



DN 15 and DN 25



DN 40...150

Acvatix™

## 3-port seat valves with flanged connection, PN40

## VXF61..

- Cast steel GP240GH valve body
- DN 15...150
- $k_{vs}$  1.9...300 m<sup>3</sup>/h
- Can be equipped with SKD.., SKB.. and SKC.. electrohydraulic actuators

### Use

For use in district heating, heating, ventilating, and air conditioning systems as a control valve for "mixing" and "diverting" functions.

For closed or open circuits.

## Type summary

Product number	DN	$k_{vs}$ [m <sup>3</sup> / h]	$S_v$
VXF61.14	15	1.9	> 50
VXF61.15		3	
VXF61.24	25	5	
VXF61.25		7.5	> 100
VXF61.39	40	12	> 50
VXF61.40		19	
VXF61.49	50		
VXF61.50		> 100	49
VXF61.65	65		
VXF61.80	80		
VXF61.90	100		
VXF61.91	125		
VXF61.92	150		
VXF61.92	150		300

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)

## Accessories

Product number	Description
ASZ6.6	Electric stem heating element, AC 24 V / 30 W, required for media below 0 °C

## Ordering

Example:

Product number	Stock number	Designation	Quantity
VXF61.50	VXF61.50	3-port seat valve PN40 with flanged connection	1

Delivery

Valves, actuators and accessories are packed and supplied separately.  
The valves are supplied without counter-flanges and without flange gaskets.

Spare parts, Rev. no.

See overview, page 9.

## Equipment combinations

Valves	H <sub>100</sub> [mm]	Actuators					
		SKD.. <sup>1)</sup>		SKB..		SKC..	
		Mixing	Diverting <sup>2)</sup>	Mixing	Diverting <sup>2)</sup>	Mixing	Diverting <sup>2)</sup>
Δp <sub>max</sub> [kPa]							
VXF61.14	20	1200	500	1600	500		
VXF61.15							
VXF61.24							
VXF61.25							
VXF61.39							
VXF61.40							
VXF61.49							
VXF61.50	40						
VXF61.65							
VXF61.80							
VXF61.90							
VXF61.91							
VXF61.92							
VXF61.92							

<sup>1)</sup> Usable up to maximum medium temperature of 150 °C

<sup>2)</sup> If noise is permitted, the same values apply as for mixing.

H<sub>100</sub> = Nominal stroke

Δp<sub>max</sub> = Maximum permissible differential pressure across the valve (mixing: port A-AB, B-AB, diverting: port AB-A, AB-B), valid for the entire actuating range of the motorized valve

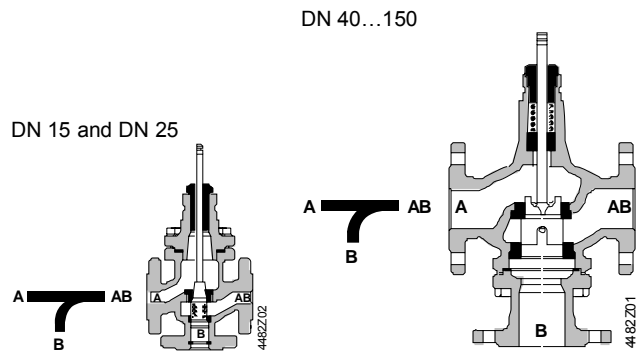
## Actuator overview

Product number	Actuator type	Operating voltage	Positioning signal	Spring return	Positioning time	Positioning force	Data sheet	
SKD32.50	Electro-hydraulic	AC 230 V	3-position	No	120 s	1000 N	N4561	
SKD32.21				Yes	30 s			
SKD32.51				No	120 s			
SKD82.50		AC 24 V		Yes	DC 0...10 V <sup>1)</sup>			30 s
SKD82.51				No				
SKD60				Yes				
SKD62..				No				
SKB32.50	Electro-hydraulic	AC 230 V	3-position	No	120 s	2800 N	N4564	
SKB32.51				Yes				
SKB82.50				No				
SKB82.51		Yes						
SKB60		No						
SKB62..		Yes						
SKC32.60	Electro-hydraulic	AC 230 V	3-position	No	120 s	2800 N	N4566	
SKC32.61				Yes				
SKC82.60				No				
SKC82.61		Yes						
SKC60		No						
SKC62..		Yes						

