



2-port valves
VVP45.10-0.25 to VVP45.25-6.3



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



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



2-port valves
VVP45.25-10 to VVP45.40-25



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



2-Port and 3-Port Valves PN 16

VVP45...
VXP45...
VMP45...

- Bronze CC491K (Rg5) valve body
- DN 10...DN 40
- k_{vs} 0.25...25m³/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 21... (available from suppliers to the trade)
- Manual adjuster
- Can be equipped with SSB... or SSC... motoric 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 storeys in a building
 - Apartments
 - Individual rooms

Type summary

VVP45... 2-port	VXP45... 3-port	VMP45... 3-port with 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	G½B	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	G¾B	2.5	1.75	
VVP45.20-4	VXP45.20-4	VMP45.20-4	20	G1B	4.0	2.80	
VVP45.25-6.3	VXP45.25-6.3		25	G1¼B	6.3	4.40	> 100
VVP45.25-10	VXP45.25-10			G1½B	10		
VVP45.32-16	VXP45.32-16		32	G2B	16		
VVP45.40-25	VXP45.40-25		40	G2¼B	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

Type reference	Description
ALG...2	Set of 2 screwed fittings for 2-port valves, consisting of <ul style="list-style-type: none"> - 2 union nuts - 2 discs and - 2 flat seals
ALG...3	Set of 3 screwed fittings for 3-port valves, consisting of <ul style="list-style-type: none"> - 3 union nuts - 3 discs and - 3 flat seals

Order

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

Example: 3 valves VXP45.25-10
3 sets of screwed fittings ALG253

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

Delivery

Valves, actuators and accessories are packed and supplied separately.

Equipment combinations

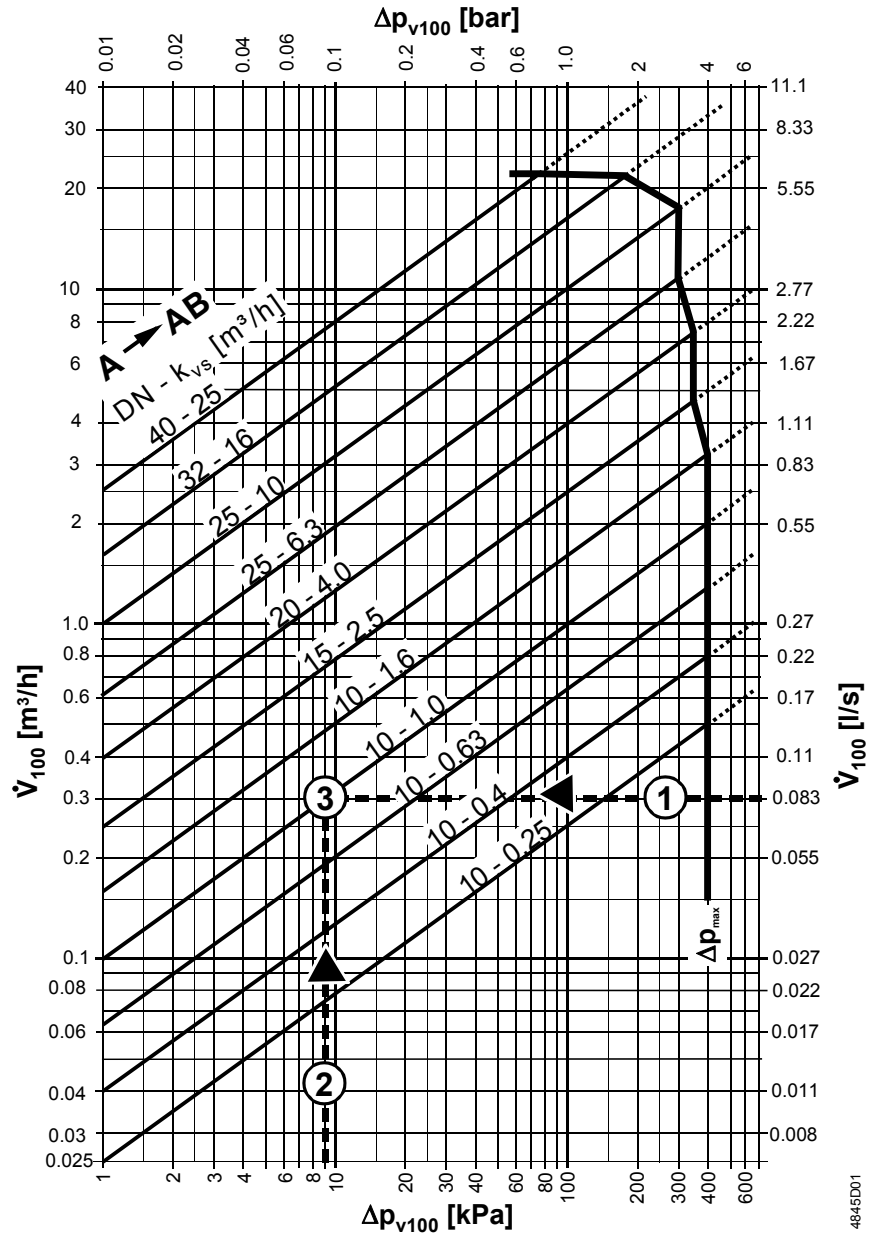
Valves	SSB actuators		SSC actuators		Sets of screwed fittings Siemens			
	Δp_{\max} [kPa]	Δp_s [kPa]	Δp_{\max} [kPa]	Δp_s [kPa]	Male thread	Female thread		
VVP45.10-0.25 bis 1.6	400	725			ALG132			
VVP45.15-2.5	350	350			ALG142			
VVP45.20-4	350	350			ALG152			
VVP45.25-6.3	300	300			ALG202			
VVP45.25-10					300		300	ALG252
VVP45.32-16					175		175	ALG322
VVP45.40-25					75		75	ALG402
VXP45.10-0.25 bis 1.6			400				ALG133	
VXP45.15-2.5	350	ALG143						
VXP45.20-4	350	ALG153						
VXP45.25-6.3	300	ALG203						
VXP45.25-10			300				ALG253	
VXP45.32-16			175				ALG323	
VXP45.40-25			75				ALG403	
VMP45.10-0.25 bis 1.6			400				2 x ALG132	
VMP45.15-2.5	350	2 x ALG142						
VMP45.20-4	350	2 x ALG152						
Data sheet	N4891		N4895					

