



Gas damper

VKG...

The VKG was developed for Rp threaded connections.

- Large modulation range
- Connection area 1¼...3"
- Angle of rotation 90°
- Suitable for natural gas and air
- In connection with SQN7, SQM33, SQM4, or SQM5 actuators
- Premounted mounting plate

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

Use

For use in combustion plants as a gas flow controlling element or air flow controlling element with increased requirements such as:

- Increase in volume flow over the rotation angle 0...90°
- Low start flow rate
- High number of actuation cycles



Note!

For supplementary documentation, see *Accessories*.

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.

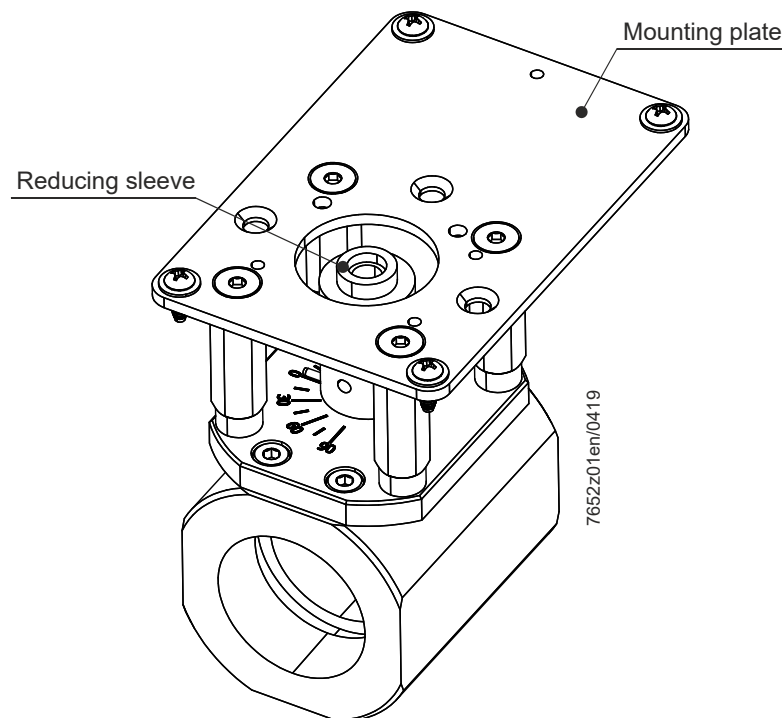
- All activities (mounting, installation, service work, etc.) must be performed by qualified staff
- These controlling elements must not be put into operation after a fall or shock, as this can adversely affect the control functions even if the units do not exhibit any external signs of damage
- The VKG may only be used in combination with the actuators described in this data sheet
- The VKG is only suitable for use in the applications described in this data sheet. Failure to observe this information poses a risk of personal injury or property damage
- The VKG is only intended for original equipment manufacturers (OEMs) / heating engineers. Failure to observe this information poses a risk of personal injury or property damage
- The maximum permissible inlet pressure must be observed

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- The gas damper, actuator, and ASK33.3 mounting plate can be assembled directly on site with ease. No special tools are required
- The 0° position of the VKG and the 0° position of the actuator must match up
- When the actuator is in the correct position in relation to the mounting plate, first the actuator and then the coupling are tightened

ASK33.3

If an SQM33, SQM4, or SQM5 with AGA58.5 is used in place of the SQN7, the red reducing sleeve must be removed.
For SQM5, the pre-assembled mounting plate must be replaced with the ASK33.3 mounting plate.



Commissioning notes

The VKG may only be put into operation if the mounting plate and accompanying actuator are correctly mounted.



Note!

The 0° position of the SQx corresponds to the 0° position of the VKG (closed position) on delivery.

Standards and certificates



Applied directives:

- Gas Appliances Regulation (EU) 2016/426

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

- Automatic shut-off valves for gas burners and gas-fired appliances DIN EN 161
- Safety and control devices for burners and appliances burning gaseous and/or liquid fuels – General requirements DIN EN 13611



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 VKG requires no maintenance
- The VKG may only be put back into operation if the mounting plate, fixed coupling, and actuator are correctly mounted
- The tightness must be checked after installation in the gas train

Disposal notes

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

Design

VKG gas damper

- Housing with damper, premounted coupling, and mounting plate
- Basic mounting plate (premounted) for screwing on the SQN7 / SQM33 / SQM4

ASK33.3 mounting plates

The ASK33.3 mounting plate is required to assemble the SQM5 with AGA58.5 on the VKG (see *Accessories*).

