



2-port valves  
VVP459.10-0.63 to VVP459.25-6.3



3-port valves  
VXP459.10-0.63 to VXP459.25-6.3



2-port valves  
VVP459.25-6.3 to VVP459.40-25



3-port valves  
VXP459.25-10 to VXP459.40-25



## 2-port and 3-port valves PN 16

## VVP459.. VXP459..

- Red brass CC499K valve body
- DN 10...40
- $k_{vs}$  0.63...25 m<sup>3</sup>/h
- Flat sealing, externally threaded connections G...B to ISO 228-1 for
  - Sets of ALG.. screwed fittings with threaded connection (available from Siemens)
  - SERTO compression fittings, type SO 00021.. (available from suppliers to the trade)
- Manual adjuster
- Can be equipped with SSB.. or SSC.. electromotoric actuators

### Use

- 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 used in:
  - 2-pipe systems with one heat exchanger for heating and cooling
  - 4-pipe systems with two separate heat exchangers for heating and cooling
- In closed-circuit zone heating systems, e.g.
  - Individual storey's in a building
  - Apartments
  - Individual rooms

## Type summary

VVP459.. 2-port	VXP459.. 3-port	DN	Connection	$k_{vs}$ A → AB [m <sup>3</sup> /h]	$k_{vs}^{1)}$ B → AB [m <sup>3</sup> /h]	$S_v$
VVP459.10-0.63	VXP459.10-0.63	10	G ½B	0.63	0.44	> 50
VVP459.10-1	VXP459.10-1			1.0	0.70	
VVP459.10-1.6	VXP459.10-1.6			1.6	1.12	
VVP459.15-2.5	VXP459.15-2.5	15	G ¾B	2.5	1.75	
VVP459.20-4	VXP459.20-4	20	G 1B	4.0	2.80	
VVP459.25-6.3	VXP459.25-6.3	25	G 1¼B	6.3	4.40	
VVP459.25-10	VXP459.25-10		G 1½B	10	> 100	
VVP459.32-16	VXP459.32-16	32	G 2B	16		
VVP459.40-25	VXP459.40-25	40	G 2¼B	25		

1) Valid for 3-port version only

DN = Nominal size

$k_{vs}$  = 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)

$S_v$  = Rangeability  $k_{vs} / k_{vr}$

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

## Accessories

Product no.	Stock no.	Description
ALG..2	ALG..2	Set of 2 fittings with threaded connections for 2-port valves, consisting of 2 union nuts, 2 discs and 2 flat seals. ALG..2B are brass fittings, for media temperatures up to 100 °C.
ALG..2B	S55846-Z1..	
ALG..3	ALG..3	Set of 3 fittings with threaded connections for 2-port valves, consisting of 3 union nuts, 3 discs and 3 flat seals. ALG..3B are brass fittings, for media temperatures up to 100 °C.
ALG..3B	S55846-Z1..	

## Ordering

Example:

Product number	Stock number	Description	Quantity
VXP459.10-1	VXP459.10-1	3-port valve	20
ALG132	ALG132	Set of 2 fittings	20

Delivery

The valves are delivered in optimized multipacks. The following minimum order quantities apply:

Type	Quantity per package
VVP459.10-0.63 to VVP459.20-4 VXP459.10-0.63 to VXP459.20-4	20
VVP459.25-10 VXP459.25-10	10
VVP459.25-6.3 VXP459.25-6.3	9
VVP459.32-16 VXP459.32-16	6
VVP459.40-25 VXP459.40-25	5

Valves, actuators and accessories are packed and supplied separately.

Spare parts, rev. no.

See overview, page 10.

