Product No.
Protection pocket, perforated, 200 mm	Steel, galvanized	1 pc	N1193	BPZ:ALT-AB200	ALT-AB200

QAF63..



Frost sensor, modulating

- For fitting to the air duct
- Fully active capillary tube sensor
- With capillary tube entry

Data sheet	N1821
Operating voltage	AC 24 V
Power consumption	5 VA
Analog output, signal	DC 0...10 V
Measuring range, temperature	0...15 °C
Min. active length	250 mm
Ambient temperature, operation	-15...60 °C
Connection cable	3-wire
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

In addition to direct mounting, the frost sensor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

Range overview QAF63..

Capillary length [mm]	Data sheet	Stock No.	Product No.
2000	N1821	BPZ:QAF63.2	QAF63.2
6000	N1821	BPZ:QAF63.6	QAF63.6

Thermostats

Capillary and clamp-on thermostats

Frost protection units: QAF.. / RAK.. / TKM..

QAF64..



Frost monitor, air side, 2-point

- Modulating and 2-position
- Fully active capillary type sensing element
- Indication of frost with red LED
- Test switch for simulation of frost
- Selector for automatic or manual reset function
- Modulating P-controller for startup
- Limit value contact for plant control

Data sheet	N1283
Operating voltage	AC 24 V
Power consumption	6 VA
Analog inputs	Control input
Analog output, signal	DC 0...10 V
Analog input, signal	0.1 mA
	DC 0...10 V
Setpoint setting range	1...10 °C
Measuring range, temperature	0...15 °C
Min. active length	250 mm
Digital outputs	Potential-free Switchover contact
Digital output, switching voltage	DC 5 V / AC 5...250 V
Digital output, switching current	6 (4) A
Ambient temperature, operation	-15...60 °C
Connection cable	6 (8)-wire
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

In addition to direct mounting, the frost monitor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

Range overview QAF64..

Capillary length [mm]	Data sheet	Stock No.	Product No.
2000	N1283	BPZ:QAF64.2	QAF64.2
6000	N1283	BPZ:QAF64.6	QAF64.6

Accessories for QAF63.. and QAF64..

AQM63.0



Mounting flange, adjustable depth

Data sheet	N1193
Packaging unit	1 pcs.
Accessories for QAM21.., QAF63.. and QAF64..	

	Stock No.	Product No.
	BPZ:AQM63.0	AQM63.0

3 capillary supports and 3 spacers for QAF.. Mounting

AQM63.2

3 capillary tube clamps and 3 spacers
 With 2 m capillary tube: Use 1 AQM63.2
 With 6 m capillary tube: Use 2 AQM63.2

Data sheet N1821

	Stock No.	Product No.
	BPZ:AQM63.2	AQM63.2

Frost monitor, 2-point, capillary tube 3000 mm, -10...15 °C

QAF65.3-J

Internal scale, 1 changeover contact, capillary tube for fitting on air heating coils



Data sheet N1286

Setpoint setting range -10...15 °C
 Switching differential 2 K
 Digital output, switching voltage AC 24...250 V
 Digital outputs Switchover contact
 Potential-free
 Digital output, switching current Contact 1-2: 0.1...16 (2.5) A
 Contact 1-3: 0.1...16 (2.5) A
 Degree of protection IP43
 Dimensions (W x H x D) 56 x 156 x 64 mm

For fixing the capillary, accessory AQM63.2 (2 x 3 capillary tube clamps and 2 x 3 spacers) or capillary clamps type FK-TZ1 is required.

	Stock No.	Product No.
	S55700-P150	QAF65.3-J

Accessories for QFA65.3-J

Product Title	Data sheet	Stock No.	Product No.
Mounting flange, adjustable depth	N1193	BPZ:AQM63.0	AQM63.0
3 capillary supports and 3 spacers for QAF.. Mounting	N1821	BPZ:AQM63.2	AQM63.2
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	AQM63.3

Frost monitor, 2-point

QAF81..

For temperature supervision on the air side of air heating coils in ventilation and air conditioning plants to provide protection against frost.



Data sheet N1284

Setpoint setting range -5...+15 °C
 Switching differential 2 K
 Digital outputs 1-pin
 Potential-free
 Switchover contact
 Digital output, switching voltage AC 250 V
 Digital output, switching current 10 (2) A
 Mounting position Any
 Min. active length 300 mm
 Degree of protection IP54
 Dimensions (W x H x D) 106 x 113 x 37 mm

Thermostats

Capillary and clamp-on thermostats

Frost protection units: QAF.. / RAK.. / TKM..

Range overview QAF81..

Capillary length [mm]	Data sheet	Stock No.	Product No.
3000	N1284	BPZ:QAF81.3	QAF81.3
6000	N1284	BPZ:QAF81.6	QAF81.6
6000	N1284	BPZ:QAF81.6M	QAF81.6M

QAF81.6M, with lock-out and manual reset

Accessories for QAF81..

Product Title	Data sheet	Stock No.	Product No.
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	AQM63.3

RAK-TW.5..H



Frost protection monitor

Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1203
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switching contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 1-2: 0.1...16 (2.5) A Contact 1-3: 0.1...6 (2.5) A
Switching differential	5 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 64 mm

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Range overview RAK-TW.5..H

Setpoint setting range [°C]	Capillary length [mm]	Stock No.	Product No.
5...65	1600	S55700-P121	RAK-TW.5000S-H
-10...50	1600	S55700-P122	RAK-TW.5010S-H

RAK-TW.5..H..



Frost protection monitor

Immersion, strap-on and remote thermostat in one

Data sheet	N1203
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact connection 1-2: 0.1...16 (2.5) A Contact connection 1-3: 0.1...6 (2.5) A
Switching differential	5 K
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 64 mm

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Thermostats
Capillary and clamp-on thermostats
Frost protection units: QAF.. / RAK.. / TKM..

Range overview RAK-TW.5..H..

Setpoint setting range [°C]	Capillary length [mm]	Stock No.	Product No.
5...65	1600	S55700-P120	RAK-TW.5000HS

Accessories for RAK-TW.5.. and RAK-TW.5..H..

Product Title	Material	Packaging unit	Data sheet	Stock No.	Product No.
Protection pocket, perforated, 200 mm	Steel, galvanized	1 pc	N1193	BPZ:ALT-AB200	ALT-AB200

Thermostats

Capillary and clamp-on thermostats

Cold probe thermostats TRG..

TRG2



Room thermostat with helix sensor, TR -5..50 °C

For commercial and industrial applications.

Data sheet	N1329
Setpoint setting range	-5...50 °C
Switching differential	Adjustable: 0.7...6 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	Horizontal
Degree of protection	IP54
Dimensions (W x H x D)	98 x 95 x 63 mm

Stock No.

Product No.

BPZ:TRG2

TRG2

TRG22



Room thermostat with helix sensor, TR -5..50 °C, 2 switches on 2 steps 2..12 K difference

For commercial and industrial applications.

Data sheet	N1329
Setpoint setting range	-5...50 °C
Switching differential	2 K
Switching interval	2...12 K
Digital outputs	2 Changeover contacts, 1-pole Potential-free
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	horizontal
Degree of protection	IP54
Dimensions (W x H x D)	98 x 135 x 67 mm

Note on switching interval:

Adjustable temperature difference between step 1 and step 2.

Stock No.

Product No.

BPZ:TRG22

TRG22

Sensors



Overview and selection tools	Overview of product details	6-2
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Sensors

Overview and selection tools









Overview of product details

Overview sensors





Temperature

							
Model	Room sensors	Duct sensors	Immersion sensors	Outside sensors		Strap-on sensors	Cable sensors
Type reference	QAA	QAM	QAE	QAC	QAC	QAD	QAP
Category:	Standard	■	■	■	■	■	■
	High Quality			■			







Humidity

								
Model	Room sensors				Duct sensors			Outside sensors
Type reference	QFA	QFA..D	QFA	QFA..D	QFM	QFM	QFM..D	QFA
Category:	Standard	■			■			
	High Quality		■	■		■	■	■
	Certified		■	■		■		







Air quality



				
Model	Room sensors		Air duct sensors	
Type reference	QPA		QPM	QPM..D
Measured value	VOC		■	
	CO ₂	■		
	CO ₂ / VOC	■		■
	CO ₂ / T	■		■
	CO ₂ / H / T	■		■
Display		■		■
Category:	Basic	■	■	
	Standard	■	■	■

Pressure

						
Model	Differential pressure sensors			Absolute pressure sensors		
Medium	Air	Air	Liquids / gases	Liquids / gases	Liquids / gases	Refrigeration
Type reference	QBM3../4..	QBM2030	QBE63	QBE3x00-D	QBE2x02-P	QBE2x01-P
Category:	Standard	■	■		■	■
	High Quality	■		■		
	Certified	■				

Flow

						
Model	Flow switch			Flow sensor		Air velocity sensor
Medium	Liquids	Liquids	Liquids	Liquids	Liquids	Air
Type reference	QVE1900	QVE1901	QVE1902	QVE2x00	QVE3x00	QVM62.1
Category:	Basic	■	■			■
	Standard			■		■
	High Quality				■	

Xtra		
Model	Solar sensors	Flue gas temperature sensors
Type reference	QLS60	FGT-PT1000
Medium		Air
Measured value	Intensity of radiation	Flue gas temperature
Category	Standard High Quality	

Overview module combinations - room sensors for flush mounting

Active sensors		Measuring variables						Dis- play	Selection tool controller range						
Basic module	+	Front module	CO ₂	VOC	Relative humidity	Active temp.	Passive temp.	CO ₂ -indicator	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2540Nx	+	AQR2532NNW				■			■					■	■
AQR2540Nx	+	AQR2533NNW			■				■					■	■
AQR2540Nx	+	AQR2535NNW			■	■			■					■	■
AQR2540Nx	+	AQR2534ANW			■	■	LG-Ni1000		■	■	■	■	■	■	■
AQR2540Nx	+	AQR2534FNW			■	■	NTC 10k ³⁾		■						
AQR2546Nx	+	AQR2530NNW	■						■					■	■
AQR2546Nx	+	AQR2532NNW	■			■			■					■	■
AQR2546Nx	+	AQR2533NNW	■		■				■					■	■
AQR2546Nx	+	AQR2535NNW	■		■	■ ²⁾			■					■	■
AQR2546Nx	+	AQR2535NNWQ	■		■	■ ²⁾		■	■					■	■
AQR2546Nx	+	AQR2534ANW	■		■	■ ²⁾	LG-Ni1000		■	■	■	■	■	■	■
AQR2546Nx	+	AQR2534FNW	■		■	■ ²⁾	NTC 10k ³⁾		■						
AQR2547Nx	+	AQR2530NNW		■					■					■	■
AQR2547Nx	+	AQR2532NNW		■		■			■					■	■
AQR2547Nx	+	AQR2533NNW		■	■				■					■	■
AQR2547Nx	+	AQR2535NNW		■	■	■ ²⁾			■					■	■
AQR2547Nx	+	AQR2534ANW		■	■	■ ²⁾	LG-Ni1000		■	■	■	■	■	■	■
AQR2547Nx	+	AQR2534FNW		■	■	■ ²⁾	NTC 10k ³⁾		■						
AQR2548Nx	+	AQR2530NNW	■	■ ¹⁾					■					■	■
AQR2548Nx	+	AQR2532NNW	■	■ ¹⁾		■			■					■	■
AQR2548Nx	+	AQR2533NNW	■	■ ¹⁾	■				■					■	■
AQR2548Nx	+	AQR2535NNW	■	■ ¹⁾	■	■ ²⁾			■					■	■
AQR2548Nx	+	AQR2535NNWQ	■	■ ¹⁾	■	■ ²⁾		■	■					■	■
AQR2548Nx	+	AQR2534ANW	■	■ ¹⁾	■	■ ²⁾	LG-Ni1000		■	■	■	■	■	■	■
AQR2548Nx	+	AQR2534FNW	■	■ ¹⁾	■	■ ²⁾	NTC 10k ³⁾		■						

For passive sensors see page 6-4

¹⁾ Here, the in-door air quality is calculated from the CO₂ and VOC measuring variables. VOC is not available as direct measuring variable.

²⁾ The measuring variable is solely available as switch output.

³⁾ The Desigo PX does not accept NTC 10k signal. The Desigo TX module need to be used for the NTC 10k signal.

Sensors

Overview and selection tools

Overview of product details

Passive sensors			Measuring variables					Selection tool controller range						
Mounting plate	+	Front module	CO ₂	VOC	Relative humidity	Active temp.	Passive temp.	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2500Nx	+	AQR2531ANW					LG-Ni1000	■	■	■	■	■	■	■
AQR2500Nx	+	AQR2531BNW					PT1000	■					■	■
AQR2500Nx	+	AQR2531FNW					NTC 10k ³⁾	■						

Replace x with:

- F for VDE/CEE (70x70 mm)
- H for British Standard (83x83 mm)
- G for Italian Standard 3 modular (110x64 mm)
- J for UL Standard 2" x 4" (64x110 mm)

Power supply: AC 24 V, DC 15...36 V

Signal range active sensor: DC 0...5 V, DC 2...10 V, DC 0...10 V, DC 0...20 mA, DC 4...20 mA, and DC 0...10 mA

A freely selectable switching contact is available for every measuring variable.

Communicating sensors			Measuring variables			Display	Inputs	
Base modul	+	Front module	CO ₂	Relative humidity	Temperature	CO ₂ -indicator	Passive temperature NTC 10k	Two potential-free contacts
AQR2570Nx	+	AQR2532NNW			■		■	■
AQR2570Nx	+	AQR2533NNW		■			■	■
AQR2570Nx	+	AQR2535NNW		■	■		■	■
AQR2576Nx	+	AQR2530NNW	■				■	■
AQR2576Nx	+	AQR2532NNW	■		■		■	■
AQR2576Nx	+	AQR2533NNW	■	■			■	■
AQR2576Nx	+	AQR2535NNW	■	■	■		■	■
AQR2576Nx	+	AQR2535NNWQ	■	■	■	■	■	■

Replace x with:

- F for VDE/CEE (70x70 mm)
- H for British Standard (83x83 mm)
- G for Italian Standard 3 modular (110x64 mm)
- J for UL Standard 2" x 4" (64x110 mm)

The room sensors are KNX certified and can be used in conjunction with all devices capable of communicating over KNX.

Furthermore the sensors can be used with the following Siemens building automation systems:

- Desigo TRA (PL-Link)
- Synco 700 (KNX LTE-Mode)
- GAMMA (KNX S-Mode)

QAA2..



Room temperature sensor, passive

Measuring range, temperature	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 32 mm

Range overview QAA2..

Sensing element, temperature	Time constant [min]	Measurement accuracy [°C]	Data sheet	Stock No.	Product No.
LG-Ni1000	7	At 0...50 °C: ±0.8	N1721	BPZ:QAA24	QAA24
Pt100	7	At 0...50 °C: ±0.6	N1745	BPZ:QAA2010	QAA2010
Pt1000	7	At 0...50 °C: ±0.6	N1745	BPZ:QAA2012	QAA2012
NTC 10k	7	At 0...50 °C: ±0.8	N1745	BPZ:QAA2030	QAA2030

Room unit with room temperature sensor and setpoint adjuster

QAA25



Data sheet	N1721
Setpoint setting range	5...35 °C
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

For Synco™ and Desigo™ PX applications

Stock No.	Product No.
BPZ:QAA25	QAA25

Room unit with room temperature sensor and setpoint adjuster 5..30 °C

QAA26



Data sheet	N1721
Setpoint setting range	5...30 °C
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

For Desigo™ PX applications

Stock No.	Product No.
BPZ:QAA26	QAA26



Sensors

Temperature sensors

Room sensors - wall mounting QAA..

QAA27



Room unit with room temperature sensor and setpoint readjuster -3...3 K

Data sheet	N1721
Setpoint readjustment range	-3...3 K
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

For Synco™, Desigo™ PX and Desigo™ RXA applications

Stock No.

Product No.

BPZ:QAA27

QAA27

QAA20..1



Room temperature sensor, active

Data sheet	N1749
Measuring range	0...50 °C
Measurement accuracy	at AC 24 V in the range of -25 °C...+25 °C ± 0.75 K -50 °C...+50 °C ± 0.9 K
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

Range overview QAA20..1

Analog output, signal	Operating voltage	Display	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V		BPZ:QAA2061	QAA2061
DC 4...20 mA	DC 13.5...35 V		BPZ:QAA2071	QAA2071
DC 0...10 V	AC 24 V DC 13.5...35 V	LCD	BPZ:QAA2061D	QAA2061D

QAA64



Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes

For mounting on recessed conduit boxes.
Not suited for cooling in VAV installations.

Data sheet	N1722
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Measurement accuracy	At 0...50 °C: ± 0.8 K
Time constant	6.5 min
Connection, electrical	Screw terminals
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 25 mm

Stock No.

Product No.

BPZ:QAA64

QAA64

QAA32



Room temperature sensor NTC 3 kOhm

Data sheet	N1747
Measuring range, temperature	0...40 °C
Sensing element, temperature	NTC 3k
Measurement accuracy	At 25 °C: ±0.3 K
Time constant	6 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	97 x 100 x 36 mm

Stock No.	Product No.
BPZ:QAA32	QAA32

Accessories for QAA32

Product Title	Stock No.	Product No.
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	ARG70.1
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	ARG70

Sensors

Temperature sensors

Room sensors - flush mounting AQR..

AQR2531..



Front modules with passiv temperature measurement

Data sheet	N1408
Measuring range, temperature	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Color	Titanium white
Dimensions (W x H)	55 x 55 mm

Range overview AQR2531..

Sensing element, temperature	Stock No.	Product No.
LG-Ni1000	S55720-S133	AQR2531ANW
Pt1000	S55720-S134	AQR2531BNW
NTC 10k	S55720-S135	AQR2531FNW

Mounting plates for front modules AQR2531..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S161	AQR2500NF
UK (British Standard)	83 x 83 mm	S55720-S162	AQR2500NH
IT (3 modular)	110 x 64 mm	S55720-S163	AQR2500NG
US (UL)	64 x 110 mm	S55720-S164	AQR2500NJ

AQR2540..



Base modules for temperature and humidity measurement

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Connection, electrical	Screw terminals

Range overview AQR2540..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S142	AQR2540NF
UK (British Standard)	83 x 83 mm	S55720-S143	AQR2540NH
IT (3 modular)	110 x 64 mm	S55720-S144	AQR2540NG
US (UL)	64 x 110 mm	S55720-S145	AQR2540NJ

Base module with KNX for temperature and humidity measurement

AQR2570..

Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals



Range overview AQR2570..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S203	AQR2570NF
UK (British Standard)	83 x 83 mm	S55720-S204	AQR2570NH
IT (3 Modular)	110 x 64 mm	S55720-S205	AQR2570NG
US (UL)	64 x 110 mm	S55720-S206	AQR2570NJ

Front modules for base modules

AQR253..

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm



Range overview AQR253..

Measuring range, temperature	Signal output temperature	Stock No.	Product No.
0...50 °C	Active	S55720-S136	AQR2532NNW

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	AQR2510NFW
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	AQR2510NHW
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	AQR2510NGW

6

Sensors

Temperature sensors

Duct sensors: QAM.. / FK-TP..

QAM21..



Duct temperature sensor, passive

Fully active, flexible probe for averaging.

Data sheet	N1761
Time constant	At v = 2 m/s: 30 s
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP42

Note on fixing:
Supplied complete with mounting flange.

Range overview QAM21..

Probe length [mm]	Sensing element, temperature	Measuring range, temperature [°C]	Measurement accuracy [K]	Stock No.	Product No.
400	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.040	QAM2120.040
2000	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.200	QAM2120.200
6000	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.600	QAM2120.600
400	Pt100	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2110.040	QAM2110.040
400	Pt1000	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2112.040	QAM2112.040
2000	Pt1000	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2112.200	QAM2112.200
400	NTC 10k	-40...80	At -40...80 °C: ±1.2	BPZ:QAM2130.040	QAM2130.040

QAM21..1..



Duct temperature sensor active

Fully active, flexible probe for averaging.

Data sheet	N1762
Measuring range, temperature	-50...50 °C
Measurement accuracy	At -50...50 °C: ±0.9 K
Time constant	30 s at v = 2 m/s
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP54
Power consumption	≤ 1 VA

Note on fixing:
Supplied complete with mounting flange.

Range overview QAM21..1..

Analog output, signal	Operating voltage	Probe length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	400	BPZ:QAM2161.040	QAM2161.040
DC 4...20 mA	DC 13.5...35 V	400	BPZ:QAM2171.040	QAM2171.040

Accessories for QAM21.. and QAM21..1..

Product Title	Data sheet	Stock No.	Product No.
Mounting flange, adjustable depth	N1193	BPZ:AQM63.0	AQM63.0
3 capillary supports and 3 spacers for QAF.. Mounting	N1821	BPZ:AQM63.2	AQM63.2
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	AQM63.3

Duct temperature sensor Pt100, for high temperature

FK-TP/200

With connecting head to DIN.
 No protection pocket required.

Data sheet	N1778
Measuring range, temperature	-60...300 °C
Sensing element, temperature	Pt100
Time constant	<100 s at v = 1 m/s
Connection, electrical	Screw terminals
Type of fixing	Flange
Material, immersion pocket	Stainless steel
Immersion length	200 mm
Degree of protection	IP54
Dimensions (W x H x D)	60 x 80 x 83 mm



Supplied complete with mounting flange.

	Stock No.	Product No.
	BPZ:FK-TP/200	FK-TP/200

Sensors

Temperature sensors

Immersion sensors: QAE.. / FT-TP..

QAE1612.010



Immersion temperature sensor

Passive sensor for acquiring the water temperature in pipes and tanks

Data sheet	Q3730
Measuring range, temperature	0...100 °C
Sensing element	Pt1000
Immersion length	100 mm
Connection cable	Screw terminal / cable entry via cable entry gland
Degree of protection	IP42
Dimensions (W x H x D)	151 x 56 x 72 mm

Stock No.

Product No.

S55720-S197

QAE1612.010

QAE21..



Immersion temperature sensor, passive

Data sheet	N1781
Time constant	With protection pocket: 30 s Without protection pocket: 8 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Dimensions (W x H x D)	80 x 60 x 31 mm

Fixing is made by protection pocket or compression fitting. If for the nominal pressure no entry can be found in the table, no protection pocket is included as standard and the nominal pressure depends on the protection pocket used (see accessories). By using the compression fitting AQE2102 the nominal pressure is 16 bar (PN16).

Range overview QAE21.. Immersion temperature sensor with protection pocket:

Sensing element, temperature	Measuring range, temperature [°C]	Immersion length [mm]	Measurement accuracy [K]	Degree of protection	PN class	Stock No.	Product No.
LG-Ni1000	-30...130	100	At -30...130 °C: ±1.3	IP42	PN 10	BPZ:QAE2120.010	QAE2120.010
LG-Ni1000	-30...130	150	At -30...130 °C: ±1.3	IP42	PN 10	BPZ:QAE2120.015	QAE2120.015

Range overview QAE21.. Immersion temperature sensor without protection pocket:

Sensing element, temperature	Measuring range, temperature [°C]	Immersion length [mm]	Measurement accuracy [K]	Degree of protection	PN class	Stock No.	Product No.
Pt100	-30...130	100	At -30...130 °C: ±0.95	IP42		BPZ:QAE2111.010	QAE2111.010
Pt100	-30...130	150	At -30...130 °C: ±0.95	IP42		BPZ:QAE2111.015	QAE2111.015
Pt1000	-30...130	100	At -30...130 °C: ±0.95	IP42		BPZ:QAE2112.010	QAE2112.010
Pt1000	-30...130	150	At -30...130 °C: ±0.95	IP42		BPZ:QAE2112.015	QAE2112.015
LG-Ni1000	-30...130	100	At -30...130 °C: ±1.3	IP42		BPZ:QAE2121.010	QAE2121.010
LG-Ni1000	-30...130	150	At -30...130 °C: ±1.3	IP42		BPZ:QAE2121.015	QAE2121.015
NTC 10k	-30...125	100	At -30...125 °C: ±1.7	IP42		BPZ:QAE2130.010	QAE2130.010
NTC 10k	-30...125	150	At -30...125 °C: ±1.7	IP42		BPZ:QAE2130.015	QAE2130.015

Protection pocket are not included and needs to be ordered separately

Immersion temperature sensor active

QAE21..4

Data sheet	N1782
Measuring range, temperature	-10...120 °C
Time constant	With protection pocket: 30 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Measurement accuracy	At 0...70 °C: ±1 K At -40...120 °C: ±1.4 K
Power consumption	≤ 1 VA
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 39 mm



Fixing is made by protection pocket or compression fitting. No protection pocket is included as standard. The nominal pressure depends on the protection pocket used (see accessories). By using the compression fitting AQE2102 the nominal pressure is 16 bar (PN 16).

Range overview QAE21..4

Analog output, signal	Operating voltage	Immersion length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	100	BPZ:QAE2164.010	QAE2164.010
DC 0...10 V	AC 24 V DC 13.5...35 V	150	BPZ:QAE2164.015	QAE2164.015
DC 4...20 mA	DC 13.5...35 V	100	BPZ:QAE2174.010	QAE2174.010
DC 4...20 mA	DC 13.5...35 V	150	BPZ:QAE2174.015	QAE2174.015



Sensors

Temperature sensors

Immersion sensors: QAE.. / FT-TP..

Accessories for QAE21..

Packaging unit	Protection pocket [LW7]	Material	PN class	Stock No.	Product No.
1 pc	100 mm, G½"	Stainless steel V4A	PN 16	BPZ:ALT-SS100	ALT-SS100
1 pc	150 mm, G½"	Stainless steel V4A	PN 16	BPZ:ALT-SS150	ALT-SS150
1 pc	100 mm, G½" (with flange)	Stainless steel V4A	PN 40	BPZ:ALT-SSF100	ALT-SSF100
1 pc	150 mm, G½" (with flange)	Stainless steel V4A	PN 40	BPZ:ALT-SSF150	ALT-SSF150
1 pc	100 mm, G½"	Brass, nickel-plated	PN 10	BPZ:ALT-SB100	ALT-SB100
1 pc	150 mm, G½"	Brass, nickel-plated	PN 10	BPZ:ALT-SB150	ALT-SB150

Product Title	Data sheet	Stock No.	Product No.
Compression fitting with threaded nipple ½" N1781		BPZ:AQE2102	AQE2102

QAE26.9



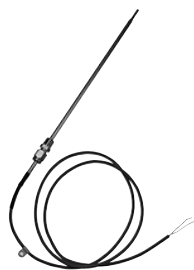
Immersion temperature sensor Ø 6 mm with cable and fitting

With connecting cable

Data sheet	N1790
Measuring range, temperature	-40...180 °C
Sensing element, temperature	LG-Ni1000
Time constant	<3 s
Connection cable	Silicone, 2-wire
Cable length	1.2 m
Material, immersion pocket	Stainless steel
Immersion length	25...260 mm
Diameter	6 mm
Type of fixing	Thread R ¼ "
PN class	PN 40
Degree of protection	IP64

Stock No.	Product No.
BPZ:QAE26.9	QAE26.9

QAE26.9..



Immersion temperature sensur Ø 4 mm with cable and fitting

With connecting cable

Data sheet	N1790
Sensing element, temperature	LG-Ni1000
Time constant	<2.5 s
Cable length	2 m
Type of fixing	R¼ " thread
Measurement accuracy	At -50...180 °C: ±1.75 K
Diameter	4 mm
Material, immersion pocket	Stainless steel
PN class	PN 16
Degree of protection	IP64

Other technical data identical to QAE26.9

Packaging unit QAE1020.024 100 pieces

Range overview QAE26.9..

Immersion length [mm]	Measuring range, temperature [°C]	Connection cable	Stock No.	Product No.
15...65	-50...180	Silicone	BPZ:QAE26.90	QAE26.90
15...125	-50...180	Silicone	BPZ:QAE26.91	QAE26.91
15...240	-50...180	Silicone	BPZ:QAE26.93	QAE26.93
15...465	-50...180	Silicone	BPZ:QAE26.95	QAE26.95
15...240	-5...105	PVC	BPZ:QAE1020.024	QAE1020.024

Immersion temperature sensor for high temperature

With connection head made of die-cast aluminium.
No protection pocket required.

Data sheet	N1794
Sensing element, temperature	Pt100
Time constant	25 s
Connection, electrical	Screw terminals
Material, immersion pocket	Stainless steel
Type of fixing	Protection pocket G ½ "
Material, housing	Die-cast aluminium
PN class	PN 40
Degree of protection	IP65
Dimensions (W x H x D)	69 x 92 x 81 mm

QAE3..



6

Range overview QAE3..

Measuring range, temperature [°C]	Analog output, signal	Immersion length [mm]	Operating voltage	Stock No.	Product No.
-50...200	Passive	100		BPZ:QAE3010.010	QAE3010.010
-50...200	Passive	160		BPZ:QAE3010.016	QAE3010.016
0...200	DC 4...20 mA	100	DC 7.5...30	BPZ:QAE3075.010	QAE3075.010
0...200	DC 4...20 mA	160	DC 7.5...30	BPZ:QAE3075.016	QAE3075.016

Immersion temperature sensor Pt100, short time constant, for high temperature

With connecting head to DIN.
No protection pocket required.

Data sheet	N1797
Measuring range, temperature	-100...450 °C
Sensing element, temperature	Pt100
Time constant	Air v = 1 m/s: <100 s Water v = 0,4 m/s: <5 s
Connection, electrical	Screw terminals
Type of fixing	Protection pocket G ½ "
Material, immersion pocket	Stainless steel
PN class	PN 40
Degree of protection	IP54
Dimensions (W x H x D)	60 x 80 x 85 mm

FT-TP/..



Sensors

Temperature sensors

Immersion sensors: QAE.. / FT-TP..

Range overview FT-TP/..

Immersion length [mm]	Stock No.	Product No.
100	BPZ:FT-TP/100	FT-TP/100
400	BPZ:FT-TP/400	FT-TP/400

QAD2..



Strap-on temperature sensor

Data sheet	N1801
Connection, electrical	Screw terminals
Degree of protection	IP42
Dimensions (W x H x D)	60 x 67 x 43 mm

Supplied complete with strap for pipe diameters from 15...140 mm.

Range overview QAD2..

Sensing element, temperature	Measuring range, temperature [°C]	Time constant [s]	Stock No.	Product No.
LG-Ni1000	-30...130	3	BPZ:QAD22	QAD22
Pt100	-30...130	3	BPZ:QAD2010	QAD2010
Pt1000	-30...130	3	BPZ:QAD2012	QAD2012
NTC 10k	-30...125	6	BPZ:QAD2030	QAD2030

Strap-on temperature sensor with cable LG-Ni1000

With cable, without housing

Data sheet	N1802
Measuring range, temperature	-35...90 °C
Sensing element	LG-Ni 1000
Time constant	<10 s
Connection cable	2-wire
Cable length	2 m
Degree of protection	IP65

Supplied complete with strap for pipe diameters from 10...50 mm.

QAD26.220



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Stock No.	Product No.
BPZ:QAD26.220	QAD26.220

Sensors

Temperature sensors

Outside sensors QAC..

QAC..



Outside sensor, passive

For acquiring the outside temperature and – to a lesser degree – solar radiation, the effect of wind and the temperature of the wall.

Data sheet	N1811
Connection, electrical	Screw terminals
Degree of protection	IP54
Material	Plastic (ASA)

Range overview QAC..

Measuring range, temperature [°C]	Sensing element, temperature	Measurement accuracy [°C]	Time constant [min]	Stock No.	Product No.
-50...70	Pt100	±0.3 K at 0	14	BPZ:QAC2010	QAC2010
-50...70	Pt1000	±0.3 K at 0	14	BPZ:QAC2012	QAC2012
-50...70	LG-Ni1000	±0.4 K at 0	14	BPZ:QAC22	QAC22
-50...70	NTC 575	±1 K at -10...+20	12	BPZ:QAC32	QAC32
-40...70	NTC 10k	±0,46 K at 25	14	BPZ:QAC2030	QAC2030

QAC31..



Outside temperature sensor active

The QAC31.. may be used as an high-quality room sensor.

Data sheet	N1814
Measuring range, temperature	-50...50 °C
Time constant	20 min
Connection, electrical	Screw terminals
Degree of protection	IP65
Sensing element, temperature	Pt1000

Range overview QAC31..

Analog output, signal	Operating voltage	Measurement accuracy [K]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	At -50...50 °C: ±0.9	BPZ:QAC3161	QAC3161
DC 4...20 mA	DC 13.5...35 V	At -50...50 °C: ±0.9	BPZ:QAC3171	QAC3171

Window pane temperature sensor

QAT22

Data sheet	N1830
Cable length	1.5 m
Measurement accuracy	At 0 °C: ±0.4 K
Measuring range, temperature	-10...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	30 s
Connection cable	2-wire



Stock No.	Product No.
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BPZ:QAT22	QAT22
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Flue gas temperature sensor Pt1000

FGT-PT1000

For measuring the flue gas temperature in flueways.

Data sheet	N1846
Sensing element, temperature	Pt1000
Measuring range, temperature	-20...400 °C
Connection cable	2-wire, 1.5 m, teflon with steel wire mesh
Material	Stainless steel V4A
Cable length	1.5 m
Material, immersion pocket	Sensor sleeve, stainless steel



Stock No.	Product No.
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BPZ:FGT-PT1000	FGT-PT1000
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Sensors

Temperature sensors

Cable sensors: QAP.. / QAZ.. / QAH..

QAP..



Cable temperature sensor (6 x 40.5 mm) for HVAC applications

Data sheet	N1831
Time constant	Fitted to pipe: <20 s
Material, protection pocket	Stainless steel
Type of fixing	Cable tie or with accessories
Degree of protection	IP65
Protection pocket	40,5 x 6 mm

Range overview QAP..

Cable length [m]	Sensing element, temperature	Connection cable	Measurement accuracy [K]	Measuring range, temperature [°C]	Stock No.	Product No.
1.5	LG-Ni1000	Silicone	At -30...130 °C: ±1.3	-30...130	BPZ:QAP21.3	QAP21.3
8	LG-Ni1000	Silicone	At -30...130 °C: ±1.3	-30...130	BPZ:QAP21.3/8000	QAP21.3/8000
1.5	Pt100	Silicone	At -30...130 °C: ±0.95	-30...130	BPZ:QAP2010.150	QAP2010.150
1.5	Pt1000	Silicone	At -30...130 °C: ±0.95	-30...130	BPZ:QAP2012.150	QAP2012.150
2	LG-Ni1000	PVC	At -30...130 °C: ±1.3	-25...95	BPZ:QAP22	QAP22
2	NTC 10k	PVC	At -25...95 °C: ±1.4	-25...95	BPZ:QAP1030.200	QAP1030.200

Accessories for QAP..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Changeover cable holder for QAP..	Set of 10 pieces	N1831	BPZ:ARG22.1	ARG22.1
Aluminium bar attachment for QAP..	Set of 5 pieces	N1831	BPZ:ARG22.2	ARG22.2
Terminal housing		N1207	S55700-P131	RAK-H-M
Cable holder for protection pocket mounting		N1831	BPZ:421314160	421314160

QAP21.2



Cable temperature sensor for high-temperature applications (180°C)

For acquiring the water temperature in flat solar collectors

Data sheet	N1833
Measuring range, temperature	-30...180 °C
Measurement accuracy	At -30...180 °C: ±1.65 K
Sensing element, temperature	LG-Ni1000
Time constant	Fitted to pipe: <20 s
Connection cable	Silicone
Cable length	1.5 m
Material, protection pocket	Stainless steel
Degree of protection	IP67
Protection pocket	50 x 6 mm

Stock No.	Product No.
BPZ:QAP21.2	QAP21.2

Cable temperature sensor for use in refrigeration plants (-50 °C)

QAZ21.68..

Data sheet	N1848
Measuring range, temperature	-50...80 °C
Sensing element, temperature	LG-Ni1000
Time constant	Fitted to pipework <20 s
Connection cable	Silicone, 2-wire
Material, protection pocket	Stainless steel
Degree of protection	IP67
Protection pocket	50 x 6 mm



Supplied complete with 2 cable ties and sleeve coated with thermal conductive wax for fitting to pipe-work.

Range overview QAZ21.68..

Cable length [m]	Packaging unit	Stock No.	Product No.
2	1 piece	BPZ:QAZ21.682/101	QAZ21.682/101
5	100 pieces	BPZ:QAZ21.685/101	QAZ21.685/101

Cable sensor for fan coil applications

For installation in fan coil units as
 - a return air temperature sensor
 - a changeover sensor

Data sheet	N1840
Measuring range	For fixed cable
Measuring range, temperature	-20...70 °C
Sensing element, temperature	NTC 3k
Time constant	1.5 min at v = 0 m/s
Cable length	2.5 m



QAH11..

6

Range overview QAH11..

Connection cable	Packaging unit	Stock No.	Product No.
2-wire, cable complete with connectors	10 pieces	BPZ:QAH11	QAH11
2-wire, with ferrules	10 pieces	BPZ:QAH11.1	QAH11.1

Accessories for QAH11..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Changeover cable holder for QAH11..	10 pieces	N3009	BPZ:ARG86.3	ARG86.3

Sensors

Humidity sensors

Room sensors - wall mounting QFA..

QFA20..



Room sensor for rel. humidity / temperature

For relative humidity and temperature

Data sheet	N1857
Measurement range humidity	0...95 % r.h.
Measurement accuracy	At 0...95 % r.h. and 23 °C: ±5 % At 30...70 % r.h. and 23 °C: ±3 %
Time constant	Humidity <20 s Temperature <8.5 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

Range overview QFA20..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, Display temperature	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V		BPZ:QFA2000	QFA2000
DC 4...20 mA		DC 13.5...35 V		S55720-S114	QFA2001
DC 0...10 V	LG-Ni1000	AC 24 V DC 13.5...35 V	0...50 °C	BPZ:QFA2020	QFA2020
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFA2060	QFA2060
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFA2060D	QFA2060D
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	S55720-S105	QFA2060N
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	S55720-S115	QFA2071

Variants QFA..N = no logo

QFA31..



Room sensors for rel. Humidity / temperature for demanding requirements

For relative humidity and temperature

Data sheet	N1858
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature: <8.5 min
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	80 x 144 x 39 mm

Range overview QFA31..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, Display temperature		Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V			BPZ:QFA3100	QFA3100
DC 4...20 mA		DC 13.5...35 V			BPZ:QFA3101	QFA3101
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFA3160	QFA3160
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA3160D	QFA3160D
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFA3171	QFA3171
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA3171D	QFA3171D

Room sensors for rel. humidity / temperature for demanding requirements, with calibration certificate

For relative humidity and temperature

Data sheet	N1859
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature: <8.5 min
Measuring range, temperature	0...50 °C -35...35 °C -40...70 °C
Connection, electrical	Round connector
Degree of protection	IP65
Dimensions (W x H x D)	80 x 144 x 39 mm

QFA41..



6

Range overview QFA41..

Signal output humidity	Signal output temperature	Operating voltage	Display		Stock No.	Product No.
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	---		BPZ:QFA4160	QFA4160
DC 0...10 V	DC 0...10 V	AC 24 V DC 13,5...35 V	LCD		BPZ:QFA4160D	QFA4160D
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	---		BPZ:QFA4171	QFA4171
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	LCD		BPZ:QFA4171D	QFA4171D

Sensors

Humidity sensors

Accessories for room sensors - wall mounting

Accessories for QFA..

Product Title	Data sheet	Stock No.	Product No.
Filter cap for humidity sensor	N1858	BPZ:AQF3101	AQF3101
Exchangeable measuring tip	N1858	BPZ:AQF3150	AQF3150
Remote sensing cable 3 m for sensor tip.	N1859	BPZ:AQY2010	AQY2010
Exchangeable measuring tip, with calibration certificate	N1859	BPZ:AQF4150	AQF4150

AQF3100



Radiation shield for exterior wall mounting

In combination with QFA31... room sensors.

Data sheet N1858

Stock No. Product No.

BPZ:AQF3100 **AQF3100**

AQF3153

Service-Set

The service set comprises three measuring tips without sensor element. Each tip signals a predefined temperature and humidity value to the basic unit:

- 85%, 40 °C
- 50%, 23 °C
- 20%, 5 °C

The fixed values are available at the signal outputs. The accuracy is the same as for the test function. The measuring tips can be exchanged in operation.

Data sheet

Stock No. Product No.

BPZ:AQF3153 **AQF3153**

Base modules for temperature and humidity measurement

AQR2540..



Data sheet	N1410
Operating voltage	AC 24 V DC 15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Connection, electrical	Screw terminals

Range overview AQR2540..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S142	AQR2540NF
UK (British Standard)	83 x 83 mm	S55720-S143	AQR2540NH
IT (3 modular)	110 x 64 mm	S55720-S144	AQR2540NG
US (UL)	64 x 110 mm	S55720-S145	AQR2540NJ

Base module with KNX for temperature and humidity measurement

AQR2570..



Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals

Range overview AQR2570..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S203	AQR2570NF
UK (British Standard)	83 x 83 mm	S55720-S204	AQR2570NH
IT (3 Modular)	110 x 64 mm	S55720-S205	AQR2570NG
US (UL)	64 x 110 mm	S55720-S206	AQR2570NJ

Front modules for base modules

AQR253..



Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Sensors

Humidity sensors

Room sensors - flush mounting AQR25..

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Stock No.	Product No.
		0...100 %	S55720-S140	AQR2533NNW
0...50 °C	Active	0...100 %	S55720-S141	AQR2535NNW
0...50 °C	Active LG-Ni1000	0...100 %	S55720-S138	AQR2534ANW
0...50 °C	Active NTC 10k	0...100 %	S55720-S139	AQR2534FNW

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	AQR2510NFW
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	AQR2510NHW
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	AQR2510NGW

Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment

QFA1001



2-position controller with humidity sensor
External setpoint adjustment

Data sheet	N1518
Setpoint setting range	30...90 % r.h.
Switching differential	6 % r.h.
Time constant	At v = 0.2 m/s: 5 min
Digital outputs	1-pin Potential-free Changeover contact
Connection, electrical	Screw terminals
Digital output, switching voltage	AC 230 V
Digital output, switching current	5 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	76 x 76 x 34 mm

Stock No. Product No.

BPZ:QFA1001 **QFA1001**

Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device

QFA1000



2-position controller with humidity sensor
Setpoint adjuster inside device

Data sheet	N1518
Setpoint setting range	30...90 % r.h.
Switching differential	6 % r.h.
Time constant	At v = 0.2 m/s: 5 min
Digital outputs	1-pin Potential-free Changeover contact
Connection, electrical	Screw terminals
Digital output, switching voltage	AC 230 V
Digital output, switching current	5 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	76 x 76 x 34 mm

Stock No. Product No.

BPZ:QFA1000 **QFA1000**

Sensors

Humidity sensors

Duct sensors QFM..

QFM1660



Duct sensor for humidity (0...10 V) and temperature (0...10 V)

Active sensor for acquiring the air humidity and temperature in air duct

Data sheet	Q3731
Operating voltage	AC 24 V
Signal output humidity	DC 0...10 V
Signal output temperature	DC 0...10 V
Measurement range humidity	10...90% r. h.
Measuring range, temperature	0...50 °C
Measurement accuracy	Temperature at AC 24 V and 25 °C: ±0.8 °C Humidity at 10...90% r. h. and 25 °C/20 °C: ±5% r. h.
Degree of protection	IP42

Stock No.

Product No.

S55720-S198

QFM1660

QFM21..



Duct sensor for rel. humidity / temperature

For relative humidity and temperature

Data sheet	N1864
Measurement range humidity	0...95 % r.h.
Measurement accuracy	Humidity at 30...70 % r.h. and 23 °C: ±3 % r.h. Temperature, at 15...35 °C: ±0.8 K Temperature, at 35...50 °C: ±1.0 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...154 mm
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QFM21..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V		BPZ:QFM2100	QFM2100
DC 4...20 mA		DC 13.5...35 V		BPZ:QFM2101	QFM2101
DC 0...10 V	LG-Ni1000	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2120	QFM2120
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2160	QFM2160
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2171	QFM2171

Duct sensors for rel. humidity / temperature for demanding requirements

QFM31..

For relative humidity and temperature.



Data sheet	N1882
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...206 mm
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QFM31..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, Display temperature		Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V			BPZ:QFM3100	QFM3100
DC 4...20 mA		DC 13.5...35 V			BPZ:QFM3101	QFM3101
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFM3160	QFM3160
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFM3160D	QFM3160D
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C 0...70 °C		BPZ:QFM3171	QFM3171
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFM3171D	QFM3171D

Duct sensor for rel. humidity/temperature for demanding requirements, with calibration certificate

QFM41..

For relative humidity and temperature



Data sheet	N1883
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...206 mm
Connection, electrical	Round connector
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	80 x 117 x 39 mm

Sensors

Humidity sensors

Duct sensors QFM..

Range overview QFM41..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Stock No.	Product No.
DC 4...20 mA		DC 13.5...35 V		BPZ:QFM4101	QFM4101
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM4160	QFM4160
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM4171	QFM4171

Accessories for QFM..

Product Title	Data sheet	Stock No.	Product No.
Filter cap for humidity sensor	N1858	BPZ:AQF3101	AQF3101
Exchangeable measuring tip	N1858	BPZ:AQF3150	AQF3150
Exchangeable measuring tip, with calibration certificate	N1859	BPZ:AQF4150	AQF4150

Service-Set

AQF3153

The service set comprises three measuring tips without sensor element. Each tip signals a predefined temperature and humidity value to the basic unit:

- 85%, 40 °C
- 50%, 23 °C
- 20%, 5 °C

The fixed values are available at the signal outputs. The accuracy is the same as for the test function. The measuring tips can be exchanged in operation.

Data sheet

	Stock No.	Product No.
	BPZ:AQF3153	AQF3153



Sensors

Humidity sensors

Duct hygrostats QFM81..

QFM81.2



Duct hygrostat, setpoint setting range 15...95 % r.h.

On / off hygrostat with humidity sensor.
External setpoint adjustment.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
Immersion length	130...156 mm
Degree of protection	IP30
Dimensions (W x H x D)	73 x 140 x 64 mm

Supplied complete with mounting flange.

Stock No.

Product No.

BPZ:QFM81.2

QFM81.2

QFM81.21



Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device

On / off hygrostat with humidity sensor.
Setpoint adjuster inside device.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
Immersion length	130...156 mm
Degree of protection	IP55
Dimensions (W x H x D)	73 x 140 x 64 mm

Stock No.

Product No.

BPZ:QFM81.21

QFM81.21

Condensation monitor, AC/DC 24 V

QXA2601

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.



Data sheet	N3302
Operating voltage	AC 24 V DC 24 V
Power consumption	1 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 1...30 V / DC 1...30 V
Digital output, switching current	DC 0.001...0.5 A / AC 0.001...1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.

Product No.

S55770-T325

QXA2601

Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)

QXA2602

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.



Data sheet	N3302
Operating voltage	AC 24 V DC 24 V
Power consumption	1 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 1...30 V / DC 1...30 V
Digital output, switching current	DC 0.001...0.5 A / AC 0.001...1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.

Product No.

S55770-T326

QXA2602

NEW PRODUCT

Sensors

Humidity sensors

Condensation monitor QXA..

QXA2603



Condensation monitor, AC 230 V

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.

Data sheet	N3302
Operating voltage	AC 230 V
Power consumption	4 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.

Product No.

S55770-T327

QXA2603

QXA2604



Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.

Data sheet	N3302
Operating voltage	AC 230 V
Power consumption	4 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.

Product No.

S55770-T328

QXA2604

QPA..



Room air quality sensor CO₂ / temperature / rel. Humidity / VOC

Data sheet	N1961
Operating voltage	AC 24 V DC 15...35 V
Power consumption	2 VA
Analog output, signal	DC 0...5 V DC 0...10 V
Ambient temperature, operation	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm
Time constant	CO ₂ : <5 min Humidity: <20 s Temperature: <8.5 min

Note: Not suited for safety-related applications!

Range overview QPA..

Measuring range	Measuring range, temperature	Measurement range humidity	Display	Stock No.	Product No.
VOC: 0...100 %				S55720-S119	QPA1000
CO ₂ : 0...2000 ppm				BPZ:QPA2000	QPA2000
CO ₂ : 0...2000 ppm CO ₂ +VOC: 0...2000 ppm				BPZ:QPA2002	QPA2002
CO ₂ : 0...2000 ppm CO ₂ +VOC: 0...2000 ppm			LCD	BPZ:QPA2002D	QPA2002D
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C			BPZ:QPA2060	QPA2060
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C		LCD	BPZ:QPA2060D	QPA2060D
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.		BPZ:QPA2062	QPA2062
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	LCD	BPZ:QPA2062D	QPA2062D
CO ₂ : 0...2000 ppm	selectable			S55720-S121	QPA2080
CO ₂ : 0...2000 ppm	selectable		LCD	S55720-S122	QPA2080D

With the QPA2080 and QPA2080D the passive temperature element is freely selectable, enclosed in the delivery are LG-Ni1000, Pt1000, Pt100, NTC 10kOhm



Sensors

Air quality sensors

Room sensors - wall mounting QPA..

QPA84



Indoor air quality controller with integrated VOC sensor for mixed gas

In ventilation plant to optimize indoor air quality and consumption of energy by means of demand-controlled ventilation.

Data sheet	N1571
Operating voltage	AC 230 V
Power consumption	0.5 VA
Measured variable	Mixed gas (VOC)
Digital outputs	Non-floating Switching contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	8 (6.8) A
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	96 x 101 x 39 mm

Stock No.

Product No.

BPZ:QPA84

QPA84

Base modules with integrated VOC measurement

AQR2547..

Data sheet	N1410
Operating voltage	AC 24 V DC 15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	VOC: 0...100 %
Connection, electrical	Screw terminals



Range overview AQR2547..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S146	AQR2547NF
UK (British Standard)	83 x 83 mm	S55720-S149	AQR2547NH
IT (3 modular)	110 x 64 mm	S55720-S152	AQR2547NG
US (UL)	64 x 110 mm	S55720-S155	AQR2547NJ

Front modules for base modules

AQR253..

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm



Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Stock No.	Product No.
			S55720-S137	AQR2530NNW
0...50 °C	Active		S55720-S136	AQR2532NNW
		0...100 %	S55720-S140	AQR2533NNW
0...50 °C	Active	0...100 %	S55720-S141	AQR2535NNW
0...50 °C	Active LG-Ni1000	0...100 %	S55720-S138	AQR2534ANW
0...50 °C	Active NTC 10k	0...100 %	S55720-S139	AQR2534FNW

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	AQR2510NFW
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	AQR2510NHW
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	AQR2510NGW

Sensors

Air quality sensors

Room sensors - flush mounting AQR25..

AQR2546..



Base modules with integrated CO₂ measurement

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	CO ₂ : 0...2000 ppm
Connection, electrical	Screw terminals

Range overview AQR2546..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S147	AQR2546NF
UK (British Standard)	83 x 83 mm	S55720-S150	AQR2546NH
IT (3 modular)	110 x 64 mm	S55720-S153	AQR2546NG
US (UL)	64 x 110 mm	S55720-S156	AQR2546NJ

AQR2576..



Base modules with KNX for CO₂ measurement

Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Measuring range	CO ₂ : 0...5000 ppm
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals

Range overview AQR2576..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S207	AQR2576NF
UK (British Standard)	83 x 83 mm	S55720-S208	AQR2576NH
IT (3 Modular)	110 x 64 mm	S55720-S209	AQR2576NG
US (UL)	64 x 110 mm	S55720-S210	AQR2576NJ

AQR253..



Front modules for base modules

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Display	Stock No.	Product No.
				S55720-S137	AQR2530NNW
0...50 °C	Active			S55720-S136	AQR2532NNW
		0...100 %		S55720-S140	AQR2533NNW
0...50 °C	Active	0...100 %		S55720-S141	AQR2535NNW
0...50 °C	Active LG-Ni1000	0...100 %		S55720-S138	AQR2534ANW
0...50 °C	Active NTC 10k	0...100 %		S55720-S139	AQR2534FNW
0...50 °C	Active	0...100 %	CO2 indicator by LED	S55720-S219	AQR2535NNWQ

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	AQR2510NFW
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	AQR2510NHW
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	AQR2510NGW

Base modules with integrated CO₂ and VOC measurement

AQR2548..

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	CO ₂ + VOC: 0...100 % CO ₂ : 0...2000 ppm
Connection, electrical	Screw terminals



Range overview AQR2548..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S148	AQR2548NF
UK (British Standard)	83 x 83 mm	S55720-S151	AQR2548NH
IT (3 modular)	110 x 64 mm	S55720-S154	AQR2548NG
US (UL)	64 x 110 mm	S55720-S157	AQR2548NJ

Front modules for base modules

AQR253..

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm



Sensors

Air quality sensors

Room sensors - flush mounting AQR25..

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Display	Stock No.	Product No.
				S55720-S137	AQR2530NNW
0...50 °C	Active			S55720-S136	AQR2532NNW
		0...100 %		S55720-S140	AQR2533NNW
0...50 °C	Active	0...100 %		S55720-S141	AQR2535NNW
0...50 °C	Active LG-Ni1000	0...100 %		S55720-S138	AQR2534ANW
0...50 °C	Active NTC 10k	0...100 %		S55720-S139	AQR2534FNW
0...50 °C	Active	0...100 %	CO2 indicator by LED	S55720-S219	AQR2535NNWQ

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	AQR2510NFW
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	AQR2510NHW
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	AQR2510NGW

QPM..



Duct air quality sensor CO₂/ temperature / rel. Humidity / VOC

Data sheet	N1962
Operating voltage	AC 24 V DC 15...35 V
Power consumption	2 VA
Analog output, signal	DC 0...5 V DC 0...10 V
Ambient temperature, operation	-5...45 °C
Max. air velocity	≤ 10 m/s
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 274 mm
Time constant	CO ₂ : <5 min Humidity: <20 s Temperature: <3.5 min

Note: Not suited for safety-related applications!

Range overview QPM..

Measuring range	Measuring range, temperature	Measurement range humidity	Immersion length [mm]	Display	Stock No.	Product No.
VOC: 0...100 %			70...135		S55720-S123	QPM1100
CO ₂ : 0...2000 ppm			70...135		BPZ:QPM2100	QPM2100
CO ₂ : 0...2000 ppm CO ₂ +VOC: 0...2000 ppm			70...135		BPZ:QPM2102	QPM2102
CO ₂ : 0...2000 ppm CO ₂ +VOC: 0...2000 ppm			70...135	LCD	BPZ:QPM2102D	QPM2102D
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C		100...165		BPZ:QPM2160	QPM2160
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C		100...165	LCD	BPZ:QPM2160D	QPM2160D
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	100...165		BPZ:QPM2162	QPM2162
CO ₂ : 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	100...165	LCD	BPZ:QPM2162D	QPM2162D
CO ₂ : 0...2000 ppm			100...165		S55720-S124	QPM2180

The passive temperature element within the QPM2180 is freely selectable, enclosed in the delivery are LG-Ni1000, Pt1000, Pt100, NTC 10kOhm

Variants QPM..N = no logo

Sensors

Pressure sensors

Differential pressure sensor air and non-aggressive gas QBM..

QBM3020..



Air duct differential pressure sensor, DC 0...10 V

For use with air or nonaggressive gases, for extremely demanding accuracy and high requirements. With diaphragm sensing element.

Available with switchable pressure-linear or extracting-the-root characteristic and digital display. With extracting-the-root characteristic, the pressure measuring range is adjustable.

Data sheet	N1916_01
Operating voltage	AC 24 V DC 13.5...33 V
Power consumption	0.5 VA
Analog output, signal	DC 0...10 V
Sensing element	Pressure diaphragm
Response time	<20 ms
Pressure connection	Connection branch, 6.2 mm dia.
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	101 x 86 x 49 mm

CE-, UL listed.

Supplied complete with PVC connecting tube of 2 m.

Range overview QBM3020.. with switchable characteristic (linear / root extracted)

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S234	QBM3020-1
-50...50	S55720-S233	QBM3020-1U
0...300	S55720-S235	QBM3020-3
0...500	S55720-S236	QBM3020-5
0...1000	S55720-S237	QBM3020-10
0...2500	S55720-S238	QBM3020-25

Range overview QBM3020..D with digital display and switchable characteristic (linear / root extracted)

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S239	QBM3020-1D
0...300	S55720-S240	QBM3020-3D
0...500	S55720-S241	QBM3020-5D
0...1000	S55720-S242	QBM3020-10D
0...2500	S55720-S243	QBM3020-25D

Differential pressure sensor air and non-aggressive gas QBM..

Air duct differential pressure sensor with calibration certificate

QBM400..

Technical data and accessories identical to QBM3...
With plug-in connection.

Data sheet N1919_01



Range overview QBM400.. with pressure-linear characteristic

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S247	QBM4000-1
0...300	S55720-S248	QBM4000-3
0...1000	S55720-S249	QBM4000-10
0...2500	S55720-S250	QBM4000-25

Differential pressure sensor, DC 0...10 V

QBM2030..

With pressure-linear characteristic.
For use with air or nonaggressive gases, for general HVAC applications. With diaphragm sensing element and selectable pressure measuring ranges.

Data sheet N1910_01

Operating voltage AC 24 V
DC 13.5...33 V

Power consumption 0.5 VA

Sensing element Pressure diaphragm

Time constant 1 s

Connection, electrical Screw terminals

Analog output, signal DC 0...10 V

Pressure connection Connection branch, 6.2 mm dia.

Degree of protection IP42

Dimensions (W x H x D) 92 x 94 x 49 mm



Supplied complete with set of 2 air duct connectors
and PVC tube of 2 m.

Range overview QBM2030..

Measuring range, pressure [Pa]	Stock No.	Product No.
-50...50	S55720-S244	QBM2030-1U
-100...100		
0...100		
0...200	S55720-S245	QBM2030-5
0...250		
0...500		
0...1000	S55720-S246	QBM2030-30
0...1500		
0...3000		

NEW PRODUCT

Sensors

Pressure sensors

Differential pressure sensor air and non-aggressive gas QBM..

QBM410..



Air duct differential pressure sensor, DC 4...20 mA, with calibration certificate

For use with air and nonaggressive gases. For extremely demanding accuracy and high requirements. With diaphragm sensing element.

Data sheet	N1919_01
Operating voltage	DC 8...33 V
Sensing element	Pressure diaphragm
Connection, electrical	Screw terminals
Analog output, signal	DC 4...20 mA
Pressure connection	Connecting branch, 6.2 mm dia.
Degree of protection	IP54
Dimensions (W x H x D)	186 x 86 x 49

CE-, UL listed.

Supplied complete with PVC connecting tube of 2 m.

Accessories for QBM41 are identical to those for QBM3...

Range overview QBM410..

Measuring range, pressure [Pa]	Display	Stock No.	Product No.
-50...50	no	S55720-S251	QBM4100-1U
0...100	LCD	S55720-S252	QBM4100-1D

Accessories for QBM2.. /QBM3.. /QBM4..

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket for differential pressure sensor for air	N1590	BPZ:AQB2000	AQB2000
Top hat rail adapter for differential pressure sensor for air	N1590	BPZ:AQB21.2	AQB21.2
Air duct probe for simple, quick and airtight mounting	N1589	BPZ:FK-PZ1	FK-PZ1
Air duct probe for accurate measurements	N1589	BPZ:FK-PZ2	FK-PZ2
Air duct probe for differential pressure sensor, fixed length	N1589	BPZ:FK-PZ3	FK-PZ3

QBM81..



Differential pressure monitor

Used as a flow switch or filter monitor in air ducts.

Data sheet	N1552
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	DC 24 V / AC 24...250 V
Digital output, switching current	0.01...5 (3) A
Permissible operating pressure	7500 Pa
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	88 x 110 x 90 mm
Pressure connection	Connection branch, 6.2 mm dia.
Ambient temperature, operation	-30...85 °C
Mounting position	Diaphragm vertical, pressure connection pointing downward

Supplied complete with set of 2 air duct connectors (plastic) and 2 m long PVC tube.

Range overview QBM81..

Measuring range, pressure	Stock No.	Product No.
20...300 Pa	BPZ:QBM81-3	QBM81-3
50...500 Pa	BPZ:QBM81-5	QBM81-5
100...1000 Pa	BPZ:QBM81-10	QBM81-10
500...2000 Pa	S55720-S125	QBM81-20
1000...5000 Pa	S55720-S126	QBM81-50

Accessories for QBM81..

Product Title	Data sheet	Stock No.	Product No.
Air duct probe for simple, quick and airtight mounting	N1589	BPZ:FK-PZ1	FK-PZ1
Air duct probe for accurate measurements	N1589	BPZ:FK-PZ2	FK-PZ2
Air duct probe for differential pressure sensor, fixed length	N1589	BPZ:FK-PZ3	FK-PZ3

Sensors

Pressure sensors

Pressure sensors for liquids and gases QBE..

QBE2002-P..



Pressure sensor for liquids and gases (0...10 V)

With threaded connection G½".

Data sheet	N1909
Operating voltage	AC 24 V DC 18...33 V
Connection cable	3-wire
Cable length	1.5 m
Pressure connection	External thread G½ "
Analog output, signal	DC 0...10 V
Time constant	<5 ms
Max. permissible pressure	2 x scale end value (FS)
Medium temperature	-40...80 °C
Mounting position	Any
Connection, electrical	Cable
Degree of protection	IP65

Suited for use with oil-containing media.

Range overview QBE2002-P..

Measuring range, pressure	Stock No.	Product No.
0...100 kPa 0...1 bar	BPZ:QBE2002-P1	QBE2002-P1
0...200 kPa 0...2 bar	BPZ:QBE2002-P2	QBE2002-P2
0...400 kPa 0...4 bar	BPZ:QBE2002-P4	QBE2002-P4
0...500 kPa 0...5 bar	BPZ:QBE2002-P5	QBE2002-P5
0...1 MPa 0...10 bar	BPZ:QBE2002-P10	QBE2002-P10
0...1.6 MPa 0...16 bar	BPZ:QBE2002-P16	QBE2002-P16
0...2 MPa 0...20 bar	BPZ:QBE2002-P20	QBE2002-P20
0...2.5 MPa 0...25 bar	BPZ:QBE2002-P25	QBE2002-P25
0...4 MPa 0...40 bar	BPZ:QBE2002-P40	QBE2002-P40
0...6 MPa 0...60 bar	S55720-S185	QBE2002-P60

Pressure sensor for liquids and gases (0...20 mA)

QBE2102-P..

With threaded connection G½".

Data sheet	N1909
Operating voltage	DC 11...33 V
Connection cable	2-wire
Cable length	1.5 m
Pressure connection	External thread G½ "
Analog output, signal	DC 4...20 mA
Time constant	<5 ms
Max. permissible pressure	2 x scale end value (FS)
Medium temperature	-40...80 °C
Mounting position	Any
Connection, electrical	Cable
Degree of protection	IP65



Suited for use with oil-containing media.

Range overview QBE2102-P..

Measuring range, pressure	Stock No.	Product No.
0...400 kPa 0...4 bar	S55720-S165	QBE2102-P4
0...500 kPa 0...5 bar	S55720-S166	QBE2102-P5
0...1 MPa 0...10 bar	S55720-S167	QBE2102-P10
0...1,6 MPa 0...16 bar	S55720-S168	QBE2102-P16
0...2 MPa 0...20 bar	S55720-S169	QBE2102-P20

Accessories for QBE2002-P.. and QBE2102-P..

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket for pressure sensor QBE2002	N1909	BPZ:AQB22.1	AQB22.1
Connection kit to mount QBE2002-P...	N1909	S55720-S116	AQB2001



Sensors

Pressure sensors

Pressure sensors for liquids and gases QBE..

QBE61.3-DP..



Differential pressure sensor for liquids and gases

For slightly aggressive liquids and gases, highly resistant to overpressure. Suitable for use with hot water and chilled water.

With threaded connections G $\frac{1}{2}$ " and wall mounting bracket.

Data sheet	N1923
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Sensing element	Pressure diaphragm
Medium temperature	-15...80 °C
Mounting position	Any
Connection, electrical	Screw-free terminals
Pressure connection	External thread G $\frac{1}{2}$ "
PN class	PN 40
Degree of protection	IP54
Dimensions (W x H x D)	126 x 135 x 60 mm

Not suitable for use with ammonia or freones.

Range overview QBE61.3-DP..

Measuring range, pressure [bar]	Max. permissible pressure [bar]	Stock No.	Product No.
0...2	12	BPZ:QBE61.3-DP2	QBE61.3-DP2
0...5	20	BPZ:QBE61.3-DP5	QBE61.3-DP5
0...10	20	BPZ:QBE61.3-DP10	QBE61.3-DP10

Note on max. permissible pressure: pressure on one side.

Accessories for QBE61.3-DP..

Product Title	Data sheet	Stock No.	Product No.
Water trap pipe	N1915	BPZ:428616520	428616520

QBE63-DP..



Differential pressure sensors for liquids and gas (DC 0...10 V)

For slightly aggressive liquids and gases, highly resistant to overpressure. With threaded connections G $\frac{1}{8}$ "

Supplied complete with mounting bracket.

Data sheet	N1920
Operating voltage	AC 24 V DC 20...30 V
Analog output, signal	DC 0...10 V
Medium temperature	-10...80 °C
Connection, electrical	Screw terminals
Pressure connection	Internal thread G $\frac{1}{8}$ "
Degree of protection	IP65
Dimension (Ø x L)	65 x 94 mm

Not suitable for use with ammonia or freones.

Range overview QBE63-DP..

Measuring range, pressure [kPa]	Max. permissible pressure [bar]	Stock No.	Product No.
0...10	10	BPZ:QBE63-DP01	QBE63-DP01
0...20	10	BPZ:QBE63-DP02	QBE63-DP02
0...50	20	BPZ:QBE63-DP05	QBE63-DP05
0...100	20	BPZ:QBE63-DP1	QBE63-DP1

Note on max. permissible pressure: pressure on one side

Differential pressure sensors for liquids and gas (0...10 V)

For slightly aggressive liquids and gases. With threaded connections G1/8". Including mounting bracket and 2 screwed fittings for copper pipe, 6 mm dia.

Data sheet	N1922
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Medium temperature	-15...80 °C
Connection, electrical	Plug-in connection
Pressure connection	Internal thread G 1/8 "
Degree of protection	IP65

Not suitable for use with ammonia or freones.

QBE3000..



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Range overview QBE3000..

Measuring range, pressure	Max. permissible pressure [bar]	Stock No.	Product No.
0...1 bar 0...100 kPa	25	S55720-S173	QBE3000-D1
0...1.6 bar 0...160 kPa	25	S55720-S174	QBE3000-D1.6
0...2.5 bar 0...250 kPa	25	S55720-S175	QBE3000-D2.5
0...4 bar 0...400 kPa	25	S55720-S176	QBE3000-D4
0...6 bar 0...600 kPa	25	S55720-S186	QBE3000-D6
0...10 bar 0...1 MPa	50	S55720-S177	QBE3000-D10
0...16 bar 0...1.6 MPa	50	S55720-S178	QBE3000-D16

Note on max. permissible pressure: pressure on both sides.

Sensors

Pressure sensors

Pressure sensors for liquids and gases QBE..

QBE3100..



Differential pressure sensors for liquids and gas (4...20 mA)

For slightly aggressive liquids and gases. With threaded connections G 1/8". Including mounting bracket and 2 screwed fittings for copper pipe, 6 mm dia.

Data sheet	N1922
Operating voltage	DC 11...33 V
Analog output, signal	DC 4...20 mA
Medium temperature	-15...80 °C
Connection, electrical	Plug-in connection
Pressure connection	Internal thread G 1/8 "
Degree of protection	IP65

Not suitable for use with ammonia or freones.

Range overview QBE3100..

Measuring range, pressure	Max. permissible pressure [bar]	Stock No.	Product No.
0...1 bar 0...100 kPa	25	S55720-S179	QBE3100-D1
0...1.6 bar 0...160 kPa	25	S55720-S180	QBE3100-D1.6
0...2.5 bar 0...250 kPa	25	S55720-S181	QBE3100-D2.5
0...4 bar 0...400 kPa	25	S55720-S182	QBE3100-D4
0...6 bar 0...600 kPa	25	S55720-S187	QBE3100-D6
0...10 bar 0...1 MPa	50	S55720-S183	QBE3100-D10
0...16 bar 0...1,6 MPa	50	S55720-S184	QBE3100-D16

Note on max. permissible pressure: pressure on both sides.

Accessories for QBE63-DP.. and QBE3..

Product Title	Data sheet	Stock No.	Product No.
Connection kit to mount QBE63../64.., QBE3..	N1922	S55720-S117	AQB2002

Pressure sensor for refrigerants (0...10 V)

QBE2001-P..U

With internally threaded pressure connection UNF7/16-20.

Data sheet	N1907
Operating voltage	AC 24 V DC 16...33 V
Analog output, signal	DC 0...10 V
Connection, electrical	Cable
Connection cable	3-wire
Cable length	1.5 m
Pressure connection	Internal thread UNF7/16-20
Time constant	<2 ms
Medium temperature	-40...150 °C
Mounting position	Any
Degree of protection	IP67
Max. permissible pressure	3 x scale end value (FS)



For use with all media, including ammonia.

Range overview QBE2001-P..U

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	BPZ:QBE2001-P10U	QBE2001-P10U
-1...24 bar -100...2400 kPa	BPZ:QBE2001-P25U	QBE2001-P25U
-1...29 bar -100...2900 kPa	BPZ:QBE2001-P30U	QBE2001-P30U
-1...59 bar -100...5900 kPa	S55720-S171	QBE2001-P60U

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Pressure sensors for refrigerants (4...20 mA)

QBE2101-P..U

With internally threaded pressure connection UNF7/16-20.

Data sheet	N1907
Operating voltage	DC 8...33 V
Analog output, signal	DC 4...20 mA
Connection, electrical	Cable
Connection cable	2-wire
Cable length	1.5 m
Pressure connection	Internal thread UNF7/16-20
Time constant	<2 ms
Medium temperature	-40...150 °C
Mounting position	Any
Degree of protection	IP67
Max. permissible pressure	3 x scale end value (FS)



Suitable for all media, including ammonia

Sensors

Pressure sensors

Pressure sensors refrigerant QBE..

Range overview QBE2101-P..U

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	BPZ:QBE2101-P10U	QBE2101-P10U
-1...24 bar -100...2400 kPa	BPZ:QBE2101-P25U	QBE2101-P25U
-1...29 bar -100...2900 kPa	BPZ:QBE2101-P30U	QBE2101-P30U
-1...59 bar -100...5900 kPa	S55720-S170	QBE2101-P60U

Accessories for QBE2001-P..U and QBE2101-P..U

Product Title	Data sheet	Stock No.	Product No.
Connection set, thread 1/2" for pressure sensor for refrigerant	N1907	BPZ:FT-PZ1	FT-PZ1

QVE2000.0..



Flow sensor for liquids in DN 10...25 pipes

For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1597
Operating voltage	DC 11.5...33 V
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE2000.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G½ "	1.8...32 l/min	S55720-S189	QVE2000.010
DN 15	G¾ "	3.5...50 l/min	S55720-S190	QVE2000.015
DN 20	G1 "	5.0...85 l/min	S55720-S191	QVE2000.020
Dn 25	G1¼ "	9.0...150 l/min	S55720-S192	QVE2000.025

QVE2100.0..



Flow sensor for liquids in DN 10...25 pipes

For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1597
Operating voltage	DC 18...33 V
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE2100.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G½ "	1.8...32 l/min	S55720-S193	QVE2100.010
DN 15	G¾ "	3.5...50 l/min	S55720-S194	QVE2100.015
DN 20	G1 "	5.0...85 l/min	S55720-S195	QVE2100.020
DN 25	G1¼ "	9.0...150 l/min	S55720-S196	QVE2100.025

Sensors

Flow sensors

Flow sensors QVE..

QVE3000.0..



Flow sensor for liquids in DN 10...25 pipes

For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1598
Operating voltage	DC 11.5...33 V
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: red brass, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE3000.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G $\frac{3}{4}$ "	1.8...32 l/min	S55720-S211	QVE3000.010
DN 15	G $\frac{3}{4}$ "	3.5...50 l/min	S55720-S212	QVE3000.015
DN 20	G1 "	5.0...85 l/min	S55720-S213	QVE3000.020
DN 25	G1 $\frac{1}{4}$ "	9.0...150 l/min	S55720-S214	QVE3000.025

QVE3100.0..



Flow sensor for liquids in DN 10...25 pipes

For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1598
Operating voltage	DC 18...33 V
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: red brass, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE3100.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G $\frac{3}{4}$ "	1.8...32 l/min	S55720-S215	QVE3100.010
DN 15	G $\frac{3}{4}$ "	3.5...50 l/min	S55720-S216	QVE3100.015
DN 20	G1 "	5.0...85 l/min	S55720-S217	QVE3100.020
DN 25	G1 $\frac{1}{4}$ "	9.0...150 l/min	S55720-S218	QVE3100.025

Flow switch for use in hydraulic systems, PN10, DN32...200

QVE1900

For monitoring operation of systems using liquids or gases.



Data sheet	N1592
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	250 VAC
Digital output, switching current	15 (8) A
Nominal size, piping	DN32 - DN200
Connecting thread	R 1 " thread
PN class	PN 10
Medium temperature	-20...120 °C
Ambient temperature, operation	-20...85 °C
Material, valve body	Brass
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	108 x 70 x 132 mm

Stock No.

Product No.

BPZ:QVE1900

QVE1900

Flow switch for use in hydraulic systems, PN25, DN20...200

QVE1901

For monitoring operation of systems using liquids or gases.



Data sheet	N1594
Digital outputs	1-pin Potential-free On / Off
Digital output, switching voltage	230 VAC, 48 VDC
Digital output, switching current	1 A
Nominal size, piping	DN20 - DN200
Connecting thread	G ½ " thread
PN class	PN 25
Medium temperature	-20...110 °C
Ambient temperature, operation	-20...80 °C
Material, valve body	Brass
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	120 x 38 x 92 mm
Additional info	Maximum switching capacity AC 26 VA, DC 20 W

Stock No.

Product No.

BPZ:QVE1901

QVE1901

Sensors

Flow sensors

Flow switches QVE1..

QVE1902.0..



Flow switch for liquids in piping DN 10...25

For monitoring the flow of liquid medium in HVAC plants

Data sheet	N1596
Digital outputs	1-pin Potential-free reed contact
Digital output, switching voltage	AC 230 V, DC 48 V
Digital output, switching current	1 A
Medium temperature	-20...100 °C
Ambient temperature, operation	0...70 °C
Material, valve body	
Degree of protection	IP65
Additional info	Maximum switching capacity AC 26 VA, DC 20 W

Range overview QVE1902.0..

Nominal size, piping	Connecting thread	Qmax	Stock No.	Product No.
DN 10	G $\frac{3}{8}$ "	20 l/min	S55720-S199	QVE1902.010
DN 15	G $\frac{1}{2}$ "	30 l/min	S55720-S200	QVE1902.015
DN 20	G $\frac{3}{4}$ "	80 l/min	S55720-S201	QVE1902.020
DN 25	G1 "	130 l/min	S55720-S202	QVE1902.025

QVM62.1



Duct sensor for air velocity

For measuring air velocities or volumetric flow in air ducts. Suited for primary plant (presetting the volumetric flow).

Data sheet	N1932
Operating voltage	AC / DC 24 V
Analog output, signal	DC 0...10 V DC 4...20 mA
Power consumption	5 VA
Cable length	1 m
Measuring range	0...10 m/s 0...15 m/s 0...5 m/s
Measurement accuracy	At 20 °C, 45 % r.h., 1013 hPa: ±0.65 m/s
Immersion length	30...300 mm
Connection, electrical	Screw terminals
Degree of protection	IP42

Sensor detached, ready wired, including pipe extension for different immersion lengths and mounting flange.

	Stock No.	Product No.
	BPZ:QVM62.1	QVM62.1

Sensors

Solar sensors

Solar sensors QLS..