Refer to Mounting Instructions A5W00051052 (M7652).

Type summary

Article no.	Type	Housing size	Nominal size of the built-in damper	Tube size
S55592-G301-A100	VKG10.032ER	DN32	32 mm	1¼"
S55592-G302-A100	VKG10.040ER	DN40	40 mm	1½"
S55592-G303-A100	VKG10.050ER	DN50	50 mm	2"
S55592-G304-A100	VKG10.065ER	DN65	65 mm	2½"
S55592-G305-A100	VKG10.080ER	DN80	80 mm	3"

Article no.	Type	Housing size	Nominal size of the built-in damper	Tube size
S55592-G306-A100	VKG20.032ER	DN32	25 mm	1¼"
S55592-G307-A100	VKG20.040ER	DN40	32 mm	1½"
S55592-G308-A100	VKG20.050ER	DN50	40 mm	2"
S55592-G309-A100	VKG20.065ER	DN65	50 mm	2½"
S55592-G310-A100	VKG20.080ER	DN80	65 mm	3"

Refer to Mounting Instructions A5W00051052 (M7652).

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

*) ASK33.3 not included in scope of delivery

Ordering

The gas damper, actuator, and potentially also the ASK33.3 mounting plate must be ordered separately.

Please specify the quantity, names, and type references when ordering.

Example:

1 VKG10.050ER gas damper

1 SQM40.245A21 actuator

Delivery

Gas damper 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 – ASK33.3 mounting plate.
Refer to data sheet N7815



SQN7x.xxxxx1 actuator
(to be ordered separately)
Refer to data sheet N7802/N7804



Mounting plate

ASK33.3 mounting plate
Article no: **BPZ:ASK33.3**
Larger mounting plate required to replace existing mounting
plate when using actuator SQM5 with AGA58.5
Refer to Mounting Instructions A5W00051052 (M7652).



Fixing material



Note!
The screws required are included in the ASK33.3 package.

Drive shafts

AGA58.5 drive shaft
Article no: **BPZ:AGA58.5**
• For installation in the SQM50 and mounting on the VKG
• D shaft Ø 10 mm



Technical data

General unit data	Types of gas	Gas families I...III and air Max. 0.1% H ₂ S
	Operating pressure	Max. 170 kPa
	Mounting positions	Depending on the mounting position of the used actuator
	Angular rotation	90°
	Closed position until reopening	0° ±2°
	Open position until reclosure	90° ±2°
	Weight	Refer to <i>Dimensions</i>
	Material	No nonferrous materials
	Number of actuation cycles	500,000 OPEN/CLOSED
	Thread	RP
Environmental conditions	Storage	DIN EN 60721-3-1
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-20...60 °C
	Humidity	<85% r.h.
	Transport	DIN EN 60721-3-2
	Climatic conditions	Class 2K3
	Mechanical conditions	Class 2M2
	Temperature range	-20...60 °C
	Humidity	<85% r.h.
	Operation	DIN EN 60721-3-3
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M2
	Temperature range	-40...70 °C
	Humidity	<85% r.h.



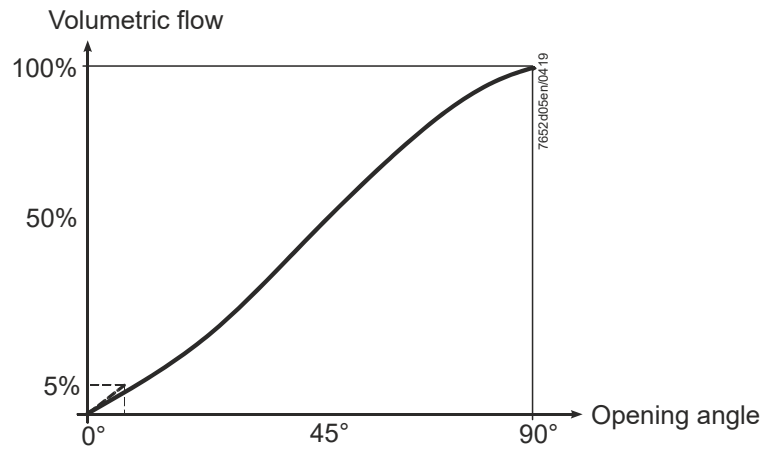
Please note!
Formation of ice and ingress of water are not permitted.

