



Superior Clamping and Gripping



## Product data sheet

Universal swivel unit SRU-plus-D 60

# SRU-plus-D

Universal swivel unit

**Robust. Fast. High Performance.**

## Universal swivel unit SRU-plus-D

Universally usable unit for pneumatic swivel and turning movements

### Field of application

Can be used in either clean or dirty areas, or wherever pneumatic swiveling is required.



### Advantages – Your benefits

**Finely graded series with a steady increase in torque** for multiple cases of application, the correct size as a standard product is available

**Swivel angle can be selected as either 90° or 180°** complete flexibility in selecting the angle of rotation, application-specific angles possible on request

**Drive-side M12 plug connectors for electrical rotary feed-through** for simple commissioning and maintenance

**Middle position can be selected as pneumatic or locked**  
The locked middle position can be unlocked when loaded.  
The two types of middle positions always allow further rotation in either direction.

**Fluid feed-through can be used for gases, fluids, and vacuum** therefore no interfering hoses

**Electrical rotary feed-through** for long-lasting, reliable feed-through of sensor

**Choice of electronic magnetic sensors or inductive proximity sensors** for absolute variability of position monitoring

**Exchangeable screw-in guide sleeves (bushing)** allow for easy maintenance and rapid exchange t after several million cycles.



Sizes  
Quantity: 7



Weight  
1.2 .. 19.95 kg



Torque  
3 .. 72 Nm



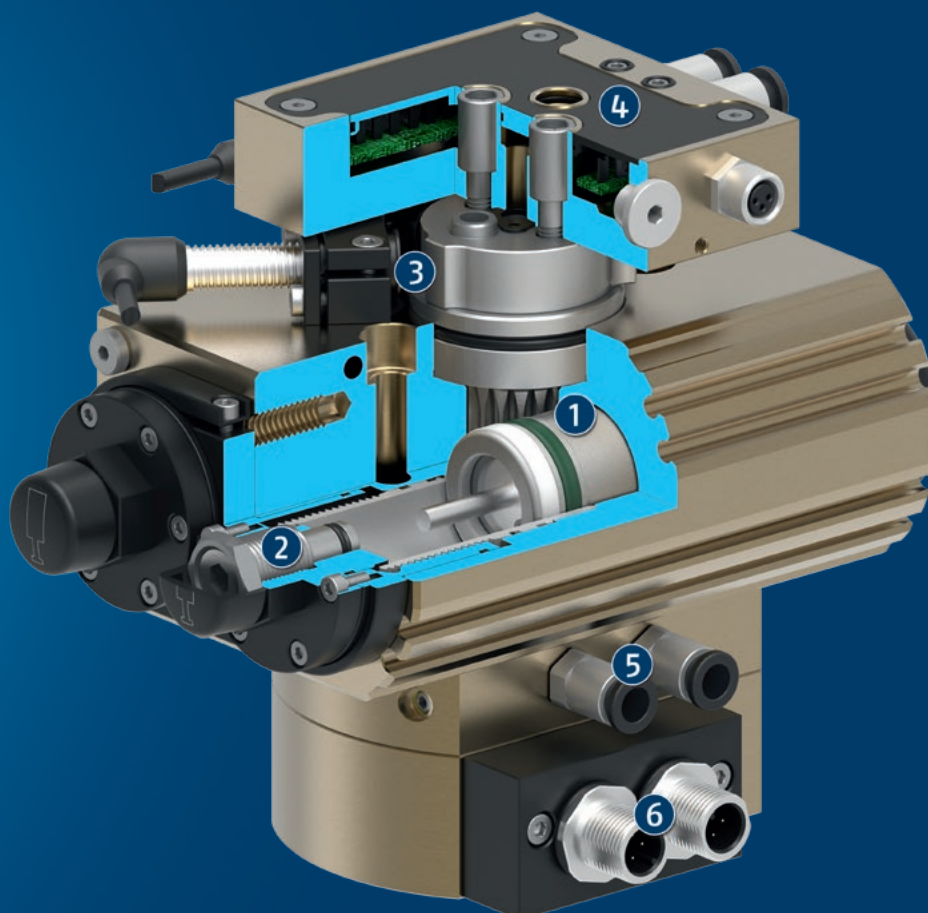
Repeat accuracy  
0.05°



Angle of rotation  
90 .. 180°

## Functional description

When subjected to pressure, the two pneumatic pistons move their end faces in a straight line in their respective bores thus turning the pinion by means of the serrations on their sides.



