



ACVATIX™

## Butterfly valves PN6, PN10, VKF41.. PN16

- Grey cast iron housing EN-GJL-250
- DN 40...200
- $k_{vs}$  50...4000 m<sup>3</sup>/h
- For fitting between PN 6, PN 10, PN 16 counter-flanges to ISO 7005
- Metallic tight-closing
- Angle of rotation 90°
- No maintenance required
- Can be fitted with type SQK33.00, SQL33..., SQL83.00, SAL..T10 electromotoric actuators

### Use

For use as a control or shut-off valve in heating, ventilation and air conditioning systems, e.g.:

- In closed circuits
- For 2-position controls (open/closed)
- For boiler and chiller sequencing circuits
- To open or close the flow to a heat exchanger or to complete plant sections
- In applications where minimal leakage through the fully closed valve is allowable



## Type summary

Product number	DN	k <sub>vs</sub>  [m³/h]	Leakage rate  in % of k <sub>vs</sub> - value	Velocity of water flow <sup>1)</sup>			
				SQK33..	SQL33.. SQL83..	SAL31..T10 SAL81..T10	SAL61..T10
VKF41.40	40	50	0.22	4	4	4	2.5
VKF41.50	50	80	0.14				
VKF41.65	65	200	0.09				
VKF41.80	80	400	0.06				
VKF41.100	100	760	0.04				
VKF41.125	125	1000	0.04				
VKF41.150	150	2100	0.02		2.5	2.5	1.5
VKF41.200	200	4000	0.01				

<sup>1)</sup> Recommended maximum velocity of flow and the butterfly valve fully open

k<sub>vs</sub> Nominal flow rate of cold water (5...30 °C) through the fully open butterfly valve by a differential pressure of 100 kPa (1 bar)

## Accessories

Designation	Product number	Stock number	Description
Mounting set	ASK33N	S55845-Z101	 <p>For mounting SAL...T10 actuators on VKF41..., DN 40...200</p>
Mounting set	ASK33	ASK33	 <p>For mounting SQK33.00 actuators on VKF41..., DN 40 and SQL33..., SQL83.00 actuators on VKF41..., DN 40...150</p>

## Ordering

Example:

Product number	Stock number	Designation	Quantity
VVF41.50	VVF41.50	Butterfly valve VKF41.40 including centering sleeves	1
SAL31.03T10	S55162-A109	Actuator SAL31.03T10	1
ASK33N	S55845-Z101	Mounting set ASK33N	1

Delivery

Butterfly valve, actuator and mounting set are packed separately.  
4 centering sleeves are supplied with each butterfly valve, for fitting the valve between PN 10 and PN 16 flanges.

Spare parts, Rev. no.

See overview, page 8.

## Equipment combinations

	Mounting set			Electromotoric actuator		
		SQL33..		SQK33.00	SQL33.. SQL83.00	SAL..T10
	Butterfly valve	SQK33.00	SQL83.00	SAL..T10	$\Delta p_s$ [kPa]	
VKF41.40	ASK33	ASK33	ASK33N	200	500	500
VKF41.50						
VKF41.65						
VKF41.80						
VKF41.100						
VKF41.125				300	300	
VKF41.150				250	250	
VKF41.200				125	125	

$\Delta p_s$  Maximum permissible differential pressure at which the motorized butterfly valve will close securely against the pressure (close off pressure)

### Actuator overview

Product number	Actuator type	Operating voltage	Positioning signal	Spring return	Positioning time	Positioning force	Data sheet		
SQK33.00	Electro-motoric	AC 230 V	3-position	Nein	125 s	5 Nm	N4506		
SQL33.00						12.5 Nm			
SQL33.03		AC 24 V			30 s	10 Nm			
SQL83.00					125 s	12.5 Nm			
SAL31.00T10		AC 230 V			120 s	10 Nm	N4502		
SAL31.03T10					30 s				
SAL81.00T10		AC/DC 24 V			120 s				
SAL81.03T10					30 s				
SAL61.00T10		DC 0...10 V DC 4...20 mA 0...1000 Ω			120 s				
SAL61.03T10					30 s				

