



Butterfly valves

VKF10...
VKF11...

Butterfly valves designed in intermediate flange design, for mounting into gas trains

- Valve either metallically tight or swing thru
- DN32...DN200
- Effective rotation angle 5...85°
- Suitable for gases in the I...III range, air and flue gas up to 180°C
- Including coupling for D-shaft Ø 10 mm and ASK33.1 mounting plate
- The option is available to install the butterfly valve in the next nominal size up to ensure it is positioned more securely
- Installation in ISO 7005 and ANSI flange connections

The VKF10/VKF11 and this data sheet are intended for original equipment manufacturers (OEMs) using the VKF10/VKF11 in or on their products.

Use

As a controlling device in combustion plants, for example:

- As a gas control valve
- As an air control valve
- As a flue gas valve in the case of flue gas recirculation
- For applications with a large control range
- Suitable for slightly aggressive biogases and recycling gases

Supplementary documentation

Product type	Type of documentation	Documentation number
VKF1x	Mounting Instruction	74 319 0516 0 (M7673)

Warning notes



To avoid personal injury or damage to property or the environment, the following warning notes must be observed.

Interventions and changes are strictly forbidden.

- All activities (mounting, installation, service work, etc.) must be performed by qualified staff
- These valves must not be put back into operation following impact or shock; even if they do not exhibit any visible damage, their safety functions may be impaired

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- Mounting between counter-flanges conforming to ISO 7005-2 and ANSI
- Butterfly valve and actuator can be assembled directly on site with ease
- No special tools or adjustment required
- The butterfly valve can accommodate flow in either direction
- Use flange gaskets that are suitable for the type of gas

Startup notes

- The butterfly valve may only be put into operation if the actuator is correctly fitted
- The direction of rotation when opening the damper should be clockwise (looking towards the front face of the axle)
- Ensure the actuators being combined rotate in the correct direction: Direction of rotation 'counterclockwise' (12:00 → 09:00) looking towards the front face of the actuator axles

Disk turns in clockwise direction

Flow increases

Disk turns in counterclockwise direction

Flow decreases

Standards and certificates

Applicable regulations:

- Gas Appliances Regulation

2016/426

Compliance with the regulations of the applied directives is verified by the adherence to the following standards/regulations:

- Safety and control devices for burners and appliances burning gaseous and/or liquid fuels – General requirements
- Safety and control devices for gas burners and gas-burning appliances – General requirements

DIN EN 13611

ISO 23550



EAC Conformity (Eurasian Conformity)



ISO 9001:2015

ISO 14001:2015

OHSAS 18001:2007



China RoHS

Hazardous substances table:

<http://www.siemens.com/download?A6V10883536>



Service notes

- The VKF10/VKF11 butterfly valve requires no maintenance
- The butterfly valve may only be put back into operation if the actuator is correctly fitted
- The tightness must be checked when mounting or replacing it

Disposal notes

Prior to disposal, the butterfly valve must be dismantled and separated into its various materials. Local and currently valid legislation must be complied with. The VKF10/VKF11 does not contain any electronics.

Mechanical design

VKF10 butterfly valve

The valve disk and shaft are made of stainless steel.

The valve disk does not close against an end stop.

After mounting the actuator, the position indicator and valve disk are both at 5° so that the effective setting range can be used.

VKF11 butterfly valve

The valve disk and shaft are made of stainless steel.

The valve disk closes against an end stop (approx. 5° position).

Type summary

Article no.	Type VKF10	DN [mm]	Leakage rate where $\Delta p = 0.5 \text{ kPa air}$
S55592-G101-A100	VKF10.032	32 + 40	< 2%
S55592-G102-A100	VKF10.040	40 + 50	< 2%
S55592-G103-A100	VKF10.050	50 + 65	< 2%
S55592-G104-A100	VKF10.065	65 + 80	< 2%
S55592-G105-A100	VKF10.080	80 + 100	< 2%
S55592-G106-A100	VKF10.100	100 + 125	< 2%
S55592-G107-A100	VKF10.125	125 + 150	< 2%
S55592-G108-A100	VKF10.150	150 + 200	< 2%
S55592-G109-A100	VKF10.200	200	< 2%

Article no.	Type VKF11	DN [mm]	Leakage rate where $\Delta p = 0.5 \text{ kPa air}$
S55592-G110-A100	VKF11.032	32 + 40	< 0.5%
S55592-G111-A100	VKF11.040	40 + 50	< 0.5%
S55592-G112-A100	VKF11.050	50 + 65	< 0.5%
S55592-G113-A100	VKF11.065	65 + 80	< 0.5%
S55592-G114-A100	VKF11.080	80 + 100	< 0.5%
S55592-G115-A100	VKF11.100	100 + 125	< 0.5%
S55592-G116-A100	VKF11.125	125 + 150	< 0.5%
S55592-G117-A100	VKF11.150	150 + 200	< 0.5%
S55592-G118-A100	VKF11.200	200	< 0.5%

Key

DN Nominal diameter

Suitable actuators	Required mounting plate *)	Data sheet no
SQM33	ASK33.1	N7813
SQM40.xx5xxx	ASK33.1	N7817
SQM45.295A9	ASK33.1	N7814
SQM50 with AGA58.5	ASK33.3	N7815
SQN7x.xxxxx1	ASK33.5	N7804 N7802

*) ASK33.1 included in scope of delivery



Caution!

