SIEMENS

OEM

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

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

3-port valves with bypass
VMP459.10-0.63 to VMP459.20-4

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..
VMP459..

- Red brass CC499K valve body
- DN 10…40
- k_{vs} 0.63…25 m^3/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	VMP459.. 3-port with bypass	DN	Connection	k_{vs} A →AB [m^3/h]	k_{vs} [1)] B →AB [m^3/h]	S_v
VVP459.10-0.63	**VXP459.10-0.63**	**VMP459.10-0.63**	10	G ½B	0.63	0.44	> 50
VVP459.10-1	**VXP459.10-1**	**VMP459.10-1**			1.0	0.70	
VVP459.10-1.6	**VXP459.10-1.6**	**VMP459.10-1.6**			1.6	1.12	
VVP459.15-2.5	**VXP459.15-2.5**	**VMP459.15-2.5**	15	G ¾B	2.5	1.75	
VVP459.20-4	**VXP459.20-4**	**VMP459.20-4**	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..**	
ASZ6.5	**ASZ6.5**	Electric stem heating element, AC 24 V / 30 W, required for media below 0 °C

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
VMP459.20-4	VMP459.20-4	3-port valve with T-bypass	10
ALG152B	S55846-Z100	Set of 2 fittings	20

For 3-port valves with bypass VMP459.. order two sets of 2 fittings.

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**
VMP459.10-0.63 to VMP459.20-4	**10**
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 SSB..		SSC..		Set of fittings		
		Δp_{max}	Δp_s	Δp_{max}	Δp_s	Malleable cast iron	Brass	
		[kPa]				Type / Stock no.	Type	Stock no.
VVP459.10-0.63 to 1.6	G ½B	400	725				ALG132 [1]	ALG132
VVP459.15-2.5	G ¾B	350	350				ALG142 [1]	ALG142
VVP459.20-4	G 1B	350	350	350	350	ALG152	ALG152B [2]	S55846-Z100
VVP459.25-6.3	G 1¼B	300	300	300	300	ALG202	ALG202B [2]	S55846-Z102
VVP459.25-10	G 1½B			300	300	ALG252	ALG252B [2]	S55846-Z104
VVP459.32-16	G 2B			175	175	ALG322	ALG322B [2]	S55846-Z106
VVP459.40-25	G 2¼B			75	75	ALG402	ALG402B [2]	S55846-Z108
VXP459.10-0.63 to 1.6	G ½B	400					ALG132 [1]	ALG132
VXP459.15-2.5	G ¾B	350					ALG142 [1]	ALG142
VXP459.20-4	G 1B	350		350		ALG152	ALG152B [2]	S55846-Z100
VXP459.25-6.3	G 1¼B	300		300		ALG202	ALG202B [2]	S55846-Z102
VXP459.25-10	G 1½B			300		ALG252	ALG252B [2]	S55846-Z104
VXP459.32-16	G 2B			175		ALG322	ALG322B [2]	S55846-Z106
VXP459.40-25	G 2¼B			75		ALG402	ALG402B [2]	S55846-Z108
VMP459.10-0.63 to 1.6	G ½B	400					2 x ALG132 [1]	ALG132
VMP459.15-2.5	G ¾B	350					2 x ALG142 [1]	ALG142
VMP459.20-4	G 1B	350				2 x ALG152	2 x ALG152B [2]	S55846-Z100