<sup>1)</sup> or DC 4...20 mA or 0...1000 Ω

Valve cross section

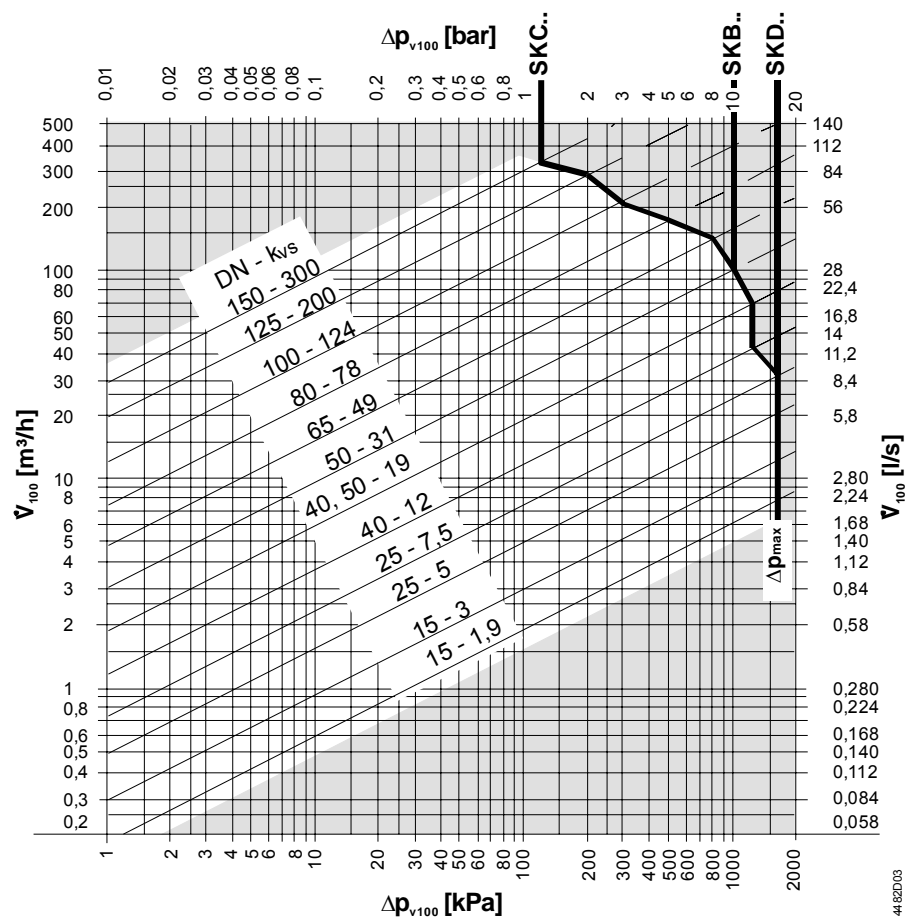
Depending on the nominal size, a guided parabolic, perforated or slot plug is used that is directly connected to the valve stem. The seats are screwed to the valve body with the aid of special gland material.



Schematic representation, design variations are possible.

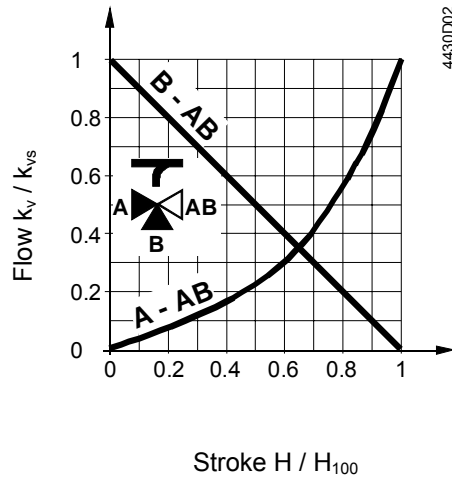
Sizing

Flow diagram "Mixing"