Only counterclockwise actuators may be used for the VKF10/VKF11.

Ordering

Butterfly valve and actuator must be ordered as individual items.
Please specify the quantity, names, and type references when ordering.

Example:

- 1 VKF11.040 butterfly valve
- 1 SQM40.245A11 actuator

Delivery

Butterfly valve and actuator are packed as individual items.

Accessories

Actuator

SQM33 actuator
(to be ordered separately)
Refer to data sheet N7813



SQM40 actuator
(to be ordered separately)
Refer to data sheet N7817



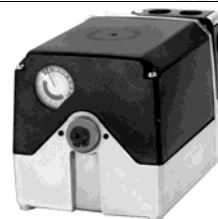
SQM45 actuator
(to be ordered separately)
Refer to data sheet N7814



SQM50 actuator
(to be ordered separately)

- Mounting sets must be ordered separately, see *Accessories – Mounting plate.*

Refer to data sheet N7815



SQN7x.xxxxx1 actuator
(to be ordered separately)

- Mounting sets must be ordered separately, see *Accessories – Mounting plate.*

Refer to data sheet N7802/N7804



Accessories (continued)

Mounting plate

ASK33.1 mounting plate

Article no: **BPZ:ASK33.1**

(included in scope of delivery)

- Mounting plate for mounting actuators SQM33, SQM40 and SQM45



Note!

The required screws (3x M5 countersunk screws and 4x M5 screws) are included in the packaging for the ASK33.1.

ASK33.3 mounting plate

Article no: **BPZ:ASK33.3**

(to be ordered separately)

- Larger mounting plate required to replace existing mounting plate
- Required for mounting the actuators SQM5 with AGA58.5.



Note!

The required screws (4x M6x15) are included in the packaging for the ASK33.3.

ASK33.5 mounting plate

Article no: **S55857-Z101-A100**

(to be ordered separately)

- Mounting plate for mounting the actuator SQN7x.xxxA21
- Reducing sleeve included in scope of delivery



Note!

The required screws are included in the standard scope of delivery.

Drive shafts

AGA58.5 drive shaft

Article no: **BPZ:AGA58.5**

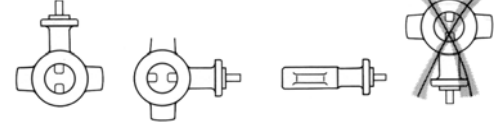
- For installation in the SQM50 and mounting on the VKF1x
- D shaft Ø 10 mm



Technical data

General unit data

Gas types 1% H ₂ S, 1% NH ₃ maximum	Gas families I...III, air and flue gas
Operating pressure	
• Up to and including DN100	Max. 150 kPa (1.5 bar)
• From DN125	Max. 100 kPa (1 bar)
Mounting positions	



Leakage rate at VKF11 (internal)	Refer to <i>Type summary</i>
Effective rotation angle	85° butterfly valve

Materials

• Valve body	GGG40.3 Cast iron with nodular graphite according to DIN EN 1563
• Shaft and valve disk	Stainless steel
• Shaft seal	2 O-rings
• No non-ferrous metals	

Weight	Refer to <i>Dimensions</i>
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Environmental conditions

Storage	DIN EN 60721-3-1
Climatic conditions	Class 1K3
Mechanical conditions	Class 1M2
Temperature range	-20...+60°C
Humidity	< 95% r.h.
Transport	DIN EN 60721-3-2
Climatic conditions	Class 2K2
Mechanical conditions	Class 2M2
Temperature range	-20...+60°C
Humidity	< 95% r.h.
Operation	DIN EN 60721-3-3
Climatic conditions	Class 3K5
Mechanical conditions	Class 3M2
Temperature range	
• VKF10/VK11	-15...+180°C (air and flue gas) -15...60°C (gas)
Humidity	< 95% r.h.



Caution!

Condensation, formation of ice, and ingress of water are not permitted.

Flow chart

Illustration of the VKF10.032 to VKF10.080, characteristic curve for the effective positioning range (5°...85°)