QLS60



Solar sensor

For measuring the solar radiation intensity.

Data sheet	N1943
Operating voltage	AC 24 V DC 18...30 V
Power consumption	2.5 VA
Analog output, signal	DC 0...10 V DC 4...20 mA
Measuring range	0...1000 W/m ²
Time constant	≤2 s
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	51 x 92 x 46 mm

Stock No.

Product No.

BPZ:QLS60

QLS60

Valves and actuators



Overview and selection guides	Product overviews and application recommendations		7-2
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Valves and actuators
 Overview and selection guides
 Product overviews and application recommendations

Permissible medium temperature [°C]	Generation				Distribution			Consumption/Use						
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-40														M3P.. FY
-25														M3P.. FYP
-20														MXF461..
-10														MXG461..P
0														MXG461B..
1														MXG461..P
...														MXG461S..
90														MXG462S..
100														MVF461H..
110														VAI60..
120														VAI61..
130														VBF21..
150														VBG31..
180														VBI31..
220														VBI60..
350														VBI61..
														VCI31..
														VKF41..
														VKF46..
														VPF43...
														VPF53...
														VVF21..
														VVF31..
														VVF40..
														VVF43..
														VVF53..
														VVF61..
														VVF61..2
														VVG41..
														VVG44..
														VVG55..
														VXF21..
														VXF31..
														VXF40..
														VXF43..
														VXF53..
														VXF61..
														VXF61..2
														VXG41..
														VXG41..01 ¹⁾
														VXG44..
														VD1..CLC
														VDN../VEN../VUN..
														VMP45..
														VMP47..
														VPD../VPE..
														VPI45.. ⁴⁾
														VPI46.. ⁴⁾
														VPP46.. ⁴⁾
														VVI46..
														VVP45..
														VVP47..
														VXI46..
														VXP45..
														VXP47..
														M2FP03GX
														M3FB..LX..
														M3FK..LX..
														MVL661..
														MVS661..N

Central HVAC plants

Room and zone applications

















Refrigeration systems



Valves and actuators

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TRV line										
Typical applications – Radiators	Actuators RTN..	Data sheet N2111								
						RTN51/ RTN51G	RTN71	RTN81		
Typical applications – Radiators	Actuators STA23../73../63.. SSA..	Data sheet N4884 N4893				4.5 mm	2.5 mm	4.5 mm		
						100 N	100 N	90 N		
	Operating voltage	Positioning signal	Positioning time [s]	Spring return function						
					STA23	–	STA23HD ¹⁾			
	AC 230 V	2-position	210	✓	–	SSA31	–			
		3-position	150	–	–	SSA81	–			
	AC 24 V	3-position	150	–	–	–	–			
0...10 V		30	✓	–	–	–				
AC/DC 24 V	2-position/PDM	270	✓	–	–	–				
	0...10 V	34	–	–	–	–				
Normally open/normally closed (for radiator valves)					NC	–	–			
PN 10	1...120 °C	DIN	NF	DN	Rp/R [inch]	k _v [m³/h]	Δp _{max} [kPa]			
Data sheet		N2105	N2106							
		VDN110	VDN210	10	Rp/R 3/8	0.09...0.63	60			
		VDN115	VDN215	15	Rp/R 1/2	0.10...0.89	60			
		VDN120	VDN220	20	Rp/R 3/4	0.31...1.41	60			
		VEN110	VEN210	10	Rp/R 3/8	0.09...0.63	60			
		VEN115	VEN215	15	Rp/R 1/2	0.10...0.89	60			
		VEN120	VEN220	20	Rp/R 3/4	0.31...1.41	60			
		–	VUN210	10	Rp/R 3/8	0.14...0.60	60			
		–	VUN215	15	Rp/R 1/2	0.13...0.77	60			
PN 10	1...110 °C			DN	Rp/R [inch]	k _v [l/h]	Δp _{max} [kPa]			
Data sheet		N2103								
		VD115CLC		15	Rp/R 1/2	0.25...1.9	150			
		VD120CLC		20	Rp/R 3/4	0.25...2.6	150			
		VD125CLC		25	Rp/R 1	0.25...2.6	150			
Presettings for radiator valves VEN.., VDN.., VUN..										
k _v values [m³/h] at the different preadjusted positions										
Control range with electromotoric and electrothermic actuators SSA.., STA..									–	
Control range with thermostatic head RTN..								–		
Reference numbers for preadjustment		1	2	3	4	5	N	N		
VDN110/VDN210/VEN110/VEN210		0.09	0.18	0.26	0.33	0.48	0.63	0.43		
VDN115/VDN215/VEN115/VEN215		0.1	0.2	0.31	0.45	0.69	0.89	0.52		
VDN120/VDN220/VEN120/VEN220		0.31	0.41	0.54	0.83	0.91	1.41	0.71		
VUN210		0.14	0.28	0.38	0.49	0.53	0.6	0.43		
VUN215		0.13	0.23	0.34	0.52	0.66	0.77	0.5		









¹⁾ Optimized for floor heating systems

k_v = nominal flow rate of cold water (5...30 °C) through the valve at the respective stroke and a differential pressure of 100 kPa (1 bar)
The selected k_v values of the radiator valves can be easily and precisely set on the valve head in 5 steps + N (fully open)

Valves and actuators

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Elite line											
Typical applications – Terminal units – Induction units – Chilled ceilings	Actuators		Data sheet			5.5 mm					
						200 N		200 N			
											
	Operating voltage		Positioning signal	Positioning time [s]	Auxiliary switch						
		AC 230 V	3-position	150	– ✓		SSB31		SSB31.1		
		AC 24 V	3-position	150	– ✓		SSB81		SSB81.1		
		AC/DC 24 V	0...10 V	75	– –		SSB61		–		
PN 16											
Data sheet											
1...110 °C		DN		G [inch]		k_{vs} [m³/h]		Δp_c [kPa]		Δp_{max} [kPa]	
		VVP45.10-..		10		G ½B		0.25 / 0.4 / 0.63		725	
		VVP45.10-..		10		G ½B		1 / 1.6		725	
		VVP45.15-2,5		15		G ¾B		2.5		350	
		VVP45.20-4		20		G 1B		4		350	
		VVP45.25-6,3		25		G 1¼B		6.3		300	
		VXP45.10-..		10		G ½B		0.25 / 0.4 / 0.63		–	
		VXP45.10-..		10		G ½B		1 / 1.6		–	
		VXP45.15-2,5		15		G ¾B		2.5		–	
		VXP45.20-4		20		G 1B		4		–	
		VXP45.25-6,3		25		G 1¼B		6.3		–	
		VMP45.10-..		10		G ½B		0.25 / 0.4		–	
		VMP45.10-..		10		G ½B		0.63 / 1		–	
		VMP45.10-1,6		10		G ½B		1.6		–	
		VMP45.15-2,5		15		G ¾B		2.5		–	
		VMP45.20-4		20		G 1B		4		–	

Standard line

Union nuts for threaded valves

Union nuts for threaded valves See page 15

VVP45...N with Serto compression fittings, $k_{vs} = 2,5/4/6,3$
VVP45..S, VMP45..S with Conex® compression fittings, $k_{vs} = 0.63 / 1 / 1.6 / 2.5 \text{ m}^3/\text{h}$
VVP47..S, VMP47..S with Conex® compression fittings, $k_{vs} = 0.63 / 1 / 1.6 / 2.5 \text{ m}^3/\text{h}$
.. = k_{vs} value

Valves and actuators

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On/Off line

Typical applications	Actuators	Data sheet	Actuators	Data sheet	2.5 mm		4.5 mm	2.5 mm		
– Terminal units – Domestic hot water storage tank charging – Zone control	SFA.. SUA21/1 STA21../73../63..	N4863 N4830 N4884	SSA31.04 ¹⁾	N4860	200 N	150 N	100 N	160 N		
	Operating voltage	Positioning signal	Positioning time [s]	Spring re-turn function						
	AC 230 V	2-position 2-position 2-position/SPST ²⁾ 3-position/SPDT ²⁾	10 210 10 43	✓ ✓ – –	SFA21/18 – – –	– – SUA21/1 –	– – – –	– – – SSA31.04		
	AC 24 V	2-position 0...10 V	10 30	✓ ✓	SFA71/18 –	– –	– –	– STA63		
	AC/DC 24 V	2-position/PDM	270	✓	–	–	–	STA73		
PN 16	1...110 °C	DN	Rp [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
Data sheet	N4842									
	VVI46.15	15	Rp ½	2	300	300	300	300	200	200
	VVI46.20	20	Rp ¾	3.5	300	300	300	300	200	200
	VVI46.25	25	Rp 1	5	300	300	250	250	200	200
	VXI46.15 ³⁾	15	Rp ½	2	–	300	–	300	–	200
	VXI46.20 ³⁾	20	Rp ¾	3.5	–	300	–	300	–	200
	VXI46.25 ³⁾	25	Rp 1	5	–	300	–	300	–	200
	VXI46.25T ⁴⁾	25	Rp 1	5	–	200	–	200	–	200

Thermal actuators and connecting cables for combinable range, STx..3..

Color		White						Black		
Equipped with	–	Function module DC 0...10 V		Auxiliary switch for STA	Auxiliary switch for STP	LED	–	Function module DC 0...10 V		
Positioning signal	2-position (ON/OFF)	DC 0...10 V	DC 0...10 V	2-position (ON/OFF)	2-position (ON/OFF)	2-position (ON/OFF)	2-position (ON/OFF)	DC 0...10 V	DC 0...10 V	
	[STA..., NC]	[STA..., NC]	–	[STA..., NC]	–	[STA..., NC]	[STA..., NC]	[STA..., NC]	–	
	[STP..., NO]	–	[STP..., NO]	–	[STP..., NO]	[STP..., NO]	[STP..., NO]	–	[STP..., NO]	
Standard PVC cables	0.8 m	ASY23L08								
	1 m	ASY23L10			ASA23U10	ASP23U10				
	2 m	ASY23L20	ASY6AL20	ASY6PL20	ASA23U20	ASP23U20	ASY23L20LD		ASY6AL20B	ASY6PL20B
	3 m	ASY23L30						ASY23L30B		
	4 m	ASY23L40								
	5 m	ASY23L50	ASY6AL50	ASY6PL50			ASY23L50LD	ASY23L50B	ASY6AL50B	
	6 m	ASY23L60								
	7 m	ASY23L70	ASY6AL70	ASY6PL70					ASY6AL70B	
	10 m	ASY23L100						ASY23L100B		
	15 m	ASY23L150								
Halogen-free cables	2 m	ASY23L20HF	ASY6AL20HF	ASY6PL20HF						
	5 m	ASY23L50HF	ASY6AL50HF	ASY6PL50HF						
	7 m		ASY6AL70HF	ASY6PL70HF						
	10 m	ASY23L100HF								

Actuator									
STA73/00	■	■		■		■			
STA23/00	■			■					
STP73/00	■		■		■	■			
STP23/00	■				■				
STA73PR/00 ⁵⁾	■			■		■			
STP73PR/00 ⁵⁾	■				■	■			
STA73MP/00 ⁶⁾	■	■		■		■			
STA23MP/00 ⁶⁾	■			■					
STA73B/00							■	■	
STA23B/00							■		
STP73B/00							■		■
STP23B/00							■		

¹⁾ Not suited for radiator valves

²⁾ SPST = single-pole single-throw, SPDT = single-pole double-throw

³⁾ 70% k_{vs} in bypass, leakage rate in bypass 2...5% of k_{vs} value




⁴⁾ 100% k_{vs} in bypass, leakage rate in bypass 0.05% of k_{vs} value. **For noiseless operation, the value of 100 kPa should not be exceeded.**









⁵⁾ Actuators ideal for parallel running. Pulse duration modulation (PDM) in connection with Siemens room controllers of the Desigo™ range and room thermostats.



⁶⁾ Multipack with 50 actuators (OEM) NC: normally closed, NO: normally open





Valves and actuators
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Threaded combi valves with actuators

Typical applications	Actuators	Data sheet		4.5 mm 100 N	2.5 mm 100 N		
– Radiators	RTN..	N2111					
	STA23.. /73../63..	N4884					
	SSA..	N4893					
	Operating voltage	Positioning signal				Positioning time [s]	Spring return function
	AC 230 V	2-position				210	✓
		3-position				150	–
	AC 24 V	3-position				150	–
	0...10 V	30	✓				
AC/DC 24 V	2-position/PDM	270	✓				
	0...10 V	34	–				
			RTN51	–	–		
			RTN71	–	–		
			RTN81	–	–		

PN 10	1...90 °C	DIN	DN	Rp/R [inch]	V [l/h]	V _{nom} ¹⁾ [l/h]		Δp _{min} [kPa]			Δp _{max} [kPa]
Data sheet		N2185									
		VPD110A-.. ¹⁾	10	Rp/R 3/8	25...318	45 90 145	6 ²⁾	8 ²⁾	10 ²⁾	60	
		VPD115A-.. ¹⁾	15	Rp/R 1/2	25...318	45 90 145	6 ²⁾	8 ²⁾	10 ²⁾	60	
		VPD110B-200	10	Rp/R 3/8	95...483	200				60	
		VPD115B-200	15	Rp/R 1/2	95...483	200				60	
		VPE110A-.. ¹⁾	10	Rp/R 3/8	25...318	45 90 145	6 ²⁾	8 ²⁾	10 ²⁾	60	
		VPE115A-.. ¹⁾	15	Rp/R 1/2	25...318	45 90 145	6 ²⁾	8 ²⁾	10 ²⁾	60	
		VPE110B-200	10	Rp/R 3/8	95...483	200				60	
		VPE115B-200	15	Rp/R 1/2	95...483	200				60	

Typical applications	Actuators	Data sheet	Spring return function	4.5 mm 100 N	2.5 / 5 mm 100 N	
– Terminal units – Air handling units – Chilled ceilings	SSA..	N4893				
	STA..	N4884				
	SFA..	N4863				
	SUA..	N4830				
	Operating voltage	Positioning signal				Positioning time [s]
	AC 230 V	3-position				150/300
		2-position	210			✓
	2-position	10	✓			
	2-position/SPST ³⁾	10	–			
AC 24 V	2-position	10	✓			
	0...10 V	30	✓			
AC/DC 24 V	3-position	150/300	–			
	2-position/PDM	270	✓			
	0...10 V	34/70	–			

PN 25	1...110 °C	Without pressure testing points	With pressure testing points	DN	G [inch]	V _{min} [l/h]	V ₁₀₀ [l/h]	Δp _{min} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]
Data sheet		N4855								
		VPP46.10L0.2	VPP46.10L0.2Q	10	1/2	30	200	15	15	400
		VPP46.15L0.2	VPP46.15L0.2Q	15	3/4	30	200	15	15	400
		VPP46.15L0.6	VPP46.15L0.6Q	15	3/4	100	575	15	15	400
		VPP46.20F1.4	VPP46.20F1.4Q	20	1	220	1330	–	20	400

PN 25	1...110 °C	Without pressure testing points	With pressure testing points	DN	G [inch]	V _{min} [l/h]	V ₁₀₀ [l/h]	Δp _{min} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]
Data sheet		N4855								
		VPI46.15L0.2	VPI46.15L0.2Q	15	1/2	30	200	15	15	400
		VPI46.15L0.6	VPI46.15L0.6Q	15	1/2	100	575	15	15	400
		VPI46.20F1.4	VPI46.20F1.4Q	20	3/4	220	1330	–	20	400

¹⁾ .. = insert V_{nom}

V_{nom} = factory setting = volumetric flow at 0.5 mm stroke or setting mark 3 of the presetting

²⁾ Δp_{min} is valid for V_{nom} 45/90/145 l/h

³⁾ SPST = single-pole single-throw






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Threaded combi valves with actuators

Typical applications	Actuators	Data sheet	5.5 mm		6.5 mm			
			250 N		400 N			
<ul style="list-style-type: none"> Terminal units Air handling units Chilled ceilings 	SSD..	N4861						
	SQD..	N4540						
	Operating voltage	Positioning signal	Positioning time [s]		Spring return function			
			SSD..	SQD..	SSD..	SQD..		
	AC 230 V	3-position	150	170	–	–	SSD31	SQD35.00
	AC 24 V	3-position	150	43	–	–	SSD81	SQD85.03
		0...10 V	–	43	–	–	–	SQD65
	AC/DC 24 V	0...10 V	75	–	–	–	SSD61	–
		0...10 V	75	–	–	–	SSD61EP ¹⁾	–
		2...10 V	75	–	–	–	SSD61.2	–

PN 25	1...120 °C	Without pressure testing points	With pressure testing points	DN	Rp [inch]	V _{min} [l/h]	V ₁₀₀ [l/h]	Δp _{min} [kPa]	Δp _{max} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]
Data sheet		N4853									
		VPI45.15F0.5	VPI45.15F0.5Q	15	Rp 1/2	90	620	16	400	–	–
		VPI45.15F1.5	VPI45.15F1.5Q	15	Rp 1/2	290	1730	18	400	–	–
		VPI45.20F0.9	VPI45.20F0.9Q	20	Rp 3/4	160	1050	16	400	–	–
		VPI45.20F2	VPI45.20F2Q	20	Rp 3/4	350	2040	22	400	–	–
		VPI45.25F1.5	VPI45.25F1.5Q	25	Rp 1	280	1720	16	400	–	–
		VPI45.25F2	VPI45.25F2Q	25	Rp 1	350	2040	22	400	–	–
		VPI45.32F3	VPI45.32F3Q	32	Rp 1 1/4	560	3050	18	400	–	–
		VPI45.40F7	VPI45.40F7Q	40	Rp 1 1/2	2355	7105	–	–	26	400
		VPI45.50F8.5	VPI45.50F8.5Q	50	Rp 2	2664	8586	–	–	32	400

Flanged combi valves with actuators















Typical applications	Actuators	Data sheet	Positioning time [s]				Stroke [mm]	Spring return function (30 sec)	800 N	1100 N
			SAX	SQV	SAX	SQV				
<ul style="list-style-type: none"> Heating plants Ventilation plants Air conditioning plants 	SAX..P..	N4509								
	SQV91P..	N4833								
	Operating voltage	Positioning signal	Positioning time [s]		Stroke [mm]					
			SAX	SQV	SAX	SQV				
	AC 230 V	3-position	30	–	20	–	–	SAX31P03	–	
		3-position	–	40/80	–	20/40	✓	–	SQV91P40 ²⁾	
		3-position	–	40/80	–	20/40	✓	–	SQV91P30 ²⁾	
	AC/DC 24 V	3-position	30	–	20	–	–	SAX81P03	–	
		3-position	–	40/80	–	20/40	✓	–	SQV91P40	
		3-position	–	40/80	–	20/40	✓	–	SQV91P30	
		0...10 V, 4...20 mA	30	–	20	–	–	SAX61P03	–	
		0...10 V, 4...20 mA	–	40/80	–	20/40	✓	–	SQV91P40	
	0...10 V, 4...20 mA	–	40/80	–	20/40	✓	–	SQV91P30		

PN 16	1...120 °C	DN	V _{min} [m³/h]	V ₁₀₀ [m³/h]	Δp _{min} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
Data sheet	N4315								
	VPF43.50F16	50	2.3	15	35	600	600	600	600
	VPF43.50F25	50	4.3	25	70	600	600	600	600
	VPF43.65F24	65	4.4	24	35	600	600	600	600
	VPF43.65F35	65	6	35	70	600	600	600	600
	VPF43.80F35	80	5.3	34	35	600	600	600	600
	VPF43.80F45	80	7	43	70	600	600	600	600
PN 25	1...120 °C	DN	V _{min} [m³/h]	V ₁₀₀ [m³/h]	Δp _{min} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
Data sheet	N4316								
	VPF53.50F16	50	2.3	15	35	600	600	600	600
	VPF53.50F25	50	4.3	25	70	600	600	600	600
	VPF53.65F24	65	4.4	24	35	600	600	600	600
	VPF53.65F35	65	6	35	70	600	600	600	600
	VPF53.80F35	80	5.3	34	35	600	600	600	600
	VPF53.80F45	80	7	43	70	600	600	600	600

¹⁾ For equal-percentage valve characteristic
7-8

²⁾ For AC 230 V use of accessories ASP1.1 required

Flanged 2-port and 3-port valves with 20/40 mm actuators

Typical applications	Actuators	Data sheet			Spring return function	20 mm				40 mm				
		Positioning signal	Positioning time [s]			800 N	1000 N	2800 N	2800 N					
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	SAX..	N4501			–									
	SKD..	N4561			–									
	SKB..	N4564			–									
	SKC..	N4566			–									
	Operating voltage													
	AC 230 V	3-position	120	120	120	–	SAX31.00	SKD32.50	SKB32.50	SKC32.60				
		3-position	–	120	120	✓	–	SKD32.51	SKB32.51	SKC32.61				
		3-position	30	–	–	–	SAX31.03	–	–	–				
		3-position	–	30	–	✓	–	SKD32.21	–	–				
AC 24 V ¹⁾	3-position	120	120	120	–	SAX81.00	SKD82.50	SKB82.50	SKC82.60					
	3-position	–	120	120	✓	–	SKD82.51	SKB82.51	SKC82.61					
	3-position	30	–	–	–	SAX81.03	–	–	–					
	0...10 V, 4...20 mA	–	30	120	–	–	SKD60	SKB60	SKC60					
	0...10 V, 4...20 mA	–	30	120	✓	–	SKD62	SKB62	SKC62					
AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	SAX61.03	–	–	–					
PN 6	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4310													
				N4410										
				VXF21.22..25 ²⁾	25	1.9/3/5/7.5	600	300	600	300	600	300	–	–
				VXF21.25..25 ³⁾	25	2.5/4/6.3/10	600	300	600	300	600	300	–	–
				VXF21.39..40 ²⁾	40	12/19	500	300	600	300	600	300	–	–
				VXF21.40..	40	16/25	500	300	600	300	600	300	–	–
				VXF21.50	50	31	300	300	450	300	600	300	–	–
				VXF21.50-40	50	40	300	300	450	300	600	300	–	–
				VXF21.65	65	49	175	175	275	275	600	300	–	–
				VXF21.65-63	65	63	175	175	275	275	600	300	–	–
				VXF21.80	80	78	100	100	175	175	500	300	–	–
				VXF21.80-100	80	100	100	100	175	175	500	300	–	–
				VXF21.90	100	124	–	–	–	–	–	–	300	200
				VXF21.100-160	100	160	–	–	–	–	–	–	300	200
PN 10	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4320													
				N4420										
				VXF31.15..25 ³⁾	15	2.5/4	1000	300	1000	300	1000	300	–	–
				VXF31.24..25 ²⁾	25	5/7.5	1000	300	1000	300	1000	300	–	–
				VXF31.25..	25	6.3/10	1000	300	1000	300	1000	300	–	–
				VXF31.39..40 ²⁾	40	12/19	525	300	775	300	1000	300	–	–
				VXF31.40..	40	16/25	525	300	775	300	1000	300	–	–
				VXF31.50	50	31	325	300	475	300	1000	300	–	–
				VXF31.50-40	50	40	325	300	475	300	1000	300	–	–
				VXF31.65	65	49	175	175	275	275	750	300	–	–
				VXF31.65-63	65	63	175	175	275	275	750	300	–	–
				VXF31.80	80	78	100	100	175	175	500	300	–	–
				VXF31.80-100	80	100	100	100	175	175	500	300	–	–
				VXF31.90	100	124	–	–	–	–	–	–	300	200
				VXF31.100-160	100	160	–	–	–	–	–	–	300	200
				VXF31.91	125	200	–	–	–	–	–	–	200	150
				VXF31.125-250	125	250	–	–	–	–	–	–	200	150
				VXF31.92	150	300	–	–	–	–	–	–	125	100
				VXF31.150-315	150	315	–	–	–	–	–	–	125	100





¹⁾ SAX81..: AC/DC 24 V; ²⁾ For 22...25, 24...25, 39...40 = insert number in place of k_{vs} value; ³⁾ .. = insert k_{vs} value
 VVF43.., VXF43..: For DN 15...50 and k_{vs} value ≤ 40 m³/h see V..F53..

















































Valves and actuators

Overview and selection guides

Product overviews and application recommendations

Flanged 2-port and 3-port valves with 20/40 mm actuators





Typical applications	Actuators	Data sheet			Spring return function	20 mm				40 mm					
		Operating voltage	Positioning signal	Positioning time [s]			800 N	1000 N	2800 N	2800 N	2800 N	2800 N	2800 N		
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	SAX..			N4501				   							
	SKD..	N4561													
	SKB..	N4564													
	SKC..	N4566													
	AC 230 V	3-position	120	120	120	–	SAX31.00		SKD32.50	SKB32.50	SKC32.60	–	–	–	–
		3-position	–	120	120	✓	–		SKD32.51	SKB32.51	SKC32.61	–	–	–	–
		3-position	30	–	–	–	SAX31.03		–	–	–	–	–	–	
		3-position	–	30	–	✓	–		SKD32.21	–	–	–	–	–	
	AC 24 V ¹⁾	3-position	120	120	120	–	SAX81.00		SKD82.50	SKB82.50	SKC82.60	–	–	–	–
		3-position	–	120	120	✓	–		SKD82.51	SKB82.51	SKC82.61	–	–	–	–
	3-position	30	–	–	–	SAX81.03	–	–	–	–	–	–			
	0...10 V, 4...20 mA	–	30	120	–	–	SKD60	SKB60	SKC60	–	–	–			
	0...10 V, 4...20 mA	–	30	120	✓	–	SKD62	SKB62	SKC62	–	–	–			
AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	SAX61.03	–	–	–	–	–	–			













PN 16	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4330		N4430										
	VVF40.15-.. ³⁾		VXF40.15-.. ³⁾	15	1.9/2.5/3/4	1600	300	1600	300	1600	300	–	–
	VVF40.25-..		VXF40.25-..	25	5/6.3/7.5/10	1550	300	1600	300	1600	300	–	–
	VVF40.40-..		VXF40.40-..	40	12/16/19/25	525	300	775	300	1600	300	–	–
	VVF40.50-..		VXF40.50-..	50	31/40	325	300	475	300	1300	300	–	–
	VVF40.65-..		VXF40.65-..	65	49/63	175	175	275	275	750	300	–	–
	VVF40.80-..		VXF40.80-..	80	78/100	100	100	175	175	500	300	–	–
	VVF40.100-..		VXF40.100-..	100	124/160	–	–	–	–	–	–	300	200
	VVF40.125-..		VXF40.125-..	125	200/250	–	–	–	–	–	–	200	150
	VVF40.150-..		VXF40.150-..	150	300/315	–	–	–	–	–	–	125	100
PN 16	-20...220 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4404		N4404										
	VVF43.65-50		VXF43.65-63	65	50	–	–	–	–	–	–	700	650
	VVF43.65-63		VXF43.65-63	65	63	–	–	–	–	–	–	700	650
	VVF43.80-80		–	80	80	–	–	–	–	–	–	450	400
	VVF43.80-100		VXF43.80-100	80	100	–	–	–	–	–	–	450	400
	VVF43.100-125		–	100	125	–	–	–	–	–	–	300	250
	VVF43.100-160		VXF43.100-160	100	160	–	–	–	–	–	–	300	250
	VVF43.125-200		–	125	200	–	–	–	–	–	–	175	160
	VVF43.125-250		VXF43.125-250	125	250	–	–	–	–	–	–	175	160
	VVF43.150-315		–	150	315	–	–	–	–	–	–	125	100
	VVF43.150-400		VXF43.150-400	150	400	–	–	–	–	–	–	125	100
	VVF43.65-63K		–	65	63	–	–	–	–	–	–	1600	800
	VVF43.80-100K		–	80	100	–	–	–	–	–	–	1600	800
	VVF43.100-160K		–	100	160	–	–	–	–	–	–	1600	800
	VVF43.125-250K		–	125	250	–	–	–	–	–	–	1600	800
	VVF43.150-360K		–	150	360	–	–	–	–	–	–	1600	800

¹⁾ SAX81..: AC/DC 24 V; ²⁾ For 22...25, 24...25, 39...40 = insert number in place of k_{vs} value; ³⁾ .. = insert k_{vs} value
 VVF43.., VXF43..: For DN 15...50 and k_{vs} value ≤ 40 m³/h see V..F53..

Valves and actuators
Overview and selection guides
 Product overviews and application recommendations

Flanged 2-port and 3-port valves with 20/40 mm actuators

Typical applications	Actuators	Data sheet			Spring return function	20 mm				40 mm	
		Operating voltage	Positioning signal	Positioning time [s]		800 N	1000 N	2800 N	2800 N		
<ul style="list-style-type: none"> - Heating plants - Ventilation and air conditioning plants - Heat and cooling generation - Heat and cooling distribution 	SAX..	N4501				   					
	SKD..	N4561									
	SKB..	N4564									
	SKC..	N4566									
	AC 230 V	3-position	120	120	120		-	SAX31.00	SKD32.50	SKB32.50	SKC32.60
		3-position	-	120	120		✓	-	SKD32.51	SKB32.51	SKC32.61
		3-position	30	-	-		-	SAX31.03	-	-	-
		3-position	-	30	-		✓	-	SKD32.21	-	-
	AC 24 V ¹⁾	3-position	120	120	120		-	SAX81.00	SKD82.50	SKB82.50	SKC82.60
		3-position	-	120	120		✓	-	SKD82.51	SKB82.51	SKC82.61
	3-position	30	-	-	-	SAX81.03	-	-	-		
	0...10 V, 4...20 mA	-	30	120	-	-	SKD60	SKB60	SKC60		
	0...10 V, 4...20 mA	-	30	120	✓	-	SKD62	SKB62	SKC62		
AC/DC 24 V	0...10 V, 4...20 mA	30	-	-	-	SAX61.03	-	-	-		

PN 25	-20...220 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4405		N4405									
												
												
	VVF53.15-.. ²⁾	-	15	0.16/0.2/0.25	2500	1200	2500	1200	2500	1200	-	-
	VVF53.15-..	-	15	0.32/0.4/0.5/0.63	2500	1200	2500	1200	2500	1200	-	-
	VVF53.15-..	-	15	0.8/1/1.25/2/3.2	2500	1200	2500	1200	2500	1200	-	-
	VVF53.15-..	VXF53.15-.. ²⁾	15	1.6/2.5/4	2500	1200	2500	1200	2500	1200	-	-
	VVF53.20-6.3	VXF53.20-6.3	20	6.3	2500	1200	2500	1200	2500	1200	-	-
	VVF53.25-..	-	25	5/8	1600	1200	2100	1200	2500	1200	-	-
	VVF53.25-..	VXF53.25-..	25	6.3/10	1600	1200	2100	1200	2500	1200	-	-
	VVF53.32-16	VXF53.32-16	32	16	900	750	1200	1100	2500	1200	-	-
	VVF53.40-..	-	40	12.5/20	550	500	750	650	2000	1200	-	-
	VVF53.40-..	VXF53.40-..	40	16/25	550	500	750	650	2000	1200	-	-
	VVF53.50-31.5	-	50	31.5	350	300	450	400	1200	1150	-	-
	VVF53.50-40	VXF53.50-40	50	40	350	300	450	400	1200	1150	-	-
	VVF53.65-63	VXF53.65-63	65	63	-	-	-	-	-	-	700	650
	VVF53.80-100	VXF53.80-100	80	100	-	-	-	-	-	-	450	400
	VVF53.100-160	VXF53.100-160	100	160	-	-	-	-	-	-	300	250
	VVF53.125-250	VXF53.125-250	125	250	-	-	-	-	-	-	175	160
	VVF53.150-400	VXF53.150-400	150	400	-	-	-	-	-	-	125	100
	VVF53.50-40K	-	50	40	2500	1200	2500	1200	2500	1200	-	-
	VVF53.65-63K	-	65	63	-	-	-	-	-	-	2500	1200
	VVF53.80-100K	-	80	100	-	-	-	-	-	-	2500	1200
	VVF53.100-160K	-	100	160	-	-	-	-	-	-	2500	1200
	VVF53.125-250K	-	125	250	-	-	-	-	-	-	2500	1200
	VVF53.150-360K	-	150	360	-	-	-	-	-	-	2500	1200
PN 40	-25...220 °C (350 °C)		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4382		N4482									
												
												
	VVF61.09..11 ³⁾	-	15	0,19/0,3/0,45	-	-	4000	1600	4000	1600	-	-
	VVF61.12..13 ³⁾	-	15	0,7/1,2	-	-	4000	1600	4000	1600	-	-
	VVF61.14..15 ³⁾	-	15	1,9/3	-	-	4000	1600	4000	1600	-	-
	VVF61.23..25 ³⁾	VXF61.14..15 ³⁾	15	1,9/3	-	-	4000	1200	4000	1600	-	-
	VVF61.23..25 ³⁾	VXF61.24..25 ³⁾	25	3/5/7,5/5/7,5	-	-	2250	1600	4000	1600	-	-
	VVF61.39..40 ³⁾	VXF61.39..40 ³⁾	40	12/19	-	-	-	4000	1600	1200	-	-
	VVF61.49..50 ³⁾	VXF61.49..50 ³⁾	50	19/31	-	-	-	4000	1600	1000	-	-
	VVF61.65	VXF61.65	65	49	-	-	-	-	-	-	4000	1000/800
	VVF61.80	VXF61.80	80	78	-	-	-	-	-	-	4000	700/500
	VVF61.90	VXF61.90	100	124	-	-	-	-	-	-	4000	450/300
	VVF61.91	VXF61.91	125	200	-	-	-	-	-	-	4000	300/200
	VVF61.92	VXF61.92	150	300	-	-	-	-	-	-	4000	200/125

¹⁾ SAX81...: AC/DC 24 V



²⁾ .. = insert k_{vs} value







³⁾ For 09...15, 14...15, 23...25, 24...25, 39...40, 49...50 = insert number in place of k_{vs} value








Valves and actuators
 Overview and selection guides
 Product overviews and application recommendations

Threaded 2-port and 3-port valves with 5.5 mm actuators

Typical applications		Actuators	Data sheet				5.5 mm		
– Heating plants – District heating – Ventilation and air conditioning plants		SQS..	N4573				 400 N	 400 N	
			Operating voltage	Positioning signal	Positioning time [s]				Spring return function
		AC 230 V	3-position	150	150	✓	–	SQS35.50	SQS35.00
			3-position	35	35	✓	–	SQS35.53	SQS35.03
AC 24 V	3-position	–	150	–	–	–	SQS85.00		
	3-position	–	35	–	–	–	SQS85.03		
	0...10 V	35	35	✓	–	SQS65.5	SQS65		
2...10 V	–	35	–	–	–	–	SQS65.2		




PN 16	1...120 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4364							
	VVG44.15-..			15	G 1B	0,25 / 0,4 / 0,63	1600	400
	VVG44.15-..			15	G 1B	1 / 1,6	725	400
	VVG44.15-..			15	G 1B	2,5 / 4	400	400
	VVG44.20-6.3			20	G 1¼B	6,3	750	400
	VVG44.25-10			25	G 1½B	10	400	400
	VVG44.32-16			32	G 2B	16	250	250
	VVG44.40-25			40	G 2¼B	25	125	125
PN 25	1...130 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4379							
	VVG55.15-..			15	G ¾B	0,25 / 0,4 / 0,63	2500	1200
	VVG55.15-..			15	G ¾B	1 / 1,6 / 2,5	2000	1200
	VVG55.20-4			20	G 1B	4	1000	1000
	VVG55.25-6.3			25	G 1¼B	6,3	800	800



Typical applications		Actuators	Data sheet				5.5 mm		
– Heating plants – Ventilation plants		SSC..	N4895				 300 N		
			Operating voltage	Positioning signal	Positioning time [s]				Spring return function
		AC 230 V	3-position	150	–	–	–	SSC31	–
		AC 24 V	3-position	150	–	–	–	SSC81	–
AC/DC 24 V	0...10 V	30	30	–	✓	SSC61	SSC61.5		

PN 16	1...110 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4845							
	VVP45.20-4			20	G 1B	4	350	350
	VVP45.25-6.3			25	G 1¼B	6,3	300	300
	VVP45.25-10			25	G 1½B	10	300	300
	VVP45.32-16			32	G 2B	16	175	175
	VVP45.40-25			40	G 2¼B	25	75	75

Valves and actuators
Overview and selection guides
 Product overviews and application recommendations

Threaded 2-port and 3-port valves with 20 mm actuators

Typical applications – Heating plants – Ventilation and air conditioning plants – Heat generation – Heat distribution – District heating	Actuators SAX.. SKD.. SKB..	Data sheet			Spring return function	20 mm					
		Operating voltage	Positioning signal	Positioning time [s]			800 N	1000 N	2800 N		
				SAX		SKD	SKB				
AC 230 V	3-position	120	120	120	–	SAX31.00	SKD32.50	SKB32.50			
		–	120	120	✓	–	SKD32.51	SKB32.51			
		30	–	–	–	SAX31.03	–	–			
		–	30	–	✓	–	SKD32.21	–			
		AC 24 V ¹⁾	3-position	120	120	120	–	SAX81.00	SKD82.50	SKB82.50	
				–	120	120	✓	–	SKD82.51	SKB82.51	
				30	–	–	–	SAX81.03	–	–	
				0...10 V, 4...20 mA	–	30	120	–	–	SKD60	SKB60
				–	30	120	✓	–	SKD62	SKB62	
				0...10 V, 4...20 mA	30	–	–	–	SAX61.03	–	–

PN 16	-25...150 °C		DN	G [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{rmax} [kPa]	Δp _s [kPa]	Δp _{rmax} [kPa]	Δp _s [kPa]	Δp _{rmax} [kPa]
Data sheet	N4363	N4463									
	VVG41.11..12	–	15	G 1B	0.63 / 1	1600	800	1600	800	1600	800
	VVG41.13	–	15	G 1B	1.6	1600	800	1600	800	1600	800
	VVG41.14	–	15	G 1B	2.5	1600	800	1600	800	1600	800
	VVG41.15	VXG41.15	15	G 1B	4	1600	800	1600	800	1600	800
	VVG41.20	VXG41.20	20	G 1¼B	6.3	1600	800	1600	800	1600	800
	VVG41.25	VXG41.25	25	G 1½B	10	1550	800	1600	800	1600	800
	VVG41.32	VXG41.32	32	G 2B	16	875	800	1275	800	1600	800
	VVG41.40	VXG41.40	40	G 2¼B	25	525	525	775	775	1600	800
	VVG41.50	VXG41.50	50	G 2¾B	40	300	300	450	450	1225	800








Valves and actuators

Overview and selection guides

Product overviews and application recommendations

2-port and 3-port valves fitted with magnetic actuator

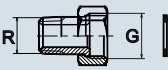
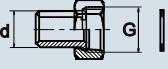
Typical applications		Valve type	Operating voltage	Positioning signal	Type suffix
– Supply air control with/without cascade		MXF461..	AC 24 V	0...10 V, 2...10 V, 4...20 mA	P ¹⁾
– Fast-acting heat exchanger control		M3P..FY..	AC 24 V	0...10 V, 4...20 mA	P ¹⁾
– Domestic hot water mixing control		MVF461H..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
– High-precision process control		MXG461..	AC 24 V	0...10 V, 2...10 V, 4...20 mA	P ¹⁾
		MXG461B..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
		MXG461S..	AC 24 V	0...10 V, 2...10 V, 4...20 mA	–
		MXG462S..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–

PN 16	1...130 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Note		
Data sheet	N4455								
	MXF461.15-..		15	0.6 / 1.5 / 3	300	300	To be used as 2-port or mixing valves, not as diverting valves. Selectable valve characteristic: equal-percentage or linear.		
	MXF461.20-5.0		20	5	300	300			
	MXF461.25-8.0		25	8	300	300			
	MXF461.32-12		32	12	300	300			
	MXF461.40-20		40	20	300	300			
	MXF461.50-30		50	30	300	300			
	MXF461.65-50		65	50	300	300			
	1...120 °C								
	N4454								
	M3P80FY		80	80	300	300			
	M3P100FY		100	130	200	200			
PN 16	1...180 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]			
Data sheet	N4361								
	MVF461H15-..		15	0.6 / 1.5 / 3	1000	1000			
	MVF461H20-5		20	5	1000	1000			
	MVF461H25-8		25	8	1000	1000			
	MVF461H32-12		32	12	1000	1000			
	MVF461H40-20		40	20	1000	1000			
	MVF461H50-30		50	30	1000	1000			
PN 16	1...130 °C		DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]		
Data sheet	N4455								
	MXG461.15-..		15	G 1B	0.6 / 1.5 / 3	300	300		
	MXG461.20-5.0		20	G 1¼B	5	300	300		
	MXG461.25-8.0		25	G 1½B	8	300	300		
	MXG461.32-12		32	G 2B	12	300	300		
	MXG461.40-20		40	G 2¼B	20	300	300		
	MXG461.50-30		50	G 2¾B	30	300	300		
PN 16	-20...130 °C		DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]		
Data sheet	N4461 								
	MXG461B15-..		15	G 1B	0.6 / 1.5 / 3	1000	1000		
	MXG461B20-5		20	G 1¼B	5	800	800		
	MXG461B25-8		25	G 1½B	8	700	700		
	MXG461B32-12		32	G 2B	12	600	600		
	MXG461B40-20		40	G 2¼B	20	600	600		
	MXG461B50-30		50	G 2¾B	30	600	600		
PN 16	1...130 °C		DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Note	
Data sheet	N4465								
	MXG461S15-1.5		–	15	G 1B	1.5	300		300
	MXG461S20-5.0		–	20	G 1¼B	5	300		300
	MXG461S25-8.0		–	25	G 1½B	8	300		300
	MXG461S32-12		–	32	G 2B	12	300		300
	–		MXG462S50-30	–	50	G 2¾B	30	600	600

¹⁾ P = media containing mineral oil

²⁾ Parts that are in contact with medium in stainless steel

Union nuts for threaded valves ¹⁾

	Type		G [inch]	R, Rp [inch]	Material	
	Set of 2	Set of 3				
	ALG132	ALG133	G 1/2B	R 3/8 (externally threaded)	Brass	
	ALG142	ALG143	G 3/4B	R 1/2 (externally threaded)	Brass	
	ALG122	ALG123	G 3/4B	Rp 3/8	Malleable cast iron	
	ALG152	ALG153	G 1B	Rp 1/2	Malleable cast iron	
	ALG152B	ALG153B	G 1B	Rp 1/2	Brass	
	ALG202	ALG203	G 1 1/4B	Rp 3/4	Malleable cast iron	
	ALG202B	ALG203B	G 1 1/4B	Rp 3/4	Brass	
	ALG252	ALG253	G 1 1/2B	Rp 1	Malleable cast iron	
	ALG252B	ALG253B	G 1 1/2B	Rp 1	Brass	
	ALG322	ALG323	G 2B	Rp 1 1/4	Malleable cast iron	
	ALG322B	ALG323B	G 2B	Rp 1 1/4	Brass	
	ALG402	ALG403	G 2 1/4B	Rp 1 1/2	Malleable cast iron	
	ALG402B	ALG403B	G 2 1/4B	Rp 1 1/2	Brass	
	ALG502	ALG503	G 2 3/4B	Rp 2	Malleable cast iron	
	ALG502B	ALG503B	G 2 3/4B	Rp 2	Brass	
		Type		G	Ø d	Material
		Set of 2		[inch]	[mm]	
		ALS152		G 3/4B	21.3	Steel, weldable
ALS202			G 1B	26.8	Steel, weldable	
	ALS252		G 1 1/4B	33.7	Steel, weldable	

¹⁾ Valve side: cylindrical thread G according to ISO 228-1, pipe side: ALG.. with cylindrical Rp- or tapered R-thread according to ISO 7-1
 Pipe side: ALS.. with welded connection

Valves and actuators
 Overview and selection guides
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2-port and 3-port control ball valves with rotary actuators

Typical applications - Heating plants - Ventilation and air conditioning plants - Heat and cooling generation - Heat and cooling distribution	Actuators GQD..9A GDB..9E GMA..9E GLB..9E	Data sheet					Spring return function	2 Nm	5 Nm	7 Nm	10 Nm
		Operating voltage	Positioning signal	Positioning time [s]							
				GQD	GDB	GMA					
AC 230 V	3-position	-	150	-	150	-	-	GDB331.9E	-	GLB331.9E	
AC 24 V	3-position	-	150	-	150	-	-	GDB131.9E	-	GLB131.9E	
	0...10 V	-	150	-	150	-	-	GDB161.9E	-	GLB161.9E	
AC/DC 24 V	3-position	30 / 15	-	90 / 15	-	✓	GQD131.9A	-	GMA131.9E	-	
	0...10 V	30 / 15	-	90 / 15	-	✓	GQD161.9A	-	GMA161.9E	-	

PN 40 Data sheet	1...120 °C N4211		N4211	DN	Rp [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
	VAI61.15-..		VBI61.15-..	15	Rp ½	1.6 / 2.5 / 4 / 6.3	1400	350	1400	350	1400	350
	VAI61.15-..		-	15	Rp ½	1 / 10	1400	350	1400	350	1400	350
	VAI61.20-..		VBI61.20-..	20	Rp ¾	4 / 6.3	1400	350	1400	350	1400	350
	VAI61.20-..		-	20	Rp ¾	10	1400	350	1400	350	1400	350
	VAI61.25-..		VBI61.25-..	25	Rp 1	10	-	-	1400	350	1400	350
	VAI61.25-..		-	25	Rp 1	6.3 / 16	-	-	1400	350	1400	350
	VAI61.32-..		-	32	Rp 1¼	10	-	-	-	-	1000	350
	VAI61.32-..		VBI61.32-..	32	Rp 1¼	16	-	-	-	-	1000	240
	VAI61.32-..		-	32	Rp 1¼	25	-	-	-	-	1000	240
	VAI61.40-..		-	40	Rp 1½	16	-	-	-	-	800	350
	VAI61.40-..		VBI61.40-..	40	Rp 1½	25	-	-	-	-	800	240
	VAI61.40-..		-	40	Rp 1½	40	-	-	-	-	800	240
	VAI61.50-..		-	50	Rp 2	25	-	-	-	-	600	350
	VAI61.50-..		VBI61.50-..	50	Rp 2	40	-	-	-	-	600	240
	VAI61.50-..		-	50	Rp 2	63	-	-	-	-	600	240

Changeover and open/close ball valves with rotary actuators

Typical applications - Heating plants - Ventilation and air conditioning plants - Heat and cooling generation - Heat and cooling distribution	Actuators GSD..9A GQD..9A GMA..9E GLB..9E	Data sheet					Spring return function	2 Nm	7 Nm	10 Nm
		Operating voltage	Positioning signal	Positioning time [s]						
				GSD	GLB	GQD				
AC/DC 24 V	2-position	30	-	-	-	-	GSD141.9A	-	-	
AC 230 V	2-position	30	-	-	-	-	GSD341.9A	-	-	
AC 24 V	(2)/3-position	-	150	-	-	-	-	-	GLB131.9E	
AC 230 V	(2)/3-position	-	150	-	-	-	-	-	GLB331.9E	
AC/DC 24 V	2-position	-	-	30 (15)	-	✓	GQD121.9A	-	-	
AC 230 V	2-position	-	-	30 (15)	-	✓	GQD321.9A	-	-	
AC/DC 24 V	2-position	-	-	-	90 (15)	✓	-	GMA121.9E	-	
AC 230 V	2-position	-	-	-	90 (15)	✓	-	GMA321.9E	-	




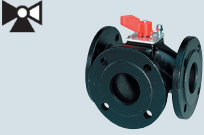



PN 40 Data sheet	-10...120 °C N4213		N4213	DN	Rp [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
	VBI60.15-12T		VBI60.15-12T	15	½	12	350	350	350	350	350	350
	VBI60.20-16T		VBI60.20-16T	20	¾	16	350	350	350	350	350	350
	VBI60.25-16T		VBI60.25-16T	25	1	16	350	350	350	350	350	350
	VBI60.32-25T		VBI60.32-25T	32	1¼	25	-	-	350	350	350	350
	VBI60.40-49T		VBI60.40-49T	40	1½	49	-	-	350	350	350	350
	VBI60.50-73T		VBI60.50-73T	50	2	73	-	-	350	350	350	350

PN 40 Data sheet	-10...120 °C N4213		N4213	DN	Rp [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
	VBI60.15-5L		VBI60.15-5L	15	½	5	350	350	350	350	350	350
	VBI60.20-9L		VBI60.20-9L	20	¾	9	350	350	350	350	350	350
	VBI60.25-9L		VBI60.25-9L	25	1	9	350	350	350	350	350	350
	VBI60.32-13L		VBI60.32-13L	32	1¼	13	-	-	350	350	350	350
	VBI60.40-25L		VBI60.40-25L	40	1½	25	-	-	350	350	350	350
	VBI60.50-37L		VBI60.50-37L	50	2	37	-	-	350	350	350	350

PN 40 Data sheet	-10...120 °C N4213		N4213	DN	Rp [inch]	k _{vs} [m³/h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
	VAI60.15-15		VAI60.15-15	15	½	15	1400	350	1400	350	1400	350
	VAI60.20-22		VAI60.20-22	20	¾	22	1400	350	1400	350	1400	350
	VAI60.25-22		VAI60.25-22	25	1	22	1400	350	1400	350	1400	350
	VAI60.32-35		VAI60.32-35	32	1¼	35	-	-	1000	350	1000	350
	VAI60.40-68		VAI60.40-68	40	1½	68	-	-	800	350	800	350
	VAI60.50-96		VAI60.50-96	50	2	96	-	-	600	350	600	350

Valves and actuators
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3-port and 4-port slipper valves with rotary actuators

Typical applications	Actuators	Data sheet				5 Nm	5 Nm	10 Nm
– Small to medium-size heating plants	SQK34../84..	N4508						
	SQK33..	N4506						
	SAL..	N4502						
	Operating voltage	Positioning signal	Positioning time [s]					
			SQK	SQK33	SAL			
	AC 230 V	3-position	135	125	120	SQK34.00	SQK33.00	SAL31.00T10
		3-position	–	–	30	–	–	SAL31.03T10
	AC 24 V	3-position	135	–	–	SQK84.00	–	–
AC/DC 24 V	3-position	–	–	120	–	–	SAL81.00T10	
	3-position	–	–	30	–	–	SAL81.03T10	
	0...10 V, 4...20 mA	–	–	120	–	–	SAL61.00T10	
	0...10 V, 4...20 mA	–	–	30	–	–	SAL61.03T10	
Mounting set ¹⁾					direct	ASK32	ASK31N	
PN 6	1...120 °C			k _{vs}	Δp _{max}	Δp _{max}	Δp _{max}	
Data sheet	N4241	DN	[m ³ /h]		[kPa]	[kPa]	[kPa]	
	VBF21.40	40	25		30	30	–	
	VBF21.50	50	40		30	30	–	
	VBF21.65	65	63		–	–	30	
	VBF21.80	80	100		–	–	30	
	VBF21.100	100	160		–	–	30	
	VBF21.125	125	550		–	–	30	
	VBF21.150	150	820		–	–	30	
PN 10	1...120 °C	DN	G	k _{vs}	Δp _{max}	Δp _{max}	Δp _{max}	
Data sheet	N4233		[inch]	[m ³ /h]	[kPa]	[kPa]	[kPa]	
	VBG31.20	20	G 1¼B	6.3	30	30	–	
	VBG31.25	25	G 1½B	10	30	30	–	
	VBG31.32	32	G 2B	16	30	30	–	
	VBG31.40	40	G 2¼B	25	30	30	–	
PN 10	1...120 °C	DN	Rp	k _{vs}	Δp _{max}	Δp _{max}	Δp _{max}	
Data sheet	N4232		[inch]	[m ³ /h]	[kPa]	[kPa]	[kPa]	
	VBI31.20	20	Rp ¾	6.3	30	30	–	
	VBI31.25	25	Rp 1	10	30	30	–	
	VBI31.32	32	Rp 1¼	16	30	30	–	
	VBI31.40	40	Rp 1½	25	30	30	–	
PN 10	1...120 °C	DN	Rp	k _{vs}	Δp _{max}	Δp _{max}	Δp _{max}	
Data sheet	N4252		[inch]	[m ³ /h]	[kPa]	[kPa]	[kPa]	
	VCI31.20	20	Rp ¾	6.3	30	30	–	
	VCI31.25	25	Rp 1	10	30	30	–	
	VCI31.32	32	Rp 1¼	16	30	30	–	
	VCI31.40	40	Rp 1½	25	30	30	–	



Page: 7-16VBI61...: For noiseless operation, the Δp_{max} value of 200 kPa should not be exceeded

¹⁾ Mounting sets ASK40, ASK41 for products of other manufacturers: mounting sets for SQK33.. for 3-port and 4-port slipper valves from AXA, BUDERUS, CENTRA, ESBE/SHUNT AB, LOELL, MUEHLENBERG, ONDAMIX and VIESSMANN. For additional details, see data sheet N4291.



Valves and actuators



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Butterfly valves with rotary actuators

Typical applications	Actuators	Data sheet	Rotation angle		90°				
			Torque		5 Nm	10 Nm			
– Shutoff or control – For closed or open circuits	SQK..	N4506							
	SAL..	N4502							
	Operating voltage	Positioning signal					Positioning time [s]		
	AC 230 V	3-position					120	–	SAL31.00T10
		3-position					125	SQK33.00	–
		3-position					30	–	SAL31.03T10
	AC/DC 24 V	3-position					120	–	SAL81.00T10
		3-position					30	–	SAL81.03T10
		0...10 V, 4...20 mA					120	–	SAL61.00T10
	0...10 V, 4...20 mA	30					–	SAL61.03T10	
Mounting set			ASK33	ASK33N					
PN 16	-10...120 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]			
Data sheet	N4131								
	VKF41.40	40	50	200	500				
	VKF41.50	50	80	–	500				
	VKF41.65	65	200	–	500				
	VKF41.80	80	400	–	500				
	VKF41.100	100	760	–	500				
	VKF41.125	125	1000	–	300				
	VKF41.150	150	2100	–	250				
	VKF41.200	200	4000	–	125				

Typical applications	Actuators	Data sheet	90°														
			20 Nm	40 Nm	100 Nm	400 Nm	1200 Nm										
– Shutoff or control – For closed or open circuits	SAL..	N4502															
	SQL35../85..	N4505															
	SQL36..	N4505															
	Operating voltage	Positioning signal								time [s]							
	AC 230 V	3-position								6 ¹⁾	–	–	–	–	SQL36E65	–	–
		3-position								12 ¹⁾	–	–	–	–	–	SQL36E110	–
		3-position								24 ¹⁾	–	–	–	–	–	–	SQL36E160
		3-position								25	–	–	SQL36E50F04	SQL36E50F05	–	–	–
		3-position								120	SAL31.00T20	–	–	–	–	–	–
	3-position	125								–	SQL35.00	–	–	–	–	–	
3-position	125	–	SQL85.00	–	–	–	–	–									
AC 24 V	3-position	125	–	–	–	–	–	–									
AC/DC 24 V	3-position	120	SAL81.00T20	–	–	–	–	–									
	0...10 V, 4...20 mA	120	SAL61.00T20	–	–	–	–	–									
Mounting set			–	ASK35.2	–	–	–	–									

PN 16	Data sheet	-10...120 °C	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
	VKF46.40	40	50	1600	–	1600	–	–	–	–	
	VKF46.50	50	85	1600	–	1600	–	–	–		
	VKF46.65	65	215	1600	–	1600	–	–	–		
	VKF46.80	80	420	–	1600	–	1600	–	–		
	VKF46.100	100	800	–	1600	–	1600	–	–		
	VKF46.125	125	1010	–	1000	–	1000	–	–		
	VKF46.150	150	2100	–	–	–	–	1600	–		
	VKF46.200	200	4000	–	–	–	–	1000	–		
	VKF46.250	250	6400	–	–	–	–	–	1000		
	VKF46.300	300	8500	–	–	–	–	–	1000		
	VKF46.350	350	11500	–	–	–	–	–	600		
	VKF46.400	400	14500	–	–	–	–	–	300		
	VKF46.450	450	20500	–	–	–	–	–	–	300	
	VKF46.500	500	21000	–	–	–	–	–	–	300	
	VKF46.600	600	29300	–	–	–	–	–	–	300	
PN 16	-10...120 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	
Data sheet	N4136										
	VKF46.350TS	350	11500	–	–	–	–	–	–	1000	
	VKF46.400TS	400	14500	–	–	–	–	–	–	1000	
	VKF46.450TS	450	20500	–	–	–	–	–	–	1000	
	VKF46.500TS	500	21000	–	–	–	–	–	–	1000	
	VKF46.600TS	600	29300	–	–	–	–	–	–	1000	


¹⁾ With auxiliary module SEZ31.1 variable positioning time: SQL36E65: 30...180 s, SQL36E110: 60...360 s, SQL36E160: 120...720 s

Recommended maximum flow velocity:

VKF41...: < 4 m/s for water, see data sheet for details

VKF46...: 4.5 m/s for water, 60 m/s for gas

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Refrigerant valves										
Typical applications		Valve	Operating voltage	Positioning signal			Auxiliary functions			
– Expansion, direct/indirect hot-gas and hot-gas distribution applications – Suction gas applications – Condensate mixing – Brine plants		M2FP03GX	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–			
		MVL661..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA			Minimum stroke setting			
		MVS661..N	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA			Minimum stroke setting			
		M3FB..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–			
		M3FK..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–			
PN 32	-40...100 °C					k_{vs} [m³/h]		Δp_{max} [kPa]		
Data sheet	N4731									
	M2FP03GX	Pilot valve					0.3		1800	
PS 45	-40...120 °C		DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]		
Data sheet	N4714									
	MVL661.15-0.4	15	Sleeve	5/8	0.4	0.25	2500			
	MVL661.15-1.0	15	Sleeve	5/8	1	0.63	2500			
	MVL661.20-2.5	20	Sleeve	7/8	2.5	1.6	2500			
	MVL661.25-6.3	25	Sleeve	1 1/8	6.3	4	2500			
	MVL661.32-12	32	Sleeve	1 3/8	12	7.6	200			
PS 53	-40...120 °C		DN	Connection	Inner Ø [mm]	Outer Ø [mm]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]	
Data sheet	N4717									
	MVS661.25-016N	25	Weldable	22.4	33.7	0.16	0.1	2500		
	MVS661.25-0.4N	25	Weldable	22.4	33.7	0.4	0.25	2500		
	MVS661.25-1.0N	25	Weldable	22.4	33.7	1	0.63	2500		
	MVS661.25-2.5N	25	Weldable	22.4	33.7	2.5	1.6	2500		
	MVS661.25-6.3N	25	Weldable	22.4	33.7	6.3	4	2500		
PN 32	-40...120 °C		DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]		Liquid Δp_{max} [kPa]	Gas Δp_{max} [kPa]	
Data sheet	N4722									
	M3FK15LX06	15	Sleeve	5/8	0.6			200	800	
	M3FK15LX15	15	Sleeve	5/8	1.5			200	800	
	M3FK15LX	15	Sleeve	5/8	3			200	800	
	M3FK20LX	20	Sleeve	7/8	5			200	800	
	M3FK25LX	25	Sleeve	1 1/8	8			200	800	
	M3FK32LX	32	Sleeve	1 3/8	12			200	800	
	M3FK40LX	40	Sleeve	1 5/8	20			200	800	
	M3FK50LX	50	Sleeve	2 1/8	30			200	800	
PS 43	-40...120 °C		DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]		Δp_{max} [kPa]		
Data sheet	N4721									
	M3FB15LX06/A	15	Sleeve	5/8	0.6			2200		
	M3FB15LX15/A	15	Sleeve	5/8	1.5			2200		
	M3FB15LX/A	15	Sleeve	5/8	3			2200		
	M3FB20LX/A	20	Sleeve	7/8	5			1800		
	M3FB25LX/A	25	Sleeve	1 1/8	8			1200		
	M3FB32LX	32	Sleeve	1 3/8	12			800		



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Definitions

Abbr.	Term	Unit	Definition
Δp	Differential pressure	kPa	Pressure differential between plant sections.
Δp_{\max}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when mixing), valid for the entire actuating range of the motorized valve.
$\Delta p_{\max V}$	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when distributing), valid for the entire actuating range of the motorized valve.
Δp_{\min}	Minimum differential pressure	kPa	Minimum differential pressure required, so that the differential pressure regulator works reliably with combi valves. Δp_{\min} depends on presetting position, see data sheet for details.
Δp_{V0}		kPa	Maximum differential pressure across the valve's closed control path.
Δp_{V100}	Differential pressure at nominal flow rate	kPa	Differential pressure across the fully open valve and the valve's control path by a volumetric flow V_{100} .
Δp_s	Closing pressure	kPa	For 2-port valves, maximum permissible differential pressure at which the motorized valve will close securely against the pressure (close off pressure). Only valid for 2-port valves.
Δp_{MV}		kPa	Differential pressure across the variable flow path. Often Δp_{MV} is not known, in which case typical values can be used.
Δp_{VR}		kPa	Differential pressure between flow and return.
ΔT	Temperature spread	K	Temperature differential between flow and return.
DN	Nominal size		Characteristic for matching parts of the piping system.
H_0	Shutoff head	m	The head generated by a pump at closed valve, at a given speed and a given pump medium.
kPa	Unit of pressure	kPa	100 kPa = 1 bar = 10 mWC
mWC	Meter water column	m	
k_v	Nominal flow	m ³ /h	Amount of cold water (5...30 °C) passing through the valve at the respective stroke and at a differential pressure of 100 kPa (1 bar).
k_{vS}	Nominal flow rate	m ³ /h	Nominal flow rate of cold water (5...30 °C) through the fully open valve (H_{100}) at a differential pressure of 100 kPa (1 bar).
	Spring return function		Shutoff in the event of a power failure.
PN	PN class		Characteristic relating to the combination of mechanical and dimensional properties of a component in the piping system.
Phs	Phase cut control signal	V	DC 0...20 V Phs
P_v	Valve authority		Ratio of differential pressure across fully open valve (H_{100}) and differential pressure across valve and variable flow path. To ensure correct control, a minimum valve authority of 0.25 is required.
Q_{100}	Rated capacity	kW	Plant's design capacity.
V_{100}	Volumetric flow	m ³ /h	Volumetric flow with valve fully open (H_{100}).
V_{\min}	Minimum volumetric flow	m ³ /h	Smallest presettable volumetric flow through the fully open combi valve (H_{100}).
ν	Kinematic viscosity	mm ² /s	In the case of kinematic viscosities ν up to 10 mm ² /s, no corrections are required. For the selection of actuating devices for kinematic viscosities ν above 10 mm ² /s, please contact your local Siemens branch office.
c	Specific heat capacity	kJ/kgK	
ρ	Specific density	kg/m ³	

Symbols

	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic.
	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic with 70% of the k_{vS} value. This compensates for the flow resistance of the heat exchange, so that the total volumetric flow V_{100} remains as constant as possible.
	2-port valve, control path with equal-percentage valve characteristic.
	2-port valve, control path with linear valve characteristic.
	3-port, control path and bypass with linear valve characteristic. Bypass with 70% of the k_{vS} value. This compensates for the flow resistance of the heat exchanger, so that the total flow amount V_{100} remains as constant as possible.
	3-port valve, control path and bypass with linear valve characteristic.
	3-port valve, control path and bypass with equal-percentage valve characteristic.

Valve sizing and actuator selection

Basic hydraulic circuit

1	Determine the type of hydraulic circuit	Throttling circuit	Injection circuit with 2-port valve	Diverting circuit	Injection circuit with 3-port valve	Mixing circuit	Mixing circuit with fixed premixing
	For valve sizing relevant variable flow path						

HVAC plants and consumers

Heating

Surface/floor heating	-	■	-	outdated	-	-	■	■
Heating plant (primary)	-	■	■	outdated	■	■	■	■
Zone control, heating	-	■	-	outdated	-	-	-	-
Heating group	-	■	-	-	■	■	■	■
Generation of heat energy	-	-	-	-	-	■	-	■
Heat exchanger water-water	■	uncommon	uncommon	uncommon	uncommon	-	-	-

Ventilation and air conditioning plants

Air handling unit (AHU)	■	■	■	outdated	■	■	-	-
Fan coil unit	■	-	■	outdated	-	-	-	-
Cooling coil	dehumidifying	-	dehumidifying	uncommon	-	-	-	-
Reheating coil	■	■	outdated	outdated	uncommon	uncommon	uncommon	uncommon
Preheating coil	-	■	-	outdated	uncommon	uncommon	uncommon	uncommon
VAV	■	-	■	outdated	-	-	-	-
Zone control	■	-	■	outdated	-	-	-	-

Chiller plants

Surface/floor cooling	-	■	-	outdated	-	-	-	-
Generation of cooling energy	-	-	-	-	-	■	-	■
Cooling towers	■	-	■	uncommon	-	-	-	-
Zone control, cooling	-	■	-	outdated	-	-	-	-

District heating and cooling

District heating, primary	■	uncommon	-	-	-	uncommon	-	uncommon
District heating, secondary	■	■	-	-	-	uncommon	-	uncommon
District cooling, primary	■	uncommon	-	-	-	uncommon	-	uncommon
District cooling, secondary	■	■	-	-	-	uncommon	-	uncommon

Domestic hot water (DHW)

DHW	-	■	-	-	-	■	-	-
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Valves and actuators

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Header

Differential pressure header	pressurized		pressureless
Volumetric flow	variable	constant	variable

Determination of k_{vs} value

2	Δp_{VR} or Δp_{MV}	Δp_{VR}		Δp_{MV}					
	typical range	10...200 kPa	10...200 kPa	10...50 kPa	2...5 kPa	2...5 kPa	5...15 kPa	2...5 kPa	5...15 kPa
	typical value	Use effective Δp_{VR} value		35 kPa	3 kPa	3 kPa	8 kPa	3 kPa	8 kPa
3	Determine Δp_{V100}	$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$		$\Delta p_{V100} > \Delta p_{MV}$					
4	Calculate V_{100}	Water without anti-freeze $V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$			Water with anti-freeze $V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$				
5	Determine k_{vs} value	$k_v = \frac{V_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \Rightarrow k_{vs} \geq 0.85 \cdot k_v$ value							
6	Check resulting Δp_{V100}	$\Delta p_{V100} = 100 \cdot \left(\frac{V_{100}}{k_{vs}}\right)^2$							

Selection of valve and actuator

7	Select suitable valve series	a) Type of valve (2-port, 3-port, 3-port with bypass) b) Connections (flanged, threaded, soldered)	c) PN class d) Nominal size DN	e) Max/min medium temperature f) Medium	
8	Check valve authority P_v (control stability)	$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} \geq 0.25...0.8$		$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.25...0.8$	
9	Select actuator	a) Operating voltage functions	b) Positioning signal	c) Positioning time d) Spring return function e) Auxiliary	
10	Check working range	a) Differential pressure $\Delta p_{max} > \Delta p_{V0}$		b) Closing pressure $\Delta p_s > H_0$	
11	Selection	Valve and suitable actuator			

Size and select combi valves

Determine volumetric flow V

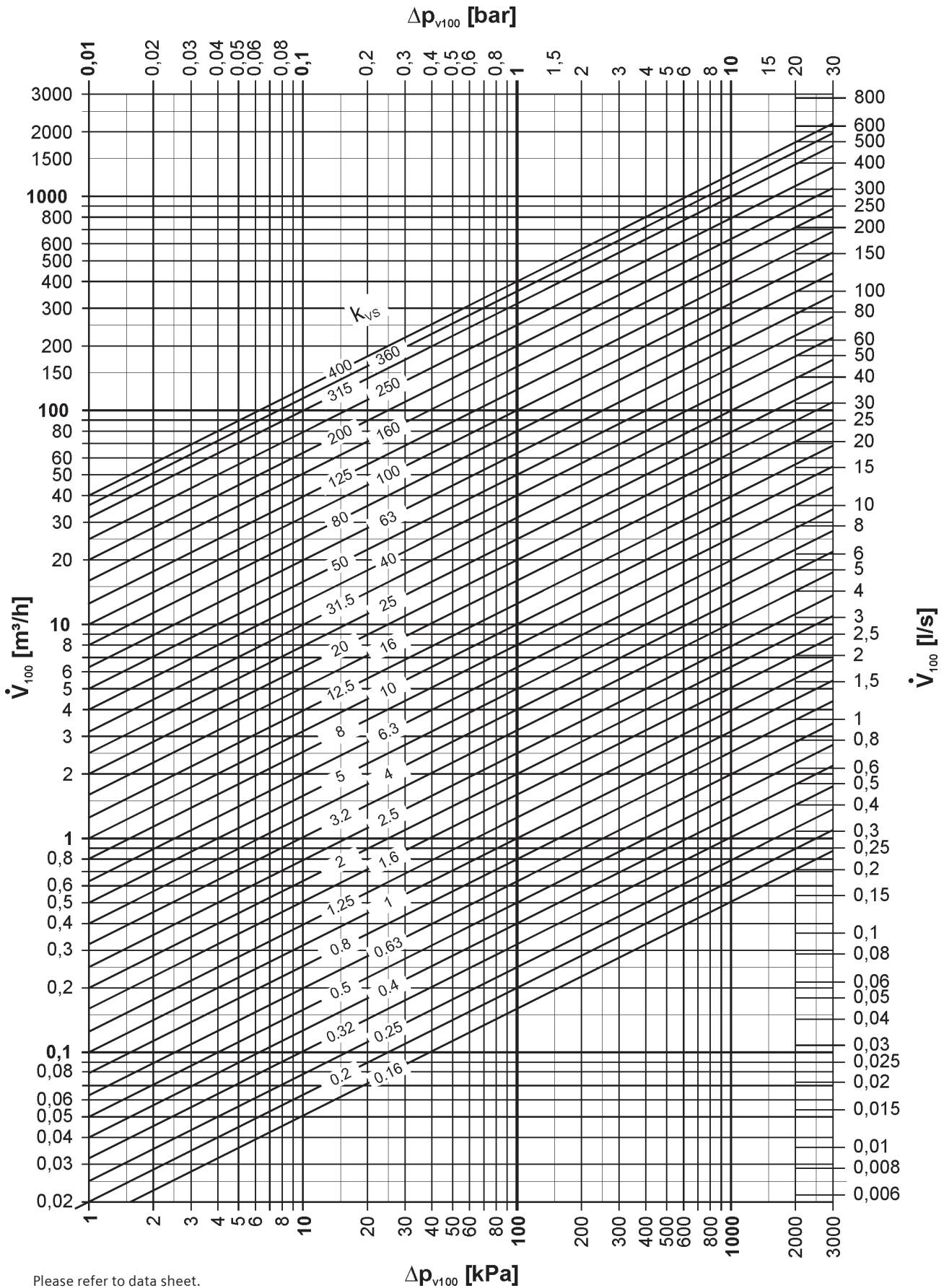
1	Determine Q_{100}	Q_{100}	
2	Determine ΔT	ΔT	
3	Calculate V	Water without anti-freeze $V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$	Water with anti-freeze $V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$

Select combi valve and actuator

4	Select suitable combi valve	a) Type of valve (with/without P/T plugs) ¹⁾ d) Connection (flanged, threaded)	b) PN class e) Nominal size DN	c) Max/min medium temperature f) Medium
5	Determine presetting	Determine presetting using the volumetric flow/dial table in data sheet of the respective combi valve		
6	Select actuator	a) Operating voltage	b) Positioning signal	c) Positioning time d) Auxiliary functions
7	Check working range	a) $\Delta p < \Delta p_{max}$ – maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve b) $\Delta p > \Delta p_{min}$ – minimum differential pressure required across the valve's control path, so that the differential pressure regulator works reliably		
8	Select actuator	Combi valve and suitable actuator		

7

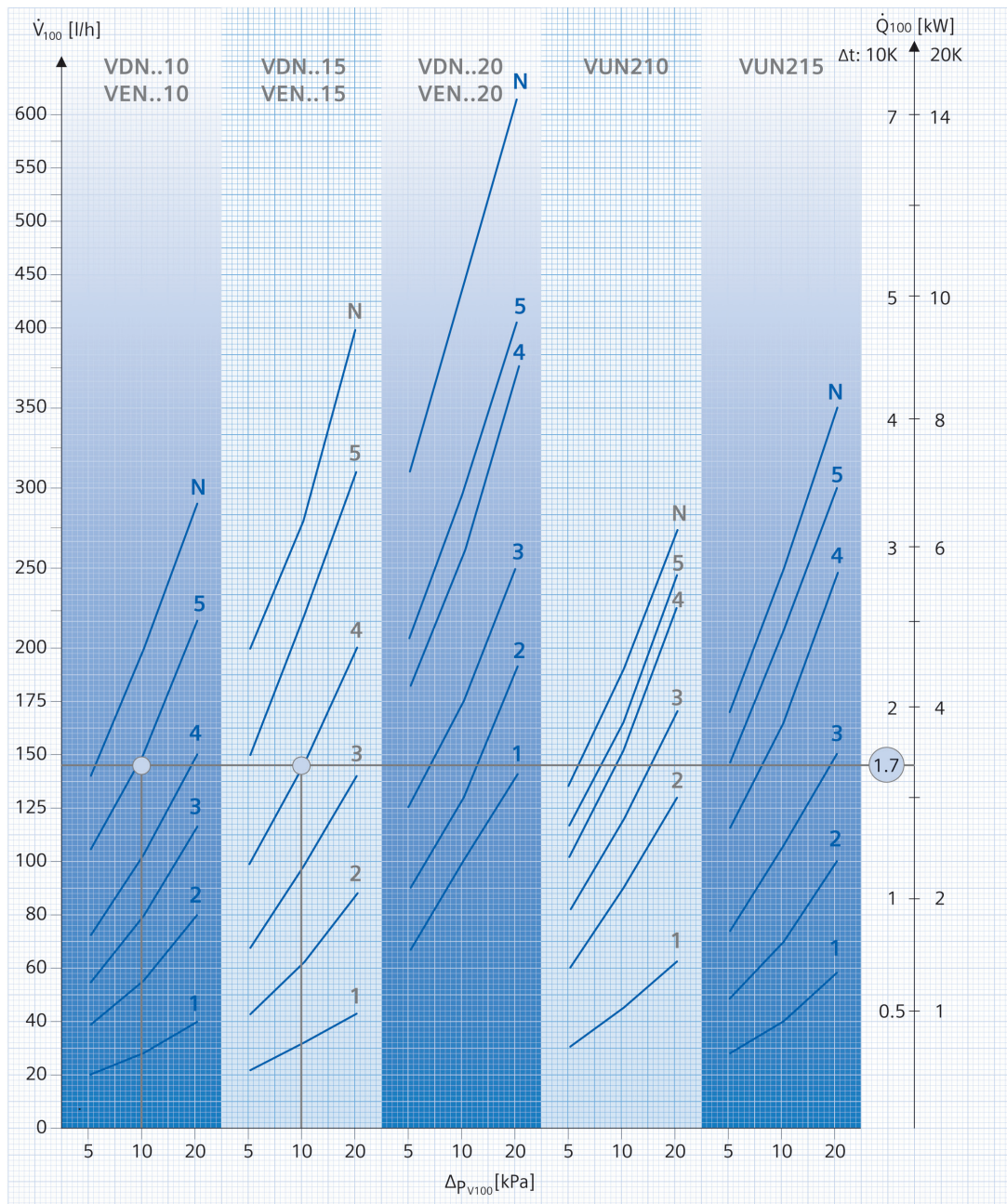
Sizing chart for flanged and threaded valves



Please refer to data sheet.

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Sizing chart / Presetting for radiator valves VDN../VEN../VUN..



