VVI41…

VXI41…

acvatix

2-Port and 3-Port Seat Valves with Female Thread, PN16

VVI41...
VXI41...

- **Bronze valve body CC491K (Rg5)**
- **DN15 ... DN50**
- **k_{vs} 2.5 ... 40 m^3/h**
- **Female threaded connections Rp… as to ISO 7/1**
- **Can be equipped with actuators SQX... and SKD...**

Use

For use in heating, in ventilating and air conditioning systems as a **control or safety shutoff valve as per DIN 32730.**
For closed and hydraulic circuits.

Media

Standard version for:

Cooling water	−25 ... +140 °C
Chilled water	
Low temperature hot water	
High temperature hot water	
Water with anti-freeze [1)]	
Saturated steam (up to max. 1.5 bar abs.)	
Brine [1)]	

[1)] Media below 0 °C: ASZ6.5 stem heating element required to prevent freezing of the valve stem in the sealing gland. Water with anti-freeze and brine: down to −25 °C as per DIN 3158 (stress case I)

Type summary

Type 2-port valves	Type 3-port valves	DN	k_{vs} [m^3/h]	S_v
VVI41.15-2.5	**VXI41.15-2.5**	15	2.5	> 50
VVI41.15-4	**VXI41.15-4**	15	4.0	
VVI41.20-6.3	**VXI41.20-6.3**	20	6.3	> 100
VVI41.25-10	**VXI41.25-10**	25	10	
VVI41.32-16	**VXI41.32-16**	32	16	
VVI41.40-25	**VXI41.40-25**	40	25	
VVI41.50-40	**VXI41.50-40**	50	40	

DN = Nominal size

k_{vs} = Nominal flow rate of cold water (5…30 °C) through the fully open valve (H_{100}), by a differential pressure of 100 kPa (1 bar)

S_v = Rangeability k_{vs} / k_{vr} as per VDI 2173

k_{vr} = The lowest value for k_v at which the characteristic tolerance is still maintained, at a differential pressure of 100kPa (1 bar)

Accessories

Electric stem heating element, AC 24 V, required for media below 0 °C : ASZ6.5

Ordering

When ordering, please specify the quantity, product name and type code.
The type SQX… and SKD… actuators must be ordered separately.

Example 6 3-port valves, type VVI41.25-10

Delivery

Valve and actuator are packed and supplied separately.

Equipment combinations

Valves		SQX...			SKD...		
		Δp_{max} [kPa]	Δp_{max} [1)] [kPa]	Δp_s [2)] [kPa]	Δp_{max} [kPa]	Δp_{max} [1)] [kPa]	Δp_s [2)] [kPa]
VVI41.15-2.5	**VXI41.15-2.5**	400	100	1600	400	100	1600
VVI41.15-4	**VXI41.15-4**						
VVI41.20-6.3	**VXI41.20-6.3**						
VVI41.25-10	**VXI41.25-10**			1550			
VVI41.32-16	**VXI41.32-16**			875			1275
VVI41.40-25	**VXI41.40-25**			525			775
VVI41.50-40	**VXI41.50-40**	300		300			450
Data sheet		**4554**			**4561, 4563**		

1) For 3-port valves in diverting function, max. 100kPa is recommended. If noise is permitted, the same values apply as for mixing applications

2) Valid for 2-port valves only

Δp_{max} = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve (maximum recommended operating differential pressure)

Δp_s = Maximum permissible differential pressure at which the motorized valve will close securely against the pressure (close off pressure)

Overview of actuators

Actuator	Type of actuator	Operating voltage	Positioning signal	Spring return function	Positioning time	Positioning force
SQX32.00	Motoric	AC 230 V	3-position	No	150 s	700 N
SQX32.03					35 s	
SQX82.00		AC 24 V			150 s	
SQX82.03					35 s	
SQX62			DC 0…10 V [1)]		35 s	
SKD32.50	Electro-hydraulic	AC 230 V	3-position	No	120 s	1000 N
SKD32.21				Yes	30 s	
SKD32.51				Yes	120 s	
SKD82.50		AC 24 V		No	120 s	
SKD82.51				Yes	120 s	
SKD60			DC 0…10 V [1)]	No	30 s	
SKD62				yes	30 s	

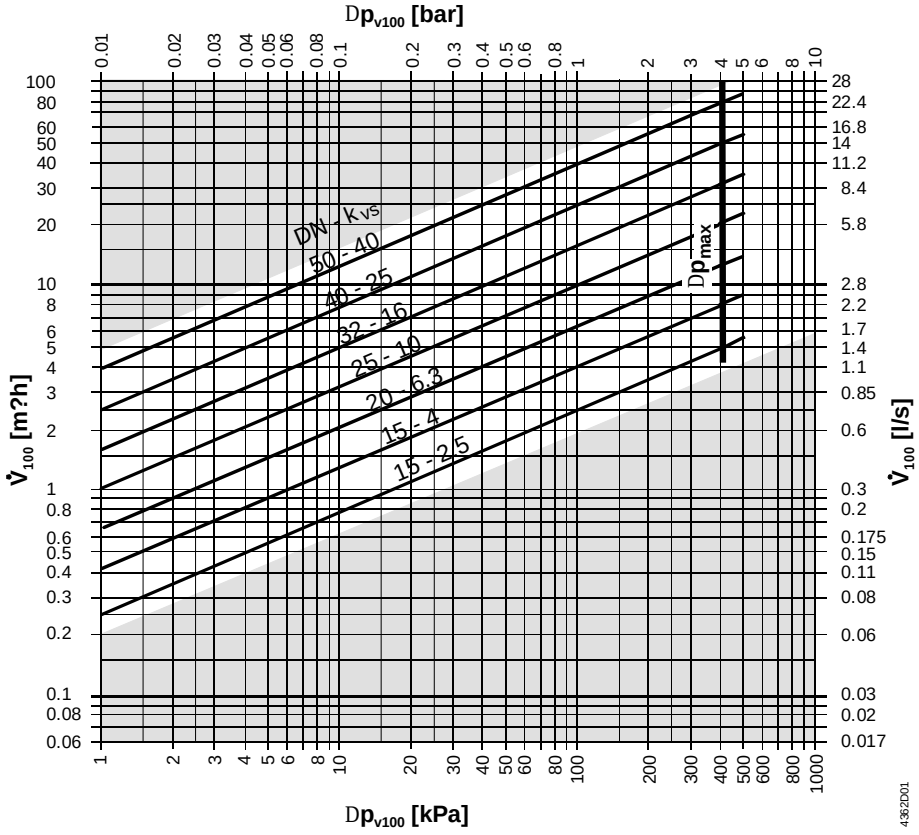
[1)] and / or DC 4...20 mA or 0...1000 Ω

Pneumatic actuators Pneumatic actuators are available on request from your local office.

