



Series 02

Four-port slipper valves PN10, female-threaded

VCI31..

Four-port slipper valves, PN10, female-threaded

- Grey cast iron EN-GJL-250
- DN 20...40
- k_{vs} 6.3...25 m³/h
- Angle of rotation 90°
- Female-threaded connections, Rp³/₄ ... Rp1¹/₂
- With manual adjuster
- Can be fitted with type SQK.., SQL.. or SAL..T10 (with ASK32N) electromotoric actuators
- No maintenance required

Application

For use in closed-circuit heating systems, preferably in mixing applications.

Types

Type	Connection [Inch]	DN	k _{vs} [m ³ /h]	with actuators SQK.. ¹⁾ , SQL.. ¹⁾ , SAL..T10 Δp _{max} [kPa]
				30
VCI31.20	Rp ¾	20	6.3	30
VCI31.25	Rp 1	25	10	
VCI31.32	Rp 1¼	32	16	
VCI31.40	Rp 1½	40	25	


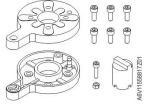
DN = Nominal size

k_{vs} = Nominal flow rate of cold water (5...30 °C) through the fully open slipper valve by a differential pressure of 100 kPa (1 bar)

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

¹⁾ from 2019: only while stock lasts

Accessories

Type	Description
ASK32 ¹⁾ 	The ASK32 mounting kit consists of a console and screw(s). For VBG31... Series 02. Mounting instructions are enclosed with the kit.
ASK32N 	The ASK32N mounting kit consists of two mounting set parts, screws and adapter including fixing screw. For VBF21..., DN40...50 Series 01. Mounting instructions are enclosed with the kit.

¹⁾ from 2019: only while stock lasts

Ordering

The valve, actuator and mounting kit, if required, must be ordered separately. When ordering, please specify the quantity, product name and type code.

Example: **1 3-port slipper valve type VCI31.25**
1 actuator type SQK33.00 and
1 mounting kit, type ASK32

Delivery

The valve, actuator and mounting kit are packed separately.

Spare parts

See overview, section „Spare parts“, page 6

Equipment combinations

Type	Actuators			SAL..T10
	SQK34.. ¹⁾ , SQK84.. ¹⁾	SQK33.00 ¹⁾	SQL33.. ¹⁾ , SQL83.. ¹⁾	
VCI31.20	direct mounting	ASK32 ¹⁾	ASK32 ¹⁾	ASK32N
VCI31.25				
VCI31.32				
VCI31.40				

Actuator overview

Type	Actuator type	Operating voltage	Positioning signal	Positioning time for 90°	Torque	Data-sheet
SQK33.00 ^{1) 2)}	electro-motoric	AC 230 V	3-position	125 s	5 Nm	N4506
SQL33.00 ^{1) 4)}				30 s	12,5 Nm	
SQL33.03 ^{1) 4)}				10 Nm		
SQK34.00 ^{1) 3)}				135 s	5 Nm	N4508
SAL31.00T10 ⁵⁾				120 s		
SAL31.03T10 ⁵⁾				30 s		
SAL61.00T10 ⁵⁾		AC/DC 24 V	DC 0...10 V	120 s	10 Nm	N4502
SAL61.03T10 ⁵⁾				30 s		
SAL81.00T10 ⁵⁾				120 s		
SAL81.03T10 ⁵⁾				30 s		
SQL83.00 ^{1) 4)}		AC 24 V	3-position	125 s	12,5 Nm	N4506
SQK84.00 ^{1) 3)}				135 s	5 Nm	N4508