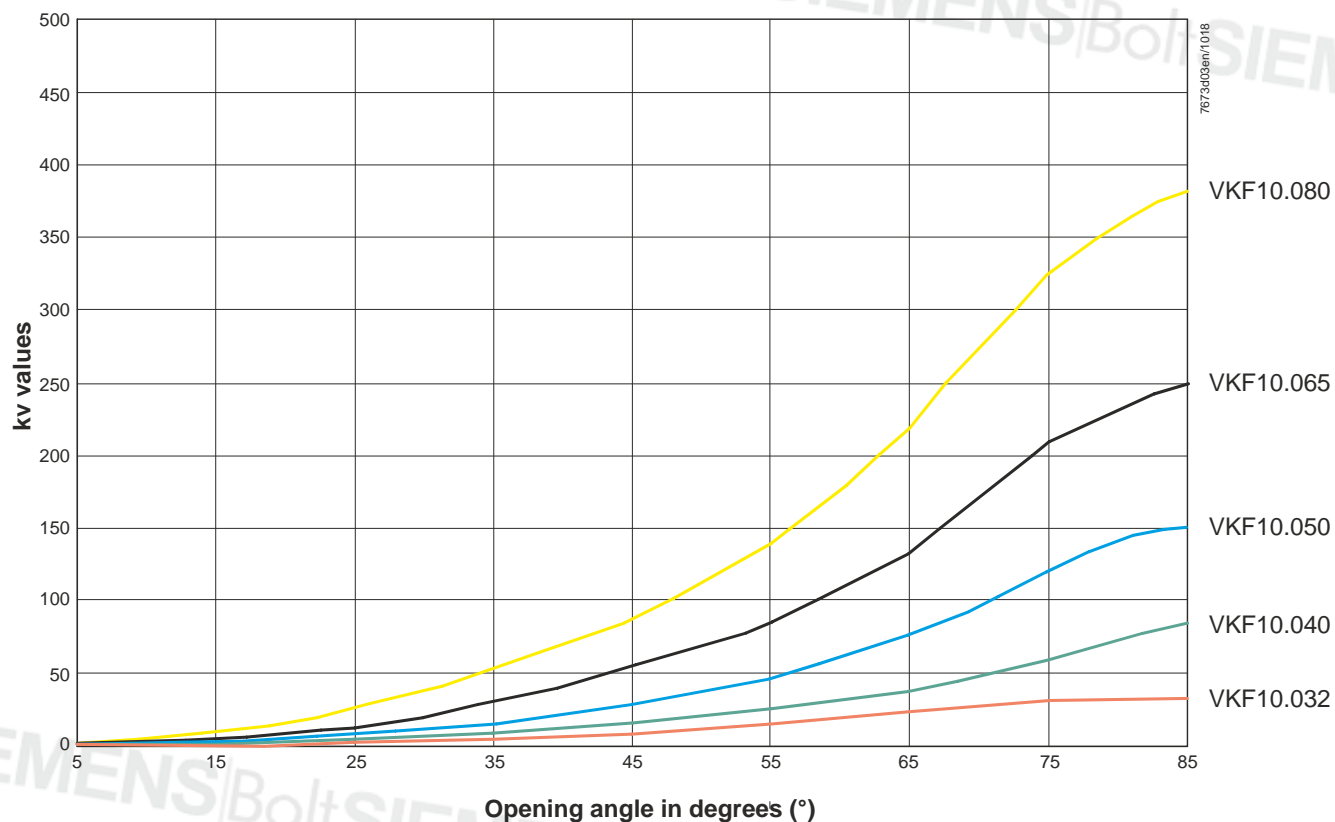
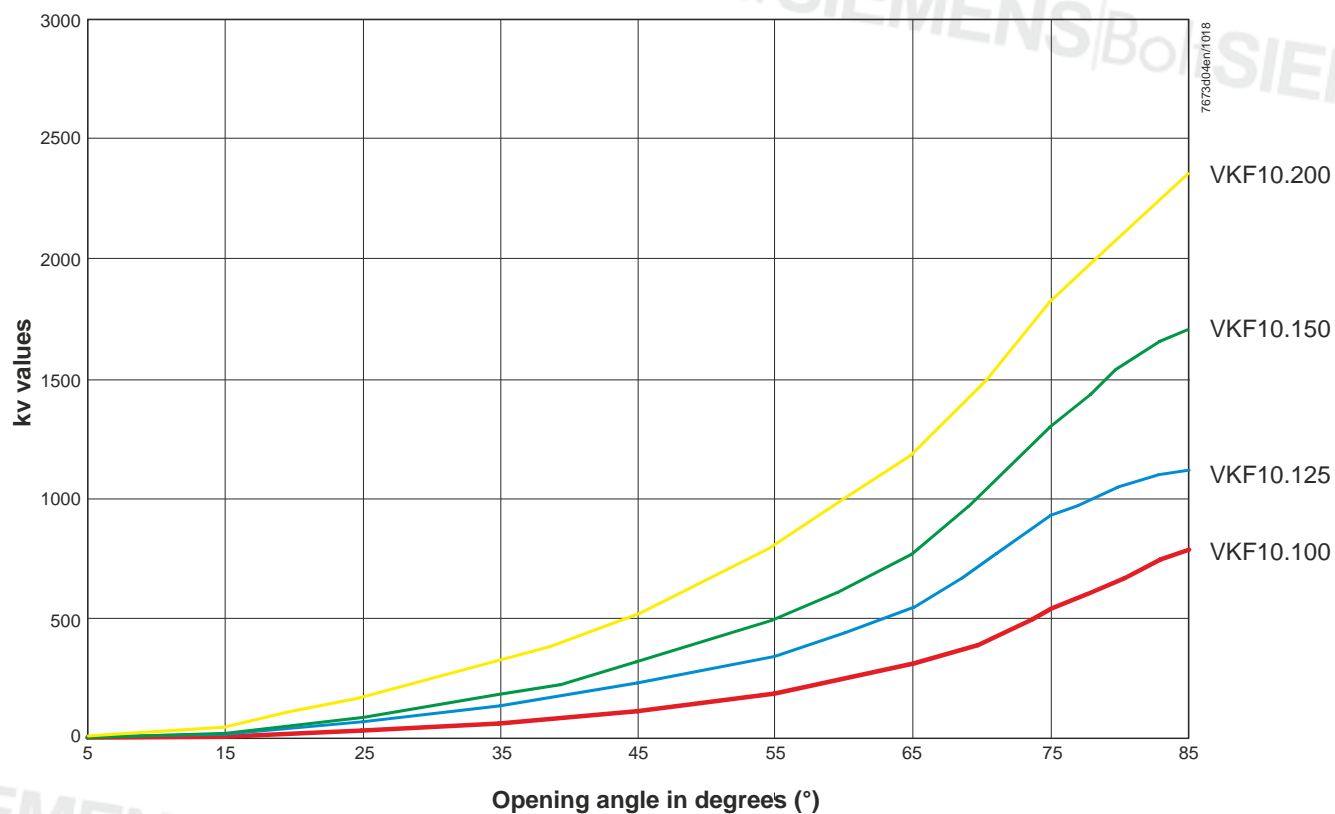