## Equipment combinations

Valves	Connection	Actuators				Set of fittings		
		SSB..		SSC..		Malleable cast iron Type / Stock no.	Brass	
		$\Delta p_{\max}$	$\Delta p_s$	$\Delta p_{\max}$	$\Delta p_s$		Type	Stock no.
VVP459.10-0.63 to 1.6	G ½B	400	725				ALG132 <sup>1)</sup>	ALG132
VVP459.15-2.5	G ¾B	350	350				ALG142 <sup>1)</sup>	ALG142
VVP459.20-4	G 1B	350	350	350	350	ALG152	ALG152B <sup>2)</sup>	S55846-Z100
VVP459.25-6.3	G 1¼B	300	300	300	300	ALG202	ALG202B <sup>2)</sup>	S55846-Z102
VVP459.25-10	G 1½B			300	300	ALG252	ALG252B <sup>2)</sup>	S55846-Z104
VVP459.32-16	G 2B			175	175	ALG322	ALG322B <sup>2)</sup>	S55846-Z106
VVP459.40-25	G 2¼B			75	75	ALG402	ALG402B <sup>2)</sup>	S55846-Z108
VXP459.10-0.63 to 1.6	G ½B	400					ALG133 <sup>1)</sup>	ALG133
VXP459.15-2.5	G ¾B	350					ALG143 <sup>1)</sup>	ALG143
VXP459.20-4	G 1B	350		350		ALG153	ALG153B <sup>2)</sup>	S55846-Z101
VXP459.25-6.3	G 1¼B	300		300		ALG203	ALG203B <sup>2)</sup>	S55846-Z103
VXP459.25-10	G 1½B			300		ALG253	ALG253B <sup>2)</sup>	S55846-Z105
VXP459.32-16	G 2B			175		ALG323	ALG323B <sup>2)</sup>	S55846-Z107
VXP459.40-25	G 2¼B			75		ALG403	ALG403B <sup>2)</sup>	S55846-Z109

<sup>1)</sup> Connecting thread, pipe side: Internally threaded

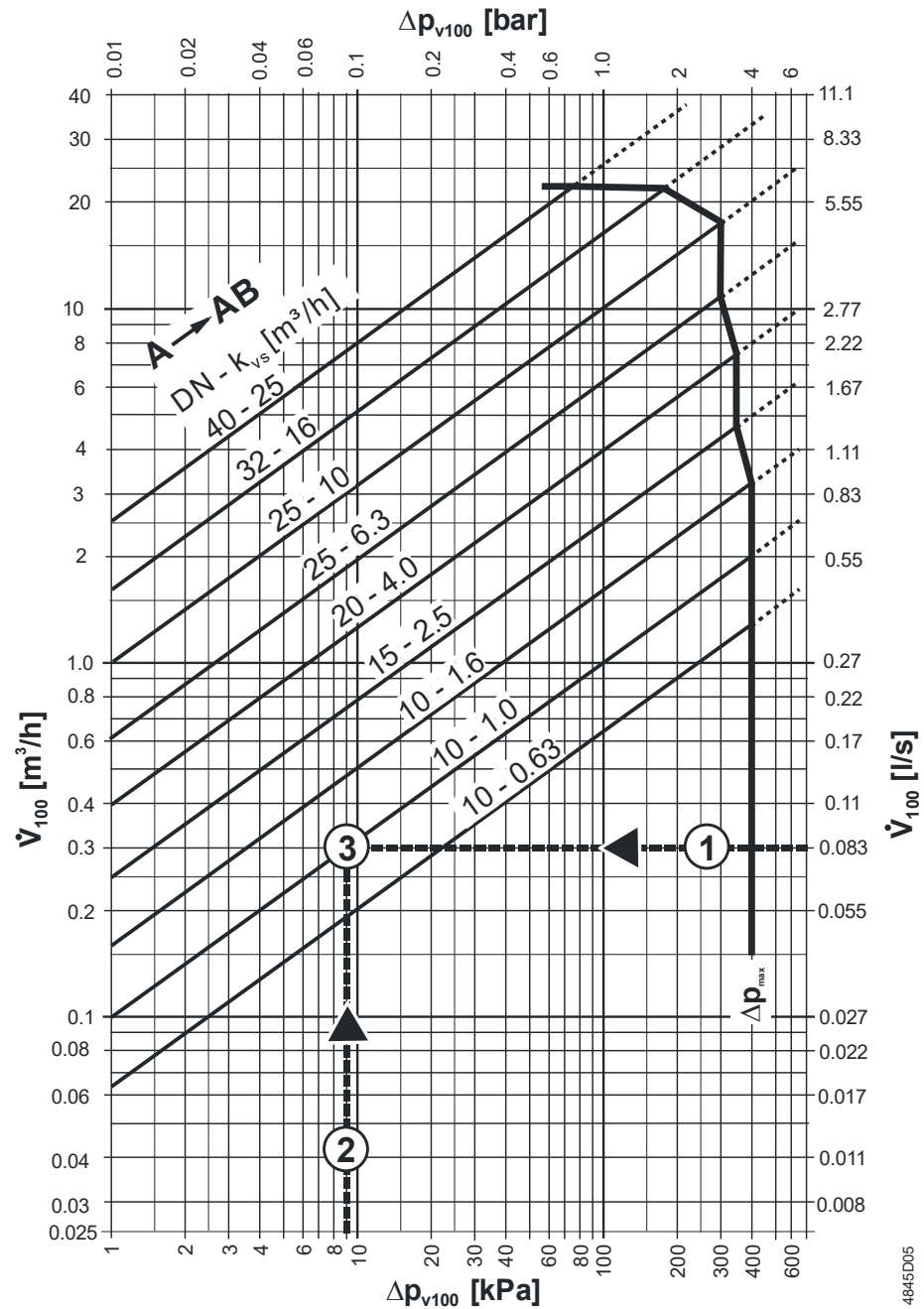
<sup>2)</sup> Medium temperature: max. 100 °C