¹⁾ from 2019: only while stock lasts

SQK33.00 SQL33.00 ASC9.4 ASZ7.4

SQK34.00 SQL33.03 ASC9.5

SQK84.00 SQL83.00 ASC9.7

²⁾ Can be fitted with 1 auxiliary switch, type ASC9.5

³⁾ Can be fitted with 1 auxiliary switch, type ASC9.7

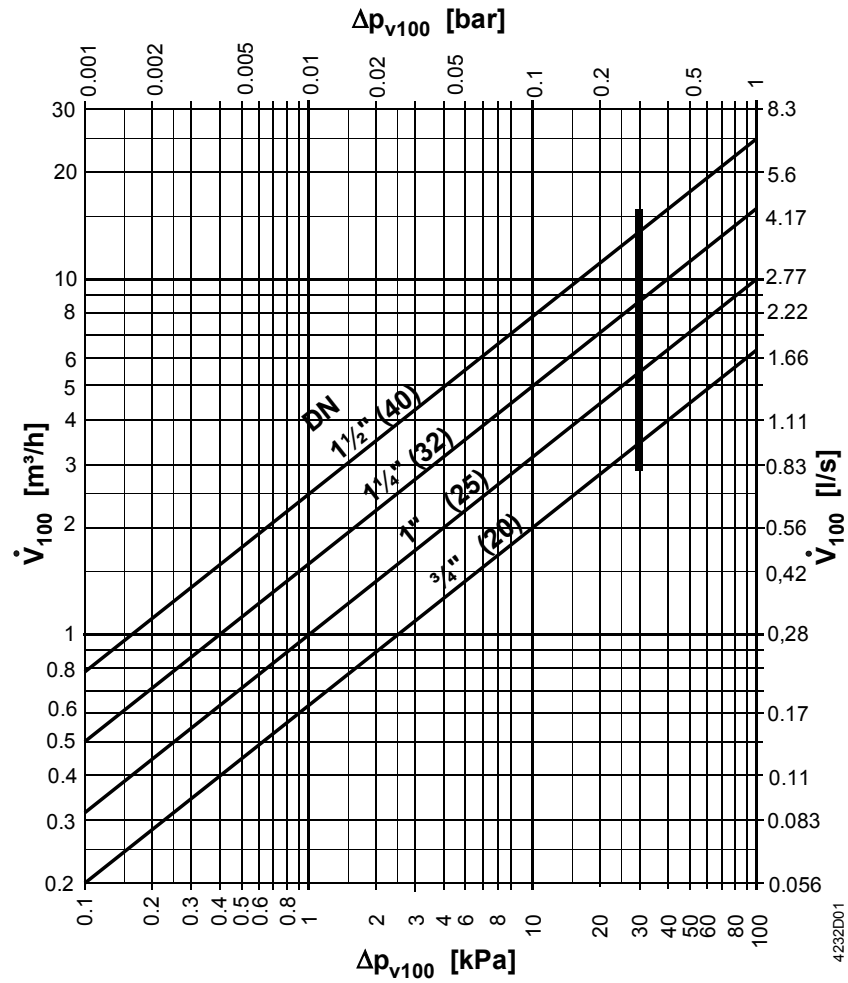
⁴⁾ Can be fitted with 1 auxiliary switch type ASC9.5, or 1 double auxiliary switch, ASC9.4 or 1 potentiometer and 1 auxiliary switch type ASZ7.4.

⁵⁾ Can be fitted with 1 auxiliary switch type ASC10.51 or 2 auxiliary switches ASC10.51 or 1 potentiometer ASZ7.5/.. and 1 auxiliary switch ASC10.51

Technical design / mechanical design

Application Boiler flow from the right or left. The manual adjuster, scale plate and valve slipper can be re-positioned to suit the application

Flow diagram



- Δp_{max} = Maximum permissible differential pressure across the slipper valve's control path, valid for the entire actuating range of the motorised slipper valve
- Δp_{v100} = Differential pressure across the fully open slipper valve by a volume flow \dot{V}_{100}
- \dot{V}_{100} = Volumetric flow through the fully open slipper valve
- 100 kPa = 1 bar \approx 10 mWC
- 1 m^3/h = 0.278 l/s water at 20 °C

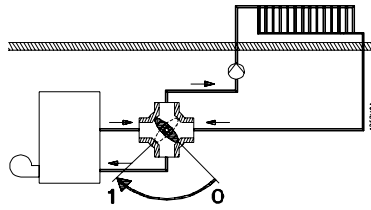
Notes

Engineering

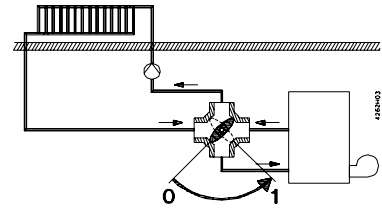
The VCI31.. four-port valves should be installed in accordance with the flow-direction arrows on the slipper valve body. In systems where oxygen can enter the hydraulic system, there is an increased risk of corrosion which can cause the valve slipper to seize.

Mounting variants

Boiler flow from left



Boiler flow from right



Factory setting

Re-position the valve slipper, the scale plate should be rotated through 180° and manual adjuster, as described in the mounting instructions for VCI31... slipper valves.

Mounting

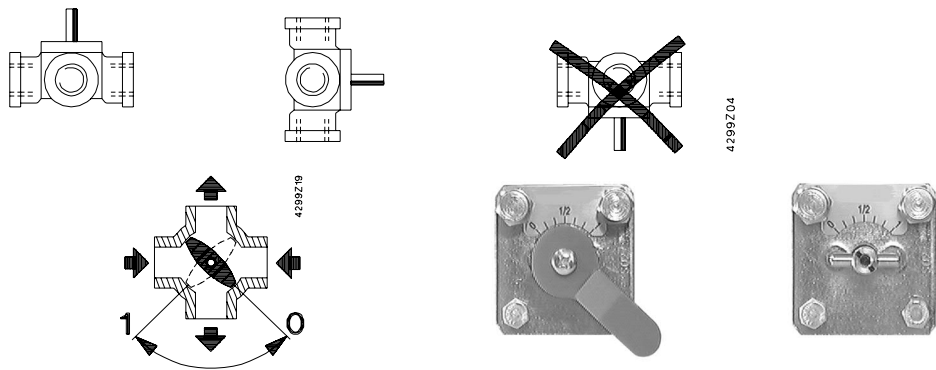
The valves are easy to assemble directly on site. The valve, actuator and ASK32 mounting kit (if needed) are packed separately.