⚠ For VXI41… the application is only possible if the valve is used as mixing valve

Sizing

Flow diagram



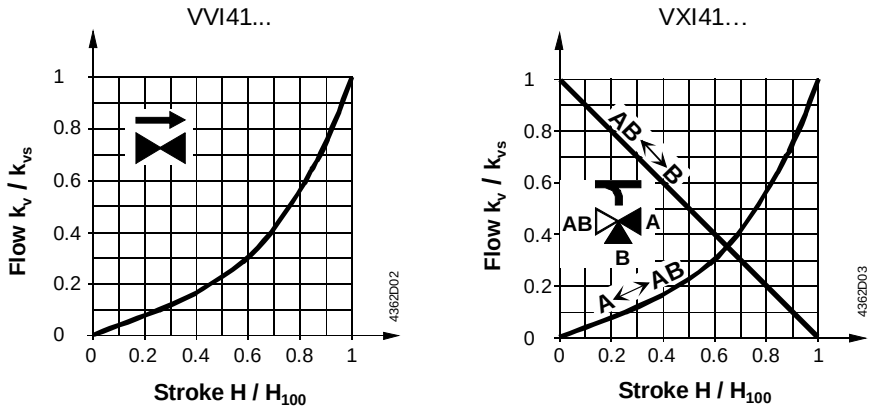
Δp_{v100} = Differential pressure across the fully open valve and the valve's control path by a volume flow $\dot{V}_{100}$

$\dot{V}_{100}$ = Volume flow through the fully open valve (H_{100})

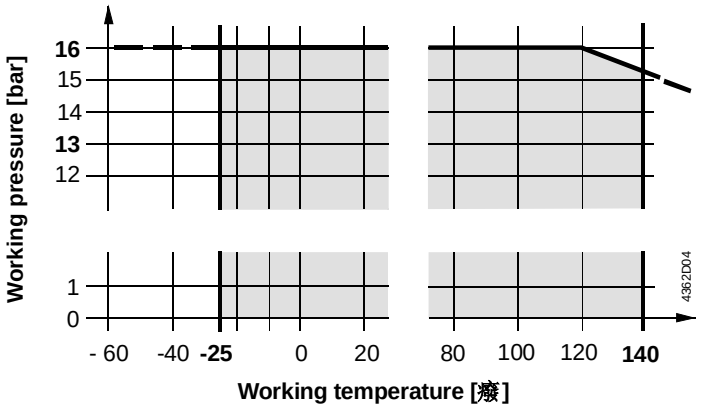
100 kPa = 1 bar ≈ 10 mWG

1 m^3/h = 0.278 l/s water at 20 °C

Valve flow characteristics

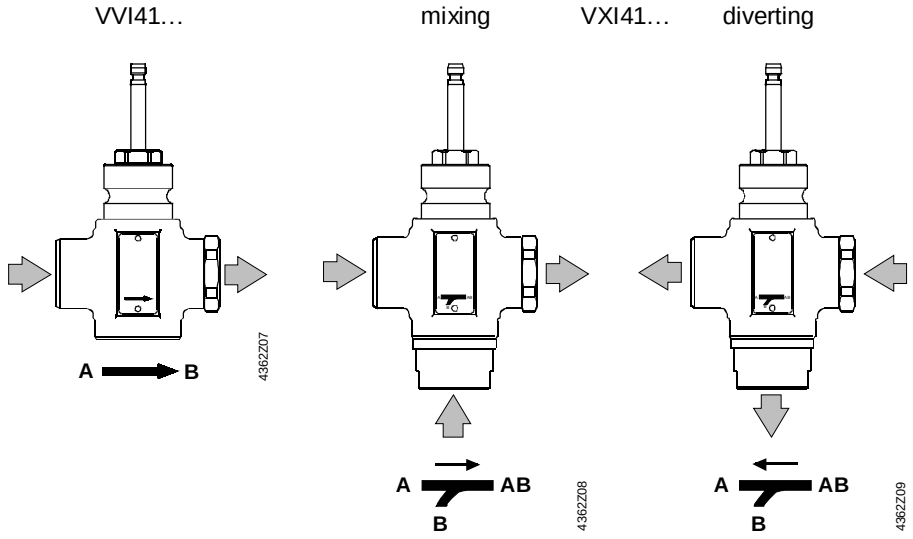


Working pressure and temperature



Working pressure staged as per ISO 7268 and EN 1333
at operating temperatures of −25 ... +140 °C as per DIN 4747 and DIN 3158.

Mechanical design



AB = 100 %
A = 0…100 %
B = 100…0 %

⚠ **The two-port seat valve does not become a three-port valve by removing the blank fitting.**

Notes

Engineering

We recommend installation in the return pipe, as the temperatures in this pipe are lower for applications in heating systems, which in turn, extends the stem sealing gland's life. Water quality requirements as per VDI 2035.

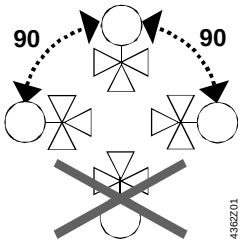
⚠ We generally recommend to install a strainer to increase the valve's functional safety.

⚠ For media below 0 °C, use the electric ASZ6.5 stem heating element to prevent the valve stem from freezing in the sealing gland. For safety reasons, the stem heating element has been designed for AC 24 V / 30 W operating voltage.
Use the 3-port valve VXI41… primarily as mixing valve

Mounting

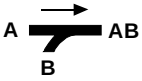
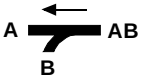
Both valve and actuator can easily be assembled at the mounting location. Neither special tools nor adjustments are required.
The valve is supplied with mounting instructions no. 74 319 0423 0.

Mounting positions



Direction of flow

When mounting, pay attention to the valve's flow direction symbol:

2-port	3-port mixing	3-port diverting
		

Commissioning ⚠ Commission the valve only if the actuator has been mounted correctly.

		
Stem retracts:	Increasing flow	Through-port opens, bypass closes
Stem extends:	Decreasing flow	Through-port closes, bypass opens

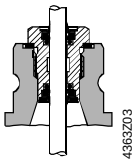
Service ⚠ **For actuator service work: Turn off the pump and the operating voltage, close the shutoff valves, depressurize the pipes and allow them to cool down. Disconnect the electrical connections, where required, from the terminals. Re-commission the valve only if the actuator has been mounted correctly.**

Stem sealing gland

The glands can be exchanged without removing the valve, provided the pipes are depressurized and cooled off and the stem surface is unharmed. If the stem is damaged in the gland range, replace the entire stem-plug-unit (on 2-port valves only). Contact your local office or branch.