- $\Delta p_{max}$  = Maximum permissible differential pressure across the valve (mixing: port A-AB, B-AB, diverting: port Tore AB-A, AB-B), valid for the entire actuating range of the motorized valve
- $\Delta p_{v100}$  = Differential pressure across the fully open valve and the valve's control path A → AB, B → AB by a volume flow  $V_{100}$
- $V_{100}$  = Volumetric flow through the fully open valve ( $H_{100}$ )
- 100 kPa = 1 bar ≈ 10 mWC
- 1 m<sup>3</sup>/h = 0.278 l/s water at 20 °C

## Valve flow characteristic



### Through-port

0...30 %: linear

30...100 %:  $\eta_{gl} = 3$  as per VDI / VDE 2173

### Bypass

0...100 %: linear

**Mixing:** Flow from port A and port B to port AB

**Diverting:** Flow from port AB to port A and port B

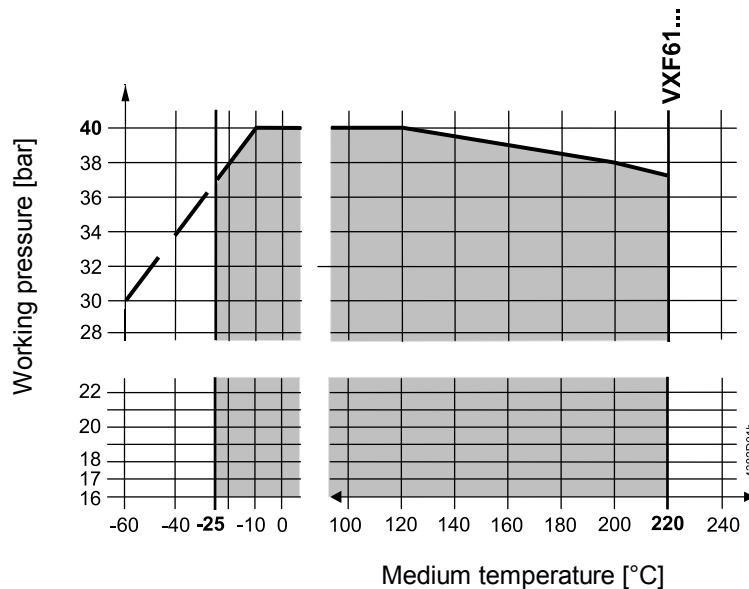
Port AB = constant flow

Port A = variable flow

Port B = bypass (variable flow)

Use the 3-port valve primarily as a mixing valve.

## Working pressure and medium temperature



### Working pressure and medium temperature staged as per ISO 7005

Current local legislation must be observed.

## Notes

### Engineering

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.



In open circuits the valve plug may seize as the result of scale deposits. In these applications, only the most powerful SKB.. or SKC.. actuators should be used. Further the valve should be exercised at regular intervals (two to three times per week). A strainer **MUST** be fitted at the valve inlet



To ensure the reliability of the valve, we recommend the fitting of a strainer at the valve inlet even in closed circuits.



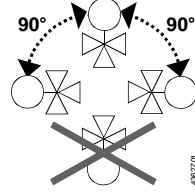
For media below 0 °C, use the electric ASZ6.6 stem heating element to prevent the valve stem from freezing in the stem sealing gland. For safety reasons, the stem heating element has been designed for AC 24 V / 30 W operating voltage.

## Mounting

Both valve and actuator can easily be assembled at the mounting location. Neither special tools nor adjustments are required.

## Orientation

The valve is supplied with Mounting Instructions 74 319 0519 0.



## Direction of flow

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

Mixing from  
A / B to AB



Diverting from  
AB to A / B



## Commissioning



**Commission the valve only if the actuator has been mounted correctly.**

Valve stem retracts: through-port A – AB opens, bypass B closes

Valve stem extends: through-port A – AB closes, bypass B opens

## Maintenance

### Warning



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 glands can be exchanged without removing the valve, provided the pipes are depressurized and cooled off and the stem surface is unharmed.

