



3-Port Seat Valves with Internal Thread, PN 16

VXI48...

- Gray cast iron valve body EN-GJL-250
- DN 20, DN 25 und DN 32
- $k_{vs} 4...16 \text{ m}^3/\text{h}$
- Connections with internal threads Rp... to ISO 7/1
- Manual adjustment by means of mounted knob
- Can be equipped with STY219 thermal or SSY319... and SSC... motoric actuators

Use

- For use as a tight-sealing control and changeover valve in small heating, ventilation and air conditioning systems for mixing and diverting functions.
- Used in closed-circuit zone heating systems, e.g. for apartments, individual rooms or individual floors in a building.

Media

Cooling water	1 ... 120 °C
Chilled water	
Low temperature hot water	
Water with refrigerants	

Type summary

Type reference	DN	k_{vs} [m³/h]	S_v
VXI48.20-4	20	4	> 100
VXI48.20-6.3		6.3	
VXI48.25-10	25	10	
VXI48.32-16	32	16	

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

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

Example: 12 valves VXI48.25-10

Delivery

Valves are delivered in single packages with the following minimum ordering quantities:

Type reference	Minimum ordering quantity
VXI48.20-4	20
VXI48.20-6.3	20
VXI48.25-10	12
VXI48.32-16	10

Valves and actuators are packed and supplied separately

Equipment combinations

Valves	Actuators	
	Δp_{max} Mixing [kPa]	Δp_{max} Diverting ¹⁾ [kPa]
VXI48.20-4	275	70
VXI48.20-6.3		
VXI48.25-10	150	40
VXI48.32-16	75	20

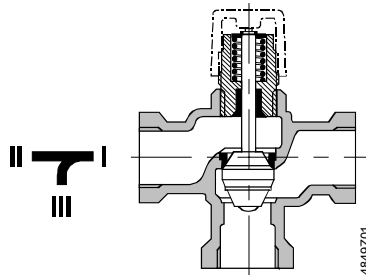
¹⁾ If noise is permitted, the same values apply as for mixing

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

Actuator overview

Type reference	Actuator type	Operating voltage	Positioning signal	Positioning time	Positioning force	Data sheet
STY219	Thermal	AC 230 V	2-position	360 s	200 N	Q4879
SSY319...	Electro-motoric		3-position	150 s	300 N	Q4899
SSC319...		Q4895				
SSC819...			AC 24 V	DC 0...10 V		30 s
SSC619...						

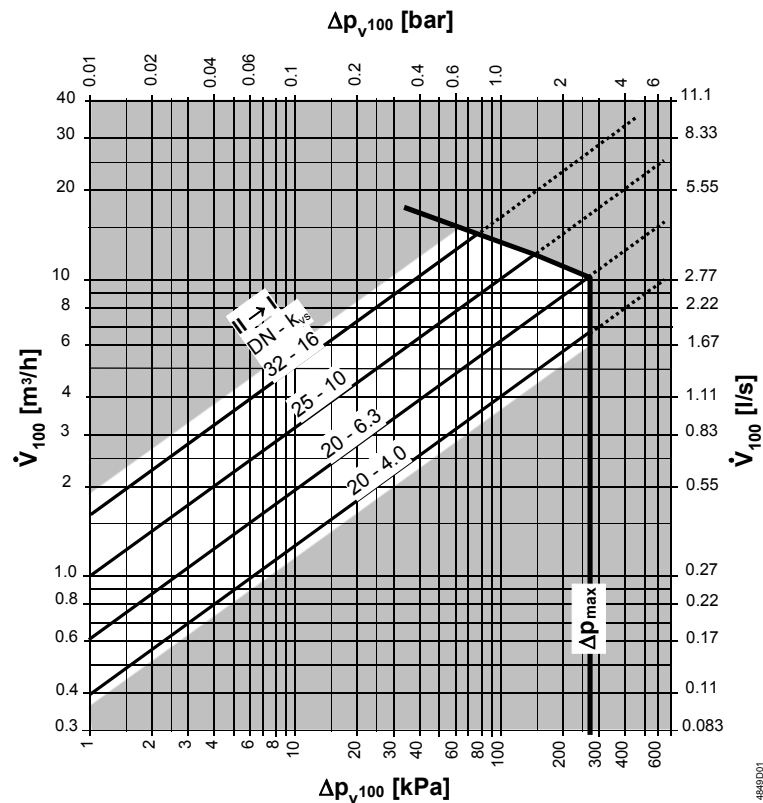
Valve cross section



- Guided parabolic plug which is attached to the valve stem.
- The seat is fitted in the through-port and attached directly to the valve body in the bypass.
- From DN25, the seat in the through-port is attached directly to the valve body and fitted to the ring in the bypass.

