



2-port valves



3-port valve with T-bypass

ACVATIX™

2-port and 3-port valves with T-bypass PN 16

VVP45..S
VMP45..S

- Bronze CC499K valve body
- DN 10 and DN 15
- k_{vs} 0.63...2.5 m³/h
- Externally threaded connections G...B to ISO 228-1 (DN 10) and W 1 $\frac{1}{8}$ -14 to BS 84 (DN 15) for use with CONEX compression fittings for copper pipes (supplied by thirds)
- Small valves with flat seals and externally threaded connections G...B conforming to ISO 228-1, refer to Data Sheet N4845
- Manual adjuster
- Can be equipped with SSB.. 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 storeys in a building
 - Apartments
 - Individual rooms

Type summary

VVP45..S 2-port	VMP45..S 3-port with T-bypass	DN	Connection	k_{vs} A → AB [m ³ /h]	$k_{vs}^{1)}$ B → AB [m ³ /h]	S_v
VVP45.10-0.63S	VMP45.10-0.63S	10	G ½B	0,63	0,44	> 50
VVP45.10-1S	VMP45.10-1S			1,0	0,70	
VVP45.10-1.6S	VMP45.10-1.6S			1,6	1,12	
VVP45.15-2.5S	VMP45.15-2.5S	15	W 1½-14	2,5	1,75	

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)

Order

Type	Stock no.	Description	Quantity
VVP45.15-2.5S	VVP45.15-2.5S	2-port valve, PN16	3
VMP45.10-1S	VMP45.10-1S	3-port valve wit T-bypass PN16	2

Delivery

Valves and actuators are packed and supplied separately.

Spare parts, rev. Nr.

See overview page 8.

Equipment combinations

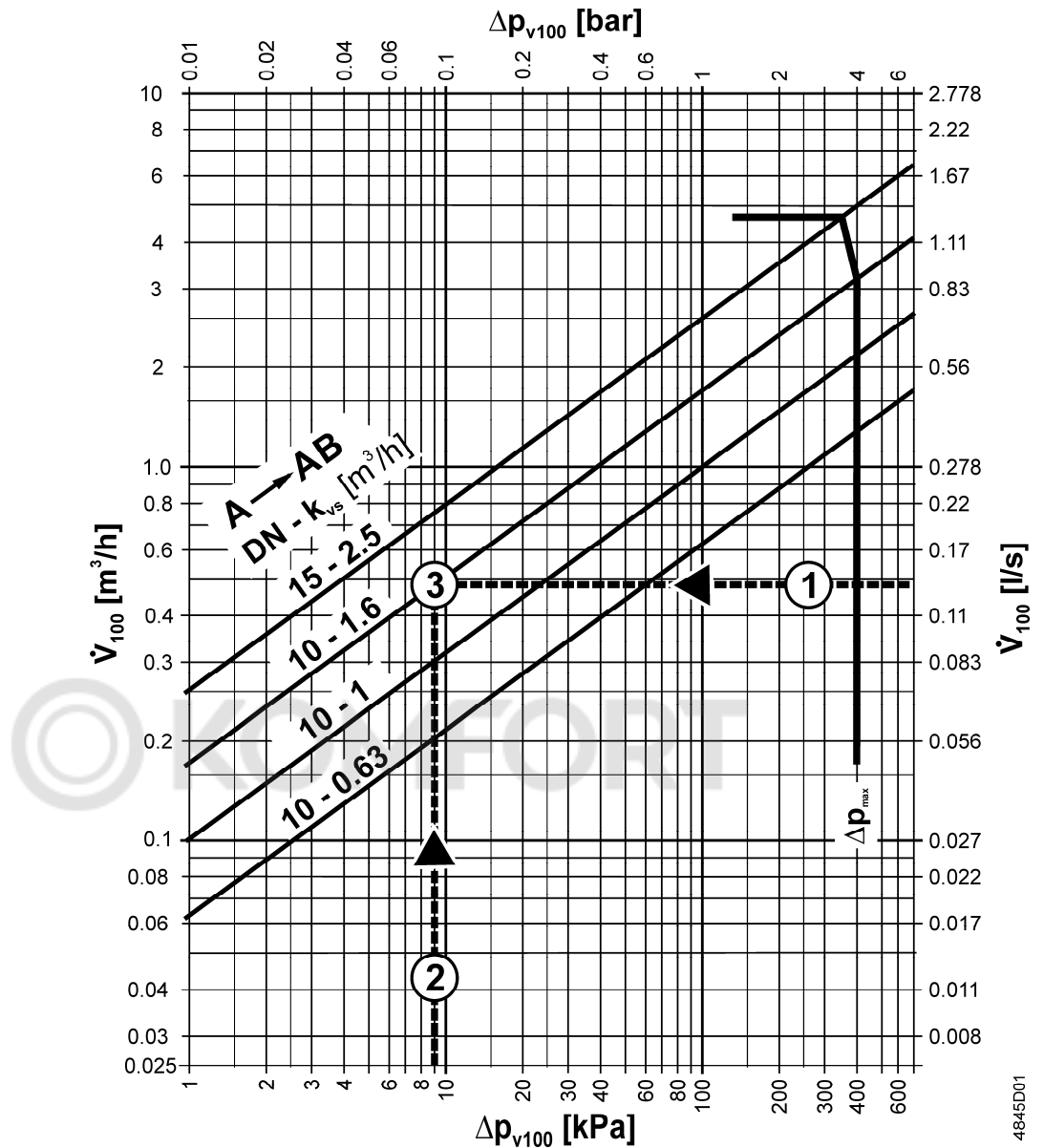
Valves	DN	Actuators SSB..	
		Δp_{max}	Δp_s
		[kPa]	
VVP45.10..S	10	400	725
VVP45.15..S	15	350	350
VMP45.10..S	10	400	
VMP45.15..S	15	350	

