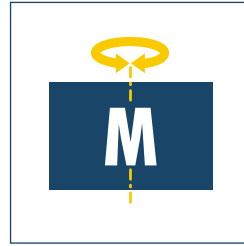




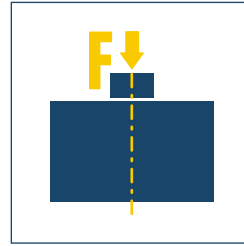
Sizes
25 .. 64



Weight
0.09 .. 0.71 kg



Torque
0.12 Nm .. 3.9 Nm

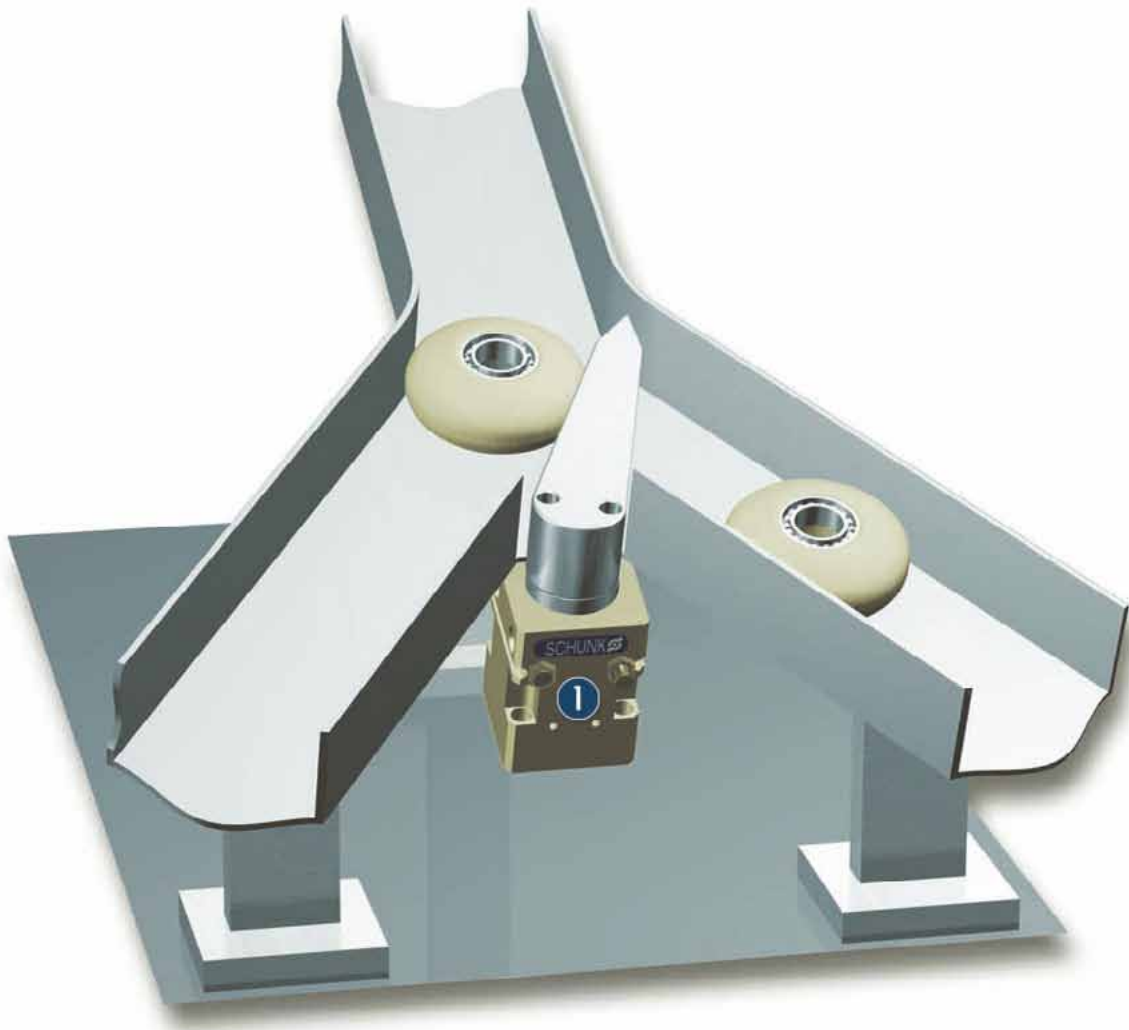


Axial force
10 .. 50 N



Bending moment
0.1 .. 0.5 Nm

Application example



Sorting unit with SFL rotor to drive the separator switch

1 Rotor SFL 40

Rotor

with high torque for light swiveling jobs up to 180°

Area of application

The ideal solution for light swiveling jobs

Your advantages and benefits

Extremely compact design

Several modules can be mounted next to one another thanks to the approximately cubic structure

Flexible adjustment of the angle of traverse from 0 - 180°

making the unit suitable for a varied range of applications

Fine adjustment of angle of rotation

for precision adjustment of the end positions

Powerful

as the version with hydraulic shock absorbers enables it to work with even greater weights and inertia.

Long life and excellent smooth-running characteristics

due to the machined bearing surfaces



Information about the series

Working principle

Rotor

Housing material

Aluminum alloy, hard-anodized

Base jaw material

Steel

Actuation

Pneumatic, with filtered compressed air (10 µm): Dry, lubricated or non-lubricated
Pressure medium: Required quality class of compressed air according to DIN ISO 8573-1: Quality class 4

Warranty

24 months

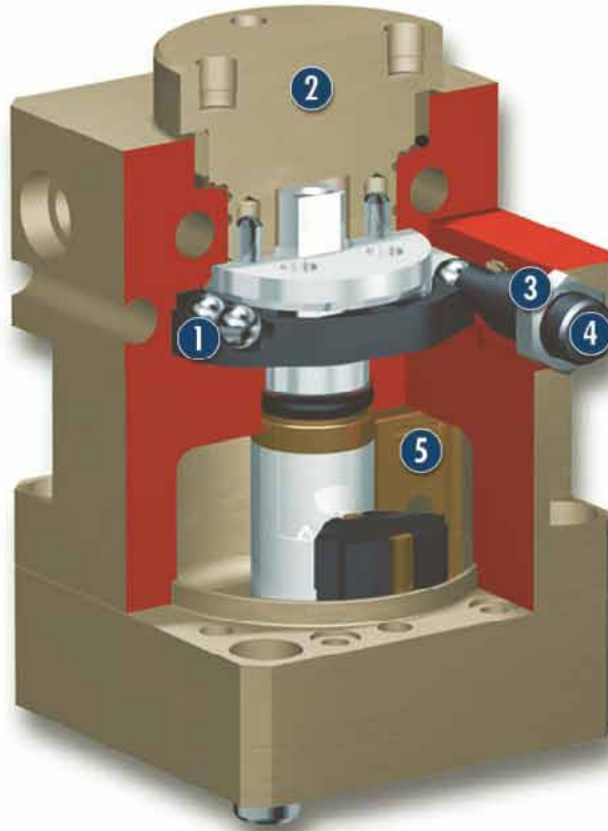
Maintenance

Maintenance-free up to 2 million traverses

Scope of delivery

Guide sleeves, centering pins, O-rings for direct connection, mounting screws for attachment to the side, assembly and operating manual with manufacturer's declaration

Sectional diagram



1 Preset angle of rotation
using steel balls for any desired angle of rotation

2 Rotary table
for mounting the attachment

3 Fine adjustment of angle of rotation
for precision adjustment of the end positions

4 End position damping
with elastomer or hydraulic shock absorbers

5 Rotor
as a compact, powerful drive

Function description

The unit is driven pneumatically on the basis of the rotor principle. Using the direct connection, the entire module can be supplied via a central connection on the base.

