



Hand in hand for tomorrow



Product data sheet

Anti-collision and overload protection sensor OPS

OPS

Anti-collision and overload protection sensor

Compliant. Highly responsive. Easy monitoring.

Collision and overload sensor OPS

for control of robots and handling units in the event of a collision or overload conditions

Field of application

Standard solution for all robot applications whereby the robot, the tool or the workpiece are to be protected against greater damages in case of a collision.



Advantages – Your benefits

Triggering force and torque can be adjusted via the operating pressure for optimal protection of your robots and components

Integrated monitoring for signal transmission without delay in case of collisions so that the robot can be stopped immediately

ISO adapter plates as an option for easy assembly to most of robot types without any manufacturing costs/work



Sizes
Quantity: 4



Triggering force F_d
500 .. 7000 N



Trigger moment M_x
7.5 .. 430 Nm



Trigger moment M_y
7.5 .. 430 Nm

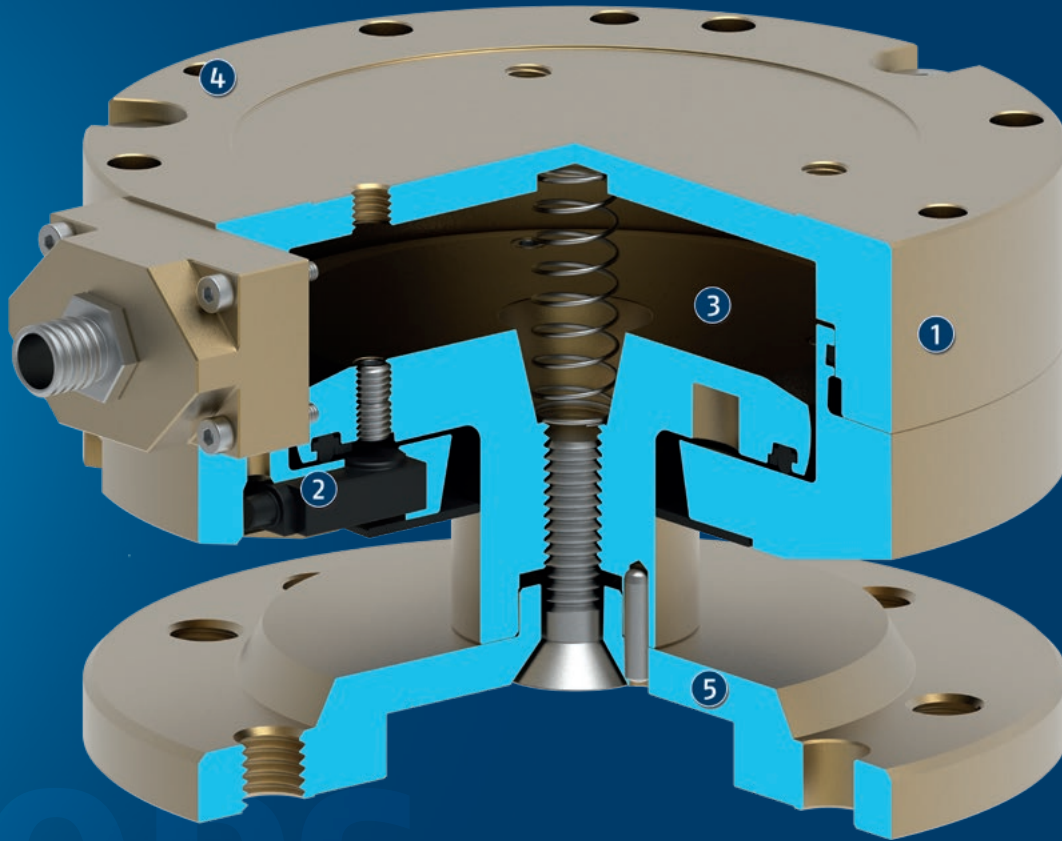


Trigger moment M_z
15 .. 450 Nm

Functional description

In case of a collision, the mounting flange will be deflected. This simultaneously actuates a sensor whose signal triggers the system's emergency stop mechanism. After deflection a manual reset of the OPS can be done

and the unit can be returned into its original position.



- ① **Housing**
is weight-optimized due to the use of high-strength aluminum alloy
- ② **Sensor system**
for reliable electronic monitoring

- ③ **Pneumatic pistons**
for easy responsiveness by pressure
- ④ **Centering and mounting possibilities**
for easy and fast assembly
- ⑤ **Mounting flange**
deflects in the event of a collision

General notes about the series

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

Scope of delivery: Collision and overload sensor in the ordered variant, elements for electrical connection and safety information. Product-specific instructions can be downloaded at schunk.com/downloads-manuals.

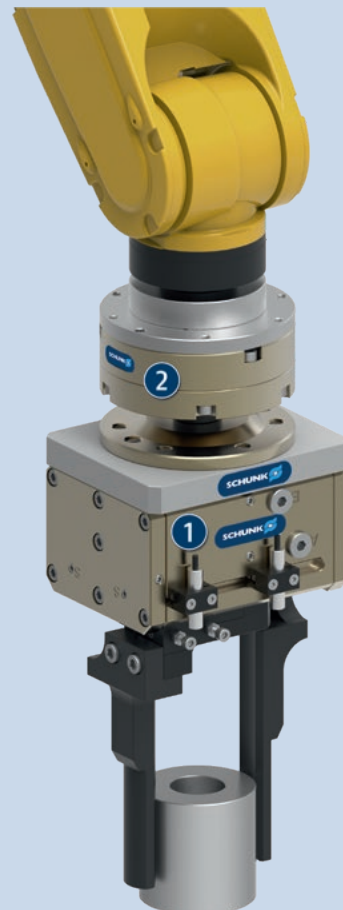
Warranty: 24 months

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.