Flow chart

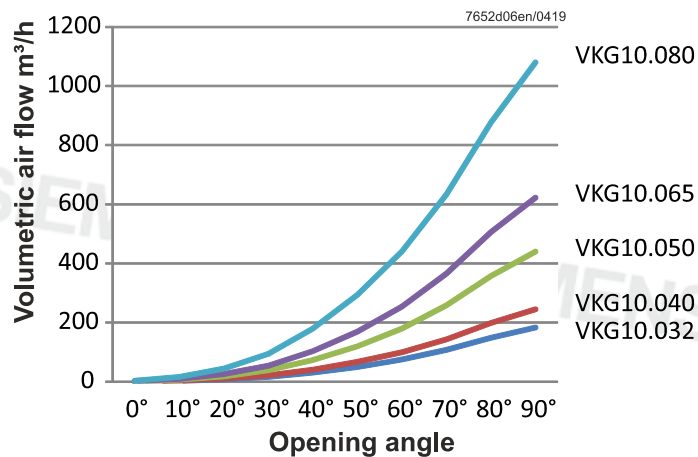
Adjustment
characteristics

Design the appropriate pressure differential Δp_{VKG} to guarantee the characteristics.
 Δp_{VKG} when the damper is fully open (90°) = $0.2 \dots 0.4 \cdot \text{pre-pressure}$.

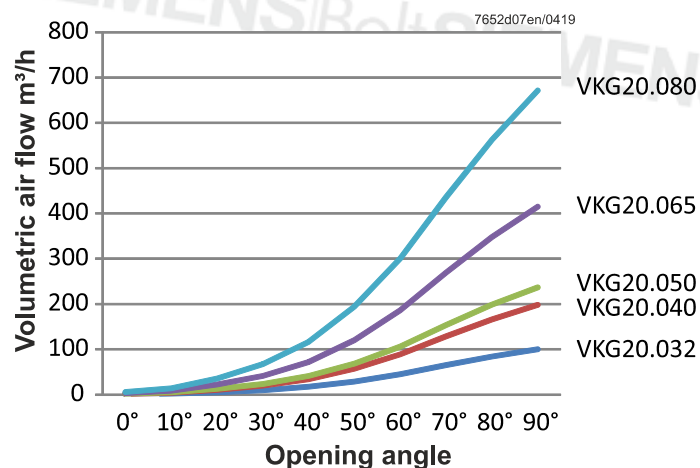
Idealized characteristic curve / coefficient:



Flow characteristic at $\Delta p = 1 \text{ kPa}$:



Opening angle	Volumetric air flow (m^3/h) at $\Delta p 1 \text{ kPa}$				
	VKG10.032ER	VKG10.040ER	VKG10.050ER	VKG10.065ER	VKG10.080ER
0°	0.5	0.7	1.3	1.9	3.2
10°	2.7	3.7	6.6	9.3	16.2
20°	7.5	10.0	18.0	25.5	44.3
30°	15.9	21.2	38.2	54.2	93.9
40°	30.4	40.5	73.0	103.4	179.2
50°	49.8	66.4	119.5	169.4	293.6
60°	74.7	99.6	179.3	254.1	440.4
70°	107.5	143.3	258.0	365.5	633.5
80°	148.7	198.3	356.9	505.6	876.4
90°	183.1	244.2	439.5	622.7	1079.3