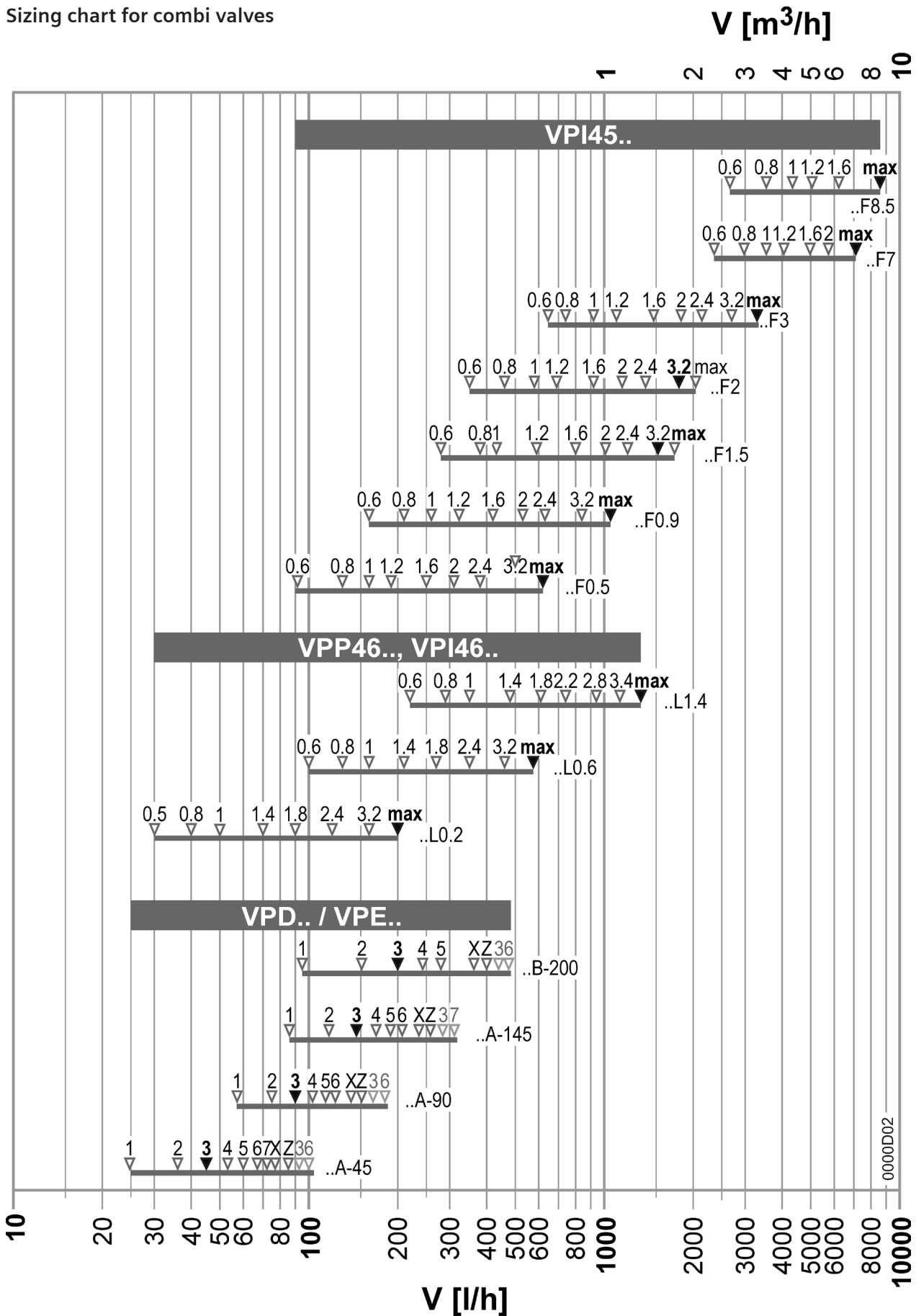
Example

Given:
 $Q = 1.7 \text{ kW}$
 $\Delta t = 10 \text{ K}$
 $\Delta P_{V100} = 10 \text{ kPa}$

Solution:
 VDN..10, presetting 5
 or VDN..15, presetting 4
 etc.

We know from experience that the majority of plant operate with a ΔP_{V100} of 5...20 kPa (0.05...0.2 bar).
 For detailed charts, refer to the relevant data sheets.

Sizing chart for combi valves

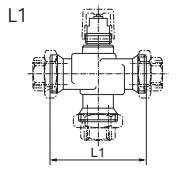
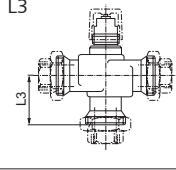
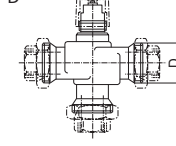


Valves and actuators

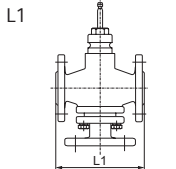
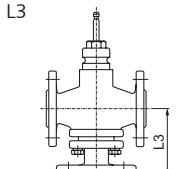
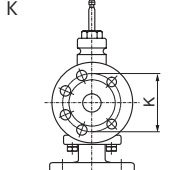
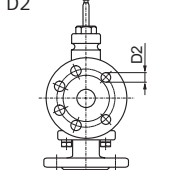
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Dimensions threaded valves [mm]

	Type	PN	DN10	DN15	DN20	DN25	DN32	DN40	DN50
	V..G41..	16	–	100	100	105	105	130	150
	V..G44..	16	–	100	100	105	105	130	–
	VVP45../VXP45..	16	60	65	80	80/105	105	130	–
	VVG55..	25	–	65	70	75	–	–	–
	VXG41..	16	–	50	50	52.5	52.5	65	75
	VXG44..	16	–	50	50	52.5	52.5	65	–
	VVP45../VXP45..	16	30	32.5	40	40/52.5	52.5	65	–
	V..G41..	16	–	G 1B	G 1¼B	G 1½B	G 2B	G 2¼B	G 2¾B
	V..G44..	16	–	G 1B	G 1¼B	G 1½B	G 2B	G 2¼B	–
	VVP45../VXP45..	16	G ½B	G ¾B	G 1B	G 1¼B/G 1½B	G 2B	G 2¼B	–
	VVG55..	25	–	G ¾B	G 1B	G 1¼B	–	–	–

Dimensions flanged valves [mm]

	Type	PN	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
	V..F21..	6	–	–	150	–	180	200	240	260	300	–	–
	V..F31..	10	130	–	160	–	200	230	290	310	350	400	480
	V..F40..	16	130	–	160	–	200	230	290	310	350	400	480
	V..F43..	16	–	–	–	–	–	–	290	310	350	400	480
	V..F53..	25	130	150	160	180	200	230	290	310	350	400	480
	V..F61..	40	130	–	160	–	200	230	290	310	350	400	480
	VXF21..	6	–	–	75	–	90	100	120	130	150	–	–
	VXF31..	10	65	–	80	–	100	115	145	155	175	200	240
	VXF40..	16	65	–	80	–	100	115	145	155	175	200	240
	VXF43..	16	–	–	–	–	–	–	145	155	175	200	240
	VXF53..	25	65	75	80	90	100	115	145	155	175	200	240
	VXF61..	40	65	–	80	–	162	170	215	230	250	280	305
	V..F21..	6	–	–	75	–	100	110	130	150	170	–	–
	V..F31..	10	65	–	85	–	110	125	145	160	180	210	240
	V..F40..	16	65	–	85	–	110	125	145	160	180	210	240
	V..F43..	16	–	–	–	–	–	–	145	160	180	210	240
	V..F53..	25	65	75	85	100	110	125	145	160	190	220	250
	V..F61..	40	65	–	85	–	110	125	145	160	190	220	250
	V..F21..	6	–	–	11 (4x)	–	14 (4x)	14 (4x)	14 (4x)	19 (4x)	19 (4x)	–	–
	V..F31..	10	14 (4x)	–	14 (4x)	–	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F40..	16	14 (4x)	–	14 (4x)	–	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F43..	16	–	–	–	–	–	–	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F53..	25	14 (4x)	14 (4x)	14 (4x)	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	23 (8x)	28 (8x)	28 (8x)
	V..F61..	40	14 (4x)	–	14 (4x)	–	18 (4x)	18 (4x)	18 (8x)	22 (8x)	22 (8x)	26 (8x)	26 (8x)

Valves and actuators
Actuators for globe and pressure independent combi valves
Thermostatic head: RTN..

Thermostatic actuators

RTN..

Thermostatic actuators for controlling the room temperature. Setpoint adjustment with knob. Versions with shutoff and frost protection position.
 Limit stops for minimum and maximum values or setpoint locking.
 Mounts directly on Siemens radiator valves VDN../VEN../VUN../VPD../VPE..



Data sheet N2111

Thermostatic actuators RTN51

Design	Surface treatment	Setpoint setting range	Stock No.	Product No.
Frost protection position Closing position	RAL 9016, matt	12...28 °C	BPZ:RTN51	RTN51
Frost protection position Closing position	RAL 9016, glossy	12...28 °C	BPZ:RTN51G	RTN51G

Thermostatic actuators with remote sensor RTN71

Design	Surface treatment	Setpoint setting range	Capillary length	Stock No.	Product No.
Remote sensor Frost protection position Closing position	RAL 9016, matt	12...28 °C	2 m	BPZ:RTN71	RTN71

Thermostatic actuators with remote adjuster RTN81

Design	Surface treatment	Setpoint setting range	Capillary length	Stock No.	Product No.
Remote sensor Frost protection position	RAL 9016, matt	8...28 °C	2 m	BPZ:RTN81	RTN81

Accessories for thermostatic actuators RTN..

Product Title	Data sheet	Stock No.	Product No.
Adapter for valves of other manufacture	N2179	BPZ:AV..	AV..



Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 100 N: STA..3

STA..3



Electrothermal actuators with and without connecting cable for radiator, small, and zone valves

Electrothermal actuators with and without connecting cable for:

- Radiator valves VDN.., VEN.., VUN..
- MCV MiniCombiValves VPD.., VPE..
- Small valves VD1..CLC..
- Zone valves V..I46..
- Combi valves VPP46.., VPI46..
- Valves of other manufacturers

Actuators without connecting cable can be equipped with:

- Connecting cable up to 15 m, also halogen-free
- Connecting cable with LED operation indicator
- Connecting cable with auxiliary switch or DC 0...10 V module

Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview actuators STA..3

Operating voltage	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230 V	210	2-position	1	S55174-A101	STA23
AC 24 V	30	DC 0...10	1	S55174-A104	STA63
AC 24 V DC 24 V	270	2-position PDM	1	S55174-A100	STA73
AC 230 V	210	2-position	0.8	S55174-A107	STA23HD
AC 24 V DC 24 V	270	2-position	0.8	S55174-A106	STA73HD
AC 230 V	210	2-position		S55174-A110	STA23/00
AC 230 V	210	2-position		S55174-A118	STA23B/00
AC 230 V	210	2-position		S55174-A114	STA23MP/00
AC 24 V DC 24 V	270	2-position PDM		S55174-A109	STA73/00
AC 24 V DC 24 V	270	2-position PDM		S55174-A117	STA73B/00
AC 24 V DC 24 V	270	2-position PDM		S55174-A113	STA73MP/00
AC 24 V DC 24 V	270	2-position PDM/parallel operation		S55174-A115	STA73PR/00

The given positioning time is related to the maximum stroke of 4.5 mm.

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 100 N: STA..3

Connection cable for STA..3

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4

Positioning signal	Auxiliary switch	Display	Color	Cable length	Material	Stock No.	Product No.
2-position	0		White	0.8 m	PVC	S55174-A121	ASY23L08
2-position	0		White	1 m	PVC	S55174-A122	ASY23L10
2-position	0		White	2 m	PVC	S55174-A123	ASY23L20
2-position	0		White	3 m	PVC	S55174-A124	ASY23L30
2-position	0		White	4 m	PVC	S55174-A125	ASY23L40
2-position	0		White	5 m	PVC	S55174-A126	ASY23L50
2-position	0		White	6 m	PVC	S55174-A127	ASY23L60
2-position	0		White	7 m	PVC	S55174-A128	ASY23L70
2-position	0		White	10 m	PVC	S55174-A129	ASY23L100
2-position	0		White	15 m	PVC	S55174-A130	ASY23L150
2-position	0		Black	3 m	PVC	S55174-A131	ASY23L30B
2-position	0		Black	5 m	PVC	S55174-A132	ASY23L50B
2-position	0		Black	10 m	PVC	S55174-A133	ASY23L100B
2-position	0		White	2 m	Halogen-free	S55174-A134	ASY23L20HF
2-position	0		White	5 m	Halogen-free	S55174-A135	ASY23L50HF
2-position	0		White	10 m	Halogen-free	S55174-A136	ASY23L100HF
DC 0...10 V	0		White	2 m	PVC	S55174-A137	ASY6AL20
DC 0...10 V	0		White	5 m	PVC	S55174-A138	ASY6AL50
DC 0...10 V	0		White	7 m	PVC	S55174-A139	ASY6AL70
DC 0...10 V	0		White	2 m	PVC	S55174-A140	ASY6PL20
DC 0...10 V	0		White	5 m	PVC	S55174-A141	ASY6PL50
DC 0...10 V	0		White	7 m	PVC	S55174-A142	ASY6PL70
DC 0...10 V	0		Black	2 m	PVC	S55174-A146	ASY6PL20B
DC 0...10 V	0		White	2 m	Halogen-free	S55174-A150	ASY6PL20HF
DC 0...10 V	0		White	5 m	Halogen-free	S55174-A151	ASY6PL50HF
DC 0...10 V	0		White	7 m	Halogen-free	S55174-A152	ASY6PL70HF
2-position	1		White	1 m	PVC	S55174-A153	ASA23U10
2-position	1		White	2 m	PVC	S55174-A154	ASA23U20
2-position	0	LED	White	2 m	PVC	S55174-A157	ASY23L20LD
2-position	0	LED	White	5 m	PVC	S55174-A158	ASY23L50LD

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 100 N: STA..3

Accessories for STA..3

Product Title	Data sheet	Stock No.	Product No.
Adapter for Danfoss RA2000, Plastic	N4884	S55174-A164	AV533
Adapter for Giacomini	N4884	S55174-A165	AV63
Adapter for Vaillant	N2100	BPZ:AV59	AV59
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	AV64
Adapter various (5 pieces)	N4884	S55174-A167	AV304
Adapter for valves with M30 x 1.5	N2179	S55174-A159	AV301
Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	N4884	S55174-A160	AV302
Adapter for valves with M30 x 1, TA	N4884	S55174-A161	AV303
Theft protection	N4884	S55174-A168	AL431

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 100 N: STP..3

Electrothermal actuators with and without connecting cable for small valves

STP..3

Electrothermal actuators with and without connecting cable for:

- Small valves V..P47..
- Valves of other manufacturers

Actuators without connecting cable can be equipped with:

- Connecting cable up to 15 m, also halogen-free
- Connecting cable with LED operation indicator
- Connecting cable with auxiliary switch or DC 0...10 V module



Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview actuators STP..3

Operating voltage	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230 V	210	2-position	1	S55174-A103	STP23
AC 24 V	30	DC 0...10	1	S55174-A105	STP63
AC 24 V DC 24 V	270	2-position PDM	1	S55174-A102	STP73
AC 230 V	210	2-position		S55174-A112	STP23/00
AC 230 V	210	2-position		S55174-A120	STP23B/00
AC 24 V DC 24 V	270	2-position PDM		S55174-A111	STP73/00
AC 24 V DC 24 V	270	2-position PDM		S55174-A119	STP73B/00
AC 24 V DC 24 V	270	2-position PDM/parallel operation		S55174-A116	STP73PR/00

The given positioning time is related to the maximum stroke of 4.5 mm.



Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 100 N: STP..3

Connection cable for STP..3

For suitable combination of actuator STP.. and connection cable ASY.., see chapter introduction page 7-4.

Positioning signal	Auxiliary switch	Display	Color	Cable length	Material	Stock No.	Product No.
2-position	0		White	0.8 m	PVC	S55174-A121	ASY23L08
2-position	0		White	1 m	PVC	S55174-A122	ASY23L10
2-position	0		White	2 m	PVC	S55174-A123	ASY23L20
2-position	0		White	3 m	PVC	S55174-A124	ASY23L30
2-position	0		White	4 m	PVC	S55174-A125	ASY23L40
2-position	0		White	5 m	PVC	S55174-A126	ASY23L50
2-position	0		White	6 m	PVC	S55174-A127	ASY23L60
2-position	0		White	7 m	PVC	S55174-A128	ASY23L70
2-position	0		White	10 m	PVC	S55174-A129	ASY23L100
2-position	0		White	15 m	PVC	S55174-A130	ASY23L150
2-position	0		Black	3 m	PVC	S55174-A131	ASY23L30B
2-position	0		Black	5 m	PVC	S55174-A132	ASY23L50B
2-position	0		Black	10 m	PVC	S55174-A133	ASY23L100B
2-position	0		White	2 m	Halogen-free	S55174-A134	ASY23L20HF
2-position	0		White	5 m	Halogen-free	S55174-A135	ASY23L50HF
2-position	0		White	10 m	Halogen-free	S55174-A136	ASY23L100HF
DC 0...10 V	0		White	2 m	PVC	S55174-A137	ASY6AL20
DC 0...10 V	0		White	5 m	PVC	S55174-A138	ASY6AL50
DC 0...10 V	0		White	7 m	PVC	S55174-A139	ASY6AL70
DC 0...10 V	0		White	2 m	PVC	S55174-A140	ASY6PL20
DC 0...10 V	0		White	5 m	PVC	S55174-A141	ASY6PL50
DC 0...10 V	0		White	7 m	PVC	S55174-A142	ASY6PL70
DC 0...10 V	0		Black	2 m	PVC	S55174-A146	ASY6PL20B
DC 0...10 V	0		White	2 m	Halogen-free	S55174-A150	ASY6PL20HF
DC 0...10 V	0		White	5 m	Halogen-free	S55174-A151	ASY6PL50HF
DC 0...10 V	0		White	7 m	Halogen-free	S55174-A152	ASY6PL70HF
2-position	1		White	1 m	PVC	S55174-A155	ASP23U10
2-position	1		White	2 m	PVC	S55174-A156	ASP23U20
2-position	0	LED	White	2 m	PVC	S55174-A157	ASY23L20LD
2-position	0	LED	White	5 m	PVC	S55174-A158	ASY23L50LD

Valves and actuators
Actuators for globe and pressure independent combi valves
Positioning force 100 N: STP..3

Accessories for STP..3

Product Title	Data sheet	Stock No.	Product No.
Adapter for Danfoss RA2000, Plastic	N4884	S55174-A164	AV533
Adapter for Giacomini	N4884	S55174-A165	AV63
Adapter for Vaillant	N2100	BPZ:AV59	AV59
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	AV64
Adapter various (5 pieces)	N4884	S55174-A167	AV304
Adapter for valves with M30 x 1.5	N2179	S55174-A159	AV301
Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	N4884	S55174-A160	AV302
Adapter for valves with M30 x 1, TA	N4884	S55174-A161	AV303
Theft protection	N4884	S55174-A168	AL431

Actuators for globe and pressure independent combi valves

Positioning force 100 N: SSA..

SSA..



Electromotoric actuators 100 N for valves with 2.5/5 mm stroke

For radiator valves, small valves and Combi valves

Electromotoric actuators for modulating or 3-position control of heating systems, chilled ceilings and terminal units. With automatic stroke adaption, force-dependent switching off in the end position, position indication, manual control and plug-in type connecting cable. Suited for use with Siemens radiator valves VDN../VEN../VUN../VPD../VPE.., Siemens small valves VD1..CLC and on radiator valves with M30 x 1.5 connection (Heimeier, Cazzaniga, Oventrop M30x1,5, Honeywell-Braukmann, MNG, Junkers, Beulco new). Further valves of other manufacture on request.

Suited for Siemens Combi valves VPP46../VPI46.. with 2.5, respectively 5 mm stroke.

Data sheet	N4893
Positioning force	100 N
Stroke	2.5 mm 5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5
SSA61...: 1.5 mm minimal stroke required for self calibration

Range overview actuators SSA..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	0	1.5	BPZ:SSA31	SSA31
AC 24 V	0.8	3-position	150	0	1.5	BPZ:SSA81	SSA81
AC 24 V DC 24 V	2.5	DC 0...10 V	34	0	1.5	BPZ:SSA61	SSA61
AC 230 V	6	3-position	150	1	1.5	BPZ:SSA31.1	SSA31.1
AC 24 V	0.8	3-position	150	1	1.5	BPZ:SSA81.1	SSA81.1
AC 230 V	6	3-position	150	0		BPZ:SSA31/00	SSA31/00
AC 24 V	0.8	3-position	150	0		BPZ:SSA81/00	SSA81/00
AC 24 V DC 24 V	2	DC 0...10 V	34	0		BPZ:SSA61/00	SSA61/00

Positioning time for 2.5 mm stroke

Auxiliary switch: Changeover contact AC 250 V, 1 A res., 0.5 A ind., adjustable switching point 0...100 %

SSA../00: Cable selection see accessories for SSA..

Valves and actuators
Actuators for globe and pressure independent combi valves
Positioning force 100 N: SSA..

Accessories for SSA..

Product Title	Data sheet	Stock No.	Product No.
Adapter for tamper-proof fitting for SSA.. actuators	N4893	BPZ:AL40	AL40
Adapter for tamper-proof fitting for STA.., STP.. actuators	N4878	BPZ:AL41	AL41
Adapter for valves of other manufacture	N2179	BPZ:AV..	AV..
Connecting cable 1.5 m, 3-position, AC 230 V		BPZ:ASY3L15	ASY3L15
Connecting cable 2.5 m, 3-position, AC 230 V		BPZ:ASY3L25	ASY3L25
Connecting cable 4.5 m, 3-position, AC 230 V		BPZ:ASY3L45	ASY3L45
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V		BPZ:ASY6L15	ASY6L15
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V		BPZ:ASY6L25	ASY6L25
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V		BPZ:ASY6L45	ASY6L45
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24		BPZ:ASY6L45HF	ASY6L45HF
Connecting cable 1.5 m, 3-position, AC 24 V		BPZ:ASY8L15	ASY8L15
Connecting cable 2.5 m, 3-position, AC 24 V		BPZ:ASY8L25	ASY8L25
Connecting cable 4.5 m, 3-position, AC 24 V		BPZ:ASY8L45	ASY8L45
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24		BPZ:ASY8L45HF	ASY8L45HF
Retaining screw for cable connector		BPZ:ASY98	ASY98
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..		BPZ:ASY99	ASY99
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	N4864	BPZ:ASY100	ASY100

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 100 N: SSA..

Range overview adapters AV..

Adapter for	Data sheet	Stock No.	Product No.
Beulco M30 x 1	N2100	BPZ:AV51	AV51
Comap	N2100	BPZ:AV52	AV52
Danfoss RA2000	N2100	BPZ:AV53	AV53
Danfoss RAVL	N2100	BPZ:AV54	AV54
Danfoss RAV	N2100	BPZ:AV55	AV55
Giacomini	N2100	BPZ:AV56	AV56
Herz	N2100	BPZ:AV57	AV57
Oventrop old (M 30x1.0)	N2100	BPZ:AV58	AV58
Vaillant	N2100	BPZ:AV59	AV59
TA	N2100	BPZ:AV60	AV60
Markaryd (MMA)	N2100	BPZ:AV61	AV61

Note:

Beulco: Not to be used with RTN.., for old make of Beulco distributors only

Oventrop: Introduced M30 x 1.5 in 2001 and requires no adapter

TA (Heimeier): Introduced M30 x 1.5 in 2003 and requires no adapter

Fitting the actuators to valves of other manufacture (M30 x 1.5) without adapter:

- Heimeier
- Junkers
- Honeywell Braukmann
- MNG
- Cazzaniga
- Oventrop M30 x 1.5 (from 2001)
- Beulco new

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 135 N: SFP21.. / SFP71..

Electromotoric actuators 135 N for small valves V..P47..

SFP21../SFP71..

For small valves VVP47.., VXP47.. and VMP47..

Together with VVP47.., VXP47.. and VMP47.., they offer high-quality on/off control. Versions for AC 24 V and AC 230 V available. For on/off control of terminal units and heating and cooling zones. The actuators offer a low noise level, have a manual lever, power fail reset function (NC valve closed) and 1.8 m connecting cable. 1 auxiliary switch is available as an accessory item. The combination with a 3-port valve is suited for applications requiring tight shutoff in both valve end positions.



Data sheet	N4865
Positioning force	135 N
Positioning signal	2-position
Positioning time	10 s
Stroke	2.5 mm
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85° inclined

For fitting to the valve: Cap nut M30 x 1.5

Range overview actuators SFP..

Operating voltage	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	9.8	Optional	1.8	BPZ:SFP21/18	SFP21/18
AC 24 V	9.8	Optional	1.8	BPZ:SFP71/18	SFP71/18

Auxiliary switch: Changeover contact AC 250 V, 3 A res., 2 A ind., adjustable switching point 50 %

Accessories for SFP21../SFP71..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	ASC2.1/18

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 160 N: SSA31.04

SSA31.04



Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 230 V, 3P, SPDT

For VPI46../VPP46.. zone valves

Electromotoric actuators for 3-position or SPDT control of zone valves V..I46.. with internally threaded connections. For 3-position or SPDT (open/close) control of heating systems, domestic hot water storage tank charging as well as terminal units and zones. The actuators have automatic stroke adaption, force-dependent switching off in the end positions, position indication, manual control and 1.5 m connecting cable.

Not suitable for radiator valves (soft seal).

Data sheet	N4860
Positioning force	160 N
Operating voltage	AC 230 V
Positioning signal	3-position SPDT
Positioning time	43 s
Power consumption	6 VA
Stroke	2.5 mm
Cable length	1.5 m
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5

	Stock No.	Product No.
	BPZ:SSA31.04	SSA31.04

Accessories for SSA31.04

Product Title	Data sheet	Stock No.	Product No.
Retaining screw for cable connector		BPZ:ASY98	ASY98

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 150 N: SUA21/1

Electromotoric actuator, 150 N, 1.5 m, AC 230 V, 2P

SUA21/1

Electromotoric actuators without spring return for V..I46.. zone valves. Primarily used in heating, ventilation and air conditioning systems for water-based control of hot water and cold water.

- Heating and cooling zones
- Control valves for fan coil units
- Zone valve for floor heating via heating distributors (manifolds)
- Chilled ceiling units
- On/off control for domestic hot water boilers
- Shut off valve for wall mounted boiler applications



Data sheet	N4830
Positioning force	150 N
Stroke	2.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85 ° horizontal, do not suspend

For fitting to the valve: plastic union nut M30 x 1.5

Range overview SUA..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6 VA @ 50 Hz	2-position (SPST)	10 s @ 50 Hz	1.5	S55176-A102	SUA21/1

Positioning signal: SPST Single pole single throw, requires change-over contact, i.e. three wires.



Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 160 N: SSP..

SSP..



Electromotoric actuators 160 N for valves with 2.5 mm stroke

- For small valves VVP47.., VXP47.. and VMP47..
- For retrofitting the small valves 2W.., 3W.. and 4W.. with adapter AL100.

Electromotoric actuators for modulating or 3-position control of small valves for terminal units and heating and cooling zones. With position indication, manual control, automatic stroke adaption, force-dependent switching off in the end positions and plug-in type connecting cable.

Data sheet	N4864
Positioning force	160 N
Stroke	2.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5.
SSP81.., SSP61.. are CE, C-tick, UL and cUL listed.

Range overview SSP.. actuators

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSP31	SSP31
AC 24 V DC 24 V	2.5	DC 0...10 V	34	1.5	BPZ:SSP61	SSP61
AC 24 V	0.8	3-position	150	1.5	BPZ:SSP81	SSP81
AC 24 V	0.8	3-position	43	1.5	BPZ:SSP81.04	SSP81.04
AC 230 V	6	3-position	150		BPZ:SSP31/00	SSP31/00
AC 24 V DC 24 V	2.5	DC 0...10 V	34		BPZ:SSP61/00	SSP61/00
AC 24 V	0.8	3-position	150		BPZ:SSP81/00	SSP81/00
AC 24 V	0.8	3-position	43		BPZ:SSP81.04/00	SSP81.04/00

Positioning time for 2.5 mm stroke

SSP../00: Cable selection see accessories for SSP..

Valves and actuators

Actuators for globe and pressure independent combi valves
Positioning force 160 N: SSP..

Accessories for SSP..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	ASY3L15
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	ASY3L25
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	ASY3L45
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	ASY6L15
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	ASY6L25
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V	BPZ:ASY6L45	ASY6L45
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	ASY6L45HF
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	ASY8L15
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	ASY8L25
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	ASY8L45
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	ASY8L45HF
Retaining screw for cable connector	BPZ:ASY98	ASY98
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	ASY99
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	ASY100
Retrofit adapter for installed 2W..., 3W..., 4W... valves	BPZ:AL100	AL100

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 200 N: SFA21.. / SFA71..

SFA21.. / SFA71..



Electromotoric actuators 200 N for small valves V..I46..

For V..I46.. zone valves, AC 24 V and AC 230 V versions.

Electromotoric actuators for on/off control of zone. For on/off control of terminal units and heating and cooling zones. The actuators are equipped with a manual lever, spring return facility (NO valve closed) and 1.8 m connecting cable. 1 auxiliary switch is available as an accessory item.

Data sheet	N4863
Positioning force	200 N
Positioning signal	2-position
Positioning time	10 s
Stroke	2.5 mm
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85° inclined
Auxiliary switch	1

For fitting to the valve: Cap nut M30 x 1.5

Range overview actuators SFA..

Operating voltage [V]	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230	12	Optional	1.8	BPZ:SFA21/18	SFA21/18
AC 24	12	Optional	1.8	BPZ:SFA71/18	SFA71/18
AC 230	12	Optional		BPZ:SFA21	SFA21

Auxiliary switch: Changeover contact AC 250 V, 3 A res., 2 A ind., adjustable switching point 50 %

Auxiliary switch for actuators SFA..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	ASC2.1/18

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 200 N: SSB..

Electromotoric actuators 200 N for valves with 5.5 mm stroke

SSB..

For small valves V..P45..

Electromotoric actuators for modulating or 3-position control of small valves for terminal units and chilled ceilings. With position indication, manual control and plug-in type connecting cable 1.5 m. Automatic stroke adaption and force-dependent switching off in the end position.



Data sheet	N4891
Positioning force	200 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined
Medium temperature	1...110 °C

For fitting to the valve: Cap nut G $\frac{3}{4}$ "

SSB61.., SSB81.. are CE, C-tick, UL and cUL listed.

Range overview SSB..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	0	1.5	BPZ:SSB31	SSB31
AC 24 V	0.8	3-position	150	0	1.5	BPZ:SSB81	SSB81
AC 24 V DC 24 V	2.5	DC 0...10 V	75	0	1.5	BPZ:SSB61	SSB61
AC 230 V	6	3-position	150	1	1.5	BPZ:SSB31.1	SSB31.1
AC 24 V	0.8	3-position	150	1	1.5	BPZ:SSB81.1	SSB81.1
AC 230 V	6	3-position	150	0		BPZ:SSB31/00	SSB31/00
AC 24 V	0.8	3-position	150	0		BPZ:SSB81/00	SSB81/00
AC 24 V DC 24 V	2.5	DC 0...10 V	75	0		BPZ:SSB61/00	SSB61/00

Auxiliary switch: Changeover contact AC 250 V, 1 A res., 0.5 A ind., adjustable switching point 0...100 %
SSB../00: Cable selection see accessories for SSB..



Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 200 N: SSB..

Accessories for SSB..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	ASY3L15
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	ASY3L25
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	ASY3L45
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	ASY6L15
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	ASY6L25
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L45	ASY6L45
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	ASY6L45HF
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	ASY8L15
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	ASY8L25
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	ASY8L45
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	ASY8L45HF
Retaining screw for cable connector	BPZ:ASY98	ASY98
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	ASY99
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	ASY100

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 250 N: SSD..

Electromotoric actuators 250 N for combi valves VPI45..

SSD..

Electromotoric actuators for modulating or 3-position control of combi valves VPI45.. for water-side control of hot and cooling water in heating, ventilation and air conditioning systems. With position indication, manual control and plug-in type connecting cables.

Available are actuators types for modulating control DC 0/2...10 V and DC 0...10 V (SSD61EP) for equal-percentage valve characteristic.



Data sheet	N4861
Positioning force	250 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Medium temperature	1...110 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5.

SSD81.., SSD61.. are CE, C-tick, UL and cUL listed.

The types SSD61.5 and SSD81.5 have the same housing and dimensions as the SSC.. actuators.

Range overview actuators SSD..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSD31	SSD31
AC 24 V DC 24 V	2.5	DC 0...10 V	75	1.5	BPZ:SSD61	SSD61
AC 24 V DC 24 V	2.5	DC 2...10 V	75	1.5	BPZ:SSD61.2	SSD61.2
AC 24 V DC 24 V	2.5	DC 0...10 V	75	1.5	BPZ:SSD61EP	SSD61EP
AC 24 V	0.8	3-position	150	1.5	BPZ:SSD81	SSD81
AC 230 V	6	3-position	150		BPZ:SSD31/00	SSD31/00
AC 24 V DC 24 V	2.5	DC 0...10 V	75		BPZ:SSD61/00	SSD61/00
AC 24 V DC 24 V	2.5	DC 2...10 V	75		BPZ:SSD61.2/00	SSD61.2/00
AC 24 V DC 24 V	2.5	DC 0...10 V	75		BPZ:SSD61EP/00	SSD61EP/00
AC 24 V	0.8	3-position	150		BPZ:SSD81/00	SSD81/00

SSD../00: Cable selection see accessories for SSD..

SSD61EP.. for equal-percentage valve characteristics

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 250 N: SSD..

Accessories for SSD..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	ASY3L15
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	ASY3L25
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	ASY3L45
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	ASY6L15
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	ASY6L25
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V	BPZ:ASY6L45	ASY6L45
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	ASY6L45HF
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	ASY8L15
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	ASY8L25
Connecting cable 2.5 m, 3-position, AC 24 V, with Batigyr connector	BPZ:ASY8L25B	ASY8L25B
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	ASY8L45
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	ASY8L45HF
Retaining screw for cable connector	BPZ:ASY98	ASY98
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	ASY99
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	ASY100

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 250 N: SSY..

SSY..



Electromotoric actuators 250 N for valves VVP45..N

For operation of Siemens valves VVP45..N for water-side control of hot and cooling water in heating, ventilation and air conditioning systems.

Data sheet	N4894
Positioning force	250 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined
Medium temperature	1...110 °C

For fitting to the valve: Cap nut G $\frac{3}{4}$.
SSY81 is CE, C-tick, UL and cUL listed.

Range overview actuators SSY..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSY31	SSY31
AC 24 V	0.8	3-position	150	1.5	BPZ:SSY81	SSY81

Accessories for SSY..

Product Title	Data sheet	Stock No.	Product No.
Retaining screw for cable connector		BPZ:ASY98	ASY98

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 300 N: SSC..

SSC..



Electromotoric actuators 300 N for valves with 5.5 mm stroke

Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position. With plastic housing and cap nut for fitting on threaded valves with 5.5 mm stroke.

Data sheet	N4895
Positioning force	300 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	5...50 °C
Medium temperature	1...110 °C
Mounting position	Upright to horizontal

SSC81.., SSC61.., SSC61.5 are CE, UL, cUL and C-TIC listed

Range overview SSC..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	3-position	0.8	150	No	BPZ:SSC81	SSC81
AC 24 V DC 24 V	DC 0...10 V	2	30	No	BPZ:SSC61	SSC61
AC 24 V DC 24 V	DC 0...10 V	2	30	Yes (15 s)	BPZ:SSC61.5	SSC61.5
AC 230 V	3-position	6	150	No	BPZ:SSC31	SSC31

SSC61.5: Power consumption when connecting power for the first time 3 VA

Accessories for SSC..

Product Title	Data sheet	Stock No.	Product No.
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	ASK30

Valves and actuators

Actuators for globe and pressure independent combi valves Positioning force 400 N: SQS..

Electromotoric actuators for threaded valves with a stroke of 5.5 mm

SQS..

Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position. With plastic housing and cap nut for fitting on threaded valves with a stroke of 5.5 mm.



Data sheet	N4573
Positioning force	400 N
Stroke	5.5 mm
Spring return function	SQS35.50, SQS35.53, SQS65.5
Degree of protection	IP54
Ambient temperature, operation	-5...50 °C
Medium temperature	1...130 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SQS65..)

Range overview SQS..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	2.5	150	No	BPZ:SQS35.00	SQS35.00
AC 230 V	3-position	3.5	35	No	BPZ:SQS35.03	SQS35.03
AC 230 V	3-position	5	150	Yes (8 s)	BPZ:SQS35.50	SQS35.50
AC 230 V	3-position	6	35	Yes (8 s)	BPZ:SQS35.53	SQS35.53
AC 24 V	DC 0...10 V 0...1000 Ohm	4.5	35	No	BPZ:SQS65	SQS65
AC 24 V	DC 2...10 V 0...1000 Ohm	4.5	35	No	BPZ:SQS65.2	SQS65.2
AC 24 V	DC 0...10 V 0...1000 Ohm	7	35	Yes (8 s)	BPZ:SQS65.5	SQS65.5
AC 24 V	3-position	2	150	No	BPZ:SQS85.00	SQS85.00
AC 24 V	3-position	2	35	No	BPZ:SQS85.03	SQS85.03

Actuators with spring-return function have a position indication in place of the manual control lever.
Actuators SQS65 and SQS65.5 are UL-listed (only 60 Hz); type suffix U, e.g. SQS65U.

Accessories for SQS35../SQS85..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQS35../85.., SQD35../85..	N4573	BPZ:ASC9.6	ASC9.6
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	ASK30

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 400 N: SQD..

SQD..



Electromotoric actuators 400 N für Combi valves

For operation of Siemens Combi valves VPI45..., DN40/50 with 6.5 mm stroke for water-side control of low temperature hot water and cooling water in heating, ventilation and air conditioning systems. Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position.

Data sheet	N4540
Positioning force	400 N
Stroke	6.5 mm
Degree of protection	IP54
Ambient temperature, operation	-5...50 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SQD65)

For fitting to the valve: Cap nut M30 x 1.5.

Range overview actuators SQD..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Stock No.	Product No.
AC 230 V	2.5	3-position	170	BPZ:SQD35.00	SQD35.00
AC 24 V	4.5	DC 0...10 V 0...1000 Ohm	43	BPZ:SQD65	SQD65
AC 24 V	2	3-position	43	BPZ:SQD85.03	SQD85.03

Accessories for SQD..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQS35../85.., SQD35../85..	N4573	BPZ:ASC9.6	ASC9.6

Valves and actuators

Actuators for globe and pressure independent combi valves Electromotoric, positioning force 800 N: SAX..

Electromotoric actuators 800 N for valve with 20 mm stroke

SAX..

Electromotoric actuator for the operation of Siemens 2-port and 3-port valves, types VVF.., VVG.., VXF.. and VXG.. with 20 mm stroke as control and safety shut-off valves in heating, ventilation and air conditioning systems.

With manual adjuster and position indicator, status indication per LED.

Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

SA..81.., SA..61.. are UL listed.



Data sheet	N4501
Positioning force	800 N
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...100 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAX..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	3.5	120	S55150-A105	SAX31.00
AC 230 V	3-position	8	30	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	30	S55150-A100	SAX61.03
AC 24 V DC 24 V	3-position	3.5	120	S55150-A102	SAX81.00
AC 24 V DC 24 V	3-position	8	30	S55150-A103	SAX81.03

Accessories for actuators SAX..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	ASC10.51
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	ASZ7.5/1000
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	ASZ7.5/200
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	ASZ7.5/135
Function module for SA..61.., sequence control/changeover of acting direction	N4501	S55845-Z107	AZX61.1
Stem heating element for media < 0 °C	N4501	S55845-Z108	ASZ6.6
Weathershield for SAX../SAL..	N4501	S55845-Z109	ASK39.1



Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 500 N: SAX..P..

SAX..P..



Electromotoric actuators 500 N for Combi valves VPF43../53..

Electromotoric actuator for the operation of Siemens Combi valves, types VPF43.. and VPF53.. with 20 mm stroke as control valves in ventilation, air conditioning, district heating and cooling systems. With manual adjuster and position indicator, status indication per LED. With manual adjuster and position indicator, status indication per LED. Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

Data sheet	N4509
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	1...100 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SAX6..)

SA..81P.., SA..61P.. are UL listed.

Range overview SAX..P..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Positioning force [N]	Stock No.	Product No.
AC 230 V	8	3-position	30	No	500	S55150-A118	SAX31P03
AC 24 V DC 24 V	8	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	500	S55150-A114	SAX61P03
AC 24 V DC 24 V	8	3-position	30	No	500	S55150-A116	SAX81P03

Accessories for SAX..P..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	ASC10.51
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	ASZ7.5/1000
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	ASZ7.5/200
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	ASZ7.5/135

Valves and actuators

Actuators for globe and pressure independent combi valves Electromotoric, positioning force 700 N: SBX..

Electromotoric actuators for seat valves

SBX..

For operation with Siemens 2-port and 3-port valves, types VWF47.., VXF47.. with 20 and 40 mm stroke as control valves in heating, ventilation and air conditioning systems

Data sheet	N4519
Positioning force	700 N
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal



Range overview SBX..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	9	120	S55160-A102	SBX31
AC 24 V	DC 0...10 V	5	120	S55160-A100	SBX61
AC 24 V	3-position	4	120	S55160-A101	SBX81

Accessories for SBX..

Product Title	Data sheet	Stock No.	Product No.
Function module 4...20 mA for SBX61, SBV61	N4519	S55845-Z120	AZX420

Valves and actuators

Actuators for globe and pressure independent combi valves

Positioning force 1100 N: SQV..P..

SQV..P..



Electromotoric actuators 1100 N for Combi valves VPF43../53..

Electromotoric actuators for the operation of Siemens Combi valves, types VPF43.. and VPF53.. with 20/40 mm stroke as control valves in ventilation, air conditioning, district heating and cooling systems. With manual adjuster and position indicator, status indication per LED and with selectable positioning time (20 mm: 40, 60, 90 or 120 s, 40 mm: 80, 120, 180 or 240 s). Optional functions with auxiliary switches, potentiometer and AC 230 V power module.

Data sheet	N4833
Positioning force	1100 N
Stroke	20 mm 40 mm
Degree of protection	IP66
Ambient temperature, operation	0...55 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V

Actuators SQV..P.. are UL-listed

Range overview SQV..P..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V DC 24 V	20	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	S55150-A130	SQV91P30
AC 24 V DC 24 V	20	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	S55150-A131	SQV91P40

Accessories for actuators SQV..P..

Product Title	Data sheet	Stock No.	Product No.
Double auxiliary switch for SQV..P..	N4833	S55845-Z137	ASC10.42
Potentiometer 0...1000 Ohm for SQV..P..	N4833	S55845-Z136	ASZ7.6/1000
AC 230 V Adapter für SQV..P..	N4833	S55845-Z138	ASP1.1

Valves and actuators

Actuators for globe and pressure independent combi valves Electromotoric, positioning force 1600 N: SBV..

SBV..



Electromotoric actuators for seat valves

For operation with Siemens 2-port and 3-port valves, types VWF47.., VXF47.. with 20 and 40 mm stroke as control valves in heating, ventilation and air conditioning systems

Data sheet	N4519
Positioning force	1600 N
Stroke	40 mm
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal

Range overview SBV..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	9	180	S55160-A105	SBV31
AC 24 V	DC 0...10 V	7	180	S55160-A103	SBV61
AC 24 V	3-position	7	180	S55160-A104	SBV81

Accessories for SBV..

Product Title	Data sheet	Stock No.	Product No.
Function module 4...20 mA for SBX61, SBV61	N4519	S55845-Z120	AZX420

Valves and actuators

Actuators for globe and pressure independent combi valves

Electrohydraulic, positioning force 1000 N: SKD..

SKD32../SKD82..



Electrohydraulic actuators 1000 N for valves with 20 mm stroke

Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Spring return function	SKD32.21, SKD32.51, SKD82.51
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Medium temperature	-25...150 °C
Mounting position	Upright to horizontal

Range overview SKD32../SKD82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	20	Open 30 Close 10	Yes (8 s)	BPZ:SKD32.21	SKD32.21
AC 230 V	3-position	16	120	No	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	21	120	Yes (8 s)	BPZ:SKD32.51	SKD32.51
AC 24 V	3-position	13	120	No	BPZ:SKD82.50	SKD82.50
AC 24 V	3-position	18	120	Yes (8 s)	BPZ:SKD82.51	SKD82.51
AC 24 V	3-position	13	120	No	BPZ:SKD82.50U	SKD82.50U
AC 24 V	3-position	18	120	Yes (8 s)	BPZ:SKD82.51U	SKD82.51U

Actuators SKD 82.50U and SKD82.51U are UL-listed.

SKD60/SKD62..



Electrohydraulic actuators 1000 N for valves with 20 mm stroke

Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Spring return function	SKD62..
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Medium temperature	-25...150 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Valves and actuators

Actuators for globe and pressure independent combi valves Electrohydraulic, positioning force 1000 N: SKD..

Range overview SKD60/SKD62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	No	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	No	BPZ:SKD60U	SKD60U
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62	SKD62
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62U	SKD62U
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62UA	SKD62UA

Actuators with type suffix ..U / ..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

Valves and actuators

Actuators for globe and pressure independent combi valves

Electrohydraulic, positioning force 2800 N: SKB..

SKB32../SKB82..



Electrohydraulic actuators 2800 N for valves with 20 mm stroke

Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4564
Positioning force	2800 N
Stroke	20 mm
Spring return function	SKB32.51, SKB82.51
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal

Range overview SKB32../SKB82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	10	120	No	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	15	120	Yes (10 s)	BPZ:SKB32.51	SKB32.51
AC 24 V	3-position	13	120	No	BPZ:SKB82.50	SKB82.50
AC 24 V	3-position	18	120	Yes (10 s)	BPZ:SKB82.51	SKB82.51
AC 24 V	3-position	13	120	No	BPZ:SKB82.50U	SKB82.50U
AC 24 V	3-position	18	120	Yes (10 s)	BPZ:SKB82.51U	SKB82.51U

Actuators with type suffix ..U are UL-listed.

SKB60/62..



Electrohydraulic actuators 2800 N for valves with 20 mm stroke

Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4564
Positioning force	2800 N
Stroke	20 mm
Spring return function	SKB62..
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Valves and actuators

Actuators for globe and pressure independent combi valves Electrohydraulic, positioning force 2800 N: SKB..

Range overview SKB60/SKB62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	No	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62	SKB62
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62U	SKB62U
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62UA	SKB62UA

Actuators with type suffix ..U / ..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

Valves and actuators

Actuators for globe and pressure independent combi valves Electrohydraulic, positioning force 2800 N: SKC..

SKC32../SKC82..



Electrohydraulic actuators 2800 N for valves with 40 mm stroke

Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 40 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4566
Positioning force	2800 N
Stroke	40 mm
Spring return function	SKC32.61, SKC82.61
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal

Range overview SKC32../82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	19	120	No	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	24	120	Yes (18 s)	BPZ:SKC32.61	SKC32.61
AC 24 V	3-position	19	120	No	BPZ:SKC82.60	SKC82.60
AC 24 V	3-position	24	120	Yes (18 s)	BPZ:SKC82.61	SKC82.61
AC 24 V	3-position	19	120	No	BPZ:SKC82.60U	SKC82.60U
AC 24 V	3-position	24	120	Yes (18 s)	BPZ:SKC82.61U	SKC82.61U

Actuators with type suffix ..U are UL-listed.

SKC60/SKC62..



Electrohydraulic actuators 2800 N for valves with 40 mm stroke

Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 40 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4566
Positioning force	2800 N
Stroke	40 mm
Spring return function	SKC62..
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Valves and actuators

Actuators for globe and pressure independent combi valves Electrohydraulic, positioning force 2800 N: SKC..

Range overview SKC60/SKC62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	24	Open 120 Close 20	No	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62	SKC62
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62U	SKC62U
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62UA	SKC62UA

Actuators with type suffix ..U / ..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.



Valves and actuators

Actuators for globe and pressure independent combi valves

Accessories for SKD.. / SKB.. / SKC..

Accessories for actuators SKB.. / SKC.. / SKD..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	ASC1.6
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	ASC9.3
Stroke inverter for SKD..	N4561	BPZ:ASK50	ASK50
Stroke inverter for SKB..	N4564	BPZ:ASK51	ASK51
Stem heating element for media < 0 °C		BPZ:ASZ6.5	ASZ6.5
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	ASZ7.3
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	ASZ7.31
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	ASZ7.32

VVF21..



2-port seat valves PN6 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4310
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 25...40: >50 DN 50...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 6

Range overview 2-port valves VVF21..

SAX..	SAX..	SKD..	SKD..	SKB..	SKB..	SKC..	SKC..	DN	k_{vs}	Stock No.	Product No.
Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s		[m ³ /h]		
[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]				
300	600	300	600	300	600			25	1.9	BPZ:VVF21.22	VVF21.22
300	600	300	600	300	600			25	2.5	BPZ:VVF21.25-2.5	VVF21.25-2.5
300	600	300	600	300	600			25	3	BPZ:VVF21.23	VVF21.23
300	600	300	600	300	600			25	4	BPZ:VVF21.25-4	VVF21.25-4
300	600	300	600	300	600			25	5	BPZ:VVF21.24	VVF21.24
300	600	300	600	300	600			25	6.3	BPZ:VVF21.25-6.3	VVF21.25-6.3
300	600	300	600	300	600			25	7.5	BPZ:VVF21.25	VVF21.25
300	600	300	600	300	600			25	10	BPZ:VVF21.25-10	VVF21.25-10
300	500	300	600	300	600			40	12	BPZ:VVF21.39	VVF21.39
300	500	300	600	300	600			40	16	BPZ:VVF21.40-16	VVF21.40-16
300	500	300	600	300	600			40	19	BPZ:VVF21.40	VVF21.40
300	500	300	600	300	600			40	25	BPZ:VVF21.40-25	VVF21.40-25
300	300	300	450	300	600			50	31	BPZ:VVF21.50	VVF21.50
300	300	300	450	300	600			50	40	BPZ:VVF21.50-40	VVF21.50-40
175	175	275	275	300	600			65	49	BPZ:VVF21.65	VVF21.65
175	175	275	275	300	600			65	63	BPZ:VVF21.65-63	VVF21.65-63
100	100	175	175	300	500			80	78	BPZ:VVF21.80	VVF21.80
100	100	175	175	300	500			80	100	BPZ:VVF21.80-100	VVF21.80-100
						200	300	100	124	BPZ:VVF21.90	VVF21.90
						200	300	100	160	BPZ:VVF21.100-160	VVF21.100-160

Replacement sealing glands for VVF21..:

VVF/VXF21.., DN25...DN80: part no. 4 284 8806 0
VVF/VXF21.., DN100: part no. 4 679 5629 0

VVF21.. will be phased out around spring 2014, replacement products VVF22.. will be available at the same time



Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN6: VVF21..

Field of application for VVF21..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	6 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VVF21..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN10: VVF31..

VVF31..



2-port seat valves PN10 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4320
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 25...40: >50 DN 50...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 10

Range overview 2-port valves VVF31..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.		
300	1000	300	1000	300	1000			15	2.5	BPZ:VVF31.15-2.5	VVF31.15-2.5		
300	1000	300	1000	300	1000			15	4	BPZ:VVF31.15-4	VVF31.15-4		
300	1000	300	1000	300	1000			25	5	BPZ:VVF31.24	VVF31.24		
300	1000	300	1000	300	1000			25	6.3	BPZ:VVF31.25-6.3	VVF31.25-6.3		
300	1000	300	1000	300	1000			25	7.5	BPZ:VVF31.25	VVF31.25		
300	1000	300	1000	300	1000			25	10	BPZ:VVF31.25-10	VVF31.25-10		
300	525	300	775	300	1000			40	12	BPZ:VVF31.39	VVF31.39		
300	525	300	775	300	1000			40	16	BPZ:VVF31.40-16	VVF31.40-16		
300	525	300	775	300	1000			40	19	BPZ:VVF31.40	VVF31.40		
300	525	300	775	300	1000			40	25	BPZ:VVF31.40-25	VVF31.40-25		
300	325	300	475	300	1000			50	31	BPZ:VVF31.50	VVF31.50		
300	325	300	475	300	1000			50	40	BPZ:VVF31.50-40	VVF31.50-40		
175	175	275	275	300	750			65	49	BPZ:VVF31.65	VVF31.65		
175	175	275	275	300	750			65	63	BPZ:VVF31.65-63	VVF31.65-63		
100	100	175	175	300	500			80	78	BPZ:VVF31.80	VVF31.80		
100	100	175	175	300	500			80	100	BPZ:VVF31.80-100	VVF31.80-100		
								200	300	100	124	BPZ:VVF31.90	VVF31.90
								200	300	100	160	BPZ:VVF31.100-160	VVF31.100-160
								150	200	125	200	BPZ:VVF31.91	VVF31.91
								150	200	125	250	BPZ:VVF31.125-250	VVF31.125-250
								100	125	150	300	BPZ:VVF31.92	VVF31.92
								100	125	150	315	BPZ:VVF31.150-315	VVF31.150-315

VVF31.. will be phased out around spring 2014, replacement products VVF32.. will be available at the same time



Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN10: VVF31..

Range overview 2-port valves C/VVF31..

SAX.. Δp_{\max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{\max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{\max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{\max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	1000	300	1000	300	1000			25	5	BPZ:C/VVF31.24	C/VVF31.24
300	1000	300	1000	300	1000			25	6.3	BPZ:C/VVF31.25-6.3	C/VVF31.25-6.3
300	1000	300	1000	300	1000			25	7.5	BPZ:C/VVF31.25	C/VVF31.25
300	1000	300	1000	300	1000			25	10	BPZ:C/VVF31.25-10	C/VVF31.25-10
300	525	300	775	300	1000			40	12	BPZ:C/VVF31.39	C/VVF31.39
300	525	300	775	300	1000			40	16	BPZ:C/VVF31.40-16	C/VVF31.40-16
300	525	300	775	300	1000			40	19	BPZ:C/VVF31.40	C/VVF31.40
300	525	300	775	300	1000			40	25	BPZ:C/VVF31.40-25	C/VVF31.40-25
300	325	300	475	300	1000			50	31	BPZ:C/VVF31.50	C/VVF31.50
300	325	300	475	300	1000			50	40	BPZ:C/VVF31.50-40	C/VVF31.50-40
175	175	275	275	300	750			65	49	BPZ:C/VVF31.65	C/VVF31.65
175	175	275	275	300	750			65	63	BPZ:C/VVF31.65-63	C/VVF31.65-63
100	100	175	175	300	500			80	78	BPZ:C/VVF31.80	C/VVF31.80
100	100	175	175	300	500			80	100	BPZ:C/VVF31.80-100	C/VVF31.80-100
						200	300	100	124	BPZ:C/VVF31.90	C/VVF31.90
						200	300	100	160	BPZ:C/VVF31.100-160	C/VVF31.100-160
						150	200	125	200	BPZ:C/VVF31.91	C/VVF31.91
						150	200	125	250	BPZ:C/VVF31.125-250	C/VVF31.125-250
						100	125	150	300	BPZ:C/VVF31.92	C/VVF31.92
						100	125	150	315	BPZ:C/VVF31.150-315	C/VVF31.150-315

C/VVF31.. will be phased out around autumn 2014, replacement products VVF32..C will be available at the same time

Replacement sealing glands for VVF31..:

VVF/VXF31.., DN15...DN80: part no. 4 284 8806 0

VVF/VXF31.., DN100...DN150: part no. 4 679 5629 0

Field of application for VVF31..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	10 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0° C, stem heating element ASZ6.5 or ASZ6.6 is required.

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN10: VVF31..

Combinable actuator to VVF31..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF40..

VVF40..



2-port seat valves PN16 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4330
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{VS} value
Medium temperature	-10... 150 °C
Valve characteristic	Equal percentage
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 16

Range overview 2-port valves VVF40..

SAX..	SAX..	SKD..	SKD..	SKB..	SKB..	SKC..	SKC..	DN	k_{VS}	Stock No.	Product No.
Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s		[m ³ /h]		
[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]				
300	1600	300	1600	300	1600			15	1.9	BPZ:VVF40.15-1.9	VVF40.15-1.9
300	1600	300	1600	300	1600			15	2.5	BPZ:VVF40.15-2.5	VVF40.15-2.5
300	1600	300	1600	300	1600			15	3	BPZ:VVF40.15-3	VVF40.15-3
300	1600	300	1600	300	1600			15	4	BPZ:VVF40.15-4	VVF40.15-4
300	1550	300	1600	300	1600			25	5	BPZ:VVF40.25-5	VVF40.25-5
300	1550	300	1600	300	1600			25	6.3	BPZ:VVF40.25-6.3	VVF40.25-6.3
300	1550	300	1600	300	1600			25	7.5	BPZ:VVF40.25-7.5	VVF40.25-7.5
300	1550	300	1600	300	1600			25	10	BPZ:VVF40.25-10	VVF40.25-10
300	525	300	775	300	1600			40	12	BPZ:VVF40.40-12	VVF40.40-12
300	525	300	775	300	1600			40	16	BPZ:VVF40.40-16	VVF40.40-16
300	525	300	775	300	1600			40	19	BPZ:VVF40.40-19	VVF40.40-19
300	525	300	775	300	1600			40	25	BPZ:VVF40.40-25	VVF40.40-25
300	325	300	475	300	1300			50	31	BPZ:VVF40.50-31	VVF40.50-31
300	325	300	475	300	1300			50	40	BPZ:VVF40.50-40	VVF40.50-40

VVF40.. will be phased out around spring 2014, replacement products VVF42.. will be available at the same time

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF40..

Range overview 2-port valves VVF40..

SAX.. Δp_{\max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{\max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{\max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{\max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
175	175	275	275	300	750			65	49	BPZ:VVF40.65-49	VVF40.65-49
175	175	275	275	300	750			65	63	BPZ:VVF40.65-63	VVF40.65-63
100	100	175	175	300	500			80	78	BPZ:VVF40.80-78	VVF40.80-78
100	100	175	175	300	500			80	100	BPZ:VVF40.80-100	VVF40.80-100
						200	300	100	124	BPZ:VVF40.100-124	VVF40.100-124
						200	300	100	160	BPZ:VVF40.100-160	VVF40.100-160
						150	200	125	200	BPZ:VVF40.125-200	VVF40.125-200
						150	200	125	250	BPZ:VVF40.125-250	VVF40.125-250
						100	125	150	300	BPZ:VVF40.150-300	VVF40.150-300
						100	125	150	315	BPZ:VVF40.150-315	VVF40.150-315

VVF40.. will be phased out around spring 2014, replacement products VVF42.. will be available at the same time

Range overview 2-port valves C/VVF40..

SAX.. Δp_{\max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{\max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{\max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{\max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	1550	300	1600	300	1600			25	5	BPZ:C/VVF40.25-5	C/VVF40.25-5
300	1550	300	1600	300	1600			25	6.3	BPZ:C/VVF40.25-6.3	C/VVF40.25-6.3
300	1550	300	1600	300	1600			25	7.5	BPZ:C/VVF40.25-7.5	C/VVF40.25-7.5
300	1550	300	1600	300	1600			25	10	BPZ:C/VVF40.25-10	C/VVF40.25-10
300	525	300	775	300	1600			40	12	BPZ:C/VVF40.40-12	C/VVF40.40-12
300	525	300	775	300	1600			40	16	BPZ:C/VVF40.40-16	C/VVF40.40-16
300	525	300	775	300	1600			40	19	BPZ:C/VVF40.40-19	C/VVF40.40-19
300	525	300	775	300	1600			40	25	BPZ:C/VVF40.40-25	C/VVF40.40-25
300	325	300	475	300	1300			50	31	BPZ:C/VVF40.50-31	C/VVF40.50-31
300	325	300	475	300	1300			50	40	BPZ:C/VVF40.50-40	C/VVF40.50-40
175	175	275	275	300	750			65	49	BPZ:C/VVF40.65-49	C/VVF40.65-49
175	175	275	275	300	750			65	63	BPZ:C/VVF40.65-63	C/VVF40.65-63
100	100	175	175	300	500			80	78	BPZ:C/VVF40.80-78	C/VVF40.80-78
100	100	175	175	300	500			80	100	BPZ:C/VVF40.80-100	C/VVF40.80-100
						200	300	100	124	BPZ:C/VVF40.100-124	C/VVF40.100-124
						200	300	100	160	BPZ:C/VVF40.100-160	C/VVF40.100-160
						150	200	125	200	BPZ:C/VVF40.125-200	C/VVF40.125-200
						150	200	125	250	BPZ:C/VVF40.125-250	C/VVF40.125-250
						100	125	150	300	BPZ:C/VVF40.150-300	C/VVF40.150-300
						100	125	150	315	BPZ:C/VVF40.150-315	C/VVF40.150-315

C/VVF40.. will be phased out around autumn 2014, replacement products VVF42..C will be available at the same time



Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN16: VVF40..

Combinable actuator for VVF40..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF43..

2-port seat valve PN16 with flanged connections

VVF43..

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits



Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.01 % of k_{VS} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{VS} 250/400 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16

Range overview 2-port valves VVF43..

SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{VS} [m³/h]	Stock No.	Product No.
650	700	65	50	S55206-V100	VVF43.65-50
650	700	65	63	S55206-V101	VVF43.65-63
400	450	80	80	S55206-V102	VVF43.80-80
400	450	80	100	S55206-V103	VVF43.80-100
250	300	100	125	S55206-V104	VVF43.100-125
250	300	100	160	S55206-V105	VVF43.100-160
160	175	125	200	S55206-V106	VVF43.125-200
160	175	125	250	S55206-V107	VVF43.125-250
100	125	150	315	S55206-V108	VVF43.150-315
100	125	150	400	S55206-V109	VVF43.150-400

2-port seat valve PN16 with flanged connections, pressure compensated

VVF43..K

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits



Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.02 % of k_{VS} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{VS} 250/360 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel
PN class	PN 16

Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN16: VVF43..

Range overview 2-port valves VVF43..K

SKC... Δp_{\max} [kPa]	SKC... Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
800	1600	65	63	S55206-V110	VVF43.65-63K
800	1600	80	100	S55206-V111	VVF43.80-100K
800	1600	100	160	S55206-V112	VVF43.100-160K
800	1600	125	250	S55206-V113	VVF43.125-250K
800	1600	150	360	S55206-V114	VVF43.150-360K

Field of application for VVF43..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 180 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	16 bar	FEPM O-ring, silicone-free grease
Saturated steam	≤ 200 °C	15 bar abs	FEPM O-ring, silicone-free grease
Superheated steam	≤ 220 °C	15 bar abs	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	428488060
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VVF43..
VVF43.., DN65...150: part no. 7428400610

Combinable actuator for VVF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF47..

2-port seat valves PN16, flanged connections VVF47..

VVF47..

For use in heating, ventilating and air conditioning systems as a control valve for closed circuits

Data sheet	N4419
Leakage rate	0...0.1% of Kvs value
Medium temperature	1...95 °C
Valve characteristic	Equal percentage
Rangeability	DN 50...150: > 50
Material, valve body	Grey cast iron EN-GJL-250
Material, inside set	CrNi/bronze
PN class	PN 16



Range overview 2-port valves VVF47..

SBX.. Δp_{max} [kPa]	SBX.. Δp_s [kPa]	SBV.. Δp_{max} [kPa]	SBV.. Δp_s [kPa]	Stroke [mm]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300			20	50	40	S55220-V106	VVF47.50
175	175	300	400	20	65	63	S55220-V107	VVF47.65
100	100	250	250	20	80	100	S55220-V108	VVF47.80
		200	200	40	100	160	S55220-V109	VVF47.100
		300	400	40	125	250	S55220-V110	VVF47.125
		300	400	40	150	315	S55220-V111	VVF47.150

Field of application for VVF47..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	1...95 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

Combinable actuator for VVF47..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	N4519	S55160-A102	SBX31
AC 24 V	DC 0...10 V	120	N4519	S55160-A100	SBX61
AC 24 V	3-position	120	N4519	S55160-A101	SBX81
AC 230 V	3-position	180	N4519	S55160-A105	SBV31
AC 24 V	DC 0...10 V	180	N4519	S55160-A103	SBV61
AC 24 V	3-position	180	N4519	S55160-A104	SBV81



Globe and pressure independent combi valves

2-port flanged valves, PN25: VVF53..

VVF53..



2-port seat valve PN25 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated and superheated steam in open and closed circuits

Data sheet	N4405
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.01 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	DN 15, $k_{vs} \leq 1,25 \text{ m}^3/\text{h}$: >50 DN 15...150: >100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16 / PN 25

Range overview 2-port valves VVF53.. DN 15/ 20/ 25

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1200	2500	1200	2500	1200	2500			15	0.16	S55208-V100	VVF53.15-0.16
1200	2500	1200	2500	1200	2500			15	0.2	S55208-V101	VVF53.15-0.2
1200	2500	1200	2500	1200	2500			15	0.25	S55208-V102	VVF53.15-0.25
1200	2500	1200	2500	1200	2500			15	0.32	S55208-V103	VVF53.15-0.32
1200	2500	1200	2500	1200	2500			15	0.4	S55208-V104	VVF53.15-0.4
1200	2500	1200	2500	1200	2500			15	0.5	S55208-V105	VVF53.15-0.5
1200	2500	1200	2500	1200	2500			15	0.63	S55208-V106	VVF53.15-0.63
1200	2500	1200	2500	1200	2500			15	0.8	S55208-V107	VVF53.15-0.8
1200	2500	1200	2500	1200	2500			15	1	S55208-V108	VVF53.15-1
1200	2500	1200	2500	1200	2500			15	1.25	S55208-V109	VVF53.15-1.25
1200	2500	1200	2500	1200	2500			15	1.6	S55208-V110	VVF53.15-1.6
1200	2500	1200	2500	1200	2500			15	2	S55208-V111	VVF53.15-2
1200	2500	1200	2500	1200	2500			15	2.5	S55208-V112	VVF53.15-2.5
1200	2500	1200	2500	1200	2500			15	3.2	S55208-V113	VVF53.15-3.2
1200	2500	1200	2500	1200	2500			15	4	S55208-V114	VVF53.15-4
1200	2500	1200	2500	1200	2500			20	6.3	S55208-V116	VVF53.20-6.3
1200	1600	1200	2100	1200	2500			25	5	S55208-V117	VVF53.25-5
1200	1600	1200	2100	1200	2500			25	6.3	S55208-V118	VVF53.25-6.3
1200	1600	1200	2100	1200	2500			25	8	S55208-V119	VVF53.25-8
1200	1600	1200	2100	1200	2500			25	10	S55208-V120	VVF53.25-10

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN25: VVF53..

Range overview 2-port valves VVF53.. DN 32/40/50/65/80/100/125/150

SAX.. Δp_{\max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{\max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{\max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{\max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
750	900	1100	1200	1200	2500			32	16	S55208-V122	VVF53.32-16
500	550	650	750	1200	2000			40	12.5	S55208-V123	VVF53.40-12.5
500	550	650	750	1200	2000			40	16	S55208-V124	VVF53.40-16
500	550	650	750	1200	2000			40	20	S55208-V125	VVF53.40-20
500	550	650	750	1200	2000			40	25	S55208-V126	VVF53.40-25
300	350	400	450	1150	1200			50	31.5	S55208-V127	VVF53.50-31.5
300	350	400	450	1150	1200			50	40	S55208-V128	VVF53.50-40
						650	700	65	63	S55208-V129	VVF53.65-63
						400	450	80	100	S55208-V130	VVF53.80-100
						250	300	100	160	S55208-V131	VVF53.100-160
						160	175	125	250	S55208-V132	VVF53.125-250
						100	125	150	400	S55208-V133	VVF53.150-400

2-port seat valve PN25 with flanged connections, pressure compensated

VVF53..K

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits

Data sheet	N4405
Stroke	DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/360 linear
Rangeability	> 100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel
PN class	PN 25



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Range overview 2-port valves VVF53..K

SAX.. Δp_{\max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{\max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{\max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{\max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1200	2500	1200	2500	1200	2500			50	40	S55208-V134	VVF53.50-40K
						1200	2500	65	63	S55208-V135	VVF53.65-63K
						1200	2500	80	100	S55208-V136	VVF53.80-100K
						1200	2500	100	160	S55208-V137	VVF53.100-160K
						1200	2500	125	250	S55208-V138	VVF53.125-250K
						1200	2500	150	360	S55208-V139	VVF53.150-360K

Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN25: VVF53..

Field of application for VVF53..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 220 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	25 bar	FEPM O-ring, silicone-free grease
Saturated steam	≤ 200 °C	16 bar abs	FEPM O-ring, silicone-free grease
Superheated steam	≤ 220 °C	16 bar abs	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.

Media < -5 °C requires sealing gland 428488060.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	428488060
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VVF53..

VVF53.., DN15...150: part no. 7428400610

Valves and actuators
Globe and pressure independent combi valves
2-port flanged valves, PN25: VVF53..

Combinable actuator to VVF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	SKC62UA



Globe and pressure independent combi valves
2-port flanged valves, PN40: VVF61..

VVF61..



2-port seat valves PN40 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated and superheated steam in open and closed circuits

Control devices MK..6.. (water, steam) are TÜV tested control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4382
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-25...220 °C (350 °C)
Valve characteristic	Equal percentage
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	CrNi steel
PN class	PN 40

Range overview 2-port valves VVF61..

SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	4000	1600	4000			15	0.19	BPZ:VVF61.09	VVF61.09
1600	4000	1600	4000			15	0.3	BPZ:VVF61.10	VVF61.10
1600	4000	1600	4000			15	0.45	BPZ:VVF61.11	VVF61.11
1600	4000	1600	4000			15	0.7	BPZ:VVF61.12	VVF61.12
1600	4000	1600	4000			15	1.2	BPZ:VVF61.13	VVF61.13
1600	4000	1600	4000			15	1.9	BPZ:VVF61.14	VVF61.14
1600	4000	1600	4000			15	3	BPZ:VVF61.15	VVF61.15
1600	2250	1600	4000			25	3	BPZ:VVF61.23	VVF61.23
1600	2250	1600	4000			25	5	BPZ:VVF61.24	VVF61.24
1600	2250	1600	4000			25	7.5	BPZ:VVF61.25	VVF61.25
		1600	4000			40	12	BPZ:VVF61.39	VVF61.39
		1600	4000			40	19	BPZ:VVF61.40	VVF61.40
		1600	4000			50	19	BPZ:VVF61.49	VVF61.49
		1600	4000			50	31	BPZ:VVF61.50	VVF61.50
				1000	4000	65	49	BPZ:VVF61.65	VVF61.65
				700	4000	80	78	BPZ:VVF61.80	VVF61.80
				450	4000	100	124	BPZ:VVF61.90	VVF61.90
				300	4000	125	200	BPZ:VVF61.91	VVF61.91
				200	4000	150	300	BPZ:VVF61.92	VVF61.92

Control devices MK..6.. (water, steam) are TÜV tested per DIN EN 14597 and can therefore be used as control devices with safety shut-off function for protection against excessive temperature and pressure.

Replacement sealing glands for VVF61..

VVF/VXF., DN15...DN25: part no. 4 284 8829 0
 VVF/VXF., DN40...DN150: part no. 4 679 5630 0
 VVF/VXF61..2, DN15...DN150: part no. 4 284 8829 0
 VVF/VXF61..5, DN15...25: part no. 4 284 9538 0
 VVF/VXF61..5, DN40...DN150: part no. 4 284 9540 0

Field of application for VVF61..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-25...220 °C	40 bar ISO 7005	PTFE sleeve	--
High-temperature hot water	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Saturated steam / Super-heated steam	≤ 220 °C	17 bar, ≤ DN25 11 bar, ≥ DN40	PTFE sleeve	--
Heat transfer oil	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	220...350 °C	40 bar ISO 7005	PTFE sleeve	2 1)

For media < 0 °C, stem heating element ASZ6.5 is required.

1) Special versions with extended neck are available for applications with heat transfer oil up to 350 °C (only for types VVF61.13 to VVF61.92). When ordering, please give Product No. with type suffix, e.g. VVF61.252



Valves and actuators

Globe and pressure independent combi valves

2-port flanged valves, PN40: VVF61..

Combinable actuator for VVF61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Valves and actuators

Globe and pressure independent combi valves 2-port flanged valves with magnetic actuators, PN16: MVF461H..

Modulating control valves with magnetic actuator, PN16, flanged

MVF461H..

2-port valves PN 16 with magnetic actuator for modulating control of high-temperature hot water or steam.

With positioning control, position feedback signal, spring return function and manual control.



Data sheet	N4361
Operating voltage	AC 24 V DC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	< 2 s
Spring return function	A-> AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
PN class	PN 16
Permissible operating pressure	Water < 120 °C: 1600 kPa Water > 120 °C: 1300 kPa Saturated steam: 900 kPa
Leakage rate	< 0.05% of k_{vs} value
Medium temperature	1...180 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel

Range overview flanged valves MVF461H..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consump- tion [VA]	Stock No.	Product No.
15	0.6	1000	1000	33	BPZ:MVF461H15-0.6	MVF461H15-0.6
15	1.5	1000	1000	33	BPZ:MVF461H15-1.5	MVF461H15-1.5
15	3	1000	1000	33	BPZ:MVF461H15-3	MVF461H15-3
20	5	1000	1000	33	BPZ:MVF461H20-5	MVF461H20-5
25	8	1000	1000	33	BPZ:MVF461H25-8	MVF461H25-8
32	12	1000	1000	43	BPZ:MVF461H32-12	MVF461H32-12
40	20	1000	1000	65	BPZ:MVF461H40-20	MVF461H40-20
50	30	1000	1000	65	BPZ:MVF461H50-30	MVF461H50-30

MVF.. valves with magnetic actuators are UL-listed.

Accessories for MVF461..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		BPZ:ASE12	ASE12

Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..

MK..5..

Control device PN25, safety function to DIN EN 14597

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems. For open and closed circuits. With positioning control, position feedback signal and spring return function.



Data sheet	N4387
Leakage rate	0...0.05 % of k_{vs} value
Medium temperature	1...150 °C
Valve characteristic	Equal percentage
Rangeability	DN15: 50...100 DN25...40: 100...200
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 25
Spring return function	Yes (5...25 s)
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..532..) AC 24 V (MK..562..)
Positioning signal	3-position (MK..532..) DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..) 0...1000 Ohm (MK..562..)
Position feedback	DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..)
Positioning time	120 s (MK..532..) Open 50 s (MKD562..) Close 15 s (MKD562..) Open 120 s (MKB562..) Close 10 s (MKB562..)

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Valves and actuators
Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..

Range overview control device safety function MKD532..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	1600	15	0.16	S55329-M100-A100	MKD532.15-0.16
1600	1600	15	0.2	S55329-M101-A100	MKD532.15-0.2
1600	1600	15	0.25	S55329-M102-A100	MKD532.15-0.25
1600	1600	15	0.32	S55329-M103-A100	MKD532.15-0.32
1600	1600	15	0.4	S55329-M104-A100	MKD532.15-0.4
1600	1600	15	0.5	S55329-M105-A100	MKD532.15-0.5
1600	1600	15	0.63	S55329-M106-A100	MKD532.15-0.63
1600	1600	15	0.8	S55329-M107-A100	MKD532.15-0.8
1600	1600	15	1	S55329-M108-A100	MKD532.15-1
1600	1600	15	1.25	S55329-M109-A100	MKD532.15-1.25
1600	1600	15	1.6	S55329-M110-A100	MKD532.15-1.6
1600	1600	15	2	S55329-M111-A100	MKD532.15-2
1600	1600	15	2.5	S55329-M112-A100	MKD532.15-2.5
1600	1600	15	3.2	S55329-M113-A100	MKD532.15-3.2
1600	1600	15	4	S55329-M114-A100	MKD532.15-4
1600	1600	25	5	S55329-M115-A100	MKD532.25-5
1600	1600	25	6.3	S55329-M116-A100	MKD532.25-6.3
1600	1600	25	8	S55329-M117-A100	MKD532.25-8
1600	1600	25	10	S55329-M118-A100	MKD532.25-10
600	600	40	12.5	S55329-M119-A100	MKD532.40-12.5
600	600	40	16	S55329-M120-A100	MKD532.40-16
600	600	40	20	S55329-M121-A100	MKD532.40-20
600	600	40	25	S55329-M122-A100	MKD532.40-25

MKD532...: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..