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 motorised 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}
SSB31...	AC 230 V	3-position	150 s	200 N	to 6.3 m ³ /h
SSB81...	AC 24 V		DC 0...10 V		
SSB61...					
SSC31...	AC 230 V	3-position	150 s	300 N	from 10 m ³ /h
SSC81...	AC 24 V		DC 0...10 V		
SSC61...					



- Δp_{max} = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorised 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} = Volume flow through the fully open valve (H_{100})
- 100 kPa = 1 bar \approx 10 mWS
- 1 m³/h = 0.278 l/s water at 20 °C

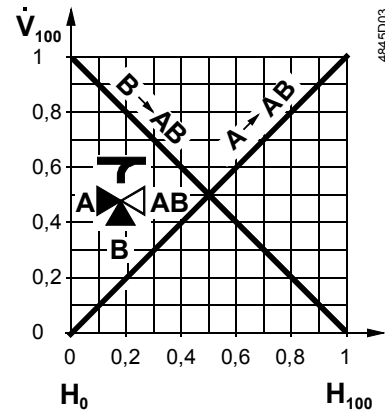
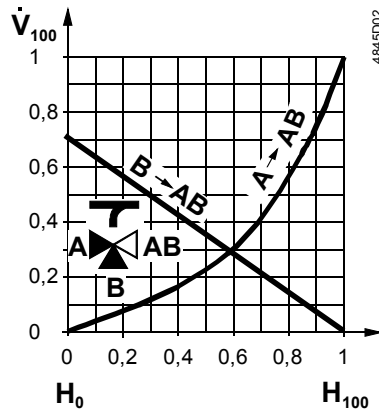
Example:

1	\dot{V}_{100}	=	0.083 l/s
2	Δp_{v100}	=	9 kPa
3	$\rightarrow k_{vs}$ -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... 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
<p>2-port valves</p> <p>4845Z12</p>	<p>VVP45...</p>	variable		variable	A → AB opens	A → AB closes
<p>3-port valves</p> <p>4845Z13</p>	<p>VXP45...</p>	variable	variable	constant	A → AB opens B → AB closes	A → AB closes B → AB opens
<p>3-port valves with bypass</p> <p>4845Z14</p>	<p>VMP45...</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 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.