Application example

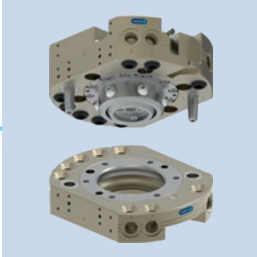
Assembly unit for intermediate sleeves with various diameters. The unit is equipped with a collision sensor to prevent damages.

- ❶ 2-finger parallel gripper PFH-mini with workpiece-specific gripper fingers
- ❷ Collision sensor OPS

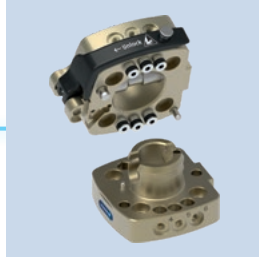


SCHUNK offers more ...

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



Tool changer



Manual change system



Rotary feed-through



Universal gripper



Universal gripper



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).

Options and special information

Anti-rotation protection: The VS variant limits the rotational deflection to $\pm 45^\circ$.

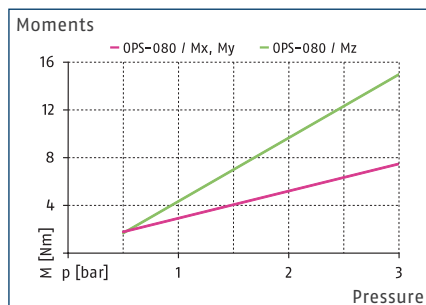
Food-grade lubrication: The product contains food-compliant lubricants as standard. The requirements of EN 1672-2:2020 are not fully met. The relevant NSF certificates are available at <https://info.nsf.org/USDA/Listings.asp> using the lubricant information in the operating manual.

OPS 080

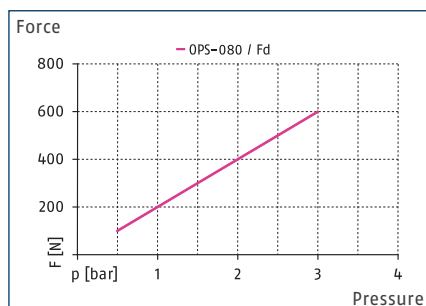
Anti-collision and overload protection sensor



