



Superior Clamping and Gripping



Product Information

Insertion unit FUS

Compliant. Precise. Reliable.

Insertion unit FUS

symmetrical insertion unit with centric locking and monitoring

Field of application

Assembly tasks with very little play among the parts to be aligned



Advantages – Your benefits

Pneumatic, centric locking puts the unit back to a defined zero position and protects the elastomers

Layered elastomer construction soft and flexible when aligning, rigid when pressing in

Compensates alignment errors thereby reducing the danger of jamming



Sizes
Quantity: 5



Compensation XY
1.7 .. 2.2 mm

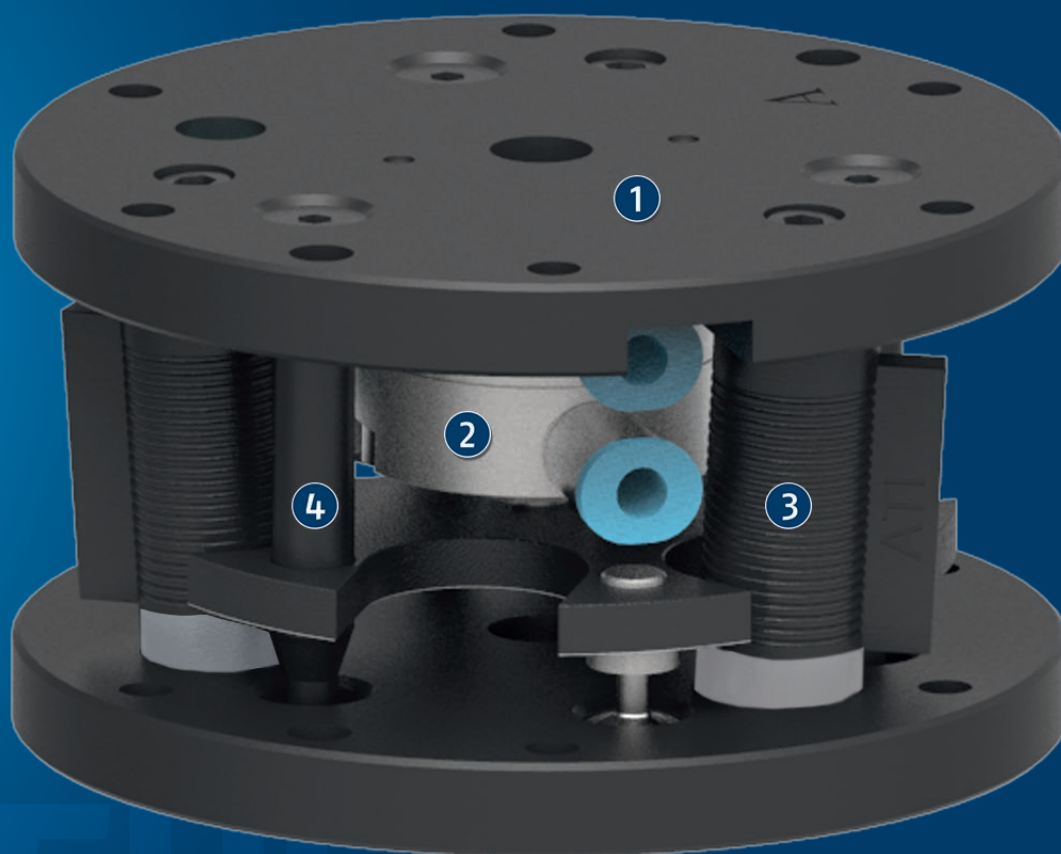


Rotary compensation
angle
2.5 .. 5°

Functional description

The FUS' function is based on the interaction between the two base plates, which are connected to each other by a set of three or six flexible elastomer elements. As a result, the FUS can compensate tolerances in the X and Y directions, allowing the correction of angle errors and causing a rotational compensation.

The FUS offers pneumatic locking to allow the compensation unit to be set to rigid. As a result, it is possible to prevent the tool or the gripper vibrating during movement of the robot arm or the linear axis. This increases the application's repeat accuracy and extends the service life of the elastomer elements.



- ① **Adapter flange**
individual screw connection diagrams can be easily integrated
- ② **Pneumatic locking**
for a rigid connection between the machine and tool sides

- ③ **Elastomers**
allows compensation movement
- ④ **Overload pin**
to protect the elastomers

General notes about the series

Monitoring: by inductive proximity switch

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

Material: Elastomer material

Housing: Aluminum

Scope of delivery: without mounting screws

Warranty: 24 months

Harsh environmental conditions: Please note that use under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service life of the units, and we will not take over any warranty. However, in many cases we can find a solution. Please contact us for assistance.

Handling weight: is the weight of the total load attached to the flange. When designing, the permissible forces and moments have to be paid attention to. Please note that exceeding the recommended handling weight will shorten the lifespan.

Application example

Handling unit for inserting a pin into a precisely fitting bore

- ❶ Insertion unit FUS
- ❷ 3-finger centric gripper PZN-plus



SCHUNK offers more ...