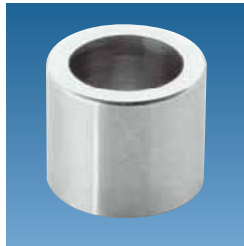
Options and special information

Thanks to the innovative end stop concept, the end positions of the SFL rotor can be adjusted infinitely as desired in a range from 0° to 180°.

Accessories

Accessories from SCHUNK – the suitable complement for the highest level of functionality, reliability and controlled production of all automation components.

Centering sleeves



Fittings



MMS magnetic switches



W/WK/KV/GK sensor cables



V sensor distributors



SDV-P pressure maintenance valves



① For the exact size of the required accessories, availability of this size and the designation and ID, please refer to the additional views at the end of the size in question. You will find more detailed information on our accessory range in the „Accessories“ catalog section.

General information on the series

Repeat accuracy

Repeat accuracy is defined as the spread of the limit position after 100 consecutive swiveling cycles.

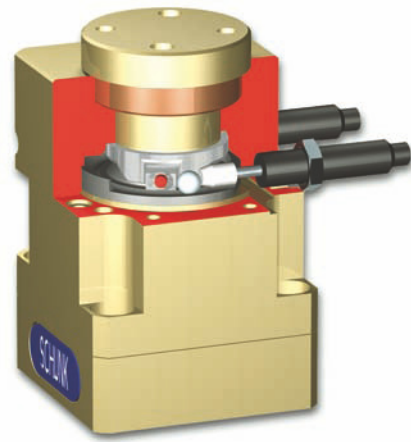
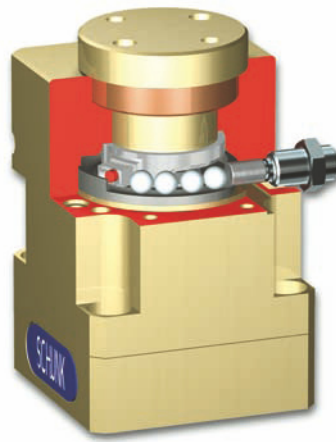
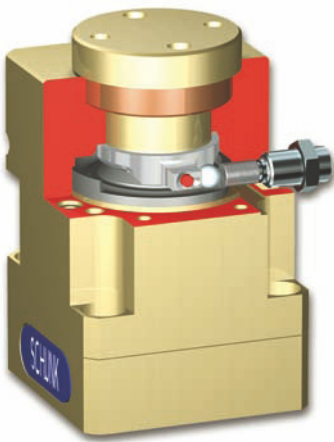
Flange position

The position of the output flange is always shown in the drawing in the left-hand end position. From here, it rotates clockwise. The direction of rotation is indicated by the arrow.

Cycle time

Cycle times are purely the times taken by the pinion/flange to turn round the nominal angle of rotation. Valve switching times, hose filling times or SPC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

Damping and setting of rotating angle



End position rough adjustment via number of steel balls
End position fine adjustment via thread of end stop
Damping via elastomer

End position rough adjustment via number of steel balls
End position fine adjustment via thread of shock absorbers
Damping via hydraulic shock absorbers