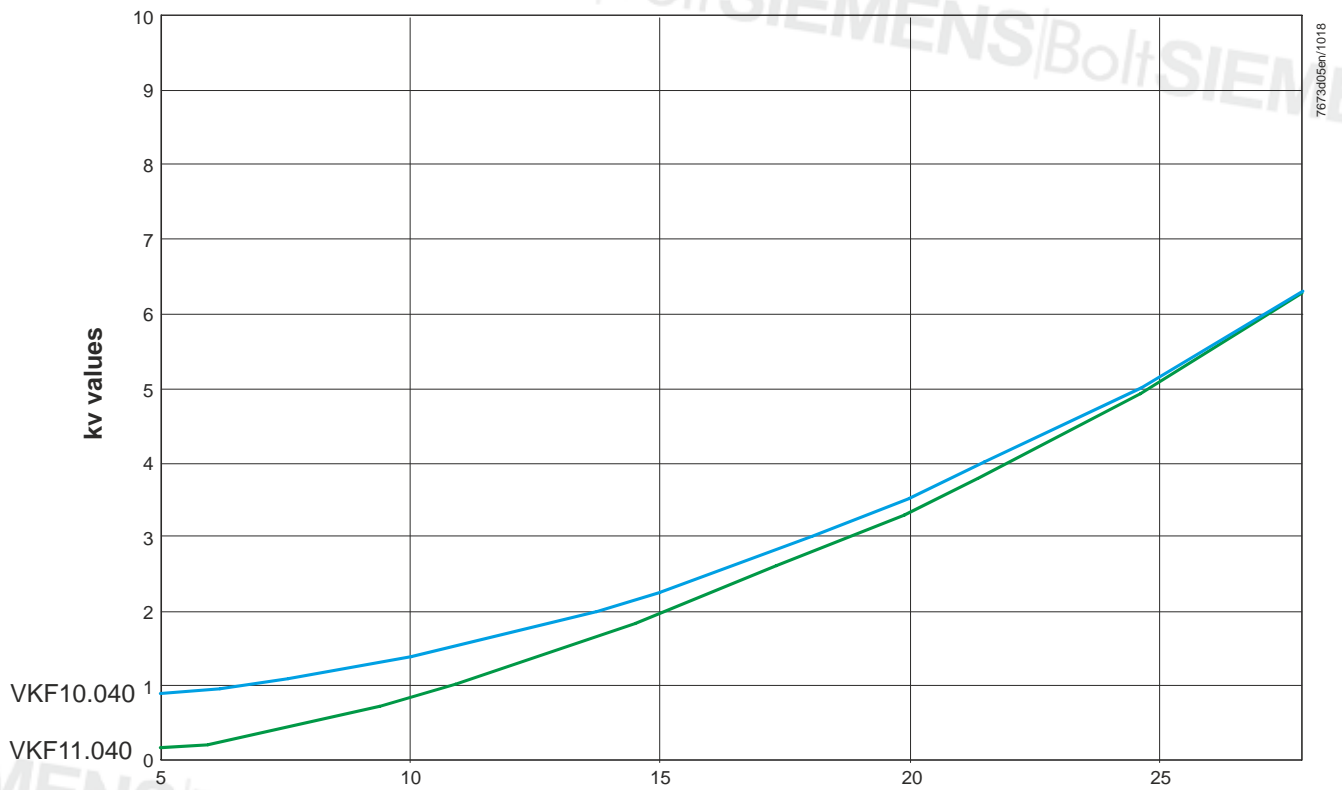


