acvatix

# Butterfly Valves VKF41…
# PN 6, PN 10, PN 16

- **Grey cast iron housing EN-GJL-250**
- **DN 40…200**
- **$k_{vs}$ 50…4000 $m^3$/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, SQL35.00 or SQL85.00 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

| Type | DN | $k_{vs}$ [$m^3$/h] | Leakage rate in % of $k_{vs}$-value | Velocity of flow [1] Water [m/s] | | Velocity of flow [1] Gas [m/s] | |
|---|---|---|---|---|---|---|---|
| **VKF41.40** | 40 | 50 | 0.22 | 4 | | 40 | |
| **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 | | 5.5 [2] | | 55 [2] |
| **VKF41.200** | 200 | 4000 | 0.01 | | | | |

[1] Recommended maximum velocity of flow and the butterfly valve fully open
[2] Only valid with type SQL35.00 and SQL85.00 actuators

$k_{vs}$ 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

Centering sleeves

4 centring sleeves are supplied with each butterfly valve, for fitting the valve between PN 10 and PN 16 flanges

Mounting kits

**ASK33**
For mounting SQK33.00, SQL33… and SQL83.00 actuators on VKF41… DN 40…200

**ASK35**
For mounting SQL35.00 and SQL85.00 actuators on VKF41… DN 150…200

**Order**

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

Example
1 butterfly valve VKF41.40 including centering sleeves
1 actuator SQL33.03
1 mounting kit ASK33

Delivery

Butterfly valve, actuator and mounting kit are packed separately.

## Equipment combinations

| Butterfly valve | Mounting kit | | Electromotoric actuator SQK33.00 | SQL33… | SQL83.00 | SQL35.00 | SQL85.00 |
|---|---|---|---|---|---|---|---|
| | | | $\Delta p_s$ [kPa] | | | | |
| VKF41.40 | ASK33 | | 200 | 500 | | | |
| VKF41.50 | | | | | | | |
| VKF41.65 | | | | | | | |
| VKF41.80 | | | | | | | |
| VKF41.100 | | | | | | | |
| VKF41.125 | | | | 300 | | | |
| VKF41.150 | | ASK35 [1] | | 250 | | 500 | |
| VKF41.200 | | | | 150 | | 300 | |

[1] Mount SQL35.00 and SQL85.00 with ASK35 on VKF41… butterfly valves

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

Actuator overview

| Type | Actuator type | Operating voltage | Positioning signal | Spring return | Positioning time | Positioning force | Data sheet |
|---|---|---|---|---|---|---|---|
| **SQK33.00** | Electro-motoric | AC 230 V | 3-position | No | 125 s | 5 Nm | N4506 |
| **SQL33.00** | | | | | | 12.5 Nm | |
| **SQL33.03** | | | | | 30 s | 10 Nm | |
| **SQL83.00** | | AC 24 V | | | 125 s | 12.5 Nm | |
| **SQL35.00** | | AC 230 V | | | | 20 Nm | N4505 |
| **SQL85.00** | | AC 24 V | | | | | |