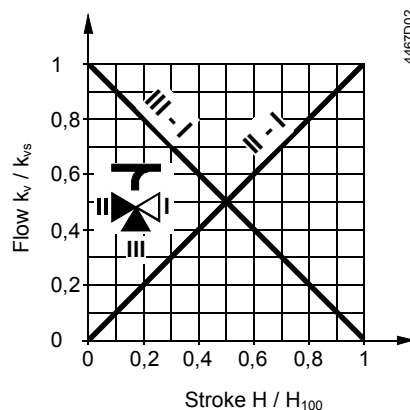
Sizing

Flow diagram



- $\Delta p_{\max}$ = 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

Valve flow characteristic



Through-port: linear as per VDI /VDE2173
Bypass: linear as per VDI /VDE2173

Mixing:

Flow from port II and III to port I

Diverting:

Flow from port I to port II and III

Port II = variable flow

Port III = bypass (variable flow)

Port I = constant flow

Use the three-port valve primarily as a mixing valve.

Notes

Engineering

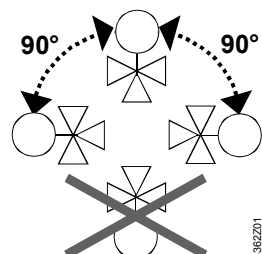
Always use a strainer upstream of the valve to increase the valve's functional safety.

Mounting

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 9597 0.

Orientation



Direction of flow

When mounting, pay attention to the valve's flow direction symbol:

- Mixing from II / III to I
- Diverting from I to II / III



Commissioning



Commission the valve only if the manual knob or the actuator have been mounted correctly.

Valve stem retracts: Through-port II – I opens, bypass III closes

Valve stem extends: Through-port II – I closes, bypass III opens

Maintenance

Warning

VXI48... 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, allow pipes to completely cool down
- If necessary, disconnect the electrical wires.

Before putting the valve into operation again, make certain 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.

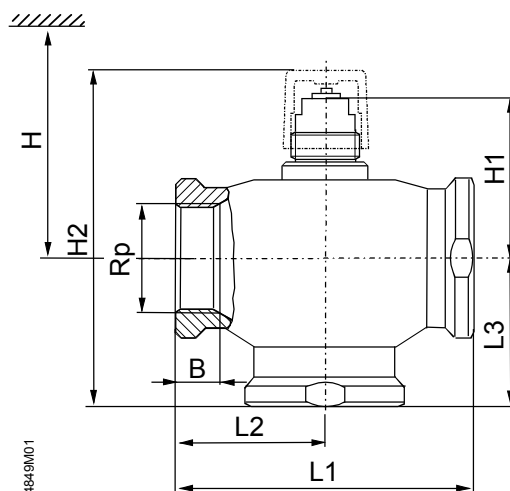
Warranty

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 7268 / EN1333
	Working pressure		to DIN 4747 / DIN 3158 in the range of 1...120 °C
	Flow characteristic	0...100 %	linear to VDI / VDE 2173 (through-port and bypass)
	Leakage rate		0...0.05 % of k_{vs} value to DIN EN 1349 (through-port and bypass)
	Permissible media		cooling water, chilled water, low temperature hot water, water with anti-freeze. recommendation: water treatment to VDI 2035
	Medium temperature		1...120 °C
	Rangeability S_v		> 100
	Nominal stroke		5.5 mm
	Pressure Equipment Directive		PED 97/23/EC
Industry standards	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		cast iron EN-GJL-250
	Seat in through-port	DN 20	brass
		> DN 20	cast iron
	Seat in bypass	DN 20	cast iron
		> DN 20	brass
	Plug		brass
	Stem		stainless steel
	Sealing gland		brass
Dimensions / Weight	gland materials		EPDM O-rings
	refer to «Dimensions»		
	Internal thread connections		Rp... to ISO 7/1
	Actuator connection		G $\frac{3}{4}$ "

Dimensions



Type reference	DN	B [mm]	Rp [Zoll]	L1 [mm]	L2 [mm]	L3 [mm]	H1 [mm]	H2 [mm]	H	Weight [kg]
VXI48.20-4	20	14.5	$\frac{3}{4}$	100	50	50	59.5	117.5	> 200	0.9
VXI48.20-6.3										1.2
VXI48.25-10	25	16.8	1	105	52.5	52.5	62.5	123		1.2
VXI48.32-16	32	17	$1\frac{1}{4}$				69	129.5		1.6

DN = Nominal size

H = Total actuator height from pipe centre plus minimum distance to the wall or the ceiling for mounting, connection, operation, service, etc.

H1 = Dimension from the pipe centre to install the actuator

H2 = Valve in «closed» position (II – I) (stem fully extended)