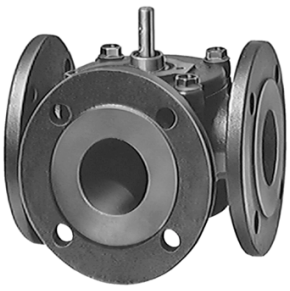
Series 02: DN40 and DN50



Series 01: DN65 ... DN150

Three-port slipper valves PN6 VBF21...

Three-port slipper valves, PN6, flanged

- **Grey cast iron GG-25**
- **DN 40 ... DN40 mm**
- **k_{vs} 25 ... 820 m^3/h**
- **Angle of rotation 90°**
- **Flange fittings to ISO 7005**
- **Manual adjuster for DN40 and DN50 valves**
- **Can be fitted with type SQK… or SQL… electric actuators**
- **No maintenance required**

Application

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

Media

– Hot water 2 ...120 °C
– Water with antifreeze

Recommendation: Water should be treated as specified in VDI 2035.

Operating pressure: Max. 600 kPa (6 bar).

Types

Type	DN mm	k_{vs} value m^3/h	Δp_{vmax} kPa	With actuator SQK... Δp_{max} [kPa]	With actuator SQL... Δp_{max} [kPa]
VBF21.40 *	40	25	30	30	-
VBF21.50 *	50	40		30	-
VBF21.65	65	63		-	30
VBF21.80	80	100		-	
VBF21.100	100	160		-	
VBF21.125	125	550		-	
VBF21.150	150	820		-	

DN = Nominal diameter
k_{VS} = Nominal flow to VDI2173
Δp_{Vmax} = Maximum admissible pressure differential across the closed valve

* Series with manual adjuster

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 three-port slipper valve type VBF21.65, 1 actuator type SQL33.00** and **1 mounting kit, type ASK31**

Delivery

The valve, actuator and mounting kit are packed separately.

Compatibility

The following Landis & Staefa electric actuators are suitable for the VBF21… slipper valves:

Actuator type	Mounting kit	Operating voltage	Run-time for 90°	Type of operation	Actuator data sheet
SQK33.00 1)	ASK32	AC 230 V	125 s	3-position	N4506
SQL33.00 3)	ASK31		125 s		
SQL33.03 3)	ASK31		30 s		
SQK34.00 2) 4)	-		135 s		N4508
SQL83.00 3)	ASK31	AC 24 V	125 s		N4506
SQK84.00 2) 4)	-		135 s		N4508

1) Can be fitted with 1 auxiliary switch, type ASC9.5
2) Can be fitted with 1 auxiliary switch, type ASC9.7
3) 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.
4) For direct mounting on valve types VBF21.40 and VBF21.50 (without mounting kit)

Accessories

ASK31 mounting kit

The ASK31 mounting kit is required when fitting the Series 01 valves, type VBF31…, nominal sizes DN65…DN150 with actuator types SQL33.0… or SQL83.00.
The ASK31 mounting kit consists of a console with screws, a connector unit and a position indicator.
Mounting instructions are enclosed with the kit.

ASK32 mounting kit

This kit is used when assembling the Series 02 valves, type VBF21…, nominal sizes DN40 and DN50 with actuator type SQK33.00.
The ASK32 mounting kit consists of a console and screw(s).
Mounting instructions are enclosed with the kit.

Mechanical design

The VBF21… valves and Landis & Staefa actuators are assembled as follows:

- SQK34.00 and SQK84.00: No mounting kit required (DN40 and DN50)
- SQK33.00 Mounting kit ASK32 required (DN40 and DN50)
- SQL33.0... and SQL83.00 Mounting kit ASK31 required (DN65 ... DN150).

Assembly

The valves are easy to assemble directly on site.
The valve, actuator and mounting kit are packed separately.

DN40 and DN50

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

DN65 ... DN150

The ASK31 kit contains all the components required for assembly.