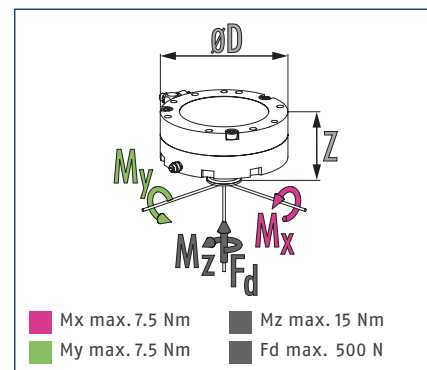
Trigger moment M_x , M_y , M_z



Triggering force F_d



Dimensions and maximum loads

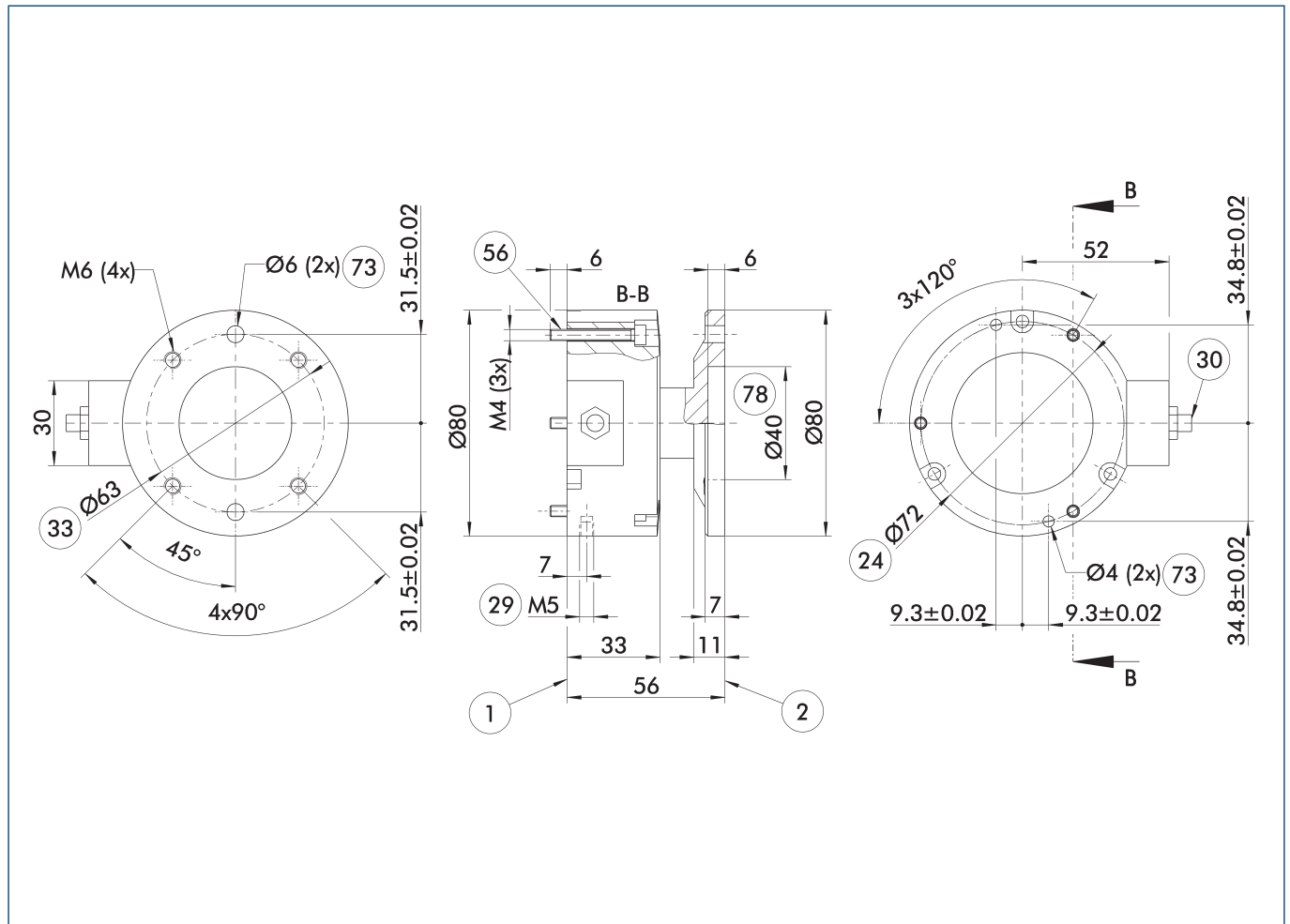


① The design of a collision sensor is defined by the occurring forces and moments in your application.

Technical data

Description		OPS-080
ID		0321125
Axial deflection	[mm]	12
Angular deflection	[°]	±12
Deflection rotatory	[°]	±360
Min. triggering moment, angular Mx, My	[Nm]	2
Supply voltage	[V]	10/30
Repeat accuracy	[mm]	±0.02
Responsiveness	[mm]	0.1
Repeat accuracy, rotary	[min]	5
Min./nom./max. operating pressure	[bar]	0.5/-/3
Weight	[kg]	0.4
Min./max. ambient temperature	[°C]	5/60
Dimensions Ø D x Z	[mm]	80 x 56

Main view



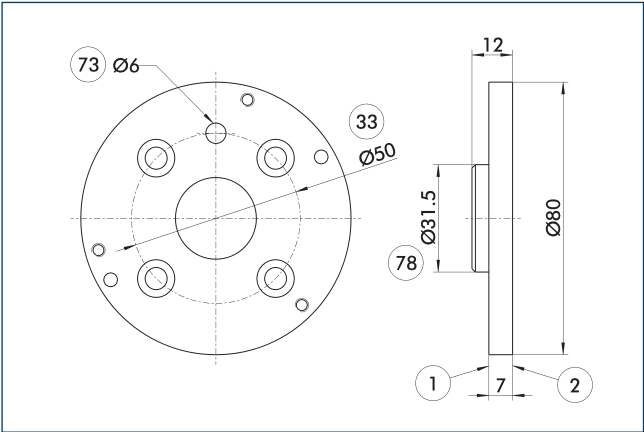
The main view shows the unit in its basic version.

- | | |
|---|--------------------------------------|
| ① Robot-side connection | ③③ DIN ISO-9409 bolt circle |
| ② Tool-side connection | ⑤⑥ Included in the scope of delivery |
| ②④ Bolt circle | ⑦③ Fit for centering pins |
| ②⑨ Air connection P | ⑦⑧ Fit for centering |
| ③① Cable connector in enclosed pack with 5 m connection cable | |

OPS 080

Anti-collision and overload protection sensor

Adapter plate ISO 9409-A50-R

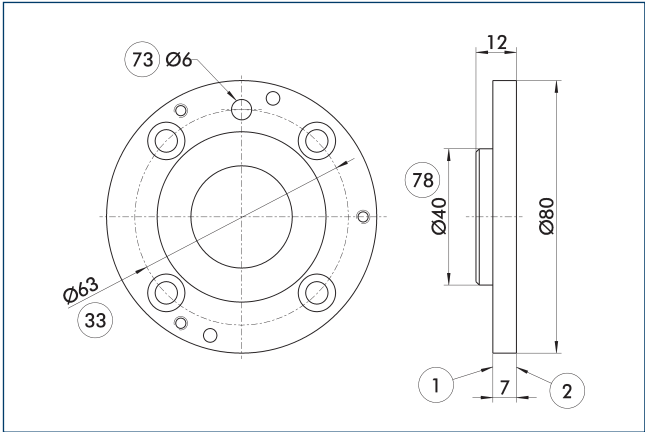


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-50-4-M6.

Description	ID	
Robot side		
A-OPS-080-ISO-A50-R	0321114	

Adapter plate ISO 9409-A63-R



- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-63-4-M6.