Spare parts

Standard version



Replacement for EPDM-O ring sealing gland made from brass, including flat seal made from copper, for cooling water, chilled water, low temperature hot water, high temperature hot water, saturated steam, and brine
-25 ... +140 °C
For VVI41... and VXI41... DN15 ... DN50 (Stem dia. 10 mm) 4 284 8874 0

Disposal

The valve must be dismantled and separated into its various constituent materials before disposal.
Observe all local and applicable laws.

Warranty

The technical data supplied for these valves is valid only for valves used in conjunction with the actuators listed under «Equipment combinations».

Use with third-party actuators invalidates any warranty offered by Siemens Building Technologies / HVAC Products.

Technical data

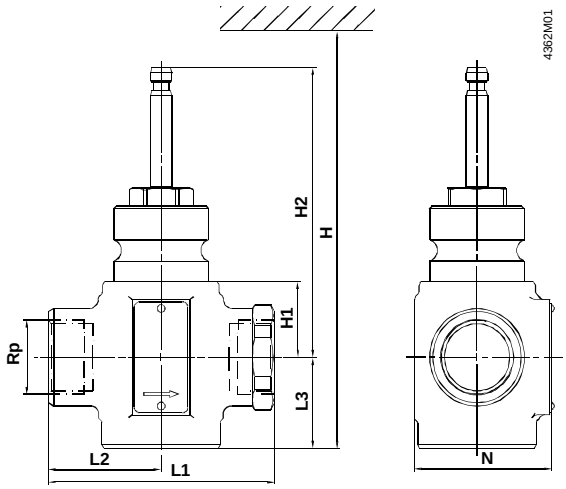
Operating data	PN class	PN16 to EN1333
	Valve flow characteristic	
	Through-port	
	0 … 30 %	linear
	30 ... 100 %	n_{gl} = 3 as per VDI / VDE 2173
	Bypass (VXI41...)	
	0 ... 100 %	linear
	Leakage	According to DIN EN 1349
	Through-port	0 … 0.02 % of k_{vs} value
	Bypass (VXI41…)	0.5 … 2 % of k_{vs} value
	Permissible media	Cooling and chilled water, low-temperature hot water and water with frost protection additives. Recommendation: Water should be treated as specified in VDI 2035
	Temperature of medium	-25 … +140 °C
	Rangeability S_v	> 50 (DN15), > 100 (DN ≥ 20)
	Permissible operating pressure	1600 kPa (16 bar), ISO 7268 / EN 1333
	Nominal stroke	20 mm
Materials	Valve body	Bronze CC491K (Rg5)
	Plug	Brass
	Stem	Stainless steel
	Sealing gland	Brass
	Gland materials	EPDM O-rings
Dimensions / Weight	Dimensions	See «Dimensions» (table)
	Female threaded connections	Rp... as to ISO 7/1
	Weight	See «Dimensions» (table)

S_v = Rangeability k_{vs} / k_{vr} as in VDI 2173

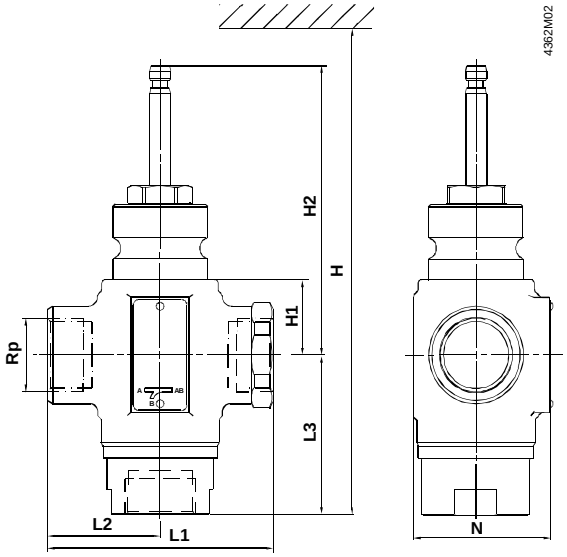
k_{vs} = Nominal flow rate of chilled water (5 to 30 °C) through the fully opened valve (H_{100}) at a differential pressure of 100 kPa (1bar).

k_{vr} = The lowest value for k_v at which the characteristic tolerance is still maintained, at a differential pressure of 100 kPa (1 bar)

Dimensions



	DN	L1 [mm]	L2 [mm]	L3 [mm]	H1 [mm]	H2 [mm]	H + SQX [mm]	H + SKD [mm]	G [inches]	N [mm]	kg [kg]
VVI41.15 – 2.5	15	90	45	40	26	122.5	> 450	> 525	Rp½	60	1.3
VVI41.15 – 4	15	90	45	40	26	122.5			Rp½	60	1.3
VVI41.20 – 6.3	20	90	45	40	26	122.5			Rp¾	60	1.35
VVI41.25 – 10	25	105	52.5	41	34	130.5	> 460	> 535	Rp1	64	1.7
VVI41.32 – 16	32	115	57.5	41	34	130.5			Rp11/4	87	2.1
VVI41.40 – 25	40	130	65	46	46	142.5	> 470	> 545	Rp11/2	108	2.75
VVI41.50 – 40	50	150	75	56	46	142.5			Rp2	120	3.7



	DN	L1 [mm]	L2 [mm]	L3 [mm]	H1 [mm]	H2 [mm]	H + SQX [mm]	H + SKD [mm]	G [inches]	N [mm]	kg [kg]
VXI41.15 – 2.5	15	90	45	68	26	122.5	> 450	> 525	Rp½	60	1.5
VXI41.15 – 4	15	90	45	68	26	122.5			Rp½	60	1.5
VXI41.20 – 6.3	20	90	45	69	26	122.5			Rp¾	60	1.6
VXI41.25 – 10	25	105	52.5	73.5	34	130.5	> 460	> 535	Rp1	64	2.1
VXI41.32 – 16	32	115	57.5	74	34	130.5			Rp11/4	87	2.3
VXI41.40 – 25	40	130	65	84	46	142.5	> 470	> 545	Rp11/2	108	3.1
VXI41.50 – 40	50	150	75	98	46	142.5			Rp2	120	4.1