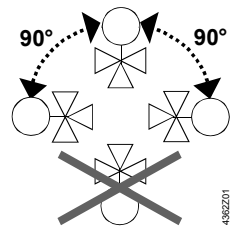
Recommendation: Always use a strainer upstream of the valve to increase the valve's functional safety.

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 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

Warning

V...P45... valves require no maintenance.

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 and allow pipes to completely cool down

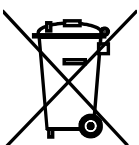
If necessary, disconnect the electrical wires.

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



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

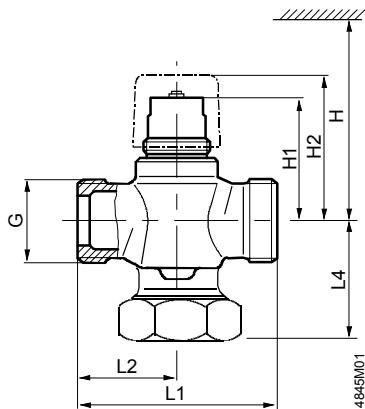
The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under «Equipment combinations».
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

Technical data

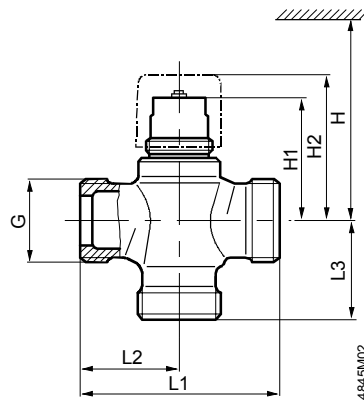
Functional data	PN class	PN16 to EN 1333
	Permissible operating pressure	1600 kPa (16 bar) to ISO 7628 / EN 1333
	Valve flow characteristic	
	Through-port A → AB to k_{vs} 6.3	equal percentage; $n_{gl} = 2.2$ to VDI / VDE 2173
	Through-port A → AB from k_{vs} 10	linear
	Bypass B → AB	linear
	Leakage rate	
	Through-port A → AB	to DIN EN 1349 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
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)
Materials	Valve body	bronze CC491K (Rg5)
	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 $\frac{3}{4}$ "
	Weight	refer to «Dimensions»
Accessories	ALG... screwed fittings (supplier: Siemens)	nut, nipple and flat seal for steel pipes with gas-pipe threads
	SERTO SO 21... screwed fittings (available from suppliers to the trade)	nut and compression fitting for seamless copper and mild-steel piping

Dimensions

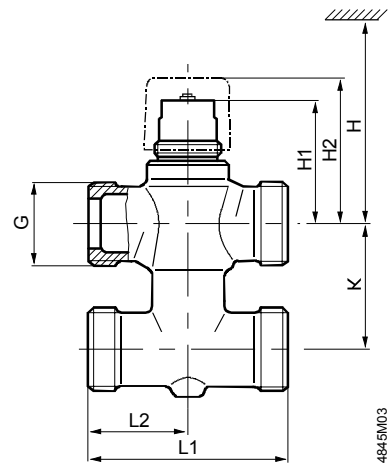
2-port valves VVP45...



3-port valves VXP45...