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

$\Delta p_s$  = Maximum permissible differential pressure at which the motorized valve will close securely against the pressure (close off pressure).

## Actuator overview

Actuator	Operating voltage	Positioning signal	Positioning time	Positioning force	for valves with $k_{vs}$	Data sheet
SSB319	AC 230 V	3-position	150 s	200 N	to 6.3 m³/h	Q4891
SSB819	AC 24 V					
SSB619	AC/DC 24 V					
SSC319	AC 230 V	3-position	150 s	300 N	from 4 m³/h	Q4895
SSC819	AC 24 V					
SSC619	AC/DC 24 V					



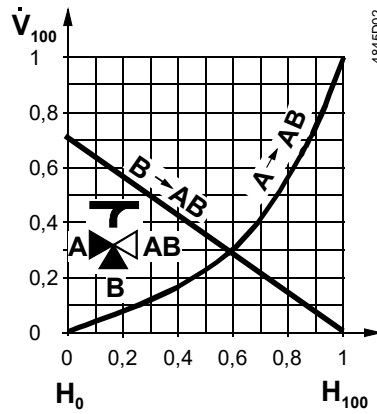
- $\Delta p_{max}$  = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve
- $\Delta p_{v100}$  = Differential pressure across the fully open valve and the valve's control path A → AB at a volume flow  $V_{100}$
- $\dot{V}_{100}$  = Volume flow through the fully open valve ( $H_{100}$ )
- 100 kPa = 1 bar ≈ 10 mWC
- 1 m<sup>3</sup>/h = 0.278 l/s water at 20 °C

**Example:**

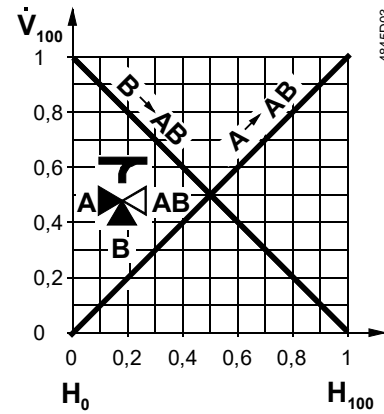
1	$\dot{V}_{100}$	=	0.083 l/s
2	$\Delta p_{v100}$	=	9 kPa
3	→ $k_{vs}$ -value	=	1.0 m <sup>3</sup> /h

**Valve flow characteristic**

V..45.10-0.63 to V..45.25-6.3



V..P45.25-10 to V..P45.40-25



The  $k_{vs}$ -values in bypass B for valve types V..45.10.. to V..45.25-6.3 represent only 70 % of the  $k_{vs}$ -value in the straight-through control path A → AB (for other types 100 %). This compensates for the flow resistance of the heat exchanger or radiator, so as to keep the overall flow rate  $\dot{V}_{100}$  as constant as possible.

**Engineering notes**

Valve construction	Valve series	Valve flow in control mode			Valve stem	
		Inlet A	Inlet B	Outlet AB	Retracted	Extended
<p>2-port valves</p> <p>4845Z12</p>	<p>VVP459..</p>	variable		variable	A → AB opens	A → AB closes
<p>3-port valves</p> <p>4845Z13</p>	<p>VXP459..</p>	variable	variable	constant	A → AB opens B → AB closes	A → AB closes B → AB opens

**Warning!**

The direction of flow must be as indicated by the arrow, i.e. only from A → AB and B → AB.

The 3-port valve types VXP459.. may only be used as mixing valves.

We recommend installing the valves in the return pipe, as the temperatures are lower for applications in heating systems, which in turn, extends the stem sealing gland's life.

**Recommendation:**

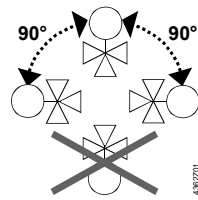
Always use a strainer upstream of the valve to increase the valve's functional reliability.