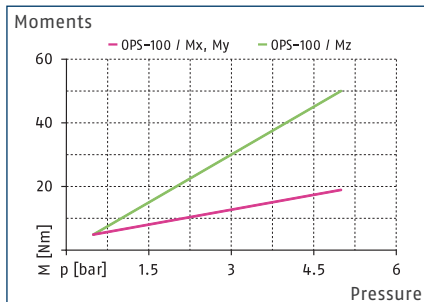
Description	ID	
Robot side		
A-OPS-080-ISO-A63-R	0321115	

OPS 100

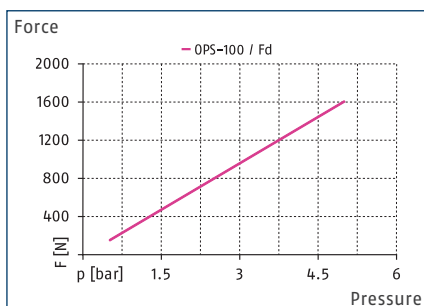
Anti-collision and overload protection sensor



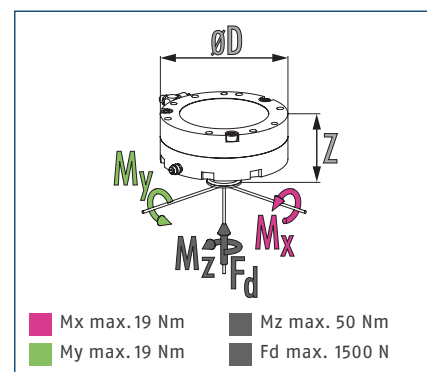
Trigger moment M_x , M_y , M_z



Triggering force F_d



Dimensions and maximum loads

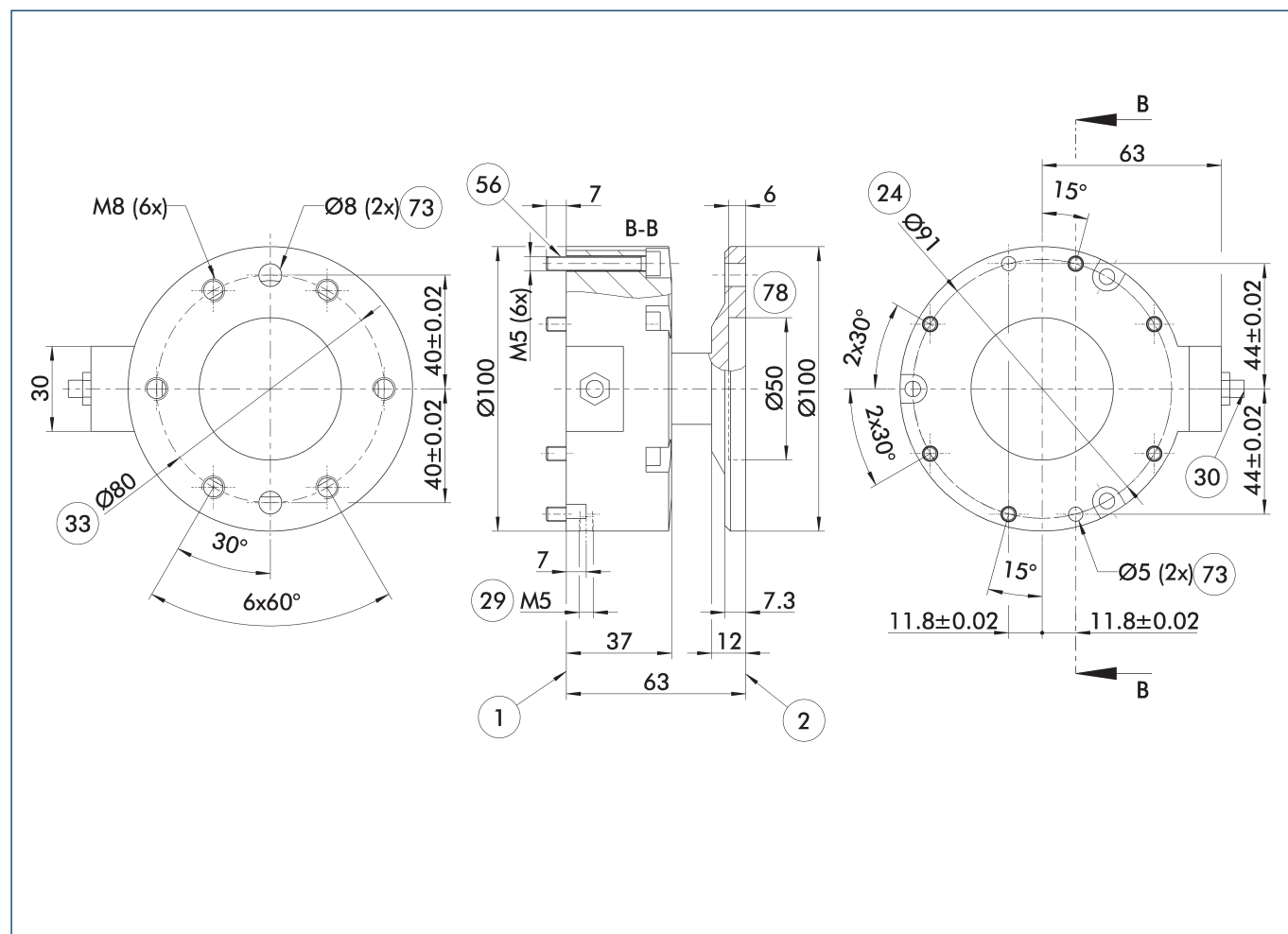


① The design of a collision sensor is defined by the occurring forces and moments in your application.