Valves and actuators

Globe and pressure independent combi valves

Control device with safety function, PN25: MKD562..

Range overview control device safety function MKD562..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	1600	15	0.16	S55329-M100-A101	MKD562.15-0.16
1600	1600	15	0.2	S55329-M101-A101	MKD562.15-0.2
1600	1600	15	0.25	S55329-M102-A101	MKD562.15-0.25
1600	1600	15	0.32	S55329-M103-A101	MKD562.15-0.32
1600	1600	15	0.4	S55329-M104-A101	MKD562.15-0.4
1600	1600	15	0.5	S55329-M105-A101	MKD562.15-0.5
1600	1600	15	0.63	S55329-M106-A101	MKD562.15-0.63
1600	1600	15	0.8	S55329-M107-A101	MKD562.15-0.8
1600	1600	15	1	S55329-M108-A101	MKD562.15-1
1600	1600	15	1.25	S55329-M109-A101	MKD562.15-1.25
1600	1600	15	1.6	S55329-M110-A101	MKD562.15-1.6
1600	1600	15	2	S55329-M111-A101	MKD562.15-2
1600	1600	15	2.5	S55329-M112-A101	MKD562.15-2.5
1600	1600	15	3.2	S55329-M113-A101	MKD562.15-3.2
1600	1600	15	4	S55329-M114-A101	MKD562.15-4
1600	1600	25	5	S55329-M115-A101	MKD562.25-5
1600	1600	25	6.3	S55329-M116-A101	MKD562.25-6.3
1600	1600	25	8	S55329-M117-A101	MKD562.25-8
1600	1600	25	10	S55329-M118-A101	MKD562.25-10
600	600	40	12.5	S55329-M119-A101	MKD562.40-12.5
600	600	40	16	S55329-M120-A101	MKD562.40-16
600	600	40	20	S55329-M121-A101	MKD562.40-20
600	600	40	25	S55329-M122-A101	MKD562.40-25

MKD562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Valves and actuators
Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..

Range overview control device safety function MKD532..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	2500	15	0.16	S55329-M100-A110	MKB532.15-0.16
1600	2500	15	0.2	S55329-M101-A110	MKB532.15-0.2
1600	2500	15	0.25	S55329-M102-A110	MKB532.15-0.25
1600	2500	15	0.32	S55329-M103-A110	MKB532.15-0.32
1600	2500	15	0.4	S55329-M104-A110	MKB532.15-0.4
1600	2500	15	0.5	S55329-M105-A110	MKB532.15-0.5
1600	2500	15	0.63	S55329-M106-A110	MKB532.15-0.63
1600	2500	15	0.8	S55329-M107-A110	MKB532.15-0.8
1600	2500	15	1	S55329-M108-A110	MKB532.15-1
1600	2500	15	1.25	S55329-M109-A110	MKB532.15-1.2
1600	2500	15	1.6	S55329-M110-A110	MKB532.15-1.6
1600	2500	15	2	S55329-M111-A110	MKB532.15-2
1600	2500	15	2.5	S55329-M112-A110	MKB532.15-2.5
1600	2500	15	3.2	S55329-M113-A110	MKB532.15-3.2
1600	2500	15	4	S55329-M114-A110	MKB532.15-4
1600	2500	25	5	S55329-M115-A110	MKB532.25-5
1600	2500	25	6.3	S55329-M116-A110	MKB532.25-6.3
1600	2500	25	8	S55329-M117-A110	MKB532.25-8
1600	2500	25	10	S55329-M118-A110	MKB532.25-10
1600	2000	40	12.5	S55329-M119-A110	MKB532.40-12
1600	2000	40	16	S55329-M120-A110	MKB532.40-16
1600	2000	40	20	S55329-M121-A110	MKB532.40-20
1600	2000	40	25	S55329-M122-A110	MKB532.40-25

MKD532...: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..



Valves and actuators

Globe and pressure independent combi valves

Control device with safety function, PN25: MK..5..

Range overview control device safety function MKD562..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	2500	15	0.16	S55329-M100-A111	MKB562.15-0.16
1600	2500	15	0.2	S55329-M101-A111	MKB562.15-0.2
1600	2500	15	0.25	S55329-M102-A111	MKB562.15-0.25
1600	2500	15	0.32	S55329-M103-A111	MKB562.15-0.32
1600	2500	15	0.4	S55329-M104-A111	MKB562.15-0.4
1600	2500	15	0.5	S55329-M105-A111	MKB562.15-0.5
1600	2500	15	0.63	S55329-M106-A111	MKB562.15-0.63
1600	2500	15	0.8	S55329-M107-A111	MKB562.15-0.8
1600	2500	15	1	S55329-M108-A111	MKB562.15-1
1600	2500	15	1.25	S55329-M109-A111	MKB562.15-1.2
1600	2500	15	1.6	S55329-M110-A111	MKB562.15-1.6
1600	2500	15	2	S55329-M111-A111	MKB562.15-2
1600	2500	15	2.5	S55329-M112-A111	MKB562.15-2.5
1600	2500	15	3.2	S55329-M113-A111	MKB562.15-3.2
1600	2500	15	4	S55329-M114-A111	MKB562.15-4
1600	2500	25	5	S55329-M115-A111	MKB562.25-5
1600	2500	25	6.3	S55329-M116-A111	MKB562.25-6.3
1600	2500	25	8	S55329-M117-A111	MKB562.25-8
1600	2500	25	10	S55329-M118-A111	MKB562.25-10
1600	2000	40	12.5	S55329-M119-A111	MKB562.40-12
1600	2000	40	16	S55329-M120-A111	MKB562.40-16
1600	2000	40	20	S55329-M121-A111	MKB562.40-20
1600	2000	40	25	S55329-M122-A111	MKB562.40-25

MKD562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Accessories for MK..5..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	ASC1.6
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	ASC9.3
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	ASZ7.3
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	ASZ7.31
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	ASZ7.32

Valves and actuators
Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..G

Control device PN25, safety function to DIN EN 14597, steam

MK..5..G

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems using steam as medium. For closed circuits.



Data sheet	N4389
Leakage rate	0...0.05 % of k_{vs} value
Medium temperature	1...180 °C
Valve characteristic	Equal percentage
Rangeability	DN15: 50...100 DN25...40: 100...200
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 25
Spring return function	Yes
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..532..) AC 24 V (MK..562..)
Positioning signal	3-position (MK..532..) DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..) 0...1000 Ohm (MK..562..)
Position feedback	DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..)
Positioning time	120 s (MK..532..) Open 50 s (MKD562..) Close 15 s (MKD562..) Open 120 s (MKB562..) Close 10 s (MKB562..)

Valves and actuators

Globe and pressure independent combi valves Control device with safety function, PN25: MK..5..G

Range overview control device safety function MKB532..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
600	600	15	1.25	S55329-M123-A110	MKB532.15-1.2G
600	600	15	1.6	S55329-M124-A110	MKB532.15-1.6G
600	600	15	2	S55329-M125-A110	MKB532.15-2G
600	600	15	2.5	S55329-M126-A110	MKB532.15-2.5G
600	600	15	3.2	S55329-M127-A110	MKB532.15-3.2G
600	600	15	4	S55329-M128-A110	MKB532.15-4G
600	600	25	5	S55329-M129-A110	MKB532.25-5G
600	600	25	6.3	S55329-M130-A110	MKB532.25-6.3G
600	600	25	8	S55329-M131-A110	MKB532.25-8G
600	600	25	10	S55329-M132-A110	MKB532.25-10G
600	600	40	12.5	S55329-M133-A110	MKB532.40-12G
600	600	40	16	S55329-M134-A110	MKB532.40-16G
600	600	40	20	S55329-M135-A110	MKB532.40-20G
600	600	40	25	S55329-M136-A110	MKB532.40-25G

MKB532..: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Range overview control device safety function MKB562..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
600	600	15	1.25	S55329-M123-A111	MKB562.15-1.2G
600	600	15	1.6	S55329-M124-A111	MKB562.15-1.6G
600	600	15	2	S55329-M125-A111	MKB562.15-2G
600	600	15	2.5	S55329-M126-A111	MKB562.15-2.5G
600	600	15	3.2	S55329-M127-A111	MKB562.15-3.2G
600	600	15	4	S55329-M128-A111	MKB562.15-4G
600	600	25	5	S55329-M129-A111	MKB562.25-5G
600	600	25	6.3	S55329-M130-A111	MKB562.25-6.3G
600	600	25	8	S55329-M131-A111	MKB562.25-8G
600	600	25	10	S55329-M132-A111	MKB562.25-10G
600	600	40	12.5	S55329-M133-A111	MKB562.40-12G
600	600	40	16	S55329-M134-A111	MKB562.40-16G
600	600	40	20	S55329-M135-A111	MKB562.40-20G
600	600	40	25	S55329-M136-A111	MKB562.40-25G

MKB562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Valves and actuators
Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..G

Accessories for MK..5..G

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	ASC1.6
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	ASC9.3
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	ASZ7.3
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	ASZ7.31
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	ASZ7.32

Globe and pressure independent combi valves

Control device with safety function, PN25: MK..6..

MK..6..



Control devices PN40, safety function to DIN EN 14597

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems. For open and closed circuits.

Data sheet	N4388
Leakage rate	0...0.05 % of k_{vs} value
Medium temperature	1...220 °C
Valve characteristic	Equal percentage
Rangeability	DN15...40: > 50 DN50...150: > 100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	Stainless steel
PN class	PN 40
Spring return function	Yes (5...25 s)
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..632..) AC 24 V (MK..662..)
Positioning signal	3-position (MK..632..) DC 0...10 V (MK..662..) DC 4...20 mA (MK..662..) 0...1000 Ohm (MK..662..)
Position feedback	DC 0...10 V (MK..662..) DC 4...20 mA (MK..662..)
Positioning time	120 s (MK..632..) Open 120 s (MKB662..) Close 10 s (MKB662..) Open 120 s (MKC662..) Close 20 s (MKC662..)

Range overview control device safety function MKB632..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	3200	15	0.19	S55329-M180-A110	MKB632.15-0.19
1600	3200	15	0.3	S55329-M181-A110	MKB632.15-0.3
1600	3200	15	0.45	S55329-M182-A110	MKB632.15-0.45
1600	3200	15	0.7	S55329-M183-A110	MKB632.15-0.7
1600	3200	15	1.2	S55329-M184-A110	MKB632.15-1.2
1600	3200	15	1.9	S55329-M185-A110	MKB632.15-1.9
1600	3200	15	3	S55329-M186-A110	MKB632.15-3
1600	3200	25	5	S55329-M187-A110	MKB632.25-5
1600	3200	25	7.5	S55329-M188-A110	MKB632.25-7.5
1600	3200	40	12	S55329-M189-A110	MKB632.40-12
1600	3200	40	19	S55329-M190-A110	MKB632.40-19
1600	3200	50	31	S55329-M191-A110	MKB632.50-31

MKB632...: AC 230 V, 3-position

Valves and actuators
Globe and pressure independent combi valves
Control device with safety function, PN25: MK..6..

Range overview control device safety function MKB662..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	3200	15	0.19	S55329-M180-A111	MKB662.15-0.19
1600	3200	15	0.3	S55329-M181-A111	MKB662.15-0.3
1600	3200	15	0.45	S55329-M182-A111	MKB662.15-0.45
1600	3200	15	0.7	S55329-M183-A111	MKB662.15-0.7
1600	3200	15	1.2	S55329-M184-A111	MKB662.15-1.2
1600	3200	15	1.9	S55329-M185-A111	MKB662.15-1.9
1600	3200	15	3	S55329-M186-A111	MKB662.15-3
1600	3200	25	5	S55329-M187-A111	MKB662.25-5
1600	3200	25	7.5	S55329-M188-A111	MKB662.25-7.5
1600	3200	40	12	S55329-M189-A111	MKB662.40-12
1600	3200	40	19	S55329-M190-A111	MKB662.40-19
1600	3200	50	31	S55329-M191-A111	MKB662.50-31

MKB662...: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Range overview control device safety function MKC632..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1000	3200	65	49	S55329-M192-A120	MKC632.65-49
700	3200	80	78	S55329-M193-A120	MKC632.80-78
450	3200	100	124	S55329-M194-A120	MKC632.100-124
300	3200	125	200	S55329-M195-A120	MKC632.125-200
200	3200	150	300	S55329-M196-A120	MKC632.150-300

MKC632...: AC 230 V, 3-position

Range overview control device safety function MKC662..

Δp_{\max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1000	3200	65	49	S55329-M192-A121	MKC662.65-49
700	3200	80	78	S55329-M193-A121	MKC662.80-78
450	3200	100	124	S55329-M194-A121	MKC662.100-124
300	3200	125	200	S55329-M195-A121	MKC662.125-200
200	3200	150	300	S55329-M196-A121	MKC662.150-300

MKC662...: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm



Valves and actuators

Globe and pressure independent combi valves

Control device with safety function, PN25: MK..6..

Accessories for MK..6..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../SKC6../SKD6..	N4566	BPZ:ASC1.6	ASC1.6
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	ASC9.3
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	ASZ7.3
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	ASZ7.31
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	ASZ7.32

Valves and actuators

Globe and pressure independent combi valves Straight and angle threaded valves, PN10, DIN: VDN1.. / VEN1..

2-port and angle valves PN10, to DIN

VDN1../VEN1..

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

Data sheet	N2105
Medium temperature	1...120 °C
PN class	PN 10
Δp_{V100}	5...20 kPa
Material, valve body	Brass Ms58, mat nickel-plated
Permissible operating pressure	1000 kPa
Δp_{max}	60 kPa

The valves can be combined with Siemens actuators RTN../SSA../STA..



Range overview straight valves VDN1..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R 3/8 "	0.09...0.63	60	BPZ:VDN110	VDN110
15	Rp/R 1/2 "	0.10...0.89	60	BPZ:VDN115	VDN115
20	Rp/R 3/4 "	0.31...1.41	60	BPZ:VDN120	VDN120

Range overview angle valves VEN1..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R 3/8 "	0.09...0.63	60	BPZ:VEN110	VEN110
15	Rp/R 1/2 "	0.10...0.89	60	BPZ:VEN115	VEN115
20	Rp/R 3/4 "	0.31...1.41	60	BPZ:VEN120	VEN120

Valves and actuators

Globe and pressure independent combi valves

Straight and angle threaded valves, PN10, DIN: VDN1.. / VEN1..

Combinable actuator for VDN1.. / VEN1..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	RTN51
					N4211	BPZ:RTN51G	RTN51G
					N2111	BPZ:RTN71	RTN71
					N2111	BPZ:RTN81	RTN81
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	STA73PR/00
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	SSA31
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	SSA31.1
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	SSA31/00
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	SSA61
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	SSA61/00
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	SSA81
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	SSA81.1
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	SSA81/00
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	STA63

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valves and actuators

Globe and pressure independent combi valves

Straight and angle threaded valves, PN10, NF: VDN2.. / VEN2.. / VUN2..

2-port seat and angle valves PN10, to NF

VDN2../VEN2../VUN2..

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

Data sheet	N2106
Medium temperature	1...120 °C
PN class	PN 10
Δp_{V100}	5...20 kPa
Material, valve body	Brass Ms58, mat nickel-plated
Permissible operating pressure	1000 kPa

The valves can be combined with Siemens actuators RTN../SSA../STA..



Range overview straight valves VDN2..

DN	Connecting thread	k_v [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R 3/8 "	0.09...0.63	60	BPZ:VDN210	VDN210
15	Rp/R 1/2 "	0.10...0.89	60	BPZ:VDN215	VDN215
20	Rp/R 3/4 "	0.31...1.41	60	BPZ:VDN220	VDN220

Range overview angle valves VEN2..

DN	Connecting thread	k_v [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R 3/8 "	0.09...0.63	60	BPZ:VEN210	VEN210
15	Rp/R 1/2 "	0.10...0.89	60	BPZ:VEN215	VEN215
20	Rp/R 3/4 "	0.31...1.41	60	BPZ:VEN220	VEN220

Range overview reverse angle valves VUN2..

DN	Connecting thread	k_v [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R 3/8 "	0.14...0.60	60	BPZ:VUN210	VUN210
15	Rp/R 1/2 "	0.13...0.77	60	BPZ:VUN215	VUN215

Valves and actuators

Globe and pressure independent combi valves

Straight and angle threaded valves, PN10, NF: VDN2.. / VEN2.. / VUN2..

Combinable actuator to VDN2.. / VEN2.. / VUN2..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	RTN51
					N4211	BPZ:RTN51G	RTN51G
					N2111	BPZ:RTN71	RTN71
					N2111	BPZ:RTN81	RTN81
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	STA73PR/00
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	SSA31
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	SSA31.1
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	SSA31/00
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	SSA61
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	SSA61/00
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	SSA81
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	SSA81.1
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	SSA81/00
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	STA63

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valves and actuators
Globe and pressure independent combi valves
Compression fittings and manual knobs: AVN.. / ATN..

Valve insert for VDN../VEN.. und VUN..

AVN1

Valve insert is suited for use with all types of valves of the VDN../VEN../VUN.. ranges.

Data sheet N2100



Stock No. Product No.

BPZ:AVN1 **AVN1**

Manual knob, white, for VDN../VEN../VUN../VPD../VPE..

ATN4

For manual adjustment of valve.

The manual knobs are suited for use with all types of valves of the VDN../VEN../VUN../VPD... and VPE.. ranges.

Data sheet N2100



Stock No. Product No.

BPZ:ATN4 **ATN4**

Manual knob, white, RAL9016, for VDN../VEN../VUN../VPD../VPE..

ATN3

For manual adjustment of valve.

The manual knobs are suited for use with all types of valves of the VDN../VEN../VUN../VPD... and VPE.. ranges.

Data sheet N2100



Stock No. Product No.

BPZ:ATN3 **ATN3**



Valves and actuators

Globe and pressure independent combi valves

Straight and angle lockshield valves: ADN.. / AEN..

ADN../AEN..



Two-port seat and angle lockshield valves

Lockshield valves with throttling function for hydraulic balancing and shut-off function when removing / replacing radiator.
Adjustable flow capacity

Data sheet

N2107

Medium

Water with anti-freeze

Medium temperature

1...120 °C

PN class

PN 10

Material, valve body

Brass Ms58, mat nickel-plated

Range overview straight lockshield valves ADN..

DN	Connecting thread	k_v [m ³ /h]	Stock No.	Product No.
10	Rp/R 3/8 "	0...1.8	BPZ:ADN10	ADN10
15	Rp/R 1/2 "	0...2.5	BPZ:ADN15	ADN15
20	Rp/R 3/4 "	0...3.0	BPZ:ADN20	ADN20

Range overview angle lockshield valves AEN..

DN	Connecting thread	k_v [m ³ /h]	Stock No.	Product No.
10	Rp/R 3/8 "	0...1.8	BPZ:AEN10	AEN10
15	Rp/R 1/2 "	0...2.5	BPZ:AEN15	AEN15
20	Rp/R 3/4 "	0...3.0	BPZ:AEN20	AEN20

Valves and actuators
Globe and pressure independent combi valves
Straight valves, PN10, DIN: VD1..CLC..

2-port small valves PN10, DIN, 2.5 mm stroke

VD1..CLC..

Small valves with higher k_v -values, for use in ventilation and air conditioning systems for water-side control of chilled ceilings and terminal units in closed circuits. Adjustable flow capacity.
 Permissible media: water (to VDI 2035), water with anti-freeze.



Data sheet	N2103
Medium temperature	1...110 °C
PN class	PN 10
Δp_{V100}	5...20 kPa
Material, valve body	Brass, mat, nickel plated
Stroke	2.5 mm

The valves can be combined with Siemens actuators SSA.../STA..

Range overview straight valves VD1..CLC..

DN	Connecting thread	k_v [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
15	Rp/R 1/2 "	0.25...1.9	150	BPZ:VD115CLC	VD115CLC
20	Rp/R 3/4 "	0.25...2.6	150	BPZ:VD120CLC	VD120CLC
25	Rp/R 1 "	0.25...2.6	150	BPZ:VD125CLC	VD125CLC

Valves and actuators

Globe and pressure independent combi valves

Straight valves, PN10, DIN: VD1..CLC..

Combinable actuator to VD1..CLC

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	RTN51
					N4211	BPZ:RTN51G	RTN51G
					N2111	BPZ:RTN71	RTN71
					N2111	BPZ:RTN81	RTN81
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	STA73PR/00
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	SSA31
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	SSA31.1
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	SSA31/00
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	SSA61
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	SSA61/00
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	SSA81
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	SSA81.1
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	SSA81/00
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	STA63

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valves and actuators
Globe and pressure independent combi valves
Compression fittings for radiator valves

Compression fittings for copper and soft steel pipes

AVN1..-1..

For connecting copper or soft steel pipes to valves of the VDN../VEN../VUN.. ranges and lockshield valves of the ADN../AEN... ranges



Data sheet N2100

Range overview compression fittings AVN1..-1..

DN	Connecting thread	Pipe diameter [mm]	Stock No.	Product No.
15	R ½ "	15	BPZ:AVN15-15	AVN15-15

Compression fittings plastic pipes with aluminum foil

AVN15A..

For connecting plastic pipes to valves of the VDN../VEN../VUN.. ranges and lockshield valves of the ADN../AEN... ranges



Data sheet N2100

Range overview compression fittings AVN15A..

DN	Connecting thread	Pipe diameter [mm]	Stock No.	Product No.
15	R ½ "	16	BPZ:AVN15A16	AVN15A16

Valves and actuators

Globe and pressure independent combi valves

2-port threaded valves, PN16: VVP45..

VVP45..



2-port seat valves, PN16

2-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport up to k_{vs} 6.3: equal-percentage Throughport from k_{vs} 10: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel / Rg5 / brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing or 2-port valves, not as diverting valves.

V..P45..S are suitable for Conex® compression fittings.

VVP45..S and VMP45..S for k_{vs} values 0.63, 1, 1.6, 2.5 m³/h, datasheet N4854.

Range overview 2-port valves VVP45..

SSB.. Δp_{max} [kPa]	SSB.. Δp_s [kPa]	SSC.. Δp_{max} [kPa]	SSC.. Δp_s [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
400	725	300	300	G ½ B "	10	0.25	BPZ:VVP45.10-0.25	VVP45.10-0.25
400	725			G ½ B "	10	0.4	BPZ:VVP45.10-0.4	VVP45.10-0.4
400	725			G ½ B "	10	0.63	BPZ:VVP45.10-0.63	VVP45.10-0.63
400	725			G ½ B "	10	1	BPZ:VVP45.10-1	VVP45.10-1
400	725			G ½ B "	10	1.6	BPZ:VVP45.10-1.6	VVP45.10-1.6
350	350			G ¾ B "	15	2.5	BPZ:VVP45.15-2.5	VVP45.15-2.5
350	350			G 1 B "	20	4	BPZ:VVP45.20-4	VVP45.20-4
300	300			G 1¼ B "	25	6.3	BPZ:VVP45.25-6.3	VVP45.25-6.3
		300	300	G 1½ B "	25	10	BPZ:VVP45.25-10	VVP45.25-10
		175	175	G 2 B "	32	16	BPZ:VVP45.32-16	VVP45.32-16
		75	75	G 2¼ B "	40	25	BPZ:VVP45.40-25	VVP45.40-25

Range overview 2-port valves VVP45..S

SSB.. Δp_{max} [kPa]	SSB.. Δp_s [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
400	725	G ½ B "	10	0.63	BPZ:VVP45.10-0.63S	VVP45.10-0.63S
400	725	G ½ B "	10	1	BPZ:VVP45.10-1S	VVP45.10-1S
400	725	G ½ B "	10	1.6	BPZ:VVP45.10-1.6S	VVP45.10-1.6S
350	350	W 1½-14 "	15	2.5	BPZ:VVP45.15-2.5S	VVP45.15-2.5S

Field of applications for VVP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...110 °C	16 bar ISO 7628	EPDM O-ring

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: VVP45..

Accessories for VVP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Combinable actuator for VVP45..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150		N4891	BPZ:SSB31	SSB31
AC 24 V DC 24 V	DC 0...10 V	75		N4891	BPZ:SSB61	SSB61
AC 24 V	3-position	150		N4891	BPZ:SSB81	SSB81
AC 230 V	3-position	150	No	N4895	BPZ:SSC31	SSC31
AC 24 V DC 24 V	DC 0...10 V	30	No	N4895	BPZ:SSC61	SSC61
AC 24 V DC 24 V	DC 0...10 V	30	Yes (15 s)	N4895	BPZ:SSC61.5	SSC61.5
AC 24 V	3-position	150	No	N4895	BPZ:SSC81	SSC81

Valves and actuators

Globe and pressure independent combi valves

2-port threaded valves, PN16: VVP45..N

VVP45..N



Threaded 2-port seat valves, PN16

In ventilation and air-conditioning systems for water-side terminal unit control in closed circuits, e.g.

- induction units, fan coil units, small reheaters and small re-coolers, for use in
- 2-pipe systems with one heat exchanger for heating and cooling
- 4-pipe systems with two separate heat exchangers for heating and cooling

With threaded connections to ISO 228-1.

For low temperature hot water, chilled water, water with anti-freeze.

Data sheet	N4840
Stroke	5.5 mm
Leakage rate	0...0.1 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Equal percentage
Material, valve body	Red brass (CC499K)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 2-port valves VVP45..N

Connecting thread	Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
G ¾ B "	400	550	15	2.5	BPZ:VVP45.15-2.5N	VVP45.15-2.5N
G 1 B "	400	550	20	4	BPZ:VVP45.20-4N	VVP45.20-4N
G 1¼ B "	400	500	25	6.3	BPZ:VVP45.25-6.3N	VVP45.25-6.3N

Combinable actuators for VVP45..N

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4894	BPZ:SSY31	SSY31
AC 24 V	3-position	150	N4894	BPZ:SSY81	SSY81

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: VVP47..

2-port valves, PN16

VVP47..

2-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{vs} value
Leakage rate bypass	0...0.05 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa



Range overview 3-port VVP47..

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	10	0.25	BPZ:VVP47.10-0.25	VVP47.10-0.25
G ½ B "	10	0.4	BPZ:VVP47.10-0.4	VVP47.10-0.4
G ½ B "	10	0.63	BPZ:VVP47.10-0.63	VVP47.10-0.63
G ½ B "	10	1	BPZ:VVP47.10-1	VVP47.10-1
G ½ B "	10	1.6	BPZ:VVP47.10-1.6	VVP47.10-1.6
G ¾ B "	15	2.5	BPZ:VVP47.15-2.5	VVP47.15-2.5
G 1 B "	20	4	BPZ:VVP47.20-4	VVP47.20-4

Range overview 3-port VVP47..S

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	10	0.63	BPZ:VVP47.10-0.63S	VVP47.10-0.63S
G ½ B "	10	1	BPZ:VVP47.10-1S	VVP47.10-1S
G ½ B "	10	1.6	BPZ:VVP47.10-1.6S	VVP47.10-1.6S
W11/8-14	15	2.5	BPZ:VVP47.15-2.5S	VVP47.15-2.5S

Overview differential pressures

SFP../SSP.. Δp_s [kPa]	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_s [kPa]	STP.. Δp_{max} [kPa]	Product No.
1000	400	700	400	VVP47.10-0.25
1000	400	700	400	VVP47.10-0.4
500	400	250	250	VVP47.10-0.63
500	400	250	250	VVP47.10-1
300	300	150	150	VVP47.10-1.6
300	300	150	150	VVP47.15-2.5
175	175	100	100	VVP47.20-4



Valves and actuators

Globe and pressure independent combi valves 2-port threaded valves, PN16: VVP47..

Combinable actuator to VVP47..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP31	SSP31
AC 230 V	2-position	210	White	1	N4884	S55174-A103	STP23
AC 230 V	2-position	210	White		N4884	S55174-A112	STP23/00
AC 230 V	2-position	210	Black		N4884	S55174-A120	STP23B/00
AC 230 V	2-position	10	Gray	1.8	N4865	BPZ:SFP21/18	SFP21/18
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4864	BPZ:SSP61	SSP61
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A105	STP63
AC 24 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP81	SSP81
AC 24 V	3-position	43	White/Gray	1.5	N4864	BPZ:SSP81.04	SSP81.04
AC 24 V	2-position	10	Gray	1.8	N4865	BPZ:SFP71/18	SFP71/18
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A102	STP73
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A116	STP73PR/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A111	STP73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A119	STP73B/00

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: VVI46..

VVI46..



2-port zone valves, PN16 with on/off characteristic

2-port valves, internally threaded connections, for the control of zones or terminal units. Suitable media: water (to VDE 2035), water with anti-freeze.

Data sheet	N4842
Stroke	2.5 mm
Leakage rate	0...0.05% of k_{vs} value
Medium temperature	1...110 °C
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
Material, inside set	Stainless steel, brass
Mounting position	Upright to horizontal
PN class	PN 16
Valve characteristic	Non-linear (on/off)

Range overview 2-port internally threaded valves VVI46..

Connecting thread	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
Rp 1/2 "	15	2	BPZ:VVI46.15	VVI46.15
Rp 3/4 "	20	3.5	BPZ:VVI46.20	VVI46.20
Rp 1 "	25	5	BPZ:VVI46.25	VVI46.25
Rp 1/2 "	15	2	S55249-V100	VVI46.15/1
Rp 3/4 "	20	3.5	S55249-V101	VVI46.20/1
Rp 1 "	25	5	S55249-V102	VVI46.25/1

Overview differential pressures

SUA21.. Δp_{max} [kPa]	SUA21.. Δp_s [kPa]	SFA.. Δp_{max} [kPa]	SFA.. Δp_s [kPa]	SSA31.04 Δp_{max} [kPa]	SSA31.04 Δp_s [kPa]	STA.. Δp_{max} [kPa]	STA.. Δp_s [kPa]	Stock No.	Product No.
300	300	300	300	200	200	200	200	BPZ:VVI46.15	VVI46.15
300	300	300	300	200	200	200	200	BPZ:VVI46.20	VVI46.20
200	200	200	200	200	200	200	200	BPZ:VVI46.25	VVI46.25
300	300	300	300	200	200	200	200	S55249-V100	VVI46.15/1
300	300	300	300	200	200	200	200	S55249-V101	VVI46.20/1
200	200	200	200	200	200	200	200	S55249-V102	VVI46.25/1

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.



Valves and actuators

Globe and pressure independent combi valves

2-port threaded valves, PN16: VVI46..

Combinable actuator to VVI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	2-position	10	Gray	1.8	N4863	BPZ:SFA21/18	SFA21/18
AC 24 V	2-position	10	Gray	1.8	N4863	BPZ:SFA71/18	SFA71/18
AC 230 V	3-position SPDT	43	White/Gray	1.5	N4860	BPZ:SSA31.04	SSA31.04
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	10 s @ 50 Hz	N4830	S55176-A102	SUA21/1

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: MVI421..

MVI421..



On/off 2-port valve with spring return

Control valve for use with terminal units for heating and cooling zones. The actuators are equipped with a manual lever and spring return facility (valve closed). 1 auxiliary switch is available as an accessory item.

Data sheet	N4867
Stroke	2.5 mm
Leakage rate	0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Operating voltage	AC 230 V
Positioning signal	2-position
Positioning time	10 s
Power consumption	12 VA
Degree of protection	IP30
Ambient temperature range	1...50 °C
Positioning force	200 N
Mounting position	Upright up to 85° inclined
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview of MVI421..

DN	Connecting thread	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Stock No.	Product No.
15	Rp 1/2	2.0	300	300	BPZ:MVI421.15	MVI421.15
20	Rp 3/4	3.5	300	300	BPZ:MVI421.20	MVI421.20
25	Rp 1	5.0	300	300	BPZ:MVI421.25	MVI421.25

Range overview of MVI421..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	ASC2.1/18



Valves and actuators

Globe and pressure independent combi valves 2-port threaded valves, PN16: C/VVI41..

C/VVI41..



Internal threaded two-port Valve

- With internally threaded connections Rp.. to ISO 7-1
- For chilled water, low pressure hot water and saturated steam in open and closed circuits

Data sheet	N4362
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-25...150 °C
Valve characteristic	Equal-percentage
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi Steel/ Rg 5 brass
PN class	PN 16

Range overview 2-port valves C/VVI41..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	DN	Connecting thread	k_{vs} [m ³ /h]	Stock No.	Product No.
400	1600	400	1600	15	Rp 1/2 "	2.5	BPZ:C/VVI41.15-2.5	C/VVI41.15-2.5
400	1600	400	1600	15	Rp 1/2 "	4.0	BPZ:C/VVI41.15-4	C/VVI41.15-4
400	1600	400	1600	20	Rp 3/4 "	6.3	BPZ:C/VVI41.20-6.3	C/VVI41.20-6.3
400	1550	400	1600	25	Rp 1 "	10	BPZ:C/VVI41.25-10	C/VVI41.25-10
400	875	400	1275	32	Rp 1 1/4 "	16	BPZ:C/VVI41.32-16	C/VVI41.32-16
400	525	400	775	40	Rp 1 1/2 "	25	BPZ:C/VVI41.40-25	C/VVI41.40-25
300	300	400	450	50	Rp 2 "	40	BPZ:C/VVI41.50-40	C/VVI41.50-40

Replacement sealing gland for C/VVI41..

C/VVI41.., DN15...50: part no. 4 284 8874 0

Field of application for C/VVI41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	
Saturated steam / Super-heated steam	≤ 150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: C/VVI41..

Combinable actuator for C/VVI41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62

Further information to the actuators please see "Actuators for valves with 20 mm stroke"
 3-position actuators are also available as AC 24 V version, see "Actuators for valves with 20 mm stroke".



Valves and actuators

Globe and pressure independent combi valves 2-port threaded valves, PN16: VVG41..

VVG41..



2-port seat valves PN16 with externally threaded connections

- With threaded connections to ISO 228/1
- For cooling, chilled, low and high temperature water, brine and saturated and superheated steam in open and closed circuits

Data sheet	N4363
Stroke	20 mm
Leakage rate	0...0.02 % of k_{VS} value
Medium temperature	-25...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CuSn5Zn5Pb2 (CC499K)
Material, inside set	CrNi steel
PN class	PN 16

Range overview 2-port valves VVG41..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	Connect- ing thread	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
800	1600	800	1600	800	1600	G 1 B "	15	0.63	BPZ:VVG41.11	VVG41.11
800	1600	800	1600	800	1600	G 1 B "	15	1	BPZ:VVG41.12	VVG41.12
800	1600	800	1600	800	1600	G 1 B "	15	1.6	BPZ:VVG41.13	VVG41.13
800	1600	800	1600	800	1600	G 1 B "	15	2.5	BPZ:VVG41.14	VVG41.14
800	1600	800	1600	800	1600	G 1 B "	15	4	BPZ:VVG41.15	VVG41.15
800	1600	800	1600	800	1600	G 1¼ B "	20	6.3	BPZ:VVG41.20	VVG41.20
800	1550	800	1600	800	1600	G 1½ B "	25	10	BPZ:VVG41.25	VVG41.25
800	875	800	1275	800	1600	G 2 B "	32	16	BPZ:VVG41.32	VVG41.32
525	525	775	775	800	1600	G 2¼ B "	40	25	BPZ:VVG41.40	VVG41.40
300	300	450	450	800	1225	G 2¾ B "	50	40	BPZ:VVG41.50	VVG41.50

ALG..2 fittings must be ordered as individual items and will be delivered separately.

Replacement sealing gland for VVG41..

VVG41.., DN15...50: part no. 4 284 8874 0

Field of application for VVG41..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease
Saturated steam / Superheated steam	≤ 150 °C	3 bar abs	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: VVG41..

Accessories for VVG41..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Combinable actuator for VVG41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62

Further information to the actuators please see "Actuators for valves with 20 mm stroke"
 3-position actuators are also available as AC 24 V version, see "Actuators for valves with 20 mm stroke".



Valves and actuators

Globe and pressure independent combi valves

2-port threaded valves, PN16: VVG44..

VVG44..



2-port seat valves PN16 with externally threaded connections

- With threaded connections to ISO 228/1
- For chilled water and low-temperature hot water in closed circuits

Data sheet	N4364
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	From DN 20: >100 DN 15: >50...100
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel / Rg5, brass
PN class	PN 16

Range overview 2-port valves VVG44..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
400	1600	G 1 B "	15	0.25	BPZ:VVG44.15-0.25	VVG44.15-0.25
400	1600	G 1 B "	15	0.4	BPZ:VVG44.15-0.4	VVG44.15-0.4
400	1600	G 1 B "	15	0.63	BPZ:VVG44.15-0.63	VVG44.15-0.63
400	725	G 1 B "	15	1	BPZ:VVG44.15-1	VVG44.15-1
400	725	G 1 B "	15	1.6	BPZ:VVG44.15-1.6	VVG44.15-1.6
400	400	G 1 B "	15	2.5	BPZ:VVG44.15-2.5	VVG44.15-2.5
400	400	G 1 B "	15	4	BPZ:VVG44.15-4	VVG44.15-4
400	750	G 1 ¼ B "	20	6.3	BPZ:VVG44.20-6.3	VVG44.20-6.3
400	400	G 1 ½ B "	25	10	BPZ:VVG44.25-10	VVG44.25-10
250	250	G 2 B "	32	16	BPZ:VVG44.32-16	VVG44.32-16
125	125	G 2 ¼ B "	40	25	BPZ:VVG44.40-25	VVG44.40-25

$\Delta p_{max}/\Delta p_s$ -ratings refer to actuators SQS35/65/85 of the D-series with a positioning force of 400 N.

Fittings ALG..2 must be ordered as separate items and are also supplied as such.

Field of application for VVG44..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water	1...120 °C	16 bar	EPDM O-ring
Water with anti-freeze		ISO 7005	
Low-temperature hot water			

Accessories for VVG44..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN16: VVG44..

Combinable actuator to VVG44..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	SQS35.00
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	SQS35.03
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	SQS35.50
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	SQS35.53
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	SQS85.00
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	SQS85.03
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	SQS65
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	SQS65.2
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	SQS65.5

Further information to the actuators please see "Actuators for threaded valves with 5.5 mm stroke"

Valves and actuators

Globe and pressure independent combi valves 2-port threaded valves, PN25: VVG55..

VVG55..



2-port seat valves PN25 with externally threaded connections

- With threaded connections to ISO 228/1
- For chilled water and low-temperature hot water in closed circuits, especially for district heat applications

Data sheet	N4379
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{VS} value
Medium temperature	1...130 °C
Valve characteristic	Equal percentage
Rangeability	From DN 20: >100 DN 15: >50...100
Permissible operating pressure	2500 kPa
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel
PN class	PN 25

Range overview 2-port valves VVG55..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
1200	2500	G 3/4 B "	15	0.25	BPZ:VVG55.15-0.25	VVG55.15-0.25
1200	2500	G 3/4 B "	15	0.4	BPZ:VVG55.15-0.4	VVG55.15-0.4
1200	2500	G 3/4 B "	15	0.63	BPZ:VVG55.15-0.63	VVG55.15-0.63
1200	2000	G 3/4 B "	15	1	BPZ:VVG55.15-1	VVG55.15-1
1200	2000	G 3/4 B "	15	1.6	BPZ:VVG55.15-1.6	VVG55.15-1.6
1200	2000	G 3/4 B "	15	2.5	BPZ:VVG55.15-2.5	VVG55.15-2.5
1000	1000	G 1 B "	20	4	BPZ:VVG55.20-4	VVG55.20-4
800	800	G 1 1/4 B "	25	6.3	BPZ:VVG55.25-6.3	VVG55.25-6.3

Field of application for VVG55..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with oxygen-binding additives Water with anti-freeze Low-temperature hot water High-temperature hot water	1...130 °C	25 bar ISO 7005	EPDM O-ring

Accessories for VVG55..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..
Fittings, pipeside with welding connection	BPZ:ALS..	ALS..

Valves and actuators
Globe and pressure independent combi valves
2-port threaded valves, PN25: VVG55..

Combinable actuator to VVG55..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	SQS35.00
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	SQS35.03
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	SQS35.50
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	SQS35.53
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	SQS85.00
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	SQS85.03
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	SQS65
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	SQS65.2
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	SQS65.5

Valves and actuators

Globe and pressure independent combi valves

Threaded fittings for valves

Fittings with weldable connections: Set of 2

Cylindric thread to ISO 228-1 on valve side. Welded connection on the pipe side.

Each ALS.. set consists of 2 cap nuts, 2 inserts and 2 flat seals.

Connecting thread, valve side	Pipe diameter	Material	Stock No.	Product No.
G 3/4 "	21.3 mm	Weldable steel	BPZ:ALS152	ALS152
G 1 "	26.8 mm	Weldable steel	BPZ:ALS202	ALS202
G 1 1/4 "	33.7 mm	Weldable steel	BPZ:ALS252	ALS252

Fittings with threaded connections: Set of 2

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side.

Each fitting set ALG..2 consists of 2 cap nuts, 2 insert nuts and 2 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G 1/2 "	R 3/8 "	Brass	BPZ:ALG132	ALG132
G 3/4 "	R 1/2 "	Brass	BPZ:ALG142	ALG142
G 3/4 "	Rp 3/8 "	Malleable cast iron, phosphated	BPZ:ALG122	ALG122
G 1 "	Rp 1/2 "	Phosphated malleable cast iron	BPZ:ALG152	ALG152
G 1 "	Rp 1/2 "	Brass	S55846-Z100	ALG152B
G 1 1/4 "	Rp 3/4 "	Phosphated malleable cast iron	BPZ:ALG202	ALG202
G 1 1/4 "	Rp 3/4 "	Brass	S55846-Z102	ALG202B
G 1 1/2 "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG252	ALG252
G 1 1/2 "	Rp 1 "	Brass	S55846-Z104	ALG252B
G 2 "	Rp 1 1/4 "	Phosphated malleable cast iron	BPZ:ALG322	ALG322
G 2 "	Rp 1 1/4 "	Brass	S55846-Z106	ALG322B
G 2 1/4 "	Rp 1 1/2 "	Phosphated malleable cast iron	BPZ:ALG402	ALG402
G 2 1/4 "	Rp 1 1/2 "	Brass	S55846-Z108	ALG402B
G 2 3/4 "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG502	ALG502
G 2 3/4 "	Rp 2 "	Brass	S55846-Z110	ALG502B

Valves and actuators
Globe and pressure independent combi valves
Threaded fittings for valves

Fittings with threaded connections: Set of 3

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side. Each fitting set ALG..3 consists of 3 cap nuts, 3 insert nuts and 3 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G ½ "	R ⅜ "	Brass	BPZ:ALG133	ALG133
G ¾ "	R ½ "	Brass	BPZ:ALG143	ALG143
G ¾ "	Rp ⅜ "	Malleable cast iron, phosphated	BPZ:ALG123	ALG123
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	ALG153
G 1 "	Rp ½ "	Brass	S55846-Z101	ALG153B
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	ALG203
G 1¼ "	Rp ¾ "	Brass	S55846-Z103	ALG203B
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	ALG253
G 1½ "	Rp 1 "	Brass	S55846-Z105	ALG253B
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	ALG323
G 2 "	Rp 1¼ "	Brass	S55846-Z107	ALG323B
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	ALG403
G 2¼ "	Rp 1½ "	Brass	S55846-Z109	ALG403B
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	ALG503
G 2¾ "	Rp 2 "	Brass	S55846-Z111	ALG503B

Applications requiring union fittings with DVGW approval must be delivered by thirds.



Globe and pressure independent combi valves

3-port flanged valves, PN6: VXF21..

VXF21..



3-port seat valves PN6 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4410
Stroke	To DN 80: 20 mm From DN 100: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 25...40: >50 DN 50...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 6

Range overview 3-port valves VXF21..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300	300		25	1.9	BPZ:VXF21.22	VXF21.22
300	300	300		25	2.5	BPZ:VXF21.25-2.5	VXF21.25-2.5
300	300	300		25	3	BPZ:VXF21.23	VXF21.23
300	300	300		25	4	BPZ:VXF21.25-4	VXF21.25-4
300	300	300		25	5	BPZ:VXF21.24	VXF21.24
300	300	300		25	6.3	BPZ:VXF21.25-6.3	VXF21.25-6.3
300	300	300		25	7.5	BPZ:VXF21.25	VXF21.25
300	300	300		25	10	BPZ:VXF21.25-10	VXF21.25-10
300	300	300		40	12	BPZ:VXF21.39	VXF21.39
300	300	300		40	16	BPZ:VXF21.40-16	VXF21.40-16
300	300	300		40	19	BPZ:VXF21.40	VXF21.40
300	300	300		40	25	BPZ:VXF21.40-25	VXF21.40-25
300	300	300		50	31	BPZ:VXF21.50	VXF21.50
300	300	300		50	40	BPZ:VXF21.50-40	VXF21.50-40
175	275	300		65	49	BPZ:VXF21.65	VXF21.65
175	275	300		65	63	BPZ:VXF21.65-63	VXF21.65-63
100	175	300		80	78	BPZ:VXF21.80	VXF21.80
100	175	300		80	100	BPZ:VXF21.80-100	VXF21.80-100
			200	100	124	BPZ:VXF21.90	VXF21.90
			200	100	160	BPZ:VXF21.100-160	VXF21.100-160

Δp_{max} -ratings are valid for mixing applications.

VXF21.. will be phased out around spring 2014, replacement products VXF32.. will be available at the same time

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN6: VXF21..

Replacement sealing glands for VXF21..:

VVF/VXF21.., DN25...DN80: part no. 4 284 8806 0
 VVF/VXF21.., DN100: part no. 4 679 5629 0

Field of application for VXF21..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	6 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VXF21..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62



Globe and pressure independent combi valves
3-port flanged valves, PN10: VXF31..

VXF31..

3-port seat valves PN10 with flanged connections



- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4420
Stroke	To DN 80: 20 mm From DN 100: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...0.2% of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 25...40: >50 DN 50...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 10

Range overview 3-port valves VXF31..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300	300		15	2.5	BPZ:VXF31.15-2.5	VXF31.15-2.5
300	300	300		15	4	BPZ:VXF31.15-4	VXF31.15-4
300	300	300		25	5	BPZ:VXF31.24	VXF31.24
300	300	300		25	6.3	BPZ:VXF31.25-6.3	VXF31.25-6.3
300	300	300		25	7.5	BPZ:VXF31.25	VXF31.25
300	300	300		25	10	BPZ:VXF31.25-10	VXF31.25-10
300	300	300		40	12	BPZ:VXF31.39	VXF31.39
300	300	300		40	16	BPZ:VXF31.40-16	VXF31.40-16
300	300	300		40	19	BPZ:VXF31.40	VXF31.40
300	300	300		40	25	BPZ:VXF31.40-25	VXF31.40-25
300	300	300		50	31	BPZ:VXF31.50	VXF31.50
300	300	300		50	40	BPZ:VXF31.50-40	VXF31.50-40
175	275	300		65	49	BPZ:VXF31.65	VXF31.65
175	275	300		65	63	BPZ:VXF31.65-63	VXF31.65-63
100	175	300		80	78	BPZ:VXF31.80	VXF31.80
100	175	300		80	100	BPZ:VXF31.80-100	VXF31.80-100
			200	100	124	BPZ:VXF31.90	VXF31.90
			200	100	160	BPZ:VXF31.100-160	VXF31.100-160
			150	125	200	BPZ:VXF31.91	VXF31.91
			150	125	250	BPZ:VXF31.125-250	VXF31.125-250
			100	150	300	BPZ:VXF31.92	VXF31.92
			100	150	315	BPZ:VXF31.150-315	VXF31.150-315

Δp_{max} -ratings are valid for mixing applications.

VXF31.. will be phased out around spring 2014, replacement products VXF32.. will be available at the same time

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN10: VXF31..

Range overview 3-port valves CVXF31..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300	300		25	5	BPZ:CVXF31.24	CVXF31.24
300	300	300		25	6.3	BPZ:CVXF31.25-6.3	CVXF31.25-6.3
300	300	300		25	7.5	BPZ:CVXF31.25	CVXF31.25
300	300	300		25	10	BPZ:CVXF31.25-10	CVXF31.25-10
300	300	300		40	12	BPZ:CVXF31.39	CVXF31.39
300	300	300		40	16	BPZ:CVXF31.40-16	CVXF31.40-16
300	300	300		40	19	BPZ:CVXF31.40	CVXF31.40
300	300	300		40	25	BPZ:CVXF31.40-25	CVXF31.40-25
300	300	300		50	31	BPZ:CVXF31.50	CVXF31.50
300	300	300		50	40	BPZ:CVXF31.50-40	CVXF31.50-40
175	275	300		65	49	BPZ:CVXF31.65	CVXF31.65
175	275	300		65	63	BPZ:CVXF31.65-63	CVXF31.65-63
100	175	300		80	78	BPZ:CVXF31.80	CVXF31.80
100	175	300		80	100	BPZ:CVXF31.80-100	CVXF31.80-100
			200	100	124	BPZ:CVXF31.90	CVXF31.90
			200	100	160	BPZ:CVXF31.100-160	CVXF31.100-160
			150	125	200	BPZ:CVXF31.91	CVXF31.91
			150	125	250	BPZ:CVXF31.125-250	CVXF31.125-250
			100	150	300	BPZ:CVXF31.92	CVXF31.92
			100	150	315	BPZ:CVXF31.150-315	CVXF31.150-315

CVXF31.. will be phased out around autumn 2014, replacement products VXF32..C will be available at the same time

Replacement sealing glands for VXF31..

VVF/VXF31.., DN15...DN80: part no. 4 284 8806 0
 VVF/VXF31.., DN100...DN150: part no. 4 679 5629 0

Field of application for VXF31..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	10 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0° C, stem heating element ASZ6.5 or ASZ6.6 is required.



Valves and actuators

Globe and pressure independent combi valves

3-port flanged valves, PN10: VXF31..

Combinable actuator to VXF31..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF40..

VXF40..



3-port seat valves PN16 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4430
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 16

Range overview 3-port valves VXF40..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300	300		15	1.9	BPZ:VXF40.15-1.9	VXF40.15-1.9
300	300	300		15	2.5	BPZ:VXF40.15-2.5	VXF40.15-2.5
300	300	300		15	3	BPZ:VXF40.15-3	VXF40.15-3
300	300	300		15	4	BPZ:VXF40.15-4	VXF40.15-4
300	300	300		25	5	BPZ:VXF40.25-5	VXF40.25-5
300	300	300		25	6.3	BPZ:VXF40.25-6.3	VXF40.25-6.3
300	300	300		25	7.5	BPZ:VXF40.25-7.5	VXF40.25-7.5
300	300	300		25	10	BPZ:VXF40.25-10	VXF40.25-10
300	300	300		40	12	BPZ:VXF40.40-12	VXF40.40-12
300	300	300		40	16	BPZ:VXF40.40-16	VXF40.40-16
300	300	300		40	19	BPZ:VXF40.40-19	VXF40.40-19
300	300	300		40	25	BPZ:VXF40.40-25	VXF40.40-25
300	300	300		50	31	BPZ:VXF40.50-31	VXF40.50-31
300	300	300		50	40	BPZ:VXF40.50-40	VXF40.50-40
175	275	300		65	49	BPZ:VXF40.65-49	VXF40.65-49
175	275	300		65	63	BPZ:VXF40.65-63	VXF40.65-63
100	175	300		80	78	BPZ:VXF40.80-78	VXF40.80-78
100	175	300		80	100	BPZ:VXF40.80-100	VXF40.80-100

Δp_{max} -ratings are valid for mixing applications.

VXF40.. will be phased out around spring 2014, replacement products VXF42.. will be available at the same time



Valves and actuators

Globe and pressure independent combi valves

3-port flanged valves, PN16: VXF40..

Range overview 3-port valves VXF40..

SAX.. Δp_{\max} [kPa]	SKD.. Δp_{\max} [kPa]	SKB.. Δp_{\max} [kPa]	SKC.. Δp_{\max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
			200	100	124	BPZ:VXF40.100-124	VXF40.100-124
			200	100	160	BPZ:VXF40.100-160	VXF40.100-160
			150	125	200	BPZ:VXF40.125-200	VXF40.125-200
			150	125	250	BPZ:VXF40.125-250	VXF40.125-250
			100	150	300	BPZ:VXF40.150-300	VXF40.150-300
			100	150	315	BPZ:VXF40.150-315	VXF40.150-315

Δp_{\max} -ratings are valid for mixing applications.

VXF40.. will be phased out around spring 2014, replacement products VXF42.. will be available at the same time

Range overview 3-port valves C/VXF40..

SAX.. Δp_{\max} [kPa]	SKD.. Δp_{\max} [kPa]	SKB.. Δp_{\max} [kPa]	SKC.. Δp_{\max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300	300	300		25	5	BPZ:C/VXF40.25-5	C/VXF40.25-5
300	300	300		25	6.3	BPZ:C/VXF40.25-6.3	C/VXF40.25-6.3
300	300	300		25	7.5	BPZ:C/VXF40.25-7.5	C/VXF40.25-7.5
300	300	300		25	10	BPZ:C/VXF40.25-10	C/VXF40.25-10
300	300	300		40	12	BPZ:C/VXF40.40-12	C/VXF40.40-12
300	300	300		40	16	BPZ:C/VXF40.40-16	C/VXF40.40-16
300	300	300		40	19	BPZ:C/VXF40.40-19	C/VXF40.40-19
300	300	300		40	25	BPZ:C/VXF40.40-25	C/VXF40.40-25
300	300	300		50	31	BPZ:C/VXF40.50-31	C/VXF40.50-31
300	300	300		50	40	BPZ:C/VXF40.50-40	C/VXF40.50-40
175	275	300		65	49	BPZ:C/VXF40.65-49	C/VXF40.65-49
175	275	300		65	63	BPZ:C/VXF40.65-63	C/VXF40.65-63
100	175	300		80	78	BPZ:C/VXF40.80-78	C/VXF40.80-78
100	175	300		80	100	BPZ:C/VXF40.80-100	C/VXF40.80-100
			200	100	124	BPZ:C/VXF40.100-124	C/VXF40.100-124
			200	100	160	BPZ:C/VXF40.100-160	C/VXF40.100-160
			150	125	200	BPZ:C/VXF40.125-200	C/VXF40.125-200
			150	125	250	BPZ:C/VXF40.125-250	C/VXF40.125-250
			100	150	300	BPZ:C/VXF40.150-300	C/VXF40.150-300
			100	150	315	BPZ:C/VXF40.150-315	C/VXF40.150-315

Δp_{\max} -ratings in kPa are valid for mixing applications.

C/VXF40.. will be phased out around autumn 2014, replacement products VXF42..C will be available at the same time

Replacement sealing glands for VXF40..

VVF/VXF40.., DN15...DN80: part no. 4 284 8806 0

VVF/VXF40.., DN100...DN150: part no. 4 679 5629 0

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF40..

Field of application for VXF40..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator for VXF40..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62



**Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF43..**

VXF43..



3-port seat valves PN16 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils in open and closed circuits

Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.01 % of k_{VS} value
Leakage rate bypass	0.5...2 % of k_{VS} value
Medium temperature	-20...220 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{VS} 250/400 linear Bypass: linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16

Range overview 3-port valves VXF43..

SKC.. Δp_{max} [kPa]	DN	k_{VS} [m³/h]	Stock No.	Product No.
650	65	63	S55206-V115	VXF43.65-63
400	80	100	S55206-V116	VXF43.80-100
250	100	160	S55206-V117	VXF43.100-160
160	125	250	S55206-V118	VXF43.125-250
100	150	400	S55206-V119	VXF43.150-400

Δp_{max} - ratings are valid for mixing applications.

Field of application for VXF43..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 180 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	16 bar	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF43..

Accessories for VXF43..

Product Title	Material	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN65	Steel	N4404	S55845-Z114	ALF41B65
Bypass extension, flanged connections, DN80	Steel	N4404	S55845-Z115	ALF41B80
Bypass extension, flanged connections, DN100	Steel	N4404	S55845-Z116	ALF41B100
Bypass extension, flanged connections, DN125	Steel	N4404	S55845-Z117	ALF41B125
Bypass extension, flanged connections, DN150	Steel	N4404	S55845-Z118	ALF41B150

Bypass extension when replacing VXF41.. with VXF43.. or VXF53... Each set contains one extension, 4/8 threaded bolts including nuts and one flat gasket.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	428488060
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VXF43..
VXF43.., DN65...150: part no. 7428400610

Combinable actuator for VXF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	SKC62UA



NEW PRODUCT

Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves, PN16: VXF47..

VXF47..

3-port seat valves PN16, flanged connections VXF47..



For use in heating, ventilating and air conditioning systems as a control valve for closed circuits

Data sheet	N4419
Leakage rate	0...0.1% of Kvs value
Medium temperature	1...95 °C
Rangeability	DN 50...150: > 50
Material, valve body	Grey cast iron EN-GJL-250
Material, inside set	Stainless Steel/R65
PN class	PN 16

Range overview 3-port valves VXF47..

SBX.. Δp_{\max} [kPa]	SBV.. Δp_{\max} [kPa]	Stroke [mm]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
300		20	50	40	S55220-V100	VXF47.50
175	300	20	65	63	S55220-V101	VXF47.65
100	250	20	80	100	S55220-V102	VXF47.80
	200	40	100	160	S55220-V103	VXF47.100
	100	40	125	250	S55220-V104	VXF47.125
	75	40	150	315	S55220-V105	VXF47.150

Field of application for VXF47..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	1...95 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

Combinable actuator for VXF47..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120		N4519	S55160-A102	SBX31
AC 24 V	DC 0...10 V	120		N4519	S55160-A100	SBX61
AC 24 V	3-position	120		N4519	S55160-A101	SBX81
AC 230 V	3-position	180		N4519	S55160-A105	SBV31
AC 24 V	DC 0...10 V	180		N4519	S55160-A103	SBV61
AC 24 V	3-position	180		N4519	S55160-A104	SBV81

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN25: VXF53..

VXF53..



3-port seat valves PN25 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils in open and closed circuits

Data sheet	N4405
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.01 % of k_{VS} value
Leakage rate bypass	0.5...2 % of k_{VS} value; SAX...: 0.05 % of k_{VS} value
Medium temperature	-20...220 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{VS} 250/400 linear Bypass: linear
Rangeability	>100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16 / PN 25

Range overview 3-port valves VXF53..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
1200	1200	1200		15	1.6	S55208-V140	VXF53.15-1.6
1200	1200	1200		15	2.5	S55208-V141	VXF53.15-2.5
1200	1200	1200		15	4	S55208-V142	VXF53.15-4
1200	1200	1200		20	6.3	S55208-V144	VXF53.20-6.3
1200	1200	1200		25	6.3	S55208-V145	VXF53.25-6.3
1200	1200	1200		25	10	S55208-V146	VXF53.25-10
750	1100	1200		32	16	S55208-V148	VXF53.32-16
500	650	1200		40	16	S55208-V149	VXF53.40-16
500	650	1200		40	25	S55208-V150	VXF53.40-25
300	400	1150		50	40	S55208-V152	VXF53.50-40
			650	65	63	S55208-V153	VXF53.65-63
			400	80	100	S55208-V154	VXF53.80-100
			250	100	160	S55208-V155	VXF53.100-160
			160	125	250	S55208-V156	VXF53.125-250
			100	150	400	S55208-V157	VXF53.150-400

Δp_{max} - ratings are valid for mixing applications.



Valves and actuators

Globe and pressure independent combi valves

3-port flanged valves, PN25: VXF53..

Field of application for VXF53..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 220 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	25 bar	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.

Media < -5 °C requires sealing gland 428488060.

Accessories for VXF53..

Product Title	Material	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN15	Steel	N4404	S55845-Z110	ALF41B15
Bypass extension, flanged connections, DN25	Steel	N4404	S55845-Z111	ALF41B25
Bypass extension, flanged connections, DN40	Steel	N4404	S55845-Z112	ALF41B40
Bypass extension, flanged connections, DN50	Steel	N4404	S55845-Z113	ALF41B50

Bypass extension when replacing VXF41 .., DN15...50, with VXF43.. or VXF53... Each set contains one extension, 4/8 treaded bolts including nuts and one flat gasket.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	428488060
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VXF53..

VXF53.., DN15...150: part no. 7428400610

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN25: VXF53..

Combinable actuator to VXF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	SKC62UA



**Globe and pressure independent combi valves
3-port flanged valves, PN40: VXF61..**

VXF61..

3-port seat valves PN40 with flanged connections



- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine and heat transfer oils in open and closed circuits

Data sheet	N4482
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-25...220 °C (350 °C)
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	CrNi steel
PN class	PN 40

Range overview 3-port valves VXF61..

SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1200	1600		15	1.9	BPZ:VXF61.14	VXF61.14
1200	1600		15	3	BPZ:VXF61.15	VXF61.15
1200	1600		25	5	BPZ:VXF61.24	VXF61.24
1200	1600		25	7.5	BPZ:VXF61.25	VXF61.25
	1200		40	12	BPZ:VXF61.39	VXF61.39
	1200		40	19	BPZ:VXF61.40	VXF61.40
	1000		50	19	BPZ:VXF61.49	VXF61.49
	1000		50	31	BPZ:VXF61.50	VXF61.50
		800	65	49	BPZ:VXF61.65	VXF61.65
		500	80	78	BPZ:VXF61.80	VXF61.80
		300	100	124	BPZ:VXF61.90	VXF61.90
		200	125	200	BPZ:VXF61.91	VXF61.91
		125	150	300	BPZ:VXF61.92	VXF61.92

Δp_{max} -ratings are valid for mixing applications.

Replacement sealing glands for VXF61..

- VVF/VXF.., DN15...DN25: part no. 4 284 8829 0
- VVF/VXF.., DN40...DN150: part no. 4 679 5630 0
- VVF/VXF61..2, DN15...DN150: part no. 4 284 8829 0
- VVF/VXF61..5, DN15...25: part no. 4 284 9538 0
- VVF/VXF61..5, DN40...DN150: part no. 4 284 9540 0

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves, PN40: VXF61..

Field of application for VXF61..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-25...220 °C	40 bar ISO 7005	PTFE sleeve	--
High-temperature hot water	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	220...350 °C	40 bar ISO 7005	PTFE sleeve	2 1)

For media < 0 °C, stem heating element ASZ6.5 is required.

1) Special versions with extended neck are available for applications with heat transfer oil up to 350 °C (only for types VVF61.13 to VVF61.92 and VXF61.14 to VXF61.92).

When ordering, please give Product No. with type suffix, e.g. VVF61.252

Combinable actuator for VXF61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	SKC32.60
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	SKC32.61
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	SKC60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	SKC62



Globe and pressure independent combi valves

3-port flanged valves with magnetic actuators, PN16: MXF461..

MXF461..



Modulating control valves with magnetic actuator, PN16, flanged

Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of chilled or low-temperature hot water systems in closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4455
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4...20 mA
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Cast iron EN-GJL-250
Material, inside set	CrNi steel/brass

When used as a 2 port valve, inlet B (2) must be closed off with the Z155/.. blanking flange.
 MXF461..P valves for media containing mineral oils (data sheet N4455)
 MXF461.. valves are UL listed

CAUTION!

Use valve only as a mixing or 2-port valve, not as a diverting valve.

Range overview flanged valves MXF461..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consump- tion [VA]	Stock No.	Product No.
15	0.6	300	300	29	BPZ:MXF461.15-0.6	MXF461.15-0.6
15	1.5	300	300	29	BPZ:MXF461.15-1.5	MXF461.15-1.5
15	3	300	300	29	BPZ:MXF461.15-3.0	MXF461.15-3.0
20	5	300	300	29	BPZ:MXF461.20-5.0	MXF461.20-5.0
25	8	300	300	29	BPZ:MXF461.25-8.0	MXF461.25-8.0
32	12	300	300	29	BPZ:MXF461.32-12	MXF461.32-12
40	20	300	300	44	BPZ:MXF461.40-20	MXF461.40-20
50	30	300	300	44	BPZ:MXF461.50-30	MXF461.50-30
65	50	300	300	46	BPZ:MXF461.65-50	MXF461.65-50

Δp_s for use as 2-port valve

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves with magnetic actuators, PN16: MXF461..

Field of application for MXF461..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 130 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 130 °C	16 bar	Viton-O-ring	P

Accessories for MXF461..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	SEZ91.6
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	ASE1
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	ASE2

Blanking flanges

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

DN	Stock No.	Product No.
15	BPZ:Z155/15F	Z155/15F
20	BPZ:Z155/20F	Z155/20F
25	BPZ:Z155/25F	Z155/25F
32	BPZ:Z155/32F	Z155/32F
40	BPZ:Z155/40	Z155/40
50	BPZ:Z155/50	Z155/50
65	BPZ:Z155/65	Z155/65



Valves and actuators

Globe and pressure independent combi valves

3-port flanged valves with magnetic actuators, PN16: M3P..FY

M3P..FY..



Modulating control valves with magnetic actuator, PN16, flanged

Mixing and 2-port valves with magnetic actuator for modulating control of chilled or low-pressure hot water systems with closed circuits. Flanged connections, with positioning control, position feedback signal, spring return function, manual control.

Data sheet	N4454
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 4...20 mA
Positioning time	Close: <2 s
Spring return function	1->3 closed
Position feedback	DC 0...10 V
Degree of protection	IP31
Ambient temperature, operation	2...50 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	ca. 2 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	EN-GJL-HB215
Material, inside set	CrNi steel/brass

When used as a 2 port valve, inlet B (2) must be closed off with the Z155/.. blanking flange. M3P..FYP for media containing mineral oils (data sheet N4454)

CAUTION!

Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Range overview flanged valves M3P..FY

DN	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consump- tion [VA]	Stock No.	Product No.
80	80	300	300	80	BPZ:M3P80FY	M3P80FY
100	130	200	200	120	BPZ:M3P100FY	M3P100FY

Δp_s for use as 2-port valve

Field of application for M3P..FY

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 120 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 120 °C	16 bar	Viton-O-ring	P

Accessories for M3P..FY

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	SEZ91.6
Replacement electronic for M3P..FY..	N4454	BPZ:ZM250	ZM250

Valves and actuators
Globe and pressure independent combi valves
3-port flanged valves with magnetic actuators, PN16: M3P..FY

Blanking flanges

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

DN	Stock No.	Product No.
80	BPZ:Z155/80	Z155/80
100	BPZ:Z155/100	Z155/100

Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves, PN16: VXP45..

VXP45..



3-port seat valves, PN16

3-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport up to k_{vs} 6.3: equal-percentage Throughport from [k_{vs}] 10: linear Bypass: linear
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi steel / Rg5 / brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing or 2-port valves, not as diverting valves.

Range overview 3-port valves VXP45..

Connecting thread	SSB.. Δp_{max} [kPa]	SSC.. Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
G ½ B "	400		10	0.25	BPZ:VXP45.10-0.25	VXP45.10-0.25
G ½ B "	400		10	0.4	BPZ:VXP45.10-0.4	VXP45.10-0.4
G ½ B "	400		10	0.63	BPZ:VXP45.10-0.63	VXP45.10-0.63
G ½ B "	400		10	1	BPZ:VXP45.10-1	VXP45.10-1
G ½ B "	400		10	1.6	BPZ:VXP45.10-1.6	VXP45.10-1.6
G ¾ B "	350		15	2.5	BPZ:VXP45.15-2.5	VXP45.15-2.5
G 1 B "	350		20	4	BPZ:VXP45.20-4	VXP45.20-4
G 1¼ B "	300		25	6.3	BPZ:VXP45.25-6.3	VXP45.25-6.3
G 1½ B "		300	25	10	BPZ:VXP45.25-10	VXP45.25-10
G 2 B "		175	32	16	BPZ:VXP45.32-16	VXP45.32-16
G 2¼ B "		75	40	25	BPZ:VXP45.40-25	VXP45.40-25

Field of applications for VXP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water	1...110 °C	16 bar	EPDM O-ring
Water with anti-freeze		ISO 7628	
Low-temperature hot water			

Accessories for VXP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves, PN16: VXP45..

Combinable actuator for VXP45..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150		N4891	BPZ:SSB31	SSB31
AC 24 V DC 24 V	DC 0...10 V	75		N4891	BPZ:SSB61	SSB61
AC 24 V	3-position	150		N4891	BPZ:SSB81	SSB81
AC 230 V	3-position	150	No	N4895	BPZ:SSC31	SSC31
AC 24 V DC 24 V	DC 0...10 V	30	No	N4895	BPZ:SSC61	SSC61
AC 24 V DC 24 V	DC 0...10 V	30	Yes (15 s)	N4895	BPZ:SSC61.5	SSC61.5
AC 24 V	3-position	150	No	N4895	BPZ:SSC81	SSC81

Further information to the actuators please see "Actuators for threaded valves with 5.5 mm stroke"



Valves and actuators

Globe and pressure independent combi valves 3-port threaded valves with bypass, PN16: VMP45..

VMP45..



3-port seat valves with bypass, PN16

3-port seat valves with bypass, with threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vS} value
Medium temperature	1...110 °C
Valve characteristic	Equal-percentage: Bypass: linear
Material, valve body	Red brass CC499K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing valves, not as diverting valves.

Range overview 3-port valves with bypass VMP45..

Connecting thread	SSB.. Δp_{max} [kPa]	DN	k_{vS} [m ³ /h]	Stock No.	Product No.
G ½ B "	400	10	0.25	BPZ:VMP45.10-0.25	VMP45.10-0.25
G ½ B "	400	10	0.4	BPZ:VMP45.10-0.4	VMP45.10-0.4
G ½ B "	400	10	0.63	BPZ:VMP45.10-0.63	VMP45.10-0.63
G ½ B "	400	10	1	BPZ:VMP45.10-1	VMP45.10-1
G ½ B "	400	10	1.6	BPZ:VMP45.10-1.6	VMP45.10-1.6
G ¾ B "	400	15	2.5	BPZ:VMP45.15-2.5	VMP45.15-2.5
G 1 B "	400	20	4	BPZ:VMP45.20-4	VMP45.20-4

Range overview 3-port valves with bypass VMP45..S

Connecting thread	SSB.. Δp_{max} [kPa]	DN	k_{vS} [m ³ /h]	Stock No.	Product No.
G ½ B "	400	10	0.63	BPZ:VMP45.10-0.63S	VMP45.10-0.63S
G ½ B "	400	10	1	BPZ:VMP45.10-1S	VMP45.10-1S
G ½ B "	400	10	1.6	BPZ:VMP45.10-1.6S	VMP45.10-1.6S
W 1 ⅝-14 "	400	15	2.5	BPZ:VMP45.15-2.5S	VMP45.15-2.5S

Field of applications for VMP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...110 °C	16 bar ISO 7628	EPDM O-ring

Accessories for VMP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves with bypass, PN16: VMP45..

Combinable actuator for VMP45..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4891	BPZ:SSB31	SSB31
AC 24 V DC 24 V	DC 0...10 V	75	N4891	BPZ:SSB61	SSB61
AC 24 V	3-position	150	N4891	BPZ:SSB81	SSB81

Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves, PN16: VXP47..

VXP47..

3-port valves, PN16



3-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{VS} value
Leakage rate bypass	0...0.05 % of k_{VS} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 3-port valves VXP47..

Connecting thread	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
G ½ B "	10	0.25	BPZ:VXP47.10-0.25	VXP47.10-0.25
G ½ B "	10	0.4	BPZ:VXP47.10-0.4	VXP47.10-0.4
G ½ B "	10	0.63	BPZ:VXP47.10-0.63	VXP47.10-0.63
G ½ B "	10	1	BPZ:VXP47.10-1	VXP47.10-1
G ½ B "	10	1.6	BPZ:VXP47.10-1.6	VXP47.10-1.6
G ¾ B "	15	2.5	BPZ:VXP47.15-2.5	VXP47.15-2.5
G 1 B "	20	4	BPZ:VXP47.20-4	VXP47.20-4

70 % k_{VS} in bypass for all types

Overview differential pressures

SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	Product No.
400	400	VXP47.10-0.25
400	250	VXP47.10-0.4
400	250	VXP47.10-0.63
400	250	VXP47.10-1
300	150	VXP47.10-1.6
300	150	VXP47.15-2.5
175	100	VXP47.20-4

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves, PN16: VXP47..

Combinable actuator to VXP47..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP31	SSP31
AC 230 V	2-position	210	White	1	N4884	S55174-A103	STP23
AC 230 V	2-position	210	White		N4884	S55174-A112	STP23/00
AC 230 V	2-position	210	Black		N4884	S55174-A120	STP23B/00
AC 230 V	2-position	10	Gray	1.8	N4865	BPZ:SFP21/18	SFP21/18
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4864	BPZ:SSP61	SSP61
AC 24 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP81	SSP81
AC 24 V	3-position	43	White/Gray	1.5	N4864	BPZ:SSP81.04	SSP81.04
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A102	STP73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A111	STP73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A119	STP73B/00
AC 24 V	2-position	10	Gray	1.8	N4865	BPZ:SFP71/18	SFP71/18
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A116	STP73PR/00

Valves and actuators

Globe and pressure independent combi valves 3-port threaded valves with bypass, PN16: VMP47..

VMP47..



3-port seat valves with bypass, PN16

3-port valves with bypass and threaded connections for the control of terminal units, chilled ceilings or heating zones.

Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{VS} value
Leakage rate bypass	0...0.05 % of k_{VS} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 3-port with bypass VMP47..

Connecting thread	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
G ½ B "	400	400	10	0.25	BPZ:VMP47.10-0.25	VMP47.10-0.25
G ½ B "	400	400	10	0.4	BPZ:VMP47.10-0.4	VMP47.10-0.4
G ½ B "	400	250	10	0.63	BPZ:VMP47.10-0.63	VMP47.10-0.63
G ½ B "	400	250	10	1	BPZ:VMP47.10-1	VMP47.10-1
G ½ B "	300	150	10	1.6	BPZ:VMP47.10-1.6	VMP47.10-1.6
G ¾ B "	300	150	15	2.5	BPZ:VMP47.15-2.5	VMP47.15-2.5

70 % k_{VS} in bypass for all types

Range overview 3-port with bypass VMP47..S

Connecting thread	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
G ½ B "	400	250	10	0.63	BPZ:VMP47.10-0.63S	VMP47.10-0.63S
G ½ B "	400	250	10	1	BPZ:VMP47.10-1S	VMP47.10-1S
G ½ B "	300	150	10	1.6	BPZ:VMP47.10-1.6S	VMP47.10-1.6S
W11/8-14	300	150	15	2.5	BPZ:VMP47.15-2.5S	VMP47.15-2.5S

70 % k_{VS} in bypass for all types

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves with bypass, PN16: VMP47..

Combinable actuator to VMP47..

Operating voltage	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	1.5	N4864	BPZ:SSP31	SSP31
AC 230 V	2-position	210	1	N4884	S55174-A103	STP23
AC 230 V	2-position	210		N4884	S55174-A112	STP23/00
AC 230 V	2-position	210		N4884	S55174-A120	STP23B/00
AC 230 V	2-position	10	1.8	N4865	BPZ:SFP21/18	SFP21/18
AC 24 V DC 24 V	DC 0...10 V	34	1.5	N4864	BPZ:SSP61	SSP61
AC 24 V	3-position	150	1.5	N4864	BPZ:SSP81	SSP81
AC 24 V	3-position	43	1.5	N4864	BPZ:SSP81.04	SSP81.04
AC 24 V DC 24 V	2-position PDM	270	1	N4884	S55174-A102	STP73
AC 24 V DC 24 V	2-position PDM	270		N4884	S55174-A111	STP73/00
AC 24 V DC 24 V	2-position PDM	270		N4884	S55174-A119	STP73B/00
AC 24 V	2-position	10	1.8	N4865	BPZ:SFP71/18	SFP71/18
AC 24 V DC 24 V	2-position PDM/parallel operation	270		N4884	S55174-A116	STP73PR/00

Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves PN16: VXI46..

VXI46..

3-port zone valves, PN16 with on/off characteristic



3-port valves, internally threaded connections, for the control of zones or terminal units. Suitable media: water (to VDE 2035), water with anti-freeze.