SIEMENS

4563

acvatix

Electro-hydraulic actuators for valves

SKD62...
SKD60

with a 20 mm stroke

- **SKD62...: Operating voltage AC 24 V, control signal DC 0…10 V, 4… 20 mA or 0 ... 1000 Ω , with spring-return function**
- **SKD60: as SKD62, but without spring-return function**
- **SKD62U: as SKD62, but UL-approved**
- **SKD62UA: as SKD62U, but with enhanced functions (choice of direction of operation, stroke limit control, sequence control with adjustable start point and operating range, and signal addition for operation of frost protection monitors, types QAF21... and QAF61...)**
- **Positioning force 1000 N**
- **Choice of flow characteristic: equal-percentage or linear**
- **Position feedback**
- **Stroke calibration**
- **LED status indication**
- **Override control**
- **Manual adjuster and position indicator**
- **For direct mounting on valves; no adjustments required**
- **Additional functions with auxiliary switch, stem heater and mechanical stroke inverter**
- **SKD62U and SKD62UA are UL-approved**

Application

For the operation of Siemens two-port and three-port valves, types VVF..., VVG..., VPF..., VXF... and VXG... with a 20 mm stroke, as control and safety shut-off valves in heating, ventilation and air conditioning systems.

Types

	Type	Operating voltage	Control signal	Spring-return Function	Spring-return Time	Positioning time Opening	Positioning time Closing	Enhanced function
Versions with standard electronics	**SKD62 SKD62U ***	AC 24 V	DC 0 ... 10 V, 4 ... 20 mA or 0 ... 1000 Ω	Yes	15 s	30 s	15 s	No
	SKD60			No	--			
Version with enhanced electronics	**SKD62UA ***	AC 24 V	DC 0 ... 10 V, 4 ... 20 mA or 0 ... 1000 Ω	Yes	15 s	30 s	15 s	Direction of operation Stroke limit control Sequence control Signal addition

***** UL-approved versions

Accessories

Type	Description
ASC1.6	Auxiliary switch
ASZ6.5	Stem heater AC 24 V
ASK50	Mechanical stroke inverter

Ordering

When ordering please specify the quantity, product name and type code.

Example: **1 actuator, type SKD62** and
1 auxiliary switch ASC1.6

Delivery

The actuator, valve and accessories are supplied in separate packaging and not assembled prior to delivery.

Compatibility

Controllers

The actuators can be driven by all control systems which have an AC 24 V SELV/PELV supply and operate with DC 0 ... 10 V or 4 ... 20 mA signals.

Frost protection monitor

The added signals from the QAF21... and QAF61... require the use of SKD62UA actuators.
Notes on special programming of the electronics are described under «Enhanced electonics» on pages 6 and 7.

Globe valves

The actuators are suitable for operation of the following Siemens two-port and three-port valves with a 20 mm stroke:

Valve	DN	PN	Data sheet
Two-port valves VV… (control valves or safety shut-off valves):			
VVF21... (Flange)	25 ... 80 mm	6 bar	4310
VVF31... (Flange)	25 ... 80 mm	10 bar	4320
VVF40... (Flange)	15 ... 80 mm	16 bar	4330
VVF41... (Flange)	50 mm	16 bar	4340
VVG41... (Screwed)	15 ... 50 mm	16 bar	4363
VVF52... (Flange)	15 ... 40 mm	25 bar	4373
VVF61... (Flange)	15 and 25 mm	40 bar	4382
Three-port valves, VX... (control valves for mixing and distribution)			
VXF21... (Flange)	25 ... 80 mm	6 bar	4410
VXF31... (Flange)	25 ... 80 mm	10 bar	4420
VXF40... (Flange)	15 ... 80 mm	16 bar	4430
VXF41... (Flange)	15 ... 50 mm	16 bar	4440
VXG41... (Screwed)	15 ... 50 mm	16 bar	4463
VXF61... (Flange)	15 and 25 mm	40 bar	4482

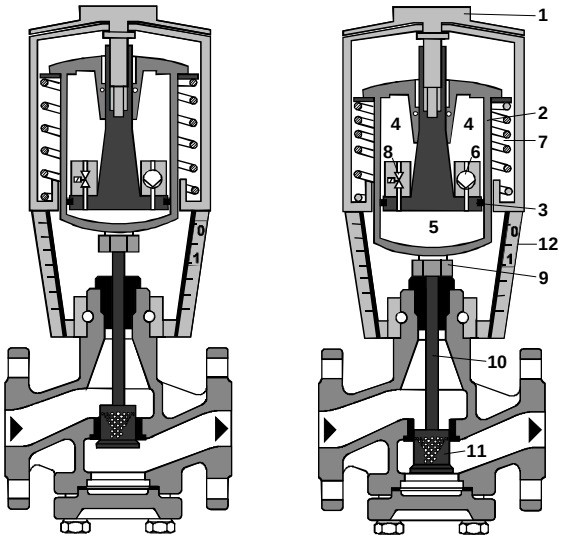
For admissible differential pressures Δp_{max} and Δp_s, refer to the relevant valve data sheets.

Note

Third-party valves with strokes between 6 and 20 mm can be motorized, provided they are «closed with the de-energized» fail-safe mechanism and provided that the necessary mechanical coupling is available.
We recommend that you contact local Siemens office for the necessary information.

Technology

Principle of operation



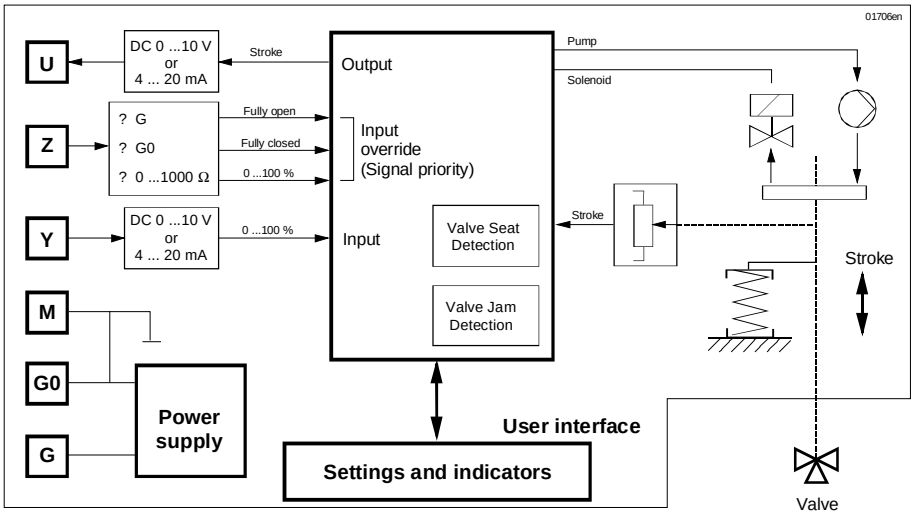
Valve closed Valve open

1 Manual adjuster
2 Pressure cylinder
3 Piston
4 Reservoir
5 Pressure chamber
6 Pump
7 Return spring
8 Bypass valve
9 Coupling
10 Valve stem
11 Inner valve
12 Position indicator (0 to 1)

Signal input Y

- **Increasing:** The pump (**6**) forces hydraulic oil from the reservoir (**4**) into the pressure chamber (**5**) thereby generating the stroke: the valve stem (**10**) is retracted and the valve plug opens (**11**).
- **Decreasing:** The bypass valve (**8**) opens, allowing the hydraulic oil to flow back from the pressure chamber (**5**) into the reservoir (**4**) via the return spring (**7**). The valve stem (**10**) extends and the valve plug closes (**11**).
- **Constant:** The actuator and valve hold the current stroke position.