## Mounting notes

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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 9526 0.

### Orientation



## Commissioning notes

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**Commission the valve only if the manual knob or actuator have been mounted correctly.**

### Manual adjustment

The straight-through path A → AB can be opened electrically via the actuator, or manually. With three-port valves, this throttles or closes bypass B.  
Manually, path A → AB can only be opened to 70 % (bypass closes to 30 %). The valves with  $k_{vs}$  values 10, 16 and 25 can be fully opened whereas the bypass can be fully closed.  
The valves are closed by a return spring.

## Maintenance

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V..P45.. valves require no maintenance.



When doing service work on the valve or actuator:

- Deactivate the pump and turn off the power supply
- Close the shutoff valves
- Fully reduce the pressure in the piping system and allow pipes to completely cool down

If necessary, disconnect the electrical wires.

Before putting the valve into operation again, make sure the manual knob or 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 Siemens representative or office.

### 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

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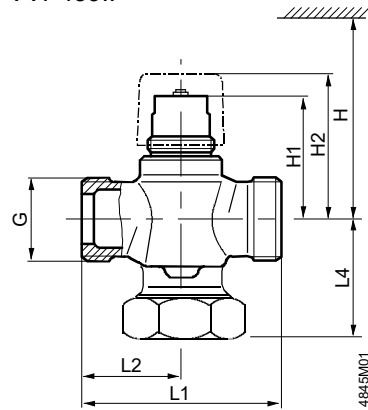
The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under «Equipment combinations».

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

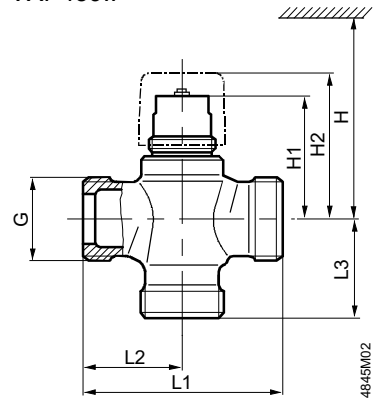
## Technical data

Functional data	PN class	PN 16 to EN 1333
	Permissible operating pressure	1600 kPa (16 bar) to ISO 7628 / EN 1333
	Valve flow characteristic	
	Through-port A → AB	to $k_{vs}$ 6.3 equal percentage; $n_{gl} = 2.2$ to VDI / VDE 2173
	Through-port A → AB	from $k_{vs}$ 10 linear
	Bypass B → AB	linear
	Leakage rate	to DIN EN 1349
	Through-port A → AB	0...0.02 % of $k_{vs}$ -value
	Bypass B → AB	0...0.02 % of $k_{vs}$ -value
	Permissible media	low-temperature hot water, chilled water, water with anti-freeze recommendation: water treatment to VDI 2035
	Medium temperature	1...110 °C, short-term max. 120 °C
	Rangeability $S_v$	>50 resp. >100 (refer to «Type summary»)
	Nominal stroke	5.5 mm
	Materials	Valve body
Stem		stainless steel
Plug, seat, gland		brass
Sealing gland		EPDM-O-rings
Dimensions / Weight	Dimensions	refer to «Dimensions»
	Threaded connections	Valve G...B to ISO 228-1 Screwed fittings R/Rp... to ISO 7-1, G... to ISO 228-1
	Actuator connection	G 3/4"
Standards	Weight	refer to «Dimensions»
	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) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)

**2-port valves**  
VVP459..



**3-port valves**  
VXP459..



Type reference	DN	G [inch]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	L2 [mm]	L4 [mm]	Weight [kg]
VVP459.10-0.63...1.6	10	G ½B	> 200	44.9	≈ 54	60	30	20	0.26
VVP459.15-2.5	15	G ¾B		44.9	≈ 54	65	32,5	20	0.30
VVP459.20-4	20	G 1B		48.9	≈ 58	80	40	24	0.42
VVP459.25-6.3	25	G 1¼B		51	≈ 60	80	40	49	0.76
VVP459.25-10		G 1½B	> 280	62.5	≈ 71	105	52.5	62.5	1.40
VVP459.32-16	32	G 2B		69	≈ 78	105	52.5	63.5	1.95
VVP459.40-25	40	G 2¼B		72	≈ 81	130	65	76	2.75