- ① **Drive**  
Pneumatic, powerful double-piston drive with rack and pinion kinematics for conversion of the piston movement into a rotational movement
- ② **Swivel angle adjustment**  
for fine adjustment of end positions and damping characteristics
- ③ **Inductive monitoring with fixed control cam**  
for process-reliable monitoring of end positions
- ④ **Electrical rotary feed-through**  
Fully integrated feed-through for sensor and actuator signals
- ⑤ **Connections for fluid feed-through**  
for direct connection of the pneumatic supply of the swivel set-up to the fixed part of the swivel unit
- ⑥ **Connections for electric rotary feed-through**  
Standard M12 connector for easy connection and further processing of electric signals

## General notes about the series

**Housing material:** Aluminum (extruded profile)

**Actuation:** pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

**Operating principle:** Double piston rack and pinion principle

**Scope of delivery:** Flow control valves, centering bushings, O-rings for direct connection, fitting screws (SRU-plus 63 only), assembly and operating manual with manufacturer's declaration

**Warranty:** 24 months

**Service life characteristics:** on request

**Repeat accuracy:** is defined as a distribution of the end position for 100 consecutive cycles.

**Pinion position:** is always shown in the left end position. The pinion rotates from here to the right in clockwise direction. The arrow makes the direction of rotation clear.

**Torque in the end positions:** Please note that the final angular degrees (approx. 2°) before the end position can only be approached using the force of a single drive piston. For this reason, double actuated modules only have about half the rated torque available in this area. An external stop can be used to provide the full torque even in the end positions.

**Travel to the pneumatic middle position:** is carried out using only half of the nominal torque.

**Swiveling time:** is the rotation time of pinion/flange around the nominal rotation angle. Valve switching times, hose filling times, or PLC reaction times are not included and are to be considered when cycle times are calculated.

## Application example

Swivel unit with electrical and pneumatic feed-through and double gripper for loading and unloading a machine tool

- ❶ Universal swivel unit SRU-plus-D
- ❷ Tolerance compensation unit TCU
- ❸ Universal gripper PGN-plus-P
- ❹ Inductive proximity switches IN
- ❺ Magnetic switch MMS
- ❻ Universal linear module Beta with toothed belt drive



## SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Universal gripper



Sealed gripper



Angular gripper



Linear module



Inductive proximity switch



Magnetic switches



Pressure maintenance valve



Line gantry



Fittings

① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

## Options and special information

For particularly damping-intensive swivel movements, additional, external shock absorbers can be fitted. Due to the innovative sleeve technology, special rotation angles of more than 180° can be provided quickly and economically. Please contact us for assistance.

Please note that suitable emergency stop scenarios (e.g. controlled shut down) and restarting scenarios (e.g. pressure build-up valves, appropriate valve switching sequences) are needed for all pneumatic actuators. Cutting off the pressure in an uncontrolled manner could lead to undefined states and behavior.

**Food-grade lubrication:** The product contains food-compliant lubricants as standard. The requirements of standard EN 1672-2:2020 are not fully met. The relevant NSF certificates are available at <https://info.nsf.org/USDA/Listings.asp> using the lubricant information in the operating manual. Components such as rolling bearings, linear guides, or shock absorbers are not provided with food-compliant lubricants.

# SRU-plus-D

Universal swivel unit

## Ordering example

	SRU-plus-D	20	-	W	-	180	-	3	-	M	-	4	-	M8	-	AS
<b>Description</b>																
SRU-plus-D																
SRU-plus-D1 (from size 40 with electrical feed-through)																
<b>Size</b>																
20/25/30/35/40/50/60																
<b>Type of damping method</b>																
W = soft																
<b>Swivel angle</b>																
90°/180°																
<b>End position adjustability</b>																
3°																
<b>Middle position</b>																
- = no																
M = pneumatic center position																
VM = Locked center position																
<b>Number of air feed-throughs</b>																
- = no fluid feed-through																
4 = for sizes 20 – 35																
8 = for sizes 40 – 60																
<b>Connector size for electric feed-through</b>																
- = no electrical feed-through																
M8 = M8 plug connector on the rotating side																
M12 = M12 plug connector on the rotating side																
<b>Mounting kit for inductive proximity switch</b>																
AS = with mounting kit																

