SIEMENS









Three-port valves (3-ports) VVP45.10-0.25 to VVP45.25-6.3 VXP45.10-0.25 to VXP45.25-6.3 VXK45...



Three-port valves with T bypass (4-ports) VMP45.10-0.25 to VMP45.25-4 VMK45...



Two-port valves (2-ports) VVP45.25-10 to VVP45.40-25



Three-port valves (3-ports) VXP45.25-10 to VXP45.40-25



Two-port and three-port small valves PN16, **ANSI Class 250**

V....P45.... V....K45....

- Two-port valves, types VVP45... and VVK45.10-...
- Three-port valves, types VXP45... and VXK45.10-...
- Three-port valves with T bypass, types VMP45... and VMK45.10-...
- Nominal pressure 16 bar, ANSI Class 250
- Bronze (Rg5) valve body
- DN10, DN15, DN20, DN25, DN32 and DN40
- DN10 valves available with thread for compression fitting (V...K45.10-...)
- Male threaded connections G...B
- Nominal stroke 5.5 mm
- Manual adjuster
- Screwed fittings ALG... with flat seal, available from Landis & Staefa
- SERTO compression fittings, type SO21... available from suppliers to the trade
- Can be fitted with type SSB... or SSC... electric actuators

	 In ventilation and air-conditioning syst circuits, e.g. induction units, fan coil units. Two-pipe systems with one heat ex -Four-pipe systems with two separations In closed-circuit zone heating system - Individual storeys in a building Apartments Individual rooms 	ems for water-side terminal unit control in closed nits, small reheaters and small re-coolers, for use schanger for heating and cooling te heat exchangers for heating and cooling ns, e.g.		
Media	Hot water:Chilled water:Water containing anti-freeze agent	Max. 110 °C, short-term max. 120 °C Above 2 °C		
Recommendation:	Water should be treated as specified in	VDI 2035		
Operating pressure	Max. 1600 kPa (16 bar) in accordance with ISO 7268 (DIN 2401) and ANSI Class 250 as per ASME B16.15.			

Type summary

Valve types VVP45... with threaded connections G...B
Valve types V...K45.10-... for compression fittings only

DN	Connection	k _{vs}	VV45 (2-ports)	VX45 (3-ports)	VM45 (4-ports)	k _{vs} Bypass	Sv	Δp _s	Δp _{max} ¹⁾	Actu Positi for	ator oning ce
[mm]		[m ³ /h]				[m ³ /h]		[kPa]	[kPa] 1)	200N	300N
10	G½B	0.25	VVP45.10-0.25	VXP45.10-0.25	VMP45.10-0.25	0.18	> 50	600	200	SSB	SSC
		0.4	VVP45.10-0.4	VXP45.10-0.4	VMP45.10-0.4	0.28					
		0.63	VVP45.10-0.63	VXP45.10-0.63	VMP45.10-0.63	0.44					
		1.0	VVP45.10-1	VXP45.10-1	VMP45.10-1	0.70					
		1.6	VVP45.10-1.6	VXP45.10-1.6	VMP45.10-1.6	1.12					
10	For	0.25	VVK45.10-0.25	VXK45.10-0.25	VMK45.10-0.25	0.18					
	compression	0.4	VVK45.10-0.4	VXK45.10-0.4	VMK45.10-0.4	0.28					
	G ¹ / _A B	0.63	VVK45.10-0.63	VXK45.10-0.63	VMK45.10-0.63	0.44					
	0720	1.0	VVK45.10-1	VXK45.10-1	VMK45.10-1	0.70					
		1.6	VVK45.10-1.6	VXK45.10-1.6	VMK45.10-1.6	1.12					
15	G¾B	2.5	VVP45.15-2.5	VXP45.15-2.5	VMP45.15-2.5	1.75		400			
20	G1B	4.0	VVP45.20-4	VXP45.20-4	VMP45.20-4	2.80					
25	G1¼B	6.3	VVP45.25-6.3	VXP45.25-6.3		4.40		200			
25	G1½B	10	VVP45.25-10	VXP45.25-10		10	> 100	300	200		SSC
32	G2B	16	VVP45.32-16	VXP45.32-16		16		150	150		
40	G2¼B	25	VVP45.40-25	VXP45.40-25		25		70	70		

¹⁾ For Δp_{max} = Where Δp_{max} is above 100 kPa, there is an increased risk of noise and erosion on the seat and plug.