[1] Connecting thread, pipe side: Internally threaded

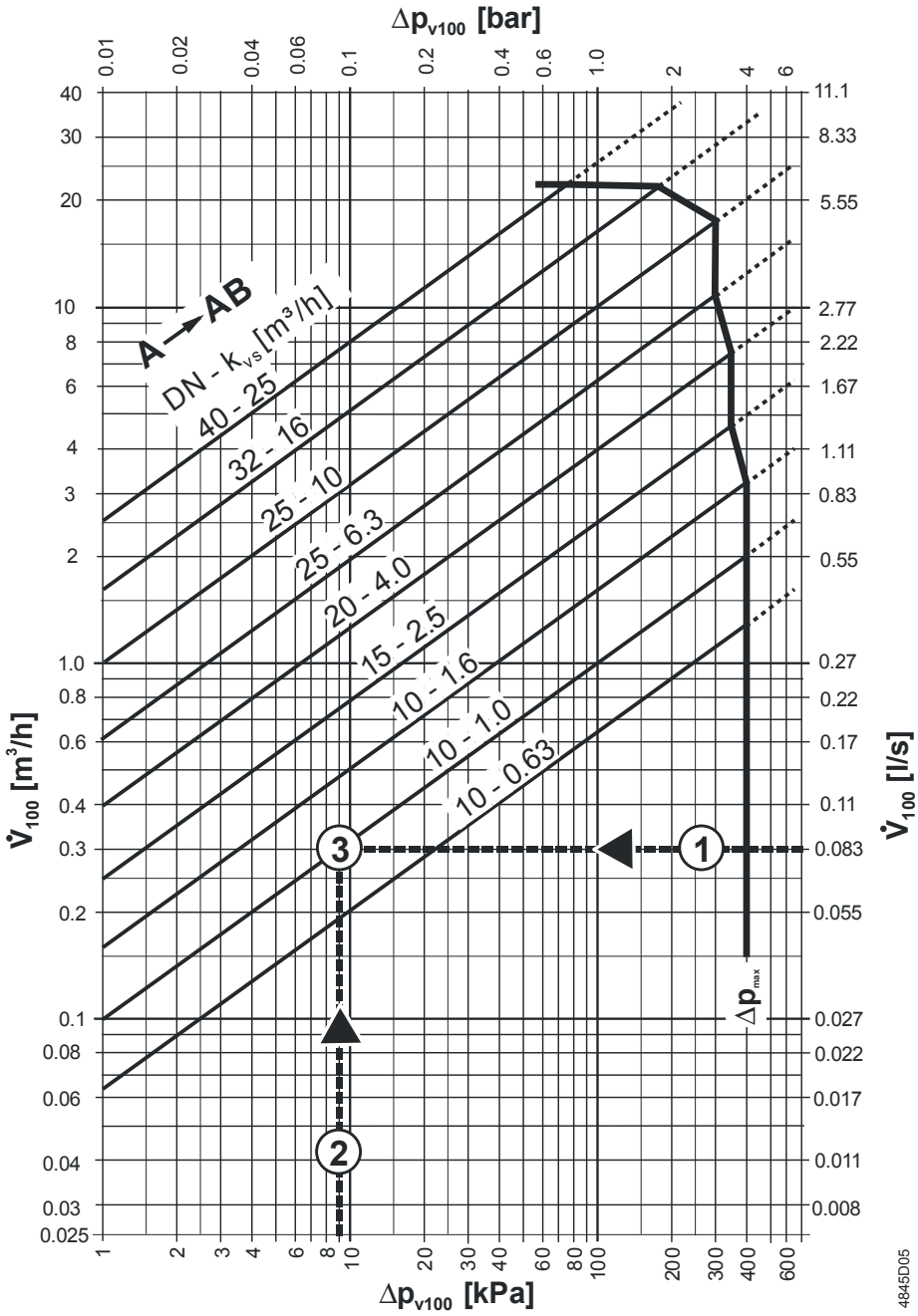
[2] Medium temperature: max. 100 °C

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

Δp_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 m^3/h	Q4891
SSB819..	AC 24 V					
SSB619..	AC/DC 24 V	DC 0...10 V	75 s			
SSC319..	AC 230 V	3-position	150 s	300 N	from 4 m^3/h	Q4895
SSC819..	AC 24 V					
SSC619..	AC/DC 24 V	DC 0...10 V	30 s			



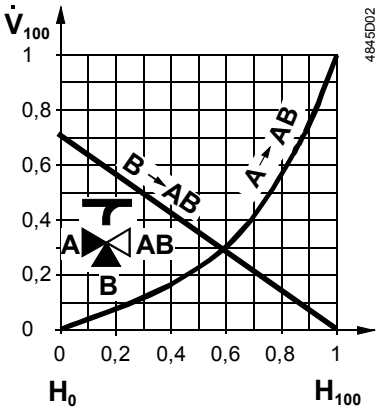
Δp_{max}	=	Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve
Δp_{v100}	=	Differential pressure across the fully open valve and the valve's control path A→ AB at a volume flow V_{100}
$\dot{V}_{100}$	=	Volume flow through the fully open valve (H_{100})
100 kPa	=	1 bar ≈ 10 mWC
1 m³/h	=	0.278 l/s water at 20 °C

Example:

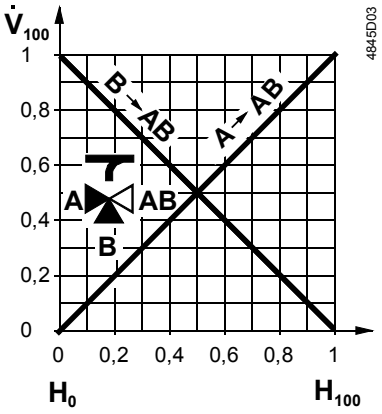
1	$\dot{V}_{100}$	=	0.083 l/s
2	Δp_{v100}	=	9 kPa
3	→ k_{vs}-value	=	1.0 m³/h