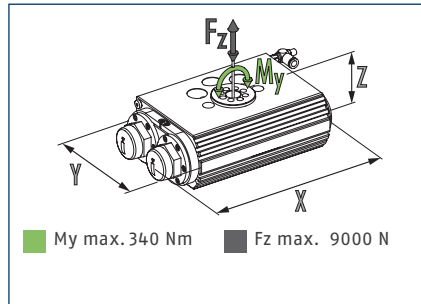




# SRU-plus-D 60

Universal swivel unit

## Dimensions and maximum loads



① The indicated moments and forces are static values and may appear simultaneously. Throttling has to be done for ensuring that the rotary movement takes place without impact or bouncing. Otherwise the service life reduces.

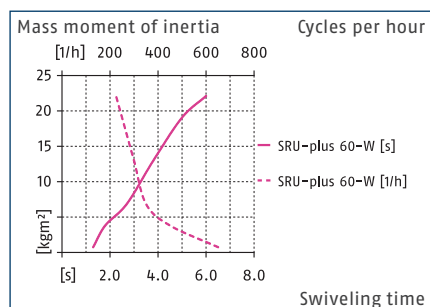
## Technical data SRU-plus-D without center position

Designation (soft damping)		SRU-plus-D 60-W-90-3-AS	SRU-plus-D 60-W-180-3-AS
ID		37362800	37362820
End position damping		hydr. damper	hydr. damper
Angle of rotation	[°]	90.0	180.0
End position adjustability	[°]	3.0	3.0
Torque	[Nm]	72.0	72.0
Number of intermediate positions		none	none
IP protection class		67	67
Weight	[kg]	12.8	12.8
Fluid consumption (2x nom. angle)	[cm³]	656.0	1120.0
Min./nom./max. operating pressure	[bar]	4/6/8	4/6/8
Diameter of connecting hose		8 x 6 x 1	8 x 6 x 1
Min./max. ambient temperature	[°C]	5/60	5/60
Repeat accuracy	[°]	0.05	0.05
<b>Options with fluid feed-through</b>			
Designation (soft damping)		SRU-plus-D 60-W-90-3-8-AS	SRU-plus-D 60-W-180-3-8-AS
ID		37362802	37362822
Torque	[Nm]	70.0	70.0
Weight	[kg]	13	13
No. of fluid feed-throughs		8	8
<b>Options with fluid and electric feed-through</b>			
Designation (soft damping)		SRU-plus-D1 60-W-90-3-8-M12-AS	SRU-plus-D1 60-W-180-3-8-M12-AS
ID		1001718	1001719
Weight	[kg]	14.95	14.95

① All units are also available in an FKM version. Please contact us for details.



## Max. permissible inertia J\*



\* The diagrams are valid for basic units and for applications with a vertical swivel axis as well as for absolutely centric loads with a horizontal swivel axis and with an operating pressure of 6 bar. The swiveling times per throttling have to be observed, otherwise the life time may reduce. We will be happy to help you designing other applications. In addition, the SCHUNK Swiveling sizing assistant is available online.