Principles diagram

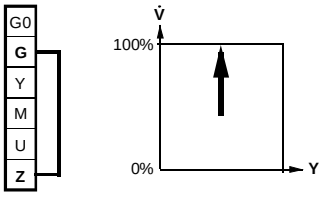
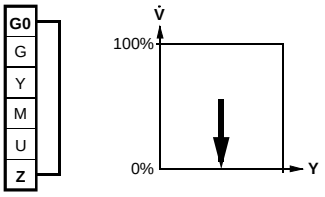
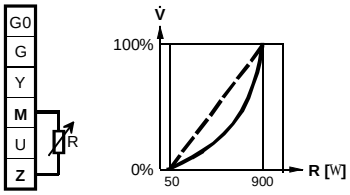
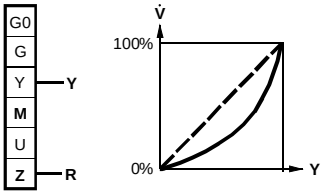


Spring-return function

All SKD62… actuators are factory-fitted with a spring-return function, so that if the control signal or power supply fails, the actuator will return to the «0%» stroke position. The SKD60 is without spring-return function. In case of a power failure the actuator remains in the current stroke position.

Override control

The override control input (Z) has four modes of operation:

Valve fully opened	**Valve fully closed**
 – Z-contact connected directly to G – Y-input has no effect	 – Z-contact connected directly to G0 – Y-input has no effect
Override with 0 ... 1000 W	**Signal addition** (SKD62UA only)
 – Z-contact connected to M via resistor R – Equal-percentage or linear characteristic – Starting position at 50 Ω / end position at 900 Ω – Y-input has no effect	 – Z-contact is connected to R of the frost protection monitor QAF21... or QAF61... – Valve stroke follows signals Y *and* R(Z)

Note

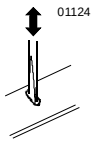
The Z-modes shown assume the factory-setting «direct-acting».

Stroke calibration

To determine the stroke positions 0 and 100% in the valve, calibration is required when the valve/actuator are commissioned for the first time. For this purpose, the actuator must be mechanically connected to a Siemens valve (see «Compatibility») and must have a supply voltage of AC 24 V. The calibration procedure can be repeated as often as necessary.

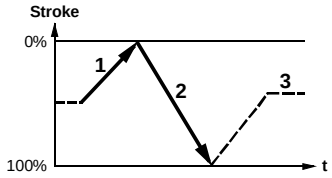
⚠ **Before starting calibration, ensure that the manual adjuster is set to «Automatic» in order to register the actual values.**

There is a slot on the printed circuit boards of the actuators. To initiate the calibration procedure, the contacts inside this slot must be short-circuited (e.g. with a screwdriver).



Automatic calibration proceeds as follows:

- Actuator runs to the «0 stroke» position (**1**), valve closes, green LED flashes.
- Actuator then runs to the «100 stroke» position (**2**), valve opens, green LED flashes.
- Measured values are stored.
  The calibration procedure is finish, and the green LED now glows steadily (normal operation).
- The actuator now moves to the position defined by control signal Y or Z (**3**).



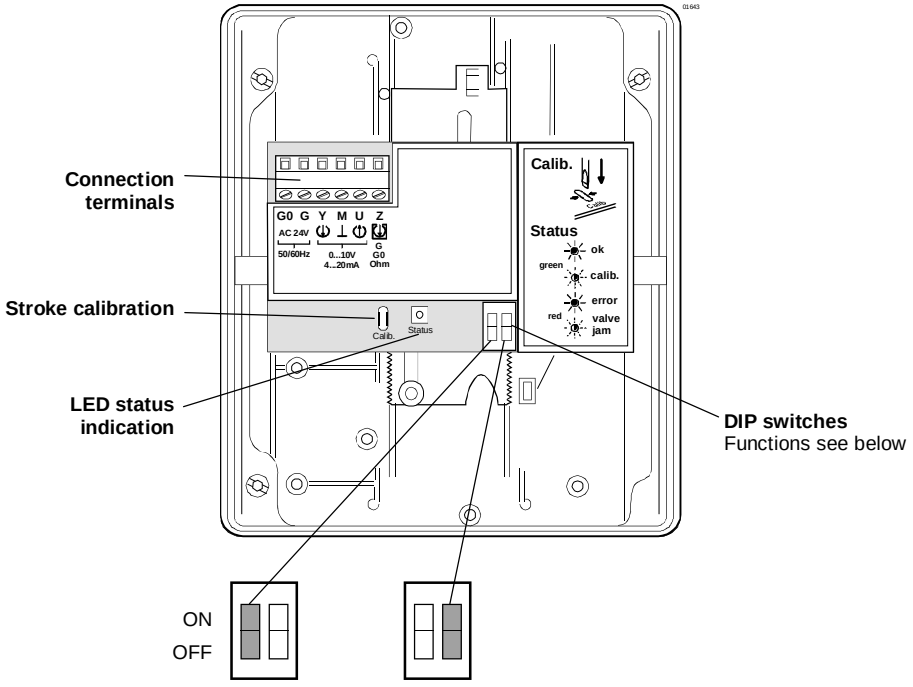
- Throughout this procedure, output U is inactive, i.e. the values only represent actual positions when the green LED stops flashing and remains on continuously.

