SIEMENS

4845

2-port valves
VVP45.10-0.25 to VVP45.25-4

3-port valves
VXP45.10-0.25 to VXP45.25-6.3

3-port valves with T-bypass
VMP45.10-0.25 to VMP45.20-4

2-port valves
VVP45.25-6.3 to VVP45.40-25

3-port valves
VXP45.25-10 to VXP45.40-25

ACVATIX™

2-port and 3-port valves PN 16

VVP45..
VXP45..
VMP45..

- Bronze CC499K valve body
- DN 10…DN 40
- k_{vs} 0.25…25m^3/h
- Flat seal male 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, 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
- In closed-circuit zone heating systems, e.g.
  - Individual floors in a building
  - Apartments
  - Individual rooms

Type summary

VVP45.. 2-port	**VXP45..** 3-port	**VMP45..** 3-port with T-bypass	**DN**	**Connection**	**k_{vs}** **A →AB** [m^3/h]	**k_{vs}** [1] **B →AB** [m^3/h]	**S_v**
VVP45.10-0.25	**VXP45.10-0.25**	**VMP45.10-0.25**	10	G ½B	0.25	0.18	> 50
VVP45.10-0.4	**VXP45.10-0.4**	**VMP45.10-0.4**			0.4	0.28	
VVP45.10-0.63	**VXP45.10-0.63**	**VMP45.10-0.63**			0.63	0.44	
VVP45.10-1	**VXP45.10-1**	**VMP45.10-1**			1.0	0.70	
VVP45.10-1.6	**VXP45.10-1.6**	**VMP45.10-1.6**			1.6	1.12	
VVP45.15-2.5	**VXP45.15-2.5**	**VMP45.15-2.5**	15	G ¾B	2.5	1.75	
VVP45.20-4	**VXP45.20-4**	**VMP45.20-4**	20	G 1B	4.0	2.80	
VVP45.25-6.3	**VXP45.25-6.3**		25	G 1¼B	6.3	4.40	
VVP45.25-10	**VXP45.25-10**			G 1½B	10		> 100
VVP45.32-16	**VXP45.32-16**		32	G 2B	16		
VVP45.40-25	**VXP45.40-25**		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}) 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

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..2B are brass fittings, for media temperatures up to 100 °C.
ALG..3B	**S55846-Z1..**	

Ordering

Example:

Product number	*Stock no.*	*Description*	*Quantity*
VVP45.15-2.5	VVP45.15-2.5	2-port valve	20
ALG142	ALG142	Set of 2 fittings	20
VXP45.25-10	VXP45.25-10	3-port valve	3
ALG253	ALG253	Set of 3 fittings	3
VMP45.20-4	VMP45.20-4	3-port valve with T-bypass	10
ALG152B	S55846-Z100	Set of 2 fittings	20

For 3-port valves with T-bypass VMP45..order two sets of 2 screwed fittings.

Delivery — Valves, actuators and accessories are packed and supplied separately.

Spare parts, rev. no. — See overview, page 10.

Equipment combinations

Valves	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.
VVP45.10-0.25 to 1.6	400	725				ALG132 [1]	ALG132
VVP45.15-2.5	350	350				ALG142 [1]	ALG142
VVP45.20-4	350	350	350	350	ALG152	ALG152B [2]	S55846-Z100
VVP45.25-6.3	300	300	300	300	ALG202	ALG202B [2]	S55846-Z102
VVP45.25-10			300	300	ALG252	ALG252B [2]	S55846-Z104
VVP45.32-16			175	175	ALG322	ALG322B [2]	S55846-Z106
VVP45.40-25			75	75	ALG402	ALG402B [2]	S55846-Z108
VXP45.10-0.25 to 1.6	400					ALG133 [1]	ALG133
VXP45.15-2.5	350					ALG143 [1]	ALG143
VXP45.20-4	350		350		ALG153	ALG153B [2]	S55846-Z101
VXP45.25-6.3	300		300		ALG203	ALG203B [2]	S55846-Z103
VXP45.25-10			300		ALG253	ALG253B [2]	S55846-Z105
VXP45.32-16			175		ALG323	ALG323B [2]	S55846-Z107
VXP45.40-25			75		ALG403	ALG403B [2]	S55846-Z109
VMP45.10-0.25 to 1.6	400					2 x ALG132 [1]	ALG132
VMP45.15-2.5	350					2 x ALG142 [1]	ALG142
VMP45.20-4	350				2 x ALG152	2 x ALG152B [2]	S55846-Z100