Opening angle	Volumetric air flow (m³/h) at Δp 1 kPa				
	VKG20.032ER	VKG20.040ER	VKG20.050ER	VKG20.065ER	VKG20.080ER
0°	0.8	1.6	1.9	3.3	5.4
10°	2.1	4.2	5.0	8.7	14.1
20°	5.3	10.5	12.6	22.0	35.6
30°	10.0	19.8	23.7	41.5	67.2
40°	17.4	34.4	41.2	72.2	116.8
50°	29.0	57.4	68.7	120.4	194.7
60°	44.8	88.6	106.1	186.0	300.8
70°	65.0	128.4	153.7	269.4	435.8
80°	83.9	165.8	198.5	347.9	562.7
90°	100.1	197.8	236.9	415.1	671.5

kv values	Opening angle	
	0°	90°
VKG10.032ER	0.5	64.5
VKG10.040ER	0.5	86.0
VKG10.050ER	0.6	154.8
VKG10.065ER	0.7	219.3
VKG10.080ER	0.7	376.7
VKG20.032ER	0.6	35.3
VKG20.040ER	0.6	69.7
VKG20.050ER	0.7	83.4
VKG20.065ER	0.7	146.2
VKG20.080ER	0.8	236.5

**Please note!**

If the gas pressure exceeds the maximum permissible operating pressure, it must be reduced with a pressure controller.

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 $f = \sqrt{\frac{1}{dv}}$
1	Natural gas	0.61	1.28
2	Air	1	1

Conversion to air (m³/h) from other gas types:

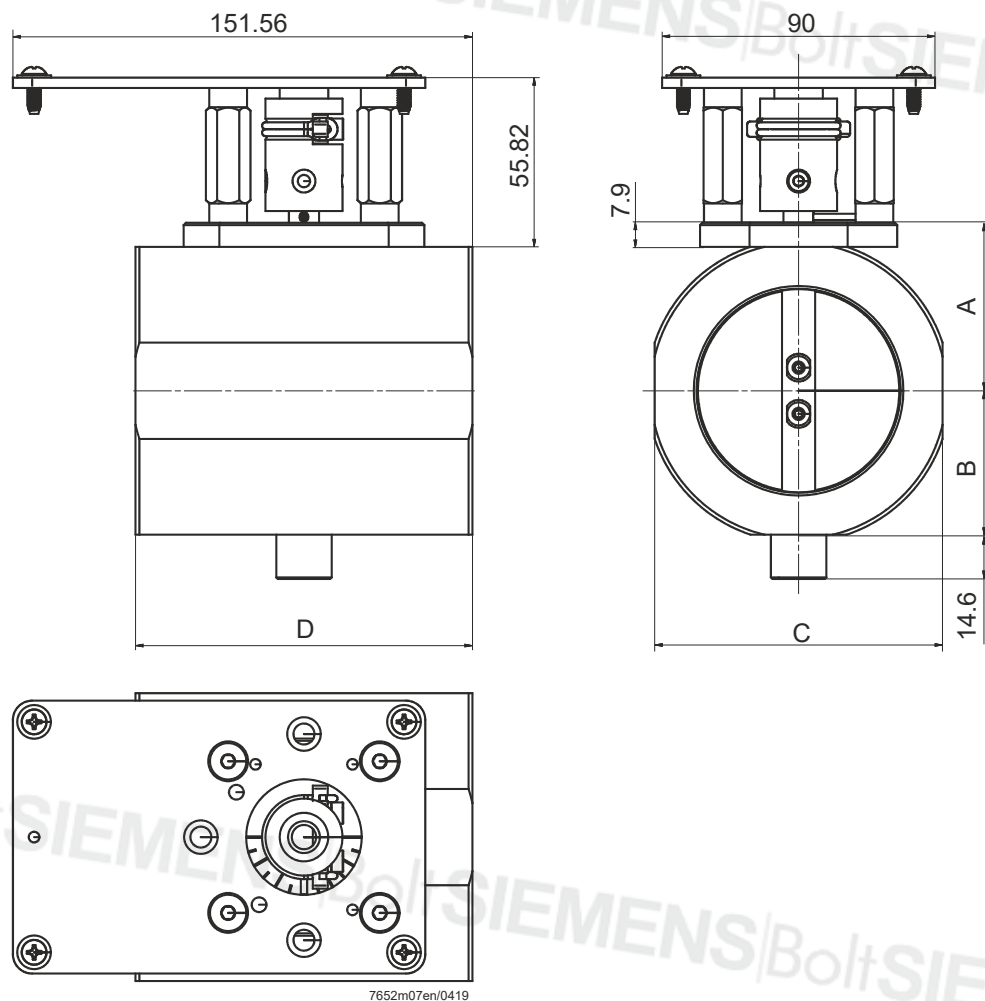
$$Q_L = \frac{Q_G}{f}$$

QL = air volume in m³/h that produces the same pressure drop as QG.