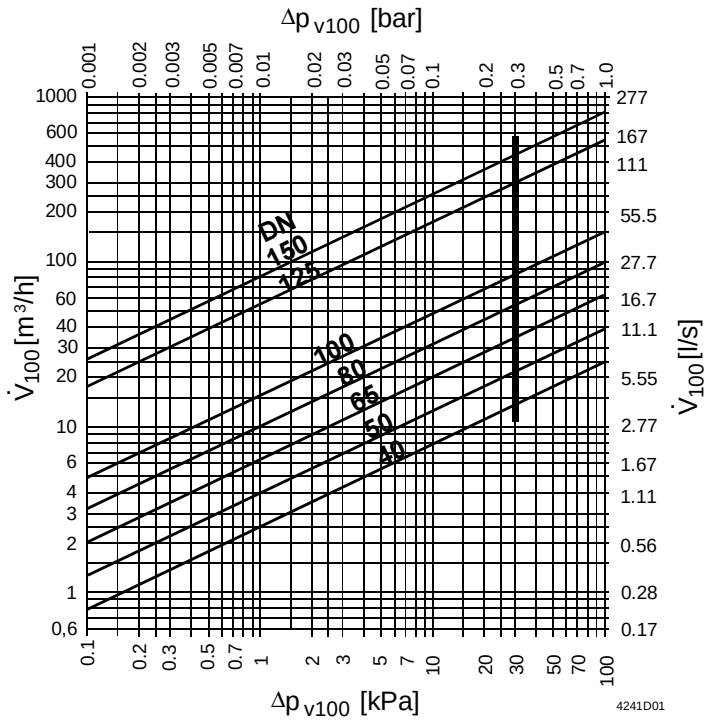
Manual operation

With DN40 and DN50, the manual adjuster, scale plate and valve slipper can be re-positioned to suit the application (boiler flow from the right or left)

Automatic operation

In the case of the VBF21.40 and VBF21.50, the manual adjuster should be removed before fitting actuator type SQK34.00.
The scale plate and valve slipper can be re-positioned to suit the application (direction of boiler flow).
The option of repositioning the slipper according to the boiler flow direction also applies to slipper valves without a manual adjuster (DN65 … DN150).

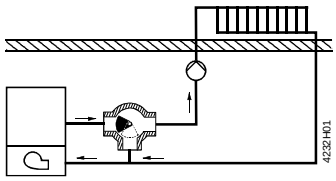
Sizing



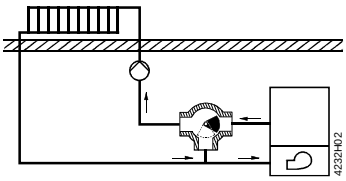
= max. Δp_{v100}
100 kPa = 1 bar ≈ 10 mWG
1 m^3/h = 0.278 kg/s water at 20 °C

Engineering

The VBF21… should preferably be used in mixing applications.
In systems where oxygen can enter the hydraulic system, there is an increased risk of corrosion which can cause the valve slipper to seize.



Boiler flow from left

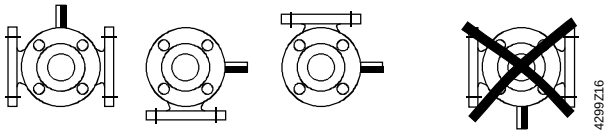


Boiler flow from right

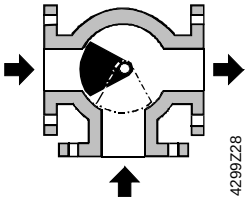
- The VBF21… valves are assembled in the factory for the "boiler flow from left" application.
- In systems with "boiler flow from right", the valve slipper, scale plate and manual adjuster must be re-positioned, as described in the mounting instructions for VB… slipper valves DN40 and DN50.

Mounting

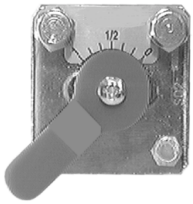
Orientation



Permissible *Not permissible*



Slipper position on delivery
Slipper positioned for "boiler flow from left".
Anti-clockwise rotation: opening
Clockwise rotation: closing.



Manual adjuster for DN40 / DN50 with scale plate, position indicator and colour marking for position of slipper
Position indicator at "0" = boiler flow path fully closed.
Mounting instructions are enclosed.

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 as follows:

– DN40 and DN50 valves: by the manual adjuster and scale plate and by the yellow mark on the pin in the valve shaft
– DN65 … DN150 valves: by a red plastic marker (part of the mounting kit) which is fitted to the valve shaft.