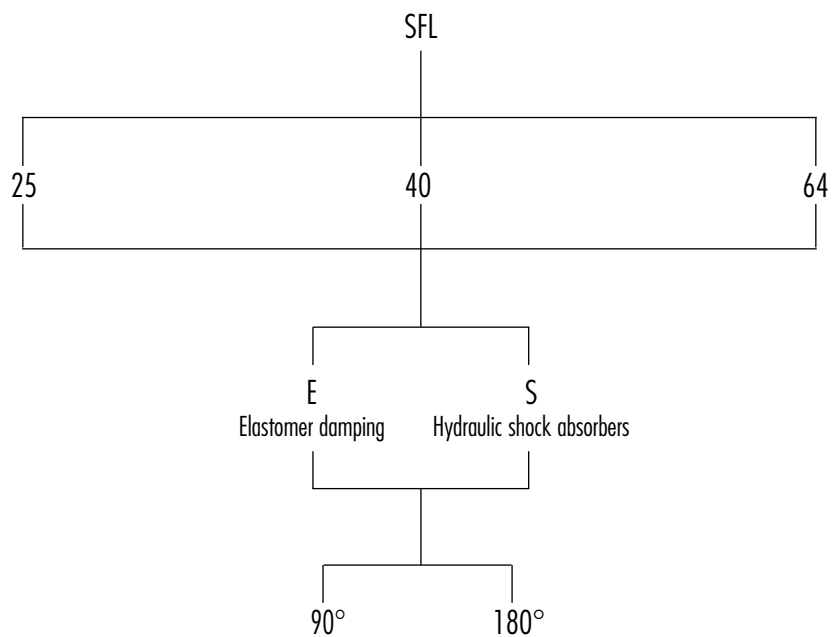
Versions of the series

Description

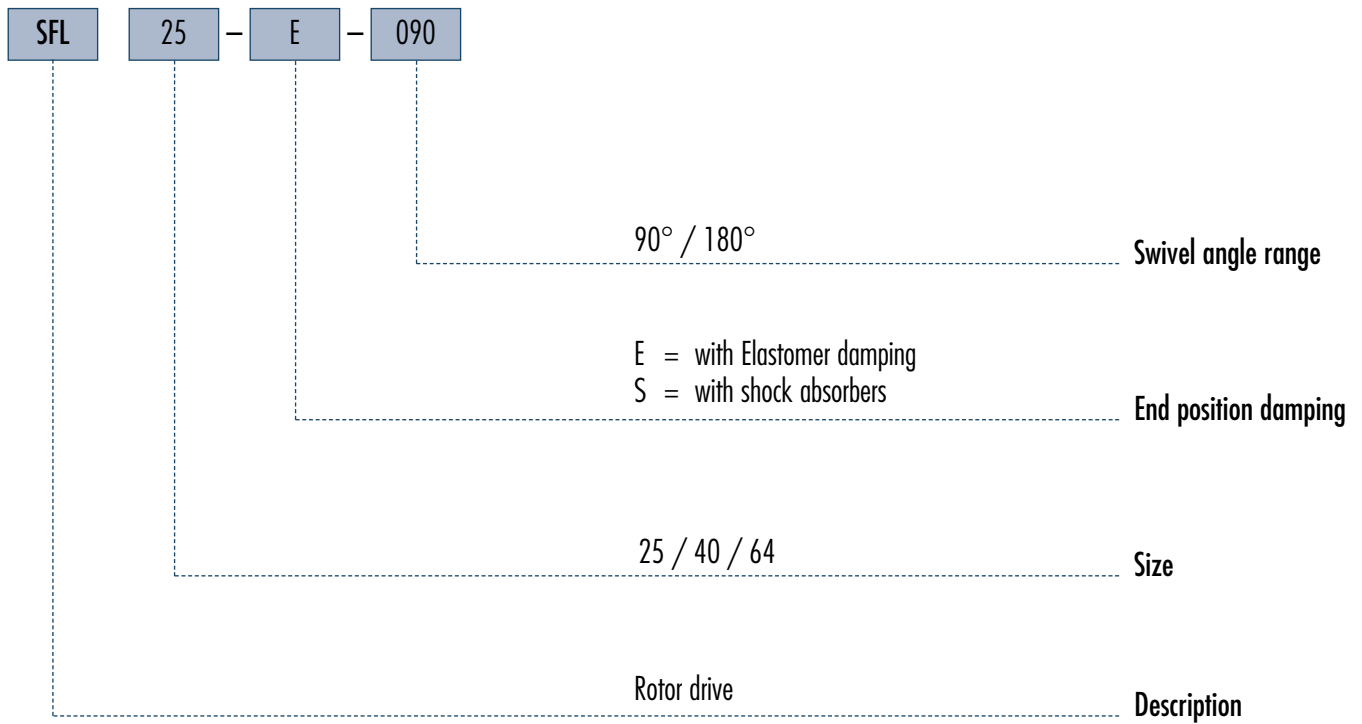
Size

End position damping

Swivel angle range

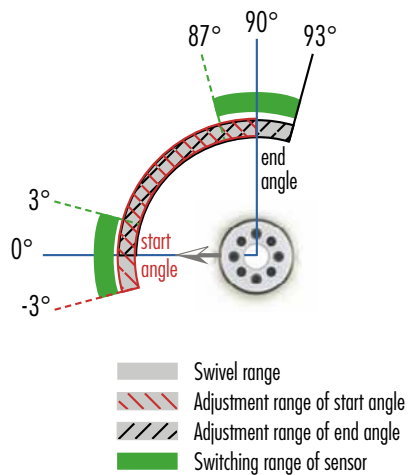


How to order

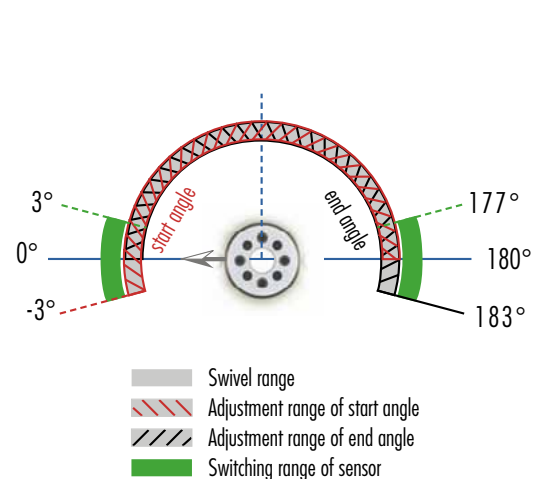


End stop adjustability and switching angle of sensor

• in case of 90°-units

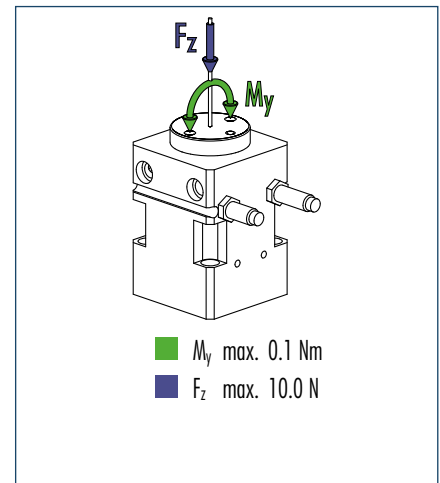


• in case of 180°-units





Flange load



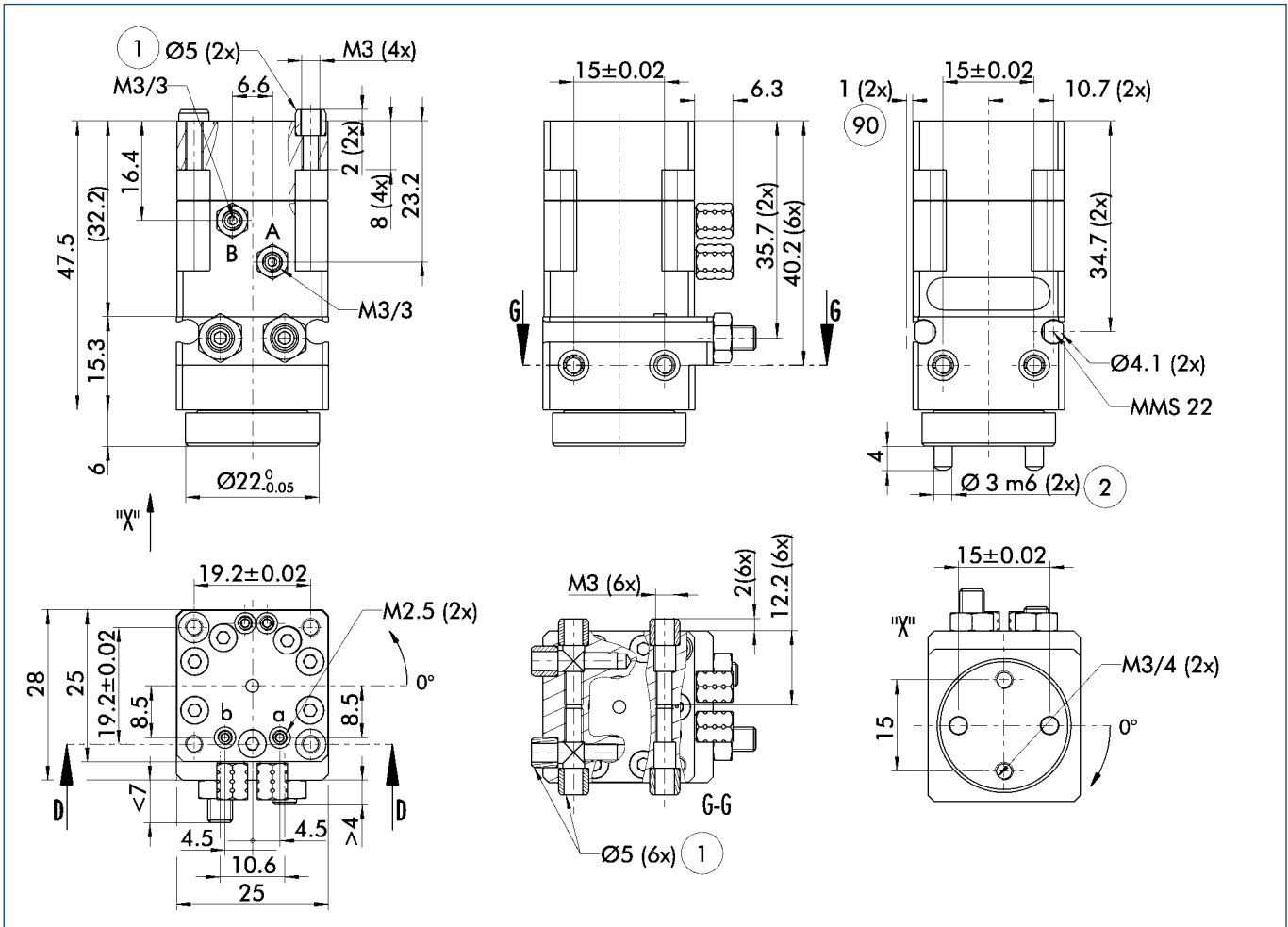
ⓘ Moments and forces may occur simultaneously. When using heavy attachments or ones with high mass moments of inertia, the speed must be restricted to ensure that the rotary movement occurs without any hitting or bouncing.