Illustration of the VKF10.100 to VKF10.200, characteristic curve for the effective positioning range (5°...85°)



Flow chart (continued)

Illustration of the comparison between the VKF10.040 and VKF11.040, lower opening range (5°...25°)



Type	Opening angle in degrees (°)								
	Opening angle								
	5° *)	15° *)	25° *)	35°	45°	55°	65°	75°	85°
VKF10.032	0.6	1.6	2.8	5.6	9.5	15.3	23.7	30.9	33.7
VKF10.040	0.8	2.2	5.1	9.7	16.5	26.4	40.1	60.2	84.1
VKF10.050	0.8	3.0	7.6	15.7	29.0	47.5	74.3	120.3	150.1
VKF10.065	1.5	4.9	12.7	29.4	54.0	83.4	131.0	208.2	249.8
VKF10.080	2.7	9.4	25.4	53.6	87.4	140.9	220.0	325.6	382.9
VKF10.100	3.7	12.0	34.0	65.3	118.9	193.1	308.3	532.4	785.5
VKF10.125	5.9	23.5	69.3	135.8	229.3	350.2	545.6	921.6	1120.1
VKF10.150	6.2	26.0	90.2	182.2	322.9	499.3	767.2	1287.4	1702.4
VKF10.200	9.8	46.9	177.3	320.5	517.7	809.9	1186.8	1813.4	2337.8
VKF11.032	0.2	1.0	2.8	5.6	9.5	15.3	23.7	30.9	33.7
VKF11.040	0.2	1.9	5.1	9.7	16.5	26.4	40.1	60.2	84.1
VKF11.050	0.2	2.6	7.6	15.7	29.0	47.5	74.3	120.3	150.1
VKF11.065	0.3	4.3	12.7	29.4	54.0	83.4	131.0	208.2	249.8
VKF11.080	0.3	9.0	25.4	53.6	87.4	140.9	220.0	325.6	382.9
VKF11.100	0.3	11.4	34.0	65.3	118.9	193.1	308.3	532.4	785.5
VKF11.125	0.3	19.5	69.3	135.8	229.3	350.2	545.6	921.6	1120.1
VKF11.150	0.4	21.3	90.2	182.2	322.9	499.3	767.2	1287.4	1702.4
VKF11.200	0.6	39.2	177.3	320.5	517.7	809.9	1186.8	1813.4	2337.8

*) The characteristic curves follow the same course above 25°

Flow chart (continued)



Caution!

- In the case of burners operating with small low-fire volumes, select a tightly sized valve
- If the gas pressure exceeds the maximum permissible operating pressure, reduce the gas pressure with a pressure controller
- The pressure drop (maximum flow characteristic) is based on a fully open valve

Conversion of air flow rate to a corresponding gas flow rate (natural gas)

Basis for scale

Abscissa	Medium Volumetric flow "QG" in m³/h	Density ratio "dv" to air	Conversion factor $f = \sqrt{\frac{1}{d_v}}$
1	Air	1	1
2	Natural gas	0.61	1.28
3	Propane	1.562	0.8
4	City gas	0.46	1.47

Conversion to air (m³/h) from other types of gases: $QL = \frac{QG}{f}$ QL = air volume in m³/h that produces the same pressure drop as "QG".

