



Series 02

## Four-port slipper valves PN10, female-threaded

## VCI31...

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Four-port slipper valves, PN10, female-threaded

- Grey cast iron EN-GJL-250
- DN 20...40
- $k_{vs}$  6.3...25 m<sup>3</sup>/h
- Angle of rotation 90°
- Female-threaded connections, Rp<sup>3</sup>/<sub>4</sub> ... Rp1<sup>1</sup>/<sub>2</sub>
- With manual adjuster
- Can be fitted with type SQK... or SQL... electromotoric actuators
- No maintenance required

### Application

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

## Types


Type	Connection [Inch]	DN	$k_{vs}$ [m <sup>3</sup> /h]	with actuators <b>SQK...</b> , <b>SQL...</b> $\Delta p_{max}$ [kPa]
<b>VCI31.20</b>	Rp 3/4	20	6.3	30
<b>VCI31.25</b>	Rp 1	25	10	
<b>VCI31.32</b>	Rp 1 1/4	32	16	
<b>VCI31.40</b>	Rp 1 1/2	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)

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

## Accessories

Type	Description
<b>ASK32</b> 	The ASK32 mounting kit consists of a console and screw(s). For VCI31... Series 02. Mounting instructions are enclosed with the kit.

## 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 <b>SQK34...</b> , <b>SQK84...</b>	<b>SQK33...</b>	<b>SQL33...</b> , <b>SQL83...</b>
<b>VCI31.20</b>	direct mounting	ASK32	ASK32
<b>VCI31.25</b>			
<b>VCI31.32</b>			
<b>VCI31.40</b>			

## Actuator overview

Type	Actuator type	Operating voltage	Positioning signal	Positioning time for 90°	Torque	Data-sheet
<b>SQK33.00</b> <sup>1)</sup>	electro-motoric	AC 230 V	3-position	125 s	5 Nm	N4506
<b>SQL33.00</b> <sup>3)</sup>					12,5 Nm	
<b>SQL33.03</b> <sup>3)</sup>				10 Nm		
<b>SQK34.00</b> <sup>2)</sup>		AC 24 V		135 s	5 Nm	N4508
<b>SQL83.00</b> <sup>3)</sup>					125 s	12,5 Nm
<b>SQK84.00</b> <sup>2)</sup>				135 s	5 Nm	N4508

<sup>1)</sup> Can be fitted with 1 auxiliary switch, type ASC9.5

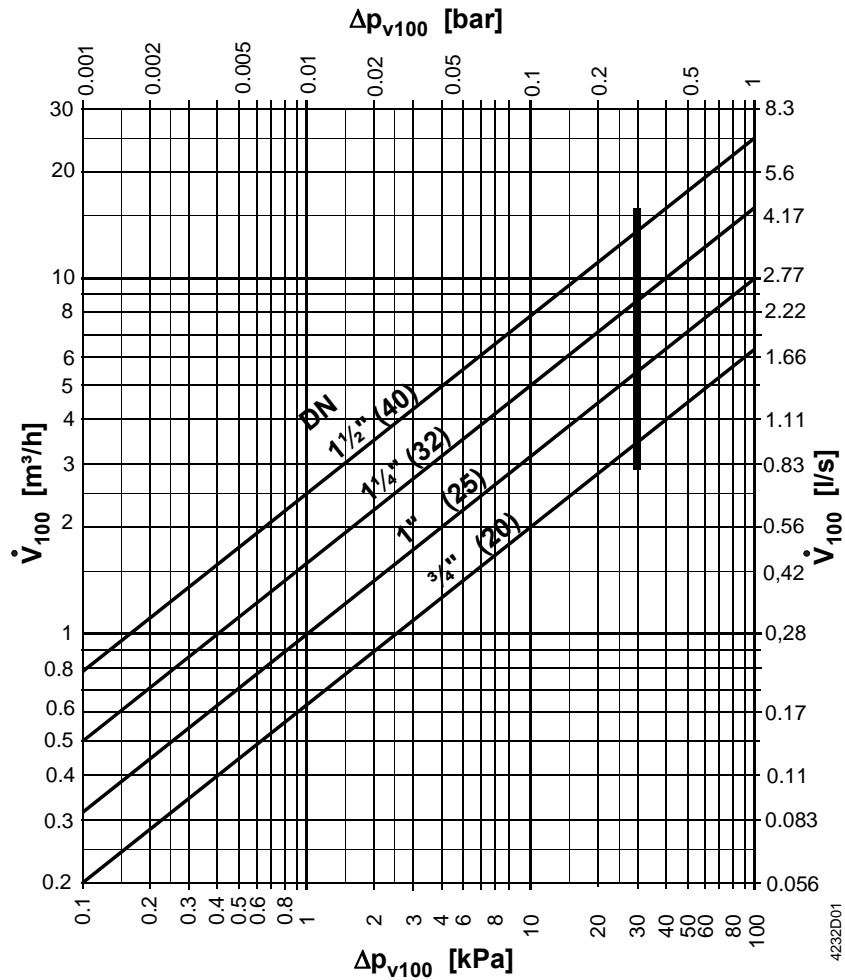
<sup>2)</sup> Can be fitted with 1 auxiliary switch, type ASC9.7

<sup>3)</sup> 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.