## Technical data SRU-plus-D with center position

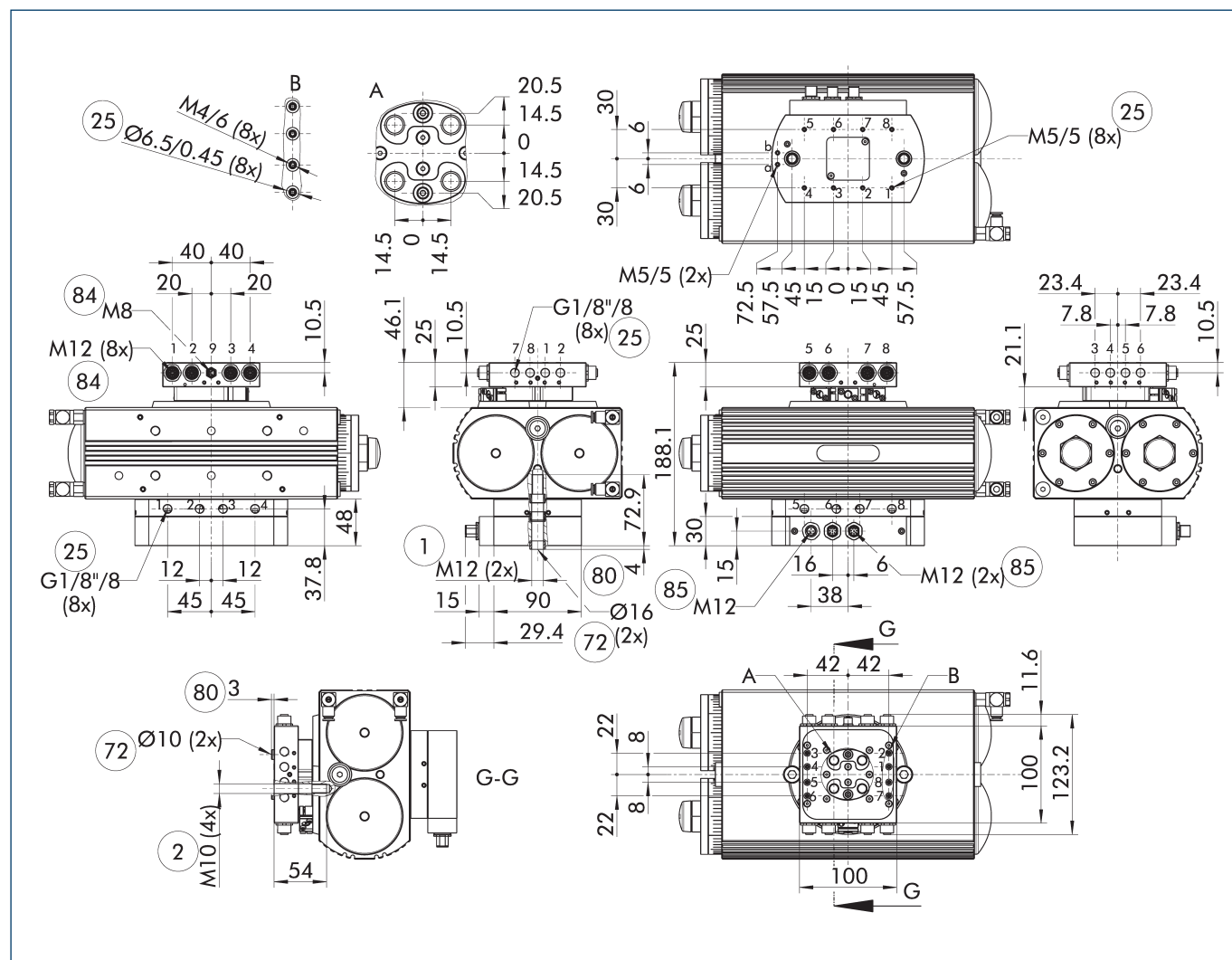
Designation (soft damping)		SRU-plus-D 60-W-180-3-M-AS	SRU-plus-D 60-W-180-3-VM-AS
ID		37362830	37362840
End position damping		hydr. damper	hydr. damper
Angle of rotation	[°]	180.0	180.0
End position adjustability	[°]	3.0	3.0
Torque	[Nm]	72.0	72.0
Number of intermediate positions		1 x M (pneumatic)	1 x VM (locked)
Adjustability of middle position	[°]	3.0	3.0
IP protection class		67	67
Weight	[kg]	16.8	17.8
Fluid consumption (2x nom. angle)	[cm³]	1120.0	1120.0
Min./nom./max. operating pressure	[bar]	4/6/8	4/6/6.5
Diameter of connecting hose		8 x 6 x 1	8 x 6 x 1
Min./max. ambient temperature	[°C]	5/60	5/60
Repeat accuracy	[°]	0.05	0.05
<b>Options with fluid feed-through</b>			
Designation (soft damping)		SRU-plus-D 60-W-180-3-M-8-AS	SRU-plus-D 60-W-180-3-VM-8-AS
ID		37362832	37362842
Torque	[Nm]	70.0	70.0
Weight	[kg]	17	18
No. of fluid feed-throughs		8	8
<b>Options with fluid and electric feed-through</b>			
Designation (soft damping)		SRU-plus-D1 60-W-180-3-M-8-M12-AS	SRU-plus-D1 60-W-180-3-VM-8-M12-AS
ID		1001722	1369416
Weight	[kg]	18.95	19.95

① All units are also available in an FKM version. Please contact us for details.