Valve flow characteristic

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

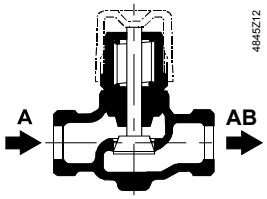
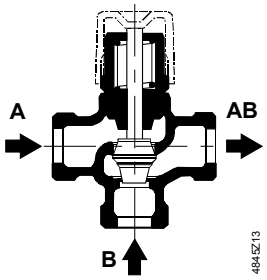
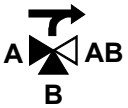
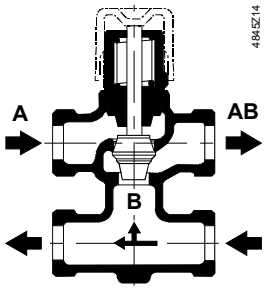
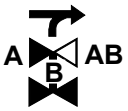


V..P45.25-10 to V..P45.40-25



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
2-port valves 	**VVP459..** 	variable		variable	A → AB opens	A → AB closes
3-port valves 	**VXP459..** 	variable	variable	constant	A → AB opens AB B closes	A → AB closes AB B opens
3-port valves with bypass 	**VMP459..** 	variable	variable	constant	A → AB opens AB B closes	A → AB closes AB B 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.. and VMP459.. may only be used as mixing valves.

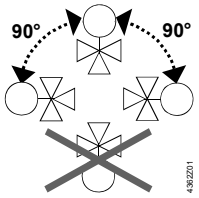
We recommend installing the valves in the return pipe, as the temperatures are lower for applications in heating systems, which in turn, extends the stem sealing gland's life.

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

Mounting notes

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

⚠ **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

V..P45.. valves require no maintenance.

Warning ⚠ 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

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

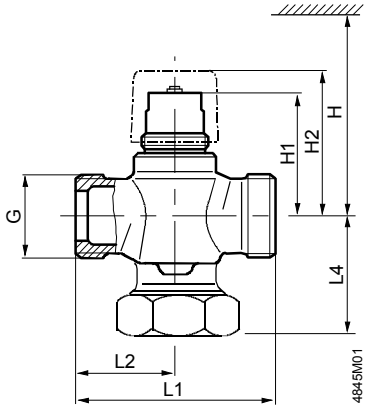
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

Technical data

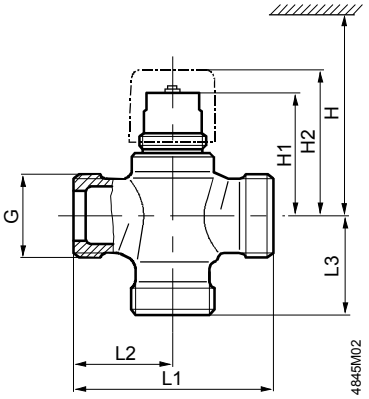
Functional data	PN class		PN 16 to EN 1333
	Permissible operating pressure		1600 kPa (16 bar) to ISO 7628 / EN 1333
	Valve flow characteristic		
	Through-port A → AB	to k_{vs} 6.3	equal percentage; n_{gl} = 2.2 to VDI / VDE 2173
	Through-port A → AB	from k_{vs} 10	linear
	Bypass B → AB		linear
	Leakage 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		bronze CC499K
	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 ¾"
	Weight		refer to «Dimensions»
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) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)

Dimensions

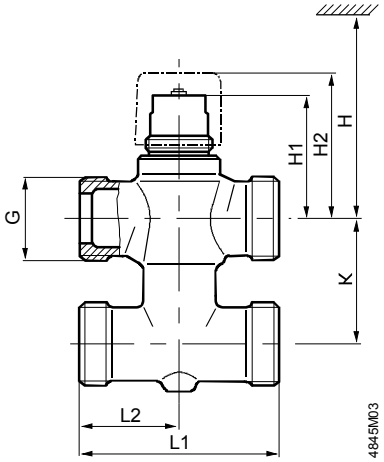
2-port valves
VVP459..



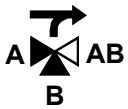
3-port valves
VXP459..



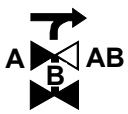
3-port valves with bypass
VMP459..