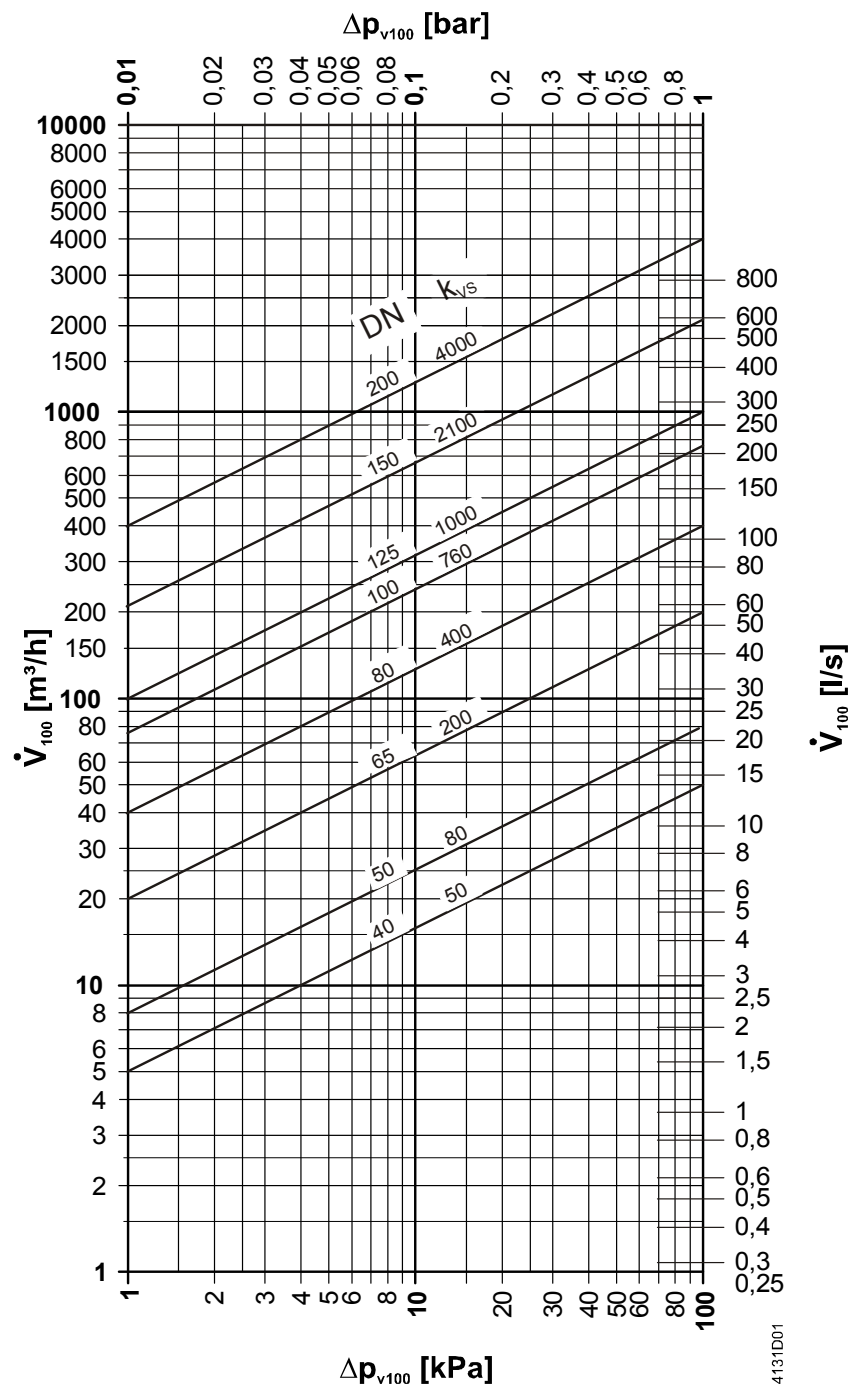
## Mechanical design

### Butterfly valve

Stainless steel disk and shaft. The valve disk closes against an end-stop. The position of the valve disc is indicated by a notch on the front of the shaft.