Universal swivel unit

[illegible]

## Main view for SRU-plus-D with EDF



① The SDV-P pressure maintenance valve can be used to maintain the position in the case of a loss of pressure (see "Accessories" catalog section).

A, a Main / direct connection, rotary actuator rotates clockwise

B, b Main / direct connection, rotary actuator rotates counterclockwise

① Connection swivel unit

② Attachment connection

②⑤ Fluid feed-through

⑦② Fit for centering sleeves

⑧① Depth of the centering sleeve hole in the counter part

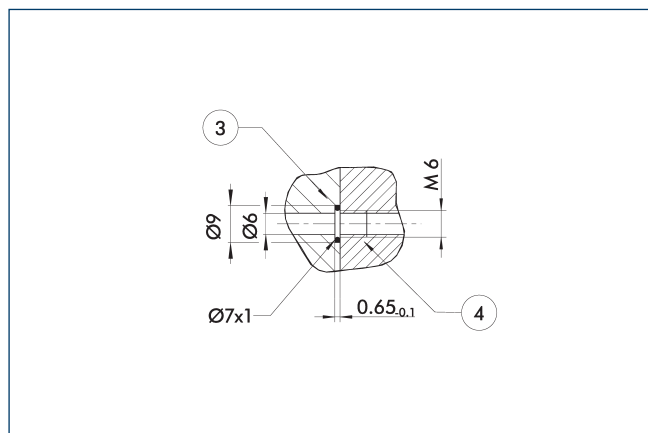
⑧③ Input for 3 pole sensor feed-through

⑧⑤ Sensor feed-through output

## SRU-plus-D 60

### Universal swivel unit

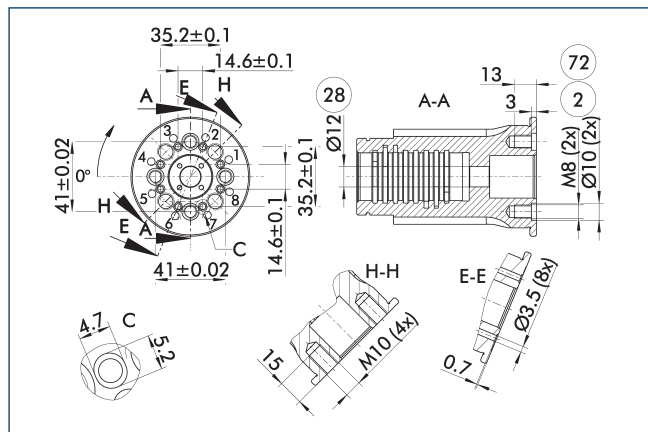
### Hose-free direct connection M6



- (3) Adapter                      (4) Rotary unit

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

### Pinion with fluid feed-through

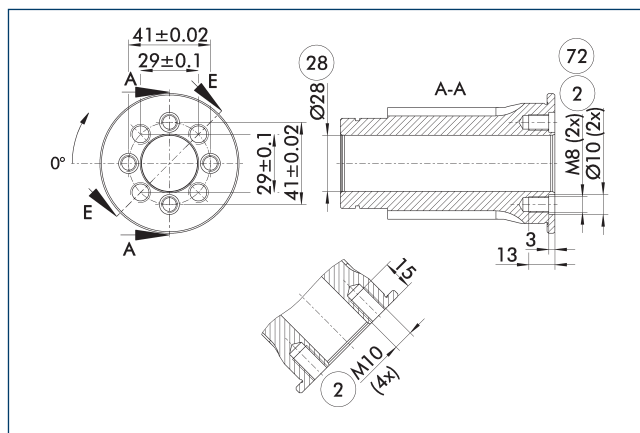


- ② Attachment connection      ⑦② Fit for centering sleeves  
②⑧ Through-hole

Pinion screw connection diagram if the option "fluid feed-through" was chosen. The preferred drilling pattern is two screws and two screws with a centering sleeve.