[1] Connecting thread pipe side: Internally threaded

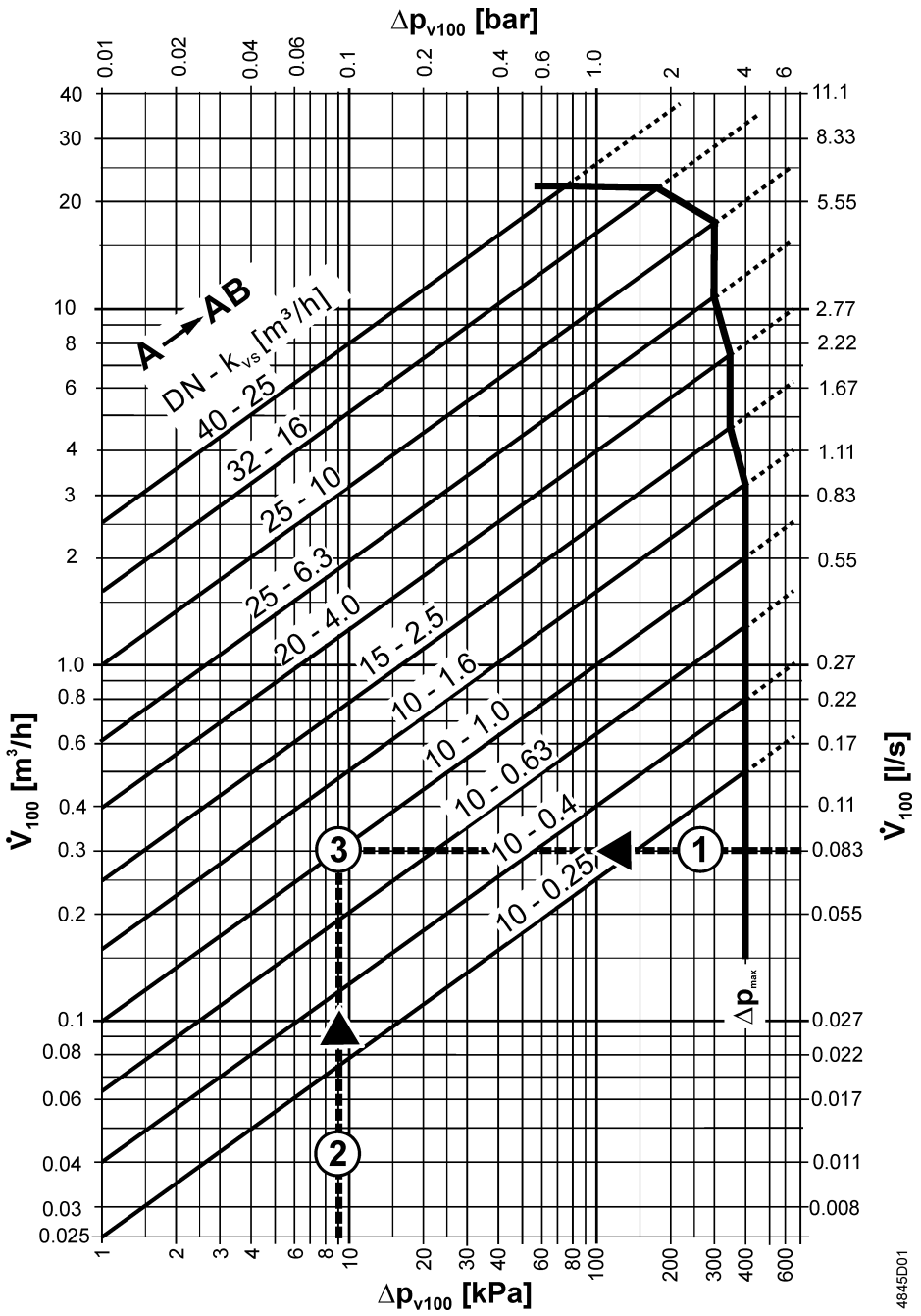
[2] Usable up to maximum medium temperature of 100 °C

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

Type reference	Operating voltage	Positioning signal	Positioning time	Positioning force	for valves with k_{vs}	Data sheet
SSB31..	AC 230 V	3-position	150 s	200 N	to 6.3 m^3/h	N4891
SSB81..	AC 24 V					
SSB61..	AC/DC 24 V	DC 0...10 V	75 s			
SSC31..	AC 230 V	3-position	150 s	300 N	from 4 m^3/h	N4895
SSC81..	AC 24 V					
SSC61..	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 by a volume flow V_{100}