Technical data

Description		OPS-100
ID		0321130
Axial deflection	[mm]	14
Angular deflection	[°]	±12
Deflection rotatory	[°]	±360
Min. triggering moment, angular M _x , M _y	[Nm]	5
Supply voltage	[V]	10/30
Repeat accuracy	[mm]	±0.02
Responsiveness	[mm]	0.1
Repeat accuracy, rotary	[min]	5
Min./nom./max. operating pressure	[bar]	0.5/-/5
Weight	[kg]	0.7
Min./max. ambient temperature	[°C]	5/60
Dimensions Ø D x Z	[mm]	100 x 63

Main view



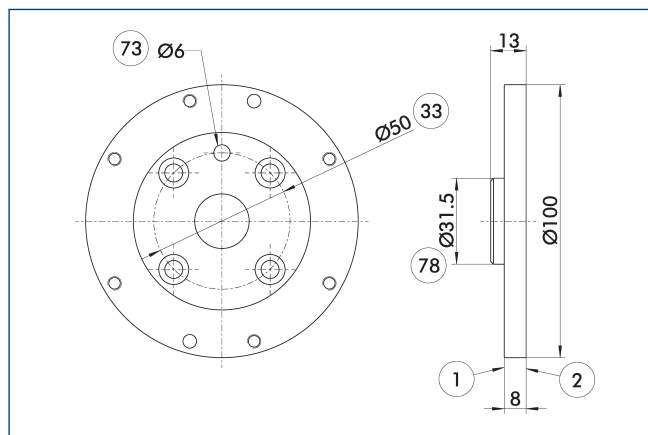
The main view shows the unit in its basic version.

- | | |
|---|--------------------------------------|
| ① Robot-side connection | ③③ DIN ISO-9409 bolt circle |
| ② Tool-side connection | ⑤⑥ Included in the scope of delivery |
| ②④ Bolt circle | ⑦③ Fit for centering pins |
| ②⑨ Air connection P | ⑦⑧ Fit for centering |
| ③① Cable connector in enclosed pack with 5 m connection cable | |

OPS 100

Anti-collision and overload protection sensor

Adapter plate ISO 9409-A50-R

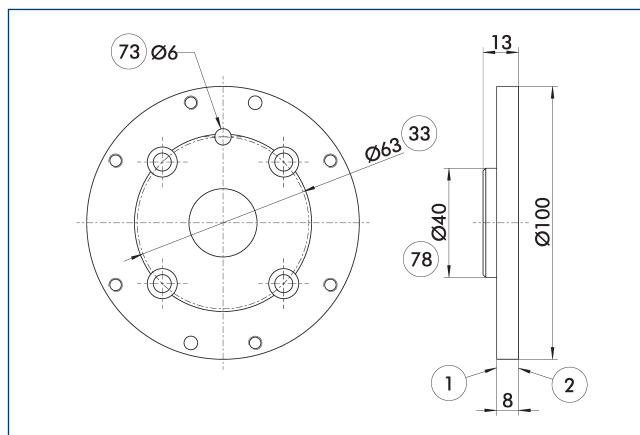


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-50-4-M6.

Description	ID	
Robot side		
A-OPS-100-ISO-A50-R	0321122	

Adapter plate ISO 9409-A63-R

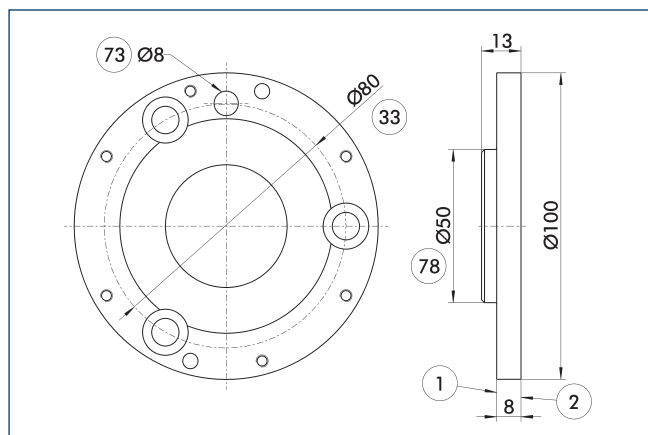


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-63-4-M6.

Description	ID	
Robot side		
A-OPS-100-ISO-A63-R	0321123	

Adapter plate ISO 9409-A80-R



- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-80-6-M8.

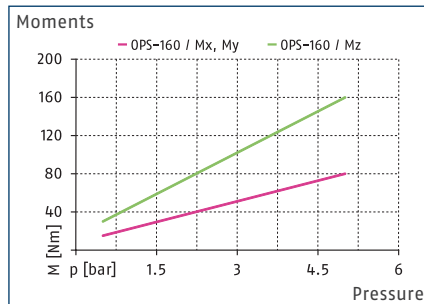
Description	ID	
Robot side		
A-OPS-100-ISO-A80-R	0321116	

OPS 160

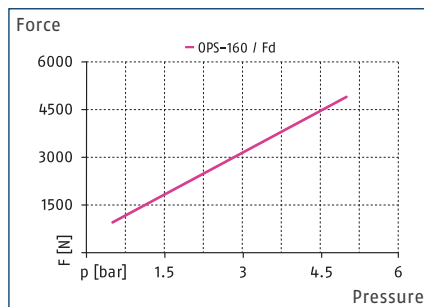
Anti-collision and overload protection sensor