Dimensions in mm

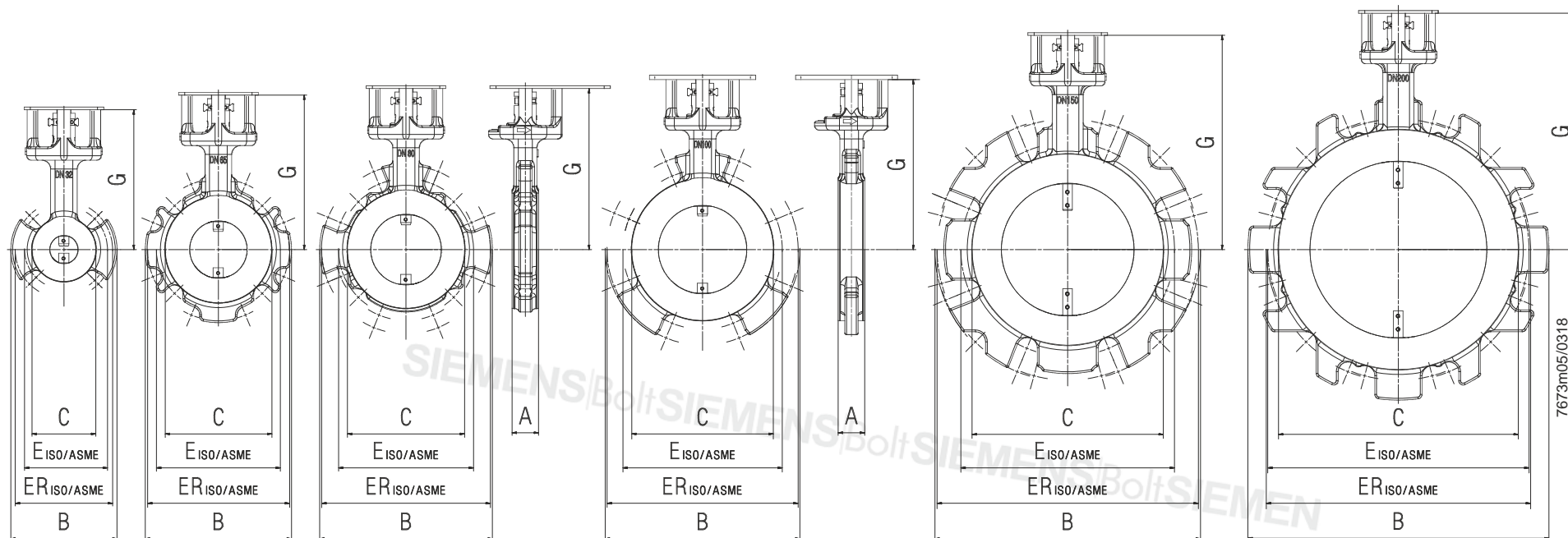
DN65

DN80

DN100...DN125

DN150

DN200



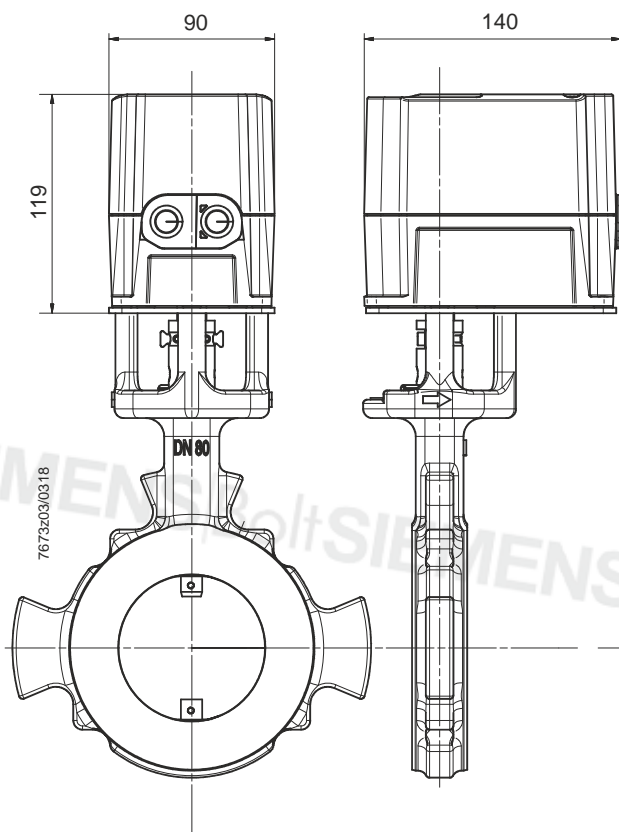
Type	DN	A	BØ	CØ	E _{ISO}	E _{ASME}	ER _{ISO} *)	ER _{ASME} *)	F _{ISO}	F _{ASME}	Screws _{ISO}	Screws _{ASME}	G	Weight [kg]
VKF1x.032	DN32	30	120	72	100	88.9	110	98.4	4xM16	4x1/2	4xM16	4x1/2	158	2.3
VKF1x.040	DN40	30	130	81.5	110	98.4	125	120.7	4xM16	4x1/2	4xM16	4x5/8	162	2.5
VKF1x.050	DN50	30	155	101	125	120.7	145	139.7	4xM16	4x5/8	4xM16	4x5/8	167	2.9
VKF1x.065	DN65	30	165	120	145	139.7	160	152.4	4xM16	4x5/8	8xM16	4x5/8	174.5	3.4
VKF1x.080	DN80	30	195	132.5	160	152.4	180	190.5	8xM16	4x5/8	8xM16	8x5/8	182	3.6
VKF1x.100	DN100	30	220	160	180	190.5	210	215.9	8xM16	8x5/8	8xM16	8x3/4	192	4.3
VKF1x.125	DN125	40	250	190	210	215.9	240	241.3	8xM16	8x3/4	8xM20	8x3/4	229.5	7.6
VKF1x.150	DN150	40	300	216	240	241.3	295	298.5	8xM20	8x3/4	12xM20	8x3/4	242	9.6
VKF1x.200	DN200	40	340	271	295	298.5	-	-	12xM20	8x3/4	-	-	267	12.8