Data sheet	N4842
Stroke	2.5 mm
Leakage rate	0...0.05% of k_{VS} value
Leakage rate bypass	2...5% of k_{VS} value
Medium temperature	1...110 °C
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
Material, inside set	Stainless steel, brass
Mounting position	Upright to horizontal
PN class	PN 16
Valve characteristic	Non-linear (on/off)

Range overview 3-port internally threaded valves VXI46.. (diverting valves)

Connecting thread	DN	k_{VS} [m ³ /h]	SFA.. Δp_{max} [kPa]	SUA21.. Δp_{max} [kPa]	STA.. Δp_{max} [kPa]	Stock No.	Product No.
Rp 1/2 "	15	2	300	300	200	BPZ:VXI46.15	VXI46.15
Rp 3/4 "	20	3.5	300	300	200	BPZ:VXI46.20	VXI46.20
Rp 1 "	25	5	300	300	200	BPZ:VXI46.25	VXI46.25
Rp 1/2 "	15	2	300	300	200	S55249-V103	VXI46.15/1
Rp 3/4 "	20	3.5	300	300	200	S55249-V104	VXI46.20/1
Rp 1 "	25	5	300	300	200	S55249-V105	VXI46.25/1
Rp 1 "	25	5	200	200	200	BPZ:VXI46.25T	VXI46.25T

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.

VXI46..: 70 % k_{VS} in bypass, leakage rate in bypass 2...5 % of k_{VS} value. VXI46.25T: 100 % k_{VS} in bypass, leakage rate in bypass 0.05 % of k_{VS} value

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves PN16: VXI46..

Combinable actuator to VXI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	2-position	10	Gray	1.8	N4863	BPZ:SFA21/18	SFA21/18
AC 24 V	2-position	10	Gray	1.8	N4863	BPZ:SFA71/18	SFA71/18
AC 230 V	3-position SPDT	43	White/Gray	1.5	N4860	BPZ:SSA31.04	SSA31.04
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	10 s @ 50 Hz	N4830	S55176-A102	SUA21/1

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.



Valves and actuators

Globe and pressure independent combi valves

3-port Threaded valves, PN16: MXI421..

MXI421..



On/off 3-port valve with spring return

Control valve for use with terminal units for heating and cooling zones. The actuators are equipped with a manual lever and spring return facility (valve closed). 1 auxiliary switch is available as an accessory item.

Data sheet	N4867
Stroke	2.5 mm
Leakage rate	< 0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Operating voltage	AC 230 V
Positioning signal	2-position
Positioning time	10 s
Power consumption	12 VA
Degree of protection	IP30
Ambient temperature range	1...50 °C
Positioning force	200 N
Mounting position	Upright up to 85° inclined
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview of MXI421..

DN	Connecting thread	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
15	Rp 1/2	2.0	300	BPZ:MXI421.15	MXI421.15
20	Rp 3/4	2.0	300	BPZ:MXI421.20	MXI421.20
25	Rp 1	2.0	300	BPZ:MXI421.25	MXI421.25

Accessories for MXI421..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	ASC2.1/18

Valves and actuators

Globe and pressure independent combi valves 3-port threaded valves PN16: C/VXI41..

3-port seat valves PN16 with internally threaded connections

C/VXI41..

- With internally threaded connections Rp.. to ISO 7-1
- For chilled water, low pressure hot water in open and closed circuits



Data sheet	N4362
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-25...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi Steel/ Rg 5 brass
PN class	PN 16

Range overview of 3-port valves C/VXI41..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	DN	Connecting thread	k_{vs} [m ³ /h]	Stock No.	Product No.
400	400	15	Rp ½	2.5	BPZ:C/VXI41.15-2.5	C/VXI41.15-2.5
400	400	15	Rp ½	4.0	BPZ:C/VXI41.15-4	C/VXI41.15-4
400	400	20	Rp ¾	6.3	BPZ:C/VXI41.20-6.3	C/VXI41.20-6.3
400	400	25	Rp 1	10	BPZ:C/VXI41.25-10	C/VXI41.25-10
400	400	32	Rp 1¼	16	BPZ:C/VXI41.32-16	C/VXI41.32-16
400	400	40	Rp 1½	25	BPZ:C/VXI41.40-25	C/VXI41.40-25
300	400	50	Rp 2	40	BPZ:C/VXI41.50-40	C/VXI41.50-40

Replacement sealing gland for C/VXI41...

C/VXI41.., DN15...50: part no. 4 284 8874 0
C/VXI41..01, DN15...50 part no. 7 428 4004 70

Field of application for C/VXI41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.



Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves PN16: C/VXI41..

Combinable actuator for C/VXI41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62

Valves and actuators

Globe and pressure independent combi valves 3-port threaded valves, PN16: VXG41..

3-port seat valves PN16 with externally threaded connections

VXG41..

- With threaded connections to ISO 228-1
- For drinking, cooling and chilled water, low and high temperature hot water and brine in open and closed circuits

Data sheet	N4463
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	Standard version: 0.5...2 % of k_{vs} value Special version: 0...0.02 % of k_{vs} value (VXG41..01)
Medium temperature	-25...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15: > 50 DN 20...50: > 100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CuSn5Zn5Pb2 (CC499K)
Material, inside set	CrNi steel
PN class	PN 16



Range overview 3-port valves VXG41..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
800	800	800	G 1 B "	15	1.6	BPZ:VXG41.1301	VXG41.1301
800	800	800	G 1 B "	15	2.5	BPZ:VXG41.1401	VXG41.1401
800	800	800	G 1 B "	15	4	BPZ:VXG41.15	VXG41.15
800	800	800	G 1 B "	15	4	BPZ:VXG41.1501	VXG41.1501
800	800	800	G 1¼ B "	20	6.3	BPZ:VXG41.20	VXG41.20
800	800	800	G 1¼ B "	20	6.3	BPZ:VXG41.2001	VXG41.2001
800	800	800	G 1½ B "	25	10	BPZ:VXG41.25	VXG41.25
800	800	800	G 1½ B "	25	10	BPZ:VXG41.2501	VXG41.2501
800	800	800	G 2 B "	32	16	BPZ:VXG41.32	VXG41.32
800	800	800	G 2 B "	32	16	BPZ:VXG41.3201	VXG41.3201
525	775	800	G 2¼ B "	40	25	BPZ:VXG41.40	VXG41.40
525	775	800	G 2¼ B "	40	25	BPZ:VXG41.4001	VXG41.4001
300	450	800	G 2¾ B "	50	40	BPZ:VXG41.50	VXG41.50
300	450	800	G 2¾ B "	50	40	BPZ:VXG41.5001	VXG41.5001

VXG41..01 are DVGW approved

VXG41..01 are supplied with tight bypass

Δp_{max} -ratings are valid for mixing applications.

ALG..3 fittings must be ordered as individual items and will be delivered separately.

Replacement sealing gland for VXG41..

VXG41.., DN15...50: part no. 4 284 8874 0

VXG41..01, DN15...50 part no. 7 428 4004 70

Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves, PN16: VXG41..

Field of application for VXG41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	--
Drinking water	≤ 90 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	01

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Accessories for VXG41..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..

Combinable actuator for VXG41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	SAX31.00
AC 230 V	3-position	30	no	N4501	S55150-A106	SAX31.03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	SAX61.03
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	SKD32.50
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	SKD32.51
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	SKD32.21
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	SKD60
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	SKD62
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	SKB32.50
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	SKB32.51
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	SKB60
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	SKB62

Valves and actuators
Globe and pressure independent combi valves
3-port threaded valves, PN16: VXG44..

VXG44..



3-port seat valves PN16 with externally threaded connections

- With threaded connections to ISO 228/1
- For chilled water or low-temperature hot water in closed circuits

Data sheet	N4464
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{VS} value
Leakage rate bypass	0...0.02 % of k_{VS} value
Medium temperature	1...120 °C
Valve characteristic	Throughport: linear Bypass: linear
Rangeability	From DN 20: >100 DN 15: >50
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi steel/Rg5/brass
PN class	PN 16

Range overview 3-port valves VXG44..

Δp_{max} [kPa]	Connecting thread	DN	k_{VS} [m ³ /h]	Stock No.	Product No.
400	G 1 B "	15	0.25	BPZ:VXG44.15-0.25	VXG44.15-0.25
400	G 1 B "	15	0.4	BPZ:VXG44.15-0.4	VXG44.15-0.4
400	G 1 B "	15	0.63	BPZ:VXG44.15-0.63	VXG44.15-0.63
400	G 1 B "	15	1	BPZ:VXG44.15-1	VXG44.15-1
400	G 1 B "	15	1.6	BPZ:VXG44.15-1.6	VXG44.15-1.6
400	G 1 B "	15	2.5	BPZ:VXG44.15-2.5	VXG44.15-2.5
400	G 1 B "	15	4	BPZ:VXG44.15-4	VXG44.15-4
400	G 1¼ B "	20	6.3	BPZ:VXG44.20-6.3	VXG44.20-6.3
400	G 1½ B "	25	10	BPZ:VXG44.25-10	VXG44.25-10
250	G 2 B "	32	16	BPZ:VXG44.32-16	VXG44.32-16
125	G 2¼ B "	40	25	BPZ:VXG44.40-25	VXG44.40-25

Δp_{max} -ratings are valid for mixing applications. The ratings refer to actuators SQS35/65/85 of the D-series with a positioning force of 400N. Fittings ALG..3 must be ordered as separate items and are also supplied as such.

Field of application for VXG44..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...120 °C	16 bar ISO 7005	EPDM O-ring

Accessories for VXG44..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	ALG..



Valves and actuators

Globe and pressure independent combi valves

3-port threaded valves, PN16: VXG44..

Combinable actuator for VXG44..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	SQS35.00
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	SQS35.03
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	SQS35.50
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	SQS35.53
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	SQS85.00
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	SQS85.03
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	SQS65
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	SQS65.2
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	SQS65.5

Globe and pressure independent combi valves 2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG461..

Modulating control valves with magnetic actuator, PN16, external thread

MXG461..

Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of chilled or low-temperature hot water systems in closed circuits. With positioning control, position feedback signal, spring return function and manual control.



Data sheet	N4455
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4...20 mA
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Cast iron EN-GJL-250
Material, inside set	CrNi steel/brass

When used as a 2-port valve, port B must be closed off with the accessories (nut, cover, gasket) provided with the valve.

MXG461..P valves for media containing mineral oils (data sheet N4455)

MXG461.. valves are UL listed

CAUTION!

Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Range overview threaded valves MXG461..

DN	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
15	0.6	300	300	29	G 1 B "	BPZ:MXG461.15-0.6	MXG461.15-0.6
15	1.5	300	300	29	G 1 B "	BPZ:MXG461.15-1.5	MXG461.15-1.5
15	3	300	300	29	G 1 B "	BPZ:MXG461.15-3.0	MXG461.15-3.0
20	5	300	300	29	G 1½ B "	BPZ:MXG461.20-5.0	MXG461.20-5.0
25	8	300	300	29	G 1½ B "	BPZ:MXG461.25-8.0	MXG461.25-8.0
32	12	300	300	29	G 2 B "	BPZ:MXG461.32-12	MXG461.32-12
40	20	300	300	44	G 2½ B "	BPZ:MXG461.40-20	MXG461.40-20
50	30	300	300	44	G 2¾ B "	BPZ:MXG461.50-30	MXG461.50-30

Fittings ALG..3 must be ordered as separate items and are also supplied as such.

Δp_s for use as 2-port valve

Valves and actuators

Globe and pressure independent combi valves

2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG461..

Field of application for MXG461..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 130 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 130 °C	16 bar	Viton-O-ring	P

Accessories for MXG461..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	SEZ91.6
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	ASE1
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	ASE2

Fittings: Set of 3

Cylindric thread to ISO 228/1 on the valve side

Cylindric thread to ISO 7/1 on the pipe side

Each ALG..3 fitting consists of 3 cap nuts, 3 insert nuts and 3 flat seals

DN	Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
15	G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	ALG153
20	G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	ALG203
25	G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	ALG253
32	G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	ALG323
40	G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	ALG403
50	G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	ALG503

Globe and pressure independent combi valves

2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG461B..

Modulating control valves with magnetic actuator, PN16, external thread, DVGW

MXG461B..

Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of DHW (mains water, water in open circuits), chilled water or low-temperature hot water.

With positioning control, position feedback signal, spring return function and manual control.



Data sheet	N4461
Operating voltage	AC 24 V DC 20...30 V
PN class	PN 16
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1600 kPa
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	-20...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Red brass CC491K, low-lead amount
Material, inside set	CrNi steel
Product conformity	DVGW approved

CAUTION!

Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Range overview threaded valves MXG461B..

DN	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Δp_s [kPa]	Power con- sumption [VA]	Connecting thread	Stock No.	Product No.
15	0.6	1000	1000	33	G 1 B "	BPZ:MXG461B15-0.6	MXG461B15-0.6
15	1.5	1000	1000	33	G 1 B "	BPZ:MXG461B15-1.5	MXG461B15-1.5
15	3	1000	1000	33	G 1 B "	BPZ:MXG461B15-3	MXG461B15-3
20	5	800	800	33	G 1 ¼ B "	BPZ:MXG461B20-5	MXG461B20-5
25	8	700	700	33	G 1 ½ B "	BPZ:MXG461B25-8	MXG461B25-8
32	12	600	600	43	G 2 B "	BPZ:MXG461B32-12	MXG461B32-12
40	20	600	600	43	G 2 ¼ B "	BPZ:MXG461B40-20	MXG461B40-20
50	30	600	600	65	G 2 ¾ B "	BPZ:MXG461B50-30	MXG461B50-30

The fittings are made of bronze / brass and supplied with the valve.

Δp_s for use as 2-port valve

MXG461B.. valves with magnetic actuators are UL-listed.

Valves and actuators

Globe and pressure independent combi valves

2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG461B..

Accessories for MXG461B..

Product Title	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..	BPZ:ASE12	ASE12
Stem heating element for media temperatures 0 °C, 30 W, AC 24 V	BPZ:Z366	Z366

Modulating control valves with magnetic actuator, PN16, external thread, stainless steel

MXG461S..

Mixing and 2-port valves with magnetic actuator for modulating control of general and industrial HVAC plants. For open and closed circuits. With positioning control, position feedback signal, spring return function and manual control.



Data sheet	N4465
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4...20 mA
Positioning time	< 1 s
Spring return function	A -> AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
PN class	PN 16
Permissible operating pressure	1000 kPa
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	CrNi cast stainless steel
Material, inside set	CrNi steel

CAUTION!

Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Range overview threaded valves MXG461S..

DN	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
15	1.5	300	300	29	G 1 B "	BPZ:MXG461S15-1.5	MXG461S15-1.5
20	5.0	300	300	29	G 1¼ B "	BPZ:MXG461S20-5.0	MXG461S20-5.0
25	8.0	300	300	29	G 1½ B "	BPZ:MXG461S25-8.0	MXG461S25-8.0
32	12	300	300	29	G 2 B "	BPZ:MXG461S32-12	MXG461S32-12

Union fittings made of stainless steel must delivered by thirds.

Δp_s for use as 2-port valve

MXG461S.. valves with magnetic actuators are UL-listed.

Accessories for MXG461S..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	SEZ91.6
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	ASE1
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	ASE2

Valves and actuators

Globe and pressure independent combi valves

2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG462S..

MXG462S..



Modulating control valves with magnetic actuator, PN16, external thread, stainless steel

Mixing and 2-port valves with magnetic actuator for modulating control of general and industrial HVAC plants. For open and closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4466
Operating voltage	AC 24 V DC 20...30 V
PN class	PN 16
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1600 kPa
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	-20...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	CrNi stainless steel
Material, inside set	CrNi steel

CAUTION!

Valve may only be used as a mixing or 2-port valve, not as a diverting valve. When used as a 2-port valve, port B must be closed off with the cover supplied with the valve and a cap nut of the fitting.

Range overview threaded valves MXG462S..

DN	k_{vs} [m ³ /h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
50	30	600	600	65	G 2 3/4 B "	BPZ:MXG462S50-30	MXG462S50-30

Union fittings made of stainless steel must be delivered by thirds.

Δp_s for use as 2-port valve

MXG462S.. valves with magnetic actuators are UL-listed.

Accessories for MXG462S..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		BPZ:ASE12	ASE12

Valves and actuators
Globe and pressure independent combi valves
Threaded fittings for valves

Fittings with threaded connections: Set of 2

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side. Each fitting set ALG..2 consists of 2 cap nuts, 2 insert nuts and 2 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG152	ALG152
G 1 "	Rp ½ "	Brass	S55846-Z100	ALG152B
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG202	ALG202
G 1¼ "	Rp ¾ "	Brass	S55846-Z102	ALG202B
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG252	ALG252
G 1½ "	Rp 1 "	Brass	S55846-Z104	ALG252B
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG322	ALG322
G 2 "	Rp 1¼ "	Brass	S55846-Z106	ALG322B
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG402	ALG402
G 2¼ "	Rp 1½ "	Brass	S55846-Z108	ALG402B
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG502	ALG502
G 2¾ "	Rp 2 "	Brass	S55846-Z110	ALG502B

Fittings with threaded connections: Set of 3

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side. Each fitting set ALG..3 consists of 3 cap nuts, 3 insert nuts and 3 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	ALG153
G 1 "	Rp ½ "	Brass	S55846-Z101	ALG153B
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	ALG203
G 1¼ "	Rp ¾ "	Brass	S55846-Z103	ALG203B
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	ALG253
G 1½ "	Rp 1 "	Brass	S55846-Z105	ALG253B
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	ALG323
G 2 "	Rp 1¼ "	Brass	S55846-Z107	ALG323B
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	ALG403
G 2¼ "	Rp 1½ "	Brass	S55846-Z109	ALG403B
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	ALG503
G 2¾ "	Rp 2 "	Brass	S55846-Z111	ALG503B

Applications requiring union fittings with DVGW approval must be delivered by thirds.



Valves and actuators

Globe and pressure independent combi valves

Combi valves, PN 16: VPF43..

VPF43..



Combi valves PN16 with flanged connections

For use in heating, ventilating and air conditioning systems as a control valve in closed circuits.

Data sheet	N4315
Stroke	20 mm
Leakage rate	Class IV (0...0.01% of volumetric flow)
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Gray cast iron GJL-250
Material, inside set	Stainless steel, Brass (DZR)
PN class	PN 16

Range overview combi valves VPF43..

DN	Volumetric flow V _{min} [m³/h]	Volumetric flow V [m³/h]	Δp _{min} [kPa]	Stock No.	Product No.
50	3.2	16	35	S55266-V100	VPF43.50F16
50	5	25	70	S55266-V101	VPF43.50F25
65	5	25	35	S55266-V102	VPF43.65F24
65	7	35	70	S55266-V103	VPF43.65F35
80	7	35	35	S55266-V104	VPF43.80F35
80	9	45	70	S55266-V105	VPF43.80F45

Overview differential pressures

SAX.. Δp _{max} [kPa]	SAX.. Δp _s [kPa]	SQV.. Δp _{max} [kPa]	SQV.. Δp _s [kPa]	Stock No.	Product No.
600	600	600	600	S55266-V100	VPF43.50F16
600	600	600	600	S55266-V101	VPF43.50F25
600	600	600	600	S55266-V102	VPF43.65F24
600	600	600	600	S55266-V103	VPF43.65F35
600	600	600	600	S55266-V104	VPF43.80F35
600	600	600	600	S55266-V105	VPF43.80F45

Field of application for VPF43..

Medium	Temperature	Valve packing
Low-temperature hot water	up to 120 °C	EPDM O-ring
Chilled water	above 1 °C	EPDM O-ring

Valves and actuators
Globe and pressure independent combi valves
Combi valves, PN 16: VPF43..

Accessories for VPF43..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	ALE10
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	ALE11
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	ALP45
Blanking plug for P/T ports	S55264-V115	ALP46
Drain ball valve inclusive O-ring	S55264-V116	ALP47
Combined P/T port and drain ball valve with red ribbon	S55264-V117	ALP48
Long P/T ports (set of 2 pieces)	S55264-V118	ALP49
Black spare valve protection cap (set of 2 pieces)	S55264-V119	ALP50

Combinable actuator to VPF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	30	No	N4509	S55150-A118	SAX31P03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	N4509	S55150-A114	SAX61P03
AC 24 V DC 24 V	3-position	30	No	N4509	S55150-A116	SAX81P03
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	N4833	S55150-A130	SQV91P30
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	N4833	S55150-A131	SQV91P40

Further information to the actuators please see "Actuators for combi valves"



NEW PRODUCT

Valves and actuators

Globe and pressure independent combi valves

Combi valves, PN 25: VPF53..

VPF53..



Combi valves PN25 with flanged connections

For use in heating, ventilating and air conditioning systems as a control valve in closed circuits

Data sheet	N4316
Stroke	20 mm
Leakage rate	Class IV (0...0.01% of volumetric flow)
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron GJS-400-15
Material, inside set	Stainless steel, Brass (DZR)
PN class	PN 25

Range overview combi valves VPF53..

DN	Volumetric flow V _{min} [m³/h]	Volumetric flow V [m³/h]	Δp _{min} [kPa]	Stock No.	Product No.
50	3.2	16	35	S55266-V112	VPF53.50F16
50	5	25	70	S55266-V113	VPF53.50F25
65	5	25	35	S55266-V114	VPF53.65F24
65	7	35	70	S55266-V115	VPF53.65F35
80	7	35	35	S55266-V116	VPF53.80F35
80	9	45	70	S55266-V117	VPF53.80F45

Overview differential pressures

SAX.. Δp _{max} [kPa]	SAX.. Δp _s [kPa]	SQV.. Δp _{max} [kPa]	SQV.. Δp _s [kPa]	Stock No.	Product No.
600	600	600	600	S55266-V112	VPF53.50F16
600	600	600	600	S55266-V113	VPF53.50F25
600	600	600	600	S55266-V114	VPF53.65F24
600	600	600	600	S55266-V115	VPF53.65F35
600	600	600	600	S55266-V116	VPF53.80F35
600	600	600	600	S55266-V117	VPF53.80F45

Field of application for VPF53..

Medium	Temperature	Valve packing
Low-temperature hot water	up to 120 °C	EPDM O-ring
Chilled water	above 1 °C	EPDM O-ring

Valves and actuators
Globe and pressure independent combi valves
Combi valves, PN 25: VPF53..

Accessories for VPF53..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	ALE10
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	ALE11
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	ALP45
Blanking plug for P/T ports	S55264-V115	ALP46
Drain ball valve inclusive O-ring	S55264-V116	ALP47
Combined P/T port and drain ball valve with red ribbon	S55264-V117	ALP48
Long P/T ports (set of 2 pieces)	S55264-V118	ALP49
Black spare valve protection cap (set of 2 pieces)	S55264-V119	ALP50

Combinable actuator to VPF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	30	No	N4509	S55150-A118	SAX31P03
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	N4509	S55150-A114	SAX61P03
AC 24 V DC 24 V	3-position	30	No	N4509	S55150-A116	SAX81P03
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	N4833	S55150-A130	SQV91P30
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	N4833	S55150-A131	SQV91P40

Further information to the actuators please see "Actuators for combi valves"



NEW PRODUCT

Valves and actuators

Globe and pressure independent combi valves

Mini Combi Valves (MCV), DIN: VPD.. / VPE..

VPD../VPE..



MiniCombiValves (MCV)

Combi valves with presetting, PN 10, with connections according to EN215 for

- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Data sheet N2185

Medium temperature 1...90 °C
 Permissible operating pressure 1000 kPa
 Material, valve body Brass, nickel-plated
 Material, inside set EPDM
 PN class PN 10

Suitable media: Water (to VDI 2035), water with anti-freeze.

The valves can be operated with Siemens actuators type SSA.. / STA.. and thermostatic actuators RTN..

Range overview straight valves VPD.. to DIN

DN	Connecting thread	Volumetric flow V [l/h]	Δp_w [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R 3/8"	45	5	6	BPZ:VPD110A-45	VPD110A-45
10	Rp/R 3/8"	90	5	8	BPZ:VPD110A-90	VPD110A-90
10	Rp/R 3/8"	145	5	10	BPZ:VPD110A-145	VPD110A-145
15	Rp/R 1/2"	45	5	6	BPZ:VPD115A-45	VPD115A-45
15	Rp/R 1/2"	90	5	8	BPZ:VPD115A-90	VPD115A-90
15	Rp/R 1/2"	145	5	10	BPZ:VPD115A-145	VPD115A-145
10	Rp/R 3/8"	200	10	20	BPZ:VPD110B-200	VPD110B-200
15	Rp/R 1/2"	200	10	20	BPZ:VPD115B-200	VPD115B-200

Δp_w = effective pressure (controlled differential pressure)

Δp_{min} = required minimum differential pressure across valve

\dot{v} = volumetric flow at a stroke of 0.5 mm

Range overview angle valves VPE.. to DIN

DN	Connecting thread	Volumetric flow V [l/h]	Δp_w [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R 3/8"	45	5	6	BPZ:VPE110A-45	VPE110A-45
10	Rp/R 3/8"	90	5	8	BPZ:VPE110A-90	VPE110A-90
10	Rp/R 3/8"	145	5	10	BPZ:VPE110A-145	VPE110A-145
15	Rp/R 1/2"	45	5	6	BPZ:VPE115A-45	VPE115A-45
15	Rp/R 1/2"	90	5	8	BPZ:VPE115A-90	VPE115A-90
15	Rp/R 1/2"	145	5	10	BPZ:VPE115A-145	VPE115A-145
10	Rp/R 3/8"	200	10	20	BPZ:VPE110B-200	VPE110B-200
15	Rp/R 1/2"	200	10	20	BPZ:VPE115B-200	VPE115B-200

Δp_w = effective pressure (controlled differential pressure)

Δp_{min} = required minimum differential pressure across valve

\dot{v} = volumetric flow at a stroke of 0.5 mm

Valves and actuators
Globe and pressure independent combi valves
Mini Combi Valves (MCV), DIN: VPD.. / VPE..

Combinable actuator to VPD.. / VPE..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	RTN51
					N4211	BPZ:RTN51G	RTN51G
					N2111	BPZ:RTN71	RTN71
					N2111	BPZ:RTN81	RTN81
AC 230 V	2-position	210	White	1	N4884	S55174-A101	STA23
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	STA73
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	STA73PR/00
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	SSA31
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	SSA31.1
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	SSA31/00
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	SSA61
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	SSA61/00
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	SSA81
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	SSA81.1
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	SSA81/00
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	STA63

For suitable combination of actuator STA.. and connection cable ASY., see chapter introduction page 7-4.



Valves and actuators

Globe and pressure independent combi valves

Mini Combi Valves (MCV), DIN: VPD.. / VPE..

Accessories for VPD../VPE..

AV100-VP1

Seal insertion for VPD.. and VPE.. MiniCombiValves (MCV)

Valve insert for use with all types of valves of the VPD.. and VPE.. ranges.

Data sheet

N2100



Stock No.

Product No.

BPZ:AV100-VP1

AV100-VP1

Valves and actuators
Globe and pressure independent combi valves
Combi valves for rooms and zones, PN 25: VPP46..

VPP46..



Combi valves PN25, externally threaded

Pre-adjustable Combi valves, PN 25, externally threaded for

- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Volumetric flow 30...1330 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	To DN 15: 2.5 mm DN 20: 5 mm
Medium temperature	1...110 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
PN class	PN 25

Range overview combi valves VPP46..

DN	Connecting thread	Volumetric flow V _{min} [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
10	G ½ "	30	200	S55264-V101	VPP46.10L0.2
10	G ½ "	30	200	S55264-V105	VPP46.10L0.2Q
15	G ¾ "	30	200	S55264-V102	VPP46.15L0.2
15	G ¾ "	30	200	S55264-V106	VPP46.15L0.2Q
15	G ¾ "	100	575	S55264-V103	VPP46.15L0.6
15	G ¾ "	100	575	S55264-V107	VPP46.15L0.6Q
20	G 1 "	220	1330	S55264-V104	VPP46.20F1.4
20	G 1 "	220	1330	S55264-V108	VPP46.20F1.4Q

The VPP46..Q types are equipped with P/T Plugs

Overview differential pressures

STA.. Δp _{min} [kPa]	STA.. Δp _{max} [kPa]	SSA.. Δp _{min} [kPa]	SSA.. Δp _{max} [kPa]	Stock No.	Product No.
15	400	15	400	S55264-V101	VPP46.10L0.2
15	400	15	400	S55264-V105	VPP46.10L0.2Q
15	400	15	400	S55264-V102	VPP46.15L0.2
15	400	15	400	S55264-V106	VPP46.15L0.2Q
15	400	15	400	S55264-V103	VPP46.15L0.6
15	400	15	400	S55264-V107	VPP46.15L0.6Q
		20	400	S55264-V104	VPP46.20F1.4
		20	400	S55264-V108	VPP46.20F1.4Q



Valves and actuators

Globe and pressure independent combi valves

Combi valves for rooms and zones, PN 25: VPI46..

VPI46..



Combi valves PN25, internally threaded

Pre-adjustable Combi valves, PN 25, internally threaded for

- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Volumetric flow 30...1330 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	To DN 15: 2.5 mm DN 20: 5 mm
Medium temperature	1...110 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
PN class	PN 25

Range overview combi valves VPI46..

DN	Connecting thread	Volumetric flow V _{min} [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
15	Rp ½ "	30	200	S55264-V109	VPI46.15L0.2
15	Rp ½ "	30	200	S55264-V112	VPI46.15L0.2Q
15	Rp ½ "	100	575	S55264-V110	VPI46.15L0.6
15	Rp ½ "	100	575	S55264-V113	VPI46.15L0.6Q
20	Rp ¾ "	220	1330	S55264-V111	VPI46.20F1.4
20	Rp ¾ "	220	1330	S55264-V114	VPI46.20F1.4Q

The VPI46..Q types are equipped with P/T Plugs

Overview differential pressures

STA... Δp _{min} [kPa]	STA.. Δp _{max} [kPa]	SSA.. Δp _{min} [kPa]	SSA... Δp _{max} [kPa]	Stock No.	Product No.
15	400	15	400	S55264-V109	VPI46.15L0.2
15	400	15	400	S55264-V112	VPI46.15L0.2Q
15	400	15	400	S55264-V110	VPI46.15L0.6
15	400	15	400	S55264-V113	VPI46.15L0.6Q
		20	400	S55264-V111	VPI46.20F1.4
		20	400	S55264-V114	VPI46.20F1.4Q

Valves and actuators
Globe and pressure independent combi valves
Combi valves for rooms and zones, PN 25: VPI46..

Accessories for VPP46.. / VPI46..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	ALE10
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	ALE11
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	ALP45
Blanking plug for P/T ports	S55264-V115	ALP46
Drain ball valve inclusive O-ring	S55264-V116	ALP47
Combined P/T port and drain ball valve with red ribbon	S55264-V117	ALP48
Long P/T ports (set of 2 pieces)	S55264-V118	ALP49
Black spare valve protection cap (set of 2 pieces)	S55264-V119	ALP50

Combinable actuator to VPP46.. / VPI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	STA63
AC 230 V	2-position	210	White		N4884	S55174-A110	STA23/00
AC 230 V	2-position	210	Black		N4884	S55174-A118	STA23B/00
AC 230 V	2-position	210	White		N4884	S55174-A114	STA23MP/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	STA73/00
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	STA73B/00
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	STA73MP/00
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	SSA31
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	SSA81
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	SSA61
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	SSA31.1
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	SSA81.1
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	SSA31/00
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	SSA81/00
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	SSA61/00
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	1.5	N4830	S55176-A102	SUA21/1

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.



Globe and pressure independent combi valves

Combi valves, PN 25: VPI45..

VPI45..



Combi valves PN25, internally threaded

Combi valves with presetting with internal thread for volume flow of 90...8500 l/h. With or without pressure measuring points for

- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Data sheet	N4853
Stroke	To DN 32: 5 mm From DN 40: 6.5 mm
Medium temperature	1...120 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, CrNi steel
PN class	PN 25

Range overview combi valves VPI45..

DN	Connecting thread	Volumetric flow V _{min} [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
15	Rp ½ "	90	620	BPZ:VPI45.15F0.5	VPI45.15F0.5
15	Rp ½ "	90	620	BPZ:VPI45.15F0.5Q	VPI45.15F0.5Q
15	Rp ½ "	290	1730	BPZ:VPI45.15F1.5	VPI45.15F1.5
15	Rp ½ "	290	1730	BPZ:VPI45.15F1.5Q	VPI45.15F1.5Q
20	Rp ¾ "	160	1050	BPZ:VPI45.20F0.9	VPI45.20F0.9
20	Rp ¾ "	160	1050	BPZ:VPI45.20F0.9Q	VPI45.20F0.9Q
20	Rp ¾ "	350	2040	BPZ:VPI45.20F2	VPI45.20F2
20	Rp ¾ "	350	2040	BPZ:VPI45.20F2Q	VPI45.20F2Q
25	Rp 1 "	280	1720	BPZ:VPI45.25F1.5	VPI45.25F1.5
25	Rp 1 "	280	1720	BPZ:VPI45.25F1.5Q	VPI45.25F1.5Q
25	Rp 1 "	350	2040	BPZ:VPI45.25F2	VPI45.25F2
25	Rp 1 "	350	2040	BPZ:VPI45.25F2Q	VPI45.25F2Q
32	Rp 1¼ "	560	3050	BPZ:VPI45.32F3	VPI45.32F3
32	Rp 1¼ "	560	3050	BPZ:VPI45.32F3Q	VPI45.32F3Q
40	Rp 1½ "	2355	7105	BPZ:VPI45.40F7	VPI45.40F7
40	Rp 1½ "	2355	7105	BPZ:VPI45.40F7Q	VPI45.40F7Q
50	Rp 2 "	2664	8586	BPZ:VPI45.50F8.5	VPI45.50F8.5
50	Rp 2 "	2664	8586	BPZ:VPI45.50F8.5Q	VPI45.50F8.5Q

The VPI45...Q types are equipped with P/T Plugs

Valves and actuators
Globe and pressure independent combi valves
Combi valves, PN 25: VPI45..

Overview differential pressures

SSD.. Δp_{\min} [kPa]	SSD.. Δp_{\max} [kPa]	SQD.. Δp_{\min} [kPa]	SQD.. Δp_{\max} [kPa]	Product No.
16	400			VPI45.15F0.5
16	400			VPI45.15F0.5Q
18	400			VPI45.15F1.5
18	400			VPI45.15F1.5Q
16	400			VPI45.20F0.9
16	400			VPI45.20F0.9Q
22	400			VPI45.20F2
22	400			VPI45.20F2Q
16	400			VPI45.25F1.5
16	400			VPI45.25F1.5Q
22	400			VPI45.25F2
22	400			VPI45.25F2Q
18	400			VPI45.32F3
18	400			VPI45.32F3Q
		26	400	VPI45.40F7
		26	400	VPI45.40F7Q
		32	400	VPI45.50F8.5
		32	400	VPI45.50F8.5Q

Up to $\Delta p_{\max} = 400$ kPa: leakage rate > 0,05% of volumetric flow V_{100} ; Up to $\Delta p_{\max} = 230$ kPa: leakage rate 0...0,05% of volumetric flow V_{100}

Accessories for VPI45..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	ALE10
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	ALE11
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	ALP45
Blanking plug for P/T ports	S55264-V115	ALP46
Drain ball valve inclusive O-ring	S55264-V116	ALP47
Combined P/T port and drain ball valve with red ribbon	S55264-V117	ALP48
Long P/T ports (set of 2 pieces)	S55264-V118	ALP49
Black spare valve protection cap (set of 2 pieces)	S55264-V119	ALP50
Pre-setting key for VPI45..	S55264-V120	ALP52



Valves and actuators

Globe and pressure independent combi valves

Combi valves, PN 25: VPI45..

Combinable actuator to VPI45..

Operating voltage	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	1.5	N4861	BPZ:SSD31	SSD31
AC 24 V DC 24 V	DC 0...10 V	75	1.5	N4861	BPZ:SSD61	SSD61
AC 24 V DC 24 V	DC 2...10 V	75	1.5	N4861	BPZ:SSD61.2	SSD61.2
AC 24 V DC 24 V	DC 0...10 V	75	1.5	N4861	BPZ:SSD61EP	SSD61EP
AC 24 V	3-position	150	1.5	N4861	BPZ:SSD81	SSD81
AC 230 V	3-position	150		N4861	BPZ:SSD31/00	SSD31/00
AC 24 V DC 24 V	DC 0...10 V	75		N4861	BPZ:SSD61/00	SSD61/00
AC 24 V DC 24 V	DC 2...10 V	75		N4861	BPZ:SSD61.2/00	SSD61.2/00
AC 24 V DC 24 V	DC 0...10 V	75		N4861	BPZ:SSD61EP/00	SSD61EP/00
AC 24 V	3-position	150		N4861	BPZ:SSD81/00	SSD81/00
AC 230 V	3-position	170		N4540	BPZ:SQD35.00	SQD35.00
AC 24 V	3-position	43		N4540	BPZ:SQD85.03	SQD85.03
AC 24 V	DC 0...10 V 0...1000 Ohm	43		N4540	BPZ:SQD65	SQD65

Valves and actuators
Actuators for rotary valves
Rotary actuators 2 Nm, with spring-return: GQD..9A

Rotary actuators 2 Nm with spring return for ball valves VAI61../VBI61.. and VAI60../VBI60..

GQD..9A

Electromotoric actuators for 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables.



Data sheet	N4659
Torque	2 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP40
Angular rotation	90 °
Positioning time	Opening with motor: 30 s Closing with spring: 15 s
Mounting position	Upright to horizontal
Spring return function	Yes
Position feedback	DC 0...10 V (GQD161.9A)

Range overview GQD..9A

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	6.5 VA 4.5 W	2-position	BPZ:GQD121.9A	GQD121.9A
AC 24 DC 24	4 VA 2.5 W	3-position	BPZ:GQD131.9A	GQD131.9A
AC 24 DC 24	4.5 VA 3 W	DC 0...10 V	BPZ:GQD161.9A	GQD161.9A
AC 230	10 VA 4.5 W	2-position	BPZ:GQD321.9A	GQD321.9A



Valves and actuators

Actuators for rotary valves

Rotary actuators 2 Nm, without spring-return: GSD..9A

GSD..9A



Rotary actuators 2 Nm without spring return for ball valves VAI61.. and VBI61..

Electromotoric rotary actuators without spring return, for On-Off control (2 wire SPDT), pre-wired with 0.9 m long connection cable

Data sheet	N4655
Torque	2 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP40
Angular rotation	90 °
Positioning time	30 s
Mounting position	Upright to horizontal
Spring return function	No

Range overview GSD..9A

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	2 VA 1.5 W	ON/OFF	BPZ:GSD141.9A	GSD141.9A
AC 230	12 VA 2 W	ON/OFF	BPZ:GSD341.9A	GSD341.9A

Valves and actuators
Actuators for rotary valves
Rotary actuators 5 Nm, without spring-return: GDB..9E

Rotary actuators 5 Nm without spring return for ball valves VAI61.. and VBI61..

GDB..9E

Electromotoric actuators for 3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables.

Data sheet	N4657
Torque	5 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	150 s
Mounting position	Upright to horizontal
Spring return function	No
Position feedback	DC 0...10 V (GDB161.9E)



Range overview GDB..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24	2 VA 1 W	3-position	BPZ:GDB131.9E	GDB131.9E
AC 24	3 VA 2 W	DC 0...10 V	BPZ:GDB161.9E	GDB161.9E
AC 230	2 VA 1 W	3-position	BPZ:GDB331.9E	GDB331.9E



Valves and actuators

Actuators for rotary valves

Rotary actuators 7 Nm, with spring-return: GMA..9E

GMA..9E



Rotary actuators 7 Nm with spring return for ball valves VAI60../VBI60.. and VAI61../VBI61..

Electromotoric actuators for 2-position, 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables.

Data sheet	N4658
Torque	7 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Mounting position	Upright to horizontal
Spring return function	Yes
Position feedback	

Range overview GMA..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	5 VA 3.5 W	3-position	BPZ:GMA131.9E	GMA131.9E
AC 24 DC 24	5 VA 3.5 W	DC 0...10 V	BPZ:GMA161.9E	GMA161.9E

Valves and actuators
Actuators for rotary valves
Rotary actuators 10 Nm, without spring-return: GLB..9E

Rotary actuators 10 Nm without spring return for ball valves VAI60../VBI60.. and VAI61../VBI61..

GLB..9E

Electromotoric actuators for 3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables.

Data sheet	N4657
Torque	10 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	150 s
Mounting position	Upright to horizontal
Spring return function	No
Position feedback	DC 0...10 V (GLB161.9E)



Range overview GLB..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24	2 VA 1 W	3-position	BPZ:GLB131.9E	GLB131.9E
AC 24	3 VA 2 W	DC 0...10 V	BPZ:GLB161.9E	GLB161.9E
AC 230	2 VA 1 W	3-position	BPZ:GLB331.9E	GLB331.9E



Valves and actuators

Actuators for rotary valves

Rotary actuators 25 Nm: GBB..1E

GBB..1E



Rotary actuators 25 Nm for ball valves VAF51..

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4626
Torque	25 Nm
Air damper area	4 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Rotary actuators 25 Nm for ball valves VAF51..

Range overview GBB...1E

Operating voltage V	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.1E	GBB131.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB135.1E	GBB135.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.1E	GBB136.1E
AC 230	3-position	5 VA / 5 W	0	BPZ:GBB331.1E	GBB331.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB335.1E	GBB335.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB336.1E	GBB336.1E
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.1E	GBB161.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.1E	GBB163.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GBB164.1E	GBB164.1E
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GBB166.1E	GBB166.1E

Types GBB135.1E and GBB335.1E also have a feedback potentiometer.

Basic Documentation No.: Z4626

GIB..1E



Rotary actuators 35 Nm for ball valves VAF51..

- With self-centering shaft adapter for shaft dia. 8...25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4626
Torque	35 Nm
Air damper area	6 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Rotary actuators 35 Nm for ball valves VAF51..

Range overview GIB...1E

Operating voltage V	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GIB131.1E	GIB131.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB135.1E	GIB135.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB136.1E	GIB136.1E
AC 230	3-position	5 VA / 5 W	0	BPZ:GIB331.1E	GIB331.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB335.1E	GIB335.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB336.1E	GIB336.1E
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GIB161.1E	GIB161.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GIB163.1E	GIB163.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GIB164.1E	GIB164.1E
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GIB166.1E	GIB166.1E

Types GIB135.1E and 335.1E also have a potentiometer.

Basic Documentation No.: Z4626

Valves and actuators

Actuators for rotary valves

Rotary actuators 10 Nm: SAL..

SAL..



Electromotoric actuators 10...20 Nm for slipper and butterfly valves

Rotary actuator for the operation of 3-port slipper valves VBF21.. and butterfly valves VKF41.. as control and safety shut-off valves in heating, ventilation and air conditioning systems.

With manual adjuster and position indicator, status indication per LED.

Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

SA..81.., SA..61.. are UL listed.

Data sheet	N4502
Angular rotation	90 °
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-10...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAL31../61../81..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230 V	3-position	3.5	120	10	S55162-A108	SAL31.00T10
AC 230 V	3-position	6.5	30	10	S55162-A109	SAL31.03T10
AC 230 V	3-position	4.1	120	20	S55162-A110	SAL31.00T20
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	4	120	10	S55162-A100	SAL61.00T10
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8.5	30	10	S55162-A101	SAL61.03T10
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	5.8	120	20	S55162-A102	SAL61.00T20
AC 24 V DC 24 V	3-position	4	120	10	S55162-A104	SAL81.00T10
AC 24 V DC 24 V	3-position	4	30	10	S55162-A105	SAL81.03T10
AC 24 V DC 24 V	3-position	4	120	20	S55162-A106	SAL81.00T20

Accessories for rotary actuators SAL..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	ASC10.51
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	ASZ7.5/1000
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	ASZ7.5/200
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	ASZ7.5/135
Weathershield for SAX../SAL..	N4501	S55845-Z109	ASK39.1

Mounting sets for SAL..

Product Title	Data sheet	Stock No.	Product No.
Mounting set for SAL.. onto VBF21..	N4502	S55845-Z100	ASK31N
Mounting set for SAL.. onto VKF41..	N4502	S55845-Z101	ASK33N

Valves and actuators

Actuators for rotary valves

Rotary actuators 5...20 Nm: SQK.. / SQL..

SQK../SQL..



Electromotoric actuators 5...20 Nm for rotary valves

With reversible synchronous motor. Changeover button for manual / automatic control and manual override. With die-cast aluminium housing and plastic cover. Can be combined with ASK3.. mounting sets to motorize butterfly and slipper valves (corresponding mounting sets must be ordered as separate items).

SQK33...: Angle of rotation adjustable between 70° and 180°.

Angular rotation	90 °
Positioning signal	3-position
Degree of protection	IP44
Mounting position	Upright to horizontal
Ambient temperature, operation	-15...55 °C

All actuators have 2 built-in end switches and space for 1 ancillary unit (auxiliary switch or potentiometer).

for VBF21.., VBG31.., VBI31.., VCI31.., VKF41.., VKF46..

Range overview actuators SQK.. / SQL..

Operating voltage	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Data sheet	Stock No.	Product No.
AC 230 V	3	135	5	N4508	BPZ:SQK34.00	SQK34.00
AC 24 V	3	135	5	N4508	BPZ:SQK84.00	SQK84.00
AC 230 V	3	125	5	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	6.5	125	20	N4505	BPZ:SQL35.00	SQL35.00
AC 24 V	6.5	125	20	N4505	BPZ:SQL85.00	SQL85.00

Auxiliary switch for actuators SQK.. / SQL..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQK34../84..	N4508	BPZ:ASC9.7	ASC9.7
Auxiliary switch for SQK33../SQL33../83../35../85../SQX32../82..	N4554	BPZ:ASC9.5	ASC9.5
Double auxiliary switch for SQL33../83../35../85../SQX32../82..	N4554	BPZ:ASC9.4	ASC9.4
1 auxiliary switch and 1 potentiometer for SQX32../SQX82../SQL33../SQL83../SQL35../SQL85..	N4554	BPZ:ASZ7.4	ASZ7.4

Mounting sets

Product Title	Data sheet	Stock No.	Product No.
Mounting set for SQL33.. / 83.. / 35.. / 85.. and slipper valves VBF21..from DN65	N4506	BPZ:ASK31	ASK31
Mounting set for SQK33.. / SQL33.. / 83.. and slipper valves VBI31.. / VBG31.. / VCI31.. / VBF21.. up to DN50	N4506	BPZ:ASK32	ASK32
Mounting set for SQK33.. / SQL33.. / 83.. and butterfly valves VKF41..	N4506	BPZ:ASK33	ASK33
Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN40 to DN65	N4136	BPZ:ASK35.1	ASK35.1
Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN80 to DN125	N4136	BPZ:ASK35.2	ASK35.2

Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices

ASK40

- Suitable for use with the following types of 3-port slipper valves:
 - CENTRA DIFFERENTIAL: DR.., DRG.. (DN15...125)
 - CENTRA KOMPAKT: DRK.. (DN 15...40), DFK.. (DN25...32)
 - ESBE / SHUNT AB: Threaded: R $\frac{3}{4}$ "...R $\frac{1}{2}$ ", R2" / flanged: DN20...25, 32...50
- Suitable for use with the following types of 4-port slipper valves:
 - CENTRA DUPLEX: ZR.. (DN15...200)
 - CENTRA KOMPAKT: ZRK.. (DN20...40)
 - ESBE / SHUNT AB: Threaded: R $\frac{3}{4}$ "...R $\frac{1}{2}$ ", R2" / flanged: DN20...25, 32...50



Data sheet N4291

Stock No.	Product No.
BPZ:ASK40	ASK40

Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices

ASK41

- Suitable for use with the following types of 3-port slipper valves:
 - AXA: F3, G3, S3 (DN20...65)
 - BUDERUS: 3M (DN20...32), 3F (DN 25...50)
 - LOELL: LG3, LF3 (DN20...40)
 - MUEHLENBERG: AM3 (DN15...50)
 - ONDAMIX (ONDAL): MDM (DN25...32)
 - VIESSMANN: DN20...25, 32...40
- Suitable for use with the following types of 4-port slipper valves:
 - AXA: F4, G4, S4 (DN20...65)
 - BUDERUS: 4M (DN20...32), 4F (DN25...50)
 - LOELL: LG4, LF4 (DN20...50)
 - MUEHLENBERG: AM4 (DN20...50)
 - ONDAMIX (ONDAL): DN20...50
 - VIESSMANN: DN20...25, 32...40



Data sheet N4291

Stock No.	Product No.
BPZ:ASK41	ASK41

Phase- out Winter 2013/14 - Rotary actuators SQL35.00/ SQL85.00, and the mounting sets ASK35.1/ ASK35.2/ ASK40/ ASK41

Valves and actuators

Actuators for rotary valves

Rotary actuators 40...1200 Nm: SQL36..

SQL36..



Electromotoric actuators 40...1200 Nm for butterfly valves

With reversible asynchronous motor. Direct-acting manual control. Die-cast aluminium housing and plastic manual knob. For VKF46 butterfly valves from DN40 mm, no mounting kits required.

Data sheet	N4505
Angular rotation	90 °
Operating voltage	AC 230 V
Positioning signal	3-position
Degree of protection	IP67
Mounting position	Any
Ambient temperature, operation	-20...70 °C

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer and 1 positioning time module (without SQL36E50..) can be retrofitted.

Range overview actuators SQL36..

Operating voltage [V]	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230 V	25	25	40	BPZ:SQL36E50F04	SQL36E50F04
AC 230 V	25	25	40	BPZ:SQL36E50F05	SQL36E50F05
AC 230 V	166	6	100	BPZ:SQL36E65	SQL36E65
AC 230 V	235	12	400	BPZ:SQL36E110	SQL36E110
AC 230 V	235	24	1200	BPZ:SQL36E160	SQL36E160

Running time with auxiliary module SEZ31.1: variable positioning time 30...180 s (SQL36E65), 60...360 s (SQL36E110) resp. 120...720 s (SQL36E160)

Accessories for SQL36E..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary module, variable positioning time for SQL36E..	N4505	BPZ:SEZ31.1	SEZ31.1
Double auxiliary switch for SQL36E	N4505	BPZ:ASC36	ASC36
Potentiometer 1000 Ohm for SQL36E..	N4505	BPZ:ASZ36	ASZ36

Electromotoric actuators 25...2650 Nm for butterfly valves VKF42..

SQL..B..

Electromotoric actuator for operation of VKF42.. butterfly valves as shutoff and control valves in heating, ventilation and air conditioning plants. No mounting kits required.
Flange connection to EN ISO 5211.



Data sheet	N4520
Angular rotation	90 °
Degree of protection	IP65
Mounting position	Upright to horizontal
Ambient temperature, operation	-20...65 °C
Medium temperature	-10...80 °C
Position feedback	DC 0...10 V (SQL361..)

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer 1000 Ohm can be retrofitted.

Range overview actuators SQL..B..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 220	2-position (SPDT)	42	11	25	S55164-A100	SQL321B25
AC 220	2-position (SPDT)	88	19	50	S55164-A101	SQL321B50
AC 220	DC 0...10	88	19	50	S55164-A102	SQL361B50
AC 220	2-position (SPDT)	91	39	150	S55164-A103	SQL321B150
AC 220	DC 0...10	91	39	150	S55164-A104	SQL361B150
AC 220	2-position (SPDT)	165	39	270	S55164-A105	SQL321B270
AC 220	DC 0...10	165	39	270	S55164-A106	SQL361B270
AC 220	2-position (SPDT)	194	47	570	S55164-A107	SQL321B570
AC 220	DC 0...10	194	47	570	S55164-A108	SQL361B570
AC 220	2-position (SPDT)	361	76	1400	S55164-A109	SQL321B1400
AC 220	DC 0...10	361	76	1400	S55164-A110	SQL361B1400
AC 220	2-position (SPDT)	436	105	2650	S55164-A111	SQL321B2650
AC 220	DC 0...10	436	105	2650	S55164-A112	SQL361B2650

Accessories for SQL..B..

Product Title	Data sheet	Stock No.	Product No.
Double auxiliary switch	N4520	S55845-Z121	ASC10.20
Double auxiliary switch	N4520	S55845-Z122	ASC10.21
Potentiometer for SQL321B50	N4520	S55845-Z123	ASZ10.20
Potentiometer for SQL321B50/SQL321B150	N4520	S55845-Z124	ASZ10.21
Potentiometer for SQL321B270/SQL321B570	N4520	S55845-Z125	ASZ10.22
Potentiometer for SQL321B1400/SQL321B2650	N4520	S55845-Z126	ASZ10.23



Valves and actuators

Rotary valves

2-port ball valves, PN40: VAF51..

VAF51..



2-port control ball valves, flanged connections, PN25

Ball valves for use in heating, cooling, ventilating and air conditioning systems as a control or shutoff valve.

Data sheet	N4120
Leakage rate	0...0.01 % of k_{VS} value
Angular rotation	90 °
Medium temperature	2...80 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Equal-percentage
Rangeability	> 200
Material, valve body	EN-GJL-250
Material, inside set	Stainless steel (SS-340)
PN class	PN 25

Range overview 2-port valves VAF51..

GBB..1E Δp_{max} [kPa]	GBB..1E Δp_s [kPa]	GIB..1E Δp_{max} [kPa]	GIB..1E Δp_s [kPa]	2 x GIB..1E Δp_{max} [kPa]	2 x GIB..1E Δp_s [kPa]	DN	k_{VS}	Stock No.	Product No.
400	400					65	63	S55232-V100	VAF51.65-63
400	400					80	100	S55232-V101	VAF51.80-100
		400	400			100	160	S55232-V102	VAF51.100-160
		300	300			125	200	S55232-V103	VAF51.125-200
				400	400	150	360	S55232-V104	VAF51.150-360

Accessories for VAF51..

Product Title	Stock No.	Product No.
Ball valve mounting set, DN65, DN80, DN100	BPZ:ASK77.6	ASK77.6
Ball valve mounting set, DN125	BPZ:ASK77.7	ASK77.7
Ball valve mounting set, DN150	BPZ:ASK77.8	ASK77.8

Combinable actuator for VAF51..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4626	BPZ:GBB331.1E	GBB331.1E
AC 24 V	3-position	150	N4626	BPZ:GBB131.1E	GBB131.1E
AC 24 V	DC 0...10 V	150	N4626	BPZ:GBB161.1E	GBB161.1E
AC 230 V	3-position	150	N4626	BPZ:GIB331.1E	GIB331.1E
AC 24 V	3-position	150	N4626	BPZ:GIB131.1E	GIB131.1E
AC 24 V	DC 0...10 V	150	N4626	BPZ:GIB161.1E	GIB161.1E

VAI61..



2-port control ball valves, internally threaded, PN40

Internally threaded connections Rp.. as per ISO 7-1.
 For use in heating, ventilating and air conditioning plants as a control or safety shutoff valve. For closed circuits.

Data sheet	N4211
Leakage rate	0...0.0001 % of k_{VS} value
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Equal-percentage
Rangeability	> 500
Permissible operating pressure	1600 kPa
Material, valve body	Brass UNS C35330 (DZR)
Material, inside set	Brass UNS C35330 (DZR), chromium-plated
PN class	PN 40

Range overview VAI61.. with rotary actuators GMA..9E and GLB..9E

GMA../GLB..9E Δp_{max} [kPa]	GMA../GLB..9E Δp_s [kPa]	Connecting thread	DN	k_{VS}	Stock No.	Product No.
350	1400	Rp ½ "	15	1	BPZ:VAI61.15-1	VAI61.15-1
350	1400	Rp ½ "	15	1.6	BPZ:VAI61.15-1.6	VAI61.15-1.6
350	1400	Rp ½ "	15	2.5	BPZ:VAI61.15-2.5	VAI61.15-2.5
350	1400	Rp ½ "	15	4	BPZ:VAI61.15-4	VAI61.15-4
350	1400	Rp ½ "	15	6.3	BPZ:VAI61.15-6.3	VAI61.15-6.3
350	1400	Rp ½ "	15	10	BPZ:VAI61.15-10	VAI61.15-10
350	1400	Rp ¾ "	20	4	BPZ:VAI61.20-4	VAI61.20-4
350	1400	Rp ¾ "	20	6.3	BPZ:VAI61.20-6.3	VAI61.20-6.3
350	1400	Rp ¾ "	20	10	BPZ:VAI61.20-10	VAI61.20-10
350	1400	Rp 1 "	25	6.3	BPZ:VAI61.25-6.3	VAI61.25-6.3
350	1400	Rp 1 "	25	10	BPZ:VAI61.25-10	VAI61.25-10
350	1400	Rp 1 "	25	16	BPZ:VAI61.25-16	VAI61.25-16
350	1000	Rp 1¼ "	32	10	BPZ:VAI61.32-10	VAI61.32-10
240	1000	Rp 1¼ "	32	16	BPZ:VAI61.32-16	VAI61.32-16
240	1000	Rp 1¼ "	32	25	BPZ:VAI61.32-25	VAI61.32-25
350	800	Rp 1½ "	40	16	BPZ:VAI61.40-16	VAI61.40-16
240	800	Rp 1½ "	40	25	BPZ:VAI61.40-25	VAI61.40-25
240	800	Rp 1½ "	40	40	BPZ:VAI61.40-40	VAI61.40-40
350	600	Rp 2 "	50	25	BPZ:VAI61.50-25	VAI61.50-25
240	600	Rp 2 "	50	40	BPZ:VAI61.50-40	VAI61.50-40
240	600	Rp 2 "	50	63	BPZ:VAI61.50-63	VAI61.50-63

Valves and actuators

Rotary valves

2-port ball valves, PN40: VAI61..

Range overview VAI61.. with rotary actuators GQD..9A and GDB..9E

GQD..9A ΔP_{\max} [kPa]	GQD..9A ΔP_s [kPa]	GDB..9E ΔP_{\max} [kPa]	GDB..9E Δp_s [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	1400	350	1400	Rp 1/2 "	15	1	BPZ:VAI61.15-1	VAI61.15-1
350	1400	350	1400	Rp 1/2 "	15	1.6	BPZ:VAI61.15-1.6	VAI61.15-1.6
350	1400	350	1400	Rp 1/2 "	15	2.5	BPZ:VAI61.15-2.5	VAI61.15-2.5
350	1400	350	1400	Rp 1/2 "	15	4	BPZ:VAI61.15-4	VAI61.15-4
350	1400	350	1400	Rp 1/2 "	15	6.3	BPZ:VAI61.15-6.3	VAI61.15-6.3
350	1400	350	1400	Rp 1/2 "	15	10	BPZ:VAI61.15-10	VAI61.15-10
350	1400	350	1400	Rp 3/4 "	20	4	BPZ:VAI61.20-4	VAI61.20-4
350	1400	350	1400	Rp 3/4 "	20	6.3	BPZ:VAI61.20-6.3	VAI61.20-6.3
350	1400	350	1400	Rp 3/4 "	20	10	BPZ:VAI61.20-10	VAI61.20-10
		350	1400	Rp 1 "	25	6.3	BPZ:VAI61.25-6.3	VAI61.25-6.3
		350	1400	Rp 1 "	25	10	BPZ:VAI61.25-10	VAI61.25-10
		350	1400	Rp 1 "	25	16	BPZ:VAI61.25-16	VAI61.25-16

Accessories for VAI61..

Product Title	Stock No.	Product No.
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	ASK77.2
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	ASK77.3
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	ASK77.4

Combinable actuator for VAI61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	3-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD131.9A	GQD131.9A
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD161.9A	GQD161.9A
AC 24 V	3-position	150	No	N4657	BPZ:GDB131.9E	GDB131.9E
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GDB161.9E	GDB161.9E
AC 230 V	3-position	150	No	N4657	BPZ:GDB331.9E	GDB331.9E
AC 24 V DC 24 V	3-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA131.9E	GMA131.9E
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA161.9E	GMA161.9E
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	GLB131.9E
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GLB161.9E	GLB161.9E
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	GLB331.9E

Valves and actuators

Rotary valves

3-port ball valves, PN40: VBI61..

VBI61..



3-port control ball valves, internally threaded, PN40

Internally threaded connections Rp.. as per ISO 7-1.

For use in heating, ventilating and air conditioning plants as a control or safety shutoff valve. For closed circuits.

Data sheet	N4211
Leakage rate	0...0.00001 % of k_{VS} value
Leakage rate bypass	< 1 % of k_{VS} value
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	> 500
Permissible operating pressure	1600 kPa
Material, valve body	Brass UNS C35330 (DZR)
Material, inside set	Brass UNS C35330 (DZR), chromium-plated
PN class	PN 40

Range overview VBI61..

GQD..9A Δp_{max} [kPa]	GDB..9E Δp_{max} [kPa]	GMA../GLB..9 E Δp_{max} [kPa]	Connecting thread	DN	k_{VS}	Stock No.	Product No.
350	350	350	Rp ½ "	15	1.6	BPZ:VBI61.15-1.6	VBI61.15-1.6
350	350	350	Rp ½ "	15	2.5	BPZ:VBI61.15-2.5	VBI61.15-2.5
350	350	350	Rp ½ "	15	4	BPZ:VBI61.15-4	VBI61.15-4
350	350	350	Rp ½ "	15	6.3	BPZ:VBI61.15-6.3	VBI61.15-6.3
350	350	350	Rp ¾ "	20	4	BPZ:VBI61.20-4	VBI61.20-4
350	350	350	Rp ¾ "	20	6.3	BPZ:VBI61.20-6.3	VBI61.20-6.3
	350	350	Rp 1 "	25	10	BPZ:VBI61.25-10	VBI61.25-10
		240	Rp 1¼ "	32	16	BPZ:VBI61.32-16	VBI61.32-16
		240	Rp 1½ "	40	25	BPZ:VBI61.40-25	VBI61.40-25
		240	Rp 2 "	50	40	BPZ:VBI61.50-40	VBI61.50-40
		240	Rp 2 "	50	63	BPZ:VBI61.50-63	VBI61.50-63

Accessories for VBI61..

Product Title	Stock No.	Product No.
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	ASK77.2
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	ASK77.3
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	ASK77.4
Insulation cover for VBI60/61, DN15	BPZ:ALI15VBI60/61	ALI15VBI60/61
Insulation cover for VBI61, DN20	BPZ:ALI20VBI61	ALI20VBI61
Insulation cover for VBI60/61, DN25	BPZ:ALI25VBI60/61	ALI25VBI60/61
Insulation cover for VBI60/61, DN32	BPZ:ALI32VBI60/61	ALI32VBI60/61
Insulation cover for VBI60/61, DN40	BPZ:ALI40VBI60/61	ALI40VBI60/61
Insulation cover for VBI60/61, DN50	BPZ:ALI50VBI60/61	ALI50VBI60/61

Valves and actuators
Rotary valves
3-port ball valves, PN40: VBI61..

Combinable actuator for VBI61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	3-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD131.9A	GQD131.9A
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD161.9A	GQD161.9A
AC 24 V	3-position	150	No	N4657	BPZ:GDB131.9E	GDB131.9E
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GDB161.9E	GDB161.9E
AC 230 V	3-position	150	No	N4657	BPZ:GDB331.9E	GDB331.9E
AC 24 V DC 24 V	3-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA131.9E	GMA131.9E
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA161.9E	GMA161.9E
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	GLB131.9E
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GLB161.9E	GLB161.9E
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	GLB331.9E

Valves and actuators

Rotary valves

2-port ball valves, PN40: VAI60..

VAI60..



Open/close ball valves 2-port, PN40

Internally threaded connections Rp.. as per ISO 7-1.

For use in heating, ventilating and air conditioning plants as open/close ball valves. For closed circuits.

Data sheet	N4213
Leakage rate	0...0.0001 of k_{vs} value
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Dezincification resistant hot-pressed brass (DZR), CW602N
Material, inside set	Dezincification resistant hot-pressed brass (DZR), CW602N, chromium-plated
PN class	PN 40

Range overview VAI60.. with rotary actuators GMA..9E and GLB..9E

GMA../GLB..9E Δp_{max} [kPa]	GMA../GLB..9E Δp_s [kPa]	Connecting thread ["]	DN	k_{vs}	Stock No.	Product No.
350	1400	Rp ½ "	15	15	BPZ:VAI60.15-15	VAI60.15-15
350	1400	Rp 1 "	20	22	BPZ:VAI60.20-22	VAI60.20-22
350	1400	Rp 1 "	25	22	BPZ:VAI60.25-22	VAI60.25-22
350	1000	Rp 1¼ "	32	35	BPZ:VAI60.32-35	VAI60.32-35
350	800	Rp 1½ "	40	68	BPZ:VAI60.40-68	VAI60.40-68
350	600	Rp 2 "	50	96	BPZ:VAI60.50-96	VAI60.50-96

Range overview VAI60.. with rotary actuators GQD..9A and GDB..9E

GSD..9A Δp_{max}	GSD..9A Δp_s	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	1400	350	1400	Rp ½ "	15	15	BPZ:VAI60.15-15	VAI60.15-15
350	1400	350	1400	Rp 1 "	20	22	BPZ:VAI60.20-22	VAI60.20-22
350	1400	350	1400	Rp 1 "	25	22	BPZ:VAI60.25-22	VAI60.25-22
				Rp 1¼ "	32	35	BPZ:VAI60.32-35	VAI60.32-35
				Rp 1½ "	40	68	BPZ:VAI60.40-68	VAI60.40-68
				Rp 2 "	50	96	BPZ:VAI60.50-96	VAI60.50-96

Accessories for VAI60..

Product Title	Stock No.	Product No.
Insulation cover for VAI60/61, DN15	BPZ:ALI15VAI60/61	ALI15VAI60/61
Insulation cover for VAI60/61, DN20	BPZ:ALI20VAI60/61	ALI20VAI60/61
Insulation cover for VAI60/61, DN25	BPZ:ALI25VAI60/61	ALI25VAI60/61
Insulation cover for VAI60/61, DN32	BPZ:ALI32VAI60/61	ALI32VAI60/61
Insulation cover for VAI60/61, DN40	BPZ:ALI40VAI60/61	ALI40VAI60/61
Insulation cover for VAI60/61, DN50	BPZ:ALI50VAI60/61	ALI50VAI60/61
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	ASK77.2
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	ASK77.3
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	ASK77.4

Combinable actuator for VAI60..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD121.9A	GQD121.9A
AC 230 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD321.9A	GQD321.9A
AC 24 V DC 24 V	ON/OFF	30	No	N4655	BPZ:GSD141.9A	GSD141.9A
AC 230 V	ON/OFF	30	No	N4655	BPZ:GSD341.9A	GSD341.9A
AC 24 V DC 24 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA121.9E	GMA121.9E
AC230 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA321.9E	GMA321.9E
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	GLB131.9E
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	GLB331.9E

NEW PRODUCT

Valves and actuators

Rotary valves

3-port ball valves, PN40: VBI60..

VBI60..



Changeover ball valves 3-port, PN40

Internally threaded connections Rp.. as per ISO 7-1.

For use in heating, ventilating and air conditioning plants as changeover ball valves. For closed circuits.

Data sheet	N4213
Leakage rate	0...0.0001 of k_{vs} value
Leakage rate bypass	
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Dezincification resistant hot-pressed brass (DZR), CW602N
Material, inside set	Dezincification resistant hot-pressed brass (DZR), CW602N, chromium-plated
PN class	PN 40

Range overview VBI60..

GQD..9A Δp_{max} [kPa]	GSD..9A Δp_{max} [kPa]	GMA../GLB..9 E Δp_{max} [kPa]	Connecting thread ["]	DN	k_{vs}	Stock No.	Product No.
350	350	350	Rp ½ "	15	5	BPZ:VBI60.15-5L	VBI60.15-5L
350	350	350	Rp ½ "	15	12	BPZ:VBI60.15-12T	VBI60.15-12T
350	350	350	Rp 1 "	20	9	BPZ:VBI60.20-9L	VBI60.20-9L
350	350	350	Rp 1 "	20	16	BPZ:VBI60.20-16T	VBI60.20-16T
350	350	350	Rp 1 "	25	9	BPZ:VBI60.25-9L	VBI60.25-9L
350	350	350	Rp 1 "	25	16	BPZ:VBI60.25-16T	VBI60.25-16T
		350	Rp 1¼ "	32	13	BPZ:VBI60.32-13L	VBI60.32-13L
		350	Rp 1¼ "	32	25	BPZ:VBI60.32-25T	VBI60.32-25T
		350	Rp 1½ "	40	25	BPZ:VBI60.40-25L	VBI60.40-25L
		350	Rp 1½ "	40	49	BPZ:VBI60.40-49T	VBI60.40-49T
		350	Rp 2 "	50	37	BPZ:VBI60.50-37L	VBI60.50-37L
		350	Rp 2 "	50	73	BPZ:VBI60.50-73T	VBI60.50-73T

Accessories for VBI60..

Product Title	Stock No.	Product No.
Insulation cover for VBI60/61, DN15	BPZ:ALI15VBI60/61	ALI15VBI60/61
Insulation cover for VBI60, DN20	BPZ:ALI20VBI60	ALI20VBI60
Insulation cover for VBI60/61, DN25	BPZ:ALI25VBI60/61	ALI25VBI60/61
Insulation cover for VBI60/61, DN32	BPZ:ALI32VBI60/61	ALI32VBI60/61
Insulation cover for VBI60/61, DN40	BPZ:ALI40VBI60/61	ALI40VBI60/61
Insulation cover for VBI60/61, DN50	BPZ:ALI50VBI60/61	ALI50VBI60/61
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	ASK77.2
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	ASK77.3
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	ASK77.4

Valves and actuators
 Rotary valves
 3-port ball valves, PN40: VBI60..

Combinable actuator for VBI60..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD121.9A	GQD121.9A
AC 230 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD321.9A	GQD321.9A
AC 24 V DC 24 V	ON/OFF	30	No	N4655	BPZ:GSD141.9A	GSD141.9A
AC 230 V	ON/OFF	30	No	N4655	BPZ:GSD341.9A	GSD341.9A
AC 24 V DC 24 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA121.9E	GMA121.9E
AC230 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA321.9E	GMA321.9E
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	GLB131.9E
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	GLB331.9E

NEW PRODUCT

Valves and actuators

Rotary valves

3-port slipper valves, PN6: VBF21..

VBF21..



3-port slipper valves PN 6 with flanged connections

- With flanged connections to ISO 7005
- For chilled or low-temperature hot water in closed circuits

Data sheet	N4241
Angular rotation	90 °
Leakage rate	DN40...100: 0...0.1 % of k_{vs} value DN125...150: 0...0,5 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	< DN 100: CrNi steel/brass > DN 125: CrNi steel/Rg5
PN class	PN 6

VBF21.40 / VBF21.50 are shipped with manual adjuster.

VBF21.., DN40/50, with SQK34.., SQK84..: Direct mounting

VBF21.., DN40/50, with SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBF21..

SQK.. Δp_{max} [kPa]	SAL..T10 Δp_{max} [kPa]	DN	k_{vs} [m ³ /h]	Required mount- ing set	Stock No.	Product No.
30		40	25	Direct SQK33.00: ASK32	BPZ:VBF21.40	VBF21.40
30		50	40	Direct SQK33.00: ASK32	BPZ:VBF21.50	VBF21.50
	30	65	63	ASK31N	BPZ:VBF21.65	VBF21.65
	30	80	100	ASK31N	BPZ:VBF21.80	VBF21.80
	30	100	160	ASK31N	BPZ:VBF21.100	VBF21.100
	30	125	550	ASK31N	BPZ:VBF21.125	VBF21.125
	30	150	820	ASK31N	BPZ:VBF21.150	VBF21.150

DN40...50, series 02

DN65...150, series 01

Combinable actuator to VBF21.40 and VBF21.50

Operating volt- age	Positioning sig- nal	Positioning time [s]	Required mount- ing set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	SQK34.00
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	SQK84.00

Valves and actuators
Rotary valves
3-port slipper valves, PN6: VBF21..

Combinable actuator to VBF21.65 ... VBF21.150

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	ASK31N	N4502	S55162-A108	SAL31.00T10
AC 230 V	3-position	30	ASK31N	N4502	S55162-A109	SAL31.03T10
AC 24 V DC 24 V	DC 0...10 DC 4...20 0...1000	120	ASK31N	N4502	S55162-A100	SAL61.00T10
AC 24 V DC 24 V	DC 0...10 DC 4...20 0...1000	30	ASK31N	N4502	S55162-A101	SAL61.03T10
AC 24 V DC 24 V	3-position	120	ASK31N	N4502	S55162-A104	SAL81.00T10
AC 24 V DC 24 V	3-position	30	ASK31N	N4502	S55162-A105	SAL81.03T10

The mounting sets are not included.



Valves and actuators

Rotary valves

3-port slipper valves,PN10: VBG31..

VBG31..



3-port slipper valves PN 10 with externally threaded connections

- With externally threaded connections to ISO 228-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster
- With screwed fittings

Data sheet	N4233
Angular rotation	90 °
Leakage rate	0...0.1 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel/brass
PN class	PN 10

VBG31.. are supplied with malleable cast iron fittings.

SQK34.., SQK84..: Direct mounting
 SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBG31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Required mount- ing set	Stock No.	Product No.
30	G 1¼ B "	20	6.3	Direct SQK33.00: ASK32	BPZ:VBG31.20	VBG31.20
30	G 1½ B "	25	10	Direct SQK33.00: ASK32	BPZ:VBG31.25	VBG31.25
30	G 2 B "	32	16	Direct SQK33.00: ASK32	BPZ:VBG31.32	VBG31.32
30	G 2¼ B "	40	25	Direct SQK33.00: ASK32	BPZ:VBG31.40	VBG31.40

DN20...40, series 02

Combinable actuator to VBG31..

Operating volt- age	Positioning sig- nal	Positioning time [s]	Required mount- ing set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	SQK34.00
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	SQK84.00

VBI31..



3-port slipper valves PN 10 with internally threaded connections

- Internally threaded connections to ISO 7-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster

Data sheet	N4232
Angular rotation	90 °
Leakage rate	0...0.1 % of k_{VS} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel/brass
PN class	PN 10

SQK34.., SQK84..: Direct mounting
 SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBI31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{VS} [m ³ /h]	Required mounting set	Stock No.	Product No.
30	Rp 3/4 "	20	6.3	Direct SQK33.00: ASK32	BPZ:VBI31.20	VBI31.20
30	Rp 1 "	25	10	Direct SQK33.00: ASK32	BPZ:VBI31.25	VBI31.25
30	Rp 1 1/4 "	32	16	Direct SQK33.00: ASK32	BPZ:VBI31.32	VBI31.32
30	Rp 1 1/2 "	40	25	Direct SQK33.00: ASK32	BPZ:VBI31.40	VBI31.40

DN20...40, series 02

Combinable actuator to VBI31..

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	SQK34.00
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	SQK84.00

Valves and actuators

Rotary valves

4-port slipper valves, PN10: VCI31..

VCI31..



4-port slipper valves PN 10 with internally threaded connections

- Internally threaded connections to ISO 7-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster

Data sheet	N4252
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Brass
PN class	PN 10

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

Range overview 4-port slipper valves VCI31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m ³ /h]	Required mounting set	Stock No.	Product No.
30	Rp 3/4 "	20	6.3	Direct SQK33.00: ASK32	BPZ:VCI31.20	VCI31.20
30	Rp 1 "	25	10	Direct SQK33.00: ASK32	BPZ:VCI31.25	VCI31.25
30	Rp 1 1/4 "	32	16	Direct SQK33.00: ASK32	BPZ:VCI31.32	VCI31.32
30	Rp 1 1/2 "	40	25	Direct SQK33.00: ASK32	BPZ:VCI31.40	VCI31.40

DN20...40, series 02

Combinable actuator to VCI31..

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	SQK34.00
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	SQK84.00

VKF41..