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	Data sheet
SSB31..	AC 230 V	3-position	150 s	200 N	N4891
SSB81..	AC 24 V				
SSB61..		DC 0...10 V	75 s		

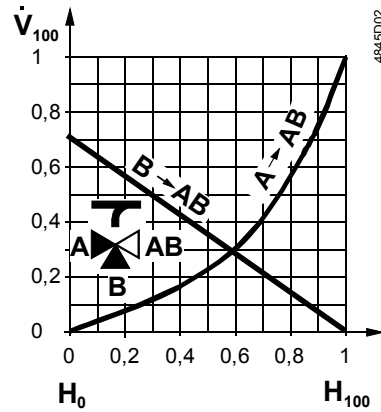


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- Δp_{max} = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve
- Δp_{V100} = Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve 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

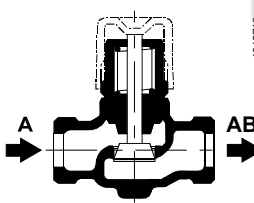

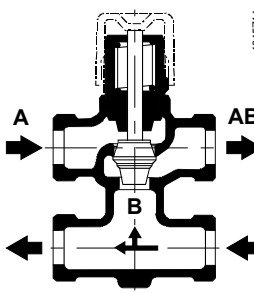

- Example:**
- 1 \dot{V}_{100} = 1,34 l/s
 - 2 Δp_{V100} = 9 kPa
 - 3 \rightarrow k_{vs}-value = 1,6 m³/h

Valve flow characteristic



The k_{vs} -values in T-bypass B 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	Retracts	extends
2-port valves 	VVP45..S 	variable		variable	A → AB opens	A → AB closes
3-port valves with T-bypass 	VMP45..S 	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 VMP45..S 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:

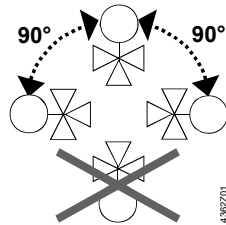
Always use a strainer upstream of the valve to increase the valve's functional safety.

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 3-port valves, this throttles or closes T-bypass B.

Manually, path A → AB can only be opened to 70 % (T-bypass closes to 30 %).

The valves are closed by a return spring.

Maintenance

V..P45..S 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».

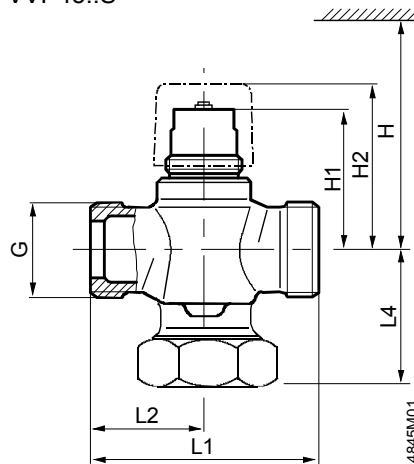
All terms of the warranty will be invalidated by the use of actuators from other manufacturers.