### Mounting set

In all cases, a mounting set is required to assemble the actuators on a VKF41.. valve.



$\Delta p_{v100}$  = Differential pressure across the fully open butterfly valve by a volume flow  $\dot{V}_{100}$

$\dot{V}_{100}$  = Volume flow through the fully open butterfly valve

100 kPa = 1 bar  $\approx$  10 mWC

1 m³/h = 0.278 l/s water at 20 °C

## Engineering notes

The VKF41.. butterfly valves can accommodate flow in either direction.

In heating systems, the valve should preferably be installed in the return, where the seal will be exposed to lower temperatures, so extending its service life.

### Warning

To avoid pressure shocks on the butterfly valve, the VKF41.. must be driven to its fully open position (either manually or via positioning signal Y1) prior to activating the pump(s).

## Mounting notes

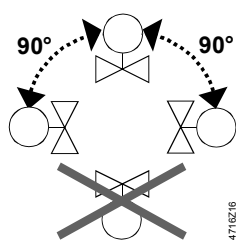
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### Orientation



The Mounting Instructions 4 319 8927 0 are enclosed in the product packaging.

VKF41.. butterfly valves can be mounted in PN 6, PN 10, PN 16 applications.



Upright to horizontal

The valve, actuator and mounting set are easily assembled directly on site. There is no need for special tools or calibration.

## Commissioning notes

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The butterfly valve must be commissioned only with the mounting set and actuator correctly assembled.

- Disk rotated clockwise: Increasing flow
- Disk rotated anti-clockwise: Decreasing flow

## Maintenance

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The VKF41.. butterfly valves require no maintenance.



**Caution**

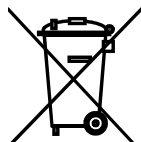
Before performing any service work on the valve, actuator or mounting set:

- Switch off the pump and power supply
- Close the main shut-off valves in the pipework
- Release pressure in the pipes and allow them to cool down completely

If necessary, disconnect electrical connections from terminals.

The valve must be re-commissioned only with the correctly mounted actuator.

### 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

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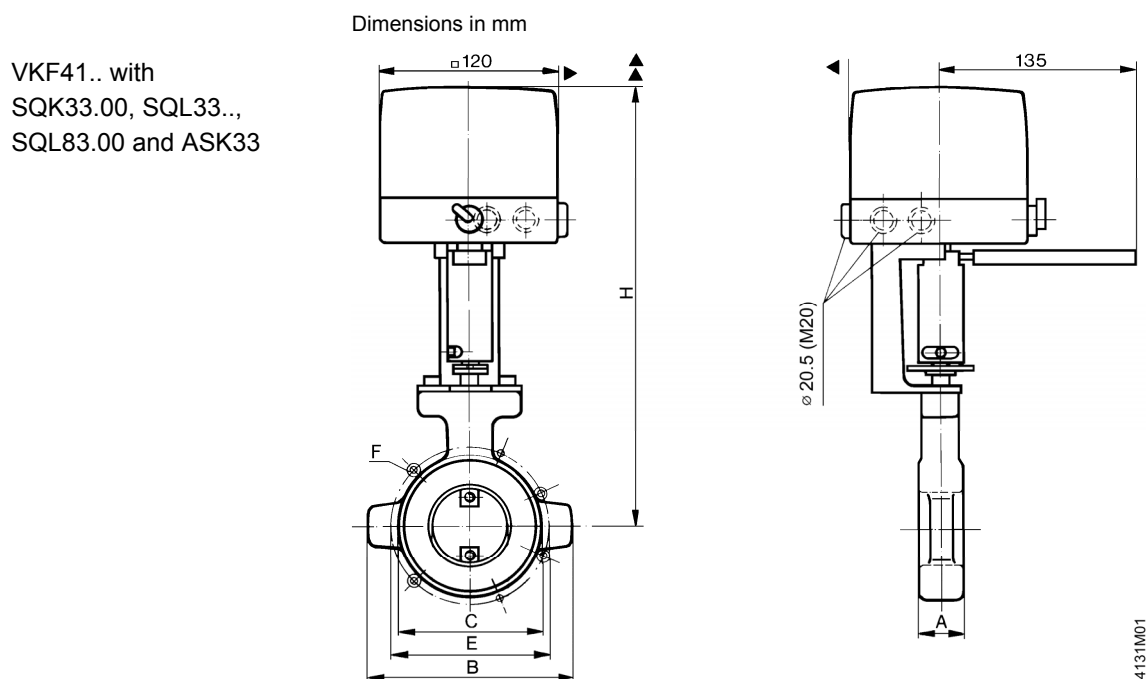
The technical data given for these applications is valid only in conjunction with the Siemens actuators as detailed under "Equipment combinations", page 3.