*) Reference circle for installation in one flange size higher

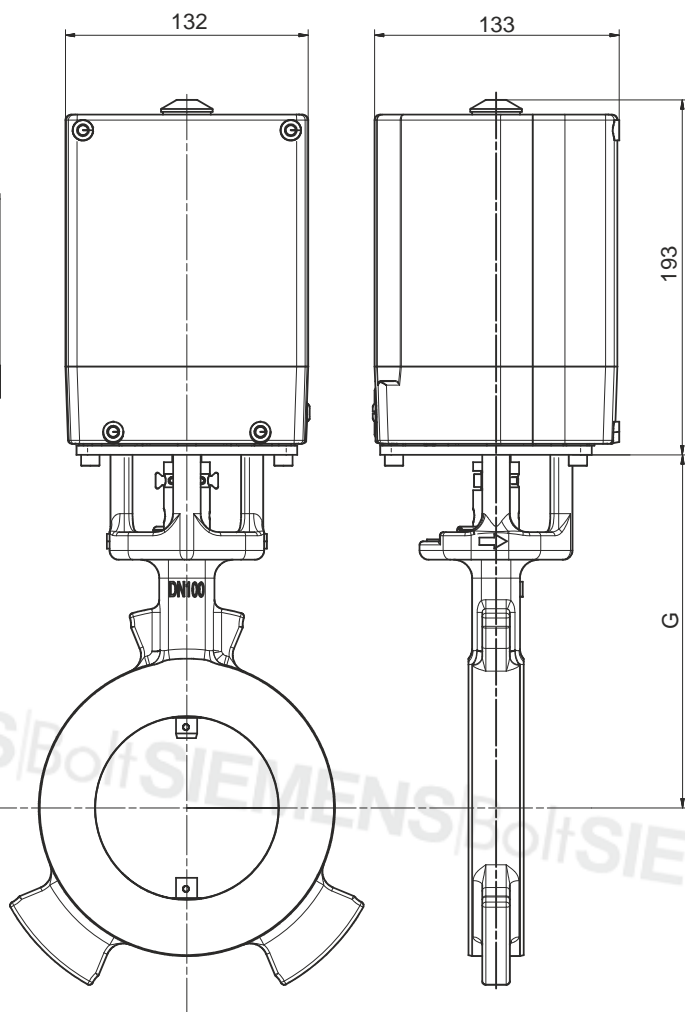
Dimensions in mm

Installation examples for VKF1x with actuator

VKF10/VKF11 with SQM45

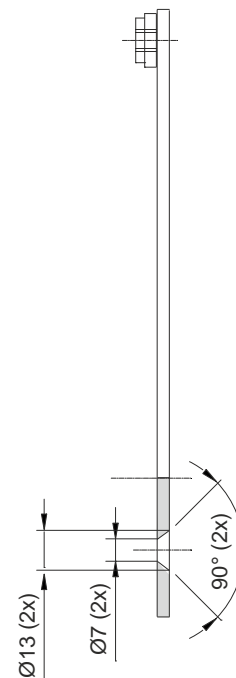


VKF10/VKF11 with SQM50 and ASK33.3/AGA58.5

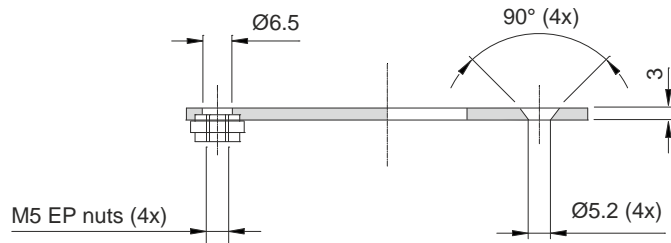


Type	DN	G
VKF1x.032	DN32	158
VKF1x.040	DN40	162
VKF1x.050	DN50	167
VKF1x.065	DN65	174.5
VKF1x.080	DN80	182
VKF1x.100	DN100	192
VKF1x.125	DN125	229.5
VKF1x.150	DN150	242
VKF1x.200	DN200	267