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



Quick change system



Manual change system



Universal gripper



Universal gripper



Inductive proximity switches



Angular gripper

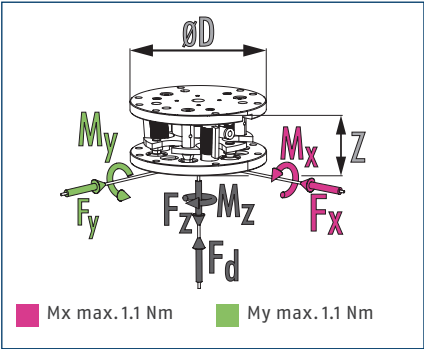
① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

FUS 001-30

Insertion unit



Dimensions and maximum loads

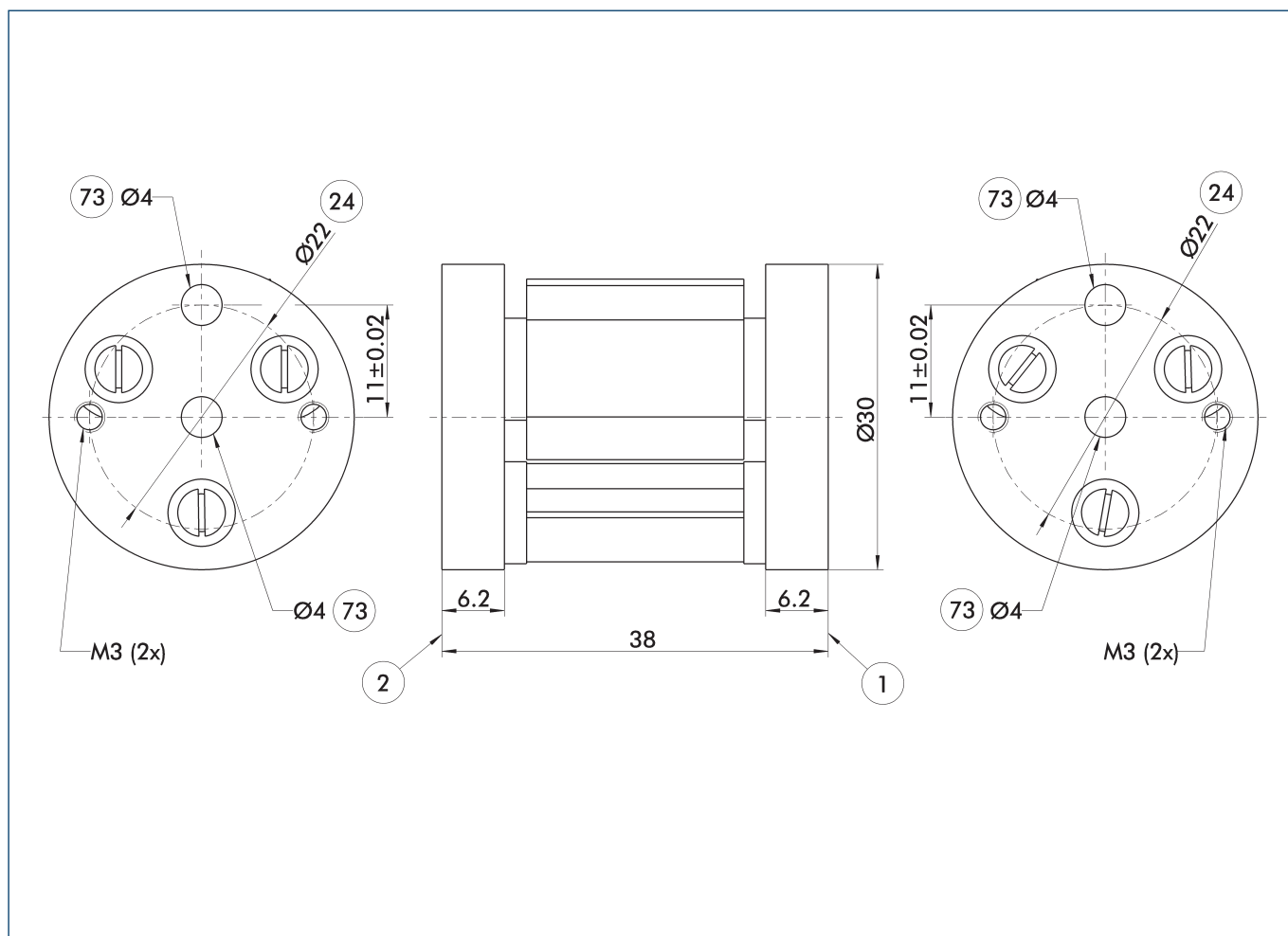


① The forces and torques are maximum values when unlocked and may occur simultaneously. When locked, only the loads caused by the weight and acceleration are permissible.

Technical data

Description		FUS-001-30
ID		0320280
Locking		Without locking
Compensation XY	[mm]	1.7
Angular deflection	[°]	1
Rotary compensation angle	[°]	4.5
Rigidity shift	[N/mm]	7.5
Compensation center distance	[mm]	23
Repeat accuracy	[mm]	±0.05
Weight	[kg]	0.05
Min./max. ambient temperature	[°C]	5/60
Max. force F_x/F_y vertical installation	[N]	22
Max. force F_x/F_y horizontal installation	[N]	3
Max. force F_d	[N]	160
Dimensions $\varnothing D \times Z$	[mm]	30 x 38

Main view



The main view shows the unit in its basic version.