Technical data

Description	SFL-25-E-090		SFL-25-E-180	
	ID	0304560	ID	0304060
Torque	[Nm]	0.1		0.1
Rotating angle	[°]	90.0		180.0
Adjustability of end positions	[°]	90.0		180.0
End position damping		Elastomer clamping		Elastomer clamping
IP class		52		52
Weight	[kg]	0.09		0.09
Cycle time (1 x nominal angle of rotation) without attached load	[s]	0.06		0.1
Fluid consumption per cycle (2 x nominal angle)	[cm ³]	2.0		3.0
Nominal pressure	[bar]	6.0		6.0
Minimum pressure	[bar]	4.0		4.0
Maximum pressure	[bar]	6.5		6.5
Diameter of connecting hose	[mm]	3.0		3.0
Min. ambient temperature	[°C]	-10.0		-10.0
Max. ambient temperature	[°C]	90.0		90.0
Repeat accuracy	[°]	0.05		0.05

ⓘ The rotary movement can only be monitored at angles of rotation between 0° and 90° or 0° and 180°, angles between these cannot be monitored.

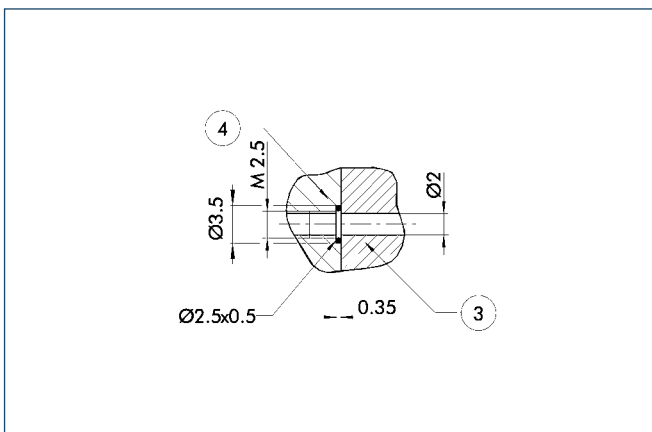
Main views



① The SDV-P pressure maintenance valve can be used to hold the position upon a loss of pressure (see „Accessories“ catalog section).

- A,a Main/direct connection, clockwise rotary unit
- B,b Main/direct connection, anti-clockwise rotary unit
- ① Linear unit connection
- ② Attachment connection
- ⑨ Sensorprojection of housing

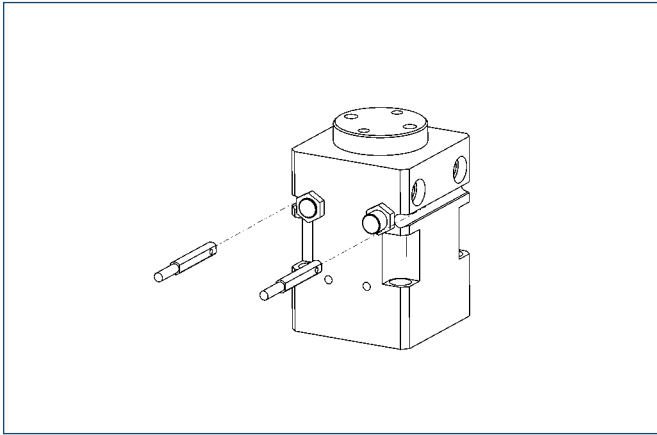
Hose-free direct connection



- ③ Adapter
- ④ Gripper swivel module

The direction connection is used for supplying compressed air without hoses, which are liable to faults. Instead, the pressure medium is conveyed through the bore-holes of the mounting plate.

Sensor system



End position monitoring:

Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 22-S-M5-NPN	0301439	
MMS 22-S-M5-NPN-SA	0301449	
MMS 22-S-M5-PNP	0301438	
MMS 22-S-M5-PNP-SA	0301448	
MMS 22-S-M8-NPN	0301433	
MMS 22-S-M8-NPN-SA	0301443	
MMS 22-S-M8-PNP	0301432	•
MMS 22-S-M8-PNP-SA	0301442	
MMSK 22-S-NPN	0301435	
MMSK 22-S-NPN-SA	0301445	
MMSK 22-S-PNP	0301434	
MMSK 22-S-PNP-SA	0301444	

① Two sensors (NO contacts) are required for each rotor, plus extension cables as an option.