## Mechanical design

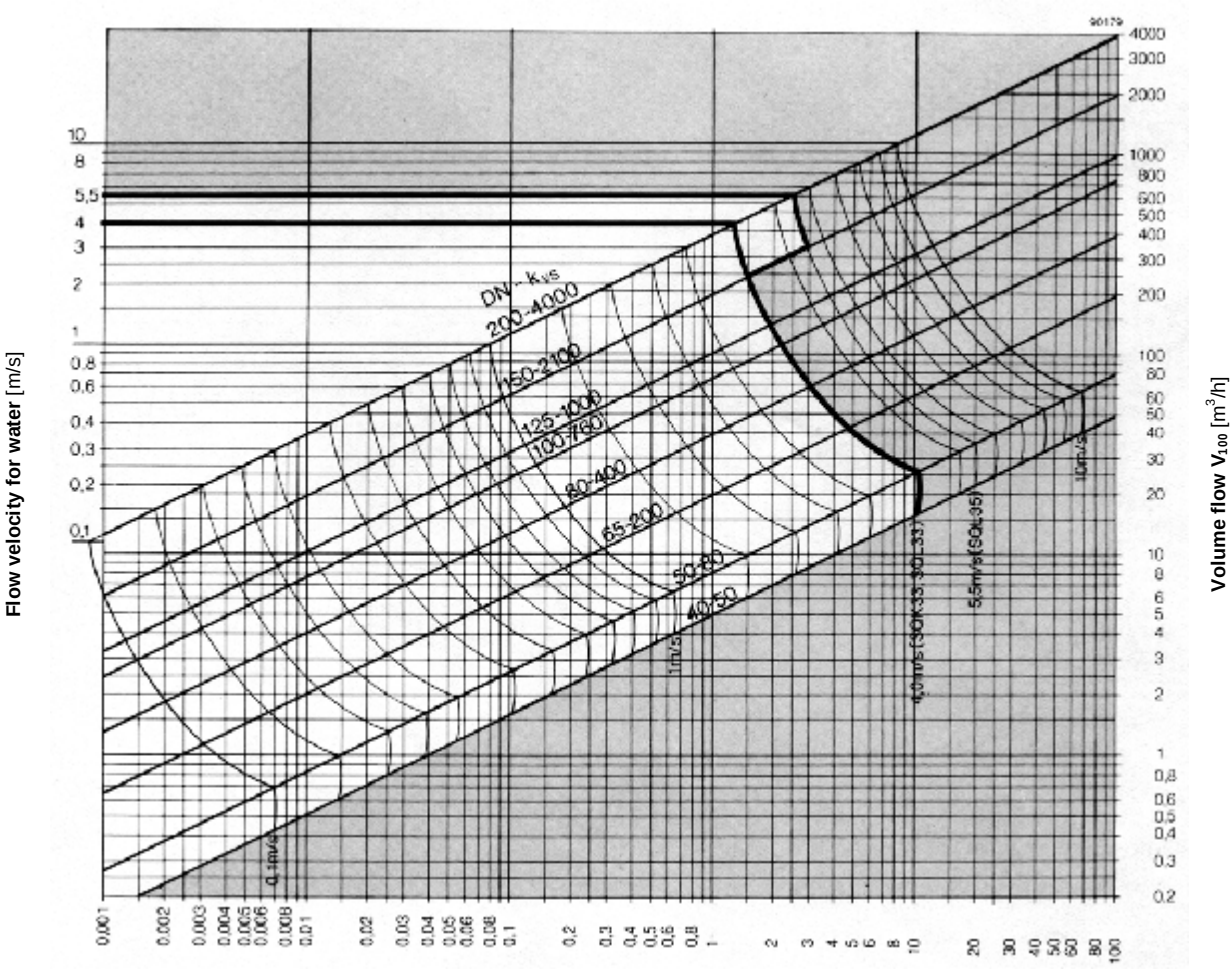
**Butterfly valve**

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 kit ASK...

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

## Sizing diagram




$\Delta p_{v100}$ = 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 ≈ 10 mWC

1 $m^3$/ 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.

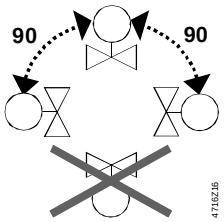
**Warning** ⚠ To avoid pressure shocks on the butterfly valve, the VKF41… must be driven to its fully open position (either manually or via positioning signal Y1) prior to activating the pump(s).

## Mounting notes

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.

Orientation




Upright to horizontal

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

## Commissioning notes

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

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

## Maintenance

The VKF41... butterfly valves require no maintenance.

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

- 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 manual adjuster or the actuator correctly assembled.