- ① Robot-side connection
- ② Tool-side connection

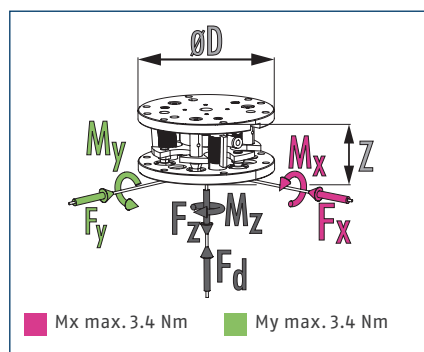
- ②④ Bolt circle
- ⑦③ Fit for centering pins

FUS 001

Insertion unit



Dimensions and maximum loads

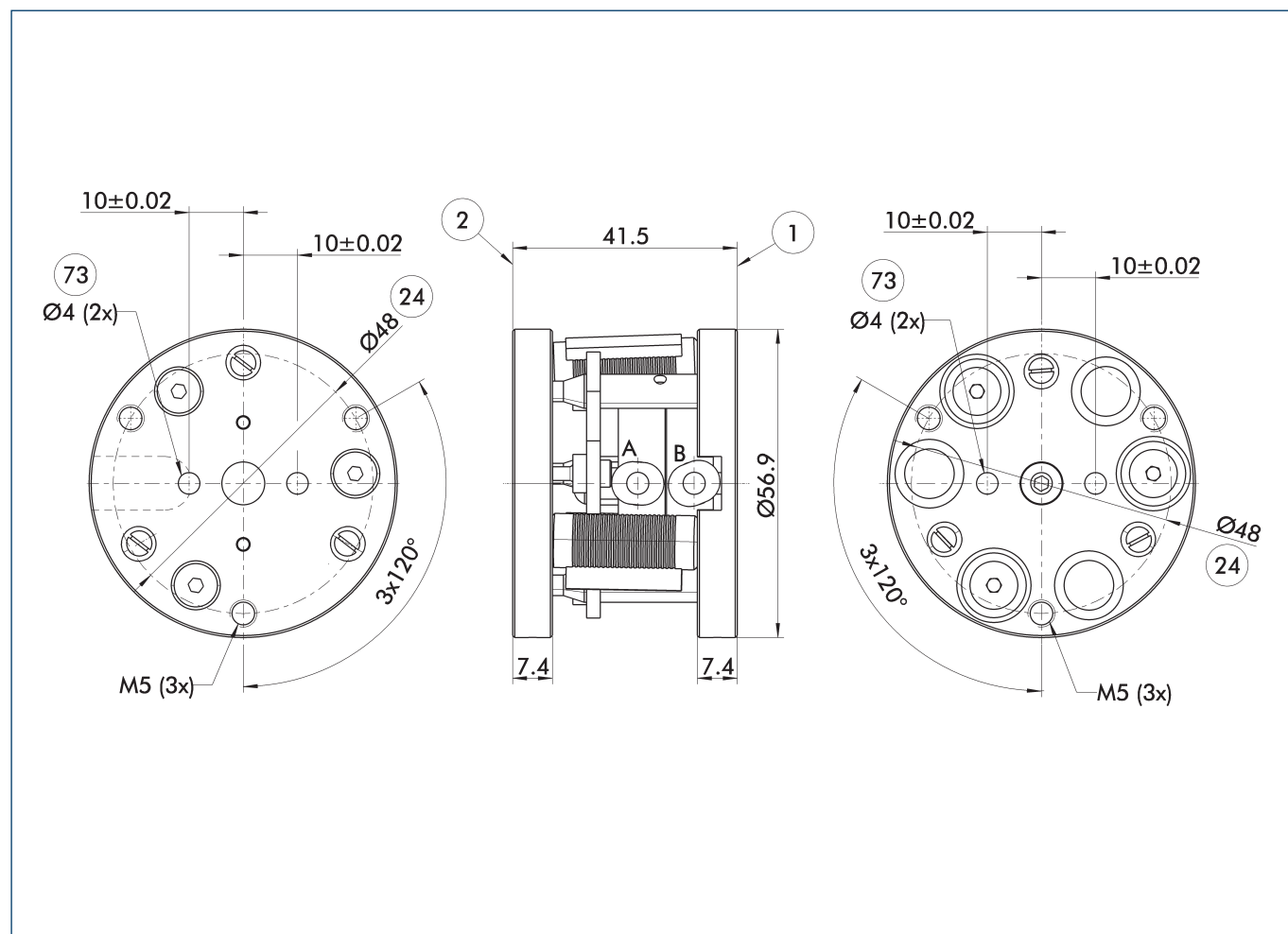


- ① The forces and torques are maximum values when unlocked and may occur simultaneously. When locked, only the loads caused by the weight and acceleration are permissible.