ASK33.1



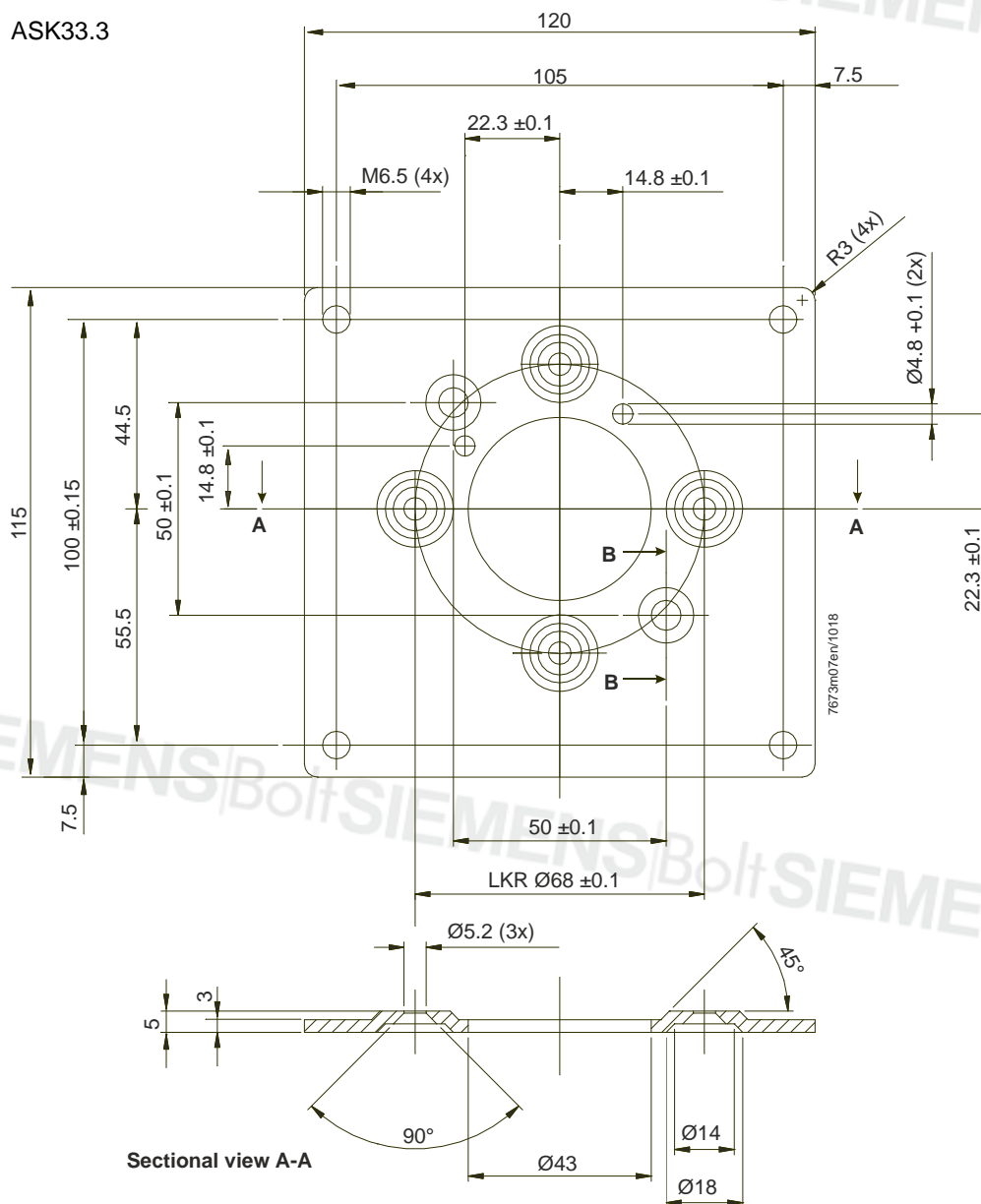
Sectional view A–A



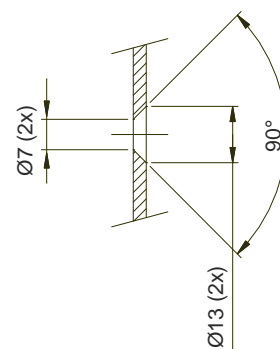
Dimensions (continued)

Dimensions in mm

ASK33.3



Sectional view B-B

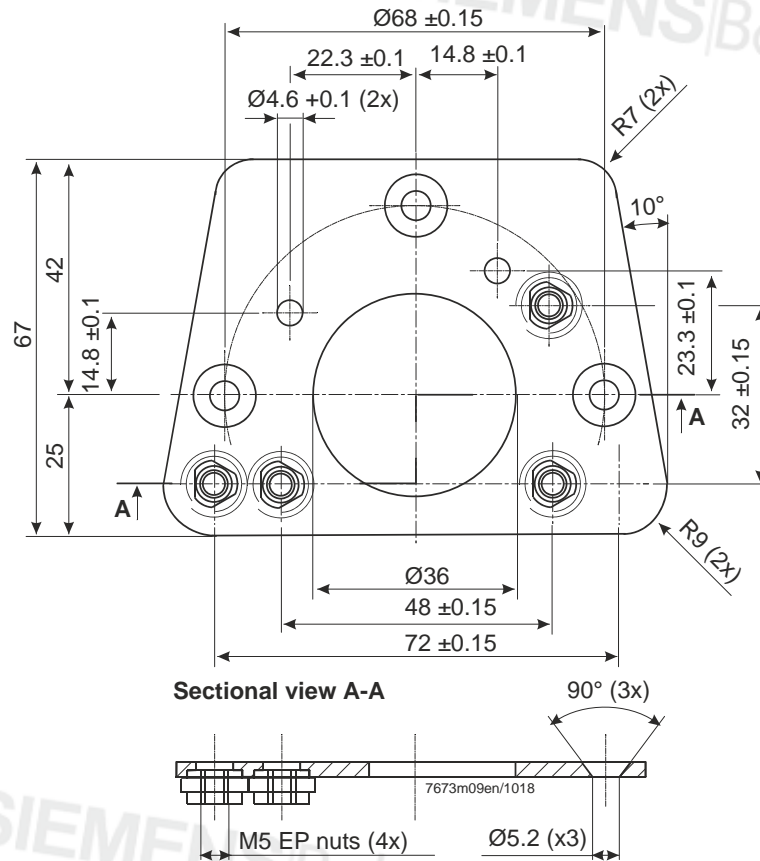


Sectional view A-A

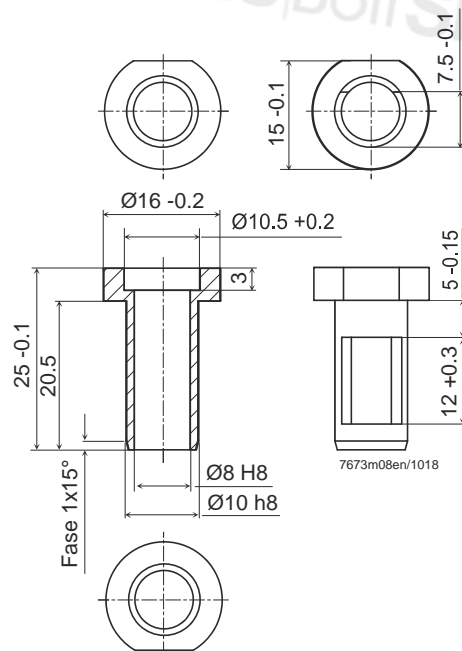
Dimensions (continued)

Dimensions in mm

ASK33.5



Reducing sleeve



Dimensions (continued)

Dimensions in mm

AGA58.5