Dimensions

Dimensions in mm

VKGx0



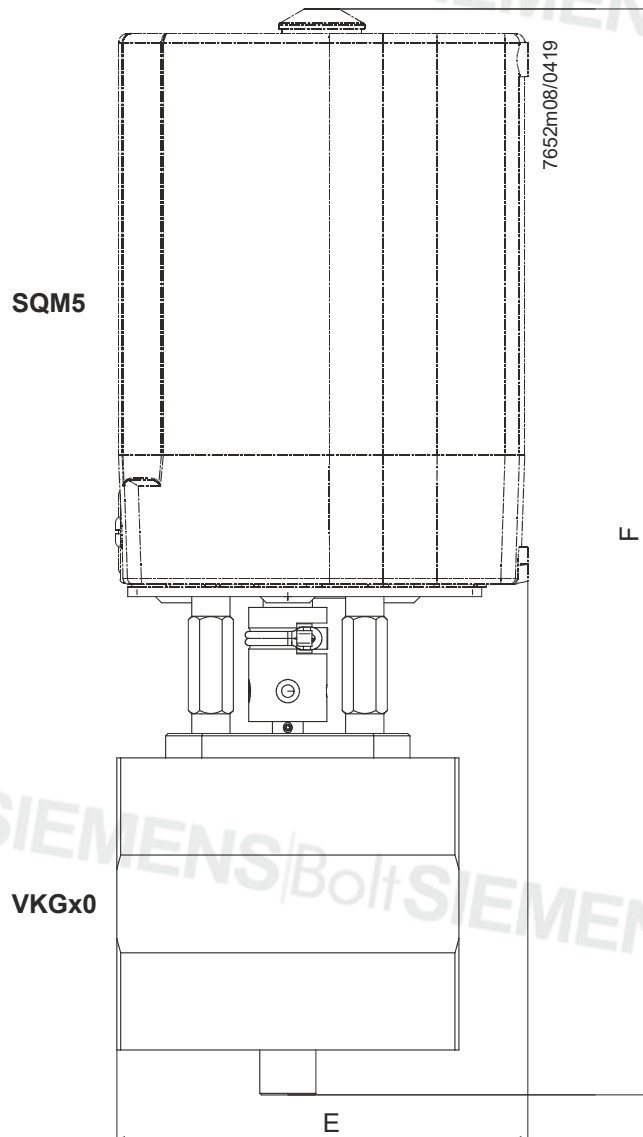
Type	A in mm	B in mm	C in mm	D in mm	Nominal size	Weight in kg
VKG10.032ER	39	31	62	83	DN32	1,11
VKG10.040ER	41	33	67	83	DN40	1,15
VKG10.050ER	47	39	79	83	DN50	1,26
VKG10.065ER	55	47	95	111	DN65	1,83
VKG10.080ER	62	54	108	111	DN80	1,95
VKG20.032ER *)	39	31	62	83	DN32	1,14
VKG20.040ER *)	41	33	67	83	DN40	1,16
VKG20.050ER *)	47	39	79	83	DN50	1,32
VKG20.065ER *)	55	47	95	111	DN65	1,94
VKG20.080ER *)	62	54	108	111	DN80	2,1

*) Reduced inner diameter (smaller damper)

Dimensions (continued)