 View applicable only for versions without EDF!

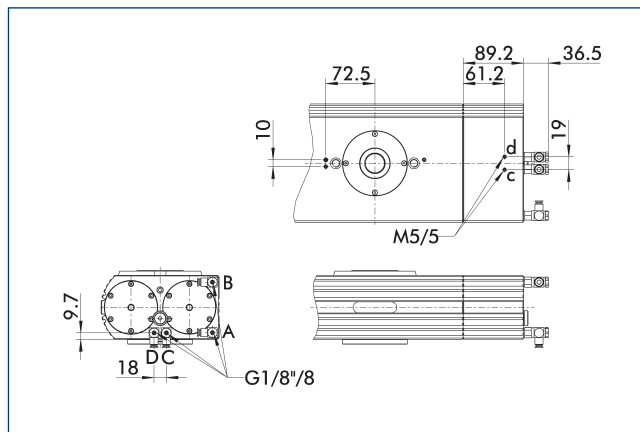
### Pinion without fluid feed-through



- ② Attachment connection      ⑦② Fit for centering sleeves  
②⑧ Through-hole

Mounting pattern for fastening the rotating load to the pinion. The "4x large threads for 4 screws and 2 counter bores for centering sleeves" option is preferable to the "4x small threads for 2 screws and 2 shoulder bots (in the deeper counter bores)" option.

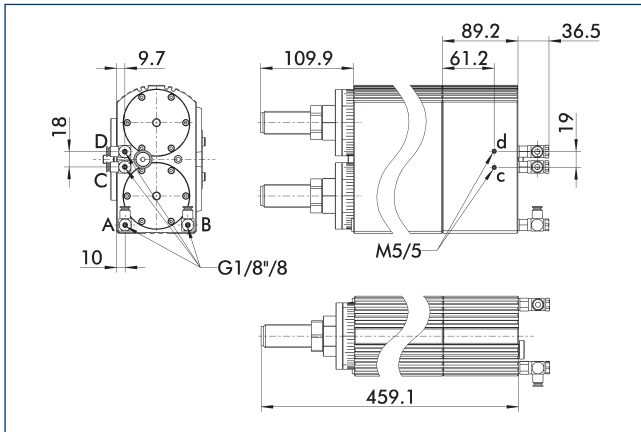
### Pneumatic middle position (M)



- |   |   |
|---|---|
| A, a Main / direct connection,<br>rotary actuator rotates<br>clockwise        | C, c Main / direct connection,<br>middle position |
| B, b Main / direct connection,<br>rotary actuator rotates<br>counterclockwise | D, d Main / direct connection,<br>middle position |

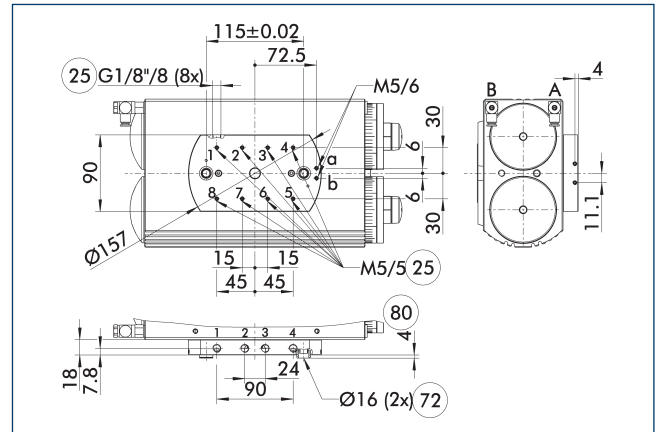
The drawing shows the change in dimension of the "pneumatic center position (M)" option compared to the basic variant. Heavy attachments may swing before they reach the final position. The locked middle position (VM) can resolve this.

## Connections for fluid feed-through



- |   |   |
|---|---|
| A, a Main / direct connection,<br>rotary actuator rotates<br>clockwise        | C, c Main / direct connection,<br>middle position |
| B, b Main / direct connection,<br>rotary actuator rotates<br>counterclockwise | D, d Main / direct connection,<br>middle position |

The drawing shows the change in dimension of the "locked center position (VM)" option compared to the basic variant. The middle position is locked and is actuated with the force of the main drive piston. Shock absorbers dampen the travel to the middle position and prevent overshooting.