Technical data

Description		FUS-001
ID		0320518
Locking		with locking
Compensation XY	[mm]	1.7
Angular deflection	[°]	1
Rotary compensation angle	[°]	4.5
Rigidity shift	[N/mm]	1.7
Compensation center distance	[mm]	23
Repeat accuracy	[mm]	±0.026
Weight	[kg]	0.18
Min./max. operating pressure	[bar]	5/6
Min./max. ambient temperature	[°C]	5/60
Max. force Fx/Fy vertical installation	[N]	22
Max. force Fx/Fy horizontal installation	[N]	6.7
Locking moment Fz	[N]	22
Max. force Fd	[N]	360
Dimensions Ø D x Z	[mm]	56.9 x 41.5

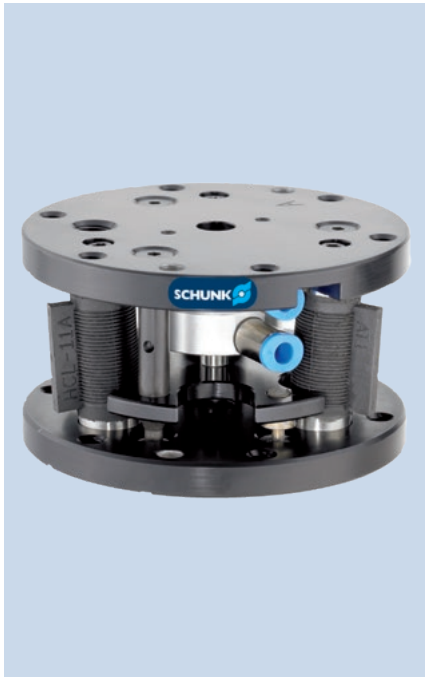
Main view



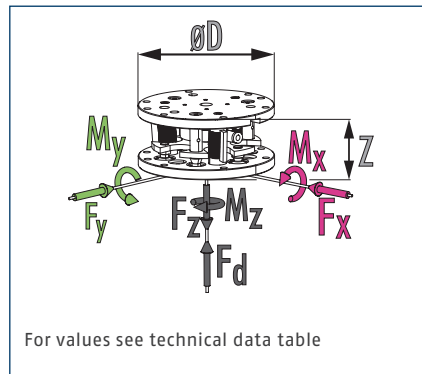
The main view shows the unit in its basic version.

- A, a Air connection locked
 B, b Air connection unlocked
 ① Robot-side connection