Dimensions in mm

VKGx0 with SQM5

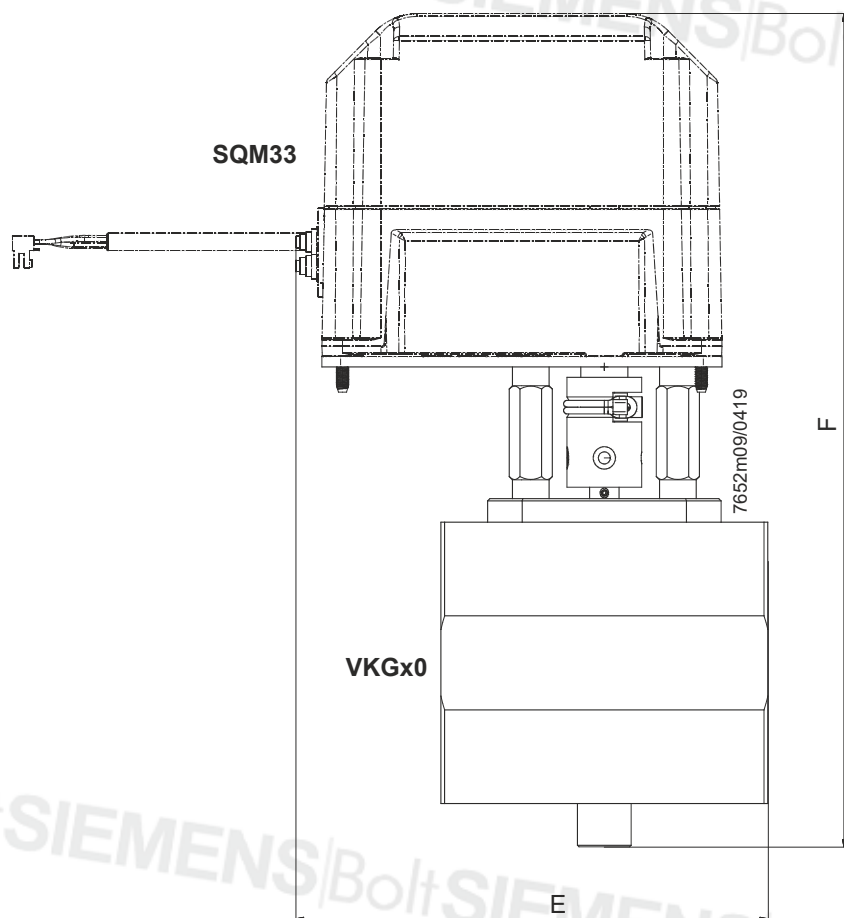


Type	E in mm	F in mm
VKG10.032ER	120	320
VKG10.040ER	120	325
VKG10.050ER	120	337
VKG10.065ER	134	353
VKG10.080ER	134	366
VKG20.032ER *)	120	320
VKG20.040ER *)	120	325
VKG20.050ER *)	120	337
VKG20.065ER *)	134	353
VKG20.080ER *)	134	366

*) Reduced inner diameter (smaller damper)

Dimensions in mm

VKGx0 with SQM33



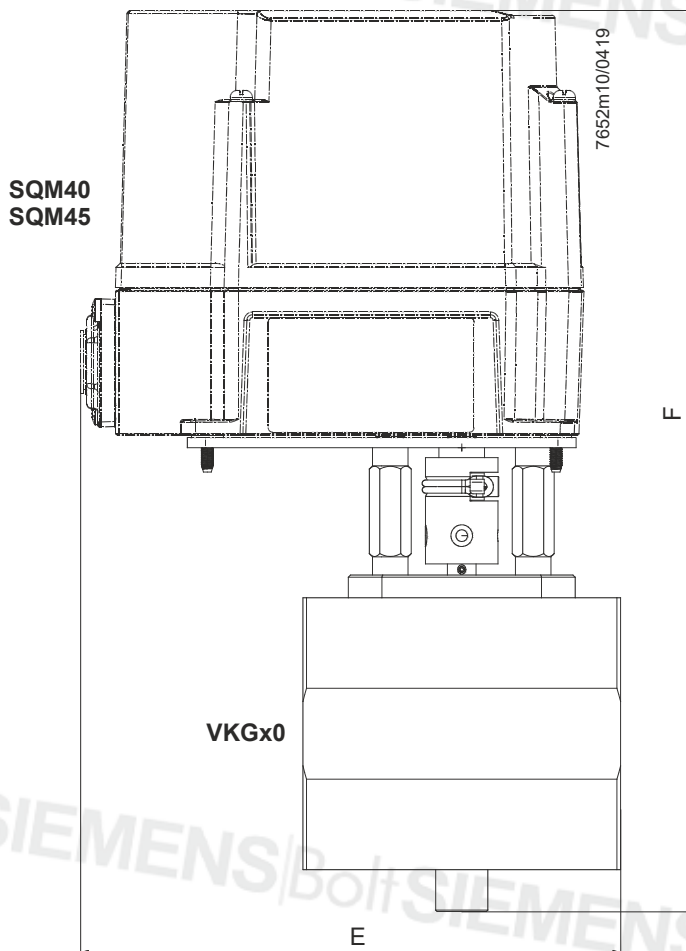
Type	E in mm	F in mm
VKG10.032ER	146	249
VKG10.040ER	146	254
VKG10.050ER	146	266
VKG10.065ER	161	282
VKG10.080ER	161	296
VKG20.032ER *)	146	249
VKG20.040ER *)	146	254
VKG20.050ER *)	146	266
VKG20.065ER *)	161	282
VKG20.080ER *)	161	296