$\dot{V}_{100}$ =

100 kPa = 1 bar ≈ 10 mWS

1 m^3/h = 0.278 l/s water at 20 °C

Example:

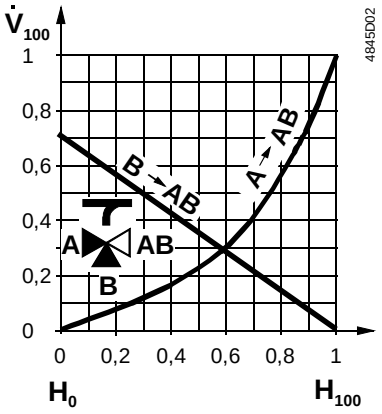
1 $\dot{V}_{100}$ = 0.083 l/s

2 Δp_{v100} = 9 kPa

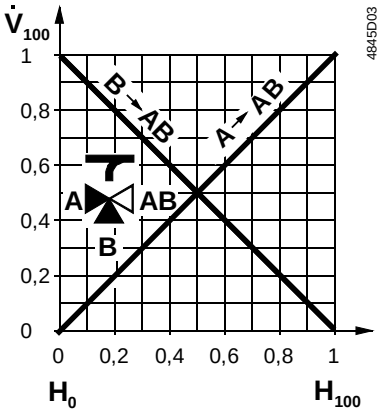
3 → k_{vs}-value = 1.0 m^3/h

Valve flow characteristic

V..45.10-0.25 to V..45.25-6.3

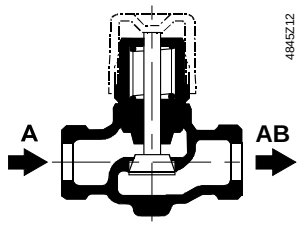
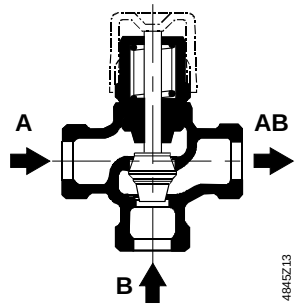
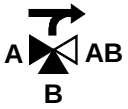
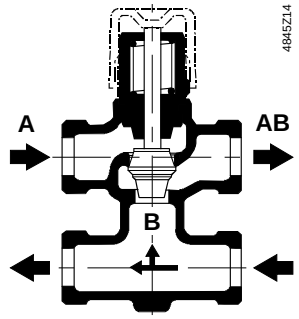
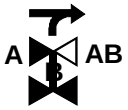


V..P45.25-10 to V..P45.40-25



The k_{VS}-values in bypass B for valve types V..45.10-0.25.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 keeping 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 	**VVP45..** 	variable		variable	A → AB opens	A → AB closes
3-port valves 	**VXP45..** 	variable	variable	constant	A → AB opens AB B closes	A → AB closes AB B opens
3-port valves with T-bypass 	**VMP45..** 	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 VXP45.. and VMP45.. may only be used in mixing applications

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.

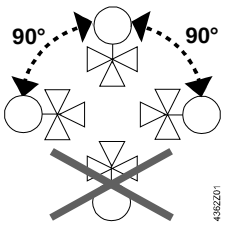
Recommendation: Always use a strainer upstream of the valve to increase the valve's functional safety.

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 has 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 / actuator:

- Deactivate the pump and turn off the power supply
- Close the shuttoff 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 certain 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 office or branch.

Disposal

Do not dispose of the device as household waste.

⚠ **Warning**
Due to the tensioned spring return, valve disassembly may result in flying parts causing possible injury.
Only authorized staff may disassemble valves with tensioned spring return!

Disposal

- Special handling of individual components may be mandated by law or make ecological sense.
- Observe all local and currently applicable laws and regulations.