Accessory	Mounting instruction	
ASK32 ¹⁾	M4290.2	4 319 5597 0
ASK32N	A6V11558817	A5W00057302

¹⁾ from 2019: only while stock lasts

Two special screws are provided in the housing cover to fix the ASK32 mounting kit and the scale plate for position indication.

Orientation



Factory setting

Slipper positioned for "boiler flow from left".

- Clockwise rotation: opening
- Anti-clockwise rotation: closing.

Manual adjuster with scale plate, position indicator and groove for position of slipper

Position indicator at "0" = boiler flow path fully closed.

Commissioning

When commissioning the valve, ensure that the position and rotation of the valve slipper are appropriate for the system concerned (see "Engineering").

The position of the valve slipper is indicated by:

- the manual adjuster and scale plate
- a groove on the front of the slipper valve shaft (only visible if no manual adjuster is fitted)

Maintenance

Warning

Before performing any service work on the valve, actuator or mounting kit:

- 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 slipper valve can be commissioned with the manual adjuster fitted, or with a correctly fitted actuator.

Disposal

Do not dispose of the device as household waste.

- 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

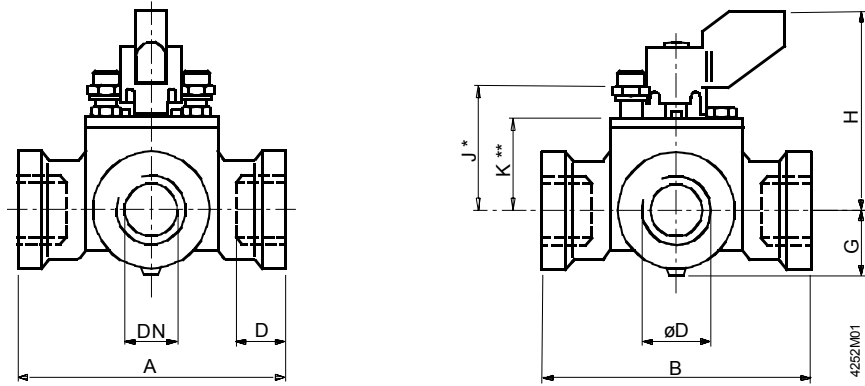
Functional data	PN class	PN 10 to ISO 7268
	Working pressure	max. 1000 kPa (10 bar) to ISO 7005 within the permissible medium temperature range
	Flow characteristic, all paths	linear
	Permissible media	low temperature hot water, water with max 50 % vol. anti-freeze; Recommendation: water treatment to VDI 2035
	Medium temperature	1...120 °C
	Angle of rotation	90°
	Materials	Slipper valve body
Shaft		Brass
Slipper		Brass
O-rings		EPDM
Manual adjuster		Plastic
Scale plate for position indication		Aluminum
Dimensions / weight		see «Dimensions»
	Threaded connections	Rp... to ISO7-1
Standards, directives and approvals	EAC conformity	Eurasia conformity
	Pressure Equipment Directive	PED 2014/68/EU
	Pressure Accessories	Scope: Article 1, section 1 Definitions: Article 2, section 5
	Fluid group 2: DN 20...40	without CE-marking as per article 4, section 3 (sound engineering practice) ¹⁾
	Environmental compatibility	The product environmental declaration CE1E4232en ²⁾ contains data on 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

All dimensions in mm



Type	DN	ø D [Inch]	A	B	D	G	H	J *	K **	Weight [kg]
VCI31.20	20	Rp¾	110	110	14.5	24.5	74	46	34	1.4
VCI31.25	25	Rp1			17					
VCI31.32	32	Rp1¼	130	130	19	42.5	81.5	53.5	41.5	2.1
VCI31.40	40	Rp1½			2.3					


- DN = Nominal size
- ø D = Rp... threaded pipe connections to ISO 7-1
- J* = Installation height of actuators SQK34.00 or SQK84 (without mounting kit)
- K** = Installation height of actuators SQK33.00, SQL33.... or SQL83.00 with ASK32 mounting kit of actuators SAL..T10 with mounting kit ASK32N

Overall height of slipper valve and actuator

- = Installation height of four-port valve
- + Installation height of mounting kit (if used)
- + Installation height of actuator
- + Minimum clearance (> 200 mm) from ceilings or walls for mounting, connection, operation etc.

Spare parts

Order number for spare parts

	manual adjuster
	
3-port slipper valve	
VBI31.20	7467601750
VBI31.25	
VBI31.32	
VBI31.40	

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