*) Reduced inner diameter (smaller damper)

Dimensions (continued)

Dimensions in mm

VKGx0 with
SQM40/SQM45

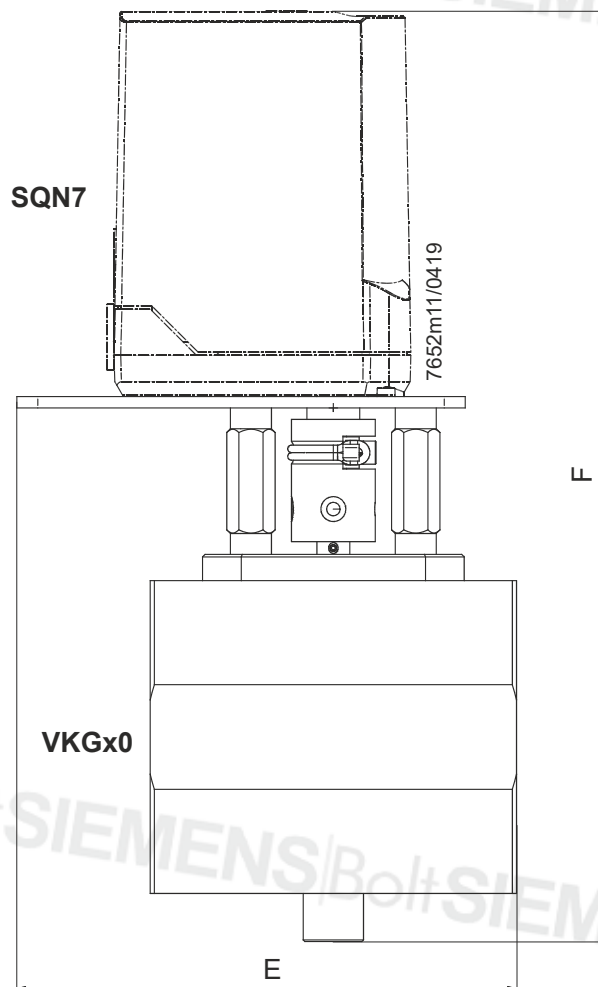


Type	E in mm	F in mm
VKG10.032ER	173	282
VKG10.040ER	173	287
VKG10.050ER	173	299
VKG10.065ER	187	315
VKG10.080ER	187	328
VKG20.032ER *)	173	282
VKG20.040ER *)	173	287
VKG20.050ER *)	173	299
VKG20.065ER *)	187	315
VKG20.080ER *)	187	328

*) Reduced inner diameter (smaller damper)