- Δp_s = Max. admissible pressure differential in kPa at which the valve is still capable of closing against the pressure.
- Δp_{max} = Max. admissible pressure differential across the closed valve/actuator assembly.
- k_{vs} = Flow rate in m³/h of water at 20 °C through the valve at nominal stroke (100 %) and at a pressure differential of 1 bar.
- k_{vr} = Minimum flow rate through the valve in m³/h at a pressure differential of 1 bar, at which the flow-characteristic tolerances can still be maintained.
- S_v = Rangeability (k_{vs} / k_{vr})

Threaded fittings

for \	/P45
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DN	Valve	For valve type	Landis	& Staefa	Supplier:	SERTO
	threads		Male	Female		Exernal
[mm]			thread	thread		pipe diameter
10	G½B	VP45.10-0.25	ALG13		SO 21-12-1/2"	12 mm
		to			SO 21-14-1/2"	14 mm
		VP45.10-1.6			SO 21-15-1/2"	15 mm
15	G¾B	VP45.15-2.5	ALG14		SO 21-17-3/4"	17 mm
					SO 21-18-3/4"	18 mm
20	G1B	VP45.20-4		ALG15		
25	G1¼B	VVP45.25-6.3		ALG20		
		VXP45.25-6.3				
25	G1½B	VVP45.25-10		ALG25		
		VXP45.25-10				
32	G2B	VVP45.32-16		ALG32		
		VXP45.32-16				
40	G2¼B	VVP45.40-25		ALG40		
		VXP45.40-25				

Compression fittings

for V...K45.10-...

DN	Valve	For valve type	Supplier: CONEX	Supplier: KUTERLITE
	threads		Standard Compression	Standard Compression
[mm]			Fittings (Type A)	Fittings
10	G½B	VK45.10-0.25	Compression fitting 65/15	Compression fitting 978B
		bis	Union nut 63/15	Union nut 978A
		VK45.10-1.6	External pipe diameter	External pipe diameter
			15 mm	15 mm

Other L&S valves

Other PN16 valves with a stroke of 5.5 mm and screwed fittings, but with higher pressure differentials:

Туре	Valve description	Data sheet
VVG44	Two-port valves PN16	N4364
VVI52.15	Two-port valves PN16/25	N4377
VVG55	Two-port valves PN25	N4379
VXG44	Three-port valves PN16	N4464
VMP43	Two-port valves PN16 Three-port valves PN16 Three-port valves with T bypass PN16	N4841

Ordering

When ordering, please specify the quantity, product name and type code, plus the quantity of ALG... screwed fittings required, if any. The ALG...screwed fittings (Landis & Staefa) and the SS... actuators must be ordered as separate items.

1 three-port valve with T bypass, type VMP45.10-1, and Example 4 sets fittings, type ALG13

Delivery

The valves, actuators and screwed fittings are packed separately.

Valve types V...45.10-0,25 to V...45.25-6,3 are operated with type SSB... actuators (see data sheet N4891) or type SSC... actuators (see data sheet N4895) whereas valve types V...P45.25-10, V...45.32-16 and V...P45.40-25 are only operated with type SSC... actuators.

Actuator	Operating voltage	Control	Run-time	Positioning force	To k _{vs}
SSB31	AC 230 V	3-position	150 s	200 N	6.3 m ³ /h
SSB61	AC 24 V	DC 010 V	75 s		
SSB81	AC 24 V	3-position	150 s		
SSC31	AC 230 V	3-position	150 s	300 N	25 m³/h
SSC61	AC 24 V	DC 010 V	30 s		
SSC81	AC 24 V	3-position	150 s		

Sizing

Key:	
	$\begin{array}{l} \Delta p_{vmax} \\ (Where \ \Delta p_{vmax} \ is \ above \ 100 \ kPa, \\ there \ is \ an \ increased \ risk \ of \ noise \\ and \ erosion \ on \ the \ seat \ and \ plug.) \end{array}$
	k_{vs} -value in straight-through control path $A \rightarrow AB$
100 kPa	1 bar ≈ 10 mWS
1 m³/h	0.278 l/s water at 20 °C
Δp_{max}	Maximum admissible pressure differential across the closed valve/actuator assembly.
$\Delta p_{v}{}_{\text{max}}$	Maximum admissible differential pressure across the valve under all operating conditions
Δp_{v100}	Admissible differential pressure with fully open valve and nominal stroke
V 100	Maximum flow rate in I/s
The k _{vs} -value	es 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** $A \rightarrow AB$ (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.

