



## 3-port seat valves, external thread, PN16

## VXG44..

- Bronze CC491K (Rg5) valve body
- DN 15..DN 40
- $k_{vs}$  0.25..25 m<sup>3</sup>/h
- Flat sealing connections with external thread G...B to ISO 228-1
- Sets of ALG..3 screwed fittings with threaded connection available from Siemens
- Manual adjustment by means of mounted knob
- Can be equipped with SQS.. and SAS.. actuators

### Use

In small or medium-sized heating, ventilating and air conditioning plants as a control valve for mixing and diverting functions.  
For closed circuits only.

## Type summary

| Type reference | DN | $k_{vs}$<br>[m <sup>3</sup> /h] | $S_v$ |
|----------------|----|---------------------------------|-------|
| VXG44.15-0.25  | 15 | 0.25                            | >50   |
| VXG44.15-0.4   |    | 0.4                             |       |
| VXG44.15-0.63  |    | 0.63                            |       |
| VXG44.15-1     |    | 1                               | >100  |
| VXG44.15-1.6   |    | 1.6                             |       |
| VXG44.15-2.5   |    | 2.5                             |       |
| VXG44.15-4     |    | 4                               |       |
| VXG44.20-6.3   | 20 | 6.3                             |       |
| VXG44.25-10    | 25 | 10                              |       |
| VXG44.32-16    | 32 | 16                              |       |
| VXG44.40-25    | 40 | 25                              |       |

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  $k_{vs} / k_{vr}$

$k_{vr}$  = Smallest  $k_v$  value, at which the flow characteristic tolerances can still be maintained, by a differential pressure of 100 kPa (1 bar)

## Accessories

| Type    | Stock No.   | Description  |
|---------|-------------|--|
| ALG..3  | ALG..3      | Set of 3 screwed fittings for 3-port valves, consisting of<br>- 3 union nuts, 3 discs and 3 flat seals<br>ALG..3B are brass fittings, for media temperatures up to 100 °C. |
| ALG..3B | S55846-Z1.. |  |

## Order

When ordering please give quantity, product name and type reference.

Example:

| Type        | Stock No.   | Description             | Quantity |
|-------------|-------------|-------------------------|----------|
| VXG44.25-10 | VVG44.25-10 | 3-port seat valve       | 1        |
| ALG253B     | S55846-Z105 | Set of screwed fittings | 1        |

## Delivery

Valves, actuators and accessories are packed and supplied separately.

## Spare parts, rev. no.

See overview, page 8.

## Equipment combinations

| Valves        | Actuators SQS.. and SAS..        |   | Fitting sets                          |                  |                                  |
|---------------|----------------------------------|---|---------------------------------------|------------------|----------------------------------|
|               | $\Delta p_{max}$ mixing<br>[kPa] | $\Delta p_{max}$ diverting <sup>1)</sup><br>[kPa] | Malleable cast iron<br>Type/Stock no. | Threaded<br>Type | Brass <sup>2)</sup><br>Stock No. |
| VXG44.15-0.25 | 400                              | 100   | ALG153                                | ALG153B          | S55846-Z101                      |
| VXG44.15-0.4  |                                  |   |                                       |                  |                                  |
| VXG44.15-0.63 |                                  |   |                                       |                  |                                  |
| VXG44.15-1    |                                  |   |                                       |                  |                                  |
| VXG44.15-1.6  |                                  |   |                                       |                  |                                  |
| VXG44.15-2.5  |                                  |   |                                       |                  |                                  |
| VXG44.15-4    |                                  |   |                                       |                  |                                  |
| VXG44.20-6.3  | 75                               | 75  | ALG203                                | ALG203B          | S55846-Z103                      |
| VXG44.25-10   |                                  |   | ALG253                                | ALG253B          | S55846-Z105                      |
| VXG44.32-16   | 250                              | 50  | ALG323                                | ALG323B          | S55846-Z107                      |
| VXG44.40-25   | 125                              | 35  | ALG403                                | ALG403B          | S55846-Z109                      |

<sup>1)</sup> If noise is permitted, the same values apply as for mixing

<sup>2)</sup> Media temperature: maximum 100 °C

$\Delta p_{max}$  = Maximum permissible differential pressure across valve's control path, valid for the entire actuating range of the motorized valve