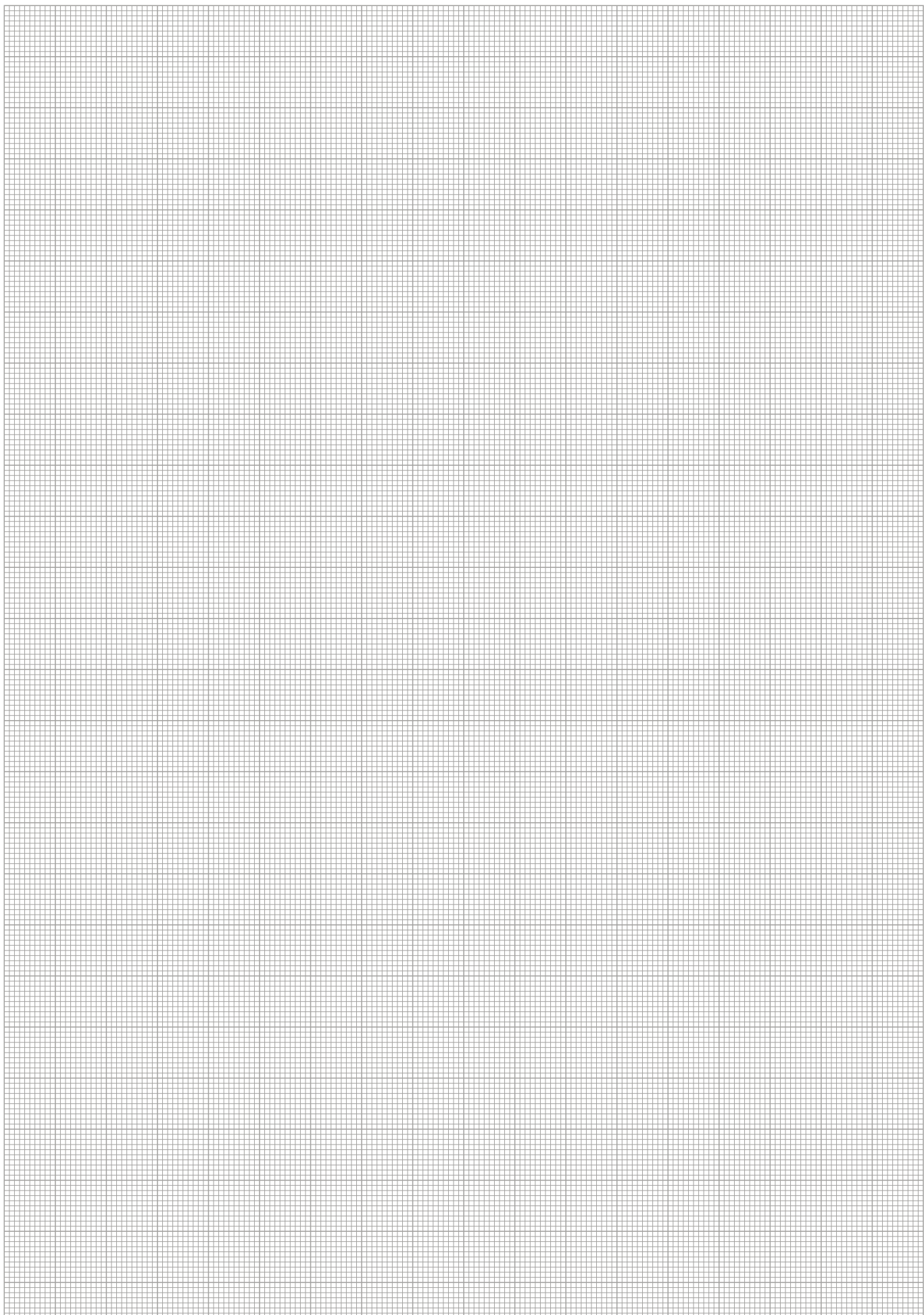
Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M8	0301622
KV 10-M8	0301496
KV 20-M8	0301497
WK 3-M8	0301594
WK 3-M8 NPN	0301602
WK 5-M8	0301502
WK 5-M8 NPN	9641116

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

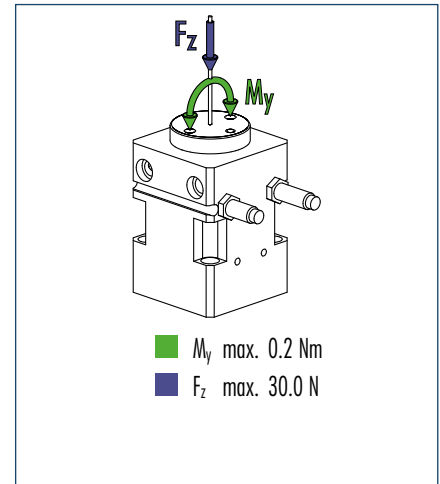


You can find more detailed information and individual parts of the above-mentioned accessories in the „Accessories“ catalog section.





Flange load



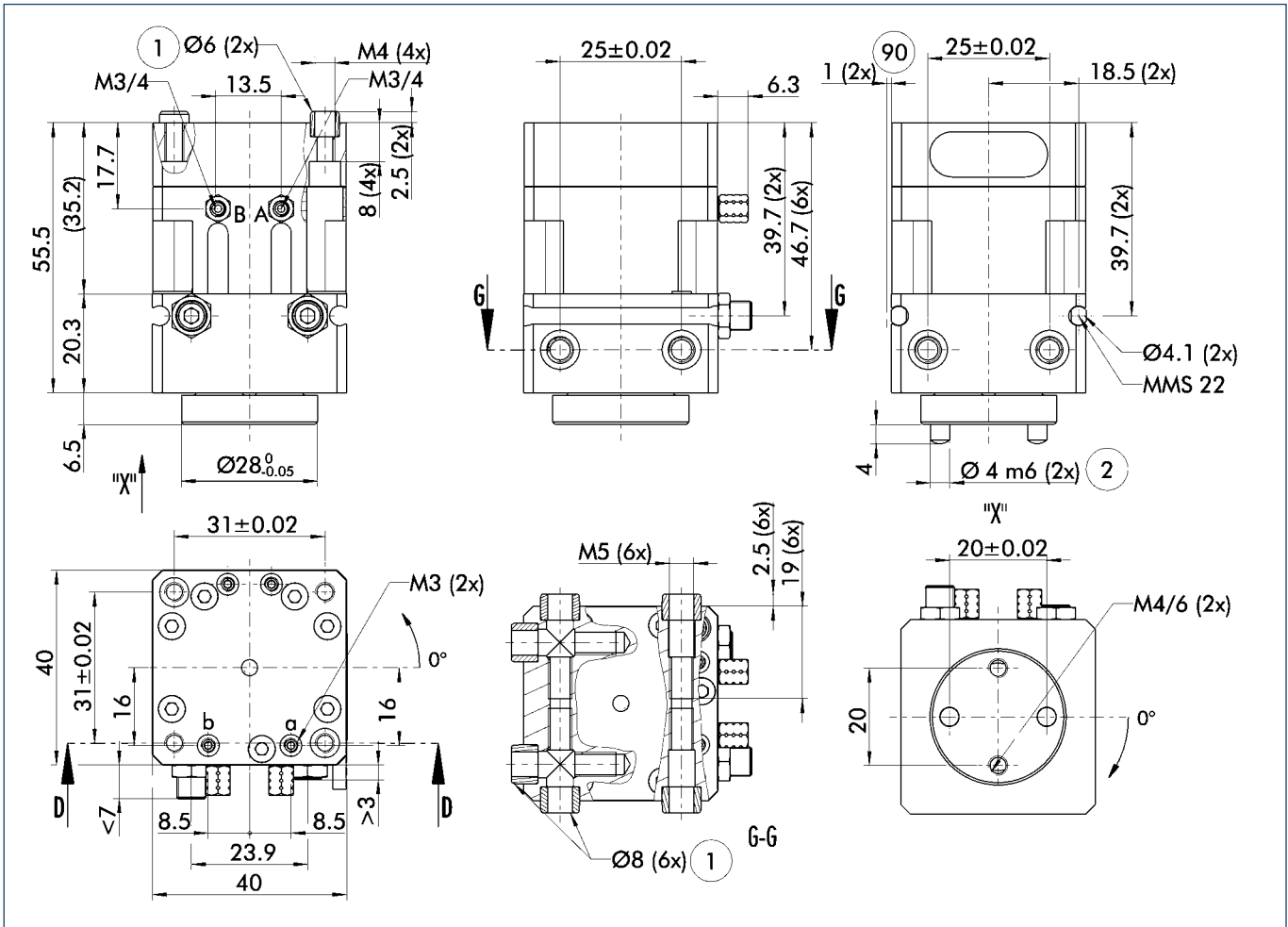
ⓘ Moments and forces may occur simultaneously. When using heavy attachments or ones with high mass moments of inertia, the speed must be restricted to ensure that the rotary movement occurs without any hitting or bouncing.