- ② Tool-side connection
 ②④ Bolt circle
 ⑦③ Fit for centering pins



Dimensions and maximum loads

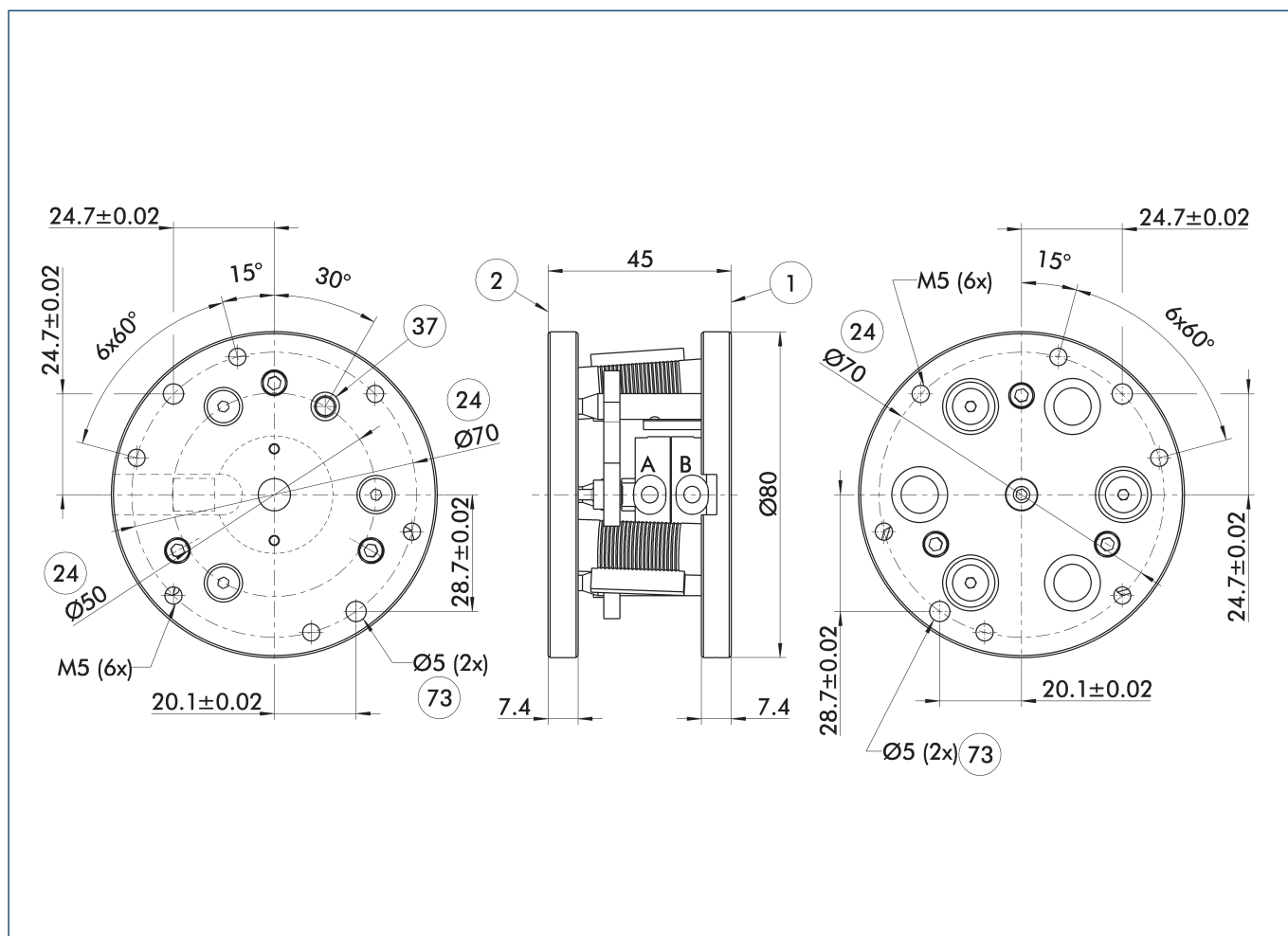


- ① The forces and torques are maximum values when unlocked and may occur simultaneously. When locked, only the loads caused by the weight and acceleration are permissible.

Technical data

Description		FUS-111B	FUS-112B	FUS-113B
ID		0320519	0320522	0320525
Locking		with locking	with locking	with locking
Compensation XY	[mm]	2.2	2.2	2.2
Angular deflection	[°]	1.1	1.1	1.1
Rotary compensation angle	[°]	5	5	5
Rigidity shift	[N/mm]	11	7	27
Compensation center distance	[mm]	120	69	61
Repeat accuracy	[mm]	±0.026	±0.026	±0.026
Weight	[kg]	0.31	0.31	0.31
Min./max. operating pressure	[bar]	5/6	5/6	5/6
Min./max. ambient temperature	[°C]	5/60	5/60	5/60
Max. force Fx/Fy vertical installation	[N]	45	45	80
Max. force Fx/Fy horizontal installation	[N]	8.9	8.9	27
Locking moment Fz	[N]	44	44	80
Max. force Fd	[N]	1300	530	1300
Dimensions Ø D x Z	[mm]	80 x 45	80 x 45	80 x 45
Moments Mx max./My max.	[Nm]	5.1/5.1	5.1/5.1	7.9/7.9

Main view

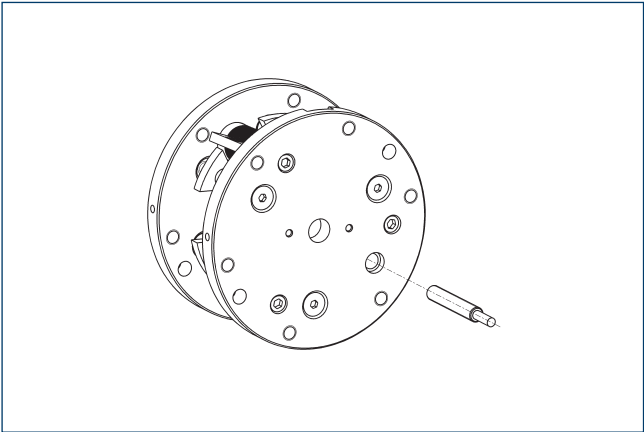


The main view shows the unit in its basic version.

- A, a Air connection locked
- B, b Air connection unlocked
- ① Robot-side connection
- ② Tool-side connection

- ②④ Bolt circle
- ③⑦ Sensor connection
- ⑦③ Fit for centering pins

Sensor system

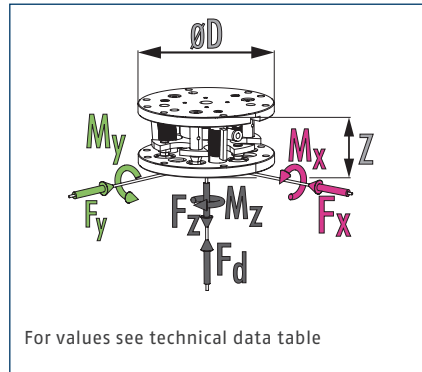
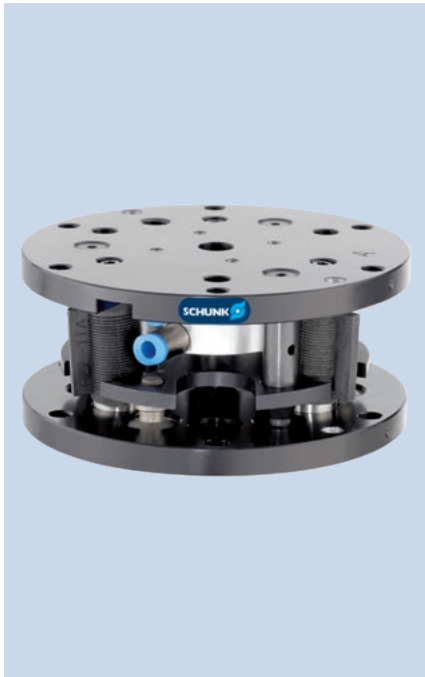


Locking sensor for monitoring the lock condition

Description	ID	Often combined
Inductive proximity switches		
IN 50-S-M12	0301575	
IN 50-S-M8	0301568	
INK 50-S	0301560	
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 plug/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	

ⓘ Per unit one sensor (closer/S) is required, optionally a cable extension.