## Actuator overview

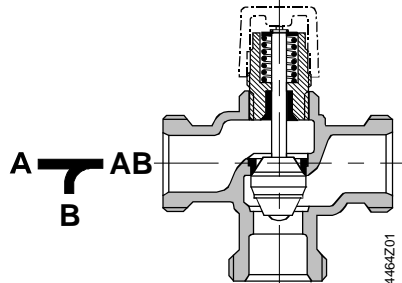
| Type reference          | Operating voltage | Positioning signal                        |            | Positioning time | Spring return |       | Datasheet |       |
|-------------------------|-------------------|---|------------|------------------|---------------|-------|-----------|-------|
| SQS35.00                | AC 230 V          | 3 position                                |            | 150 s            | no            |       | N4573     |       |
| SQS35.03                |                   |   |            | 35 s             |               |       |           |       |
| SQS35.50                |                   |   |            | 150 s            | yes           | 8 s   |           |       |
| SQS35.53                |                   |   |            | 35 s             |               |       |           |       |
| SQS65.5                 | AC 24 V           | DC 0...10 V                               | 0...1000 Ω | 35 s             | yes           | 8s    |           |       |
| SQS65                   |                   | DC 2...10 V                               |            |                  |               |       |           |       |
| SQS65.2                 |                   | 3 position                                |            | 150 s            | no            |       |           |       |
| SQS85.00                |                   |   |            |                  |               |       |           | 35 s  |
| SQS85.03                |                   |   |            |                  |               |       |           |       |
| SAS31.00                | AC 230 V          | 3-Punkt                                   |            | 120 s            | no            |       |           | N4581 |
| SAS31.03                |                   |   |            | 30 s             |               |       |           |       |
| SAS31.50                |                   |   |            | 120 s            | yes           | <28 s |           |       |
| SAS31.53                |                   |   |            | 30 s             | yes           | <14 s |           |       |
| SAS61.03 <sup>1)</sup>  | AC/DC 24 V        | DC 0...10 V<br>DC 4...20 mA<br>0...1000 Ω |            | 30 s             | no            |       |           |       |
| SAS61.03U <sup>2)</sup> |                   |   |            |                  |               |       |           |       |
| SAS61.33 <sup>1)</sup>  |                   |   |            |                  | yes           | <14 s |           |       |
| SAS61.33U <sup>2)</sup> |                   |   |            |                  |               |       |           |       |
| SAS61.53 <sup>1)</sup>  |                   |   |            |                  |               |       |           |       |
| SAS81.00 <sup>1)</sup>  | AC/DC 24 V        | 3-Punkt                                   |            | 120 s            | no            |       |           |       |
| SAS81.00U <sup>2)</sup> |                   |   |            |                  |               |       |           |       |
| SAS81.03 <sup>1)</sup>  |                   |   |            | 30 s             |               |       |           |       |
| SAS81.03U <sup>2)</sup> |                   |   |            |                  | yes           | <14 s |           |       |
| SAS81.33 <sup>1)</sup>  |                   |   |            |                  |               |       |           |       |
| SAS81.33U <sup>2)</sup> |                   |   |            |                  |               |       |           |       |

<sup>1)</sup> Approbation: CE and UL

<sup>2)</sup> Approbation: CE and UL, cable gland: ½" (UL514C)