LED status indication

LED	Display	Function	Action
Green	**On**	• Normal operation	Automatic operation, no problems
	Flashing	• Stroke calibration in progress	Wait until calibration is complete (LED stops flashing)
Red	**On**	• Faulty stroke calibration	Check mounting Re-start stroke calibration (by short-circuiting calibration slot)
		• Internal error	Replace electronics
	Flashing	• Inner valve jammed	Check the valve
Both	**Off**	• No power supply	Check mains
		• Faulty electronics	Replace electronics

Standard electronics

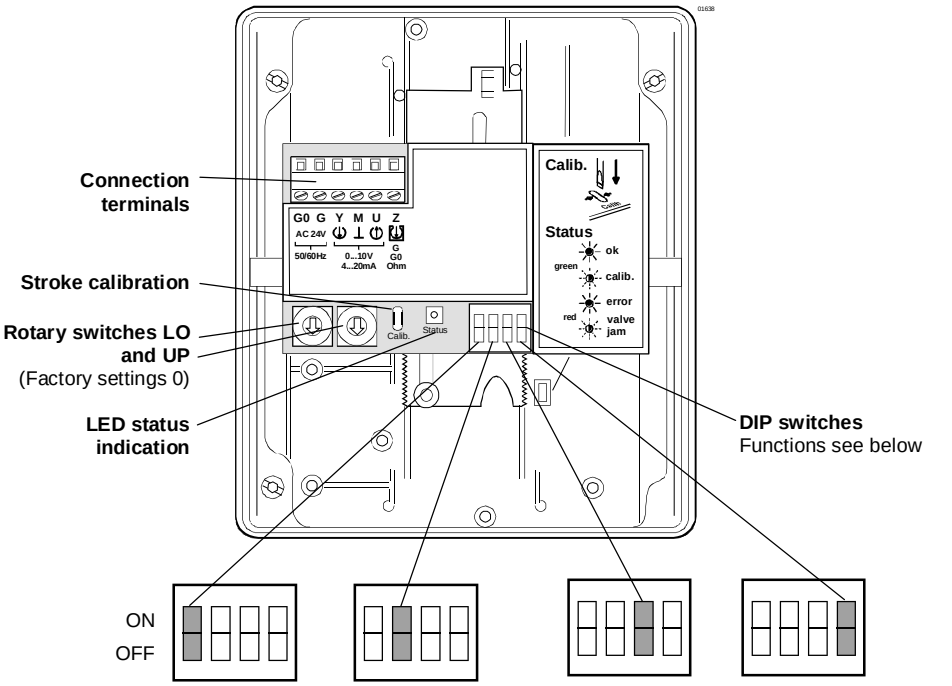
SKD62
SKD60
SKD62U



DIP switches	Selection of control signal	Selection of flow characteristic
ON	**DC 4 ... 20 mA**	**Linear**
* OFF	**DC 0 ...10 V**	**Equal percentage**

***** Factory setting: all switches OFF

Enhanced electronics
SKD62UA

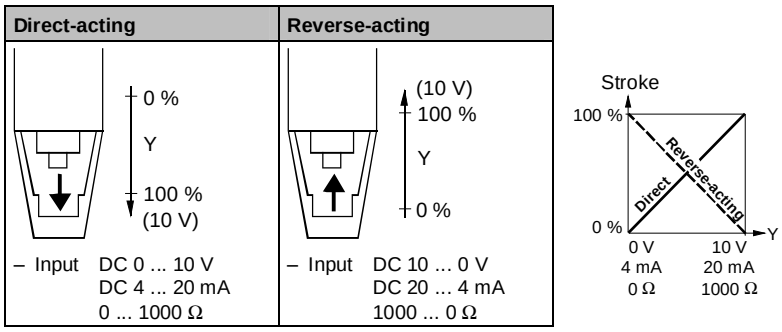


DIP switches	Select direction of operation	Sequence control or stroke limit control	Selection of control signal	Selection of flow characteristic
ON	**Reverse-acting**	**Sequence control** **Signal addition** QAF21... / QAF61...	**DC 4 ... 20 mA**	**Linear**
* OFF	**Direct-acting**	**Stroke limit control**	**DC 0 ...10 V**	**Equal percentage**

***** Factory setting: all switches OFF

Selecting the direction of operation

- With normally-closed valves, «direct-acting» means that with a signal input of 0 V, the valve closes (applies to all Siemens valves listed under «Compatibility» on page 3)
- With normally-open valves, «direct-acting» means that with a signal input of 0 V, the valve is open.

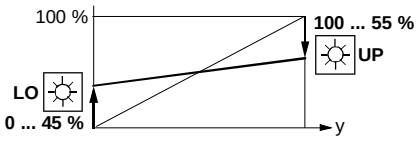


Note The mechanical spring-return function is not affected by the direction of operation selected.

Stroke limit control and sequence control

Setting the stroke limit control

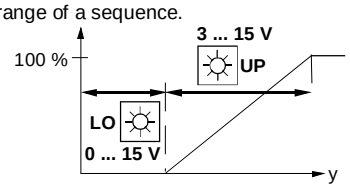
The rotary switches LO and UP can be used to apply an upper and lower limit to the stroke in increments of 3%, up to a maximum of 45%



Position of LO	Lower stroke limit	Position of UP	Upper stroke limit
0	0 %	**0**	100 %
1	3 %	**1**	97 %
2	6 %	**2**	94 %
3	9 %	**3**	91 %
4	12 %	**4**	88 %
5	15 %	**5**	85 %
6	18 %	**6**	82 %
7	21 %	**7**	79 %
8	24 %	**8**	76 %
9	27 %	**9**	73 %
A	30 %	**A**	70 %
B	33 %	**B**	67 %
C	36 %	**C**	64 %
D	39 %	**D**	61 %
E	42 %	**E**	58 %
F	45 %	**F**	55 %

Setting the sequence control

The rotary switches LO and UP can be used to determine the starting point or the operating range of a sequence.



Position of LO	Starting point for sequence control	Position of UP	Operating range of sequence control
0	0 V	**0**	10 V
1	1 V	**1**	10 V *
2	2 V	**2**	10 V **
3	3 V	**3**	3 V ***
4	4 V	**4**	4 V
5	5 V	**5**	5 V
6	6 V	**6**	6 V
7	7 V	**7**	7 V
8	8 V	**8**	8 V
9	9 V	**9**	9 V
A	10 V	**A**	10 V
B	11 V	**B**	11 V
C	12 V	**C**	12 V
D	13 V	**D**	13 V
E	14 V	**E**	14 V
F	15 V	**F**	15 V

***** Operating range of QAF21... (see below)
****** Operating range of QAF61... (see below)
******* The smallest adjustment is 3 V;
control with 0…30 V is only possible via Y.

Stroke control with QAF21... / QAF61... signal addition

Setting the signal addition

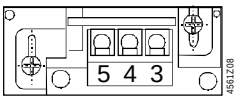
The operating range of the frost protection monitor (QAF21... or QAF61...) can be defined with rotary switches LO and UP.