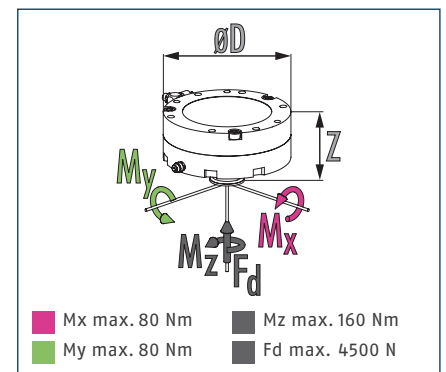
Trigger moment M_x , M_y , M_z



Triggering force F_d



Dimensions and maximum loads

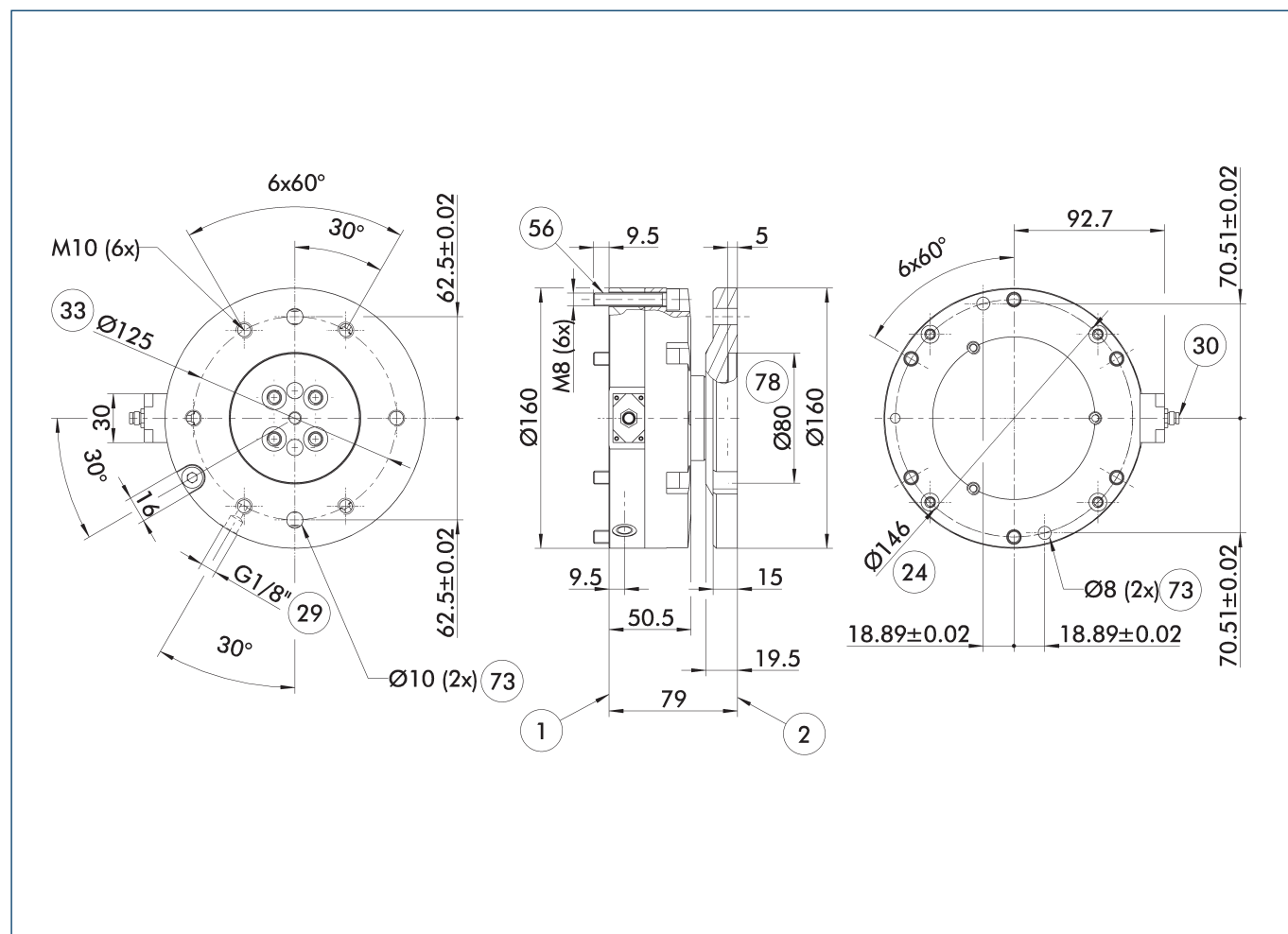


① The design of a collision sensor is defined by the occurring forces and moments in your application.

Technical data

Description		OPS-160
ID		0321135
Axial deflection	[mm]	8
Angular deflection	[°]	±5
Deflection rotatory	[°]	±360
Min. triggering moment, angular Mx, My	[Nm]	30
Supply voltage	[V]	10/30
Repeat accuracy	[mm]	±0.02
Responsiveness	[mm]	0.2
Repeat accuracy, rotary	[min]	5
Min./nom./max. operating pressure	[bar]	0.5/-/5
Weight	[kg]	4.3
Min./max. ambient temperature	[°C]	5/60
Dimensions Ø D x Z	[mm]	160 x 79

Main view



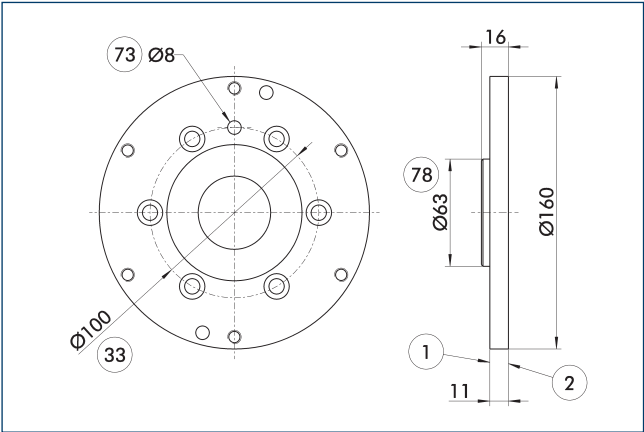
The main view shows the unit in its basic version.