Butterfly valves PN6/10/16 for flanged connections

- With metallic tight-closing for mounting between 2 flanges PN6, PN10 or PN16 to ISO 7005
- For chilled and low-temperature hot water in closed circuits

Data sheet	N4131
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel
PN class	PN 16

SAL..T10, SAL..T20 require mounting set ASK33N

VKF41.., DN 40: SQK33.00 requires mounting set ASK33

Range overview butterfly valves VKF41..

SQK.. Δp_s [kPa]	SAL..T10 Δp_s [kPa]	DN	k_{VS} [m ³ /h]	Leakage rate	Required mounting set	Stock No.	Product No.
200	500	40	50	0.22% of k_{VS}	ASK33N SQK33.00: ASK33	BPZ:VKF41.40	VKF41.40
	500	50	80	0.14% of k_{VS}	ASK33N	BPZ:VKF41.50	VKF41.50
	500	65	200	0.09% of k_{VS}	ASK33N	BPZ:VKF41.65	VKF41.65
	500	80	400	0.06% of k_{VS}	ASK33N	BPZ:VKF41.80	VKF41.80
	500	100	760	0.04% of k_{VS}	ASK33N	BPZ:VKF41.100	VKF41.100
	300	125	1000	0.04% of k_{VS}	ASK33N	BPZ:VKF41.125	VKF41.125
	250	150	2100	0.02% of k_{VS}	ASK33N	BPZ:VKF41.150	VKF41.150
	125	200	4000	0.01% of k_{VS}	ASK33N	BPZ:VKF41.200	VKF41.200

Field of application for VKF41..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Demineralised water (softened) Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-10...120 °C	16 bar	EPDM O-ring

Valves and actuators

Rotary valves

Butterfly valves PN6, PN10, PN16: VKF41..

Combinable actuator to VKF41..

Operating voltage	Torque	Positioning signal	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	5 Nm	3-position	ASK33N SQK33.00: ASK33	N4506	BPZ:SQK33.00	SQK33.00
AC 230 V	10 Nm	3-position	ASK33N	N4502	S55162-A108	SAL31.00T10
AC 230 V	10 Nm	3-position	ASK33N	N4502	S55162-A109	SAL31.03T10
AC 24 V DC 24 V	10 Nm	DC 0...10 V DC 4...20 mA 0...1000 Ohm	ASK33N	N4502	S55162-A100	SAL61.00T10
AC 24 V DC 24 V	10 Nm	DC 0...10 V DC 4...20 mA 0...1000 Ohm	ASK33N	N4502	S55162-A101	SAL61.03T10
AC 24 V DC 24 V	10 Nm	3-position	ASK33N	N4502	S55162-A104	SAL81.00T10
AC 24 V DC 24 V	10 Nm	3-position	ASK33N	N4502	S55162-A105	SAL81.03T10

Butterfly valves PN16 for flanged connections, with tight shutoff

VKF42..

Butterfly valve is used as motorized or shut-off valves in heating, ventilation and air conditioning systems applications.

- In open and closed circuits
- For 2-position (SPDT) or DC 0...10 V control signals
- For chiller and cooling tower sequencing circuits
- To open or close the flow to a heat exchanger or to complete plant sections

Data sheet	N4119
Angular rotation	90 °
Medium temperature	-10...80 °C
Permissible operating pressure	1600 kPa
Leakage rate	A to ISO 5208 (tight-closing)
Material, valve body	DN50...150: Grey cast iron EN-GJL-200 (HT200) DN200...600: Nodular cast iron EN-GJS-450-10 (QT450-10)
Material, inside set	Stainless steel Nodular cast iron EN-GJS-450-10 (QT450-10) Nylon coating
PN class	PN 16

**Range overview butterfly valves VKF42..**

SQL321B25/SQL 361B50 Δp_s [kPa]	SQL..B50 Δp_s [kPa]	SQL..B150 Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.	
700			50	65	S55237-V100	VKF42.50	
700			65	140	S55237-V101	VKF42.65	
700			80	210	S55237-V102	VKF42.80	
700			100	470	S55237-V103	VKF42.100	
	700		125	750	S55237-V104	VKF42.125	
		700	150	1250	S55237-V105	VKF42.150	
		700	200	3100	S55237-V106	VKF42.200	
SQL..B270 Δp_s [kPa]	SQL..B570 Δp_s [kPa]	SQL..B1400 Δp_s [kPa]	SQL..B2650 Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
700				250	4050	S55237-V107	VKF42.250
	700			300	7500	S55237-V108	VKF42.300
	700			350	10250	S55237-V109	VKF42.350
		700		400	14100	S55237-V110	VKF42.400
		700		450	18500	S55237-V111	VKF42.450
			700	500	24000	S55237-V112	VKF42.500
			700	600	37000	S55237-V113	VKF42.600

Valves and actuators

Rotary valves

Butterfly valves PN6, PN10, PN16: VKF42..

Range overview butterfly valves VKF42..

GEB..1E Δp_s [kPa]	GBB..1E Δp_s [kPa]	GIB..1E Δp_s [kPa]	2 x GIB..1E Δp_s [kPa]	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
700				50	65	S55237-V100	VKF42.50
700				65	140	S55237-V101	VKF42.65
	700			80	210	S55237-V102	VKF42.80
	300	700		100	470	S55237-V103	VKF42.100
			700	125	750	S55237-V104	VKF42.125
			700	150	1250	S55237-V105	VKF42.150

Combinable actuator to VKF42..

Operating voltage	Torque	Positioning signal	Required mounting set	Data sheet	Stock No.	Product No.
AC 220 V	25 Nm	2-position (SPDT)	Direct	N4520	S55164-A100	SQL321B25
AC 220 V	50 Nm	2-position (SPDT)	Direct	N4520	S55164-A101	SQL321B50
AC 220 V	50 Nm	DC 0...10 V	Direct	N4520	S55164-A102	SQL361B50
AC 220 V	150 Nm	2-position (SPDT)	Direct	N4520	S55164-A103	SQL321B150
AC 220 V	150 Nm	DC 0...10 V	Direct	N4520	S55164-A104	SQL361B150
AC 220 V	270 Nm	2-position (SPDT)	Direct	N4520	S55164-A105	SQL321B270
AC 220 V	270 Nm	DC 0...10 V	Direct	N4520	S55164-A106	SQL361B270
AC 220 V	570 Nm	2-position (SPDT)	Direct	N4520	S55164-A107	SQL321B570
AC 220 V	570 Nm	DC 0...10 V	Direct	N4520	S55164-A108	SQL361B570
AC 220 V	1400 Nm	2-position (SPDT)	Direct	N4520	S55164-A109	SQL321B1400
AC 220 V	1400 Nm	DC 0...10 V	Direct	N4520	S55164-A110	SQL361B1400
AC 220 V	2650 Nm	2-position (SPDT)	Direct	N4520	S55164-A111	SQL321B2650
AC 220 V	2650 Nm	DC 0...10 V	Direct	N4520	S55164-A112	SQL361B2650

Butterfly valves PN6/10/16 for flanged connections, with tight shutoff

VKF46..

- With EPDM seal for mounting between 2 flanges PN6, PN10 or NP16 to ISO 7005
- For chilled water, low-temperature hot water, DHW, cold water and fresh water in closed or open circuits

VKF46.450...600 PN 16 only

Data sheet	N4136
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Leakage rate	Tight shutoff, EN 12266-1, leakage rate A
Material, valve body	From DN350: Nodular cast iron EN-GJS-400-15 To DN300: Grey cast iron EN-GJL-250
Material, inside set	From DN350: Nickel-plated steel To DN300: Stainless steel
Required mounting set	SQL35.., SQL85..: ASK35.1, ASK35.2 SQL36: Direct

**Range overview butterfly valves VKF46..**

SAL..T20 Δp_s [kPa]	SQL35../85. Δp_s [kPa]	SQL36E50F 04 Δp_s [kPa]	SQL36E50F 05 Δp_s [kPa]	Required mounting set	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
1600	1600	1600		ASK35.1	40	50	BPZ:VKF46.40	VKF46.40
1600	1600	1600		ASK35.1	50	85	BPZ:VKF46.50	VKF46.50
1600	1600	1600		ASK35.1	65	215	BPZ:VKF46.65	VKF46.65
	1600		1600	ASK35.2	100	800	BPZ:VKF46.100	VKF46.100
	1000		1000	ASK35.2	125	1010	BPZ:VKF46.125	VKF46.125

SAL..T20 Δp_s [kPa]	SQL36E65 Δp_s [kPa]	SQL36E110 Δp_s [kPa]	SQL36E160 Δp_s [kPa]	Required mounting set	DN	k_{vs} [m ³ /h]	Stock No.	Product No.
	1600			Direct	150	2100	BPZ:VKF46.150	VKF46.150
	1000			Direct	200	4000	BPZ:VKF46.200	VKF46.200
		1000		Direct	250	6400	BPZ:VKF46.250	VKF46.250
		1000		Direct	300	8500	BPZ:VKF46.300	VKF46.300
		600		Direct	350	11500	BPZ:VKF46.350	VKF46.350
		300		Direct	400	14500	BPZ:VKF46.400	VKF46.400
			300	Direct	450	20500	BPZ:VKF46.450	VKF46.450
			300	Direct	500	21000	BPZ:VKF46.500	VKF46.500
			300	Direct	600	29300	BPZ:VKF46.600	VKF46.600

Valves and actuators

Rotary valves

Butterfly valves PN6, PN10, PN16: VKF46..

Field of application for VKF46..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Demineralsed water (softened) Low-temperature hot water Air	-10...120 °C	16 bar	EPDM

Manual adjuster for VKF46..

Product Title	Data sheet	Stock No.	Product No.
Manual adjuster for VKF46.., DN40 to DN65	N4136	BPZ:ASK46.1	ASK46.1
Manual adjuster for VKF46.., DN80 to DN125	N4136	BPZ:ASK46.2	ASK46.2
Manual adjuster for VKF46.., DN150 to DN200	N4136	BPZ:ASK46.3	ASK46.3
Manual adjuster for VKF46.., DN250 to DN400	N4136	BPZ:ASK46.4	ASK46.4

Combinable actuator to VKF46..

Operating voltage	Torque [Nm]	Power consumption [VA]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	20	6.5	3-position	125	N4505	BPZ:SQL35.00	SQL35.00
AC 24 V	20	6.5	3-position	125	N4505	BPZ:SQL85.00	SQL85.00
AC 230 V	40	25	3-position	25	N4505	BPZ:SQL36E50F04	SQL36E50F04
AC 230 V	40	25	3-position	25	N4505	BPZ:SQL36E50F05	SQL36E50F05
AC 230 V	100	166	3-position	6	N4505	BPZ:SQL36E65	SQL36E65
AC 230 V	400	235	3-position	12	N4505	BPZ:SQL36E110	SQL36E110
AC 230 V	1200	235	3-position	24	N4505	BPZ:SQL36E160	SQL36E160
AC 230 V	20	4.1	3-position	120	N4502	S55162-A110	SAL31.00T20
AC 24 V DC 24 V	20	5.8	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A102	SAL61.00T20
AC 24 V DC 24 V	20	4	3-position	120	N4502	S55162-A106	SAL81.00T20

For expansion, hotgas and suction throttle applications: MVL661.. / MVS661..N

Modulating refrigerant valves with magnetic actuator, PS45, hermetically sealed, for safety refrigerants

MVL661...-



Hermetically sealed 2-port valves for modulating control of chillers and heat pumps.

- Expansion, hot-gas and suction throttle applications with one type of valve
- PS45, stainless steel with soldering connections
- Integrated power electronic with precise position feedback signal
- For safety refrigerants such as R22, R134a, R404A, R407C, R410A, R507, and R744 (CO₂). Not suitable for inflammable refrigerants.

Data sheet	N4714
Operating voltage	AC 24 V DC 20...30 V
Power consumption	22 VA
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Positioning time	< 1 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP65
Ambient temperature, operation	-25...55 °C
Mounting position	Upright to horizontal
Permissible operating pressure	4500 kPa
Leakage rate	< 0.002 % of k_{vs} value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Steel/ CrNi steel
Material, inside set	CrNi steel/brass

The MVL661...- refrigerant valve is used in conjunction with PolyCool for superheat control or SAPHIR for chiller control.

MVL661...- replaces M2FS..LX., M2FE..L.. and MVL661.25.

MVL661...- are UL listed.

ASR61: Replacement electronics in the event of defective valve electronics.

Range overview MVL661..

DN	k_{vs} [m ³ /h]	k_{vs} reduced [m ³ /h]	Δp_{max} [kPa]	Stock No.	Product No.
15	0.4	0.25	2500	BPZ:MVL661.15-0.4	MVL661.15-0.4
15	1	0.63	2500	BPZ:MVL661.15-1.0	MVL661.15-1.0
20	2.5	1.6	2500	BPZ:MVL661.20-2.5	MVL661.20-2.5
25	6.3	4	2500	BPZ:MVL661.25-6.3	MVL661.25-6.3
32	12	8	200	BPZ:MVL661.32-12	MVL661.32-12

k_{vs} -reduced selectable with DIP switch

MVL661.32-12 can only be used as a suction throttle valve

Refrigerant valves

For expansion, hot-gas and suction throttle applications: MVL661.. / MVS661..N

MVS661..N



Modulating refrigerant valves with magnetic actuator, PS53, hermetically sealed

Hermetically sealed 2-port valves for modulating control of refrigerant circuits including chillers and heat pumps.

- Expansion, hot-gas and suction throttle applications with one type of valve
- PN40, stainless steel with welding connections
- Integrated power electronic with precise position feedback signal
- For ammonia R717 and all standard refrigerants, noncorrosive gases/liquids and CO₂ (R744). It is not suited for use with inflammable refrigerants.

Data sheet	N4717
Operating voltage	AC 24 V DC 20...30 V
Power consumption	22 VA
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Positioning time	<1 s
Spring return function	Closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP65
Ambient temperature, operation	-25...55 °C
Mounting position	Upright to horizontal
Permissible operating pressure	4000 kPa
Leakage rate	<0.002% of k _{vS} -value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution ΔH/H ₁₀₀	1:1000
Material, valve body	Steel / CrNi steel
Material, inside set	CrNi steel

"An exchangeable ASR..N valve insert allows for different k_{vS}-values with the same type of DN25 valve. In the event of service, this insert can also be replaced on the plant. MVS661..N are UL listed."

Range overview MVS661..N

DN	k _{vS} [m³/h]	k _{vS} reduced [m³/h]	Δp _{max} [kPa]	Stock No.	Product No.
25	0.16	0.10	2500	BPZ:MVS661.25-016N	MVS661.25-016N
25	0.40	0.25	2500	BPZ:MVS661.25-0.4N	MVS661.25-0.4N
25	1	0.63	2500	BPZ:MVS661.25-1.0N	MVS661.25-1.0N
25	2.5	1.6	2500	BPZ:MVS661.25-2.5N	MVS661.25-2.5N
25	6.3	4.0	2500	BPZ:MVS661.25-6.3N	MVS661.25-6.3N

k_{vS}-reduced selectable with DIP switch

2-port modulating pilot valve with magnetic actuator, PN32, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs to control main valves

M2FP03GX



Hermetically sealed 2-port valve as a control valve for main valves from 2" to 5".

- PN32 with threaded connections
- For use with refrigerants such as R22, R134a, R404A, R407C, R507 and ammonia R717
- ZM electronics must be ordered separately (see below)

Data sheet	N4731
Operating voltage	AC 24 V
Positioning time	<1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Power consumption	13 VA
Spring return function	Closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
k_{vs}	0.3 m ³ /h
Permissible operating pressure	3200 kPa
Δp_{max}	1800 kPa
Leakage rate	< 0.25 % of k_{vs} value
Medium temperature	-40...100 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel

Stock No.	Product No.
BPZ:M2FP03GX	M2FP03GX

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 0...20 V Phs	DC 5...7.5 V DC 10...15 V Phs	IP54	BPZ:ZM101/A	ZM101/A
AC 24 V	DC 4...20 mA DC 0...20 V Phs	DC 12...16 mA DC 10...15 V Phs	IP54	BPZ:ZM121/A	ZM121/A
	DC 0...20 V Phs	DC 10...15 V Phs	IP54	BPZ:ZM111	ZM111

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.



Refrigerant valves

For refrigeration units and heat recovery: M3FB..LX..

M3FB..LX..



Modulating refrigerant valves with magnetic actuator, PS43, soldered connection, hermetically sealed

Hermetically sealed control valves for modulating capacity control of refrigeration units and for heat recovery.

- PN40 with soldered CrNi steel connections
- For organic safety refrigerants such as R22, R134a, R404A, R407C, R410A, R507, etc. Not suitable for flammable refrigerants
- ZM electronics must be ordered separately (see accessories)

Data sheet	N4721
Operating voltage	AC 24 V
Positioning time	< 1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Spring return function	AB-> A closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	4300 kPa
Leakage rate	< 0.05% of k_{vs} -value
Leakage rate bypass	< 0.5% of k_{vs} -value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel/brass
Degree of protection	IP54

Range overview M3FB..LX..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Power consumption [VA]	Stock No.	Product No.
15	0.6	2200	26	BPZ:M3FB15LX06/A	M3FB15LX06/A
15	1.5	2200	26	BPZ:M3FB15LX15/A	M3FB15LX15/A
15	3	2200	26	BPZ:M3FB15LX/A	M3FB15LX/A
20	5	1800	26	BPZ:M3FB20LX/A	M3FB20LX/A
25	8	1200	40	BPZ:M3FB25LX/A	M3FB25LX/A
32	12	800	40	BPZ:M3FB32LX	M3FB32LX

Δp_{max} across control port AB -> A

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 0...20 V Phs	DC 5...7.5 V DC 10...15 V Phs	IP54	BPZ:ZM101/A	ZM101/A
AC 24 V	DC 4...20 mA DC 0...20 V Phs	DC 12...16 mA DC 10...15 V Phs	IP54	BPZ:ZM121/A	ZM121/A
	DC 0...20 V Phs	DC 10...15 V Phs	IP54	BPZ:ZM111	ZM111

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

M3FK..LX..



Modulating refrigerant valves with magnetic actuator, PN32, flanged, hermetically sealed

Hermetically sealed mixing or straight-through valves for modulating capacity control of condensers.

- PN32 with copper soldering connection
- For safety refrigerants such as R22, R134a, R404A, R407C, R507, etc.
- ZM electronics must be ordered separately (see below)

Data sheet	N4722
Operating voltage	AC 24 V
Positioning time	< 1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Spring return function	1-> 3 closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	3200 kPa
Δp_{\max} gas	800 kPa
Δp_{\max} liquid	200 kPa
Leakage rate	< 0.05% of k_{vs} -value
Leakage rate bypass	< 0.5% of k_{vs} -value
PN class	PN 32
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel/brass

Range overview M3FK..LX..

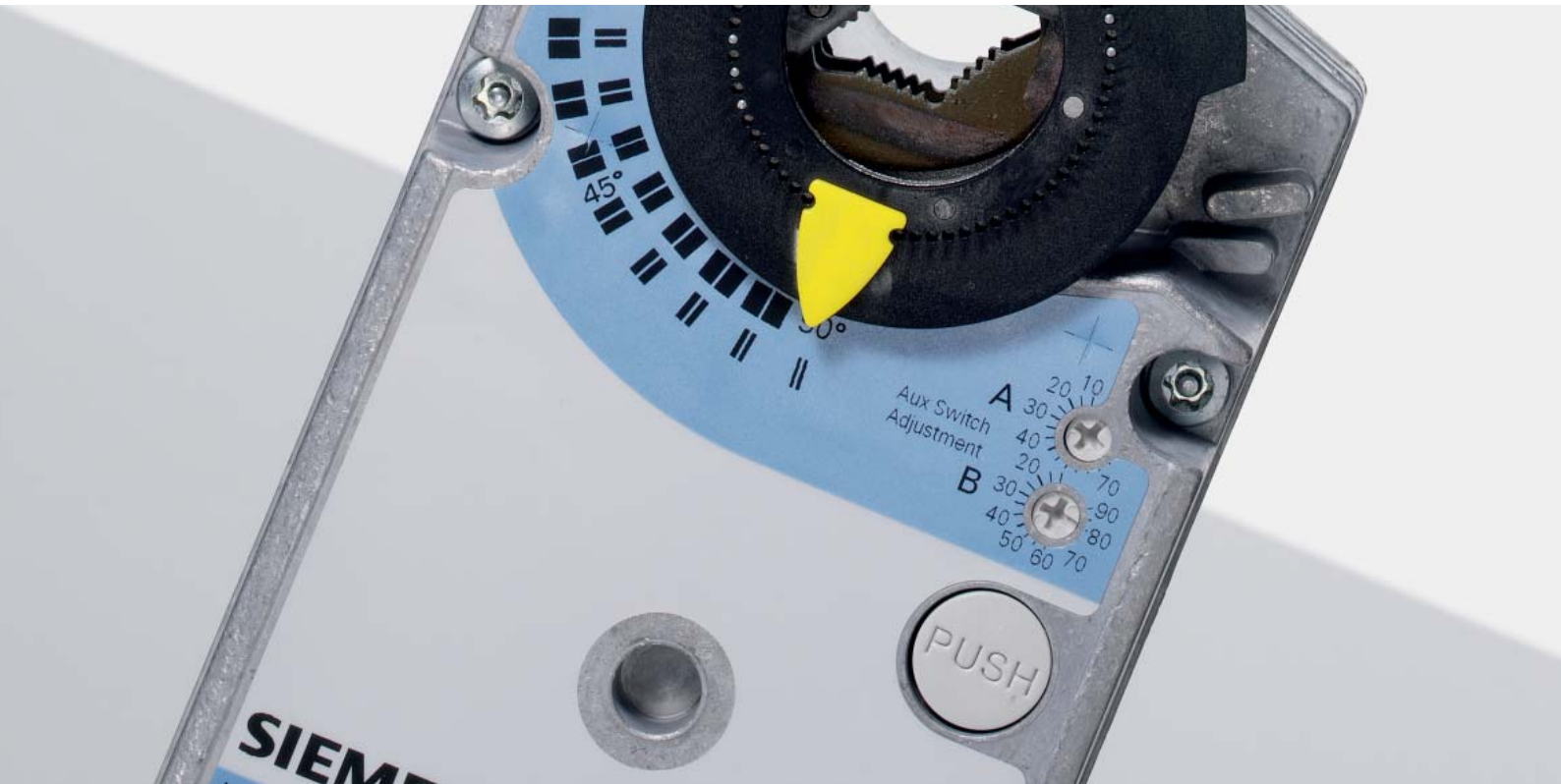
DN	k_{vs} [m ³ /h]	Power consumption [VA]	Stock No.	Product No.
15	0.6	13	BPZ:M3FK15LX06	M3FK15LX06
15	1.5	13	BPZ:M3FK15LX15	M3FK15LX15
15	3	13	BPZ:M3FK15LX	M3FK15LX
20	5	16	BPZ:M3FK20LX	M3FK20LX
25	8	16	BPZ:M3FK25LX	M3FK25LX
32	12	20	BPZ:M3FK32LX	M3FK32LX
40	20	40	BPZ:M3FK40LX	M3FK40LX
50	30	40	BPZ:M3FK50LX	M3FK50LX

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V	DC 5...7.5 V	IP54	BPZ:ZM101/A	ZM101/A
	DC 0...20 V Phs	DC 10...15 V Phs			
AC 24 V	DC 4...20 mA	DC 12...16 mA	IP54	BPZ:ZM121/A	ZM121/A
	DC 0...20 V Phs	DC 10...15 V Phs			
	DC 0...20 V Phs	DC 10...15 V Phs			

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Damper actuators














Overview and selection tools	Overview of product details	8-2	
Actuators for HVAC applications	Rotary damper actuators with spring-return 2 Nm: GQD..A	8-7	
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Damper actuators

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Damper actuators without spring return (SR)





Actuators for HVAC applications	Control signal	Operating voltage	Standard model	Feedback potentiometer (1 kOhm)	Adjustable start/span	Adjustable start/span with 2 auxiliary switches	Feedback (1 kOhm) with 2 auxiliary switches	2 auxiliary switches	Dimensions, round damper shaft (mm)	Dimensions, square damper shaft (mm)
 GSD series 2 Nm for approx. 0.3 m ² damper area 30 s running time	2-position On/Off (1-wire SPST)	AC/DC 24 V AC 230 V	GSD121.1A GSD321.1A	–	–	–	–	GSD126.1A GSD326.1A	8...15	6...11
 GDB series 5 Nm for approx. 0.8 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GDB131.1E GDB331.1E	GDB132.1E GDB332.1E	–	–	–	GDB136.1E GDB336.1E	8...16	6...12,8
	Modulating DC 0...10 V	AC 24 V	GDB161.1E	–	GDB163.1E	GDB164.1E	–	GDB166.1E		
 GLB series 10 Nm for approx. 1.5 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GLB131.1E GLB331.1E	GLB132.1E GLB332.1E	–	–	–	GLB136.1E GLB336.1E	8...16	6...12,8
	Modulating DC 0...10 V	AC 24 V	GLB161.1E	–	GLB163.1E	GLB164.1E	–	GLB166.1E		
 GAP series 6 Nm for approx. 1 m ² damper area 2 s running time	2-position	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E	6,4...20,5	6,4...13
	3-position	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E		
	Modulating DC 0/2...10 V 0/4...20 mA	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E		
 GEB series 15 Nm for approx. 3 m ² damper area 30 s running time	3-position	AC 24 V AC 230 V	GEB131.1E GEB331.1E	GEB132.1E GEB332.1E	–	–	–	GEB136.1E GEB336.1E	6,4...20,5	6,4...13
	Modulating DC 0...10 V	AC 24 V	GEB161.1E	–	GEB163.1E	GEB164.1E	–	GEB166.1E		
 GBB series 25 Nm for approx. 4 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GBB131.1E GBB331.1E	–	–	–	GBB135.1E GBB335.1E	GBB136.1E GBB336.1E	8...25,6	6...18
	Modulating DC 0...10 V	AC 24 V	GBB161.1E	–	GBB163.1E	GBB164.1E	–	GBB166.1E		
 GIB series 35 Nm for approx. 6 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GIB131.1E GIB331.1E	–	–	–	GIB135.1E GIB335.1E	GIB136.1E GIB336.1E	8...25,6	6...18
	Modulating DC 0...10 V	AC 24 V	GIB161.1E	–	GIB163.1E	GIB164.1E	–	GIB166.1E		
 GDB series 125 N for approx. 0.8 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GDB131.2E GDB331.2E	–	–	–	–	GDB136.2E GDB336.2E	–	–
	Modulating DC 0...10 V	AC 24 V	GDB161.2E	–	GDB163.2E	–	–	–	–	–
 GLB series 250 N for approx. 1.5 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GLB131.2E GLB331.2E	–	–	–	–	GLB136.2E GLB336.2E	–	–
	Modulating DC 0...10 V	AC 24 V	GLB161.2E	–	GLB163.2E	–	–	–	–	–
 GEB series 400 N for approx. 3 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GEB131.2E GEB331.2E	–	–	–	–	GEB136.2E GEB336.2E	–	–
	Modulating DC 0...10 V	AC 24 V	GEB161.2E	–	GEB163.2E	–	–	–	–	–
 GBB series 550 N for approx. 4 m ² damper area 150 s running time	3-position	AC 24 V AC 230 V	GBB131.2E GBB331.2E	–	–	–	–	GBB136.2E GBB336.2E	–	–
	Modulating DC 0...10 V	AC 24 V	GBB161.2E	–	GBB163.2E	–	–	–	–	–

Damper actuators



Overview and selection tools

Overview

Damper actuators with spring return (SR)




Actuators for HVAC applications	Control signal	Operating voltage	Standard model	Feedback potentiometer (1 kOhm)	Adjustable start/span	Adjustable start/span with 2 auxiliary switches	Feedback (1 kOhm) with 2 auxiliary switches	2 auxiliary switches	Dimensions, round damper shaft (mm)	Dimensions, square damper shaft (mm)
 GQD series 2 Nm for approx. 0.3 m ² damper area 30 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GQD121.1A GQD321.1A	–	–	–	–	GQD126.1A GQD326.1A GQD136.1A	8...15	6...11
	3-position	AC/DC 24 V	GQD131.1A	–	–	–	–			
	Modulating DC 0...10 V	AC/DC 24 V	GQD161.1A	–	–	–	–	GQD166.1A		
 GNP series 6 Nm for approx. 1 m ² damper area 2 s running time el. fail-safe function	2-position	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E	6,4...20,5	6,4...13
	3-position	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E		
	Modulating DC 0/2...10 V 0/4...20 mA	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E		
 GMA series 7 Nm for approx. 1.5 m ² damper area 90 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GMA121.1E GMA321.1E	–	–	–	–	GMA126.1E GMA326.1E	6,4...20,5	6,4...13
	3-position	AC/DC 24 V	GMA131.1E	GMA132.1E	–	–	–	GMA136.1E		
	Modulating DC 0...10 V	AC/DC 24 V	GMA161.1E	–	GMA163.1E	GMA164.1E	–	GMA166.1E		
 GCA series 18 Nm for approx. 3 m ² damper area 90 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GCA121.1E GCA321.1E	–	–	–	–	GCA126.1E GCA326.1E	8...25,6	6...18
	3-position	AC/DC 24 V	GCA131.1E	–	–	–	GCA135.1E	–		
	Modulating DC 0...10 V	AC/DC 24 V	GCA161.1E	–	GCA163.1E	GCA164.1E	–	GCA166.1E		

Actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers	Control signal	Operating voltage	2 auxiliary switches	2 auxiliary switches and thermal cut-out	Dimensions, square damper shaft (mm)
 GGA actuator ¹⁾ 18 Nm for approx. 2.5 m ² damper area 90 s running time 15 s spring return time	2-position	AC/DC 24 V AC 230 V	GGA126.1E/.. ²⁾ GGA326.1E/.. ²⁾	GGA126.1E/T.. ²⁾ GGA326.1E/T.. ²⁾	10, 12
 GNA actuator ¹⁾ 7 Nm for approx. 1 m ² damper area 90 s running time 15 s spring return time	2-position	AC/DC 24 V AC 230 V	GNA126.1E/.. ²⁾ GNA326.1E/.. ²⁾	GNA126.1E/T.. ²⁾ GNA326.1E/T.. ²⁾	10, 12

¹⁾ Available to OEMs only ²⁾ .. = insert dimension of damper shaft square (mm)

Actuators for air volume controllers

Actuators for air volume controllers 300 Pa application range	Control signal	Operating voltage	Standard model	Dimensions, round damper shaft (mm)	Dimensions, square damper shaft (mm)
 GDB 300 Pa VAV compact controller ¹⁾ 5 Nm for approx. 0.8 m ² damper area 150 s running time	3-position	AC 24 V	GDB181.1E/3	8...16	6...12,8
	Modulating DC 0/2...10 V	AC 24 V			
	KNX S-Mode KNX LTE-Mode KNX PL-Link	AC 24 V			
 GLB 300 Pa VAV compact controller ¹⁾ 10 Nm for approx. 1.5 m ² damper area 150 s running time	3-position	AC 24 V	GLB181.1E/3	8...16	6...12,8
	Modulating DC 0/2...10 V	AC 24 V			
	KNX S-Mode KNX LTE-Mode KNX PL-Link	AC 24 V			
 ASV 300 Pa VAV modular controller ¹⁾	3-position	AC 24 V	ASV181.1E/3	–	–
	Modulating DC 0/2...10 V	AC 24 V			

¹⁾ Available to OEMs only

Damper actuators
 Overview and selection tools
 Overview

Accessories for actuators

Description	GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
 <p>Rotary to linear set with lever Allows a direct-coupled actuator to provide a linear drive; can be used to simultaneously drive a set of opposing or adjacent dampers with a single actuator.</p>	■			ASK71.5
 <p>Rotary to linear set with lever Allows a direct-coupled actuator to provide an auxiliary linear drive; can be used to simultaneously drive a set of opposing or adjacent dampers with a single actuator.</p>		■	■	ASK71.13 ASK71.3
 <p>Rotary to linear set with lever and angle bracket For use in applications where the actuator can be rigidly surface-mounted and a linear stroke output is required.</p>	■			ASK71.6
 <p>Rotary to linear set with lever and mounting plate For use in applications where the actuator can be rigidly surface-mounted and a linear stroke output is required.</p>		■	■	ASK71.14 ASK71.4
 <p>Universal lever For use with all OpenAir rotary to linear kits for linear applications requiring connection to damper louver shaft when joint connection is not possible. For 8 to 25.6 mm round.</p>	■	■	■	ASK71.9
 <p>Tandem mounting bracket Tandem mounting bracket for 2-position and 3-position GCA/GIB models Tandem mounting bracket for modulating GCA/GIB models</p>		■	■	ASK73.3 ASK73.1 ASK73.2
 <p>Rotary to linear set for duct mounting For airstream applications and where a foot-mounted actuator can be used. Includes crank arm, Teflon support-bearing ring, and mounting fasteners. Rotary to linear set for duct and frame mounting</p>	■		■	ASK71.6 ASK71.1 ASK71.11

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Damper actuators Overview and selection tools Overview



Description	GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
 <p>Rotary to linear set for frame mounting For direct mounting to damper frame. Includes a crank arm to generate a linear stroke, a Teflon support-bearing ring to minimize side-loading on the actuator's output bearing, and other mounting fasteners.</p> <p>Rotary to linear set for duct and frame mounting</p>			<p>■</p> <p>■</p>	<p>ASK71.2</p> <p>ASK71.11</p>
 <p>Special shaft adapter</p> <ul style="list-style-type: none"> Up to 27 mm shaft diameter <p>Note: When used with a GIB, accepts shaft diameters from 19 to 27 mm</p>			<p>■</p>	<p>ASK74.1</p>
 <p>Actuator shaft insert for small shaft diameters</p> <ul style="list-style-type: none"> Up to 10 mm diameter 	<p>■</p>			<p>ASK78.3</p>
 <p>Weathershield Includes cover, gasket and screws.</p> <ul style="list-style-type: none"> IP65 UV-resistant 	<p>■</p>	<p>■</p> <p>■</p>	<p>■</p> <p>■</p> <p>■</p>	<p>ASK75.3</p> <p>ASK75.1</p> <p>ASK75.4</p> <p>ASK75.6</p> <p>ASK75.5</p> <p>ASK75.2</p>
 <p>Shaft extension</p>		<p>■</p>	<p>■</p>	<p>ASK74.7</p>
 <p>Setting unit for VAV compact controller for GDB/GLB/ASV181.1E/3</p>	<p>■</p>			<p>AST10</p>
 <p>Interface converter for VAV compact controller PPS2 to RS232 interface converter for use with GDB/GLB/ASV181.1E/3</p>	<p>■</p>			<p>AST11</p>

Damper actuators

Overview and selection tools

Overview

OpenAir accessories

Description	GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
 <p>External auxiliary switches External auxiliary switch kit, attachable to GCA, GMA, GEB, GBB und GIB rotary actuators</p> <ul style="list-style-type: none"> - 1 external auxiliary switch - 2 external auxiliary switches 		<ul style="list-style-type: none"> ■ ■ 	<ul style="list-style-type: none"> ■ ■ 	ASC77.1E ASC77.2E
 <p>Shaft inserts for GDB/GLB...1</p> <ul style="list-style-type: none"> - Round 1/2" - Square 8 x 8 mm - Square 8 x 8 mm fix - Square 10 x 10 mm - Round 10 mm - Round 12 mm - D-profile fix 	<ul style="list-style-type: none"> ■ ■ ■ ■ ■ ■ ■ 			ASK78.5 ASK78.6 ASK78.14 ASK78.7 ASK78.9 ASK78.10 ASK78.12

For accessories and spare parts for air damper actuators, please order data sheet:

N4697 (GMA/GEB)
 N4698 (GDB/GLB)
 N4699 (GCA/GBB/GIB)

Damper actuators
Actuators for HVAC applications

Rotary damper actuators with spring-return 2 Nm: GQD..A

GQD..1A



Rotary air damper actuators 2 Nm with spring return

- For shaft dia 8...15 mm, square 6...11 mm, min. shaft length 20 mm
- With housing made of plastic and 0.9 m connecting cable

Data sheet	N4604
Torque	2 Nm
Air damper area	0.3 m ²
Angular rotation	90 °
Positioning time	Open with motor: 30 s Closing with spring: 15 s
Degree of protection	IP40
Dimensions (W x H x D)	73 x 122 x 63 mm

Range overview GQD..1A

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	6.5 VA 4.5 W	0	BPZ:GQD121.1A	GQD121.1A
AC 24 DC 24	2-position	6.5 VA 4.5 W	2	BPZ:GQD126.1A	GQD126.1A
AC 230	2-position	10 VA 4.5 W	0	BPZ:GQD321.1A	GQD321.1A
AC 230	2-position	10 VA 4.5 W	2	BPZ:GQD326.1A	GQD326.1A
AC 24 DC 24	3-position	4 VA 2.5 W	0	BPZ:GQD131.1A	GQD131.1A
AC 24 DC 24	3-position	4 VA 2.5 W	2	BPZ:GQD136.1A	GQD136.1A
AC 24 DC 24	DC 0...10 V	4.5 VA 3 W	0	BPZ:GQD161.1A	GQD161.1A
AC 24 DC 24	DC 0...10 V	4.5 VA 3 W	2	BPZ:GQD166.1A	GQD166.1A

Damper actuators

Actuators for HVAC applications

Rotary damper actuators with spring-return 2 Nm: GQD..A

GQD..6A



Rotary air damper actuators 2 Nm, with spring return

- Operate direct driven dampers used to control air flow in duct specifically to address two position domestic and light commercial barrel damper application.
- For shaft dia 8
- Air damper area approx. 0.3 m²
- With housing made of plastic and 0.9 m connecting cable

Data sheet	N4606
Torque	2 Nm
Air damper area	0.3 m ²
Positioning time	Open with motor: 30 s Closing with spring: 15 s
Degree of protection	IP40
Dimensions (W x H x D)	70 x 121.4 x 62.5 mm

Range overview GQD..6A

Operating voltage [V]	Positioning signal	Stock No.	Product No.
AC 24 DC 24	2-position	BPZ:GQD121.6A	GQD121.6A
AC 230	2-position	BPZ:GQD321.6A	GQD321.6A

Damper actuators
Actuators for HVAC applications

Rotary damper actuators with spring-return 7 Nm: GMA..1E

Rotary air damper actuators 7 Nm, with spring return

GMA..1E

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4614
Torque	7 Nm
Air damper area	1.5 m ²
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm



Range overview GMA...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	5 VA 3.5 W	0	BPZ:GMA121.1E	GMA121.1E
AC 24 DC 24	2-position	5 VA 3.5 W	2	BPZ:GMA126.1E	GMA126.1E
AC 230	2-position	7.5 VA	0	BPZ:GMA321.1E	GMA321.1E
AC 230	2-position	7,5 VA	2	BPZ:GMA326.1E	GMA326.1E
AC 24 DC 24	3-position	5 VA 3.5 W	0	BPZ:GMA131.1E	GMA131.1E
AC 24 DC 24	3-position	5 VA 3.5 W	0	BPZ:GMA132.1E	GMA132.1E
AC 24 DC 24	3-position	5 VA 3.5 W	2	BPZ:GMA136.1E	GMA136.1E
AC 24 DC 24	DC 0...10 V	5 VA 3.5 W	0	BPZ:GMA161.1E	GMA161.1E
AC 24 DC 24	DC 0...35 V Adjustable	5 VA 3.5 W	0	BPZ:GMA163.1E	GMA163.1E
AC 24 DC 24	DC 0...35 V Adjustable	5 VA 3.5 W	2	BPZ:GMA164.1E	GMA164.1E
AC 24 DC 24	DC 0...10 V	5 VA 3.5 W	2	BPZ:GMA166.1E	GMA166.1E

Type GMA132.1E also has a feedback potentiometer.

Basic Documentation No.: Z4614

Damper actuators

Actuators for HVAC applications

Rotary damper actuators with spring-return 18 Nm: GCA..1E

GCA..1E



Rotary air damper actuators 18 Nm, with spring return

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4613
Torque	18 Nm
Air damper area	3 m ²
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GCA...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	7 VA / 5 W	0	BPZ:GCA121.1E	GCA121.1E
AC 24 DC 24	2-position	7 VA / 5 W	2	BPZ:GCA126.1E	GCA126.1E
AC 230	2-position	8 VA / 6 W	0	BPZ:GCA321.1E	GCA321.1E
AC 230	2-position	8 VA / 6 W	2	BPZ:GCA326.1E	GCA326.1E
AC 24 DC 24	3-position	7 VA / 5 W	0	BPZ:GCA131.1E	GCA131.1E
AC 24 DC 24	3-position	7 VA / 5 W	2	BPZ:GCA135.1E	GCA135.1E
AC 24 DC 24	DC 0...10 V	7 VA / 5 W	0	BPZ:GCA161.1E	GCA161.1E
AC 24 DC 24	DC 0...35 V Adjustable	7 VA / 5 W	0	BPZ:GCA163.1E	GCA163.1E
AC 24 DC 24	DC 0...35 V Adjustable	7 VA / 5 W	2	BPZ:GCA164.1E	GCA164.1E
AC 24 DC 24	DC 0...10 V	7 VA / 5 W	2	BPZ:GCA166.1E	GCA166.1E

Type GCA135.1E also has a feedback potentiometer.

Basic Documentation No.: Z4613

Accessories for rotary air damper actuators GMA..1E

Product Title	Data sheet	Stock No.	Product No.
Universal lever	N4697	BPZ:ASK71.9	ASK71.9
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	ASK71.11
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	ASK71.13
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	ASK71.14
Bracket for power pack	N4697	BPZ:ASK73.3	ASK73.3
Shaft extension	N4699	BPZ:ASK74.7	ASK74.7
Weather shield	N4697	BPZ:ASK75.3	ASK75.3
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	ASK75.6
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	ASC77.1E
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	ASC77.2E

Accessories for rotary air damper actuators GCA...1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	ASK71.1
Rotary/linear mounting kit for frame mounting	N4699	BPZ:ASK71.2	ASK71.2
Rotary/linear mounting kit with lever	N4699	BPZ:ASK71.3	ASK71.3
Rotary/linear mounting kit with lever and bracket	N4699	BPZ:ASK71.4	ASK71.4
Universal lever	N4697	BPZ:ASK71.9	ASK71.9
Bracket for power pack	N4699	BPZ:ASK73.1	ASK73.1
Flexible bracket for power pack	N4699	BPZ:ASK73.2	ASK73.2
Special shaft adapter	N4699	BPZ:ASK74.1	ASK74.1
Shaft extension	N4699	BPZ:ASK74.7	ASK74.7
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	ASK75.1
Weather shield for rotarytype actuator GBB/GCA/GIB...1E	N4699	BPZ:ASK75.4	ASK75.4
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	ASC77.1E
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	ASC77.2E

Caution!

- ASK73.1 is only valid for GCA12...1E, GCA13...1E, GCA32...1E, GIB13...1E, GIB33...1E
- ASK73.2 is only valid for GCA16...1E and GIB16...1E

Damper actuators

Actuators for HVAC applications

Rotary damper actuators non-spring return 2 Nm: GSD..1A

GSD..1A



Rotary air damper actuators 2 Nm without spring return

- Operate direct driven zone dampers used to control air flow in ducts specifically to address two position domestic and light commercial barrel damper applications.
- For shaft dia 8...15 mm, square 6...11 mm, min. shaft length 20 mm
- With housing made of plastic and 0.9 m connecting cable

Data sheet	N4603
Torque	2 Nm
Air damper area	0.3 m ²
Angular rotation	90 °
Positioning time	30 s
Degree of protection	IP40
Dimensions (W x H x D)	73 x 122 x 63 mm

Range overview GSD..1A

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	SPST	2 VA 1.5 W	0	BPZ:GSD121.1A	GSD121.1A
AC 24 DC 24	SPST	2 VA 1.5 W	2	BPZ:GSD126.1A	GSD126.1A
AC 230	SPST	12 VA 2 W	0	BPZ:GSD321.1A	GSD321.1A
AC 230	SPST	12 VA 2 W	2	BPZ:GSD326.1A	GSD326.1A

Damper actuators
Actuators for HVAC applications

Rotary damper actuators non-spring return 5 Nm: GDB..1E

GDB..1E

Rotary air damper actuators 5 Nm, without spring return

- For shaft dia. 8..16 mm, square 6...12 mm, min. shaft length 30 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable

Data sheet	N4634
Torque	5 Nm
Air damper area	0.8 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	68 x 137 x 59.5 mm



Range overview GDB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA	0	BPZ:GDB131.1E	GDB131.1E
AC 24	3-position	2 VA	0	BPZ:GDB132.1E	GDB132.1E
AC 24	3-position	2 VA	2	BPZ:GDB136.1E	GDB136.1E
AC 230	3-position	2 VA	0	BPZ:GDB331.1E	GDB331.1E
AC 230	3-position	2 VA	0	BPZ:GDB332.1E	GDB332.1E
AC 230	3-position	2 VA	2	BPZ:GDB336.1E	GDB336.1E
AC 24	DC 0...10 V	3 VA	0	BPZ:GDB161.1E	GDB161.1E
AC 24	DC 0...35 V Adjustable	3 VA	0	BPZ:GDB163.1E	GDB163.1E
AC 24	DC 0...35 V Adjustable	3 VA	2	BPZ:GDB164.1E	GDB164.1E
AC 24	DC 0...10 V	3 VA	2	BPZ:GDB166.1E	GDB166.1E

Types GDB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4634

Damper actuators

Actuators for HVAC applications

Rotary damper actuators non-spring return 10 Nm: GLB..1E

GLB..1E



Rotary air damper actuators 10 Nm, without spring return

- For shaft dia. 8..16 mm, square 6...12 mm, min. shaft length 30 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable

Data sheet	N4634
Torque	10 Nm
Air damper area	1.5 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	68 x 137 x 59.5 mm

Range overview GLB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA 1 W	0	BPZ:GLB131.1E	GLB131.1E
AC 24	3-position	2 VA	0	BPZ:GLB132.1E	GLB132.1E
AC 24	3-position	2 VA	2	BPZ:GLB136.1E	GLB136.1E
AC 230	3-position	2 VA 1 W	0	BPZ:GLB331.1E	GLB331.1E
AC 230	3-position	2 VA	0	BPZ:GLB332.1E	GLB332.1E
AC 230	3-position	2 VA	2	BPZ:GLB336.1E	GLB336.1E
AC 24	DC 0...10 V	3 VA 2 W	0	BPZ:GLB161.1E	GLB161.1E
AC 24	DC 0...35 V Adjustable	3 VA	0	BPZ:GLB163.1E	GLB163.1E
AC 24	DC 0...35 V Adjustable	3 VA	2	BPZ:GLB164.1E	GLB164.1E
AC 24	DC 0...10 V	3 VA	2	BPZ:GLB166.1E	GLB166.1E

Types GLB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4634

Damper actuators
Actuators for HVAC applications

Rotary damper actuators non-spring return 15 Nm: GEB..1E

GEB..1E

Rotary air damper actuators 15 Nm, without spring return

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4621
Torque	15 Nm
Air damper area	3 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm



Range overview GEB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB131.1E	GEB131.1E
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB132.1E	GEB132.1E
AC 24	3-position	4 VA / 3.5 W	2	BPZ:GEB136.1E	GEB136.1E
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB331.1E	GEB331.1E
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB332.1E	GEB332.1E
AC 230	3-position	3 VA / 3 W	2	BPZ:GEB336.1E	GEB336.1E
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	0	BPZ:GEB161.1E	GEB161.1E
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	0	BPZ:GEB163.1E	GEB163.1E
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	2	BPZ:GEB164.1E	GEB164.1E
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	2	BPZ:GEB166.1E	GEB166.1E

Types GEB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4621

Damper actuators

Actuators for HVAC applications

Rotary damper actuators non-spring return 25 Nm: GBB..1E

GBB..1E



Rotary air damper actuators 25 Nm, without spring return

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4626
Torque	25 Nm
Air damper area	4 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GBB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.1E	GBB131.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB135.1E	GBB135.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.1E	GBB136.1E
AC 230	3-position	5 VA / 5 W	0	BPZ:GBB331.1E	GBB331.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB335.1E	GBB335.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB336.1E	GBB336.1E
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.1E	GBB161.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.1E	GBB163.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GBB164.1E	GBB164.1E
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GBB166.1E	GBB166.1E

Types GBB135.1E and GBB335.1E also have a feedback potentiometer.

Basic Documentation No.: Z4626

Damper actuators
Actuators for HVAC applications

Rotary damper actuators non-spring return 35 Nm: GIB..1E

GIB..1E

Rotary air damper actuators 35 Nm, without spring return

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4626
Torque	35 Nm
Air damper area	6 m ²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GIB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GIB131.1E	GIB131.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB135.1E	GIB135.1E
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB136.1E	GIB136.1E
AC 230	3-position	5 VA / 5 W	0	BPZ:GIB331.1E	GIB331.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB335.1E	GIB335.1E
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB336.1E	GIB336.1E
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GIB161.1E	GIB161.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GIB163.1E	GIB163.1E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GIB164.1E	GIB164.1E
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GIB166.1E	GIB166.1E

Types GIB135.1E and 335.1E also have a potentiometer.

Basic Documentation No.: Z4626

Damper actuators

Actuators for HVAC applications

Accessories for rotary damper actuators

Accessories for rotary air damper actuators GDB...1E and GLB..1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit	N4698	BPZ:ASK71.5	ASK71.5
Rotary/linear mounting kit with bracket	N4698	BPZ:ASK71.6	ASK71.6
Universal lever	N4697	BPZ:ASK71.9	ASK71.9
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	ASK75.5
Insert for small shaft dia.	N4698	BPZ:ASK78.3	ASK78.3
Centering insert 12.7 mm dia. (½")	N4698	BPZ:ASK78.5	ASK78.5
Centering insert 8 mm square	N4698	BPZ:ASK78.6	ASK78.6
Centering insert 10 mm square	N4698	BPZ:ASK78.7	ASK78.7
Centering insert 10 mm dia.	N4698	BPZ:ASK78.9	ASK78.9
Centering insert 12 mm dia.	N4698	BPZ:ASK78.10	ASK78.10
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	ASK78.12
Centering insert 8 mm square	N4698	BPZ:ASK78.14	ASK78.14

Accessories for rotary air damper actuators GMA..1E and GEB...1E

Product Title	Data sheet	Stock No.	Product No.
Universal lever	N4697	BPZ:ASK71.9	ASK71.9
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	ASK71.11
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	ASK71.13
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	ASK71.14
Bracket for power pack	N4697	BPZ:ASK73.3	ASK73.3
Shaft extension	N4699	BPZ:ASK74.7	ASK74.7
Weather shield	N4697	BPZ:ASK75.3	ASK75.3
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	ASK75.6
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	ASC77.1E
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	ASC77.2E

Damper actuators
Actuators for HVAC applications
Accessories for rotary damper actuators

Accessories for rotary air damper actuators GCA...1E, GBB...1E, GIB...1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	ASK71.1
Rotary/linear mounting kit for frame mounting	N4699	BPZ:ASK71.2	ASK71.2
Rotary/linear mounting kit with lever	N4699	BPZ:ASK71.3	ASK71.3
Rotary/linear mounting kit with lever and bracket	N4699	BPZ:ASK71.4	ASK71.4
Universal lever	N4697	BPZ:ASK71.9	ASK71.9
Bracket for power pack	N4699	BPZ:ASK73.1	ASK73.1
Flexible bracket for power pack	N4699	BPZ:ASK73.2	ASK73.2
Special shaft adapter	N4699	BPZ:ASK74.1	ASK74.1
Shaft extension	N4699	BPZ:ASK74.7	ASK74.7
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	ASK75.1
Weather shield for rotarytype actuator GBB/GCA/GIB...1E	N4699	BPZ:ASK75.4	ASK75.4
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	ASC77.1E
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	ASC77.2E

Caution!

- ASK73.1 is only valid for GCA12...1E, GCA13...1E, GCA32...1E, GIB13...1E, GIB33...1E
- ASK73.2 is only valid for GCA16...1E and GIB16...1E

Damper actuators

Actuators for HVAC applications

Fast running damper actuators with safety function 6 Nm: GNP..1E

GNP..1E



Rotary air damper actuators 6 Nm, with electronic fail-save function

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4609
Torque	6 Nm
Air damper area	1 m ²
Angular rotation	90 °
Positioning time	Opening with motor: 2 s Closing with Super Cap: 2 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GNP...1E

Operating voltage [V]	Positioning signal [V]	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	DC 0(2)...10 V	20 VA	0	BPZ:GNP191.1E	GNP191.1E
DC 24	0(4)...20 mA	13 W			
AC 24	DC 0(2)...10 V	20 VA	2	BPZ:GNP196.1E	GNP196.1E
DC 24	0(4)...20 mA	13 W			

Fast running damper actuators without safety function 6 Nm: GAP..1E

Rotary air damper actuators 6 Nm, without electronic fail-save function

GAP..1E

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4608
Torque	6 Nm
Air damper area	1 m ²
Angular rotation	90 °
Positioning time	2 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GAP..1E

Operating voltage [V]	Positioning signal [V]	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	30 VA 22 W	0	BPZ:GAP191.1E	GAP191.1E
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	30 VA 22 W	2	BPZ:GAP196.1E	GAP196.1E

Damper actuators

Actuators for HVAC applications

Linear damper actuators without spring-return 125 N: GDB..2E

GDB..2E



Linear air damper actuators 125 N, without spring return

- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable

Data sheet	N4664
Force	125 N
Air damper area	0.8 m ²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	68 x 152 x 59 mm

Range overview GDB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA / 1 W	0	BPZ:GDB131.2E	GDB131.2E
AC 24	3-position	2 VA / 1 W	2	BPZ:GDB136.2E	GDB136.2E
AC 230	3-position	2 VA / 1 W	0	BPZ:GDB331.2E	GDB331.2E
AC 230	3-position	2 VA / 1 W	2	BPZ:GDB336.2E	GDB336.2E
AC 24	DC 0...10 V	3 VA / 2 W	0	BPZ:GDB161.2E	GDB161.2E
AC 24	DC 0...35 V Adjustable	3 VA / 2 W	0	BPZ:GDB163.2E	GDB163.2E

Basic Documentation No.: Z4664

Damper actuators
Actuators for HVAC applications

Linear damper actuators without spring-return 250 N: GLB..2E

GLB..2E

Linear air damper actuators 250 N, without spring return

- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable



Data sheet	N4664
Force	250 N
Air damper area	1.5 m ²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	68 x 152 x 59 mm

Range overview GLB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA / 1 W	0	BPZ:GLB131.2E	GLB131.2E
AC 24	3-position	2 VA / 1 W	2	BPZ:GLB136.2E	GLB136.2E
AC 230	3-position	2 VA / 1 W	0	BPZ:GLB331.2E	GLB331.2E
AC 230	3-position	2 VA / 1 W	2	BPZ:GLB336.2E	GLB336.2E
AC 24	DC 0...10 V	3 VA / 2 W	0	BPZ:GLB161.2E	GLB161.2E
AC 24	DC 0...35 V Adjustable	3 VA / 2 W	0	BPZ:GLB163.2E	GLB163.2E

Basis Documentation No.: Z4664

Damper actuators

Actuators for HVAC applications

Linear damper actuators without spring-return 400 N: GEB..2E

GEB..2E



Linear air damper actuators 400 N, without spring return

- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4653
Force	400 N
Air damper area	3 m ²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	81 x 212 x 60 mm

Range overview GEB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB131.2E	GEB131.2E
AC 24	3-position	4 VA / 3.5 W	2	BPZ:GEB136.2E	GEB136.2E
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB331.2E	GEB331.2E
AC 230	3-position	3 VA / 3 W	2	BPZ:GEB336.2E	GEB336.2E
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	0	BPZ:GEB161.2E	GEB161.2E
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	0	BPZ:GEB163.2E	GEB163.2E

Basic Documentation No.: Z4653

Damper actuators
Actuators for HVAC applications

Linear damper actuators without spring-return 550 N: GBB..2E

Linear air damper actuators 550 N, without spring return

GBB..2E

- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4656
Force	550 N
Air damper area	4 m ²
Nominal stroke	70 mm
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 298 x 67.5 mm



Range overview GBB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.2E	GBB131.2E
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.2E	GBB136.2E
AC 230	3-position	8 VA / 5 W	0	BPZ:GBB331.2E	GBB331.2E
AC 230	3-position	8 VA / 5 W	2	BPZ:GBB336.2E	GBB336.2E
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.2E	GBB161.2E
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.2E	GBB163.2E

Basic Documentation No.: Z4656

Damper actuators

Actuators for HVAC applications

Accessories for linear damper actuators

Accessories for linear air damper actuators GDB..2E and GLB..2E

Product Title	Data sheet	Stock No.	Product No.
Clamp for linkage (5...8 mm dia.)	N4698	BPZ:ASK55.2	ASK55.2
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	ASK75.5

Accessories for linear air damper actuators GEB..2E

Product Title	Data sheet	Stock No.	Product No.
Linear/rotary mounting kit with bracket	N4697	BPZ:ASK72.3	ASK72.3
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	ASK75.6

Accessories for linear air damper actuators GBB...2E

Product Title	Data sheet	Stock No.	Product No.
Linear/rotary mounting kit with cardan joint	N4699	BPZ:ASK72.1	ASK72.1
Linear/rotary mounting kit with bracket	N4699	BPZ:ASK72.2	ASK72.2
Weather shield for linear actuator	N4699	BPZ:ASK75.2	ASK75.2

Damper actuators
Actuators for air volume control
VAV compact controllers KNX 5/10 Nm: G..B181.1E/KN

G..B181.1E/KN



VAV compact controller KNX

- Networked compact controller with KNX capability for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor, damper actuator and digitally configurable air volume controller
- Nominal torque 5 or 10 Nm, air damper rotation angle mechanically adjustable between 0 and 90°
- Configurable as single device per room or for cascade control with pressure ratio 1:1, positive pressure, or negative pressure
- Prewired with a 0.9 m connecting cable and a 0.9 m KNX bus cable

Data sheet	N3547
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Communication	KNX S-Mode KNX LTE-Mode KNX PL-Link
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/KN

Torque [Nm]	Operating voltage [V]	Air damper area [m ²]	Power consumption [VA]	Stock No.	Product No.
5	AC 24	0.8	3	S55499-D134	GDB181.1E/KN
10	AC 24	1.5	3	S55499-D135	GLB181.1E/KN

Basic Documentation No.: P3547

Damper actuators

Actuators for air volume control

VAV compact controllers 5/10 Nm: G..B181.1E/3

G..B181.1E/3



VAV compact controller

- Compact controller for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor, damper actuator and digitally configurable air volume controller
- Nominal torque 5 or 10 Nm, air damper rotation angle mechanically adjustable between 0 and 90°
- Optionally configurable as VAV compact controller or as damper actuator/differential pressure sensor unit
- Prewired with a 0.9 m connecting cable

Data sheet	N3544
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/3

Torque [Nm]	Operating voltage [V]	Air damper area [m ²]	Positioning signal	Power consumption [VA]	Stock No.	Product No.
5	AC 24	0.8	DC 0...10 V DC 2...10 V 3-position	3	BPZ:GDB181.1E/3	GDB181.1E/3
10	AC 24	1.5	DC 0...10 V DC 2...10 V 3-position	3	BPZ:GLB181.1E/3	GLB181.1E/3

Basic Documentation No.: P3544

Damper actuators
Actuators for air volume control
VAV modular controllers: ASV181.1E/3

ASV181.1E/3



VAV modular controller

- Modular controller for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor and digitally configurable air volume controller
- For connection to an OpenAir™ family 3-position air damper actuator with high torque or safety functions
- Prewired with a 0.9 m cable and a 0.3 m connecting cable

Data sheet	N3545
Operating voltage	AC 24 V
Power consumption	1 VA
Positioning signal	DC 0...10 V DC 2...10 V 3-position
Degree of protection	IP54
Dimensions (W x H x D)	68 x 144 x 45 mm

Stock No. Product No.

BPZ:ASV181.1E/3 **ASV181.1E/3**

Accessories for G..B181.1../.. and ASV181.1E/3

Product Title	Data sheet	Stock No.	Product No.
Manual operator unit	N5851	BPZ:AST10	AST10
Interface converter	N5852	BPZ:AST11	AST11

AST10 for G..B181.1E/3 after Serie E and G..B181.1E/KN with reduced functionality usable only

More accessories, see type GLB...1E / GDB...1E

Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 7 Nm: GNA..1E

GNA126.1E..



Actuators for fire protection dampers

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4620
Torque	7 Nm
Air damper area	1 m ²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return: 15 s
Power consumption	5 VA / 3.5 W
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GNA126.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GNA126.1E/10	GNA126.1E/10
AC 24 DC 24	12 x 12	BPZ:GNA126.1E/12	GNA126.1E/12

Range overview GNA126.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GNA126.1E/T10	GNA126.1E/T10
AC 24 DC 24	12 x 12	BPZ:GNA126.1E/T12	GNA126.1E/T12

Damper actuators

Damper actuators for fire and smoke protection dampers Actuators for fire and smoke protection dampers 7 Nm: GNA..1E

GNA326.1E..



Actuators for fire protection damper

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4620
Torque	7 Nm
Air damper area	1 m ²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Closing with spring return 15 s
Power consumption	7 VA / 4.5 W
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GNA326.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GNA326.1E/10	GNA326.1E/10
AC 230	12 x 12	BPZ:GNA326.1E/12	GNA326.1E/12

Range overview GNA326.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GNA326.1E/T10	GNA326.1E/T10
AC 230	12 x 12	BPZ:GNA326.1E/T12	GNA326.1E/T12

Accessories for GNA126.1E/T und GNA326.1E/T

Product Title	Data sheet	Stock No.	Product No.
Duct tip for temperature monitor unit (72 °C)	N4697	BPZ:ASK79.4	ASK79.4
Duct tip for temperature monitor unit (95 °C)	N4697	BPZ:ASK79.5	ASK79.5

NEW PRODUCT

Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 18 Nm: GGA..1E

GGA126.1E..



Actuators for fire protection dampers

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4617
Torque	18 Nm
Air damper area	2.5 m ²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return 15 s
Power consumption	7 VA / 5 W
Dimensions (W x H x D)	100 x 264 x 71 mm

Range overview GGA126.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GGA126.1E/10	GGA126.1E/10
AC 24 DC 24	12 x 12	BPZ:GGA126.1E/12	GGA126.1E/12

Range overview GGA126.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC/DC 24	10 x 10	BPZ:GGA126.1E/T10	GGA126.1E/T10
AC/DC 24	12 x 12	BPZ:GGA126.1E/T12	GGA126.1E/T12

Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 18 Nm: GGA..1E

GGA326.1E..



Actuators for fire protection dampers

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4617
Torque	18 Nm
Air damper area	2.5 m ²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return 15 s
Power consumption	8 VA / 6 W
Dimensions (W x H x D)	100 x 264 x 71 mm

Range overview GGA326.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GGA326.1E/10	GGA326.1E/10
AC 230	12 x 12	BPZ:GGA326.1E/12	GGA326.1E/12

Range overview GGA326.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GGA326.1E/T10	GGA326.1E/T10
AC 230	12 x 12	BPZ:GGA326.1E/T12	GGA326.1E/T12

Accessories for GGA126.1E/T und GGA326.1E/T

Product Title	Data sheet	Stock No.	Product No.
Duct tip for temperature monitor unit (72 °C)	N4697	BPZ:ASK79.4	ASK79.4
Duct tip for temperature monitor unit (95 °C)	N4697	BPZ:ASK79.5	ASK79.5

NEW PRODUCT

Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 6 Nm: GND..

GND121.1U



Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90°
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND121.1U	GND121.1U

GND121.1U/F



Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, Elect. fuse link capable

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90°
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND121.1U/F	GND121.1U/F

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**Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 6 Nm: GND..**

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run

GND321.1U

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.



Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND321.1U	GND321.1U

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, Elect. fuse link capable

GND321.1U/F

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.



Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND321.1U/F	GND321.1U/F



Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 6 Nm: GND..

GND126.1U



Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.

Product No.

BPZ:GND126.1U

GND126.1U

GND126.1U/F



Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.

Product No.

BPZ:GND126.1U/F

GND126.1U/F

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 6 Nm: GND..

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux

GND326.1U

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.



Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

	Stock No.	Product No.
	BPZ:GND326.1U	GND326.1U

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable

GND326.1U/F

OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.



Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

	Stock No.	Product No.
	BPZ:GND326.1U/F	GND326.1U/F

Accessories for GND..

Product Title	Stock No.	Product No.
OpenAir Electronic Fusible Link.	BPZ:ASK79.165	ASK79.165
OpenAir Electronic Fusible Link.	BPZ:ASK79.250	ASK79.250
OpenAir Electronic Fusible Link.	BPZ:ASK79.350	ASK79.350

Damper actuators

Damper actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers 16 Nm: GGD..

GGD121.1U



Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke

OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 24 Vac/dc, 2-position control, 15 sec run time, Fire/Smoke

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.

Product No.

BPZ:GGD121.1U

GGD121.1U

GGD126.1U



Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches

OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 24 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	0 to 130 °F
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.

Product No.

S55450-D159

GGD126.1U

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 16 Nm: GGD..

Spring Return, 142 lb-in (16 Nm), 230 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke

GGD321.1U

OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke



Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
BPZ:GGD321.1U	GGD321.1U

Spring Return, 142 lb-in (16 Nm), 120 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches

GGD326.1U

OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 120 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches



Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	120 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
S55450-D161	GGD326.1U



Variable speed drives



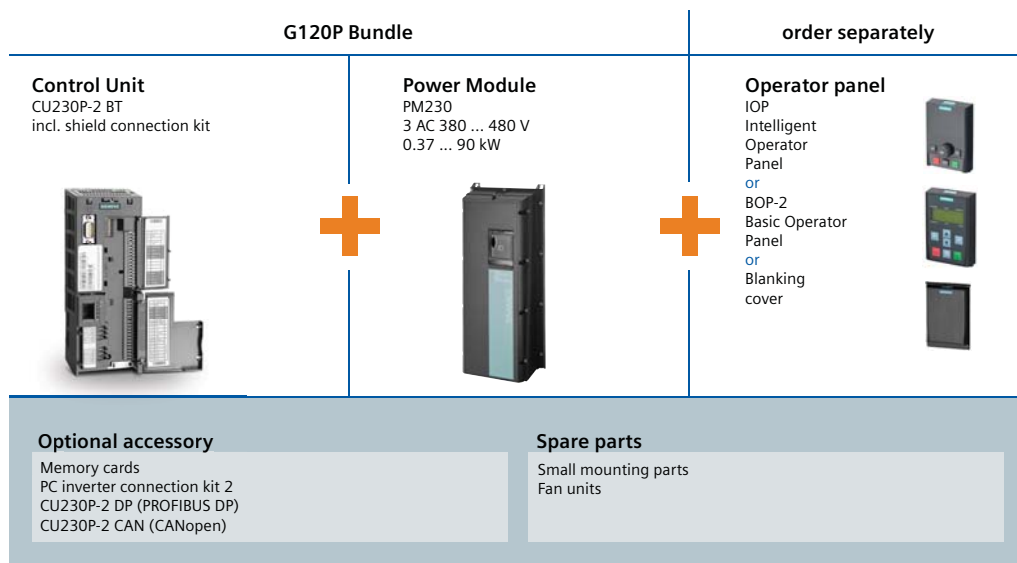
Overview and selection tools	Overview of product details	9-2
Variable speed drives	G120P..	9-5
	Accessories and spare parts for G120P..	9-10

Variable speed drives

Overview and selection tools

Product range overview

Order instruction



Power range G120P

		Dimension / WxHxD			
		IP55		IP20	
kW	Frame size	Filter A	Filter B	Filter A	Filter B
0.37	A	154x460x249	154x460x249	73x196x223	73x202x288
0.55	A	154x460x249	154x460x249	73x196x223	73x202x288
0.75	A	154x460x249	154x460x249	73x196x223	73x202x288
1.1	A	154x460x249	154x460x249	73x196x223	73x202x288
1.5	A	154x460x249	154x460x249	73x196x223	73x202x288
2.2	A	154x460x249	154x460x249	73x196x223	73x202x288
3	A	154x460x249	154x460x249	73x196x223	73x202x288
4	B	180x540x249	180x540x249	100x292x223	100x297x308
5.5	B	180x540x249	180x540x249	100x292x223	100x297x308
7.5	B	180x540x249	180x540x249	100x292x223	100x297x308
11	C	230x620x249	230x620x249	140x355x223	140x359x318
15	C	230x620x249	230x620x249	140x355x223	140x359x318
18.5	C/D	230x620x249	320x640x329	140x355x223	140x359x318
22	D	320x640x329	320x640x329	275x512x262	375x512x262
30	D	320x640x329	320x640x329	275x512x262	375x512x262
37	E	320x751x329	320x751x329	275x635x262	385x635x262
45	E	320x751x329	320x751x329	275x635x262	385x635x262
55	F	410x915x416	410x915x416	350x934x374	500x934x374
75	F	410x915x416	410x915x416	350x934x374	500x934x374
90	F	410x915x416	410x915x416	not available	not available

Remark IP55: The depth increases by 5mm if BOP-2 or blind cover is used. The Depth increases by 15mm if IOP is used

Remark IP20: The height increases if screen plate is used:

FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm.

In addition please consider 10mm increase if BOP-2 is used and 20mm if IOP is used.

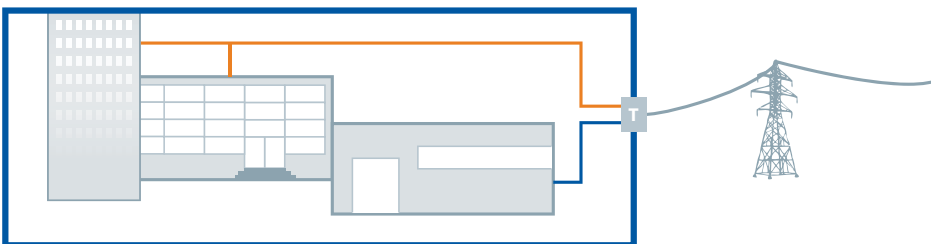
Selection Guide for EMC-filter

Product standard EN 61800-3				
Environment	1st environment	1st or 2nd environment (building operator decision)	2nd environment	2nd environment
Category	C1	C2	C3	C4
Limits according to EN 55011	Class B	Class A1 (+ Warning hints)	Class A2 (+ Warning hints)	Values exceeds limit defined by class A2
		G120P with B-filter		
		G120P with A-filter		

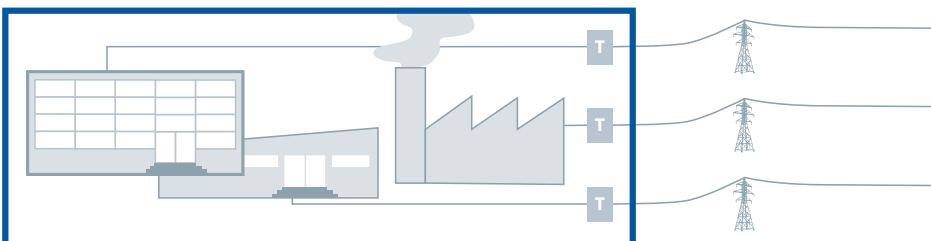
1st environment/class B: residential areas



1st or 2nd environment/class A or B: special areas



2nd environment/class A: industrial areas





Variable Speed Drive for pumps and fans

Variable speed drive for energy-optimized speed control of pump, compressor and fan motors in building control applications, including: Powermodule PM230, ControlUnit CU230P-2 BT with screening plate without panel. Available degree of protection: IP20 and IP55.

The G120P Bundle does not contain an operator panel or blanking cover. To achieve the IP55 or IP54 protection rating with the IP55 devices, please order an operator panel or blanking cover separately.

Data sheet	N5111
Standard	EN 61800-3
Operating temperature	0...60 °C
Overload capacity	FSA-FSC: 110% for 57 sec. and 150% for 3 sec. every 300 sec. FSD-FSF: 110% for 60 sec. every 300 sec.
Operating voltage	400 V
Frequency	47...63 Hz
Output frequency	0...650 Hz
PWM frequency	4 kHz...16 kHz (2 kHz steps)
Protection functions	- Overvoltage and undervoltage - VSD overtemperature - Motor temperature with PTC via special input terminals - I ² t motor, thermal - Ground fault, short circuit - Stalling current and locked rotor
Digital inputs, number	6
Digital inputs	Potential-free input signal Programmable
Analog inputs, number	4
Analog inputs	Switchable, programmable scaling
Analog input, signal	DC -10...10 V DC 0...10 V DC 0...20 mA DC 2...10 V DC 4...20 mA Pt1000 LG-Ni1000
Analog outputs, number	2
Analog outputs	Programmable scaling Switchable
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Relay outputs, number	3
Relay outputs	Potential-free switchover contacts Programmable
Relay output, switching voltage	AC 250 V DC 30 V
Relay output, switching current	AC 2 A DC 5 A
Communication	Modbus/RTU RS485/USS BACnetMS/TP PROFIBUS (optional) CANopen (optional) P1 FLN
Product conformity	CE C-TIC

Variable speed drives

Variable speed drives

G120P..

Range overview G120P.. IP55 with integrated EMC-Filter, class B (C1); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	154 x 460 x 249	5.01	6SL3200-6AM11-3BH0	G120P-0.37/35B
0.55	1.7	154 x 460 x 249	5.01	6SL3200-6AM11-7BH0	G120P-0.55/35B
0.75	2.2	154 x 460 x 249	5.01	6SL3200-6AM12-2BH0	G120P-0.75/35B
1.1	3.1	154 x 460 x 249	5.01	6SL3200-6AM13-1BH0	G120P-1.1/35B
1.5	4.1	154 x 460 x 249	5.01	6SL3200-6AM14-1BH0	G120P-1.5/35B
2.2	5.9	154 x 460 x 249	5.01	6SL3200-6AM15-8BH0	G120P-2.2/35B
3	7.7	154 x 460 x 249	5.01	6SL3200-6AM17-7BH0	G120P-3/35B
4	10.2	180 x 540 x 249	7.01	6SL3200-6AM21-0BH0	G120P-4/35B
5.5	13.2	180 x 540 x 249	7.01	6SL3200-6AM21-3BH0	G120P-5.5/35B
7.5	18	180 x 540 x 249	7.01	6SL3200-6AM21-8BH0	G120P-7.5/35B
11	26	230 x 620 x 249	10.21	6SL3200-6AM22-6BH0	G120P-11/35B
15	32	230 x 620 x 249	10.21	6SL3200-6AM23-2BH0	G120P-15/35B
18.5	38	320 x 640 x 329	31.71	6SL3200-6AM23-8BH0	G120P-18.5/35B
22	45	320 x 640 x 329	31.71	6SL3200-6AM24-5BH0	G120P-22/35B
30	60	320 x 640 x 329	31.71	6SL3200-6AM26-0BH0	G120P-30/35B
37	75	320 x 751 x 329	37.71	6SL3200-6AM27-5BH0	G120P-37/35B
45	90	320 x 751 x 329	37.71	6SL3200-6AM28-8BH0	G120P-45/35B
55	110	410 x 915 x 416	70.71	6SL3200-6AM31-1BH0	G120P-55/35B
75	145	410 x 915 x 416	70.71	6SL3200-6AM31-4BH0	G120P-75/35B
90	178	410 x 915 x 416	70.71	6SL3200-6AM31-7BH0	G120P-90/35B

IP55: The depth increases when using a BOP-2/Blanking Cover by +5mm and with an IOP +15mm

Range overview G120P.. IP55 with integrated EMC-Filter, class A (C2); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	154 x 460 x 249	5.01	6SL3200-6AM11-3AH0	G120P-0.37/35A
0.55	1.7	154 x 460 x 249	5.01	6SL3200-6AM11-7AH0	G120P-0.55/35A
0.75	2.2	154 x 460 x 249	5.01	6SL3200-6AM12-2AH0	G120P-0.75/35A
1.1	3.1	154 x 460 x 249	5.01	6SL3200-6AM13-1AH0	G120P-1.1/35A
1.5	4.1	154 x 460 x 249	5.01	6SL3200-6AM14-1AH0	G120P-1.5/35A
2.2	5.9	154 x 460 x 249	5.01	6SL3200-6AM15-8AH0	G120P-2.2/35A
3	7.7	154 x 460 x 249	5.01	6SL3200-6AM17-7AH0	G120P-3/35A
4	10.2	180 x 540 x 249	7.01	6SL3200-6AM21-0AH0	G120P-4/35A
5.5	13.2	180 x 540 x 249	7.01	6SL3200-6AM21-3AH0	G120P-5.5/35A
7.5	18	180 x 540 x 249	7.01	6SL3200-6AM21-8AH0	G120P-7.5/35A
11	26	230 x 620 x 249	10.21	6SL3200-6AM22-6AH0	G120P-11/35A
15	32	230 x 620 x 249	10.21	6SL3200-6AM23-2AH0	G120P-15/35A
18.5	38	230 x 620 x 249	10.21	6SL3200-6AM23-8AH0	G120P-18.5/35A
22	45	320 x 640 x 329	31.71	6SL3200-6AM24-5AH0	G120P-22/35A
30	60	320 x 640 x 329	31.71	6SL3200-6AM26-0AH0	G120P-30/35A
37	75	320 x 751 x 329	37.71	6SL3200-6AM27-5AH0	G120P-37/35A
45	90	320 x 751 x 329	37.71	6SL3200-6AM28-8AH0	G120P-45/35A
55	110	410 x 915 x 416	70.71	6SL3200-6AM31-1AH0	G120P-55/35A
75	145	410 x 915 x 416	70.71	6SL3200-6AM31-4AH0	G120P-75/35A
90	178	410 x 915 x 416	70.71	6SL3200-6AM31-7AH0	G120P-90/35A

IP55: The depth increases when using a BOP-2/Blanking Cover by +5mm and with an IOP +15mm

Variable speed drives

Variable speed drives

G120P..