Dimensions and maximum loads



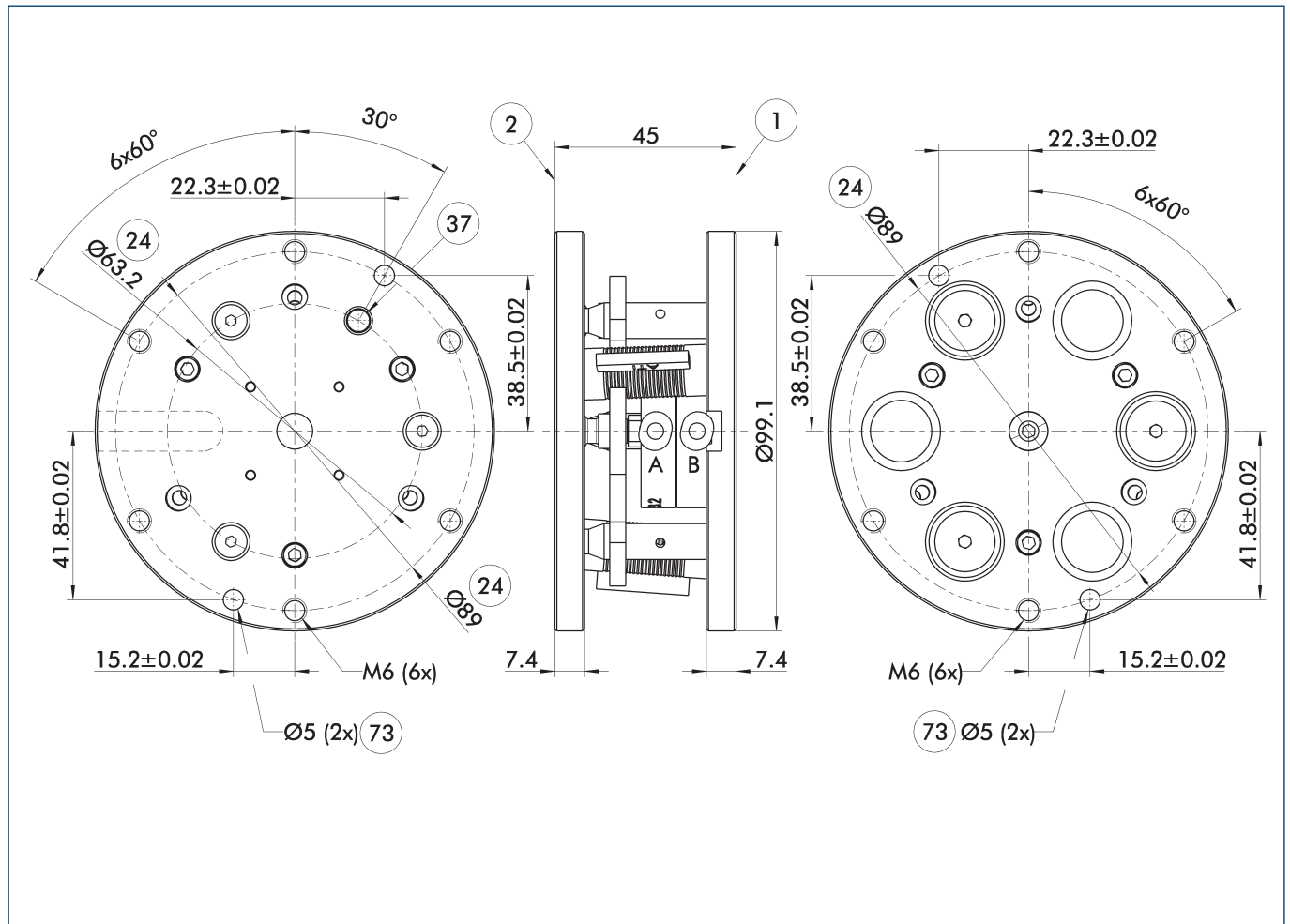
- ① The forces and torques are maximum values when unlocked and may occur simultaneously. When locked, only the loads caused by the weight and acceleration are permissible.

Technical data

Description		FUS-211A	FUS-211B	FUS-211C	FUS-212A	FUS-212B	FUS-212C
ID		0320527	0320528	0320529	0320530	0320531	0320532
Locking		with locking	with locking	with locking	with locking	with locking	with locking
Compensation XY	[mm]	2.2	2.2	2.2	2.2	2.2	2.2
Angular deflection	[°]	1.1	1.1	1.1	1.1	1.1	1.1
Rotary compensation angle	[°]	4	4	4	4	4	4
Rigidity shift	[N/mm]	11	11	23	7	7	14
Compensation center distance	[mm]	140	150	150	81	91	86
Repeat accuracy	[mm]	±0.026	±0.026	±0.026	±0.026	±0.026	±0.026
Weight	[kg]	0.5	0.5	0.5	0.5	0.5	0.5
Min./max. operating pressure	[bar]	5/6	5/6	5/6	5/6	5/6	5/6
Min./max. ambient temperature	[°C]	5/60	5/60	5/60	5/60	5/60	5/60
Max. force Fx/Fy vertical installation	[N]	53	53	107	62	62	125
Max. force Fx/Fy horizontal installation	[N]	8.9	8.9	18	8.9	8.9	18
Locking moment Fz	[N]	53	53	110	62	62	120
Max. force Fd	[N]	1300	1400	2700	620	710	1300
Dimensions Ø D x Z	[mm]	99.1 x 45	99.1 x 45	99.1 x 45	99.1 x 45	99.1 x 45	99.1 x 45
Moments Mx max./My max.	[Nm]	6.8/6.8	7.3/7.3	14/14	6.8/6.8	7.3/7.3	14/14