Dimensions in mm

VKGx0 with SQN7



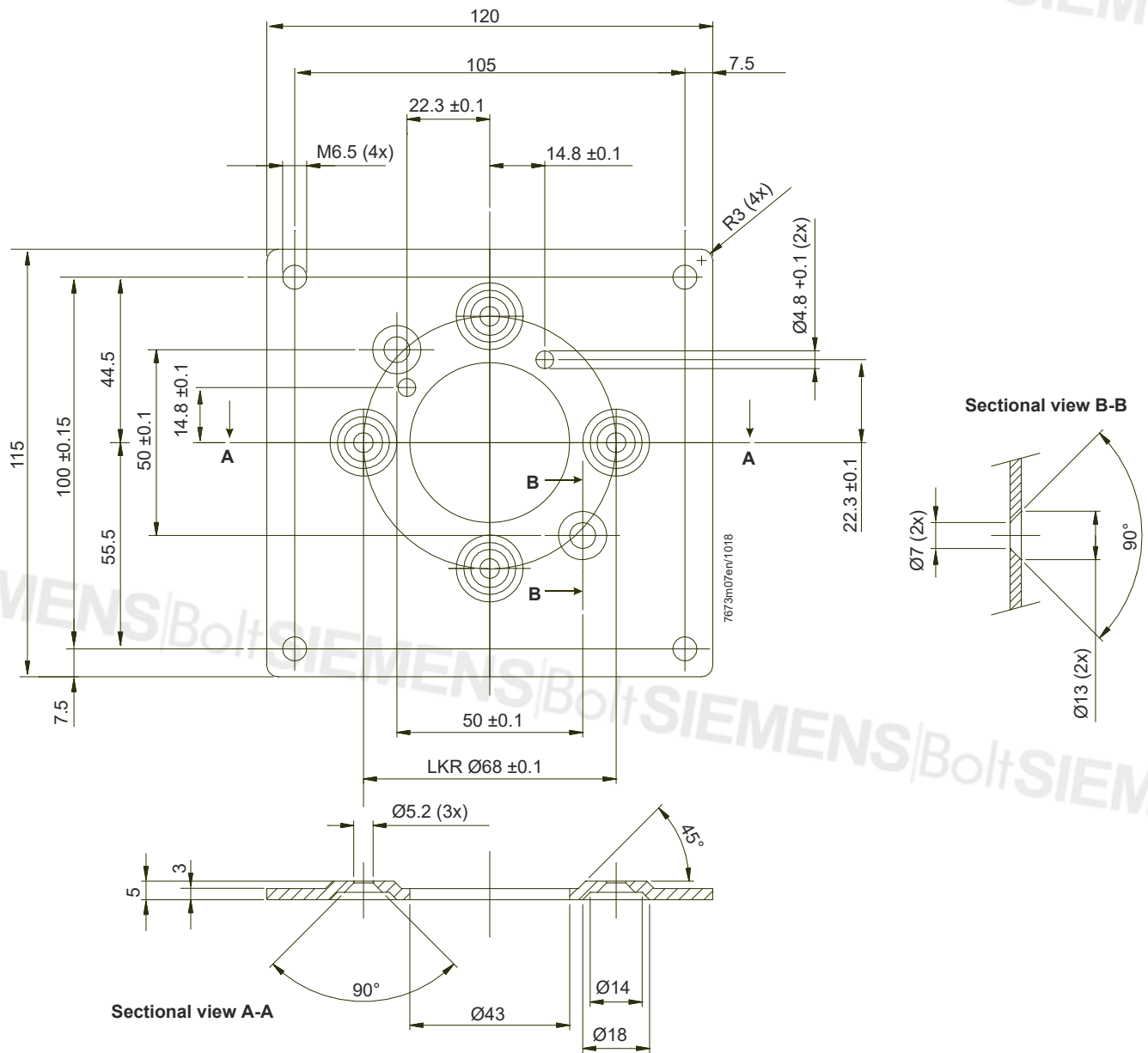
Type	E in mm	F in mm
VKG10.032ER	129	250
VKG10.040ER	129	254
VKG10.050ER	129	266
VKG10.065ER	152	282
VKG10.080ER	152	298
VKG20.032ER *)	129	250
VKG20.040ER *)	129	254
VKG20.050ER *)	129	266
VKG20.065ER *)	152	282
VKG20.080ER *)	152	298

*) Reduced inner diameter (smaller damper)

Dimensions (continued)

Dimensions in mm

ASK33.3



AGA58.5