Technical data

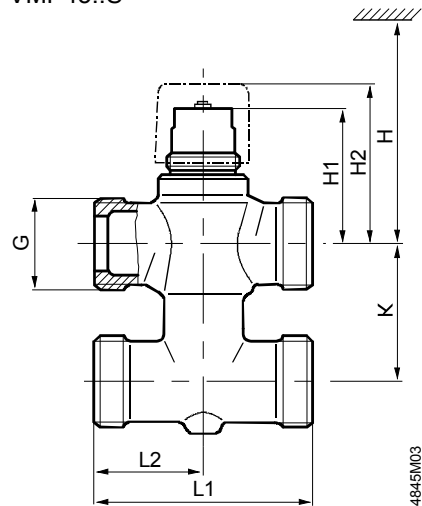
Functional data	PN class	PN 16 to EN 1333
	Permissible operating pressure	1600 kPa (16 bar) to ISO 7628 / EN 1333
	Valve flow characteristic	
	Through-port A → AB	equal percentage; $n_{gl} = 2.2$ to VDI / VDE 2173
	T-bypass B → AB	linear
	Leakage rate	to DIN EN 1349
	Through-port A → AB	0...0.02 % of k_{vs} -value
	T-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
	Nominal stroke	5.5 mm
	Industry standards	Pressure Equipment Directive
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)
Materials	Valve body	Bronze CuSn5Zn5Pb2-C (CC499K)
	Stem, spring	CrNi steel
	Plug, seat, gland	Brass
	Bearing, disc	PTFE
	Sealing gland	EPDM-O-rings
Dimensions / Weight	Dimensions	refer to «Dimensions»
	Threaded connections	
	valve DN10	G...B to ISO 228-1
	valve DN15	W1 1/8 -14 to BS 84
	threaded fittings DN10	G...B to ISO 228-1
	threaded fittings DN15	CONEX-compression fittings
	Actuator connection	G $\frac{3}{4}$ "
Weight	refer to «Dimensions»	



Dimensions

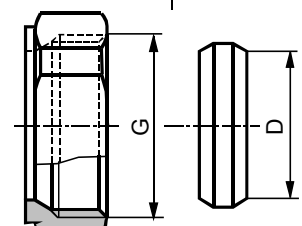
2-port valves
VVP45..S



3-port valves with T-bypass
VMP45..S



	Type reference	DN	G	H	H1	H2	L1	L2	L4	Weight
	VVP45..S		[Inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
	VVP45.10..S	10	G 1/2B	> 200	44.9	≈ 54	60	30	20	0.26
VVP45.15..S	15	W 1 1/8-14		44.9	≈ 54	65	32.5	20	0.30	
	Type reference	DN	G	H	H1	H2	K	L1	L2	Weight
	VMP45..S		[Inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
	VMP45.10..S	10	G 1/2B	> 200	44.9	≈ 54	40	60	30	0.36
	VMP45.15..S	15	W 1 1/8-14		44.9	≈ 54	40	65	32.5	0.46

Conex compression fittings available from suppliers to the trade	Union nut Conex 63	Compression ring Conex 65
		

For valve type	Type CONEX	Trade suppliers	Stock no.	DN	G	D
					[Inch]	[mm]
VVP45.10..S VMP45.10..S	Conex 63 +		E--10CO063--	10	G 1/2	15
	Conex 65		E--10CO065--			
VVP45.15-2.5S VMP45.15-2.5S	Conex 63 +		G--10CO063--	15	W 1 1/8-14	22
	Conex 65		G--10CO065--			

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

Spare parts

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

Revision numbers

Type reference	Valid from production date	Type reference	Valid from production date
VVP45.10-0.63S	../01	VMP45.10-0.63S	../01
VVP45.10-1S	../01	VMP45.10-1S	../01
VVP45.10-1.6S	../01	VMP45.10-1.6S	../01
VVP45.15-2.5S	../01	VMP45.15-2.5S	../01