Description		FUS-213A	FUS-213B	FUS-213C
ID		0320533	0320534	0320535
Locking		with locking	with locking	with locking
Compensation XY	[mm]	2.2	2.2	2.2
Angular deflection	[°]	1.1	1.1	1.1
Rotary compensation angle	[°]	4	4	4
Rigidity shift	[N/mm]	26	26	52
Compensation center distance	[mm]	74	82	79
Repeat accuracy	[mm]	±0.026	±0.026	±0.026
Weight	[kg]	0.5	0.5	0.5
Min./max. operating pressure	[bar]	5/6	5/6	5/6
Min./max. ambient temperature	[°C]	5/60	5/60	5/60
Max. force Fx/Fy vertical installation	[N]	98	98	196
Max. force Fx/Fy horizontal installation	[N]	27	27	54
Locking moment Fz	[N]	98	98	196
Max. force Fd	[N]	1360	1400	2770
Dimensions Ø D x Z	[mm]	99.1 x 45	99.1 x 45	99.1 x 45
Moments Mx max./My max.	[Nm]	8.5/8.5	9/9	17.5/17.5

Main view

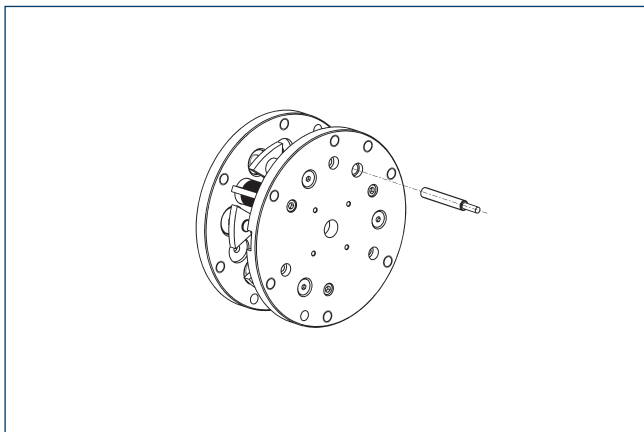


The main view shows the unit in its basic version.

- A, a Air connection locked
- B, b Air connection unlocked
- ① Robot-side connection
- ② Tool-side connection

- ②4 Bolt circle
- ③7 Sensor connection
- ⑦3 Fit for centering pins

Sensor system

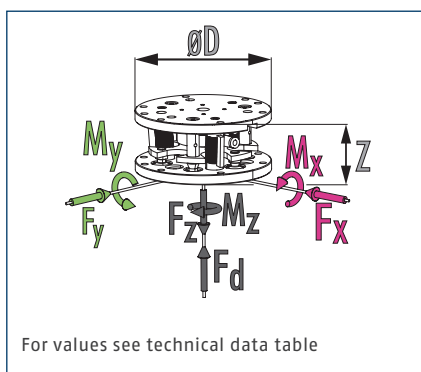


Locking sensor for monitoring the lock condition

Description	ID	Often combined
Inductive proximity switches		
IN 50-S-M12	0301575	
IN 50-S-M8	0301568	
INK 50-S	0301560	
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 plug/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 Per unit one sensor (closer/S) is required, optionally a cable extension.