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

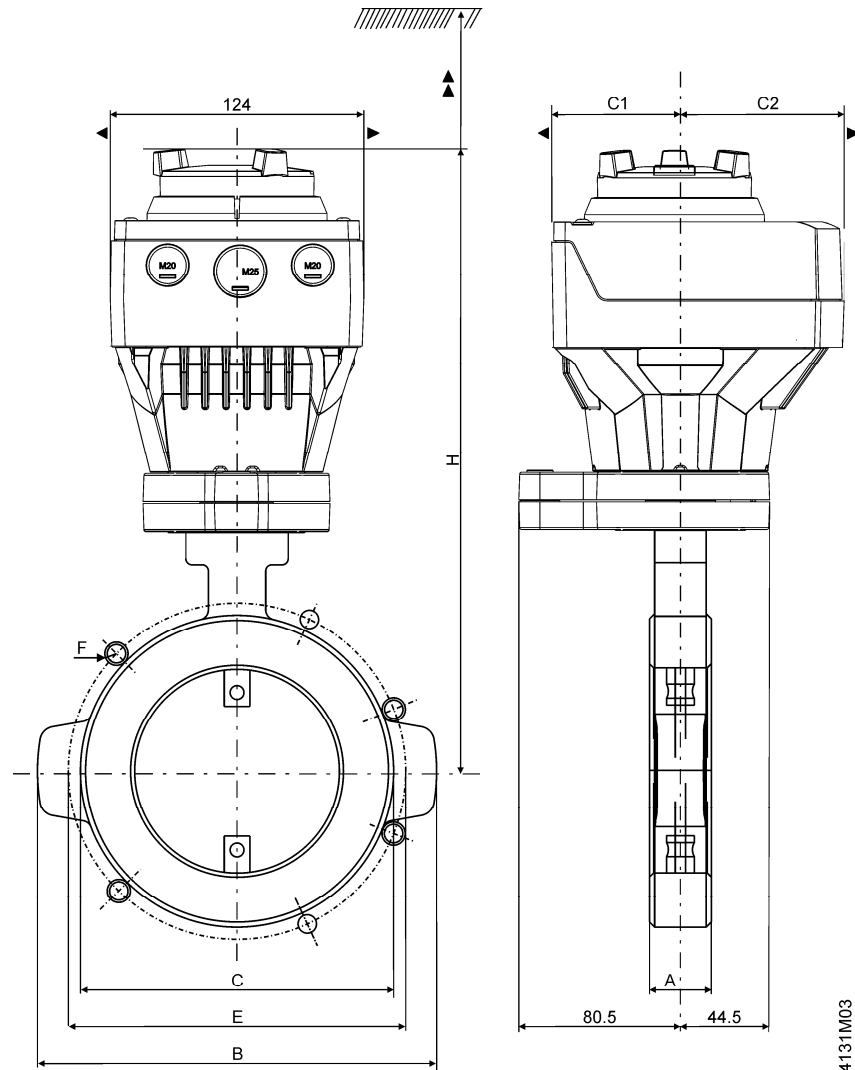
## Technical data

Operating data	PN class	PN 16 to EN1333
	Permissible operating pressure	1600 kPa (16 bar)
	Leakage rate	refer to "Type summary", page 2
	Permissible media	chilled water, low temperature hot water, high temperature hot water, brine, softened water, water with anti-freeze; recommendation: water treatment to VDI2035
	Medium temperature	-10...120 °C
	Flanged connection for pipes	PN 6, PN 10, PN 16 to ISO7005
	Angle of rotation	90° (to end stop)
Standards	Pressure Equipment Directive	PED 97/23/EC
	Pressure Accessories	as per article 1, section 2.1.4
	Fluid group 2: DN 40...50	without CE-marking as per article 3, section 3 (sound engineering practice)
	DN 65...200	category I, with CE-marking
Materials	Environmental compatibility	ISO 14001 (Environment) ISO 9001 (Quality) SN 36350 (Environmentally compatible products) RL 2002/95/EG (RoHS)
	Housing	grey cast iron EN-GJL-250
	Shaft	stainless steel 1.4104
	Valve disc	stainless steel 1.4016
	Shaft seal	EPDM O-rings
Dimensions		refer to "Dimensions"
Weight		refer to "Dimensions"

## Dimensions



VKF41.. with  
SAL..T10 and ASK33N





- > 100 mm: minimum clearance from the wall or ceiling
- > 200 mm: minimum clearance for mounting, connection, operation, maintenance etc