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

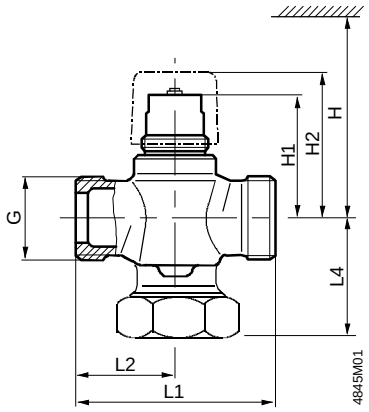
Functional data	PN class		PN16 to EN 1333
	Permissible operating pressure		1600 kPa (16 bar) to ISO 7628 / EN 1333
	Valve flow characteristic		
	Through-port A → AB	to k_{vs} 6.3	equal percentage; n_{gl} = 2.2 to VDI / VDE 2173
	Through-port A → AB	from k_{vs} 10	linear
	Bypass B → AB		linear
	Leakage 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
	Fitting bypass		VVP45.., k_{vs} 6.3 to 25:
		union nut	Malleable cast iron
		disc	Stainless steel
		gasket	Klinger SIL C-4300
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, directives and approvals	Pressure Equipment Directive		PED 2014/68/EU
	Pressure Accessories		Scope: Article 1, section 1
			Definitions: Article 2, section 5
	Fluid group 2		without CE-marking as per article 4, section 3 (sound engineering practice) [1)]
	EAC Conformity		Eurasia Conformity
Environmental compatibility	The product environmental declaration CE1E4845en [2)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).		

[1)] Valves where PS x DN < 1000, do not require special testing and cannot carry the CE label.

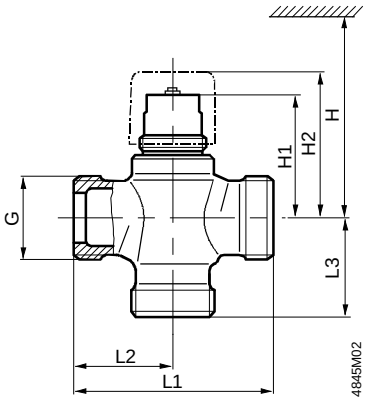
[2)] The documents can be downloaded from http://siemens.com/bt/download.

Dimensions

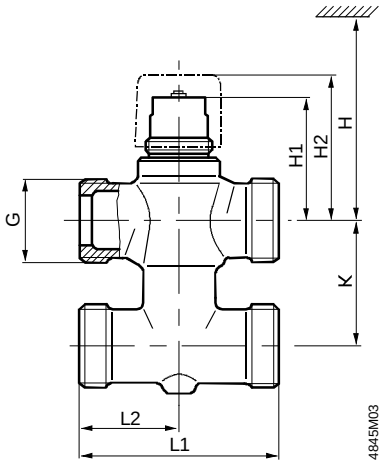
2-port valves
VVP45..



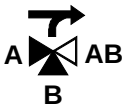
3-port valves
VXP45..



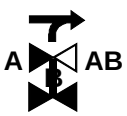
3-port valves with T-bypass
VMP45..



Type reference	DN	G [inch]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	L2 [mm]	L4 [mm]	Weight [kg]
VVP45.10-0.25…1.6	10	G ½B	> 200	44.9	≈ 54	60	30	20	0.26
VVP45.15-2.5	15	G ¾B		44.9	≈ 54	65	32,5	20	0.30
VVP45.20-4	20	G 1B		48.9	≈ 58	80	40	24	0.42
VVP45.25-6.3	25	G 1¼B		51	≈ 60	80	40	49	0.76
VVP45.25-10		G 1½B	> 280	62.5	≈ 71	105	52.5	62.5	1.40
VVP45.32-16	32	G 2B		69	≈ 78	105	52.5	63.5	1.95
VVP45.40-25	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]
VXP45.10-0.25…1.6	10	G ½B	> 200	44.9	≈ 54	60	30	30	0.28
VXP45.15-2.5	15	G ¾B		44.9	≈ 54	65	32.5	32.5	0.34
VXP45.20-4	20	G 1B		48.9	≈ 58	80	40	40	0.48
VXP45.25-6.3	25	G 1¼B		51	≈ 60	80	40	40	0.64
VXP45.25-10	25	G 1½B	> 280	62.5	≈ 81	105	52.5	52.5	1.20
VXP45.32-16	32	G 2B		69	≈ 88	105	52.5	52.5	1.60
VXP45.40-25	40	G 2¼B		72	≈ 91	130	65	65	2.30



Type reference	DN	G [inch]	H [mm]	H1 [mm]	H2 [mm]	K [mm]	L1 [mm]	L2 [mm]	Weight [kg]
VMP45.10-0.25…1.6	10	G ½B	> 200	44.9	≈ 54	40	60	30	0.36
VMP45.15-2.5	15	G ¾B		44.9	≈ 54	40	65	32.5	0.46
VMP45.20-4	20	G 1B		48.9	≈ 58	50	80	40	0.64