Range overview G120P.. IP20 with external EMC-Filter, class B (C1); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	73 x 202 x 288	4.06	6SL3200-6AE11-3BH0	G120P-0.37/32B
0.55	1.7	73 x 202 x 288	4.06	6SL3200-6AE11-7BH0	G120P-0.55/32B
0.75	2.2	73 x 202 x 288	4.06	6SL3200-6AE12-2BH0	G120P-0.75/32B
1.1	3.1	73 x 202 x 288	4.06	6SL3200-6AE13-1BH0	G120P-1.1/32B
1.5	4.1	73 x 202 x 288	4.06	6SL3200-6AE14-1BH0	G120P-1.5/32B
2.2	5.9	73 x 202 x 288	4.06	6SL3200-6AE15-8BH0	G120P-2.2/32B
3	7.7	73 x 202 x 288	4.06	6SL3200-6AE17-7BH0	G120P-3/32B
4	10.2	100 x 297 x 308	7.71	6SL3200-6AE21-0BH0	G120P-4/32B
5.5	13.2	100 x 297 x 308	7.71	6SL3200-6AE21-3BH0	G120P-5.5/32B
7.5	18	100 x 297 x 308	7.71	6SL3200-6AE21-8BH0	G120P-7.5/32B
11	26	140 x 359 x 318	13.11	6SL3200-6AE22-6BH0	G120P-11/32B
15	32	140 x 359 x 318	13.11	6SL3200-6AE23-2BH0	G120P-15/32B
18.5	38	140 x 359 x 318	13.11	6SL3200-6AE23-8BH0	G120P-18.5/32B
22	45	375 x 512 x 262	21.5	6SL3200-6AE24-5BH0	G120P-22/32B
30	60	375 x 512 x 262	21.5	6SL3200-6AE26-0BH0	G120P-30/32B
37	75	385 x 635 x 262	34.3	6SL3200-6AE27-5BH0	G120P-37/32B
45	90	385 x 635 x 262	34.3	6SL3200-6AE28-8BH0	G120P-45/32B
55	110	500 x 934 x 374	70.6	6SL3200-6AE31-1BH0	G120P-55/32B
75	145	500 x 934 x 374	70.6	6SL3200-6AE31-4BH0	G120P-75/32B

IP20: When using a screening kit for the Power Module the total height increases as follows: FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm

The depth increases when using a BOP-2 by +10mm and with an IOP +20mm

Range overview G120P.. IP20 with integrated EMC-Filter, class A (C2); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	73 x 196 x 223	2.31	6SL3200-6AE11-3AH0	G120P-0.37/32A
0.55	1.7	73 x 196 x 223	2.31	6SL3200-6AE11-7AH0	G120P-0.55/32A
0.75	2.2	73 x 196 x 223	2.31	6SL3200-6AE12-2AH0	G120P-0.75/32A
1.1	3.1	73 x 196 x 223	2.31	6SL3200-6AE13-1AH0	G120P-1.1/32A
1.5	4.1	73 x 196 x 223	2.31	6SL3200-6AE14-1AH0	G120P-1.5/32A
2.2	5.9	73 x 196 x 223	2.31	6SL3200-6AE15-8AH0	G120P-2.2/32A
3	7.7	73 x 196 x 223	2.31	6SL3200-6AE17-7AH0	G120P-3/32A
4	10.2	100 x 292 x 223	3.71	6SL3200-6AE21-0AH0	G120P-4/32A
5.5	13.2	100 x 292 x 223	3.71	6SL3200-6AE21-3AH0	G120P-5.5/32A
7.5	18	100 x 292 x 223	3.71	6SL3200-6AE21-8AH0	G120P-7.5/32A
11	26	140 x 355 x 223	5.81	6SL3200-6AE22-6AH0	G120P-11/32A
15	32	140 x 355 x 223	5.81	6SL3200-6AE23-2AH0	G120P-15/32A
18.5	38	140 x 355 x 223	5.81	6SL3200-6AE23-8AH0	G120P-18.5/32A
22	45	275 x 512 x 262	14	6SL3200-6AE24-5AH0	G120P-22/32A
30	60	275 x 512 x 262	14	6SL3200-6AE26-0AH0	G120P-30/32A
37	75	275 x 635 x 262	22	6SL3200-6AE27-5AH0	G120P-37/32A
45	90	275 x 635 x 262	22	6SL3200-6AE28-8AH0	G120P-45/32A
55	110	350 x 934 x 374	48	6SL3200-6AE31-1AH0	G120P-55/32A
75	145	350 x 934 x 374	48	6SL3200-6AE31-4AH0	G120P-75/32A

IP20: When using a screening kit for the Power Module the total height increases as follows: FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm

The depth increases when using a BOP-2 by +10mm and with an IOP +20mm

Available operator panels

Product Title	Data sheet	Stock No.	Product No.
G120P basic operator panel BOP-2, IP55	N5116	6SL3255-6AA00-4CA0	G120P-BOP-2
G120P intelligent operator panel IOP-2, IP54	N5116	6SL3255-6AA00-4JA1	G120P-IOP-2
G120P blanking cover, IP55		6SL3256-6BA00-0AA0	G120P-BCOVER

NEW PRODUCT

Variable speed drives

Variable speed drives

Accessories and spare parts for G120P..

Accessories and spare parts for IP55

Product Title	Stock No.	Product No.
Installation kit for G120P (PM230) IP55, FSA. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LA00-0MA0	G120P-INS-KIT-FSA
Installation kit for G120P (PM230) IP55, FSB. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LB00-0MA0	G120P-INS-KIT-FSB
Installation kit for G120P (PM230) IP55, FSC. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LC00-0MA0	G120P-INS-KIT-FSC
Installation kit for G120P (PM230) IP55, FSD. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LD00-0MA0	G120P-INS-KIT-FSD
Installation kit for G120P (PM230) IP55, FSE. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LE00-0MA0	G120P-INS-KIT-FSE
Installation kit for G120P (PM230) IP55, FSF. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LF00-0MA0	G120P-INS-KIT-FSF
Air guide sheet for installing G120P (PM230) IP55 FSA in systems without direct wall mounting	6SL3266-7SA00-0MA0	G120P-AIRSHEET-FSA
Air guide sheet for installing G120P (PM230) IP55 FSB in systems without direct wall mounting	6SL3266-7SB00-0MA0	G120P-AIRSHEET-FSB
Air guide sheet for installing G120P (PM230) IP55 FSC in systems without direct wall mounting	6SL3266-7SC00-0MA0	G120P-AIRSHEET-FSC
G120P PM Fan IP55, external, FSD-FSE	6SL3200-0SF24-0AA0	G120P-FExtFSDE-IP55
G120P PM Fan IP55, external, FSF	6SL3200-0SF26-0AA0	G120P-FExtFSF-IP55
G120P PM Fan IP55, internal, FSA-FSC	6SL3200-0SF31-0AA0	G120P-FlntFSAC-IP55
G120P PM Fan IP55, internal, FSD-FSF	6SL3200-0SF32-0AA0	G120P-FlntFSDF-IP55
G120P mounting parts set, PM230, IP55, FSA	6SL3200-0SK02-0AA0	G120P-MSetFSA-IP55
G120P mounting parts set, PM230, IP55, FSB	6SL3200-0SK03-0AA0	G120P-MSetFSB-IP55
G120P mounting parts set, PM230, IP55, FSC	6SL3200-0SK04-0AA0	G120P-MSetFSC-IP55
G120P mounting parts set, PM230, IP55, FSE	6SL3200-0SK06-0AA0	G120P-MSetFSE-IP55
G120P mounting parts set, PM230, IP55, FSF	6SL3200-0SK07-0AA0	G120P-MSetFSF-IP55
G120P mounting parts set, PM230, IP55, FSD	6SL3200-0SK05-0AA0	G120P-MSetFSD-IP55

Accessories and spare parts for IP20

Product Title	Stock No.	Product No.
G120P Screening-Kit, PM230 IP20 FSD-FSE	6SL3262-1AD00-0DA0	G120P-Screen-FSDE
G120P Screening-Kit, PM230 IP20 FSF	6SL3262-1AF00-0DA0	G120P-Screen-FSF
G120P PM Fan IP20, external, FSD-FSE	6SL3200-0SF05-0AA0	G120P-FExtFSDE-IP20
G120P PM Fan IP20, external, FSF	6SL3200-0SF08-0AA0	G120P-FExtFSF-IP20
G120P Screening-Kit, PM230 IP20 FSA	6SL3266-1EA00-0KA0	G120P-Screen-FSA
G120P Screening-Kit, PM230 IP20 FSB	6SL3266-1EB00-0KA0	G120P-Screen-FSB
G120P Screening-Kit, PM230 IP20 FSC	6SL3266-1EC00-0KA0	G120P-Screen-FSC

Accessories and spare parts for IP55 and IP20

Product Title	Stock No.	Product No.
G120P Door mounting kit for IOP or BOP-2	6SL3256-6AP00-0JA0	G120P-DOOR-KIT
Sinamics Micro Memory Card (MMC)	6SL3254-0AM00-0AA0	G120P-MMC-Card
G120P PC-Inverter Connection Kit-2	6SL3255-0AA00-2CA0	G120P-PC-Kit
STARTER Commissioning Tool for Sinamics and Micromaster Drives	6SL3072-0AA00-0AG0	G120P-Starter
G120P Control Unit, CanOpen	6SL3243-0BB30-1CA3	CU230P-2 CAN
G120P Control Unit, Profibus	6SL3243-0BB30-1PA3	CU230P-2 DP
G120P Control Unit, USS, Modb, BacNet	6SL3243-6BB30-1HA3	CU230P-2 BT
G120P CU230P-2 Screening Kit	6SL3264-1EA00-0FA0	G120P-CUScreen
G120P PM Fan IP20/IP55, external, FSA	6SL3200-0SF21-0AA0	G120P-FExtFSA
G120P PM Fan IP20/IP55, external, FSB	6SL3200-0SF22-0AA0	G120P-FExtFSB
G120P PM Fan IP20/IP55, external, FSC	6SL3200-0SF23-0AA0	G120P-FExtFSC

Metering




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Metering

Overview and selection tools

Overview


Heat cost allocators WHE5..

		1 sensor	2 sensors	Communication	Summer switch off	Due date
	WHE501-D29	■		none	■ ²⁾	30.09
	WHE502-D10		■	none	■ ¹⁾	31.12
	WHE502-D29		■	none	■ ²⁾	30.09
	WHE571-D29	■		IrDA	■ ²⁾	30.09
	WHE572-D29		■	IrDA	■ ²⁾	30.09
	WHE551-0000	■		Walk-by		31.12
	WHE551-D291	■		Walk-by	■ ²⁾	30.09
	WHE552-0000		■	Walk-by		31.12
	WHE552-D100		■	Walk-by	■ ¹⁾	31.12
	WHE552-D291		■	Walk-by	■ ²⁾	30.09
	WHE561-000	■		AMR		31.12
	WHE561-D29	■		AMR	■ ²⁾	30.09
	WHE562-000		■	AMR		31.12
	WHE562-D10		■	AMR	■ ¹⁾	31.12
	WHE562-D29		■	AMR	■ ²⁾	30.09

¹⁾ Beginning of summer: 01.06 - End of summer: 31.08


²⁾ Beginning of summer: 01.06 - End of summer: 30.09

Hot and cold water meters

	Type of meter	Q3	Mounting length	Communication	Connection	
	WFK30.D080	Cold water up to 30° C	2.5 m ³ /h	80 mm	walk-by oder AMR ¹⁾	G 3/4"
	WFK30.D110	Cold water up to 30° C	2.5 m ³ /h	110 mm	walk-by oder AMR ¹⁾	G 3/4"
	WFW30.D080	Hot water up to 90° C	2.5 m ³ /h	80 mm	walk-by oder AMR ¹⁾	G 3/4"
	WFW30.D110	Hot water up to 90° C	2.5 m ³ /h	110 mm	walk-by oder AMR ¹⁾	G 3/4"




¹⁾ With add-on radio module: AMR (WFZ16.MO), walk-by (WFZ166.MO)

Heat and cooling energy meters

	Type of meter	Nominal flow rate	Communication	Power supply	Type	Connection	Mounting length	
	WFM501-E000H0	Heat	0.6 m ³ /h	walk-by or AMR ²⁾	Battery	Impeller meter	G 3/4"	110 mm
	WFM21.B111	Heat	0.6 m ³ /h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFM26.B111	Heat	0.6 m ³ /h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFN21.B111	Combi	0.6 m ³ /h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN26.B111	Combi	0.6 m ³ /h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFM502-E000H0	Heat	1.5 m ³ /h	walk-by or AMR ²⁾	Battery	Impeller meter	G 3/4"	110 mm
	WFM21.D111	Heat	1.5 m ³ /h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFM26.D111	Heat	1.5 m ³ /h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFN21.D111	Combi	1.5 m ³ /h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN26.D111	Combi	1.5 m ³ /h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFM503-J000H0	Heat	2.5 m ³ /h	walk-by or AMR ²⁾	Battery	Impeller meter	G 1"	130 mm
	WFM21.E131	Heat	2.5 m ³ /h	M-Bus	Battery	Impeller meter	G 1"	130 mm
	WFM26.E131	Heat	2.5 m ³ /h	AMR	Battery	Impeller meter	G 1"	130 mm
	WFN21.E131	Combi	2.5 m ³ /h	M-Bus	Battery	Impeller meter	G 1"	130 mm
	WFN26.E131	Combi	2.5 m ³ /h	AMR	Battery	Impeller meter	G 1"	130 mm

²⁾ With add-on radio module: AMR (WFZ56.OK), walk-by (WFZ566.OK)

Ultrasonic heat meters

		Type of meter	Nominal flow rate	Communication	Power supply	Type	Conn- ection	Mounting length
	WSM506-0A	Heat	0.6 m ³ /h	none	Battery ¹⁾	Ultrasonic meter	G 3/4"	110 mm
	WSM506-0E	Heat	0.6 m ³ /h	none	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	WSM515-0A	Heat	1.5 m ³ /h	none	Battery ¹⁾	Ultrasonic meter	G 3/4"	110 mm
	WSM515-0E	Heat	1.5 m ³ /h	none	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	WSM525-0A	Heat	2.5 m ³ /h	none	Battery ¹⁾	Ultrasonic meter	G 1"	130 mm
	WSM525-0E	Heat	2.5 m ³ /h	none	Battery ²⁾	Ultrasonic meter	G 1"	130 mm
	2WR605-MBE	Heat	0.6 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MBG	Heat	0.6 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MHE	Heat	0.6 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MHG	Heat	0.6 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MBE	Heat	1.5 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MBG	Heat	1.5 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MHE	Heat	1.5 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MHG	Heat	1.5 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR636-MBE	Heat	2.5 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 1"	130 mm
	2WR636-MBG	Heat	2.5 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 1"	130 mm
	2WR636-MHE	Heat	2.5 m ³ /h	M-Bus	Battery ²⁾	Ultrasonic meter	G 1"	130 mm
	2WR636-MHG	Heat	2.5 m ³ /h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 1"	130 mm
	UH50-A05-00	Heat	0.6 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 3/4"	110 mm
	UH50-C05-00	Combi	0.6 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 3/4"	110 mm
	UH50-A21-00	Heat	1.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 3/4"	110 mm
	UH50-C21-00	Combi	1.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 3/4"	110 mm
	UH50-A36-00	Heat	2.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1"	130 mm
	UH50-C36-00	Combi	2.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1"	130 mm
	UH50-A45-00	Heat	3.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C45-00	Combi	3.5 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A50-00	Heat	6.0 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C50-00	Combi	6.0 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A61-00	Heat	10 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 40	300 mm
	UH50-C61-00	Combi	10 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 40	300 mm
	UH50-A65-00	Heat	15 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 50	270 mm
	UH50-C65-00	Combi	15 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 50	270 mm
	UH50-A70-00	Heat	25 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 65	300 mm
	UH50-C70-00	Combi	25 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 65	300 mm
UH50-A74-00	Heat	40 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 80	300 mm	
UH50-C74-00	Combi	40 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 80	300 mm	
UH50-A83-00	Heat	60 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 100	360 mm	
UH50-C83-00	Combi	60 m ³ /h	none ³⁾	none ³⁾	Ultrasonic meter	DN 100	360 mm	

¹⁾ Battery life: 6 years

²⁾ Battery life: 11 years

³⁾ Various communication and power supply modules available

WHE50..

Electronic heat cost allocators

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.

WHE50.. heat cost allocators without communication interface must be visually read on site and the readings must be manually written down. They are especially suited for basic plants that require no complex data evaluations or no very fast readout.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).



Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE50.. without communication interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F100	WHE501-D29
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	S55562-F101	WHE502-D10
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F102	WHE502-D29

Metering

Electronic heat cost allocators

Electronic heat cost allocators WHE57..

WHE57..



Electronic heat cost allocators with infrared interface

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.

WHE57.. heat cost allocators with optical close-range interface must be read on site. The readings can be made semi-automatically by means of the IrDA reading head.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).

Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE57.. with infrared interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with infrared interface, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F113	WHE571-D29
Electronic heat cost allocator with infrared interface, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F114	WHE572-D29

WHE55..



Electronic heat cost allocators with walk-by radio interface

Device for heat cost allocation by acquiring the amount of heat emitted by radiators. The heat cost allocators featuring a walk-by radio interface are read locally via RF (radio frequency 868 MHz). The allocators send the consumption data at a predetermined point in time. Using the mobile data logger, the person making the readout collects the radio telegrams.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).

Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE55.. with walk-by radio interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with walk-by radio interface, Single-sensor, due date 12/31, type of readout annual	S55562-F103	WHE551-0000
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	S55562-F104	WHE551-D291
Electronic heat cost allocator with walk-by radio interface, Double sensor, due date 12/31, type of readout annual	S55562-F105	WHE552-0000
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31, type of readout annual	S55562-F106	WHE552-D100
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	S55562-F107	WHE552-D291

Metering

Electronic heat cost allocators

Electronic heat cost allocators WHE56..

WHE56..



Electronic heat cost allocators with AMR radio interface

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.

The WHE56.. heat cost allocators are read out via RF (radio frequency 868 MHz).

The devices send the current consumption data in cycles to the network nodes. These nodes automatically collect and store the data from all integrated heat cost allocators. Customers can read all consumption data of plants from a remote location.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).

Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE56.. with AMR radio interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with AMR radio interface, Single-sensor, due date 12/31	S55562-F108	WHE561-000
Electronic heat cost allocator with AMR radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F109	WHE561-D29
Electronic heat cost allocator with AMR radio interface, Double sensor, due date 12/31	S55562-F110	WHE562-000
Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	S55562-F111	WHE562-D10
Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F112	WHE562-D29

Accessories for WHE5.. – parts for fixing

Product Title	Packaging unit	Stock No.	Product No.
Mounting plate (P3)	50 pieces	S55563-F1 15	FKA0017
Threaded hoop (pipe 18...30 mm)	10 pieces	JXF:FKT0014	FKT0014
Threaded hoop (pipe up to 17 mm)	10 pieces	JXF:FKT0004	FKT0004
Shank nut M3 x 3 mm	100 pieces	JXF:FNM0002	FNM0002
Shank nut M3 x 6 mm	100 pieces	JXF:FNM0003	FNM0003
Shank nut M3 x 9.5 mm	100 pieces	JXF:FNM0001	FNM0001
Clamping sleeve special radiator	10 pieces	JXF:FKM0002	FKM0002
Clamping bracket (pipes TE 36 mm)	10 pieces	JXF:FKT0015	FKT0015
Clamping bracket (pipes TE 46 mm)	10 pieces	JXF:FKT0016	FKT0016
Clamping bracket shortened	10 pieces	JXF:FKT0009	FKT0009
Clamping bracket trapezoidal 35 mm	10 pieces	JXF:FKT0018	FKT0018
Clamping bracket trapezoidal 50 mm	10 pieces	JXF:FKT0019	FKT0019
Clamping bracket trapezoidal 65 mm	10 pieces	JXF:FKT0020	FKT0020
Expanding bracket of lamella-type radiator	10 pieces	JXF:FKA0004	FKA0004
Square bolt 4.5 mm with cross pin	10 pieces	JXF:BOZ4002	BOZ4002
Square bolt 6 mm with cross pin	10 pieces	JXF:BOZ4003	BOZ4003
Square bolt 12 mm with cross pin	10 pieces	JXF:BOZ4004	BOZ4004

Accessories for WHE5.. – parts for mounting

Product Title	Packaging unit	Stock No.	Product No.
Spacer sleeve	10 pieces	JXF:FKT0010	FKT0010
Spacer	10 pieces	JXF:FKA0013	FKA0013
Threaded bushing	10 pieces	JXF:FKA0012	FKA0012
Clamping piece (threaded hoop 17 mm)	10 pieces	JXF:FKA0003	FKA0003
Clamping piece (threaded hoop 18...30 mm)	10 pieces	JXF:FKA0008	FKA0008
Installation plate for remote sensor	10 pieces	JXF:FKA0009	FKA0009
Mounting plate wide	25 pieces	JXF:FKA0022	FKA0022
Sensor housing	50 pieces	JXF:FKK0029	FKK0029
Safety cap for sensor housing	50 pieces	JXF:FKK0045	FKK0045
Wall bracket (P3)	10 pieces	JXF:FKK0044	FKK0044
Contact screw	10 pieces	JXF:FKA0010	FKA0010
Contact screw long	10 pieces	JXF:FKA0011	FKA0011

Metering

Electronic heat cost allocators

Accessories and mounting material for WHE5..

Accessories for WHE5.. – standard parts

Product Title	Packaging unit	Stock No.	Product No.
Self-tapping screw B 2.9 x 13 mm	500 pieces	JXF:FNR0008	FNR0008
Screw B 3.9 x 45 mm	500 pieces	JXF:FNR0007	FNR0007
Cross-slot screw M4 x 30 mm	500 pieces	JXF:FNR0003	FNR0003
Cross-slot screw M4 x 40 mm	500 pieces	JXF:FNR0004	FNR0004
Cross-slot screw M4 x 50 mm	500 pieces	JXF:FNR0005	FNR0005
Cross-slot screw M4 x 70 mm	500 pieces	JXF:FNR0006	FNR0006
Welding stud M3 x 8 mm	1000 pieces	JXF:FKT0013	FKT0013
Welding stud M3 x 12 mm	1000 pieces	JXF:FKT0011	FKT0011
Welding stud M3 x 15 mm	1000 pieces	JXF:FKT0012	FKT0012
Hexagon nut M4	1000 pieces	JXF:FNM0004	FNM0004
Self-locking nut with serrated bearing M3	1000 pieces	JXF:FNM0005	FNM0005

Miscellaneous accessories for WHE5..

Product Title	Packaging unit	Stock No.	Product No.
Dowel 6 mm	100 pieces	JXF:FNU0001	FNU0001
Remote sensor 1.5 m	10 pieces	JXF:BBV4003	BBV4003
Remote sensor 2.5 m	10 pieces	JXF:BBV4004	BBV4004
Remote sensor 5 m	10 pieces	JXF:BBV4005	BBV4005
Lead seal blue	100 pieces	JXF:FKK0041	FKK0041
Cable duct white	10 m	JXF:FOZ0001	FOZ0001
Snap-on panel	50 pieces	JXF:FKK0034	FKK0034
Installation template	1 piece	JXF:HCAIP001001	HCAIP001001
Installation aid (convector)	1 piece	JXF:FKT0017	FKT0017
ERGO universal instant glue 3g	1 piece	JXF:FSS0007	FSS0007

Programming accessories for WHE5..

Product Title	Packaging unit	Stock No.	Product No.
Parameterization and diagnostic software for heat cost allocators		JXF:ACT50-HCA	ACT50-HCA
Infrared read head (with USB interface)	1 piece	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
Programming adapter	1 piece	JXF:HCAPH001001	HCAPH001001
Mobile data logger set	1 piece	JXF:WTZ.WBSET-2/PC	WTZ.WBSET-2/PC

Mechanical water meter single-jet, wall mounted (module compatible)

WFK30.. / WFW30..

Mechanical single-jet impeller meter for measuring the consumption of cold (WFK30..) or hot water (WFW30..). Display of cumulated consumption. Versions without remote reading output. Body made of brass, dry-runner with magnetic transmission and pivotable totalizer. All water meters WFK30.. and WFW30.. can be retrofitted with electronic communication modules for AMR (WFZ16.MO) and walk-by (WFZ166.MO) readout. These meters are MID conform.



- Metrological class, horizontal mounting of body = R80 (class B).
- Metrological class, vertical mounting of body = R40 (class A).
- Flow rate Q3 according 2004/22/EC MID

Mechanical water meter to acquire the water consumption in domestic water systems in residential or non-residential buildings and in water supply systems.

Data sheet	N5326
PN class	PN 16
Pressure drop	250 mbar

Range overview single-jet water meters without remote reading output

Flow rate Q3 [m³/h]	Mounting length [mm]	Connecting thread ["]	Max. water temperature [°C]	Stock No.	Product No.
2.5	80	G ¾	30	S55560-F100	WFK30.D080
2.5	110	G ¾	30	S55560-F101	WFK30.D110
2.5	80	G ¾	90	S55560-F102	WFW30.D080
2.5	110	G ¾	90	S55560-F103	WFW30.D110

Mounting material domestic water meters single-jet

Product Title	Stock No.	Product No.
Mounting kit for washstand water meter	JXF:WFZ.W	WFZ.W
Mounting kit for tap water meter	JXF:WFZ.Z	WFZ.Z
Adapter from 80 mm G ¾" to 110 mm G 1B", incl. gaskets	JXF:WZM-V110	WZM-V110
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	WZM-V130

Spacer and fittings

Product Title	Stock No.	Product No.
Spacer ¾", length 80 mm	JXF:WFZ.R80	WFZ.R80
Spacer ¾", length 110mm	JXF:WFZ.R110	WFZ.R110
Mounting set, pair of fittings G ¾" x R ½" with gaskets	JXF:WFZ.R2	WFZ.R2

Programming tools and software for mechanical water meters with radio adapter WFZ16..

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	ACT20
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
Triggering tool for radio telegrams	BPZ:WFZ.PS	WFZ.PS
Special adapter RS232 to USB	JXF:WFZ.USB-1	WFZ.USB-1
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	WFZ.MBM-USB

NEW PRODUCT

Metering

Impeller type heating/cooling energy meters

Single-jet: WF..5.. / WFM2.. / WFN2..

WF..5..



Impeller type heat meter, wall-mounted

The electronic, mains-independent impeller type heat meter WFM5.. is of compact design and used as a metering device for the physically correct acquisition of energy consumption. It is available as a wall-mounting version in different sizes for heat, combined heat/cooling or solar energy metering. The meter consists of a volume metering section, 2 ready connected temperature sensors and a ready fitted processor which - based on flow rate and temperature differential - calculates the energy consumption. The consumption values acquired by the meter can be read out on site, or modules can be retrofitted for remote readout via AMR (WFZ56.OK) or walk-by (WFZ566.OK). The meters are used primarily in plants with central production of heat or cooling energy, where the energy is delivered via zones to several individual consumers.

The meters are supplied with Operating and Installation Instructions in the following languages: Bulgarian, Croatian, Czech, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Slovakian, Slovenian, Spanish and Turkish.

Data sheet	N5323
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 16
Measuring range, temperature	10..90 °C
Sensing element, temperature	Pt1000
Sensor	DS Ø5.0x45 mm
Cable length, sensor	1.5 m
Communication	IrDA + module interface
Due Date	12.31
Display	kWh
Voltage supply	Lithium battery
Battery life	10 years
Mounting location	Meter: return Sensor in the flow: directly immersed or in approved protection pockets Sensor in the return: integrated in the return, directly immersed

Range overview electronic, mains-independent impeller type heat meter WFM5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Stock No.	Product No.
0.6	110	G ¾	S55561-F177	WFM501-E000H0
1.5	110	G ¾	S55561-F178	WFM502-E000H0
2.5	130	G 1	S55561-F179	WFM503-J000H0

Electronic heat meter, wall mounted

WFM2..



The heat meters are electronic dry-runners. They acquire the flow acquisition without generating a magnetic field and use highly accurate temperature sensors. They are used in residential and commercial buildings for acquiring heat or cooling energy consumption. Day by day they transmit the current measured values and consumption on the set day to the associated data collectors. The heat meters are available as single-jet or measuring cell models in different sizes, enabling them to be installed on all types of standard plant. The tenant can see his individual consumption on a large, easy-to-read display. The built-in lithium battery powers the device for a period of time exceeding the calibration period. Data transmission via M-bus, pulse, or the AMR remote meter readout system. The heat meter has 3 display levels which show the following values and variables:

- Cumulated heat consumption since the heat meter was first installed
- Cumulated heat consumption since the last set day
- Segment test
- Current heat output- Current flow rate
- Current flow temperature
- Current return temperature
- Current temperature differential
- Heat meter's number of operating hours since it was first installed
- Set day and set month
- Stored heat consumption of previous year
- Stored heat consumption of the last 13 months
- Verification code
- Indication of errors
- Cumulated volume since the heat meter was first installed

The units displayed are °C or K, kWh (or GJ on request), m³/h, kW and hours. Standard display is the cumulated heat consumption.

Data sheet	N5333
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 10
Measuring range, temperature	1...90 °C
Min. temperature differential	3 K
Sensing element, temperature	Pt500
Battery life	> 8 years

Electronic heat meters, wall mounting, M-Bus, 5.0 mm sensor

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immersion	yes	S55561-F165	WFM21.B111
1.5	110	G ¾	1.5	Direct immersion	yes	S55561-F166	WFM21.D111
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F167	WFM21.E131

Metering

Impeller type heating/cooling energy meters

Single-jet: WF..5.. / WFM2.. / WFN2..

Electronic heat meters, wall mounting, for AMR 868 MHz; 5.0 mm sensor

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G 3/4	1.5	Direct immersion	yes	S55561-F168	WFM26.B111
1.5	110	G 3/4	1.5	Direct immersion	yes	S55561-F169	WFM26.D111
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F170	WFM26.E131

WFN2..



Electronic heat and cooling energy meter, wall mounted

The heat / cooling energy meters are electronic dry-runners. They acquire the flow without generating a magnetic field and use highly accurate temperature sensors. They are used in residential and commercial buildings for acquiring heat or cooling energy consumption. Day by day they transmit the current measured values and consumption on the set day to the associated data collectors. The heat / cooling energy meters are available as single-jet or measuring cell models in different sizes, enabling them to be installed on all types of standard plant (calculator removable, cable length 1,5 m). The tenant can see his individual consumption on a large, easy-to-read display. The built-in lithium battery powers the device for a period of time exceeding the calibration period. Data transmission via M-bus, pulse, or the AMR remote meter readout system.

The heat meter has 3 display levels which show the following values and variables:

- Cumulated heat consumption since the meter was first installed
- Cumulated heat consumption since the last set day
- Segment test
- Current heat output
- Current flow rate
- Current flow temperature
- Current return temperature
- Current temperature differential
- Heat meter's number of operating hours since it was first installed
- Set day and set month
- Stored heat consumption of previous year
- Stored heat consumption of the last 13 months
- Verification code
- Indication of errors
- Cumulated cooling energy consumption since the meter was first installed

The units displayed are °C or K, kWh (or GJ on request), m³/h, kW, and hours.

The standard display shows the cumulated heat consumption.

Data sheet	N5338
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 10
Measuring range, temperature	1...90 °C
Min. temperature differential	Cooling: 0.6 K Heat: 3 K
Sensing element, temperature	Pt500
Battery life	> 8 years

Range overview single-jet heat and cooling energy meters with M-Bus communication

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immersion	yes	S55561-F171	WFN21.B111
1.5	110	G ¾	1.5	Direct immersion	yes	S55561-F172	WFN21.D111
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F173	WFN21.E131

Metering

Impeller type heating/cooling energy meters

Single-jet: WF..5.. / WFM2.. / WFN2..

Range overview single-jet heat and cooling energy meters AMR 868 MHz

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G 3/4	1.5	Direct immersion	yes	S55561-F174	WFN26.B111
1.5	110	G 3/4	1.5	Direct immersion	yes	S55561-F175	WFN26.D111
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F176	WFN26.E131

Programming tools and software for heat meters based on PC

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	ACT20
Parameterization and diagnostics software for heating energy meters	JXF:ACT50-HEAT	ACT50-HEAT
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
Triggering tool for radio telegrams	BPZ:WFZ.PS	WFZ.PS
Special adapter RS232 to USB	JXF:WFZ.USB-1	WFZ.USB-1
M-bus connection kit	JXF:WFZ.MBUSSET	WFZ.MBUSSET
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	WFZ.MBM-USB

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters WSM5../WSB5..

WSM5../WSB5..



Ultrasonic heat and cooling energy meters

The WSM5.. heat meter and the WSB5.. cooling energy meter acquire the volume flow statically based on the ultrasonic measuring principle. They are available as wall-mounting versions in different sizes. The meters excel in great measuring accuracy, a high-tech volume measuring section made of plastic, and wear resistance.

The consumption values acquired by the meter must be read on site. The processor unit can be removed (cable length 1.5 m). The temperature sensor is ready connected to the processor unit. The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages: Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5372
Sensing element, temperature	Pt500
Sensor	PL Ø5.2x45 mm
Cable length, sensor	1.5 m
Measurement accuracy	MID class 2
Standard	EN 1434
Communication	None
PN class	PN 16
Due Date	01.01
Display	kWh
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview Ultrasonic heating meters WSM5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Battery life	Stock No.	Product No.
0.6	110	G ¾ "	6 Years	S55561-F132	WSM506-0A
0.6	110	G ¾ "	11 Years	S55561-F133	WSM506-0E
1.5	110	G ¾ "	6 Years	S55561-F134	WSM515-0A
1.5	110	G ¾ "	11 Years	S55561-F135	WSM515-0E
2.5	130	G 1 "	6 Years	S55561-F136	WSM525-0A
2.5	130	G 1 "	11 Years	S55561-F137	WSM525-0E

Mounting set for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Mounting kit, 2 coupling nuts G ¾", 2 inserts R ½", 2 EPDM packings	LYU:T23-E34	T23-E34
Mounting kit, 2 coupling nuts G 1", 2 inserts R ¾", 2 EPDM packings	LYU:T23-E1	T23-E1

Accessories see Datasheet: N5372

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters WSM5../WSB5..

Ball valves for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Ball valve R 1/2" with union nut G 3/4"	LYU:WZT-K12-34	WZT-K12-34
Ball valve R 3/4" with union nut G 3/4"	LYU:WZT-K34-34	WZT-K34-34
Ball valve R 3/4" with union nut G 1"	LYU:WZT-K34-1	WZT-K34-1
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	WZT-K1-1

Accessories see Datasheet: N5372

Adapter and accessories for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Adapter G 1/2 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 1/2"	S55563-F116	WZT-A12
Adapter G 3/8 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/8"	LYU:WZT-A38	WZT-A38
Adapter G 3/4 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/4"	LYU:WZT-A34	WZT-A34
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	9956230
Wall adapter, incl. 2 screws and 2 dowels	LYU:T23-WA10	T23-WA10
Welding sleeve with threaded hole for temperature sensor DS M10x1 mm	S55563-F121	WZT-G10
Protection pocket G 1/2 B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	WZT-M35
Spacer G 3/4", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	WZM-G110
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	WZM-G130
EPDM gaskets for mounting the flow measuring section 3/4"	LYU:T23-34EPDM10	T23-34EPDM10
EPDM gaskets for mounting the flow measuring section 1"	LYU:T23-1EPDM10	T23-1EPDM10
Sealing disk G 3/4", for threaded connection R 1/2"	LYU:9060944002	9060944002
Sealing disk G 1", for threaded connection R 3/4"	LYU:9060944003	9060944003

Accessories see Datasheet: N5372

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	WZR-OP-USB
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	WZX-UA-SED
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	WZX-UA-SFD
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	WZX-UA-SEP
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	WZX-UA-SFP
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	WZX-UA-SEU
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	WZX-UA-SFU

Accessories see Datasheet: N5372

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters 2WR6..

2WR6..



Ultrasonic heat and cooling energy meters

The 2WR6.. heat and cooling energy meter acquires the volume flow statically based on the ultrasonic measuring principle. It is available as a wall-mounting version in different sizes. The 2WR6... excels in great measuring accuracy, wear resistance, and long-term stability.

The 2WR6.. transmits the current consumption value, the monthly values, the set day value, and error messages to the respective data collector. The processor unit can be removed (cable length 1 m). The temperature sensor is ready connected to the processor unit. The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages: Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5378
Sensing element, temperature	Pt500
Measurement accuracy	MID class 2
Standard	EN 1434
Communication	M-bus
PN class	PN 16
Due Date	01.01
Display	kWh
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview Ultrasonic heating meters with power packs 2WR6..

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread	Operating voltage [V]	Sensor [V]	Stock No.	Product No.
0.6	110	G 3/4 "	AC 24 DC 24	DS M10 x 1 mm	S55561-F101	2WR605-MBG
0.6	110	G 3/4 "	AC 24 DC 24	Ø5.2x45 mm	S55561-F103	2WR605-MHG
1.5	110	G 3/4 "	AC 24 DC 24	DS M10 x 1 mm	S55561-F105	2WR621-MBG
1.5	110	G 3/4 "	AC 24 DC 24	Ø5.2x45 mm	S55561-F107	2WR621-MHG
2.5	130	G 1 "	AC 24 DC 24	DS M10 x 1 mm	S55561-F109	2WR636-MBG
2.5	130	G 1 "	AC 24 DC 24	Ø5.2x45 mm	S55561-F111	2WR636-MHG

Range overview Ultrasonic heating meters with battery 2WR6..

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread	Voltage supply	Sensor	Stock No.	Product No.
0.6	110	G ¾"	Lithium battery	DS M10 x 1 mm	S55561-F100	2WR605-MBE
0.6	110	G ¾"	Lithium battery	Ø5.2x45 mm	S55561-F102	2WR605-MHE
1.5	110	G ¾"	Lithium battery	DS M10 x 1 mm	S55561-F104	2WR621-MBE
1.5	110	G ¾"	Lithium battery	Ø5.2x45 mm	S55561-F106	2WR621-MHE
2.5	130	G 1"	Lithium battery	DS M10 x 1 mm	S55561-F108	2WR636-MBE
2.5	130	G 1"	Lithium battery	Ø5.2x45 mm	S55561-F110	2WR636-MHE

Battery life cycle 11 years

Fittings for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T34110	99T34110
Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T01130	99T01130
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	S55563-F124	WZM-E34
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	S55563-F123	WZM-E1
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	WZM-V130
Adapter from 110 mm G ¾B" to 130 mm G 1B", incl. 4 gaskets	LYU:WZM-V130.G1	WZM-V130.G1
Adapter from 110 mm G ¾B" to 165 mm G ¾B", incl. 4 gaskets	LYU:WZM-V165	WZM-V165
Adapter from 110 mm G ¾B" to 190 mm G 1B", incl. gaskets	LYU:WZM-V190	WZM-V190

Accessories see Datasheet: N5378

Ball valves for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Ball valve R ½" with union nut G ¾"	LYU:WZT-K12-34	WZT-K12-34
Ball valve R ¾" with union nut G ¾"	LYU:WZT-K34-34	WZT-K34-34
Ball valve R ¾" with union nut G 1"	LYU:WZT-K34-1	WZT-K34-1
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	WZT-K1-1
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	S55563-F104	WZT-K12
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	S55563-F120	WZT-K34
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	S55563-F119	WZT-K1
Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm	S55563-F105	9930128002

Accessories see Datasheet: N5378

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters 2WR6..

Accessories for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"	S55563-F122	WZT-G12
Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"	LYU:WZT-GLG	WZT-GLG
Welding sleeve with threaded hole for temperature sensor DS M10x1 mm	S55563-F121	WZT-G10
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	S55563-F116	WZT-A12
Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"	LYU:WZT-A34	WZT-A34
Protection pocket G ½B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	WZT-M35
Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	WZT-M50
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	9956230
Mounting kit for sensor Ø 5.2x45 mm	LYU:9930127002	9930127002
Spacer G ¾", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	WZM-G110
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	WZM-G130
Spacer G 1", length 190 mm, incl. 2 flat gaskets	LYU:WZM-G190	WZM-G190
Sealing disk G ¾", for threaded connection R ½"	LYU:9060944002	9060944002
Sealing disk G 1", for threaded connection R ¾"	LYU:9060944003	9060944003
Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm	LYU:9060944001	9060944001
Sealing disc ½" made of copper	LYU:9060948	9060948

Accessories see Datasheet: N5378

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	WZR-OP-USB
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	WZX-UA-SED
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	WZX-UA-SFD
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	WZX-UA-SEP
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	WZX-UA-SFP
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	WZX-UA-SEU
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	WZX-UA-SFU

Accessories see Datasheet: N5324



Ultrasonic heat and heating/cooling energy meters

The UH50-A.. heat meter and the UH50-C.. heat/combi meter acquire the volume flow statically based on the ultrasonic measuring principle. They are available as wall-mounting versions in different sizes. The meters excel in great measuring accuracy, wear resistance, and long-term stability. The UH50.. transmits the current consumption value, the monthly values, the set day value, and error messages to the respective data collector.

The processor unit can be equipped with different sensors, different power supplies, and 2 communication modules.

The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or heat/cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages:

Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5324
Sensing element, temperature	Pt500
Communication	Without, see accessories
Measurement accuracy	Heat: MID class 2 Cold: EN 1434
Mounting location	Meter: Return
Standard	EN 1434
Due Date	01.01
Additional info	The standard meter is supplied without power supply and without communication (see accessories).

Ultrasonic heating/cooling meters 0.6...2.5 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.

Connection of sensor: The sensor can be replaced; the return sensor is integrated in the volume measuring section (internally, directly immersed).

Sensors: DS M10x1 mm, length = 27.5 mm

Cable length: 1.5 m

Display: kWh

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread	PN class	Type of Meter	Stock No.	Product No.
0.6	110	G ¾ "	PN 16	Heat	S55561-F112	UH50-A05-00
0.6	110	G ¾ "	PN 16	Heat Cooling	S55561-F122	UH50-C05-00
1.5	110	G ¾ "	PN 16	Heat	S55561-F113	UH50-A21-00
1.5	110	G ¾ "	PN 16	Heat Cooling	S55561-F123	UH50-C21-00
2.5	130	G 1 "	PN 16	Heat	S55561-F114	UH50-A36-00
2.5	130	G 1 "	PN 16	Heat Cooling	S55561-F124	UH50-C36-00

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters UH50..

Ultrasonic heating/cooling meters 3.5...6 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.

Connection of sensor: The sensor can be replaced; the return sensor is integrated in the volume measuring section (internally, directly immersed).

Sensors: DS M10x1 mm, length = 38 mm

Cable length: 1.5 m

Display: kWh

Nominal flow rate [m ³ /h]	Mounting length [mm]	Connecting thread	PN class	Type of Meter	Stock No.	Product No.
3.5	260	G 1¼ "	PN 16	Heat	S55561-F115	UH50-A45-00
3.5	260	G 1¼ "	PN 16	Heat Cooling	S55561-F125	UH50-C45-00
6	260	G 1¼ "	PN 16	Heat	S55561-F116	UH50-A50-00
6	260	G 1¼ "	PN 16	Heat Cooling	S55561-F126	UH50-C50-00

Ultrasonic heating/cooling meters 10 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.

Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: Ø6 mm, length = 100 mm

Cable length: 5 m

Display: kWh

Nominal flow rate [m ³ /h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
10	300	40	PN 25	Heat	S55561-F117	UH50-A61-00
10	300	40	PN 25	Heat Cooling	S55561-F127	UH50-C61-00

Ultrasonic heating/cooling meters 15...25 m³/h

Design of processor unit: Split unit with ready wired control line of 3 m.

Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: DS M10x1 mm, length = 100 mm

Cable length: 5 m

Display: MWh

Nominal flow rate [m ³ /h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
15	270	50	PN 25	Heat	S55561-F118	UH50-A65-00
15	270	50	PN 25	Heat Cooling	S55561-F128	UH50-C65-00
25	300	65	PN 25	Heat	S55561-F119	UH50-A70-00
25	300	65	PN 25	Heat Cooling	S55561-F129	UH50-C70-00

Ultrasonic heating/cooling meters 40...60 m³/h

Design of processor unit: Split unit with ready wired control line of 3 m.

Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: Ø6 mm, length = 150 mm

Cable length: 5 m

Display: MWh

Nominal flow rate [m ³ /h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
40	300	80	PN 25	Heat	S55561-F120	UH50-A74-00
40	300	80	PN 25	Heat Cooling	S55561-F130	UH50-C74-00
60	360	100	PN 25	Heat	S55561-F121	UH50-A83-00
60	360	100	PN 25	Heat Cooling	S55561-F131	UH50-C83-00

Communication modules for UH50..

Product Title	Stock No.	Product No.
Pulse module with 2 channels	S55563-F107	WZU-P2
Pulse module with Opto-MOS output	LYU:WZU-P2L	WZU-P2L
M-bus module for heat and heat/cooling energy meters, generation 2	S55563-F109	WZU-MB
M-bus module for heat and heat/cooling energy meters, generation 4	S55563-F110	WZU-MB-G4
M-bus module with 2 pulse inputs for heat and heat/cooling energy meters, generation 4	S55563-F108	WZU-MI
CL module, digital passive interface	LYU:WZU-CL	WZU-CL
Radio module 433 MHz with integrated antenna and two pulse inputs	LYU:WZU-RM	WZU-RM
Radio module 433 MHz with external antenna and two pulse inputs	LYU:WZU-RM-EXT	WZU-RM-EXT
Radio module 868 MHz with integrated antenna	LYU:WZU-RF	WZU-RF
Radio module 868 MHz with external antenna	LYU:WZU-RF-EXT	WZU-RF-EXT
GPRS module with external antenna (magnetic attachment) and power pack 110...230 V	LYU:WZU-GPRS	WZU-GPRS
GPRS module with external antenna (for screw mounting) and power pack 110...230 V	LYU:WZU-GPRS-ANT	WZU-GPRS-ANT
GSM module with two pulse inputs	LYU:WZU-GM	WZU-GM
Analog module	LYU:WZU-AM	WZU-AM
Power pack for analogue module	LYU:WZR-NE	WZR-NE

Accessories see Datasheet: N5324

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters UH50..

Power packs for UH50..

Product Title	Stock No.	Product No.
Power pack AC 230 V, cable length 1.5 m	S55563-F111	WZU-AC230-15
Power pack AC 230 V, cable length 5 m	LYU:WZU-AC230-50	WZU-AC230-50
Power pack AC 230 V, cable length 10 m	LYU:WZU-AC230-100	WZU-AC230-100
Power pack AC/DC 24 V, with terminals	S55563-F112	WZU-ACDC24-00
Standard battery (2x AA) for 6 years, complete with fastener	S55563-F114	WZU-BA+GUM
Universal battery (D-cell), life 6 and 16 years respectively	S55563-F113	WZU-BDS

Accessories see Datasheet: N5324

Temperature sensors (pairs) for UH50..

Product Title	Stock No.	Product No.
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 1.5 m	LYU:WZU5-2815	WZU5-2815
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 2.5 m	LYU:WZU5-2825	WZU5-2825
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 1.5 m	LYU:WZU5-3815	WZU5-3815
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 2.5 m	LYU:WZU5-3825	WZU5-3825
Pair of temperature sensors Pt500, PS Ø5.2x45 mm, cable length 1.5 m	LYU:WZU5-4515	WZU5-4515
Pair of temperature sensors Pt500, PS Ø 5.2x45 mm, cable length 5 m	LYU:WZU5-4550	WZU5-4550
Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 2 m	LYU:WZU5-1020	WZU5-1020
Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 5 m	LYU:WZU5-1050	WZU5-1050
Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 2 m	LYU:WZU5-1520	WZU5-1520
Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 5 m	LYU:WZU5-1550	WZU5-1550

Accessories see Datasheet: N5324

Fittings for UH50..

Product Title	Stock No.	Product No.
Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T34110	99T34110
Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T01130	99T01130
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	S55563-F124	WZM-E34
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	S55563-F123	WZM-E1
Mounting kit, pair of fittings G 1¼" x R 1" with gaskets	S55563-F125	WZM-E54
Mounting kit, pair of fittings G 2" x R 1½" with gaskets	LYU:WZM-E2.1	WZM-E2.1
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	WZM-V130
Adapter from 110 mm G ¾" to 130 mm G 1B", incl. 4 gaskets	LYU:WZM-V130.G1	WZM-V130.G1
Adapter from 110 mm G ¾" to 165 mm G ¾", incl. 4 gaskets	LYU:WZM-V165	WZM-V165
Adapter from 110 mm G ¾" to 190 mm G 1B", incl. gaskets	LYU:WZM-V190	WZM-V190

Accessories see Datasheet: N5324

Adapter and gaskets for UH50..

Product Title	Stock No.	Product No.
Spacer G ¾", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	WZM-G110
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	WZM-G130
Spacer G 1", length 190 mm, incl. 2 flat gaskets	LYU:WZM-G190	WZM-G190
Spacer G 1¼", length 260 mm, incl. 2 flat gaskets	LYU:WZM-G260	WZM-G260
Spacer DN 40, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300	WZM-F300
Spacer DN 50, length 270 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F270	WZM-F270
Spacer DN 65, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300.65	WZM-F300.65
Spacer DN 80, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300.80	WZM-F300.80
Spacer DN 100, length 360 mm, PN 25, incl. 2 flat gaskets	LYU:WZM-F360.100-25	WZM-F360.100-25
Sealing disk G ¾", for threaded connection R ½"	LYU:9060944002	9060944002
Sealing disk G 1", for threaded connection R ¾"	LYU:9060944003	9060944003
Sealing disk G 1¼", for threaded connection R 1"	LYU:9060944004	9060944004
Sealing disk for flange DN 40	LYU:9060944024	9060944024
Sealing disk for flange DN 50	LYU:9060944025	9060944025
Sealing disk for flange DN 65	LYU:9060944026	9060944026
Sealing disk for flange DN 80	LYU:9060944027	9060944027
Sealing disk for flange DN 100	LYU:9060944028	9060944028

Accessories see Datasheet: N5324

Metering

Ultrasonic heating/cooling meters

Ultrasonic heating/cooling meters UH50..

Accessories for UH50..

Product Title	Stock No.	Product No.
Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"	S55563-F122	WZT-G12
Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"	LYU:WZT-GLG	WZT-GLG
Welding sleeve with threaded hole for temperature sensor DS M10x1 mm	S55563-F121	WZT-G10
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	S55563-F104	WZT-K12
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	S55563-F120	WZT-K34
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	S55563-F119	WZT-K1
Ball valve R ½" with union nut G ¾"	LYU:WZT-K12-34	WZT-K12-34
Ball valve R ¾" with union nut G ¾"	LYU:WZT-K34-34	WZT-K34-34
Ball valve R ¾" with union nut G 1"	LYU:WZT-K34-1	WZT-K34-1
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	WZT-K1-1
Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm	S55563-F105	9930128002
Adapter G 3/8 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/8"	LYU:WZT-A38	WZT-A38
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	S55563-F116	WZT-A12
Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"	LYU:WZT-A34	WZT-A34
Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 100 mm	S55563-F117	WZT-S100
Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 150 mm	S55563-F118	WZT-S150
Protection pocket G ½ B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	WZT-M35
Protection pocket G ½ B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	WZT-M50
Mounting plate for top hat rail	LYU:WZU-MH	WZU-MH
Adapter for protection pocket Ø 6 mm to install temperature sensor type Ø 5.2x45 mm	LYU:WZT-R32	WZT-R32
Mounting kit for sensor Ø 5.2x45 mm	LYU:9930127002	9930127002
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	9956230
Mounting set G ½ B" with threaded hole G ¼" for direct mounting of long sensors	LYU:WZT-A100	WZT-A100
Service-key for calibration modus	LYU:9089885	9089885
Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm	LYU:9060944001	9060944001
Sealing disc ½" made of copper	LYU:9060948	9060948
Self-lock seal with sealing wire	LYU:9956186001	9956186001

Accessories see Datasheet: N5324

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	WZR-OP-USB
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	WZX-UA-SED
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	WZX-UA-SFD
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	WZX-UA-SEP
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	WZX-UA-SFP
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	WZX-UA-SEU
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	WZX-UA-SFU

Accessories see Datasheet: N5324



AMR wireless system 868 MHz

The Automatic Meter Reading system (AMR) is an innovative system for wireless remote readout of consumption data. It consists of network nodes (data collectors) which form a network within the premises to collect all consumption data transmitted by the metering devices, to store them and to make them available for further handling. The network nodes can be read either locally or by making use of Internet technologies, also from the office. The types of consumption meters included in the AMR system are heat meters, water meters and heat cost allocators. A pulse adapter is available, enabling third-party meters to be integrated into the system. The AMR system excels in versatility, ease of installation and maintenance, and offers a large number of readout choices matched to customer needs. The system components are suited for installation in small premises (e.g. 3 apartments) and in large plant comprising several buildings. Installation of the wireless network is largely automatic, including self-configuration.

Functioning principle: The system automatically configures itself during installation, forming a network. The battery-powered network nodes receive and store the consumption data from the metering devices installed within their range. In the network, the measured values received from all metering devices are constantly updated. This means that every network node holds the consumption data of the entire plant so that readout can take place at any of the nodes. For local readout, a laptop can be connected to any of the network nodes via cable, or an optional wireless module can be used. This works within the range of each network node. Depending on the local situation, it may not even be necessary to enter the house for making the readout. If AMR plant shall be read out from a remote location, one of the network nodes is to be used with a gateway. This gateway then offers a number of communication choices: Data can be transmitted directly to the billing systems via GSM network, broadband cable network or computer network. The user can choose the transmission medium he prefers.

Data sheet N2870

AMR 868 MHz main components

Product Title	Data sheet	Stock No.	Product No.
Electronic heat cost allocators with AMR radio interface	N2886	JXF:WHE56..	WHE56..
Electronic heat meter, wall mounted	N5333	JXF:WFM2..	WFM2..
Electronic heat and cooling energy meter, wall mounted	N5338	JXF:WFN2..	WFN2..

Overview radio adapter AMR

Product Title	Data sheet	Stock No.	Product No.
Radio adapter AMR Modularis		S55563-F100	WFZ16.MO
Radio adapter for mechanical Modularis water meters (WFx30, WMx10). Adapter acquires and process the metering pulses of the radio-ready mechanical water meters WFx30../WMx10.. and transmits the data to the AMR system.			
AMR add-on module with integrated antenna	N5323	S55563-F132	WFZ56.OK
The add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat meter and passes it on to the AMR system.			

Accessories for WFZ16.MO

Product Title	Data sheet	Stock No.	Product No.
Torque Screwdriver, Torx Plus™ recommended for radio adapter Modularis WFZ16x.MO		JXF:FZ201-009	FZ201-009

NEW PRODUCT

Metering

Systems for remote readout

Automatic Meter Reading System (AMR 868 MHz)

AEW36.2



AMR pulse adapter

The pulse adapter is used for acquiring and storing the pulses received from consumption meters with pulse output. It is possible to acquire pulses from heat, gas and water meters.

Other types of meters on request.

Data sheet

N2873

Stock No.

Product No.

S55563-F129

AEW36.2

WTT16..



Network nodes

The nodes receive and handle the data from the consumption meters of the AMR system. During installation, all nodes automatically create a radio-based network within the building, where all information and consumption values are exchanged at regular intervals via a 868 MHz link. This ensures that all data required for consumption-related readout are available at any of the nodes in the network for local readout. Local readout can be wireless or wire-bound (RS-232 or via M-bus). If the network nodes shall be read from a remote location, the AMR gateway can be used as an interface to different communication media. The gateway facilitates remote readout via a fixed telephone network, GSM or - using the optional Ethernet interface - via broad-band cable or computer networks.

For completely wireless installation of the node networks, the battery-powered types WTT16... are available. A mains-powered version WTX16... is available for special applications.

Data sheet

N2874

Range overview: Network nodes with interface for local readout

Product Title	Data sheet	Stock No.	Product No.
Battery-powered network node	N2874	S55563-F126	WTT16
Local, wireless readout (WTZ.RM) or via M-bus (WFZ.IRDA-USB or WFZ.MBM-USB)			
Battery-powered network node	N2874	S55563-F127	WTT16.232
With RS-232 module Local readout via RS-232 (WTZ.K232) or M-bus (WFZ.IRDA-USB or WFZ.MBM-USB)			

Range overview: Network nodes with interface for remote readout

Product Title	Data sheet	Stock No.	Product No.
Network node and power supply	N2878	S55563-F128	WTX16.MOD-1
with communication module gateway GSM for max. 500 metering devices, no connection to other networks possible			

Metering Systems for remote readout Automatic Meter Reading System (AMR 868 MHz)

PC radio module

WTZ.RM

with program CD, USB cable and measuring device

Data sheet N2876



	Stock No.	Product No.
	JXF:WTZ.RM	WTZ.RM

Programming adapter and tools for WTT../ WTX..

Product Title	Stock No.	Product No.
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
RS-232 cable	JXF:WTZ.K232	WTZ.K232
Special adapter RS232 to USB	JXF:WFZ.USB-1	WFZ.USB-1
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	WFZ.MBM-USB

Software for WTT../ WTX..

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	ACT20
Parameterization software	JXF:ACT21	ACT21
Readout software	JXF:ACS26	ACS26
Setup and service software	JXF:ACT26	ACT26

Batteries

Product Title	Operating voltage [V]	Battery capacity [Ah]	Stock No.	Product No.
Battery for WTT16..	3.6	13	JXF:WTZ.BAT	WTZ.BAT
Backup battery for WT..16..	3	1	JXF:FBCRAA/KS	FBCRAA/KS

NEW PRODUCT

Metering

Systems for remote readout walk-by radio system

walk-by



walk-by radio system 868 MHz

Simple, fast and reliable. These three attributes are the most apt descriptions of the walk-by system. After all, it provides values for billing consumption easily, quickly and dependably. And the meter-reader does not even have to enter the tenant's flat - on the reading date, he only has to enter the commonly accessible area of the property.

For smaller properties, he can even collect data outside of the building. That not only benefits the meter-reader (who does not have to plan and mount data collectors any more), but also tenants. They no longer have to agree on a date for reading or even be there on the readout day. It couldn't be simpler. At the set reading time, the meters send current

consumption data at short intervals. The meter-reader only has to enter the building or even just walk around it with his mobile meter-reading system. This consists of a mobile data collector and a laptop with application software. The data collector collects the radio telegrams and, after a plausibility check, sends them wirelessly to the laptop via the Bluetooth interface. The software on the laptop not only manages the data, it also shows the meter-reader the current progress of the process. After having received all data, the meter-reader can then leave the property. Back at his workplace, the meter-reader only has to export the data saved and read them for example into a billing program. If data is needed on a regular basis – meaning permanently mounted data collectors are to be retrofitted with an interface for remote data transmission – the measuring devices can be reprogrammed from the walk-by system to the stationary AMR system from Siemens at any time. This means that readout values can be called up on a daily basis without entering the property.

Within the walk-by system there are walk-by heat cost allocators and walk-by radio adapters available. More devices on request.

Overview heat cost allocators walk-by

Product Title	Data sheet	Stock No.	Product No.
Electronic heat cost allocators with walk-by radio interface	N2886	JXF:WHE55..	WHE55..

Overview radio adapter walk-by

Product Title	Data sheet	Stock No.	Product No.
Radio adapter walk-by Modularis Radio adapter for mechanical Modularis water meters (WFx30, WMx10). Adapter acquires and process the metering pulses of the radio-ready mechanical water meters WFX30../WMx10.. and transmits the data to the walk-by system.		S55563-F101	WFZ166.MO
Walk-by add-on module with integrated antenna The walk-by add-on module acquires and handles the consumption data and service information delivered by the WFX5.. heat meter and passes it on to the walk-by system.	N5323	S55563-F133	WFZ566.OK

Tools walk-by

Product Title	Stock No.	Product No.
Torque Screwdriver, Torx Plus™ recommended for radio adapter Modularis WFZ16x.MO	JXF:FZ201-009	FZ201-009
Mobile data logger set Bluetooth-Stick, Software ACT46, mobil data collector with bag	JXF:WTZ.WBSET-2/PC	WTZ.WBSET-2/PC

M-bus metering system

M-Bus

The M-Bus Metering System is a proven system used for the remote readout of consumption data. It conforms to EN 1434/3. The system contains all components required for reading M-bus-compatible consumption meters via an easy-to-install, interference-proof 2-wire bus. The consumption meters available within the M-Bus Metering System are heat meters and water meters. A pulse adapter enables third-party meters to be integrated into the system. M-bus-compatible meters of other manufacture can also be read out after appropriate testing. The M-Bus Metering System excels in immunity, ease of installation and maintenance plus a large number of readout choices matched to customer needs. The system components are suited for installation in small premises (e.g. 3 apartments) and in large plant comprising several buildings.



Data sheet N5361

Combinable field devices for M-Bus

Product Title	Data sheet	Stock No.	Product No.
Electronic heat meter, wall mounted	N5333	JXF:WFM2..	WFM2..
Electronic heat and cooling energy meter, wall mounted	N5338	JXF:WFN2..	WFN2..
Ultrasonic heat and cooling energy meters	N5378	LYU:2WR6..	2WR6..

Software and tools

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	ACS790
Parameterizing and diagnostics software		JXF:ACT20	ACT20
Infrared read head (with USB interface)	N2886	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
M-bus programming adapter (USB)		JXF:WFZ.MBM-USB	WFZ.MBM-USB

M-bus pulse adapter

AEW310.2

Module for acquiring and storing the pulses received from consumption meters with pulse output. It can handle pulses from heat, gas, hot water, chilled water, electricity or hours run meters.

Features:

- Operation without power pack
- Supervision of the meter's connection (Namur circuitry)
- Connections: 2 meters with pulse output (Reed contact, Namur circuitry)
- incl. m-bus connection kit



Data sheet N5383

Dimensions (W x H x D) 80 x 80 x 28 mm

Stock No.	Product No.
S55563-F130	AEW310.2

Parameterizing and diagnostics software

ACT20

- for water meters WFK3../WFW3.. with additional communication modul
- for heat meters WFM2../WFM4..
- for heat / cooling energy meters WFN2..
- for pulse adapters AEW3..

Stock No.	Product No.
JXF:ACT20	ACT20

NEW PRODUCT

Metering

Systems for remote readout

M-Bus metering system

WFZ.IRDA-USB



Infrared read head (with USB interface)

IrDA communication head with USB connection:

- water meters WFK3../WFW3.. with additional communication modul
- heat meters WFM2../WFM4..
- heat/cooling energy meters WFN2..
- pulse adapters AEW3..
- network nodes WT..

Stock No.

Product No.

JXF:WFZ.IRDA-USB

WFZ.IRDA-USB

WFZ.MBM-USB



M-bus programming adapter (USB)

M-bus mini master with USB interface:

- network nodes WT..
- heat meters WFM2../WFM4..
- heat/cooling energy meters WFN2..
- pulse adapters AEW3..

Stock No.

Product No.

JXF:WFZ.MBM-USB

WFZ.MBM-USB

Practical tips



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Practical tips

Overview

Control ranges

Preferred solutions with our controller product range and systems

Fields of business and buildings	Apartment buildings	Hotels Schools	Banks, offices Hospitals	Pharmaceuticals Industry Complex HVAC applications	Offices Hotels Schools	Heating	Ventilating/ Air conditioning	Room automation	
Function/ Communications	SICLIMAT X DESIGO INSIGHT								Management level
Programmable	SICLIMAT S7/ET200S DESIGO PX								Automation level
Configurable	SIGMAGYR	Synco 700						DESIGO RXC	
Communicative								DESIGO RXB	
Parameterizable	Room thermostats	Synco 200						DESIGO RXA	
Autonomous	Synco 100								
	Sensors and actuators								Field level

Plant size project size	Application	Operating					After treatment in individual room		
			Heating	Ventilation	Air conditioning	Refrigeration	Radiator, VAV + LQ chilled ceiling	Fan coil	Light and blinds
	Individual plant n Autonomous controller n Local operation n Preprogrammed solutions		SIGMAGYR RVP..						DESIGO™ RXA
				Synco™ 100					
				Synco™ 200					
	Individual plant n Communicative controller n Local/remote operation n Preprogrammed solutions		SIGMAGYR RVL..					DESIGO™ RXB	
				Synco™ 700					
	Distributed plants n Communicative controller n Central/local operation n Preprogrammed solutions			Synco™ 700				DESIGO™ RXB	
	Complex plants n Communicative controller n Central/local operation n Customized solutions								DESIGO™ RXC
				DESIGO™ PX					
	Complex plants with building automation and control system n Communicative controller n Central operation n Customized solutions n Cross-installation integration of third-party systems as well								DESIGO™ RXC
				DESIGO™ Insight DESIGO™ PX					

Control of mixing and injection circuit for floor heating

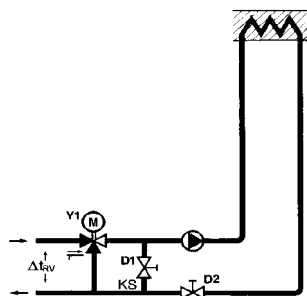
Application

Mix with set premix and injection circuit is suitable for controlling low-temperature heating (floor heating plants) with heat generators where the maximum flow temperature is higher than the maximum permissible temperature of the plant flow.

Use the temperature difference Δt_{Rv} between boiler flow and plant return to determine the control valve's volume flow rate. The valve nominal value is then smaller than the plant flow.

Mixing circuit

Floor heating control using double mixing circuit



Mixing circuit with fixed premix for connection to heat generators or distributors without differential pressure

1. Temperature level
 - 1.1 Bring the heat generator to maximum operating temperature for a closed control valve.
 - 1.2 Fully open throttle D1 in the short circuit.
 - 1.3 Switch on pump.
 - 1.4 Manually, fully open actuating element Y1 (peak load operation).
 - 1.5 Close throttle D1 until the floor heating flow achieves the maximum operating temperature, e.g. 50°C. (never higher than the maximum permissible).

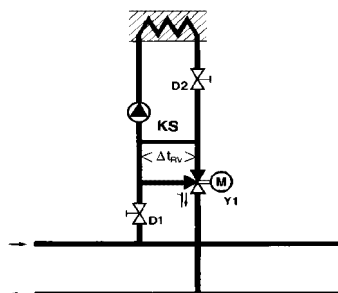
2. Temperature difference

The plant is compensated using a compensation throttle D2 in flow or return to the nominal temperature difference between flow and return water (temperature difference) and thus the nominal volume flow. This setting takes place when items 1.1...1.6 are met and results in stable control even during low-load operation. The setting instructions by the floor heating supplier must be followed.

 - 2.1 Bring the heat generator to maximum operating temperature for a closed control valve.
 - 2.2 Fully open throttle D2.
 - 2.3 Switch on pump.
 - 2.4 Manually, fully open actuating element Y1 (peak load operation).
 - 2.5 Close throttle D2 until the designed temperature difference of, for example, 10 K is achieved.
- 3.1 Changeover control valve to automatic.
- 3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor. You do not need the supplemental short circuit CS for the mixing circuit when the maximum flow temperature for the heat generator cannot exceed the maximum permissible temperature for the plant flow.

Injection circuit

Floor heating control using injection circuit



Injection circuit for connection to pressure distributors

A relatively large portion of cooled off return water from the floor heating is constantly re-mixed with its flow via the short circuit. It has a lower maximum value versus the boiler water temperature.

1. Temperature level
 - 1.1 Bring the heat generator to maximum operating temperature for a closed control valve.
 - 1.2 Switch on main and group pump.
 - 1.3 Manually, fully open actuating element Y1 (peak load operation).
 - 1.4 Set throttle D1 in the primary flow and return so that the floor heating flow temperature cannot exceed the maximum permissible temperature.
2. Temperature difference

Set throttle D2 as described for mixing circuit using fixed premix.

 - 3.1 Changeover control valve to automatic.
 - 3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor.

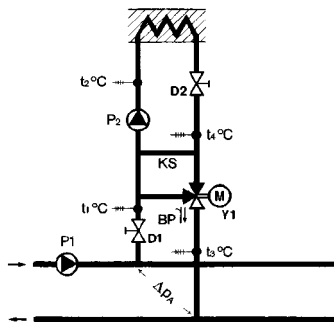
Practical tips

Hydraulic settings

Injection control for radiated heat

Injection control for radiated heat

Injection circuit



Injection circuit

General

Injection circuits must be compensated on the primary and secondary side, because

- Excess pressure builds on the connection points for the given heating group, which must be reduced to the required connecting pressure Δp_A and
- The complete plant generally operates at a pump pressure that is higher than was originally planned.

Procedure

As a rule, compensation takes place with a fully opened control valve.

For a compensated injection circuit, primary pump P1 supplies as much water to the heating group, as its pump P2 is capable of assuming. Then

$$\Delta p_A = \Delta p_{p2}$$

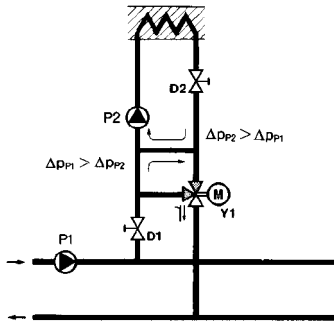
No heating water circulates in the bypass as well as in the short circuit and

$$t_1 \text{ °C} = t_2 \text{ °C}$$

$$t_3 \text{ °C} = t_4 \text{ °C}$$

The consumer limits the volume flow using throttle D1 and thus sets the temperature difference between flow and return. Throttle D2 is used to compensate the injection, so that the desired consumer flow temperature is not exceeded when the valve is fully open.

Incorrect circulation



Incorrect circulation for non-compensated injection circuit

Procedure

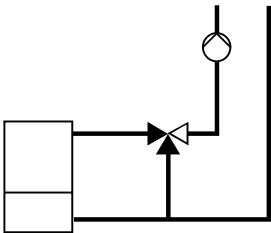
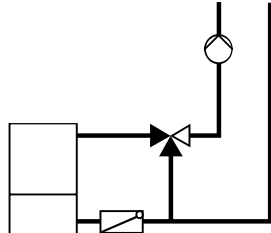
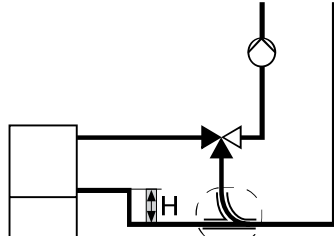
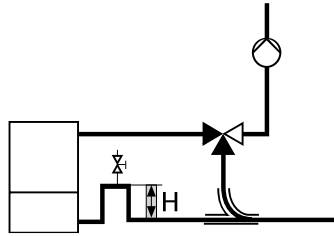
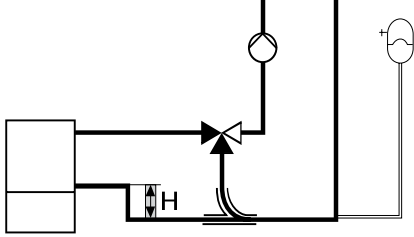
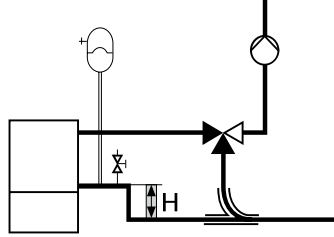
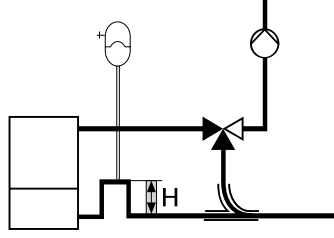
- Fully open throttles D1 and D2
 - Bring heat generator to the maximum operating temperature
1. Flow temperature:
 - 1.1 Manually, fully open actuating element (peak load operation) and wait for a stable consumer return temperature.

- 1.2 Close throttle D2 a bit when the flow temperature exceeds the maximum desired value. Close throttle D1 accordingly when the flow temperature is too low.
2. Temperature difference:
 - 2.1 The consumer flow temperature has the maximum permissible temperature (see flow temperature) when the valve is fully opened.
 - 2.2 Wait for stable consumer return temperature.
 - 2.3 Throttle D1 is closed, lowering the flow, until the desired temperature difference is set, when the temperature difference between the flow and return is less than the planned value.
 - 2.4 Check consumer flow temperature and eventually change using throttle D2. Then check items 2, 3 and 4 and correct as required.
- 3.1 Changeover control valve to automatic.
- 3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor.

On the boiler

Incorrect circulation may occur for heating plants with a closed three-port valve or three-port plug and ball valve, since warm water is specifically lighter than cold water. As a result, warm water pushes upward within a water column and cold water pushes downward, which results in gravitational circulation.

As a consequence, when the heating circuit pump is switched on, heated boiler water may flow into the heating circuit flow from the boiler return via the mixing line through the two opened mixing ports. When the heating circuit pump is switched off, it is more likely that hot boiler water will "sneak" into the radiators via the heating circuit return line.