If the stem is damaged in the gland range, replace the entire valve.

Contact your local office or branch.

## 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", page 3.

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

## Technical data

Functional data	PN class	PN 40 to ISO 7268
	Working pressure	to ISO 7005 within the permissible "medium temperature" range according to the diagram on page 5
	Flow characteristic	
	through-port	0...30 % linear 30...100 % equal percentage; $n_{gl} = 3$ to VDI / VDE 2173
	bypass	0...100 % linear
	Leakage rate	
	through-port	0...0.02 % of $k_{vs}$ value to DIN EN 1349
	bypass	0.5...2 % of $k_{vs}$ value to DIN EN 1349
	Permissible media	water chilled water, cooling water, low temperature hot water, high temperature hot water, water with anti-freeze; recommendation: water treatment to VDI 2035
		brine
Standards, directives and approvals	Medium temperature water, brine <sup>1)</sup>	VVF61.. -25...220 °C
	Rangeability $S_v$	DN 15...25: >50 (VXF61.25: >100) DN 25...150: >100
	Nominal stroke	DN 15...50: 20 mm DN 65...150: 40 mm
	Pressure Equipment Directive	PED 2014/68/EU
	Pressure Accessories	Scope: Article 1, section 1 Definitions: Article 2, section 5
	Fluid group 2:	Without CE certification as per article 4, section 3 (sound engineering practice) <sup>2)</sup>
		DN 15...25 Category I, Modul A, with CE-marking as per article 14, section 2
		DN 40...80 Category II, Modul A2, with CE-marking as per article 14, section 2, notified body number 0036
		DN 100...150 Category II, Modul A2, with CE-marking as per article 14, section 2, notified body number 0036
		EU conformity (CE) DN 40...150 A5W00006523 <sup>3)</sup>
	EAC Conformity Eurasia Conformity	
Environmental compatibility	The product environmental declaration CE1E4382en <sup>3)</sup> contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
Materials	Valve body	cast steel GP240GH
	Stem	stainless steel
	Plug, seats	stainless steel
	Stem sealing gland	stainless steel Standard version: PTFE sleeve Special versions: VXF61.. 2: PTFE sleeve
Dimensions / Weight	Refer to "Dimensions", page 8	
	Flange connections	to ISO 7005

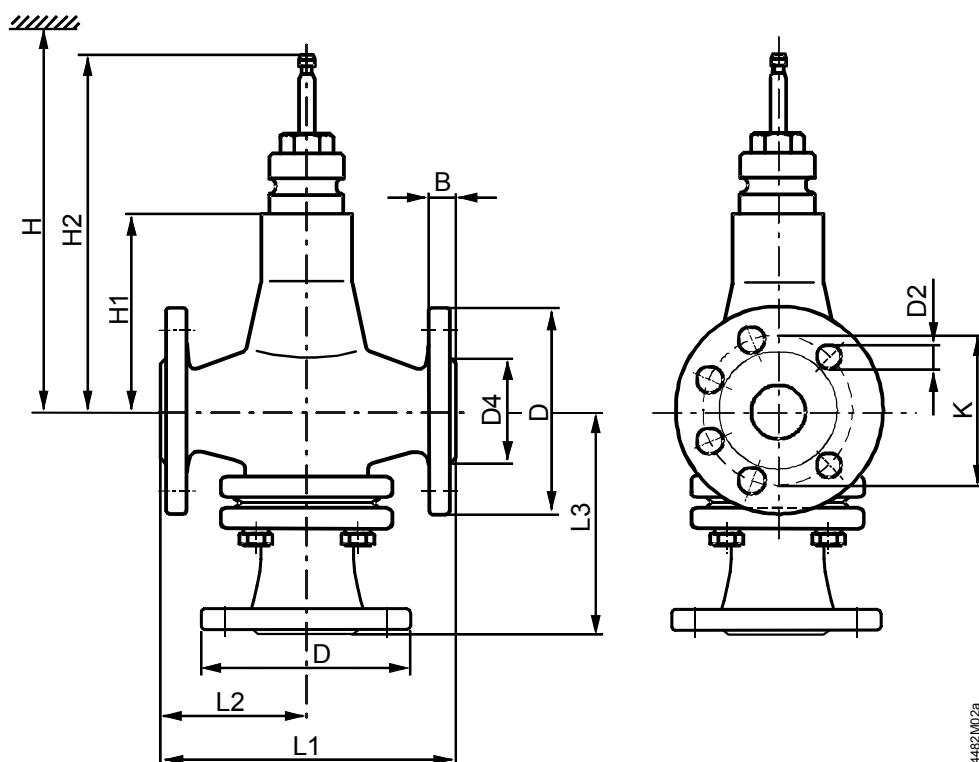
<sup>1)</sup> Electric stem heating element ASZ6.6 required for media below 0 °C