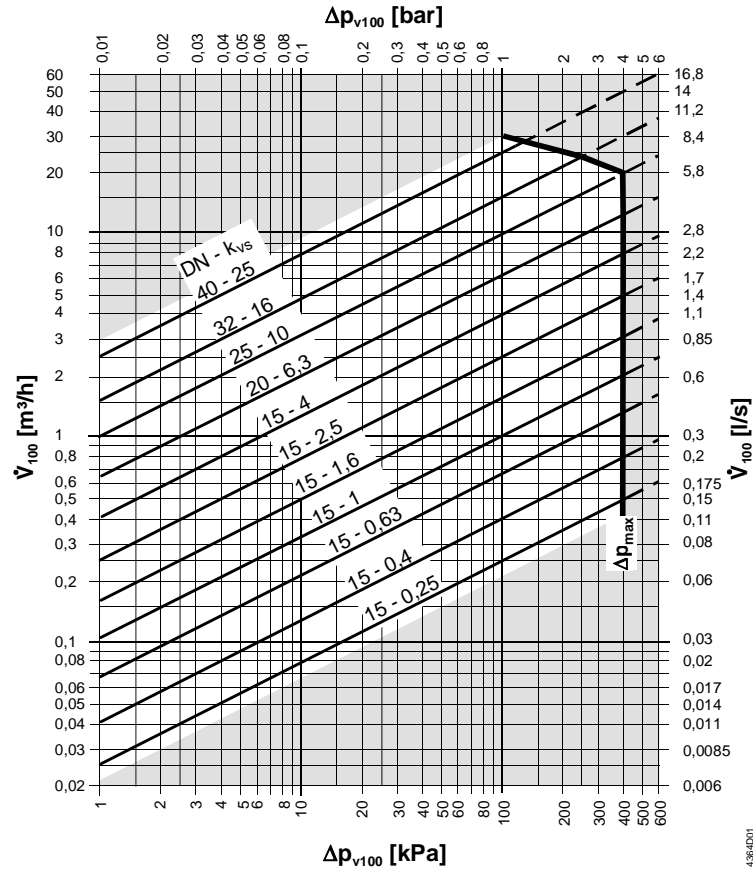
## Technical design / mechanical design

### Valve cross section



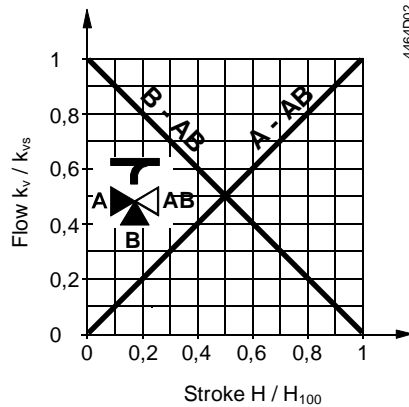
- Guided parabolic plug (from DN25) which is attached to the valve stem.
- The seat is fitted in the through-port and attached directly to the valve body in the bypass.
- From DN25, the seat in the through-port is attached directly to the valve body and fitted to the ring in the bypass.

Flow diagram



- $\Delta p_{max}$  = Maximum permissible differential pressure across the valve (mixing: port A - AB, B - AB), valid for the entire actuating range of the motorized valve
- $\Delta p_{V100}$  = Differential pressure across the fully open valve and the valve's control path A - AB, B - AB by a volume flow  $V_{100}$
- $\dot{V}_{100}$  = Volume flow through the fully open valve ( $H_{100}$ )
- 100 kPa = 1 bar  $\approx$  10 mWC
- 1 m<sup>3</sup>/h = 0.278 l/s water at 20 °C

Valve flow characteristic



Valve flow characteristic:

Through-port: linear as per VDI /VDE2173  
 Bypass: linear as per VDI /VDE2173

Mixing:

Flow from port A and port B to port AB

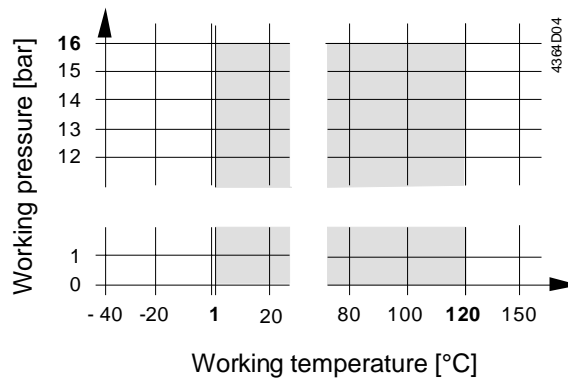
Diverting:

Flow from port AB to port A and port B

- Port A = variable flow
- Port B = Bypass (variable flow)
- Port AB = constant flow

Use the three-port valve primarily as a mixing valve.

**Working pressure and temperature**



**Working pressure and medium temperature staged as per ISO 7005**

Current local legislation must be observed.

**Notes**

**Engineering**

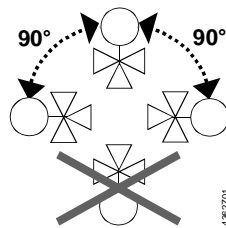
Always use a strainer upstream of the valve to increase the valve's functional safety.