False	Correct	Measures against incorrect circulations
<p>Incorrect circulation in the boiler... ①</p> 	<p>...prevent a shutoff valve ②</p> 	<p>Incorrect circulations can be prevented, either by</p> <ul style="list-style-type: none"> - Inserting a shutoff valve (Figure 2), or better:
	<p>③</p> 	<ul style="list-style-type: none"> - Insert pipe-in-pipe insulation and "shoe" the mixing line to the return (Figure 3) <p>(H = 8 to 10 times pipe Ø)</p>
	<p>④</p> 	<ul style="list-style-type: none"> - Insert a pipe-in-pipe insulation with bleed valve (Figure 4) <p>(H = 8 to 10 times pipe Ø)</p>
<p>⑤</p> 	<p>⑥</p> 	<p>Connect closed expansion vessels Connect the supply line to the expansion vessel on the space provided on the boiler or on the highest point for the pipe-in-pipe insulation.</p> <p>(H = 8 to 10 times pipe Ø)</p>
	<p>⑦</p> 	<p>Figure 7 is a sample connection for the expansion vessel to pipe-in-pipe insulation with a boiler connection at the bottom.</p> <p>(H = 8 to 10 times pipe Ø)</p>



Practical tips

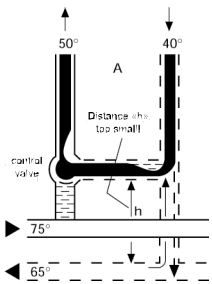
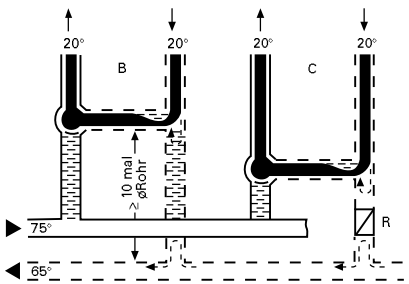
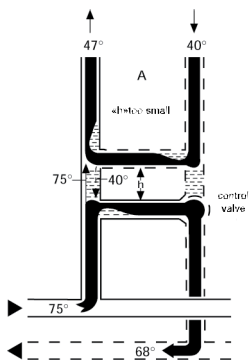
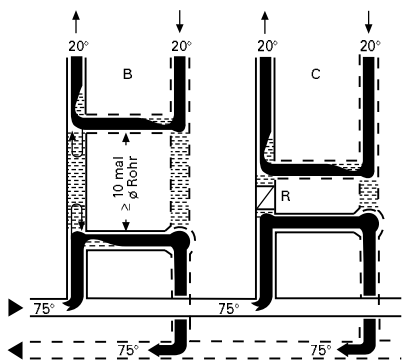
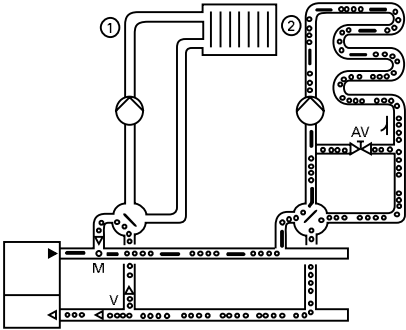
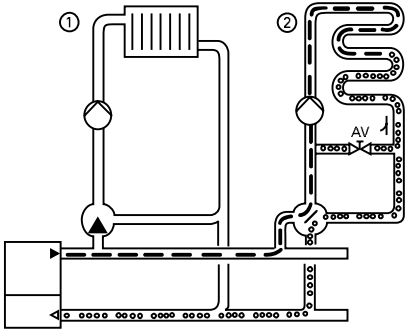
Faulty circulation

On distributor

On distributor

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As a consequence, when the heating circuit pump is switched on, heated boiler water may flow into the heating circuit flow from the boiler return via the mixing line through the two opened mixing gates. When the heating circuit pump is switched off, it is more likely that hot boiler water will "sneak" into the radiators via the heating circuit return line.

False	Correct	Measures against incorrect circulations
		<p>Mixing circuit on differential pressure-free distributor</p> <ul style="list-style-type: none"> Distance from bypass to collector $h \geq 10$ times pipe \varnothing, min. 40 cm or Insert gravitational brake R in the return for the heating group
		<p>Injection circuit on pressure distributor</p> <ul style="list-style-type: none"> Distance from bypass to short circuit $h \geq 10$ times pipe \varnothing, min. 40 cm or Insert gravitational brake R in the flow between the bypass and short circuit
 <p>Incorrect circulation from point V via the open path for the closed mixer after mixing point M. Impact of incorrect circulation in the floor heating.</p>		<p>Mixing circuit with four-port mixer on distributor without primary pump</p> <ul style="list-style-type: none"> Control group ① using three-port mixer

A

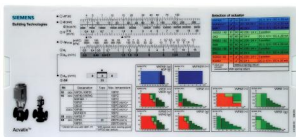
Technical information on sizing and selection of valves and actuators

The behavior of a modulated controlled plant depends highly on the measurement of the control valves. Sizing is optimum when full plant output is first achieved after the control valve is fully opened.

Valve and actuator selection tool

We recommend using the valve calculator, flow diagrams and selection programs EasyVASP or Refrigeration VASP to simplify sizing and selection.

Valve calculator



Valves and actuators for central HVAC plants.

Applications

- n Heat generation
- n Heat distribution
- n Heating zones
- n Heating plant
- n Ventilation and air conditioning plant
- n Community and district heating plants
- n Drinking water mixing plants
- n High-precision process control



Valves and actuators for room and zone applications

Applications

- n Air after treatment devices
- n Induction devices
- n Chilled ceilings
- n Boiler charges
- n Zone control
- n Radiator applications

EasyVASP



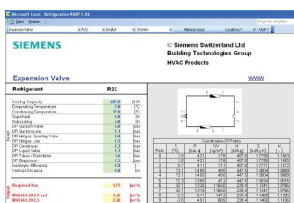
Valves and actuators for

- n Central HVAC plants
- n Room and zone applications
- n Steam applications

Applications

- n For the aforementioned applications

RefrigerationVASP



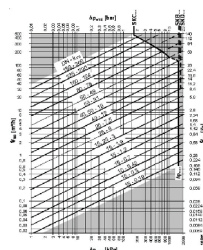
Valves and actuators for

- n Expansion applications
- n Hot gas applications
- n Suction gas applications

Applications

- n Refrigeration circuits
- n Chillers
- n Heat pumps

Flow diagrams



Valves and actuators for

- n Central HVAC plants
- n Room and zone applications

Applications

- n For the aforementioned applications

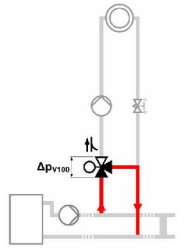
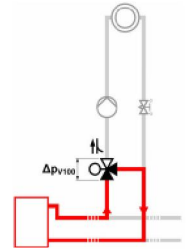
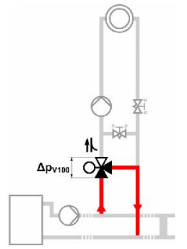
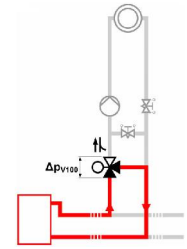


Practical tips

Valves and actuators

Sizing and selection

Sizing and selection for water

Determine volume flow V_{100}		Notes		
Volume flow $\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T \cdot f_1}$	\dot{V}_{100} (m ³ /h) Q_{100} (kW) ΔT (K)	Volume flow at Plant nominal output Plant nominal output Temperature difference	f_1 (corrective factor) = 1 for water For glycol percentage of > 20 % or application of other media, see page A-16	
Determine flow k_v and differential pressure Δp_{V100} b/ Select nominal flow value k_{vs}				
$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$	Δp_{V100} (kPa)	Loss of pressure via the fully open valve	Can also be determined via flow diagrams, EasyVASP or valve calculator	
Hydraulic basic circuits	The variable flow path depends on the hydraulic circuit. It is specially emphasized in the graphics for the basic circuits depicted below. Δp_{MV} Loss of pressure on variable flow paths Δp_{MV} is often unknown or very small. In this case, use the following values gained from the field:	Mixing circuit on the differential pressure-free distributor: $\Delta p_{V100} = 2 \dots 5$ kPa with primary pump $\Delta p_{V100} = 5 \dots 15$ kPa without primary pump Boiler return rise: $\Delta p_{V100} = 3$ kPa Injection circuit with three-port valve: $\Delta p_{V100} = 2 \dots 5$ kPa Injection circuit with two-port valve: $\Delta p_{V100} = 50 \%$ from Δp_{VR} Throttle circuit: $\Delta p_{V100} = 50 \%$ from Δp_{VR}		
Determine hydraulic circuit — Δp_{MV} differential pressure via the variable flow path				
	Mixing circuit without bypass With primary pump	Without primary pump	Mixing circuit with bypass With primary pump	Without primary pump



Check valve authority P_v (control stability)		Notes
$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3 \dots 0.6$ <p>Use the resulting differential pressure Δp_{V100}</p>	The pressure loss via a fully opened valve Δp_{V100} must, at a minimum, be as large as the pressure loss Δp_{MV} via the variable flow part of the plant	Valve authority should be between 0.3 and 0.6, select smaller valve as required.
Select suitable valve series		
a) Determine type of valve	Select two-port or three-port appropriate to the hydraulic circuit	See overview of product range
b) Determine connection type	Thread (inside/outside) or flange	See overview of product range
c) Select valve pressure stage	PN class must at a minimum correspond to the plant pressure stage	See overview of product range
Check valve operating range		
a) Temperature	Use within permissible temperature limits	See overview of product range or product section
b) Medium	Check whether applied medium permitted	See overview of product range or product section
Select actuator		
a) Select operating voltage and positioning signal	Pursuant to voltage source and controller signal	
b) Determine desired actuator runtime	Match runtime to dynamic process	See application recommendations
c) Fail-safe function required	If required, select the appropriate control equipment	See overview of product range Type designations with 5 as well as all magnetic valves
Check control equipment operating range		
a) Differential pressure Δp_{\max}	Greater than or equal to the maximum pressure drop via control equipment during control	See production section and selection aides
a) Δp_s (Close off)		

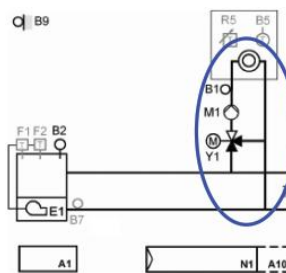
Practical tips

Valves and actuators

Example heating plants

Example: Sizing a control valve

Required	3-port control valve, flanged	
Plant data	Pressure class	PN 10
	Plant's rated capacity Q_{100}	160 kW
	Temperature difference ΔT	$70/55 = 15$ K
	Medium	Water
	Differential pressure across variable flow path Δp_{MV}	8 kPa
Positioning signal	3-position, AC 230 V	



1 Determine volumetric flow V_{100}

$\dot{V}_{100} = \frac{Q_{100}}{1,163 \cdot \Delta T}$	$\dot{V}_{100} = \frac{160 \text{ kW}}{1,163 \cdot 15 \text{ K}} = 9,2 \text{ m}^3 / \text{h}$
--	--

2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit					
— differential pressure Δp_{MV} across variable flow path		With primary pump	Without prim. pump	With primary pump	Without prim. pump
Δp_{MV}	Typical range	2...5 kPa	5...15 kPa	2...5 kPa	5...15 kPa
	Typical value	3 kPa	8 kPa	3 kPa	8 kPa
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$			
Δp_{max}		$\geq \Delta p_{V100}$			
Example of hydraulic circuit	Example	Mixing circuit without primary pump		$\Delta p_{V100} \geq \Delta p_{MV}$	
Selected differential pressure		$\Delta p_{V100} = 8 \text{ kPa}$			

3 Determine the k_v -value

$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$	$k_v = \frac{9,2 \text{ m}^3 / \text{h}}{\sqrt{\frac{8 \text{ kPa}}{100}}} = 32,5 \text{ m}^3 / \text{h}$
--	---

4 Select nominal flow value k_{vS} and determine resulting differential pressure Δp_{V100}

$k_{vS} \geq 0,8 \cdot k_v$ -value	$k_{vS} \geq 0,8 \cdot 32,5 \text{ m}^3 / \text{h} = 26 \text{ m}^3 / \text{h}$	$k_{vS} = 31 \text{ m}^3 / \text{h}$
Resulting Δp_{V100}	$\Delta p_{V100} = 100 \cdot \left(\frac{9,2 \text{ m}^3 / \text{h}}{31 \text{ m}^3 / \text{h}} \right)^2 = 8,8 \text{ kPa}$	



5 Check valve authority P_V (control stability)

$$P_V = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3 \dots 0.6$$

Enter resulting differential pressure Δp_{V100}

$$\frac{\Delta p_{V100}}{p_{V100} + \Delta p_{MV}} = \frac{8.8 \text{ kPa}}{8.8 \text{ kPa} + 8 \text{ kPa}} = 0.52$$

6 Select suitable valve range

a) Type of valve	3-port seat valve	
b) Connections	Flanged	
c) Pressure class	PN 10	
d) Nominal size DN	50	
e) Medium	Water	
f) Medium temperature	70 °C	
Available valve range(s)	$k_{VS} = 31 \text{ m}^3/\text{h}$	VXF31..
Type of valve selected	VXF31.50	$k_{VS} = 31 \text{ m}^3/\text{h}$

7 Select the actuator

a) Supply voltage	AC 230 V		
b) Control signal	3-position		
c) Actuator positioning time	Available ranges	SQX..	35...150 s
		SKD.., SKB..	30...120 s
d) Spring return facility	No		
e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal		
Available types of actuators	SQX.., SKD.., SKB..		

8 Check the actuator's working range

a) Differential pressure	$\Delta p_{\max} \geq \Delta p_{V100}$	SQX.. + VXF31.50	SKD.. + VXF31.50	SKB.. + VXF31.50
		$\Delta p_{\max} \geq 8,8 \text{ kPa}$		
b) Closing pressure	$\Delta p_s \geq H_0$	300 kPa	300 kPa	300 kPa
		Not applicable to 3-port valves		
Type of actuator selected	SQX32.00 (without spring return, running time 150 s, no auxiliary functions)			

Selection

Type of valve	VXF31.50	for details, refer to Data Sheet N4320
Type of actuator	SQX32.00	for details, refer to Data Sheet N4554

Practical tips

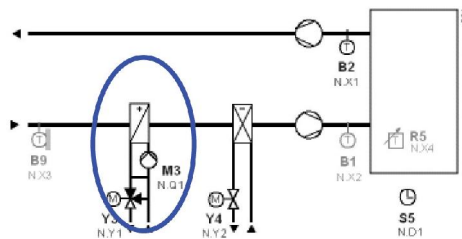
Valves and actuators

Example ventilation & air conditioning plants

Example: Ventilation plant with supply air temperature control

Part 1 – hot water heating coil

Required	3-port control valve, externally threaded	
Plant data	Pressure class	PN 16
	Plant's rated capacity Q_{100}	55 kW
	Temperature difference hot water heating coil ΔT	60/40 = 20 K
	Medium	Water
	Differential pressure across variable flow path Δp_{MV}	3 kPa
Positioning signal	0...10 V	



1 Determine volumetric flow V_{100}

$$\dot{V}_{100} = \frac{Q_{100}}{1,163 \cdot \Delta T} \quad \dot{V}_{100} = \frac{55 \text{ kW}}{1,163 \cdot 20 \text{ K}} = 2,4 \text{ m}^3 / \text{h}$$

2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit					
— differential pressure Δp_{MV} across variable flow path		Primary pump constant		Primary pump controlled	
Δp_{MV}	Typical range	5...50 kPa	2...5 kPa		
	Typical value	35 kPa	3 kPa		
Δp_{VR}	Typical range			20...200 kPa	20...200 kPa
	Typical value			Use effective Δp_{VR} -value	
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
Δp_{max}		$\Delta p_{max} \geq \Delta p_{V100}$		$\Delta p_{max} \geq \Delta p_{VR}$	
Example of hydraulic circuit	Example	Injection circuit with 3-port valve		$\Delta p_{V100} \geq \Delta p_{MV}$	
		Primary pump constant			
Selected differential pressure		$\Delta p_{V100} = 3 \text{ kPa}$			

3 Determine the k_v -value

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \quad k_v = \frac{2,4 \text{ m}^3 / \text{h}}{\sqrt{\frac{3 \text{ kPa}}{100}}} = 13,9 \text{ m}^3 / \text{h}$$

4 Select nominal flow value k_{vs} and determine resulting differential pressure Δp_{V100}

$k_{vs} \geq 0,8 \cdot k_v$ -value	$k_{vs} \geq 0,8 \cdot 13,9 \text{ m}^3 / \text{h} = 11,1 \text{ m}^3 / \text{h}$	$k_{vs} = 12 \text{ m}^3 / \text{h}$ or $k_{vs} = 16 \text{ m}^3 / \text{h}$
Resulting Δp_{V100}	$k_{vs} = 12 \text{ m}^3 / \text{h}$	$k_{vs} = 16 \text{ m}^3 / \text{h}$
$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}} \right)^2$	$\Delta p_{V100} = 100 \cdot \left(\frac{2,4 \text{ m}^3 / \text{h}}{12 \text{ m}^3 / \text{h}} \right)^2 = 4 \text{ kPa}$	$\Delta p_{V100} = 100 \cdot \left(\frac{2,4 \text{ m}^3 / \text{h}}{16 \text{ m}^3 / \text{h}} \right)^2 = 2,3 \text{ kPa}$

5 Check valve authority P_v (control stability)

$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3 \dots 0.6$ <p>Enter resulting differential pressure Δp_{V100}</p>	MXG461.32-12	VXG41.32
	$k_{VS} = 12 \text{ m}^3/\text{h}$	$k_{VS} = 16 \text{ m}^3/\text{h}$
	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{4 \text{ kPa}}{4 \text{ kPa} + 3 \text{ kPa}} = 0,57$	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{2,3 \text{ kPa}}{2,3 \text{ kPa} + 3 \text{ kPa}} = 0,43$

6 Select suitable valve range

a) Type of valve	3-port seat valve	
b) Connections	Externally threaded	
c) Pressure class	PN 16	
d) Nominal size DN	32	
e) Accessories	Union fittings	
Available valve range(s)	$k_{VS} = 12 \text{ m}^3/\text{h}$ $k_{VS} = 16 \text{ m}^3/\text{h}$	MXG461.. VXG41.., VXG44.., VXP45..
Type of valve selected	MXG461.32-12 VXG41.32	$k_{VS} = 12 \text{ m}^3/\text{h}$ $k_{VS} = 16 \text{ m}^3/\text{h}$

7 Check the valve's working range

a) Medium temperature	90 °C < MXG461.. for maximum permissible medium temperature of 130 °C 90 °C < VXG41.. for maximum permissible medium temperature of 130 °C
b) Medium	MXG461...: suited for water VXG41...: suited for water

8 Select the actuator

a) Supply voltage	AC 24 V
b) Control signal	0...10 V
c) Actuator positioning time	Available ranges MXG461.. < 2 s SQX.. 35...150 s SKD.., SKB.. 30...120 s
d) Spring return facility	No
e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal
Available types of actuators	MXG461...: actuator integrated VXG41...: SQX.., SKD.., SKB..
Type of actuator(s) selected	MXG461.32-12 SQX62

9 Check the actuator's working range

a) Differential pressure	$\Delta p_{\max} \geq \Delta p_{V100}$	MXG461.32-12 $\Delta p_{\max} \geq 4 \text{ kPa}$	VXG41.32 + SQX62 $\Delta p_{\max} \geq 2.3 \text{ kPa}$
b) Closing pressure	$\Delta p_s \geq H_0$	300 kPa	800 kPa
Type of actuator(s) selected	MXG461.32-12 SQX62	actuator integrated without spring return, running time 35 s, no auxiliary functions, with position checkback signal	

Selection

Type of valve	VXG41.32	for details, refer to Data Sheet N4463	Suited for controlled systems with: n Usual degree of difficulty n Ease of service and repair
Type of actuator	SQX62	for details, refer to Data Sheet N4554	
Valve and actuator	MXG461.32-12	for details, refer to Data Sheet N4455	Specially suited for controlled with: n High degree of difficulty n Demanding requirements for control accuracy n Fast load changes



Practical tips

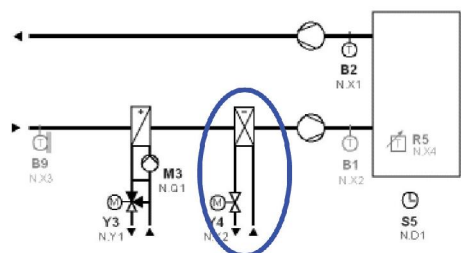
Valves and actuators

Example ventilation & air conditioning plants

Example: Ventilation plant with supply air temperature control

Part 2 – chilled water cooling coil

Required	2-port control valve, externally threaded	
Plant data	Pressure class	PN 16
	Plant's rated capacity Q_{100}	65 kW
	Temperature difference chilled water cooling coil ΔT	6/12 = 6 K
	Medium	Water
	Differential pressure Δp_{VR}	30 kPa
	Zero pump head H_0	200 kPa
	Positioning signal	0...10 V



1 Determine volumetric flow V_{100}

$\dot{V}_{100} = \frac{Q_{100}}{1,163 \cdot \Delta T}$	$\dot{V}_{100} = \frac{65 \text{ kW}}{1,163 \cdot 6 \text{ K}} = 9.3 \text{ m}^3 / \text{h}$
--	--

2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit					
— differential pressure Δp_{MV} across variable flow path		Primary pump constant		Primary pump controlled	
Δp_{MV}	Typical range	5...50 kPa	2...5 kPa		
	Typical value	35 kPa	3 kPa		
Δp_{VR}	Typical range			20...200 kPa	20...200 kPa
	Typical value			Use effective Δp_{VR} -value	
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
Δp_{max}		$\Delta p_{max} \geq \Delta p_{V100}$		$\Delta p_{max} \geq \Delta p_{VR}$	
Example of hydraulic circuit	Example	Throttling circuit		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
		primary pump controlled			
Selected differential pressure		$\Delta p_{V100} = \frac{\Delta p_{VR}}{2} = \frac{30 \text{ kPa}}{2} = 15 \text{ kPa}$			

3 Determine the k_v -value

$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$	$k_v = \frac{9.3 \text{ m}^3 / \text{h}}{\sqrt{\frac{15 \text{ kPa}}{100}}} = 24 \text{ m}^3 / \text{h}$
--	--

4 Select nominal flow value k_{vS} and determine resulting differential pressure Δp_{V100}

$k_{vS} \geq 0.8 \cdot k_v$ -value	$k_{vS} \geq 0.8 \cdot 24 \text{ m}^3 / \text{h} = 19.2 \text{ m}^3 / \text{h}$	$k_{vS} = 20 \text{ m}^3 / \text{h}$ or $k_{vS} = 25 \text{ m}^3 / \text{h}$
Resulting Δp_{V100}	$k_{vS} = 20 \text{ m}^3 / \text{h}$	$k_{vS} = 25 \text{ m}^3 / \text{h}$
$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vS}}\right)^2$	$\Delta p_{V100} = 100 \cdot \left(\frac{9.3 \text{ m}^3 / \text{h}}{20 \text{ m}^3 / \text{h}}\right)^2 = 21.6 \text{ kPa}$	$\Delta p_{V100} = 100 \cdot \left(\frac{9.3 \text{ m}^3 / \text{h}}{25 \text{ m}^3 / \text{h}}\right)^2 = 13.8 \text{ kPa}$

5 Check valve authority P_v (control stability)

$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3 \dots 0.6$ <p>Enter resulting differential pressure Δp_{V100}</p>	MXG461.40-20	VVG41.40
	$k_{VS} = 20 \text{ m}^3/\text{h}$	$k_{VS} = 25 \text{ m}^3/\text{h}$
	$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} = \frac{21,6 \text{ kPa}}{30 \text{ kPa}} = 0,72$	$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} = \frac{13,8 \text{ kPa}}{30 \text{ kPa}} = 0,46$

6 Select suitable valve range

a) Type of valve	3-port control valve	
b) Connections	Externally threaded	
c) Pressure class	PN 16	
d) Nominal size DN	40	
e) Accessories	Union fittings	
Available valve range(s)	$k_{VS} = 20 \text{ m}^3/\text{h}$ $k_{VS} = 25 \text{ m}^3/\text{h}$	MXG461.. (2-Weg) VVG41.., VVG44.., VVP45..
Type of valve selected	MXG461.40-20 VVG41.40	$k_{VS} = 20 \text{ m}^3/\text{h}$ $k_{VS} = 25 \text{ m}^3/\text{h}$

7 Check the valve's working range

a) Medium temperature	$12 \text{ }^\circ\text{C} < \text{MXG461..}$ for maximum medium temperature of $130 \text{ }^\circ\text{C}$ $12 \text{ }^\circ\text{C} < \text{VVG41..}$ for maximum medium temperature of $130 \text{ }^\circ\text{C}$ $6 \text{ }^\circ\text{C} > \text{VXG41..}$ for minimum medium temperature of $1 \text{ }^\circ\text{C}$ $6 \text{ }^\circ\text{C} > \text{VVG41..}$ for minimum medium temperature of $-25 \text{ }^\circ\text{C}$
b) Medium	MXG461...: suited for water VVG41...: suited for water

8 Select the actuator

a) Supply voltage	AC 24 V									
b) Control signal	0...10 V									
c) Actuator positioning time	<table border="0"> <tr> <td>Available ranges</td> <td>MXG461..</td> <td>< 2 s</td> </tr> <tr> <td></td> <td>SQX..</td> <td>35...150 s</td> </tr> <tr> <td></td> <td>SKD.., SKB..</td> <td>30...120 s</td> </tr> </table>	Available ranges	MXG461..	< 2 s		SQX..	35...150 s		SKD.., SKB..	30...120 s
Available ranges	MXG461..	< 2 s								
	SQX..	35...150 s								
	SKD.., SKB..	30...120 s								
d) Spring return facility	No									
e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal									
Available types of actuators	MXG461...: actuator integrated VVG41...: SQX.., SKD.., SKB..									
Type of actuator(s) selected	MXG461.40-20 SQX62									

9 Check the actuator's working range

a) Differential pressure	$\Delta p_{\max} \geq \Delta p_{VR}$	MXG461.40-20	VVG41.40 + SQX62
	Δp_{\max}	$\Delta p_{\max} \geq 30 \text{ kPa}$	$\Delta p_{\max} \geq 30 \text{ kPa}$
b) Closing pressure	$\Delta p_s \geq H_0$	300 kPa	525 kPa
		300 kPa	525 kPa
Type of actuator(s) selected		MXG461.40-20 SQX62	actuator integrated without spring return, running time 35 s, no auxiliary functions, with position checkback signal

Selection

Type of valve	VXG41.40	for details, refer to Data Sheet N4463	Suited for controlled systems with: n Usual degree of difficulty n Ease of service and repair
Type of actuator	SQX62	for details, refer to Data Sheet N4554	
Valves and actuators	MXG461.40-20	for details, refer to Data Sheet N4455	Specially suited for controlled systems with: n High degree of difficulty n Demanding requirements for control accuracy n Fast load changes
		When used as a through-port valve, inlet B must be closed off with the accessories supplied with the valve (nuts, cover and gasket)	

Practical tips

Valves and actuators

Valve rating for water

Important notes

When measuring valve size using a media other than water, please note that the media properties

- n Specific heat
- n Density
- n Kinematic viscosity

differ from water. All measured values depend on temperature.

Water without antifreeze

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} \text{ [m}^3/\text{h]}$$

Water with antifreeze

The design temperature is the lowest medium temperature occurring in the valve.

$$\dot{V}_{100} = \frac{Q_m \cdot 3600}{c \cdot \Delta T \cdot \rho} \text{ [m}^3/\text{h]} \quad \text{or} \quad \dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T \cdot f_1}$$

\dot{V}_{100} = volumetric flow [m³/h]

Q_{100} = rated capacity of plant [kW]

ΔT = temperature difference of flow and return [K]

c = specific heat capacity [kJ/kgK]

ρ = specific density [kg/m³]

For glycol portion > 20 %, use the corrective factor f1 per table in the formula for determining volume flow.

Corrective factor f1 for Antifrogen N

x	-40	-20	0	20	40	60	80	100	Temp. [°C]
100	0.60	0.62	0.63	0.65	0.67	0.68	0.69	0.71	
80	0.71	0.73	0.74	0.75	0.77	0.78	0.79	0.80	
60	0.79	0.80	0.81	0.82	0.84	0.85	0.86	0.86	
52	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.88	
44		0.87	0.88	0.88	0.89	0.90	0.90	0.90	
34		0.92	0.92	0.92	0.92	0.92	0.93	0.93	
20			0.97	0.97	0.96	0.96	0.96	0.95	

The data and application notes of the glycol manufacturer are binding.

x = percentage of Antifrogen N

Determine the corrective factor f₁

Entry: c; ρ

Output: Corrective factor f₁

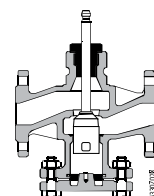
$$f_1 = \frac{c \left[\frac{\text{kJ}}{\text{kgK}} \right] \cdot \rho \left[\frac{\text{kg}}{\text{m}^3} \right]}{4.18 \times 1000}$$

Kinematic viscosity

No corrections required for kinematic viscosity = of up to 10 mm²/s. Please contact your local representative on selecting control actuating devices equipment at other kinematic viscosity =.

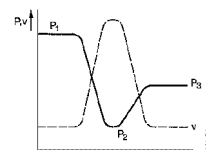
Cavitation

High medium velocity in the narrowest section of the valve results in localized underpressure (p₂). If the underpressure falls below the boiling pressure (vapor pressure) of the medium, cavitation (vapor bubbles) takes place and, in extreme circumstances, Valve body material is removed from the surfaces. Furthermore, the noise level increases dramatically as cavitation develops. Cavitation can be prevented by limiting the differential pressure across the valve as a function of the medium temperature and upstream pressure, provided the valves differential pressure as provided for in flow chart 1 for a valve is not exceeded and the static pressures listed in diagram 2 are maintained.



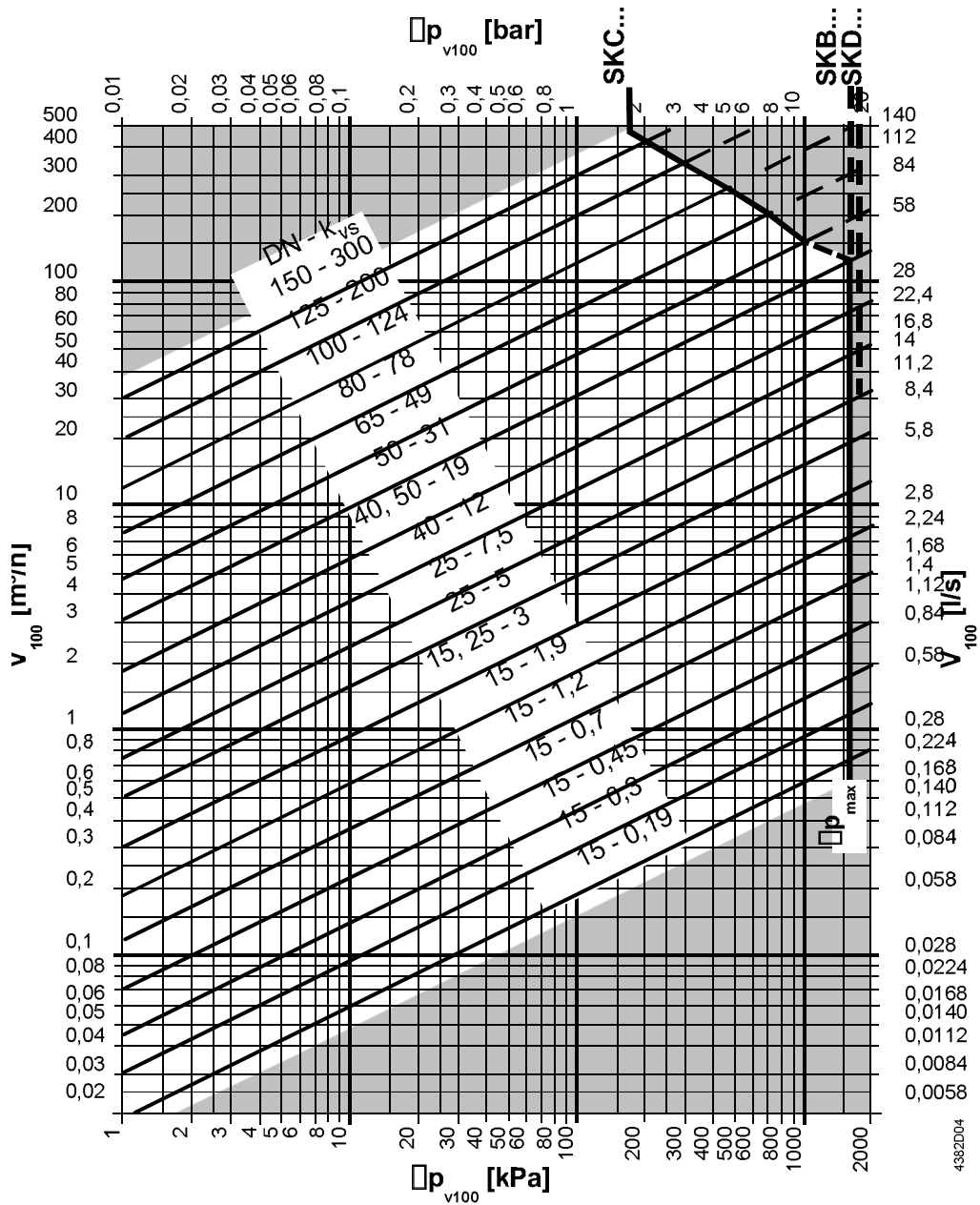
To prevent cavitation sufficient static counterpressure at the valve's outlet must also be ensured for domestic hot water and cold water circuits. A throttling valve, for example, downstream from the heat exchanger would ensure this. In this case, the maximum pressure drop across the control valve should be selected according to the 80 °C curve from the chart on page 19-18.

— pressure profile
 - - - - velocity profile



A

Example – Flow diagram for VVF61..



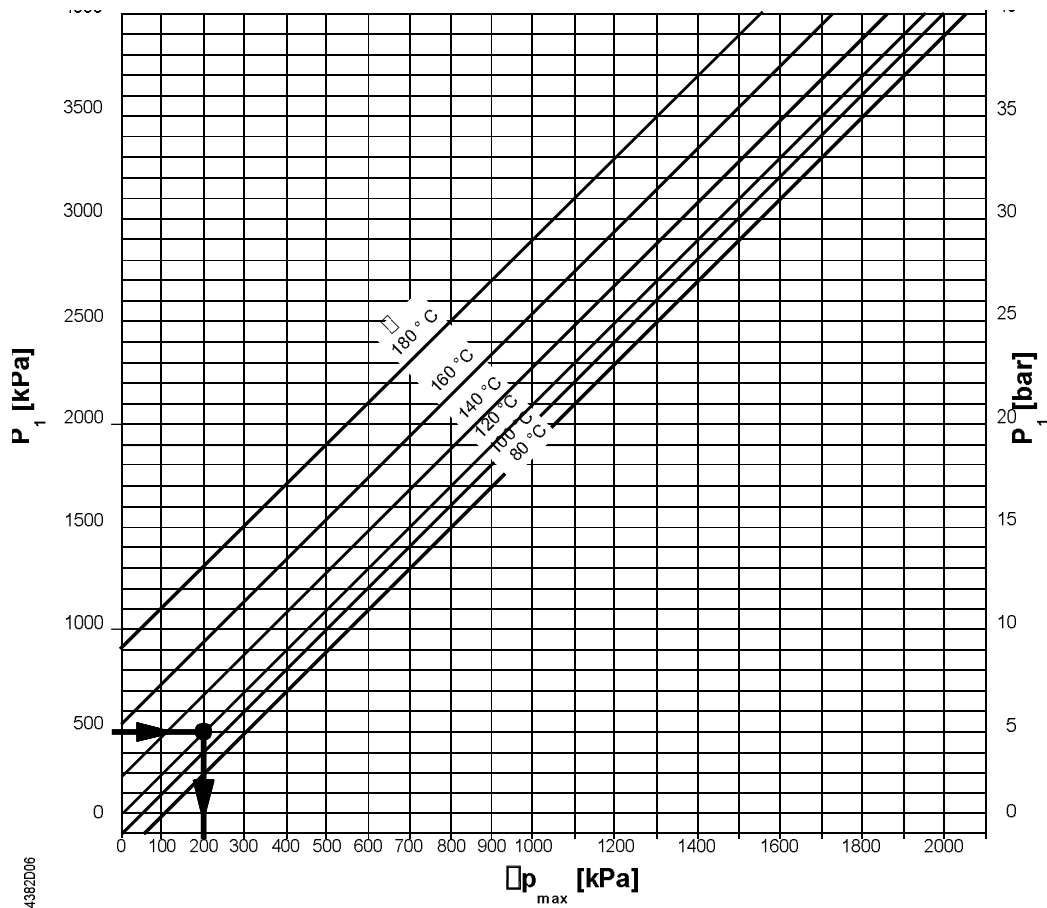
Practical tips

Valves and actuators

Valve rating for water

Cavitation

Ensure there is sufficient static counter pressure p_3 at the valve outlet to prevent cavitation. This can be accomplished, for example, with a throttling valve after the heat exchanger. Pressure loss across the control valve should be selected per the 80 °C curve from the following diagram.

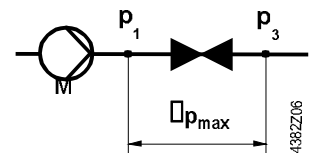


Pressure chart 2

- Δp_{\max} = differential pressure with valve almost fully closed, at which cavitation can nearly be completely avoided
- p_1 = static pressure at inlet
- p_3 = static pressure at outlet
- M = pump
- J = water temperature

Example: Hot water

Pressure p_1 upstream of the valve: 500 kPa (5 bar)
 Water temperature: 120 °C

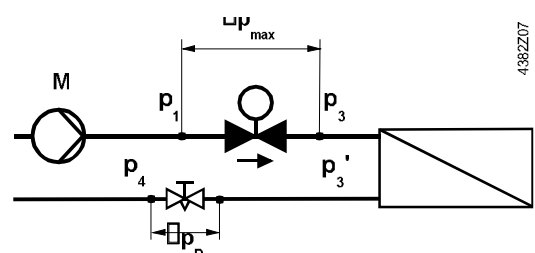


The above chart 2 shows that when the valve is nearly fully closed, a maximum differential pressure Δp_{\max} of 200 kPa (2 bar) is permitted.

Example: Cold water

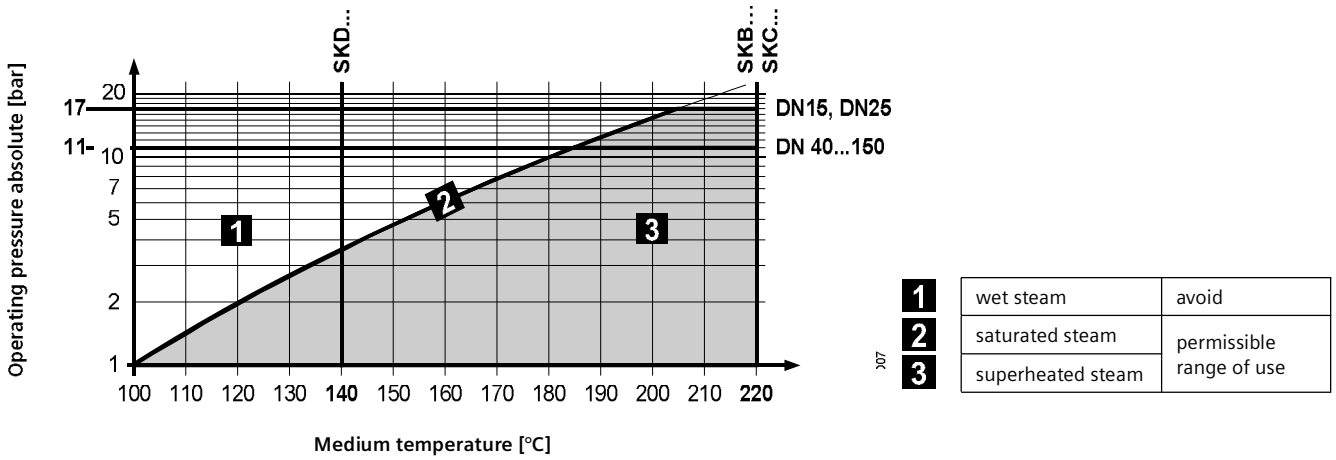
Prevention of cavitation using the example of well-water cooling:

- Cold water = 12 °C
- p_1 = 500 kPa (5 bar)
- p_4 = 100 kPa (1 bar)
(atmospheric pressure)
- Δp_{\max} = 300 kPa (3 bar)
- $\Delta p_{3-3'}$ = 20 kPa (0,2 bar)
- Δp_D (throttle) = 80 kPa (0,8 bar)
- $p_{3'}$ = pressure downstream from consumer in kPa



Valve design for saturated and super-heated steam

Saturated and super-heated steam in sub-critical range



Recommendation: The differential pressure Δp_{\max} via the valve for saturated and super-heated steam should approximate the critical pressure ratio as much as possible.

$$\text{Pressure ratio} = \frac{p_1 - p_3}{p_1} \times 100\%$$

p_1 = absolute pressure before the valve in kPa
 p_3 = absolute pressure after the valve in kPa

Calculate the k_{VS} -value for steam

Sub-critical range	Overcritical range
$\frac{p_1 - p_3}{p_1} \times 100\% < 42\%$ <p style="text-align: center;">Pressure ratio < 42% sub-critical</p> $k_{VS} = 4.4 \times \frac{\dot{m}}{\sqrt{p_3 \times (p_1 - p_3)}} \times k$	$\frac{p_1 - p_3}{p_1} \times 100\% \geq 42\%$ <p style="text-align: center;">Pressure ratio \geq 42% overcritical (not recommended)</p> $k_{VS} = 8.8 \times \frac{\dot{m}}{p_1} \times k$

\dot{m} = Steam amount in kg/h
 k = Factor for superheating steam = $1 + 0,0012 \cdot \Delta T$ (for saturated steam, $k = 1$)
 ΔT = Temperature difference in K between saturated and superheated steam



Practical tips

Valves and actuators

Sizing and selection of steam

Example with saturated steam and for sub-critical range

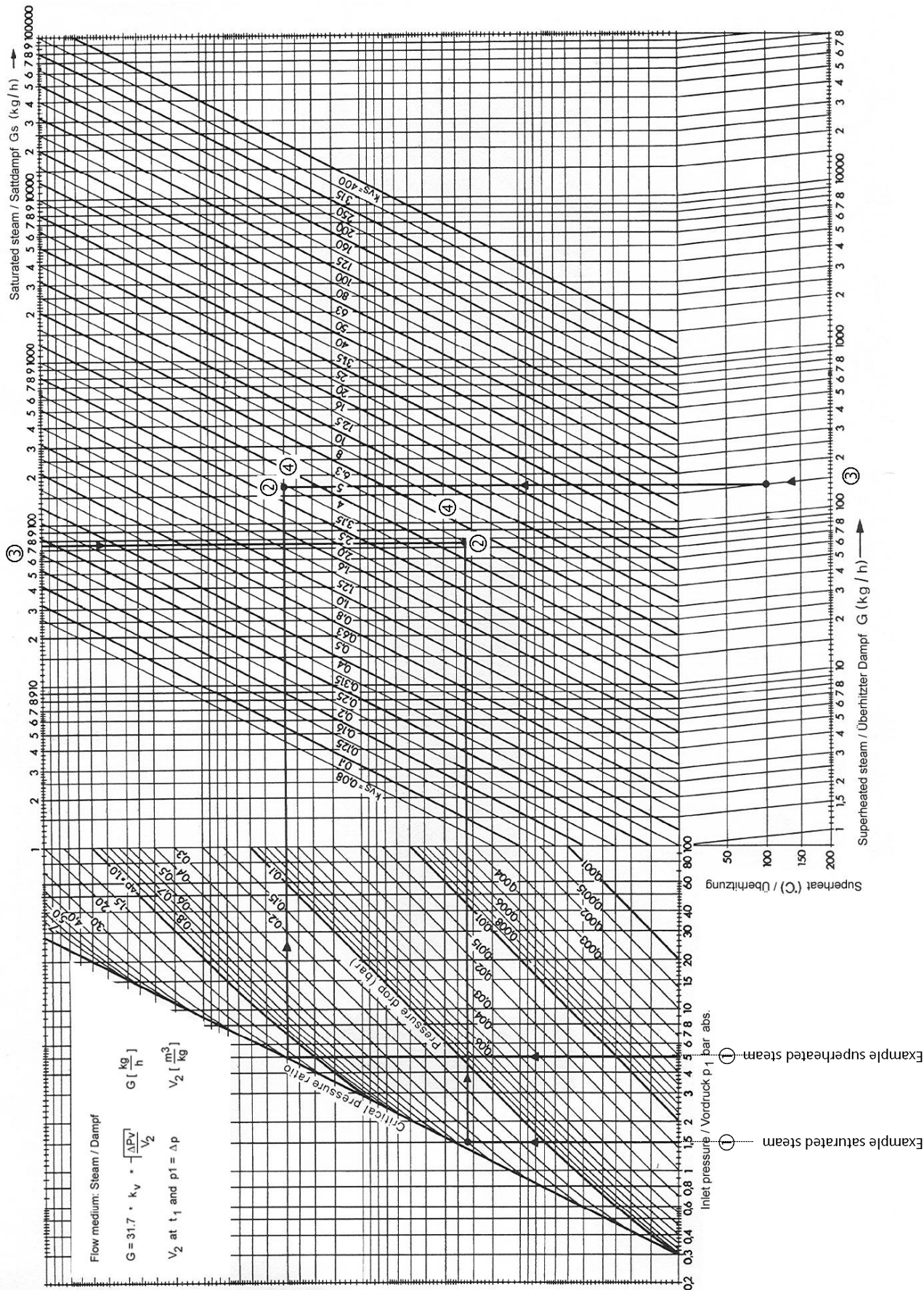
Using formula		Using diagram 3 (next page)	
given	Saturated steam = 133,5 °C $p_1 = 150 \text{ kPa (1.5 bar)}$ $\dot{m} = 75 \text{ kg/h}$ Pressure ratio = 27 %	Saturated steam = 133.5 °C $p_1 = 150 \text{ kPa (1.5 bar)}$ $\dot{m} = 75 \text{ kg/h}$ Pressure drop = 40 kPa (0.4 bar)	
sought	k_{VS} , valve type	k_{VS} , valve type	
solution	① $p_3 = p_1 - \frac{27 \% \cdot p_1}{100 \%}$ ② $p_3 = 150 \text{ kPa} - \frac{27 \% \cdot 150 \text{ kPa}}{100 \%} = 110 \text{ kPa (1.1 bar)}$ ③ $k_{VS} = 4.4 \cdot \frac{75 \text{ kg/h}}{\sqrt{110 \text{ kPa} \cdot (150 \text{ kPa} - 110 \text{ kPa})}} \cdot 1 = 4.97 \text{ m}^3/\text{h}$	① vertical line upward for pressure drop $p_1 = 1.5 \text{ bar (150 kPa)}$ (absolute) ② horizontal line to the right for intersection 1.5 bar (150 kPa) and pressure drop 0.4 bar (40 kPa) ③ vertical line downward at 75 kg/h ③ Intersection k_{VS} value Select existing k_{VS} value of the valve series VVF41..., VXF41..., VVF45..., VVF52..., VVF61..., VXF61.. ⑤ Selected k_{VS} value: 5 m ³ /h	
selected	$k_{VS} = 5 \text{ m}^3/\text{h}$ VVF61.24	$k_{VS} = 5 \text{ m}^3/\text{h}$ VVF61.24	

Example with superheated steam and for sub-critical range

Using formula		Using diagram 3 (next page)	
given	Superheated steam = 251.8 °C Saturated steam = 151.8 °C Superheating $\Delta T = 100 \text{ °C}$ $p_1 = 500 \text{ kPa (5 bar)}$ $\dot{m} = 150 \text{ kg/h}$ Pressure ratio = 40 %	Superheated steam = 251.8 °C Saturated steam = 151.8 °C Superheating $\Delta T = 100 \text{ °C}$ $p_1 = 500 \text{ kPa (5 bar)}$ $\dot{m} = 150 \text{ kg/h}$ Pressure ratio = 200 kPa (2 bar)	
sought	k_{VS} , valve type	k_{VS} , valve type	
solution	① $p_3 = p_1 - \frac{40 \% \cdot p_1}{100 \%}$ ② $p_3 = 500 \text{ kPa} - \frac{40 \% \cdot 500 \text{ kPa}}{100 \%} = 300 \text{ kPa (3 bar)}$ ③ $k_{VS} = 4.4 \cdot \frac{150 \text{ kg/h}}{\sqrt{300 \text{ kPa} \cdot (500 \text{ kPa} - 300 \text{ kPa})}} \cdot 1 = 3.02 \text{ m}^3/\text{h}$	① vertical line upward for pressure drop $p_1 = 5 \text{ bar (500 kPa)}$ (absolute) ② horizontal line to the right for intersection 5 bar (500 kPa) and pressure drop 2 bar (200 kPa) ③ vertical line superheated steam upward at 150 kg/h ③ Intersection k_{VS} value Select existing k_{VS} value of the valve series VVF41..., VXF41..., VVF45..., VVF52..., VVF61..., VXF61.. ⑤ Selected k_{VS} -Wert: 3 m ³ /h	
selected	$k_{VS} = 3 \text{ m}^3/\text{h}$ VVF61.23	$k_{VS} = 3 \text{ m}^3/\text{h}$ VVF61.23	

A

Diagram 3 on determining the kvs value for steam



Practical tips
Valves and actuators
Water vapor table

Water vapor table

pressure		tempera- ture	specific water volume	specific vapour volume	density of vapour	enthalpy of water	enthalpy of vapour	evaporation heat
p kPa	p bar	t °C	v' dm ³ /kg	v'' m ³ /kg	ρ'' kg/m ³	h' kJ/kg	h'' kJ/kg	r kJ/kg
1	0.010	6.9808	1.0001	129.20	0.007739	29.34	2514.4	2485.0
2	0.020	17.513	1.0012	67.01	0.01492	73.46	2533.6	2460.2
3	0.030	24.100	1.0027	45.67	0.02190	101.00	2545.6	2444.6
4	0.040	28.983	1.0040	34.80	0.02873	121.41	2554.5	2433.1
5	0.050	32.898	1.0052	28.19	0.03547	137.77	2561.6	2423.8
6	0.060	36.183	1.0064	23.74	0.04212	151.50	2567.5	2416.0
7	0.070	39.025	1.0074	20.53	0.04871	163.38	2572.6	2409.2
8	0.080	41.534	1.0084	18.10	0.05523	173.86	2577.1	2403.2
9	0.090	43.787	1.0094	16.20	0.06171	183.28	2581.1	2397.9
10	0.10	45.833	1.0102	14.67	0.06814	191.83	2584.8	2392.9
20	0.20	60.086	1.0172	7.650	0.1307	251.45	2609.9	2358.4
30	0.30	69.124	1.0223	5.229	0.1912	289.30	2625.4	2336.1
40	0.40	75.886	1.0265	3.993	0.2504	317.65	2636.9	2319.2
50	0.50	81.345	1.0301	3.240	0.3086	340.56	2646.0	2305.4
60	0.60	85.954	1.0333	2.732	0.3661	359.93	2653.6	2293.6
70	0.70	89.959	1.0361	2.365	0.4229	376.77	2660.1	2283.3
80	0.80	93.512	1.0387	2.087	0.4792	391.72	2665.8	2274.0
90	0.90	96.713	1.0412	1.869	0.5350	405.21	2670.9	2265.6
100	1.0	99.632	1.0434	1.694	0.5904	417.51	2675.4	2257.9
150	1.5	111.37	1.0530	1.159	0.8628	467.13	2693.4	2226.2
200	2.0	120.23	1.0608	0.8854	1.129	504.70	2706.3	2201.6
250	2.5	127.43	1.0675	0.7184	1.392	535.34	2716.4	2181.0
300	3.0	133.54	1.0735	0.6056	1.651	561.43	2724.7	2163.2
350	3.5	138.87	1.0789	0.5240	1.908	584.27	2731.6	2147.4
400	4.0	143.62	1.0839	0.4622	2.163	604.67	2737.6	2133.0
450	4.5	147.92	1.0885	0.4138	2.417	623.16	2742.9	2119.7
500	5.0	151.84	1.0928	0.3747	2.669	640.12	2747.5	2107.4
600	6.0	158.84	1.1009	0.3155	3.170	670.42	2755.5	2085.0
700	7.0	164.96	1.1082	0.2727	3.667	697.06	2762.0	2064.9
800	8.0	170.41	1.1150	0.2403	4.162	720.94	2767.5	2046.5
900	9.0	175.36	1.1213	0.2148	4.655	742.64	2772.1	2029.5
1000	10.0	179.88	1.1274	0.1943	5.147	762.61	2776.2	2013.6
1100	11	184.07	1.1331	0.1774	5.637	781.13	2779.7	1998.5
1200	12	187.96	1.1386	0.1632	6.127	798.43	2782.7	1984.3
1300	13	191.61	1.1438	0.1511	6.617	814.70	2785.4	1970.7
1400	14	195.04	1.1489	0.1407	7.106	830.08	2787.8	1957.7
1500	15	198.29	1.1539	0.1317	7.596	844.67	2798.9	1945.2
1600	16	201.37	1.1586	0.1237	8.085	858.56	2791.7	1933.2
1700	17	204.31	1.1633	0.1166	8.575	871.84	2793.4	1921.5
1800	18	207.11	1.1678	0.1103	9.065	884.58	2794.8	1910.3
1900	19	209.80	1.1723	0.1047	9.555	896.81	2796.1	1899.3
2000	20	212.37	1.1766	0.09954	10.05	908.59	2797.2	1888.6
2500	25	223.94	1.1972	0.07991	12.51	961.96	2800.9	1839.0
3000	30	233.84	1.2163	0.06663	15.01	1008.4	2802.3	1793.9
4000	40	250.33	1.2521	0.04975	20.10	1087.4	2800.3	1712.9
5000	50	263.91	1.2858	0.03743	25.36	1154.5	2794.2	1639.7
6000	60	275.55	1.3187	0.03244	30.83	1213.7	2785.0	1571.3
7000	70	285.79	1.3513	0.02737	36.53	1267.4	2773.5	1506.0
8000	80	294.97	1.3842	0.02353	42.51	1317.1	2759.9	1442.8
9000	90	303.31	1.4179	0.02050	48.79	1363.7	2744.6	1380.9
10000	100	310.96	1.4526	0.01804	55.43	1408.0	2727.7	1319.7
11000	110	318.05	1.4887	0.01601	62.48	1450.6	2709.3	1258.7
12000	120	324.65	1.5268	0.01428	70.01	1491.8	2689.2	1197.4
13000	130	330.83	1.5672	0.01280	78.14	1532.0	2667.0	1135.0
14000	140	336.64	1.6106	0.01150	86.99	1571.6	2642.4	1070.7
15000	150	342.13	1.6579	0.01034	96.71	1611.0	2615.0	1004.0
20000	200	365.70	2.0370	0.005877	170.2	1826.5	2418.4	591.9
22000	220	373.69	2.6714	0.003728	268.3	2011.1	2195.6	184.5
22120	221.2	374.15	3.17	0.00317	315.5	2107.4	2107.4	0

Explanation of the abbreviations and terms used

Abbreviation	Term	Unit	Definition
Δp	Differential pressure	kPa	Pressure differential between plant sections
Δp_{max}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorised valve
Δp_{V100}	Differential pressure at nominal flow rate	kPa	Differential pressure across the fully open valve and the valve's control path by a volume flow V_{100}
Δp_s	Closing pressure	kPa	Maximum permissible differential pressure at which the motorised valve will close securely against the pressure (close off pressure)
Δp_{MV}	Differential pressure across variable flow path	kPa	Often, Δp_{MV} is not known, in which case typical practical values can be used
Δp_{VR}	Differential pressure of flow and return	kPa	
ΔT	Spread	K	Temperature differential between flow and return
DN	Nominal size		Characteristic for matching parts of the piping system
EPDM	Sealing material		Ethylene propylene Dien rubber for sealing elements
H	Stroke	mm	Valve stem travel
H_0	Zero pump head	m	Pump head, for no flow. The pump operates with a closed valve.
kPa	Unit of pressure		100 kPa = 1 bar = 10 mWS
k_v	Nominal flow value	m ³ /h	Amount of cold water (5...30 °C) passing through the valve at the respective stroke and at a differential pressure of 100 kPa (1 bar)
k_{vs}	Nominal flow rate	m ³ /h	Nominal flow rate of cold water (5 bis 30 °C) through the fully open (H_{100}) at a differential pressure of 100 kPa (1 bar)
	Leakage rate	% k_{vs}	Leakage rate when valve is fully closed (H_0) to DIN EN 1349
	Emergency positioning function		Shutoff in the event of a power failure
mWC	Meter water column	m	
PN	PN class		Characteristic relating to the combination of mechanical and dimensional properties of a component in the piping system
P_v	Valve authority		Ratio of differential pressure across fully open valve (H_{100}) and differential pressure across valve and variable flow path. To ensure correct control, a minimum valve authority of 0.3 is required
Teflon	Sealing material		Poly Tetra Fluor Ethylene (PTFE) for sealing elements
Viton	Sealing material		Fluoro-carbon for sealing elements
Q_{100}	Rated capacity	kW	Plant's design capacity
V_{100}	Volumetric flow	m ³ /h	Volumetric flow with valve fully open (H_{100})
ν	Kinematic viscosity	mm ² /s	
c	Specific heat capacity	kJ/kgK	
r	Specific density	kg/m ³	

Relationship between the terms Δp_{max} and Δp_s (close off)

Maximum differential pressure Δp_{max} indicates the differential pressure up to which the control valve can be subjected to the resultant dynamic requirements over the entire stroke range, i.e. from the fully closed to the fully open position. Therefore, Δp_{max} initially depends on design and selected materials, as well as on the available positioning force of the actuator. If the actuator is too weak, only a portion of the possible application range can be utilized.

Conclusion: Δp_{max} is the most important pressure term for the operation of control valves.

Closing pressure Δp_s applies only in the case of a simple shutoff function, but not as a continuous operating state. In this case (e.g. as a safety function in case of pipe rupture), it is important to be able to close against as high a dynamic pressure as possible. This characteristic quantity is comparable with the term «close-off pressure» which is common on the market.

Conclusion: Δp_s or close-off pressure is often consciously or unconsciously equated to the dynamic range Δp_{max} . This erroneously suggests an application field to the customer that does not correspond to the permissible field of use of the control valve, which can cause premature failure.

The list terms can be found in the product descriptions and technical data in the product catalog.

Norms and standards

The valves comply with the requirements of Pressure Equipment Directive PED97/23/EC for pressure-carrying equipment according to section 1, clause 2.1.4.


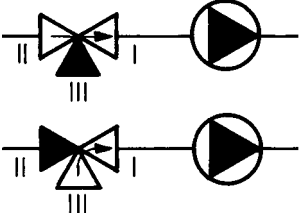
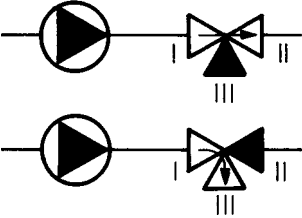
For products classified in categories I and II, Declaration of Conformity will be provided.

Practical tips

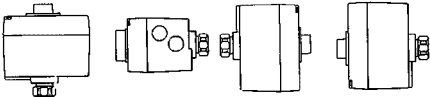

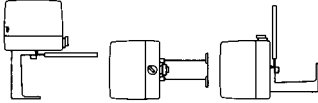
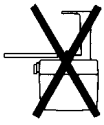
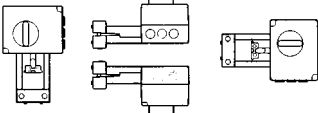
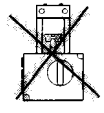
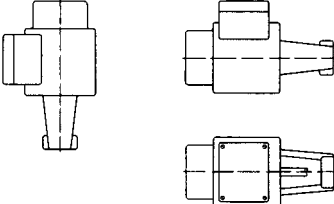
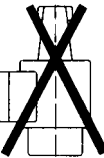
Valves and actuators

Mounting

Installation and function of three-port valves

Three-port valves	Function	Actuators
	<p>Mixing: From II and III to I Distribution: From I to II and III</p> <p>Gate II = Control port (sealing) Gate III = Bypass port (immersion seat) for all valves, only type VXG41 with sealing bypass port together with SQX actuators</p>	
<p>Install mixer</p> 	<p>Open control port</p> <p>Close control port</p>	<p>With all actuator types:</p> <ul style="list-style-type: none"> n electric motor n electro-hydraulic n electro-magnetic
<p>Install as distributor</p> 	<p>Open control port</p> <p>Close control port</p>	<p>Preferably using electro-hydraulic actuators</p>

Actuator installation position

Allowed	Not allowed	Actuators
		<p>Electric motor stroke actuator SQS35../65.. for valve with 5.5 mm stroke</p>
		<p>Electric motor rotary actuator SQK33.. / SQK34.. / SQL33.. / SQL35.. For plug and ball valve and butterfly valves</p>
		<p>Electric motor stroke actuator SQX.. For valve with 20 mm stroke</p>
		<p>Electro-hydraulic stroke actuator SKB../SKD.. For valves with 20 mm stroke SKC.. For valves with 40 mm stroke</p>

Room temperature sensor, room thermostats, remote control devices with built-in room temperature sensor

Application

Room temperature sensor is used in single family homes and duplexes for:

- Room temperature control
- Weather-dependent flow temperature control with connection to room temperature as disturbance variable

- Primarily in non-residential buildings for:
- Room max limits
- Monitoring room temperature for switched off heating (frost protection) and boost heating.
- Optimization

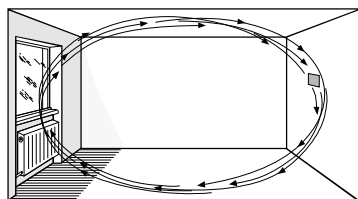
Select reference room

The reference room for placing the room temperature sensor

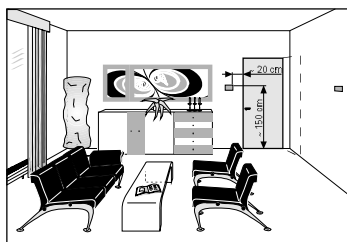
- For single-family homes and duplexes, in general in the main living room
- In non-residential buildings, the least favorable room from a thermal standpoint, e.g.:

Corner room on the north/northwest side or room with large portion of exterior surfaces and must serve as representative for main use of rooms influenced by the optimization system (e.g. no interior rooms, entries, hallways, storage rooms, gangways).

Correct



Best mounting location for room temperature sensor: The interior wall in the main living room opposite the radiator

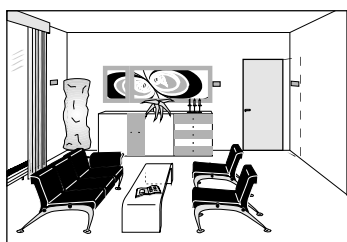
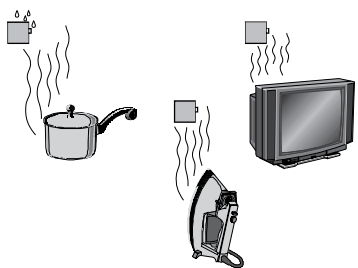


Proper placement of room temperature sensor

How to correctly place the room temperature sensor:

- This device should be placed on an interior wall in the main living room opposite the radiator.
- The room behind this wall must be heated to achieve a representative temperature for the entire living area in the main living room.
- Mounting height: ca. 1.5 m above the floor.
- 1.5 m minimum distance from heat source (e.g. television and strong lights).

False



Incorrect placement of room temperature sensor

However, do not place the room temperature sensor:

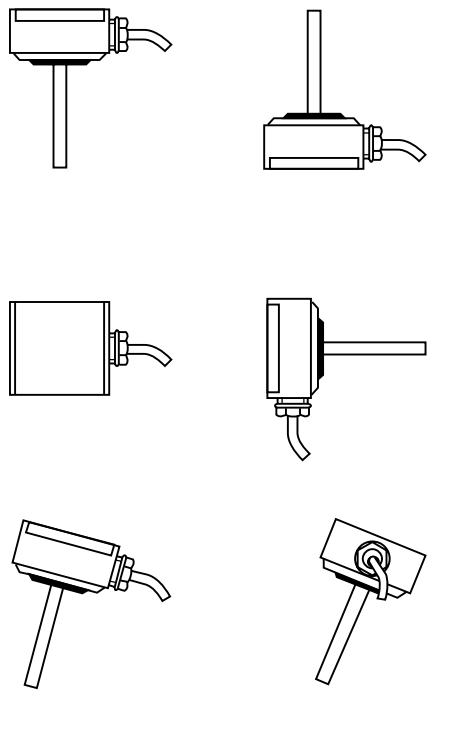
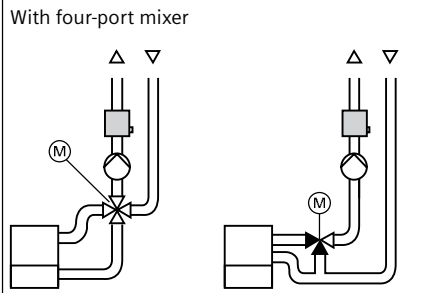
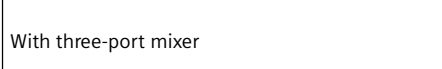
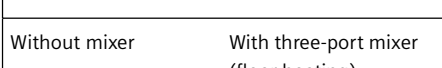
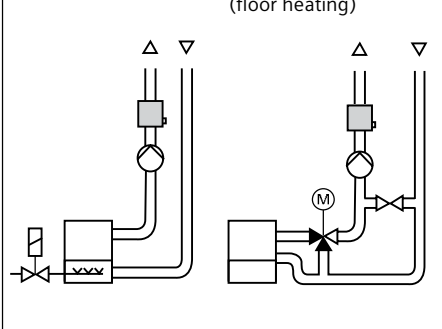
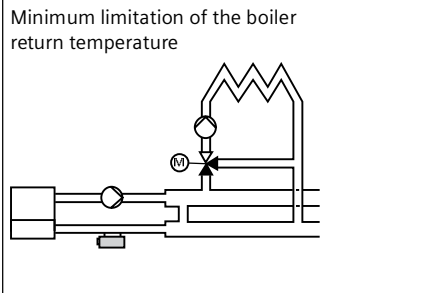
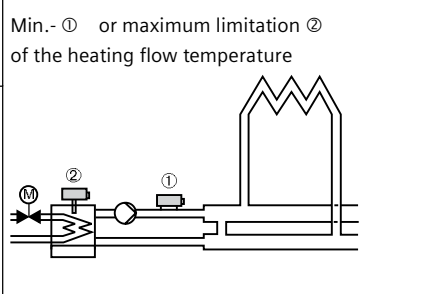
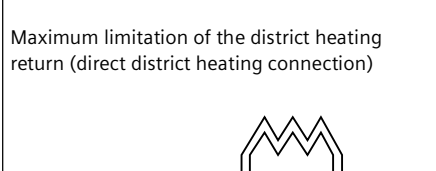
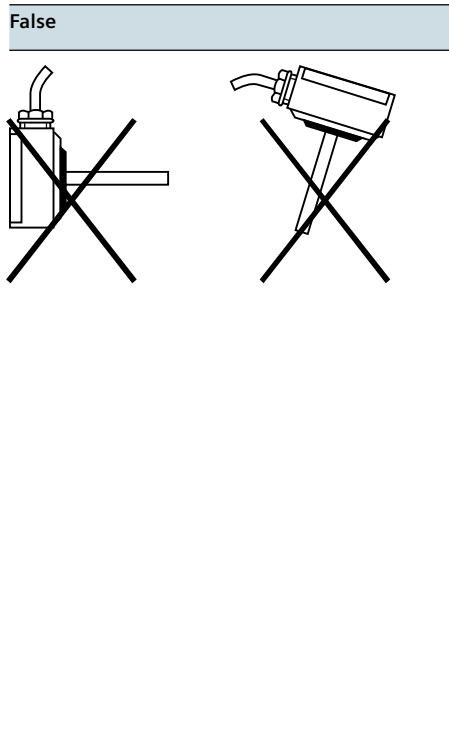
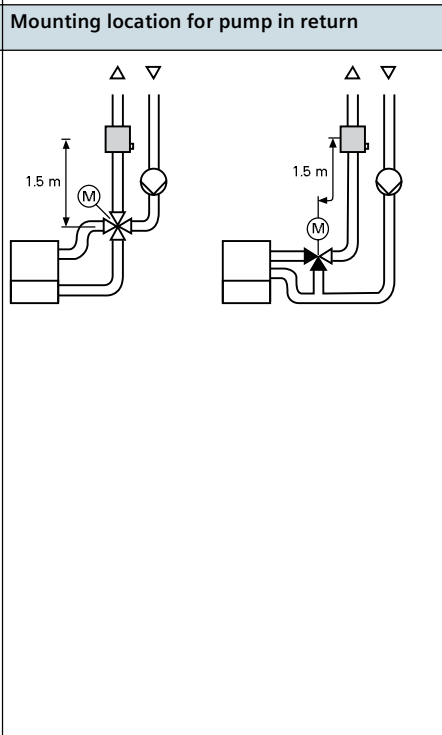
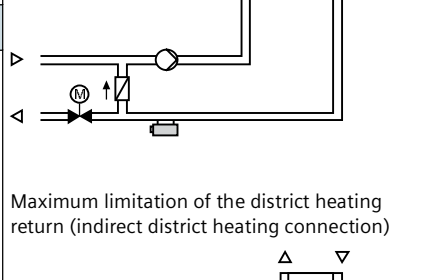
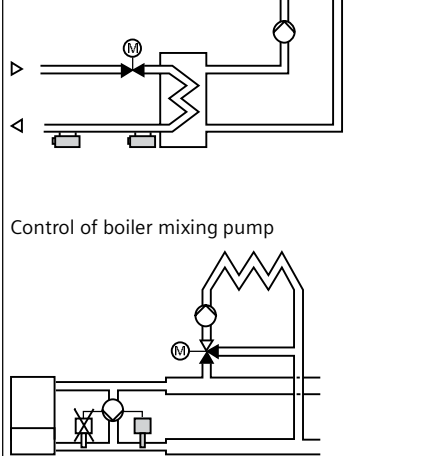
- In bookcases and coves, behind doors and curtains
- In direct sun or supply air
- Close to windows and doors
- In areas with strong contamination
- On a spot on the wall where the heating or domestic hot water piping runs or where a chimney is located
- On an exterior wall.

Practical tips

Sensors

Location

Flow and return temperature sensor immersion or strap-on temperature sensor

Installation position	Control sensor	Limitation sensor
<p>To protect against humidity, install the sensor housing so that the lead for the electric wiring is not pointed up.</p>	<p>As a matter of principle, place the sensors so that the medium to be measured constantly circulates on the mounting location. Where not possible, mount the sensor as close as possible to the medium used to change temperature. (Example: See indirect district heating connection).</p>	
<p>Correct</p> 	<p>Mounting location for pump in flow</p> <p>With four-port mixer</p>  <p>With three-port mixer</p>  <p>Without mixer</p>  <p>With three-port mixer (floor heating)</p> 	<p>Minimum limitation of the boiler return temperature</p>  <p>Min.- ① or maximum limitation ② of the heating flow temperature</p>  <p>Maximum limitation of the district heating return (direct district heating connection)</p> 
<p>False</p> 	<p>Mounting location for pump in return</p> 	<p>Maximum limitation of the district heating return (indirect district heating connection)</p>  <p>Control of boiler mixing pump</p> 

A

Immersion temperature sensor QAE..; strap-on sensor QAD..;

Standard immersion and strap-on sensor can be used for a medium temperature of max. 130°C (special models up to 200°C/450°C). The mounted sensor cannot be exposed to a heat dam since the highest permissible ambient temperature for the housing is generally just 50°C. Immersion sensors must be immersed deeply enough; otherwise the measured result is too low.

This sheet includes information on:

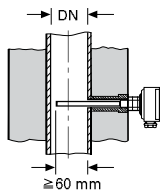
- Required minimum thickness of insulation for the heating pipes,
- Mounting possibilities for immersion sensors,
- Immersion sensor lengths per pipe nominal length and insulation thickness,
- And the required length of the sensor piece.

§6 the heating plant ordinance:
Heat insulation for heating distribution plants

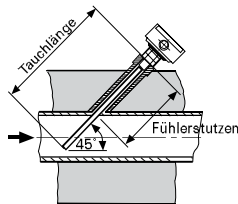
Pipe nominal length DN in mm	Minimum thickness of insulation layer in mm
to 20	20
22...35	30
40...100	same as DN
100...250	100

* at = 0.035 Wm⁻¹ K⁻¹

Immersion temperature sensor

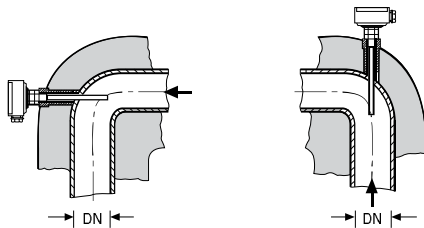


Pipe Ø DN [mm]	Insulation layer [mm]	Sensor pieces in mm for immersion sensor length		
		150	200	300 [mm]
80	80	80	-	-
100	100	-	110	-
125	100	-	100	120
150...250	100	-	100	120



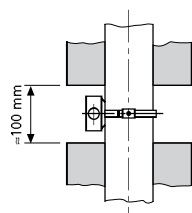
Pipe Ø DN [mm]	Insulation layer [mm]	Sensor pieces in mm for immersion sensor length	
		200	300 [mm]
80	80	130	130
100...250	100	-	160

Optimum order



Pipe Ø DN [mm]	Sensor pieces [mm]	Immersion sensor length			
		100	150	200	300 [mm]
40		x	x	x	x
50		-	x	x	x
65		-	x	x	x
80		-	x	x	x
100...250		-	-	x	x

Plant temperature sensor



Remove a section of insulation, approximately 100 mm (see figure) when using a strap-on temperature sensor.



Practical tips

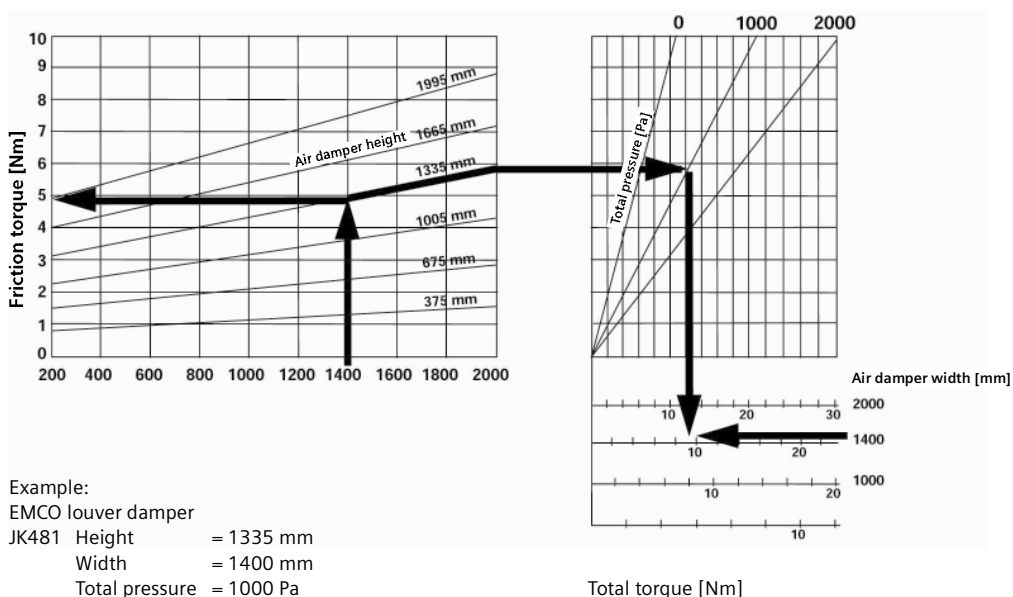
Air damper actuator Selection

Select air damper actuator

Select air damper actuator

The data for the air damper required to select the employed air damper actuator. The manufacturer offers dimension diagram for the various air damper types in its documentation. This allows you to determine the required torque for the air damper based on air damper width, air damper height and overall plant pressure.

Example of manufacturer diagram



Total torque = 9,7 Nm

To ensure that the actuator function achieves damper torque in operation and for contamination in the plant, the actuator should provide some 20% more torque as required for a new air damper.

Safety factor SF = 0.8

Overall torque = Torque characteristic [Nm/m²] x damper area [m²]

Number of actuators = $\frac{\text{Total required damper torque}}{\text{SF1} \times \text{actuator torque (see specification)}}$

Actuator series GBB
Nominal torque = 20 Nm

Number of actuators = $\frac{9,7 \text{ Nm}}{0,8 \times 20 \text{ Nm}} \leq 1 \quad \underline{1}$

Control signal

Control with Synco™ RMU7..
DC 0..10 V

Actuator: GBB161.1E

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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