Technical data

Description		SFL-40-E-090	SFL-40-E-180	SFL-40-S-090	SFL-40-S-180
	ID	0304564	0304064	0304565	0304065
Torque	[Nm]	0.5	0.5	0.5	0.5
Rotating angle	[°]	90.0	180.0	90.0	180.0
Adjustability of end positions	[°]	90.0	180.0	90.0	180.0
End position damping		Elastomer clamping	Elastomer clamping	hydr. shock absorbers	hydr. shock absorbers
IP class		52	52	52	52
Weight	[kg]	0.24	0.24	0.24	0.24
Cycle time (1 x nominal angle of rotation) without attached load	[s]	0.07	0.12	0.07	0.12
Fluid consumption per cycle (2 x nominal angle)	[cm ³]	9.0	15.0	9.0	15.0
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.5	2.5	3.0	3.0
Maximum pressure	[bar]	6.5	6.5	6.5	6.5
Diameter of connecting hose	[mm]	3.0	3.0	3.0	3.0
Min. ambient temperature	[°C]	-10.0	-10.0	5.0	5.0
Max. ambient temperature	[°C]	90.0	90.0	60.0	60.0
Repeat accuracy	[°]	0.05	0.05	0.05	0.05

ⓘ The rotary movement can only be monitored at angles of rotation between 0° and 90° or 0° and 180°, angles between these cannot be monitored.

Main views

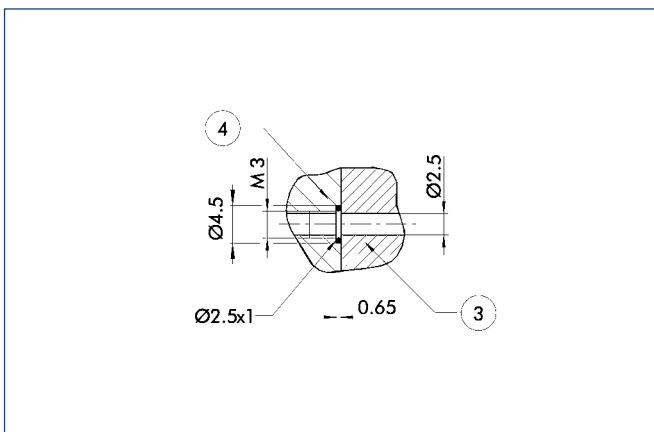


The drawing shows the rotor in the basic version with elastomer damping

- A,a Main/direct connection, clockwise rotary unit
- B,b Main/direct connection, anti-clockwise rotary unit
- ① Linear unit connection
- ② Attachment connection
- ⑨ Sensorprojection of housing

① The SDV-P pressure maintenance valve can be used to hold the position upon a loss of pressure (see „Accessories“ catalog section).

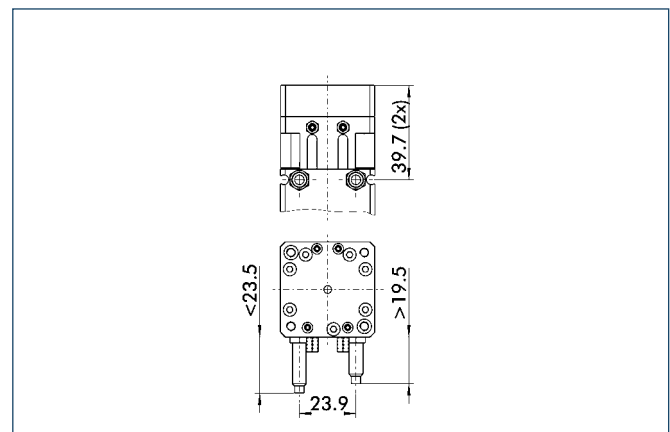
Hose-free direct connection



- ③ Adapter
- ④ Gripper swivel module

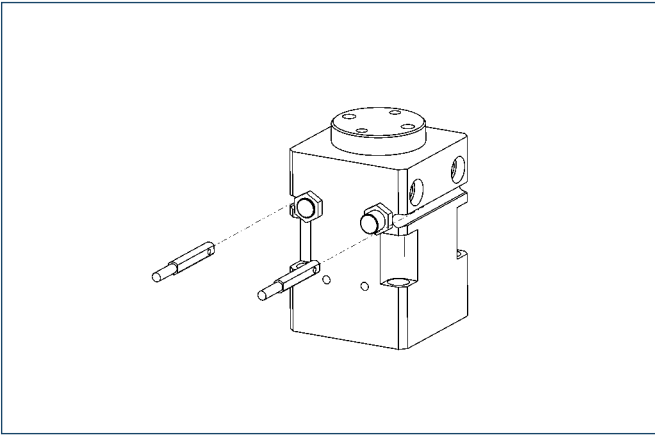
The direction connection is used for supplying compressed air without hoses, which are liable to faults. Instead, the pressure medium is conveyed through the bore-holes of the mounting plate.

Shock absorber version



Different dimensions in the shock absorber version

Sensor system



End position monitoring:

Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 22-S-M5-NPN	0301439	
MMS 22-S-M5-NPN-SA	0301449	
MMS 22-S-M5-PNP	0301438	
MMS 22-S-M5-PNP-SA	0301448	
MMS 22-S-M8-NPN	0301433	
MMS 22-S-M8-NPN-SA	0301443	
MMS 22-S-M8-PNP	0301432	•
MMS 22-S-M8-PNP-SA	0301442	
MMSK 22-S-NPN	0301435	
MMSK 22-S-NPN-SA	0301445	
MMSK 22-S-PNP	0301434	
MMSK 22-S-PNP-SA	0301444	

① Two sensors (NO contacts) are required for each rotor, plus extension cables as an option.