Position of LO	Sequence control start point	Position of UP	QAF21... / QAF61... operating range
0		**1**	**QAF21...**
0		**2**	**QAF61...**

Accessories

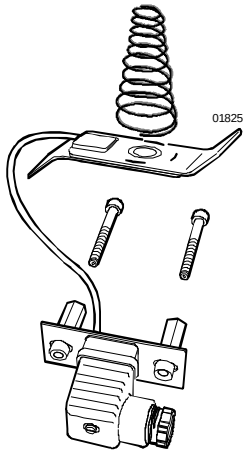
ASC1.6 auxiliary switch

– Switching point 0 … 5 % stroke



ASZ6.5 stem heater

– For media below 0°C
– Mount between valve and actuator



Engineering notes

The actuators must be electrically connected in accordance with local wiring regulations and with the wiring diagram on page 11.

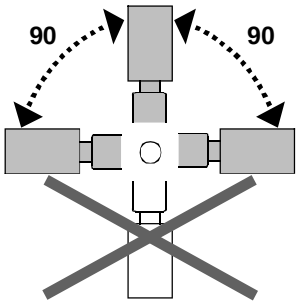
⚠ **Regulations and requirements designed to ensure the safety of people and property must be observed at all times.**

The ASZ6.5 stem heater has a heat output of 30 VA and is required to keep the valve stem free of ice in the cooling range 0 °C ... - 25 °C. In this case, in order to ensure adequate air circulation, the actuator bracket and the valve stem must not be insulated. Physical contact with unprotected hot components can cause burns. Failure to observe the above advice can result in accidents or fire.

The admissible temperatures (see «Application» and «Technical data») must be observed.

Mounting instructions

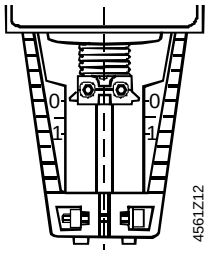
Orientation



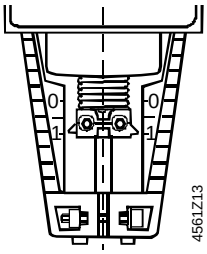
Instructions for fitting the actuator to the valve are enclosed in the actuator packaging. The instructions for accessories are enclosed with the accessories themselves.

Commissioning notes

When commissioning the system, check the wiring and functions.

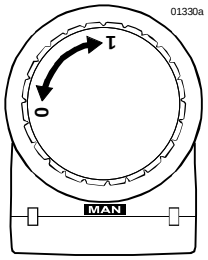


Cylinder with valve stem connector fully retracted



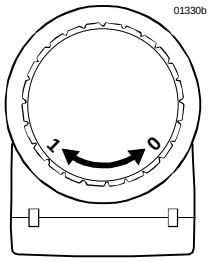
Cylinder with valve stem connector fully extended

⚠ **The manual adjuster must be rotated counterclockwise to the end stop, i.e. until the red indicator marked «MAN» is no longer visible. This causes the Siemens valves, types VVF..., VVG..., VPF..., VXF... and VXG... to close (stroke = 0%).**



? MAN

Manual operation



? AUTO

Automatic operation

Maintenance

- When servicing the valve:
  Switch OFF the pump and power supply, close the main shut-off valves in the pipework, release pressure in the pipes and allow them to cool down completely. If necessary, disconnect electrical connections from terminals.
- The valve must be re-commissioned only with the actuator correctly assembled.
- The actuators and valves require no maintenance.

Disposal

The actuator includes electrical and electronic components and must not be disposed of as domestic waste.
Current local legislation must be observed.

Warranty

The application-specific technical data is valid for Siemens actuators used in conjunction with the Siemens valves listed under «Compatibility» (sub-heading «Globe valves»).

Before using these actuators with third-party valves, written approval must be obtained from Siemens Building Technologies. A failure to obtain this approval invalidates any guarantee.

Technical data

Power supply	Operating voltage (SELV, PELV)	AC 24 V –20 % / +30 %
	Frequency	50 or 60 Hz
	Power consumption	17 VA / 12 W
	External supply cable fuse	Min. 1 A slow blow, max. 10 A slow blow
Operating data	Type of control (proportional)	DC 0 ... 10 V, DC 4 ... 20 mA or 0 ... 1000 Ω
	Positioning time at 50 Hz	30 s (opening), 15 s (closing)
	Spring-return time	15 s (closing)
	Nominal stroke	20 mm
	Positioning force	1000 N
	Flow characteristic	Linear / equal percentage can be selected *
	Maximum admissible temperature of medium in the connected valve	–25 ... +140 °C < 0 °C: type ASZ6.5 stem heater required

* in conjunction with valves listed under «Compatibility» on page 3

Signal inputs	Terminal Y	
	Voltage	DC 0 ... 10 (30) V
	Input impedance	100 kΩ
	Current	DC 4 ... 20 mA
	Input impedance	240 Ω
	Signal resolution	<1 %
	Hysteresis	1 %
	Terminal Z	
	Resistance	0 ... 1000 Ω
	Override control functions	
	Z not connected	No function (priority at terminal Y)
	Z connected directly to G	Max. stroke 100 %
	Z connected directly to G0	Min. stroke 0 %
	Z connected to M via 0 ... 1000 Ω	Stroke proportional to R
Signal outputs	Terminal U	
	Voltage	DC 0 ... 9.8 V ±2 %
	Load impedance	>500 Ω
	Current	DC 4 ... 19.6 mA ±2 %
	Load impedance	<500 Ω
Industry standards	Meets the requirements for **CE** marking in	
	EMC Directive	89/336/EEC
	Low Voltage Directive	73/23/EEC
	Electromagnetic compatibility	
	Emitted interference	EN 61000-6-3 Residential
	Interference immunity	EN 61000-6-2 Industrial
	Product standards for automatic electric controls	EN 60730-2-14
	C-tick	N474
	Protection standard	IP54 to EN 60529
	Protection class	III to EN 60730
	UL approval	UL 873 (SKD62U, SKD62UA)
Dimensions / Weight	Dimensions	See «Dimensions»
Cable glands	SKD62, SKD60	4 x Pg 11 (SKD62, SKD60)
	SKD62U, SKD62UA	4 x Pg 16 (SKD62U, SKD62UA)
	Weight (including packaging)	3.60 kg (SKD62, SKD60) 3.85 kg (SKD62U, SKD62UA)
Materials	Actuator housing and bracket	Die-cast aluminum
	Housing box and manual adjuster	Plastic