- | | |
|---|--------------------------------------|
| ① Robot-side connection | ③③ DIN ISO-9409 bolt circle |
| ② Tool-side connection | ⑤⑥ Included in the scope of delivery |
| ②④ Bolt circle | ⑦③ Fit for centering pins |
| ②⑨ Air connection P | ⑦⑧ Fit for centering |
| ③① Cable connector in enclosed pack with 5 m connection cable | |

OPS 160

Anti-collision and overload protection sensor

Adapter plate ISO 9409-A100-R

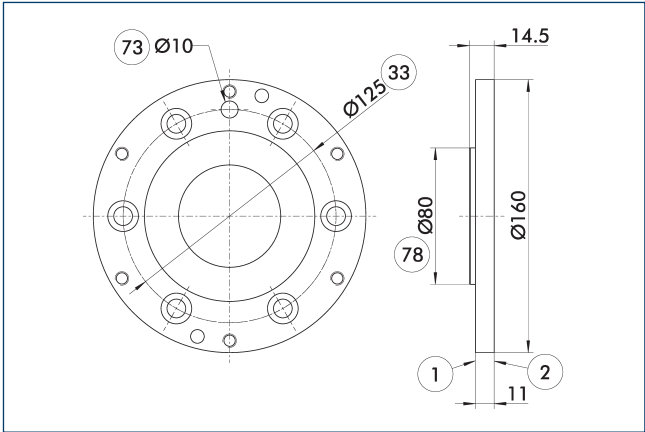


- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-100-6-M8.

Description	ID	
Robot side		
A-OPS-160-ISO-A100-R	0321224	

Adapter plate ISO 9409-A125-R



- ① Robot-side connection
- ② Tool-side connection
- ③③ DIN ISO-9409 bolt circle
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-125-6-M10.

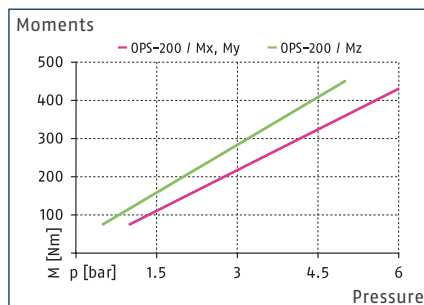
Description	ID	
Robot side		
A-OPS-160-ISO-A125-R	0321117	

OPS 200

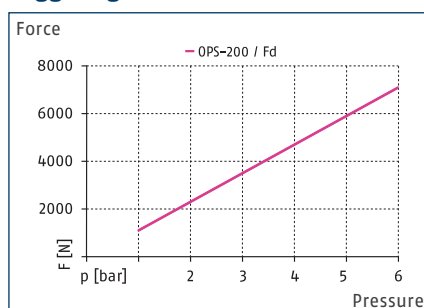
Anti-collision and overload protection sensor