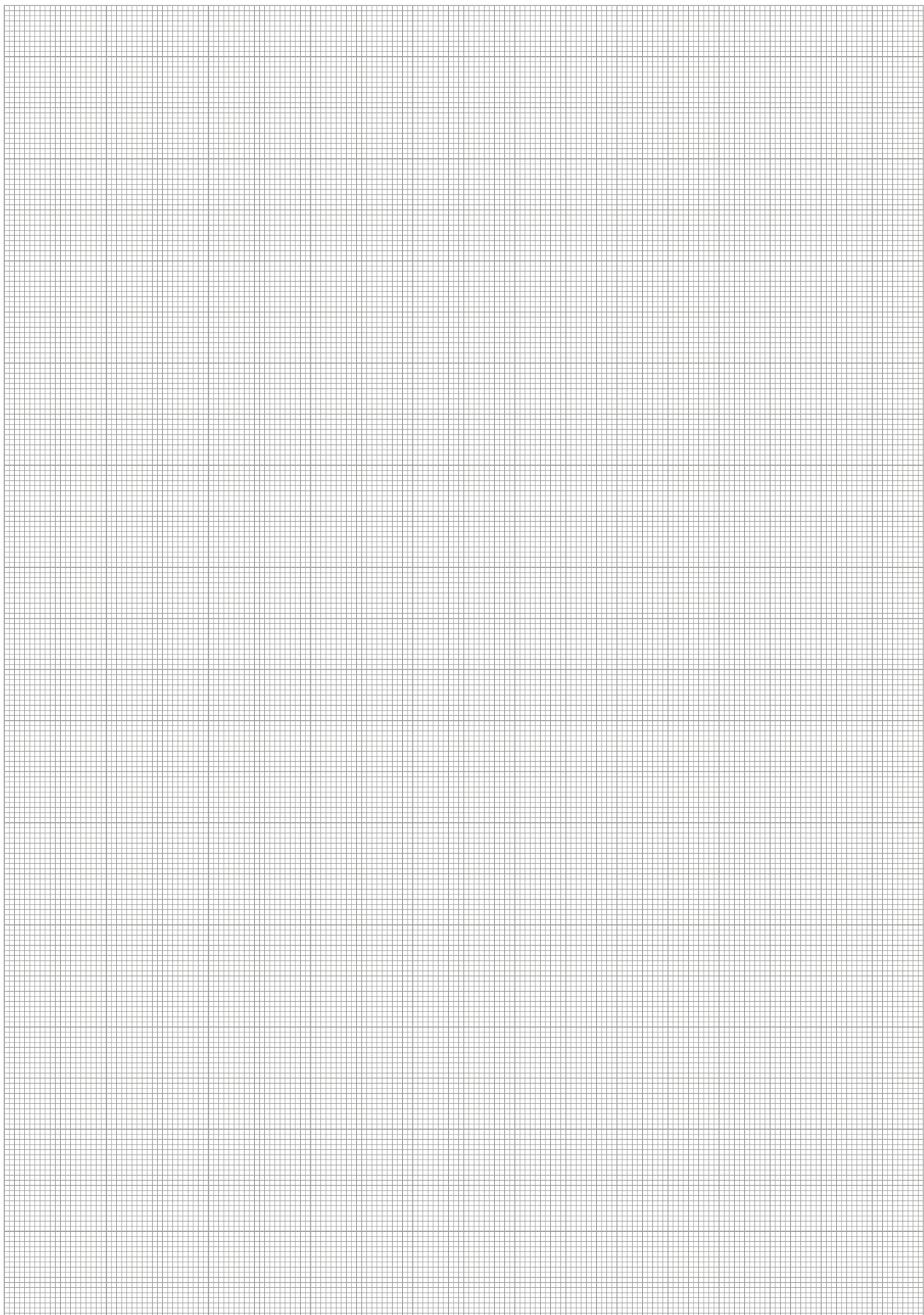
Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M8	0301622
KV 10-M8	0301496
KV 20-M8	0301497
WK 3-M8	0301594
WK 3-M8 NPN	0301602
WK 5-M8	0301502
WK 5-M8 NPN	9641116

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

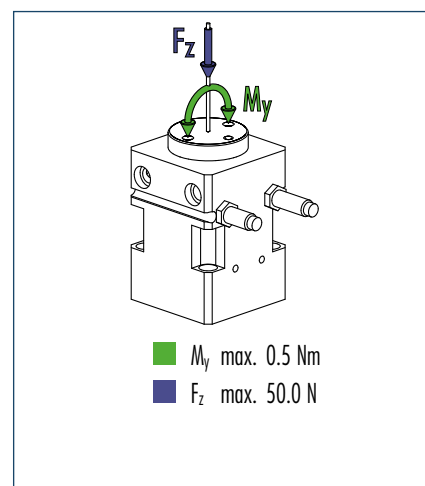


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Pinion load



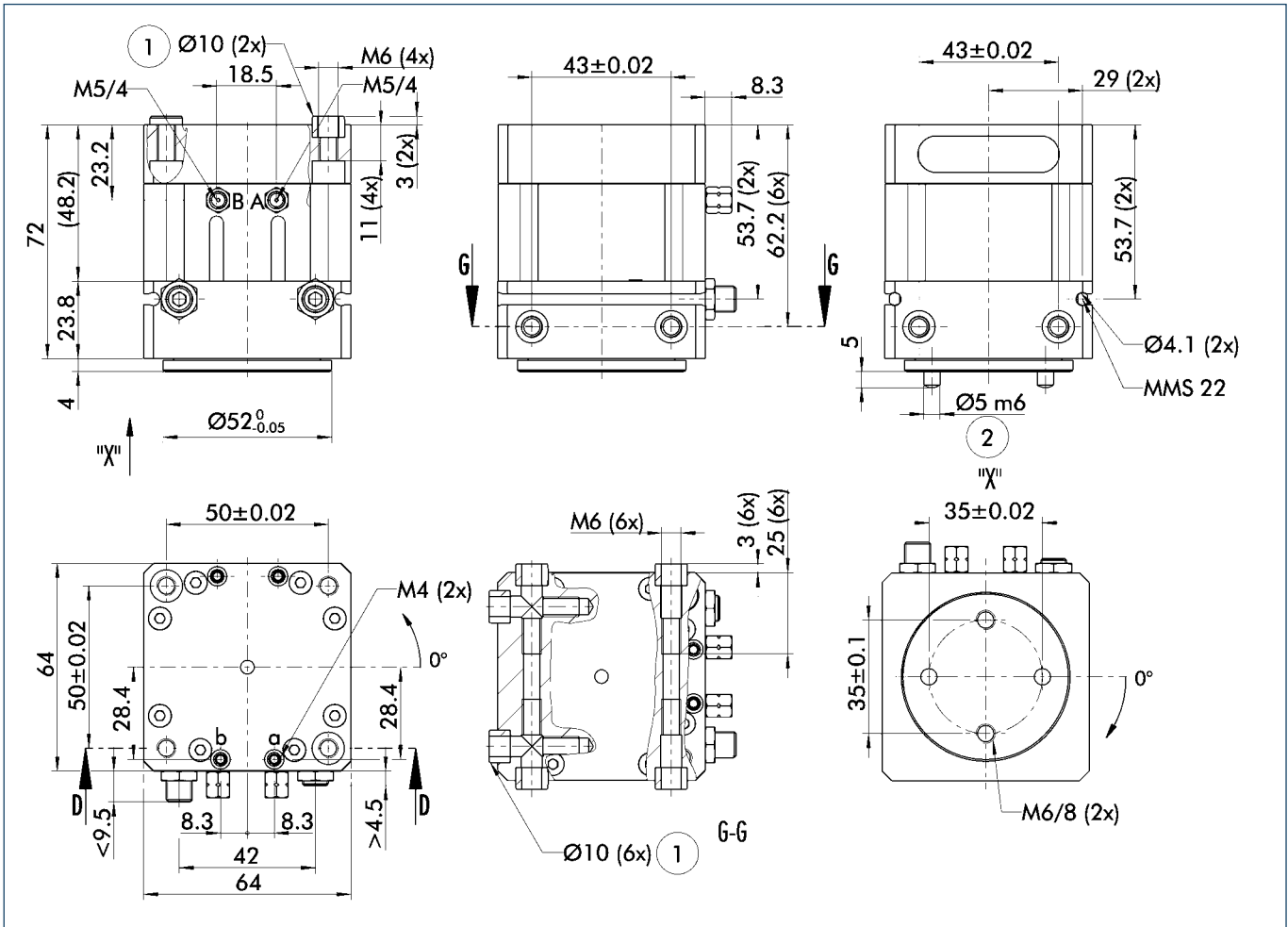
ⓘ Moments and forces may occur simultaneously. When using heavy attachments or ones with high moments of inertia, the speed must be restricted to ensure that the rotary movement occurs without any hitting or bouncing.