**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 4 319 9564 0.

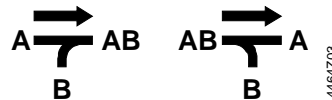
**Orientation**



**Direction of flow**

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

- Mixing from A / B to AB
- Diverting from AB to A / B



**Commissioning**



**Commission the valve only if the actuator has been mounted correctly.**

Valve stem retracts: Through-port A – AB opens, Bypass closes

Valve stem extends: Through-port A – AB closes, Bypass opens

**Maintenance**

VXG44.. valves require no maintenance.

**Warning**

When doing service work on the valve / actuator:

- Deactivate the pump and turn off the power supply
  - Close the shutoff valves
  - Fully reduce the pressure in the piping system, allow pipes to completely cool down
- If necessary, disconnect the electrical wires.

Before putting the valve into operation again, make certain the actuator is correctly fitted.

**Stem sealing gland**

The stem sealing gland cannot be exchanged. In the case of leakage, the entire valve must be replaced. Contact your local office or branch.

## Disposal



Before disposal the valve must be dismantled and separated into its various constituent materials.

Legislation may demand special handling of certain components, or it may be sensible from an ecological point of view.

**Current local legislation must be observed.**

## Warranty

The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under "Equipment combinations".

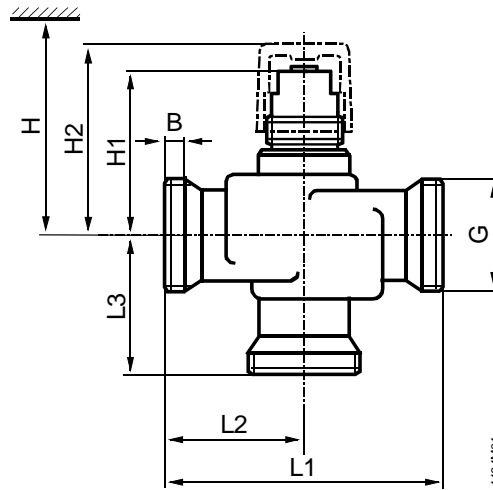
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

## Technical data

|                             |                                  |   |                                 |
|-----------------------------|----------------------------------|---|---------------------------------|
| Functional data             | PN class                         | PN 16 to ISO 7268   |                                 |
|                             | Operating pressure               | to ISO 7005 within the permissible medium temperature range according to the diagram on page 5                          |                                 |
|                             | Flow characteristic 0...100 %    | linear to VDI / VDE 2173 (through-port and bypass)  |                                 |
|                             | Leakage rate                     | 0...0.02 % of $k_{vs}$ value to DIN EN 1349 (through-port and bypass)   |                                 |
|                             | Permissible media                | chilled water, low temperature hot water, water with anti-freeze.<br>recommendation: water treatment to VDI 2035        |                                 |
|                             | Medium temperature <sup>1)</sup> | 1...120 °C  |                                 |
|                             | Rangeability $S_v$               | DN 15: >50 resp. >100, refer to "Type summary"<br>DN ≥20: >100  |                                 |
|                             | Nominal stroke                   | 5.5 mm  |                                 |
|                             | Industry standards               | Pressure Equipment Directive  | PED 97/23/EC                    |
|                             |                                  | Pressure Accessories  | as per article 1, section 2.1.4 |
| Fluid group 2               |                                  | without CE-marking as per article 3, section 3 (sound engineering practice)   |                                 |
| Environmental compatibility |                                  | ISO 14001 (Environment)<br>ISO 9001 (Quality)<br>SN 36350 (Environmentally compatible products)<br>RL 2002/95/EG (RoHS) |                                 |
| Materials                   | Valve body                       | bronze CC491K (Rg5)   |                                 |
|                             | Seat in the through-port         | stainless steel, bronze Rg5 or brass  |                                 |
|                             | Seat in the bypass               | bronze Rg5 or brass   |                                 |
|                             | Plug                             | stainless steel or brass  |                                 |
|                             | Stem                             | stainless steel   |                                 |
|                             | Sealing gland                    | brass   |                                 |
| Dimensions / Weight         | gland materials                  | EPDM O rings  |                                 |
|                             | Refer to "Dimensions"            |   |                                 |
|                             | External thread connections      | G..B to ISO 228-1   |                                 |
|                             | Actuator connection              | G $\frac{3}{4}$ "   |                                 |