SKD62UA enhanced functions

Direction of operation	Direct acting / reverse acting	DC 0 ... 10 V / DC 10 ... 0 V DC 4 ... 20 mA / DC 20 ... 4 mA 0 ... 1000 Ω / 1000 ... 0 Ω
Stroke limit control	Range of lower limit	0 ... 45 % adjustable
	Range of upper limit	100 ... 55 % adjustable
Sequence control	Terminal Y	
	Starting point of sequence	0 ... 15 V adjustable
	Operating range of sequence	3 ... 15 V adjustable
Signal addition	Z connected to R of	
	Frost protection monitor QAF21...	0 ... 1000 Ω, added to Y signal
	Frost protection monitor QAF61...	DC 1,6 V, added to Y signal

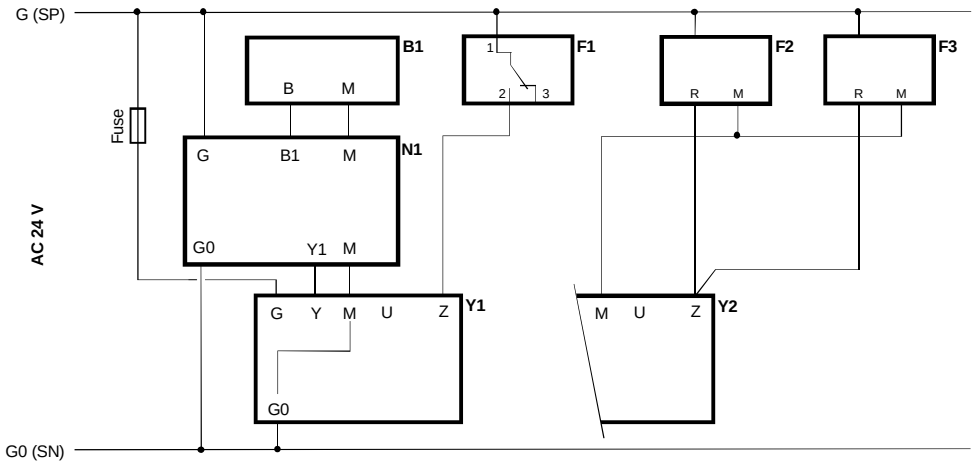
Accessories

ASC1.6 auxiliary switch	Switching capacity of auxiliary switch	AC 24 V, 10 mA ... 4 (2) A
ASZ6.5 stem heater	Operating voltage	AC 24 V ±20 %
	Power consumption (heat output)	30 VA

General ambient conditions

	Operation IEC 721-3-3	Transport IEC 721-3-2	Storage IEC 721-3-1
Environmental conditions	Class 3K5	Class 2K3	Class 1K3
Temperature	–15 ... +55 °C	–30 ... +65 °C	–15 ... +55 °C
Humidity	5 ... 95 %rh	< 95 %rh	0 ... 95 %rh

Connection diagram



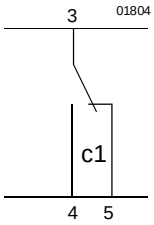
B1 Sensor
F1 Temperature limiter
F2 Frost protection monitor QAF21... *
F3 Frost protection monitor QAF61... *
N1 Controller
Y1 Actuator
Y2 Actuator SKD62UA

* Only with sequence control and the appropriate selector switch settings (see page 7)

Connection terminals

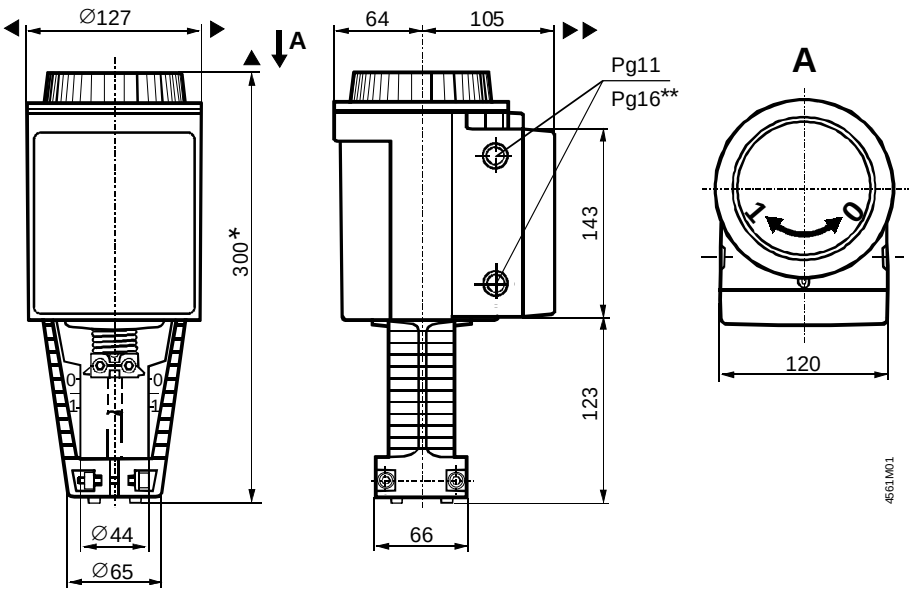
G0	Operating voltage AC 24 V System neutral (SN)
G	Operating voltage AC 24 V System potential (SP)
Y	Control signal DC 0 ... 10 (30) V or DC 4 ... 20 mA
M	Measuring neutral (= G0)
U	Position indication DC 0 ... 10 V or DC 4 ... 20 mA
Z	Override input (functions see page 5)

ASC1.6 auxiliary switch



Dimensions

All dimensions in mm



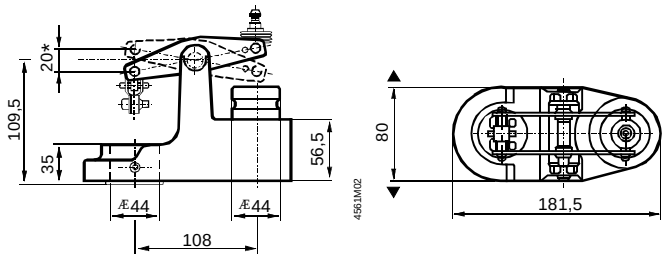
* Height of actuator from valve plate without stroke inverter **ASK50 = 300 mm**
Height of actuator from valve plate with stroke inverter **ASK50 = 357 mm**

** The hole diameter on the SKD62U... actuators corresponds to the Pg16 gland.

s = >100 mm } Minimum clearance from ceiling or wall for mounting,

ss = >200 mm } connection, operation, maintenance etc.

ASK50 stroke inverter



* Maximum stroke = 20 mm