⚠ **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 valve can be commissioned with the manual adjuster fitted, or with a correctly fitted actuator.

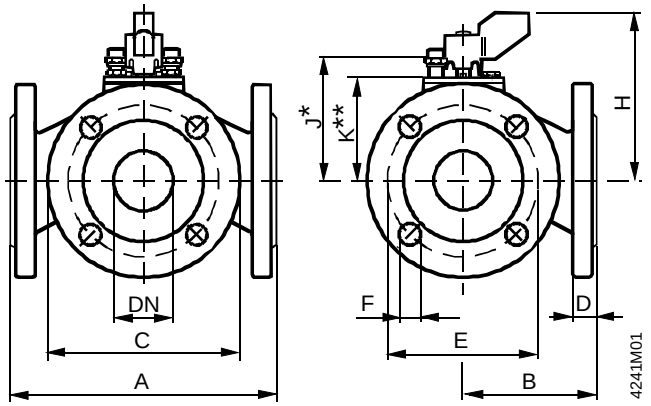
Technical data

Operating data	Characteristic	Through-port	Linear
		Bypass	Linear
	Leakage	DN40 ... DN100	0 ... 0.1 % of k_{vs} value
		DN125 / DN150	0 ... 0.5 % of k_{vs} value
	Angle of rotation		90°
	Flange connections		To ISO7005
Materials	Body		Grey cast iron GG-25 to DIN EN 1561
	Shaft		Stainless steel
	O-rings		EPDM
	Slipper	DN40 ... DN100	Hot-pressed brass
		DN125 / DN150	Gunmetal (red brass, Rg5)
	Manual adjuster		Plastic
	Scale plate for position indication		Aluminium
Dimensions / Weight	Dimensions		See “Dimensions”
	Weight		See table under "Dimensions"

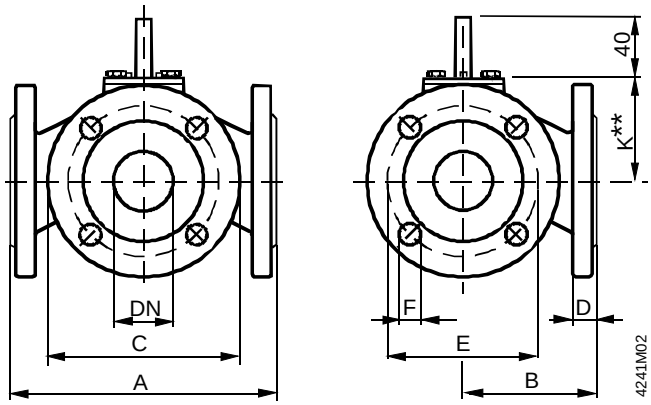
Dimensions

All dimensions in mm

VBF21.40 / VBF21.50
(with manual adjuster)



VBF21.65 ... VBF21.150
(without manual adjuster)



Type	DN [mm]	A	B	C	D	E	F	H	J *	K ** ASK32	K ** ASK31	Wt. [kg]
VBF21.40	40	180	90	130	16	100	14 (4x)	96	68	56	-	6.0
VBF21.50	50	180	90	140	16	110	14 (4x)	103	75	63	-	6.5
VBF21.65	65	200	100	160	16	130	14 (4x)	-	-	-	43	9.5
VBF21.80	80	230	115	190	18	150	19 (4x)	-	-	-	52	14.5
VBF21.100	100	260	130	210	18	170	19 (4x)	-	-	-	68	18.3
VBF21.125	125	320	160	240	20	200	19 (8x)	-	-	-	129	36.0
VBF21.150	150	350	175	265	20	225	19 (8x)	-	-	-	144	45.3

Wt. Weight in kg of VBF21… three-port slipper valve
J* Installation height for actuators SQK34.00 or SQK84 (without mounting kit)
K ** Installation height for type SQK33.00 actuators with mounting kit ASK32 and SQL33.00, SQL33.03 or SQL83.00 with mounting kit ASK31

Overall height of valve and actuator
= Installation height of three-port slipper valve
+ Installation height of mounting kit (if needed)
+ Installation height of actuator
+ Minimum clearance (> 200 mm) from ceiling or wall for mounting, connection, operation, service etc.