Type	DN	A	B	C	E	F	E	F	H			kg
			ø	ø	PN 6	PN 10, PN 16			SQK33.00	SQL33.. SQL83.00	SAL..T10	[kg]
VKF41.40	40	30	130	87	100	M12 (4x)	110	M16 (4x)	249	275	275	1.72
VKF41.50	50	30	140	97	110	M12 (4x)	125	M16 (4x)		280	280	1.94
VKF41.65	65	30	160	117	130	M12 (4x)	145	M16 (4x)		287,5	287.5	2.37
VKF41.80	80	30	175	133	150	M16 (4x)	160	M16 (8x)		295	295	2.63
VKF41.100	100	30	195	153	170	M16 (4x)	180	M16 (8x)		305	305	2.92
VKF41.125	125	40	225	183	200	M16 (8x)	210	M16 (8x)		325,5	325.5	5.25
VKF41.150	150	40	255	208	225	M16 (8x)	240	M20 (8x)		338	338	6.29
VKF41.200	200	40	310	263	280	M16 (8x)	295	M20 (8x) for PN 10 M20 (12x) for PN 16		363	363	8.44

DN = Nominal size

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

Order number for spare parts

	Centering sleeves	O-ring service kit
		
Product number		
VKF41.40	4 676 8877 0	4 679 8814 0
VKF41.50	4 676 8878 0	4 679 8814 0
VKF41.65	4 676 8878 0	4 679 8814 0
VKF41.80	4 676 8878 0	4 679 8814 0
VKF41.100	4 676 8878 0	4 679 8814 0
VKF41.125	4 676 8879 0	4 679 8815 0
VKF41.150	4 676 8880 0	4 679 8815 0
VKF41.200	4 676 8880 0	4 679 8815 0

## Revision numbers

Type	Valid from rev. no.	Type	Valid from rev. no.	Type	Valid from rev. no.
VKF41.40	/01	VKF41.80	/01	VKF41.150	/01
VKF41.50	/01	VKF41.100	/01	VKF41.200	/01
VKF41.65	/01	VKF41.125	/01		