**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 a ecological point of view.
**Current local legislation must be observed.**

## 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.

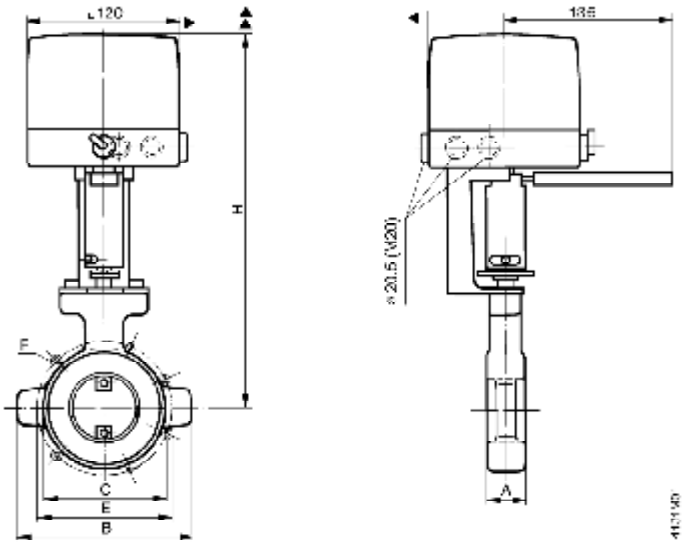
## Technical data

| | | | |
|---|---|---|---|
| Operating data | PN class | | PN 16 to EN1333 |
| | Permissible operating pressure | | 1600 kPa (16 bar) |
| | Leakage rate | | refer to «Type summary» |
| | 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 | 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» |

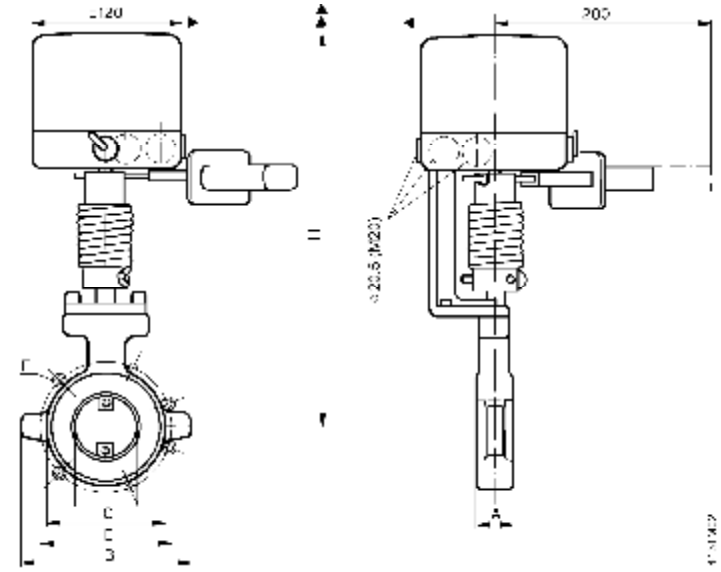
## Dimensions

Dimensions in mm

VKF41… with SQK33.00, SQL33…, SQL83.00 and ASK33




VKF41… with SQL35.00, SQL85.00 and ASK35




„ > 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 | SQL35.00 SQL85.00 | [kg] |
| **VKF41.40** | 40 | 30 | 130 | 87 | 100 | M12 (4x) | 110 | M16 (4x) | 249 | 275 | | 1.72 |
| **VKF41.50** | 50 | 30 | 140 | 97 | 110 | M12 (4x) | 125 | M16 (4x) | | 280 | | 1.94 |
| **VKF41.65** | 65 | 30 | 160 | 117 | 130 | M12 (4x) | 145 | M16 (4x) | | 287.5 | | 2.37 |
| **VKF41.80** | 80 | 30 | 175 | 133 | 150 | M16 (4x) | 160 | M16 (8x) | | 295 | | 2.63 |
| **VKF41.100** | 100 | 30 | 195 | 153 | 170 | M16 (4x) | 180 | M16 (8x) | | 305 | | 2.92 |
| **VKF41.125** | 125 | 40 | 225 | 183 | 200 | M16 (8x) | 210 | M16 (8x) | | 325.5 | | 5.25 |
| **VKF41.150** | 150 | 40 | 255 | 208 | 225 | M16 (8x) | 240 | M20 (8x) | | 338 | 383 | 6.29 |
| **VKF41.200** | 200 | 40 | 310 | 263 | 280 | M16 (8x) | 295 | M20 (8x) für PN 10<br>M20 (12x) für PN 16 | | 363 | 408 | 8.44 |

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