Technical data

Description		SFL-64-E-090	SFL-64-E-180	SFL-64-S-090	SFL-64-S-180
	ID	0304568	0304068	0304569	0304069
Torque	[Nm]	3.6	3.6	3.6	3.6
Rotating angle	[°]	90.0	180.0	90.0	180.0
Adjustability of end positions	[°]	90.0	180.0	90.0	180.0
End position damping		Elastomer clamping	Elastomer clamping	hydr. shock absorbers	hydr. shock absorbers
IP class		52	52	52	52
Weight	[kg]	0.71	0.71	0.71	0.71
Cycle time (1 x nominal angle of rotation) without attached load	[s]	0.11	0.18	0.11	0.18
Fluid consumption per cycle (2 x nominal angle)	[cm ³]	51.0	85.0	51.0	85.0
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	2.0	2.0	2.0
Maximum pressure	[bar]	6.5	6.5	6.5	6.5
Diameter of connecting hose	[mm]	6.0	6.0	6.0	6.0
Min. ambient temperature	[°C]	-10.0	-10.0	5.0	5.0
Max. ambient temperature	[°C]	90.0	90.0	60.0	60.0
Repeat accuracy	[°]	0.05	0.05	0.05	0.05

ⓘ The rotary movement can only be monitored at angles of rotation between 0° and 90° or 0° and 180°, angles between these cannot be monitored.

Main views

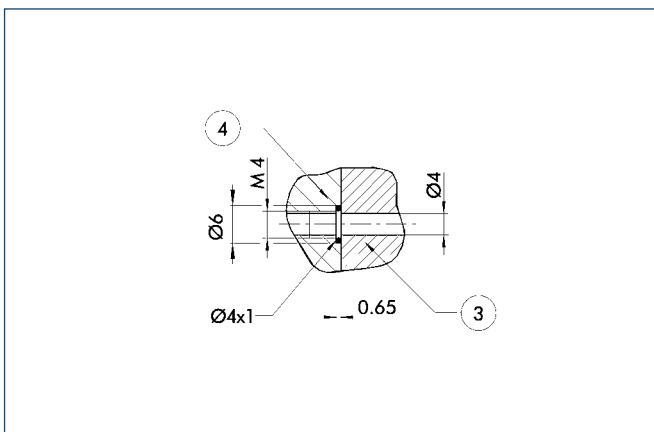


The drawing shows the rotor in the basic version with elastomer damping

- A,a Main/direct connection, clockwise rotary unit
- B,b Main/direct connection, anti-clockwise rotary unit
- ① Linear unit connection
- ② Attachment connection

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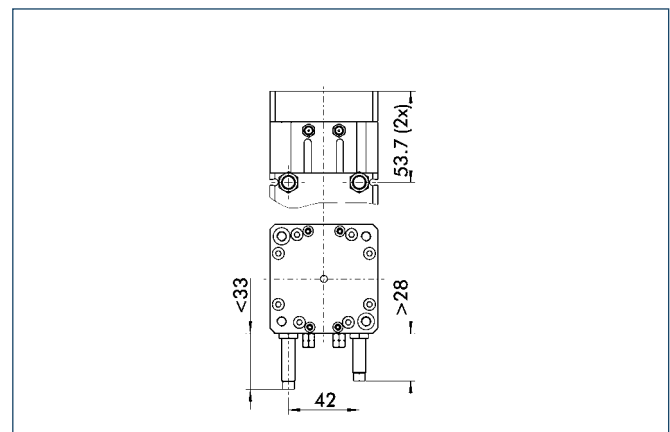
Hose-free direct connection



- ③ Adapter
- ④ Gripper swivel module

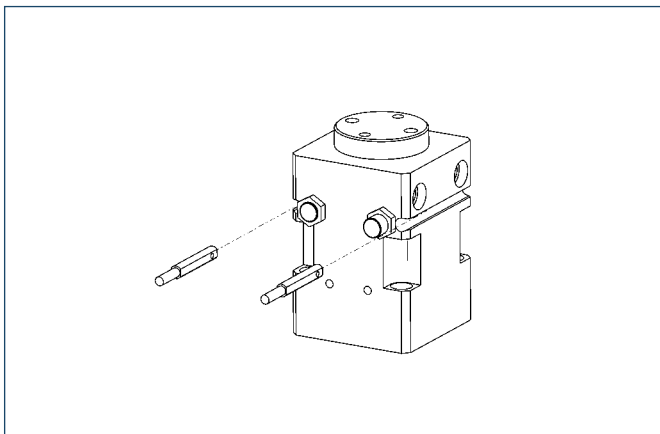
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Different dimensions in the shock absorber version

Sensor system



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Electronic magnetic switches, for mounting in C-slot

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MMS 22-S-M8-NPN-SA	0301443	
MMS 22-S-M8-PNP	0301432	•
MMS 22-S-M8-PNP-SA	0301442	
MMSK 22-S-NPN	0301435	
MMSK 22-S-NPN-SA	0301445	
MMSK 22-S-PNP	0301434	
MMSK 22-S-PNP-SA	0301444	

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WK 5-M8 NPN	9641116

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.



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