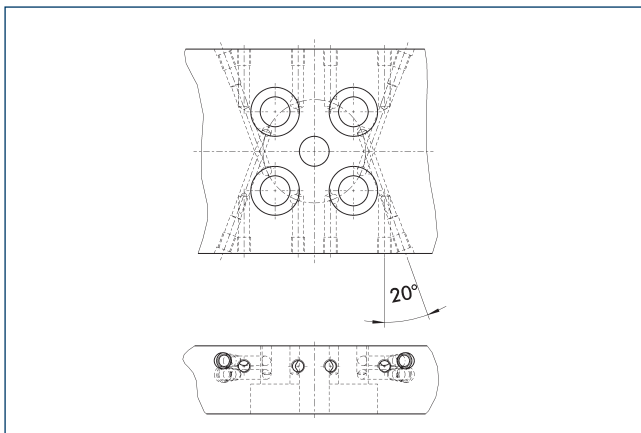


- |   |  |
|---|--|
| A, a Main / direct connection,<br>rotary actuator rotates<br>clockwise        | (25) Fluid feed-through  |
|   | (72) Fit for centering sleeves                                 |
| B, b Main / direct connection,<br>rotary actuator rotates<br>counterclockwise | (80) Depth of the centering sleeve<br>hole in the counter part |

Lower mounting plate for the fluid feed-through option. Vacuum, gases or fluids can be fed through. The connection may be a screw type or a direct connection.

 View applicable only for versions without EDF!

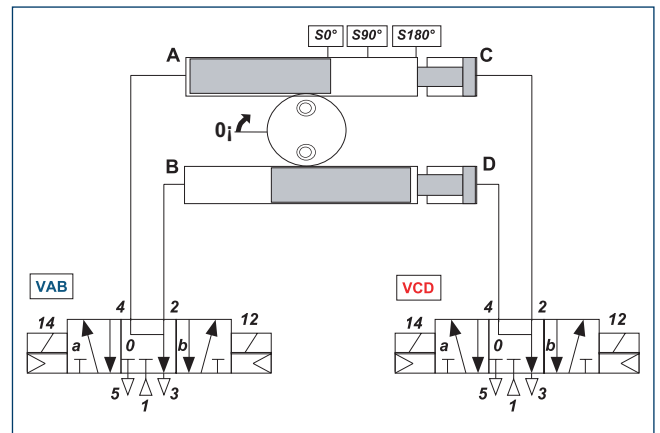
## Adapter plate design



Suggested here is an adapter plate design which allows for all fluid feed-throughs to be accessed as easily as possible.

 View applicable only for versions without EDF!

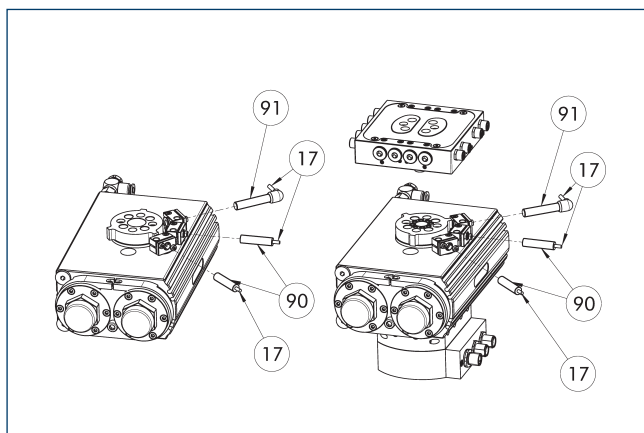
### Pneumatic diagram of SRU-plus-VM — vertical axis



VM rotary actuators with a vertical rotary axis are generally actuated by two 5/3 directional control valves with an exhausted middle position. To prevent damage, it is essential to pay attention to the actuation sequence indicated in the operating manual.



## Inductive proximity switches



⑰ Cable outlet

⑨① Sensor IN..-SA

⑨① Sensor IN ...

Description	ID	Often combined
Inductive proximity switch		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
IN-C 80-S-M8-PNP	0301475	
INK 80-S	0301550	
INK 80-SL	0301579	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Clip for connector/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.





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