Example:

4/10

• • •	•••••	= Example
(1)	V ₁₀₀	= 0.083 l/s
(2)	Δp_v 100	= 9 kPa

(3) Required k_{vs} value = 1.0 m³/h



Siemens Building Technologies HVAC Products

Control characteristics

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

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



Caution !

 H_0

Type VX...45... and VM...45... valves may be used only in mixing applications.

- \dot{V}_{100} = Volumetric flow rate
 - = Valve stroke 0 % = path A \rightarrow AB closed, and bypass B open
- H_{100} = Valve stroke 100 % = A \rightarrow AB open, and bypass B closed
- Port AB $\ = \ Constant$ total flow from A and B \rightarrow AB
- Port A = Variable flow in the straight-through path from $A \rightarrow AB$
- Port B = Variable flow in the bypass control path from $B \rightarrow AB$

A strainer should be fitted upstream of the valve.

Engineering notes

The valves should preferably be installed in the return, where the seals are exposed to lower temperatures. See also «Mounting» and «Commissioning».

Recommendation:

Two-port valves (2-ports) VVP45... / VVK45...



Flow only permissible in direction of arrow from $A \rightarrow AB$ (marked on valve body)

Port AB = Variable flow through straight-through port (outlet) Port A = Variable flow through straight-through port (inlet) Stem retracted: Path $A \rightarrow AB$ open

Three-port valves (3-ports) VXP45... / VXK45...



Stem extended: Path A \rightarrow AB closing

Type VXP45... and VXK45... valves may be used only in mixing applications.

Mixing: Flow from A and $B \to AB$

Three-port valves with T bypass (4 ports) VMP45... / VMK45...



Type VMP45... and VMK45... valves may be used only in mixing applications.

Mixing: Flow from A and $B \rightarrow AB$

Stem retracted: Path A \rightarrow AB open, bypass closed

Stem extended: Path A \rightarrow AB closed, bypass B open

Mounting notes

Orientation





Permissible





Not permissible

In addition, the direction of flow as described under «Engineering» must be observed. The valves are delivered in multipacks; mounting instructions are enclosed with the packaging.

Commissioning notes

Manual adjustment	The straight-through path A \rightarrow AB can be opened electrically via the actuator, or manually. With three-port valves, this throttles or closes bypass B . Manually, path A \rightarrow 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 automatically closed by a return spring.
Warning !	Before performing any service work on the valve and/or actuator: switch OFF the pump and power supply, close the main shut-off valve in the pipework, release pressure in the pipes and allow them to cool down completely. If necessary, disconnect electrical connections from terminals. The valve may be commissioned only with the manual

wheel pre-set or with a correctly mounted actuator.

Technical data

Operating data	Characteristics				
	Path $A \rightarrow AB$	For valve types with k_{vs} 0.25 to 6.3: n_{gl} = 2.2 in			
		accordance with VDI/VDE 2173 (optimised for a			
		wide controllable range).			
		For valve types with k_{vs} 10 to 25: Linear			
	_ – Bypass B	Linear			
	Leakage				
	– Path A \rightarrow AB	00.02 % of k _{vs}			
	– Bypass B	00.02 % of k _{vs}			
	Rangeability	see «Type summary»			
	Pressure class PN16	Acc. to ISO 7268 (DIN 2401)			
	ANSI Class 250	ASME B16.15			
	Nominal stroke	5.5 mm			
Materials	Valve materials				
	 Valve body 	Bronze (Rg5)			
	– Stem	Stainless steel			
	 Plug, seat, gland 	Brass			
	– O-rings	Special EPDM rubber			
Dimensions / Weights	Dimensions	see «Dimensions» (table)			
	Threaded connections				
	– Valve	GB to ISO 228/1			
	 Screwed fittings 	R/Rp to ISO 7/1			
	Weights	see «Dimensions» (table)			
Accessories	ALG screwed fittings	Nut, nipple and flat seal for steel pipes with gas-pipe			
	(supplier: Landis & Staefa)	threads			
	SO 21 screwed fittings	Nut and compression fitting for seamless copper			
	(supplier: SERTO)	and mild-steel piping			
	Compression fittings (for valves	Nut and compression fitting for seamless copper			
	VK45.10-0.25 bis VK45.10-1.6)	and mild-steel piping			

All Dimensions in mm

Two-port valves

(2-ports)

VVP45... / VVK45...