3-port valves with 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	G½B	> 200	44.9	≈ 54	60	30	20	0.26
VVP45.15-2.5	15	G¾B		44.9	≈ 54	65	32,5	20	0.30
VVP45.20-4	20	G1B		48.9	≈ 58	80	40	24	0.42
VVP45.25-6.3	25	G1¼B	> 280	51	≈ 60	80	40	49	0.76
VVP45.25-10		G1½B		62.5	≈ 71	105	52.5	62.5	1.40
VVP45.32-16	32	G2B	> 280	69	≈ 78	105	52.5	63.5	1.95
VVP45.40-25	40	G2¼B		72	≈ 81	130	65	76	2.75

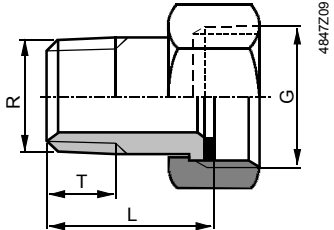
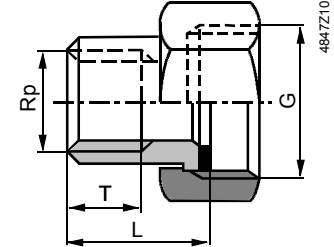
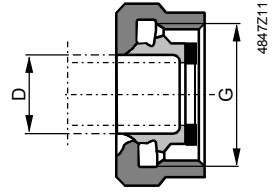


Type reference	DN	G [inch]	H [mm]	H1 [mm]	H2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Weight [kg]
VXP45.10-0.25...1.6	10	G½B	> 200	44.9	≈ 54	60	30	30	0.28
VXP45.15-2.5	15	G¾B		44.9	≈ 54	65	32.5	32.5	0.34
VXP45.20-4	20	G1B		48.9	≈ 58	80	40	40	0.48
VXP45.25-6.3	25	G1¼B	> 280	51	≈ 60	80	40	40	0.64
VXP45.25-10	25	G1½B		62.5	≈ 81	105	52.5	52.5	1.20
VXP45.32-16	32	G2B	> 280	69	≈ 88	105	52.5	52.5	1.60
VXP45.40-25	40	G2¼B		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	G½B	> 200	44.9	≈ 54	40	60	30	0.36
VMP45.15-2.5	15	G¾B		44.9	≈ 54	40	65	32.5	0.46
VMP45.20-4	20	G1B		48.9	≈ 58	50	80	40	0.64

Screwed fittings

<p>Sets of screwed fittings with flat seal</p> <p>available from Siemens</p> <p>ALG...2: set of 2 screwed fittings</p> <p>ALG...3: set of 3 screwed fittings</p>	<p>ALG132 ALG133 ALG142 ALG143</p> <p>with male thread</p> 
	<p>ALG152 ALG153 ALG202 ALG203 ALG252 ALG253 ALG322 ALG323 ALG402 ALG403</p> <p>with female thread</p> 
<p>Compression fittings</p> <p>available from suppliers to the trade</p>	<p>SERTO SO 21...</p> 

ALG... type	for valve type	DN	G	R	Rp	L	T	SERTO type SO 21...	D
			[inch]	[inch]	[inch]	[mm]	[mm]		[mm]
ALG132	VVP45.10-0.25...1.6	10	G½	R¾		≈ 24	≈ 9	SO 21-12-1/2"	12
ALG133	VXP45.10-0.25...1.6							SO 21-14-1/2"	14
2 x ALG132	VMP45.10-0.25...1.6							SO 21-15-1/2"	15
ALG142	VVP45.15-2.5	15	G¾	R½		≈ 29.5	≈ 12	SO 21-17-3/4"	17
ALG143	VXP45.15-2.5							SO 21-18-3/4"	18
2 x ALG142	VMP45.15-2.5								
ALG152	VVP45.20-4	20	G1			Rp½	≈ 23	≈ 13	
ALG153	VXP45.20-4								
2 x ALG152	VMP45.20-4								
ALG202	VVP45.25-6.3	25	G1¼			Rp¾	≈ 25	≈ 15	
ALG203	VXP45.25-6.3								
ALG252	VVP45.25-10		G1½				Rp1	≈ 27	
ALG253	VXP45.25-10								
ALG322	VVP45.32-16	32	G2			Rp1¼	≈ 32	≈ 19	
ALG323	VXP45.32-16								
ALG402	VVP45.40-25	40	G2¼			Rp1½	≈ 32	≈ 19	
ALG403	VXP45.40-25								

DN = Nominal size
 G = Valve thread (internal cylindrical)
 D = External diameter for seamless copper and mild-steel piping