<sup>2)</sup> Valves where  $PS \times DN < 1000$ , do not require special testing and cannot carry the CE label.

<sup>3)</sup> The documents can be downloaded from <http://siemens.com/bt/download>

## Dimensions

Dimensions in mm



4482M02a

DN	B	D Ø	D2 Ø	D4 Ø	K	L1	L2	L3	H1	H2	H			kg VXF61..	
											SKD..	SKB..	SKC..		
15	16	95	14 (4x)	46	65	130	65	65	96	192.5	>596	>671		6.3	
25	18	115		67	85	160	80	80	111	207.5	>611	>686		9	
40		150	18 (4x)	84	110	200	100	162	136	232.5		>711		18.5	
50	20	165		99	125	230	115	170						21.5	
65	22	185	18 (8x)	118	145	290	145	215	162	278.5				>737	35
80	24	200		132	160	310	155	230	170	286.5				>745	42
100		235	22 (8x)	156	190	350	175	250	180	296.5	>755	61.5			
125	26	270	26 (8x)	184	220	400	200	280	200	316.5				>775	85.5
150	28	300		211	250	480	240	305	225	341.5				>800	126

DN = Nominal size

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

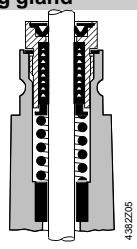
H1 = Dimension from the pipe centre to install the actuator (upper edge)

H2 = Valve in the «Closed» position means that the stem is fully extended



## Spare parts

### Order numbers for spare parts

		Stem sealing gland		
Product number	DN	VXF61..	VXF61..	
VXF61.14	15	4 284 8829 0		
VXF61.15	15	4 284 8829 0		
VXF61.24	25	4 284 8829 0		
VXF61.25	25	4 284 8829 0		
VXF61.39	40			4 679 5630 0
VXF61.40	40			4 679 5630 0
VXF61.49	50			4 679 5630 0
VXF61.50	50			4 679 5630 0
VXF61.65	65			4 679 5630 0
VXF61.80	80			4 679 5630 0
VXF61.90	100			4 679 5630 0
VXF61.91	125			4 679 5630 0
VXF61.92	150			4 679 5630 0

### Revision numbers

Product number	Valid from rev. no.	Product number	Valid from rev. no.
VXF61.14	..04	VXF61.142 <sup>1)</sup>	..04
VXF61.15	..04	VXF61.152 <sup>1)</sup>	..04
VXF61.24	..04	VXF61.242 <sup>1)</sup>	..04
VXF61.25	..04	VXF61.252 <sup>1)</sup>	..04
VXF61.39	..02	VXF61.392 <sup>1)</sup>	..02
VXF61.40	..02	VXF61.402 <sup>1)</sup>	..02
VXF61.49	..02	VXF61.492 <sup>1)</sup>	..02
VXF61.50	..02	VXF61.502 <sup>1)</sup>	..02
VXF61.65	..02	VXF61.652 <sup>1)</sup>	..02
VXF61.80	..02	VXF61.802 <sup>1)</sup>	..02
VXF61.90	..02	VXF61.902 <sup>1)</sup>	..02
VXF61.91	..02	VXF61.912 <sup>1)</sup>	..02
VXF61.92	..02	VXF61.922 <sup>1)</sup>	..02

<sup>1)</sup> No longer available for sale from Jan 1, 2017

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