Type reference	DN	G [inch]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Weight [kg]
VXP459.10-0.63...1.6	10	G ½B	> 200	44.9	≈ 54	60	30	30	0.28
VXP459.15-2.5	15	G ¾B		44.9	≈ 54	65	32.5	32.5	0.34
VXP459.20-4	20	G 1B		48.9	≈ 58	80	40	40	0.48
VXP459.25-6.3	25	G 1¼B		51	≈ 60	80	40	40	0.64
VXP459.25-10	25	G 1½B	> 280	62.5	≈ 81	105	52.5	52.5	1.20
VXP459.32-16	32	G 2B		69	≈ 88	105	52.5	52.5	1.60
VXP459.40-25	40	G 2¼B		72	≈ 91	130	65	65	2.30



<b>Sets of screwed fittings with flat seal</b>  available from Siemens  ALG..2: set of 2 threaded fittings ALG..3: set of 3 threaded fittings	ALG132 ALG133 ALG142 ALG143	pipe side with R external threads	
	ALG152 ALG153 ALG202 ALG203 ALG252 ALG253 ALG322 ALG323 ALG402 ALG403	ALG152B ALG153B ALG202B ALG203B ALG252B ALG253B ALG322B ALG323B ALG402B ALG403B	pipe side with Rp internal threads
<b>Compression fittings</b> (available from suppliers to the trade)  	SERTO SO 00021..		

Type ALG..		for valve type	DN	G	R	Rp	L	T	Type SERTO SO 00021.. <sup>1)</sup>	D
<b>Malleable cast iron</b>	<b>Brass<sup>1)</sup></b>			[Inch]	[Inch]	[Inch]	[mm]	[mm]	<a href="http://www.serto.com">www.serto.com</a>	[mm ]
	<b>ALG132</b>	VVP459.10-0.63...1.6	10	G½	R¾		≈ 24	≈ 9	<b>SO 00021-12-1/2"</b>	12
	<b>ALG133</b>	VXP459.10-0.63...1.6							<b>SO 00021-14-1/2"</b>	14
	<b>ALG142</b>	VVP459.15-2.5	15	G¾	R½		≈ 29,5	≈ 12	<b>SO 00021-17-3/4"</b>	17
	<b>ALG143</b>	VXP459.15-2.5							<b>SO 00021-18-3/4"</b>	18
<b>ALG152</b>	<b>ALG152B</b>	VVP459.20-4	20	G1			≈ 23	≈ 13		
<b>ALG153</b>	<b>ALG153B</b>	VXP459.20-4								
<b>ALG202</b>	<b>ALG202B</b>	VVP459.25-6.3	25	G1¼			≈ 25	≈ 15		
<b>ALG203</b>	<b>ALG203B</b>	VXP459.25-6.3								
<b>ALG252</b>	<b>ALG252B</b>	VVP459.25-10		G1½			≈ 27	≈ 17		
<b>ALG253</b>	<b>ALG253B</b>	VXP459.25-10								
<b>ALG322</b>	<b>ALG322B</b>	VVP459.32-16	32	G2			≈ 32	≈ 19		
<b>ALG323</b>	<b>ALG323B</b>	VXP459.32-16								
<b>ALG402</b>	<b>ALG402B</b>	VVP459.40-25	40	G2¼			≈ 32	≈ 19		
<b>ALG403</b>	<b>ALG403B</b>	VXP459.40-25								

<sup>1)</sup> Medium temperature: max. 100 °C

<sup>2)</sup> SO 00021-17.. and SO 00021-18 on request

- 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 6760 273 0	74 6760 273 0	Manual knob for short stroke valves	10

## Revision numbers

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Type	Valid from rev. no.	Type	Valid from rev. no.
VVP459.10-0.63	/01	VXP459.10-0.63	/01
VVP459.10-1	/01	VXP459.10-1	/01
VVP459.10-1.6	/01	VXP459.10-1.6	/01
VVP459.15-2.5	/01	VXP459.15-2.5	/01
VVP459.20-4	/01	VXP459.20-4	/01
VVP459.25-6.3	/01	VXP459.25-6.3	/01
VVP459.25-10	/01	VXP459.25-10	/01
VVP459.32-16	/01	VXP459.32-16	/01
VVP459.40-25	/01	VXP459.40-25	/01

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Siemens Switzerland Ltd  
Smart Infrastructure  
Global Headquarters  
Theilerstrasse 1a  
6300 Zug  
Switzerland  
Tel. +41 58-724 24 24  
[www.siemens.com/buildingtechnologies](http://www.siemens.com/buildingtechnologies)

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