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

Sizing

Flow diagram



- $\Delta p_{max}$  = Maximum permissible differential pressure across the slipper valve's control path, valid for the entire actuating range of the motorised slipper valve
- $\Delta p_{v100}$  = Differential pressure across the fully open slipper valve by a volume flow  $V_{100}$
- $\dot{V}_{100}$  = Volumetric flow through the fully open slipper valve
- 100 kPa = 1 bar  $\approx$  10 mWC
- 1 m³/h = 0.278 l/s water at 20 °C

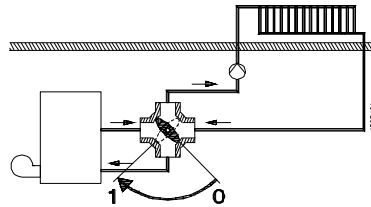
**Notes**

**Engineering**

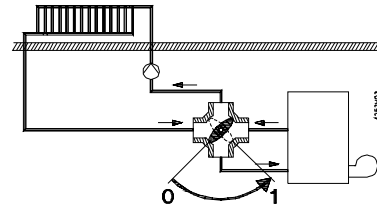
The VCI31... four-port valves should be installed in accordance with the flow-direction arrows on the slipper valve body. In systems where oxygen can enter the hydraulic system, there is an increased risk of corrosion which can cause the valve slipper to seize.

**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.

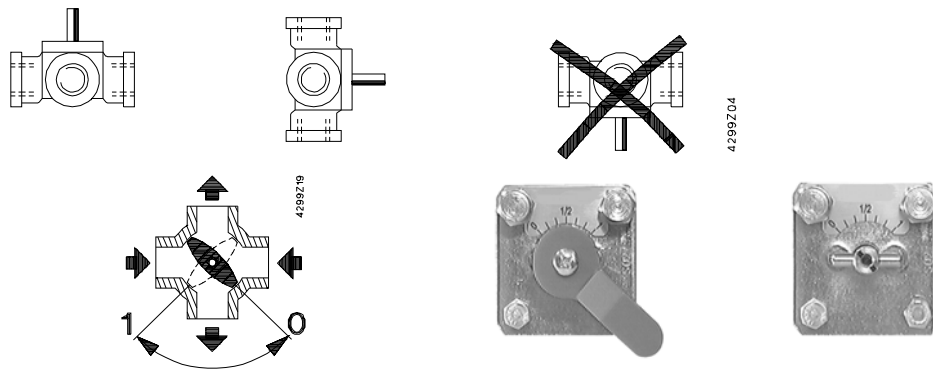
**Mounting**

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	M4290.2   4 319 5597 0

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

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### 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



Before disposal the slipper 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

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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.

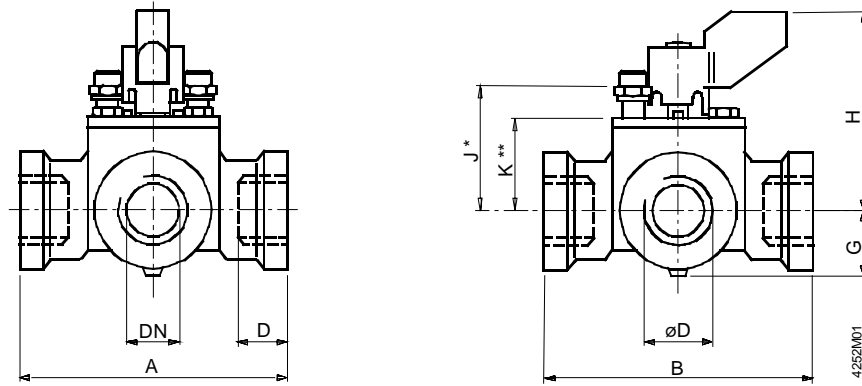
## Technical data

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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°
	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)
Materials	Slipper valve body	Grey cast iron EN-GJL-250
	Shaft	Brass
	Slipper	Brass
	O-rings	EPDM
	Manual adjuster	Plastic
Dimensions / weight	Scale plate for position indication	Aluminum
	Threaded connections	Rp... to ISO7-1

## 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

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

	O-Ring service set	manual adjuster
<b>3-port slipper valve</b>		
VCI31.20	467695230	7467601750
VCI31.25	467695230	7467601750
VCI31.32	467695230	7467601750
VCI31.40	467695230	7467601750

Mounting instructions for O-Ring replacement: M4241