<sup>1)</sup> With ALG..B fittings for media temperature up to 100 °C

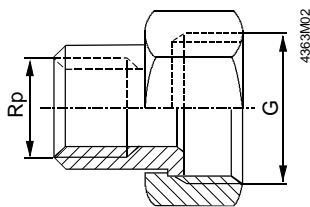
## Dimensions



- DN = Nominal size  
H = Total actuator height plus minimum distance to the wall or the ceiling for mounting, connection, operation, service, etc.  
H1 = Dimension from the pipe centre to install the actuator  
H2 = Pipe centre to upper edge of manual adjustment button, valve in «closed» position

| Type reference | DN | B [mm] | G [Inch] | L1 [mm] | L2 [mm] | L3 [mm] | H1 [mm] | H2 [mm] | H SQS.. | H SAS.. | Weight [kg] |
|----------------|----|--------|----------|---------|---------|---------|---------|---------|---------|---------|-------------|
| VXG44.15-0.25  | 15 | 8.5    | G 1B     | 100     | 50      | 50      | 45      | 55      | >364    | >381    | 0.5         |
| VXG44.15-0.4   |    |        |          |         |         |         |         |         |         |         |             |
| VXG44.15-0.63  |    |        |          |         |         |         |         |         |         |         |             |
| VXG44.15-1     |    |        |          |         |         |         |         |         |         |         |             |
| VXG44.15-1.6   |    |        |          |         |         |         |         |         |         |         |             |
| VXG44.15-2.5   |    |        |          |         |         |         |         |         |         |         |             |
| VXG44.15-4     |    |        |          |         |         |         |         |         |         |         | 0.59        |
| VXG44.20-6.3   | 20 | 9      | G 1½B    |         |         |         | 68      | 78      | >379    | >396    | 0.90        |
| VXG44.25-10    | 25 | 11     | G 1½B    | 105     | 52.5    | 52.5    | 71      | 81      | >382    | >399    | 1.30        |
| VXG44.32-16    | 32 |        | G 2B     |         |         |         | 77.5    | 87.5    | >389    | >406    | 1.74        |
| VXG44.40-25    | 40 |        | G 2¼B    |         |         |         | 80.5    | 90.5    | >392    | >409    | 2.39        |

## Fittings



| Type/Stock no. | Type    | Stock no.   | for valve type | G [Inch] | Rp [Inch] |
|----------------|---------|-------------|----------------|----------|-----------|
| ALG153         | ALG153B | S55846-Z101 | VXG44.15..     | G 1      | Rp ½      |
| ALG203         | ALG203B | S55846-Z103 | VXG44.20       | G 1¼     | Rp ¾      |
| ALG253         | ALG253B | S55846-Z105 | VXG44.25       | G 1½     | Rp 1      |
| ALG323         | ALG323B | S55846-Z107 | VXG44.32       | G 2      | Rp 1¼     |
| ALG403         | ALG403B | S55846-Z109 | VXG44.40       | G 2¼     | Rp 1½     |

- On valve side: cylindrical thread to ISO 228-1
- On pipe side: with cylindrical thread to ISO 7-1
- ALG..B for media temperatures up to 100 °C

## Spare parts

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| Type          | Stock No.     | Description                         | Quantity |
|---------------|---------------|-------------------------------------|----------|
| 74 676 0273 0 | 74 676 0273 0 | Manual knob for short stroke valves | 10       |

## Revision numbers

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| Type          | Valid from rev. no. | Type         | Valid from rev. no. | Type        | Valid from rev. no. |
|---------------|---------------------|--------------|---------------------|-------------|---------------------|
| VXG44.15-0.25 | ..01                | VXG44.15-1.6 | ..01                | VXG44.25-10 | ..01                |
| VXG44.15-0.4  | ..01                | VXG44.15-2.5 | ..01                | VXG44.32-16 | ..01                |
| VXG44.15-0.63 | ..01                | VXG44.15-4   | ..01                | VXG44.40-25 | ..01                |
| VXG44.15-1    | ..01                | VXG44.20-6.3 | ..01                |             |                     |