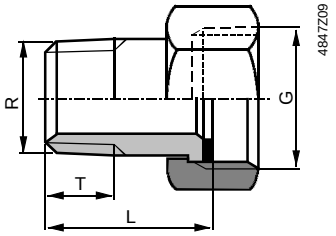
Sets of screwed fittings with flat seal

available from Siemens

ALG…2: set of 2 screwed fittings
ALG…3: set of 3 screwed fittings

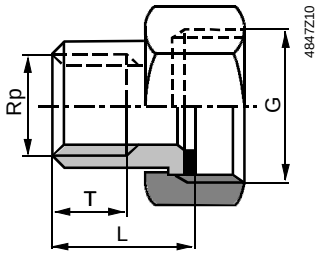
ALG132
ALG133
ALG142
ALG143

pipe side with externally R threads



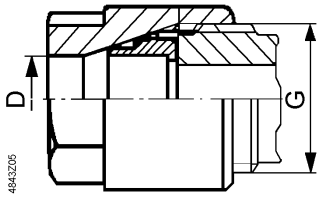
ALG152	ALG152B
ALG153	ALG153B
ALG202	ALG202B
ALG203	ALG203B
ALG252	ALG252B
ALG253	ALG253B
ALG322	ALG322B
ALG323	ALG323B
ALG402	ALG402B
ALG403	ALG403B

pipe side with internally Rp 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	VVP45.10-0.25...1.6	10	G½	R⅜		≈ 24	≈ 9	**SO 00021-12-1/2"**	12
	ALG133	VXP45.10-0.25...1.6							**SO 00021-14-1/2"**	14
	2 x ALG132	VMP45.10-0.25...1.6							**SO 00021-15-1/2"**	15
	ALG142	VVP45.15-2.5	15	G¾	R½		≈ 29,5	≈ 12	**SO 00021-17-3/4"**	17
	ALG143	VXP45.15-2.5							**SO 00021-18-3/4"**	18
	2 x ALG142	VMP45.15-2.5								
ALG152	**ALG152B**	VVP45.20-4	20	G1		Rp½	≈ 23	≈ 13		
ALG153	**ALG153B**	VXP45.20-4								
2 x ALG152	**2 x ALG152B**	VMP45.20-4								
ALG202	**ALG202B**	VVP45.25-6.3	25	G1¼		Rp¾	≈ 25	≈ 15		
ALG203	**ALG203B**	VXP45.25-6.3								
ALG252	**ALG252B**	VVP45.25-10		G1½		Rp1	≈ 27	≈ 17		
ALG253	**ALG253B**	VXP45.25-10								
ALG322	**ALG322B**	VVP45.32-16	32	G2		Rp1¼	≈ 32	≈ 19		
ALG323	**ALG323B**	VXP45.32-16								
ALG402	**ALG402B**	VVP45.40-25	40	G2¼		Rp1½	≈ 32	≈ 19		
ALG403	**ALG403B**	VXP45.40-25								

[1] Usable up to maximum medium temperature of 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	Number
74 6760 273 0	74 6760 273 0	Manual knob for short stroke valves	10

Revision numbers

Type	Valid from rev. no.	Type	Valid from rev. no.	Type	Valid from rev. no.
VVP45.10-0.25	/01	VXP45.10-0.25	/01	VMP45.10-0.25	/01
VVP45.10-0.4	/01	VXP45.10-0.4	/01	VMP45.10-0.4	/01
VVP45.10-0.63	/01	VXP45.10-0.63	/01	VMP45.10-0.63	/01
VVP45.10-1	/01	VXP45.10-1	/01	VMP45.10-1	/01
VVP45.10-1.6	/01	VXP45.10-1.6	/01	VMP45.10-1.6	/01
VVP45.15-2.5	/01	VXP45.15-2.5	/01	VMP45.15-2.5	/01
VVP45.20-4	/01	VXP45.20-4	/01	VMP45.20-4	/01
VVP45.25-6.3	/01	VXP45.25-6.3	/01		
VVP45.25-10	/01	VXP45.25-10	/01		
VVP45.32-16	/01	VXP45.32-16	/01		
VVP45.40-25	/01	VXP45.40-25	/01		

Issued by
Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Theilerstrasse 1a
6300 Zug
Switzerland
Tel. +41 41-724 24 24
www.siemens.com/buildingtechnologies