Type reference	DN	G	H	H1	H2	L1	L2	L4	Weight
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[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	H	H1	H2	L1	L2	L3	Weight
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[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



Type reference	DN	G	H	H1	H2	K	L1	L2	Weight
		[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
VMP459.10-0.63…1.6	10	G ½B	> 200	44.9	≈ 54	40	60	30	0.36
VMP459.15-2.5	15	G ¾B		44.9	≈ 54	40	65	32.5	0.46
VMP459.20-4	20	G 1B		48.9	≈ 58	50	80	40	0.64

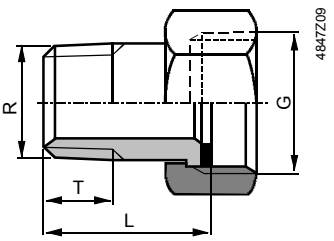
Sets of screwed fittings with flat seal

available from Siemens

ALG..2: set of 2 threaded fittings
ALG..3: set of 3 threaded fittings

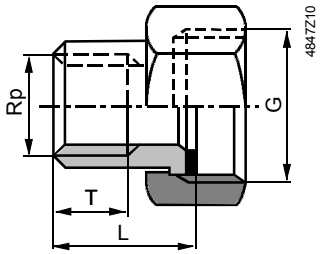
ALG132
ALG133
ALG142
ALG143

pipe side with R external threads



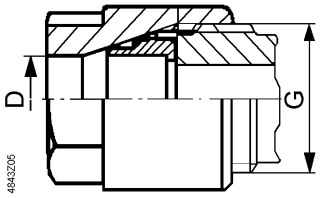
ALG152	ALG152B
ALG153	ALG153B
ALG202	ALG202B
ALG203	ALG203B
ALG252	ALG252B
ALG253	ALG253B
ALG322	ALG322B
ALG323	ALG323B
ALG402	ALG402B
ALG403	ALG403B

pipe side with Rp internal threads



Compression fittings
(available from suppliers to the trade)

SERTO SO 00021..



Type ALG..		for valve type	DN	G	R	Rp	L	T	Type SERTO SO 00021.. [1]	D
Malleable cast iron	Brass [1]			[Inch]	[Inch]	[Inch]	[mm]	[mm]	www.serto.com	[mm]
	ALG132	VVP459.10-0.63...1.6	10	G½	R⅜		≈ 24	≈ 9	**SO 00021-12-1/2"**	12
	ALG133	VXP459.10-0.63...1.6							**SO 00021-14-1/2"**	14
	2 x ALG132	VMP459.10-0.63...1.6							**SO 00021-15-1/2"**	15
	ALG142	VVP459.15-2.5	15	G¾	R½		≈ 29,5	≈ 12	**SO 00021-17-3/4"**	17
	ALG143	VXP459.15-2.5							**SO 00021-18-3/4"**	18
	2 x ALG142	VMP459.15-2.5								
ALG152	**ALG152B**	VVP459.20-4	20	G1		Rp½	≈ 23	≈ 13		
ALG153	**ALG153B**	VXP459.20-4								
2 x ALG152	**2 x ALG152B**	VMP459.20-4								
ALG202	**ALG202B**	VVP459.25-6.3	25	G1¼		Rp¾	≈ 25	≈ 15		
ALG203	**ALG203B**	VXP459.25-6.3								
ALG252	**ALG252B**	VVP459.25-10		G1½		Rp1	≈ 27	≈ 17		
ALG253	**ALG253B**	VXP459.25-10								
ALG322	**ALG322B**	VVP459.32-16	32	G2		Rp1¼	≈ 32	≈ 19		
ALG323	**ALG323B**	VXP459.32-16								
ALG402	**ALG402B**	VVP459.40-25	40	G2¼		Rp1½	≈ 32	≈ 19		
ALG403	**ALG403B**	VXP459.40-25								

[1] Medium temperature: max.100 °C

[2] 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

Type	Stock No.	Description	Quantity
74 6760 273 0	74 6760 273 0	Manual knob for short stroke valves	1

Revision numbers

Type	Valid from rev. no.	Type	Valid from rev. no.	Type	Valid from rev. no.
VVP459.10-0.63	/01	VXP459.10-0.63	/01	VMP459.10-0.63	/01
VVP459.10-1	/01	VXP459.10-1	/01	VMP459.10-1	/01
VVP459.10-1.6	/01	VXP459.10-1.6	/01	VMP459.10-1.6	/01
VVP459.15-2.5	/01	VXP459.15-2.5	/01	VMP459.15-2.5	/01
VVP459.20-4	/01	VXP459.20-4	/01	VMP459.20-4	/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		