Dimensions and maximum loads

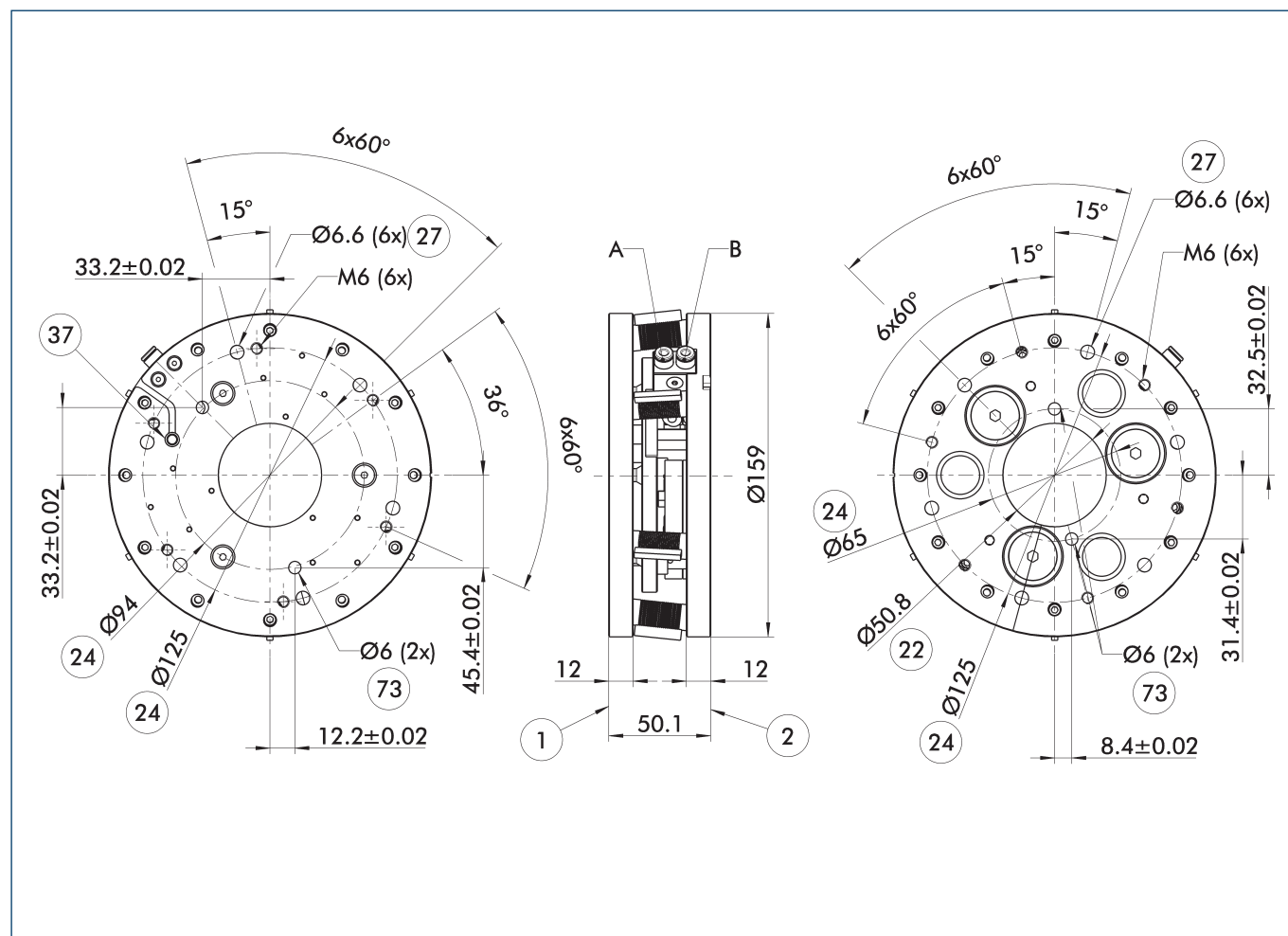


- ① The forces and torques are maximum values when unlocked and may occur simultaneously. When locked, only the loads caused by the weight and acceleration are permissible.

Technical data

Description		FUS-413C	FUS-413D
ID		0320338	0320339
Locking		with locking	with locking
Compensation XY	[mm]	2.2	2.2
Angular deflection	[°]	0.3	0.3
Rotary compensation angle	[°]	2.5	2.5
Rigidity shift	[N/mm]	60	120
Compensation center distance	[mm]	225	225
Repeat accuracy	[mm]	±0.026	±0.026
Weight	[kg]	1.6	1.8
Min./max. operating pressure	[bar]	5/6	5/6
Min./max. ambient temperature	[°C]	5/60	5/60
Max. force Fx/Fy vertical installation	[N]	196	391
Max. force Fx/Fy horizontal installation	[N]	27	54
Locking moment Fz	[N]	200	395
Max. force Fd	[N]	2750	5490
Dimensions $\varnothing D \times Z$	[mm]	159 x 50.1	159 x 50.1
Moments Mx max./My max.	[Nm]	22.6/22.6	45.2/45.2

Main view

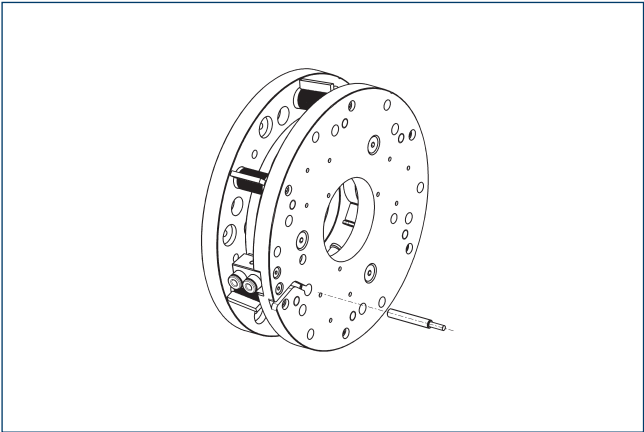


The main view shows the unit in its basic version.

- A, a Air connection locked
- B, b Air connection unlocked
- ① Robot-side connection
- ② Tool-side connection
- ②② Center bore

- ②④ Bolt circle
- ②⑦ Through holes for screw connections
- ③⑦ Sensor connection
- ⑦③ Fit for centering pins

Sensor system



Locking sensor for monitoring the lock condition

Description	ID	Often combined
Inductive proximity switches		
IN 50-S-M12	0301575	
IN 50-S-M8	0301568	
INK 50-S	0301560	
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 plug/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	

ⓘ Per unit one sensor (closer/S) is required, optionally a cable extension.



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