DN	D	Valve type	В	H1	H2	L1	L2	L4	G
[mm]									[kg]
10	G½B	VVP45.10-0.25 1.6	29	44.9	≈ 54	60	30		0.26
		VVK45.10-0.25 1.6							
15	G¾B	VVP45.15-2.5	31	44.9	≈ 54	65	32.5		0.30
20	G1B	VVP45.20-4	36	48.9	≈ 58	80	40		0.42
25	G1¼B	VVP45.25-6.3	42	51	≈ 60	80	40	49	0.76
25	G1½B	VVP45.25-10	70	62.5	≈ 71	105	52.5	62.5	1.40
32	G2B	VVP45.32-16	80	69	≈ 78	105	52.5	63.5	1.95
40	G2¼B	VVP45.40-25	100	72	≈ 81	130	65	76	2.75

Three-port valves

(3-ports)

VXP45... / VXK45...



DN	D	Valve type	В	H1	H2	L1	L2	L3	G
[mm]									[kg]
10	G½B	VXP45.10-0.25 1.6	29	44.9	≈ 54	60	30	30	0.28
		VXK45.10-0.25 1.6							
15	G¾B	VXP45.15-2.5	31	44.9	≈ 54	65	32.5	32.5	0.34
20	G1B	VXP45.20-4	36	48.9	≈ 58	80	40	40	0.48
25	G1¼B	VXP45.25-6.3	42	51	≈ 60	80	40	40	0.64
25	G1½B	VXP45.25-10	70	62.5	≈ 81	105	52.5	52.5	1.20
32	G2B	VXP45.32-16	80	69	≈ 88	105	52.5	52.5	1.60
40	G2¼B	VXP45.40-25	100	72	≈ 91	130	65	65	2.30



DN [mm]	D	Valve type	В	H1	H2	к	L1	L2	G [kg]
10	G½B	VMP45.10-0.25 1.6 VMK45.10-0.25 1.6	29	44.9	≈ 54	40	60	30	0.36
15	G¾B	VMP45.15-2.5	31	44.9	≈ 54	40	65	32.5	0.46
20	G1B	VMP45.20-4	36	48.9	≈ 58	50	80	40	0.64

Screwed fittings

ALG... screwed fittings with flat seal, available from Landis & Staefa

		Type code	DN (Valve) [mm]	For valve type	D	D1	D2	L ≈ [mm]	T ≈ [mm]
with male threads ALG13 and 14		ALG13	10	VP45.10-0.25 bis VP45.10-1.6	G½B	R ³ /8		24	9
		ALG14	15	VP45.15-2.5	G¾B	R½		29.5	12
with female		ALG15	20	VP45.20-4	G1B		Rp½	23	13
threads		ALG20	25	VP45.25-6.3	G1¼B		Rp¾	25	15
ALG15 to 40		ALG25	25	VP45.25-10	G1½B		Rp1	27	17
		ALG32	32	VP45.32-16	G2B		Rp1¼	32	19
	k	ALG40	40	VP45.40-25	G2¼B		Rp1½	32	19

SERTO compression fittings are not supplied by Landis & Staefa and must be ordered from your trade supplier.

	Type code		For valve type	D	D3 External diameter	
		[mm]				
)	SO 21-12-1/2"	10	VP45.10-0.25		12 mm	
	SO 21-14-1/2"		bis	G1⁄2	14 mm	
B	SO 21-15-1/2"		VP45.10-1.6		15 mm	
	SO 21-17-3/4"	15	VP45.15-2.5	G¾	17 mm	
445M	SO 21-18-3/4"				18 mm	

DN = Nominal width of valve [mm]

D = Valve thread (internal cylindrical)

D3 = External diameter for seamless copper and mild-steel piping

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