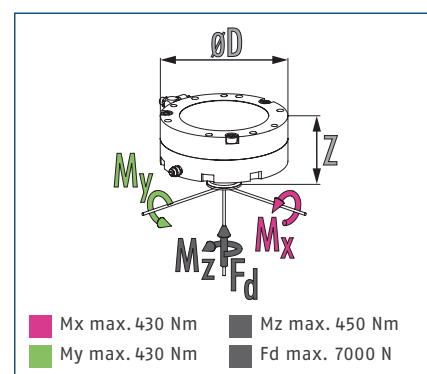
Trigger moment M_x , M_y , M_z



Triggering force F_d



Dimensions and maximum loads

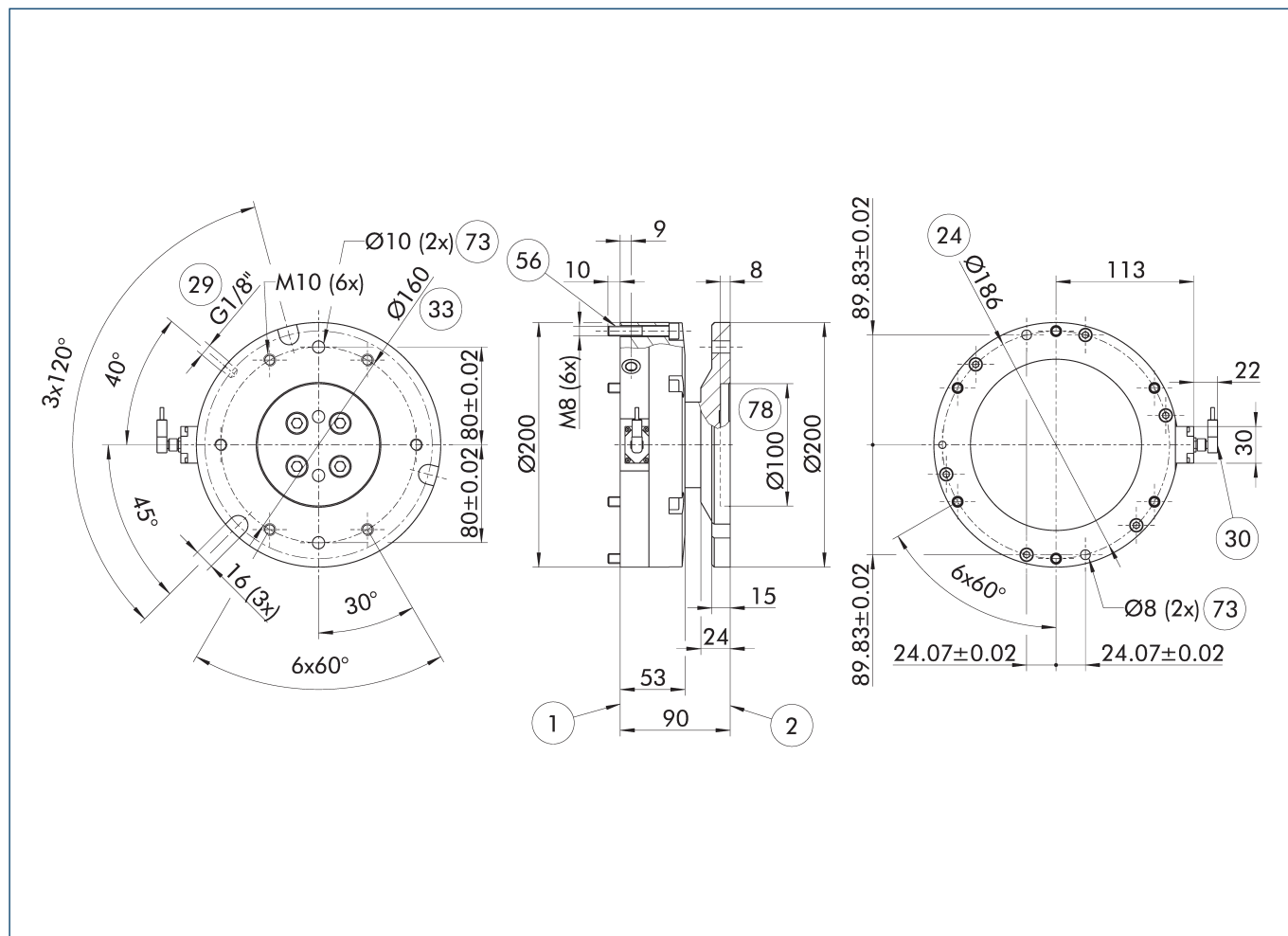


① The design of a collision sensor is defined by the occurring forces and moments in your application.

Technical data

Description		OPS-200	OPS-200-VS
ID		0321140	0321141
Axial deflection	[mm]	9.5	9.5
Angular deflection	[°]	±4	±4
Deflection rotatory	[°]	±360	45
Min. triggering moment, angular M_x, M_y	[Nm]	90	90
Supply voltage	[V]	10/30	10/30
Repeat accuracy	[mm]	±0.05	±0.05
Responsiveness	[mm]	0.3	0.3
Repeat accuracy, rotary	[min]	5	5
Min./nom./max. operating pressure	[bar]	1/-/6	1/-/6
Weight	[kg]	7	7
Min./max. ambient temperature	[°C]	5/60	5/60
Dimensions Ø D x Z	[mm]	200 x 90	200 x 90

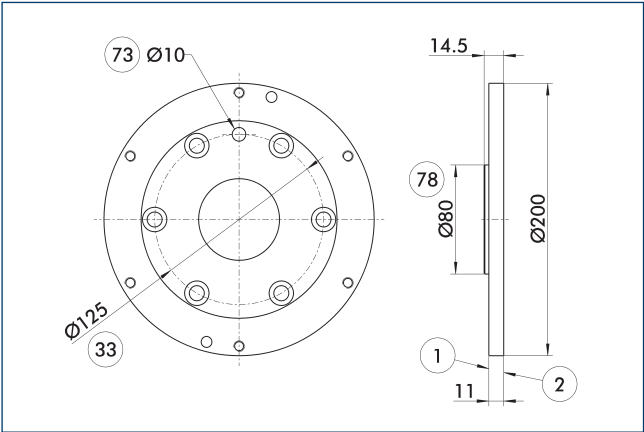
Main view



The main view shows the unit in its basic version.

- | | |
|---|--------------------------------------|
| ① Robot-side connection | ③③ DIN ISO-9409 bolt circle |
| ② Tool-side connection | ⑤⑥ Included in the scope of delivery |
| ②④ Bolt circle | ⑦③ Fit for centering pins |
| ②⑨ Air connection P | ⑦⑧ Fit for centering |
| ③① Cable connector in enclosed pack with 5 m connection cable | |

Adapter plate ISO 9409-A125-R



- 1 Robot-side connection

2 Tool-side connection

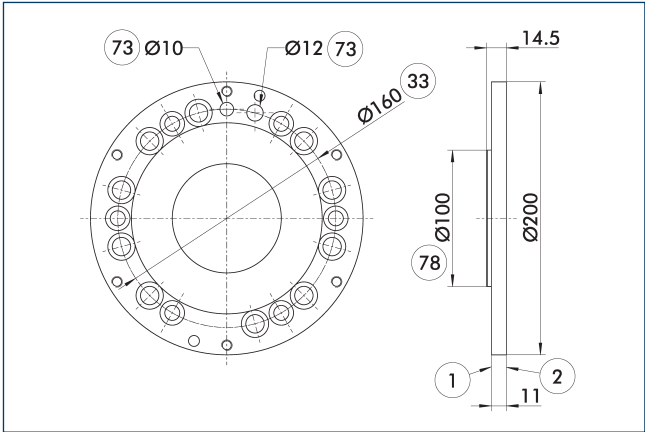
33 DIN ISO-9409 bolt circle
- 73 Fit for centering pins

78 Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-125-6-M10.

Description	ID	
Robot side		
A-OPS-200-ISO-A125-R	0321126	

Adapter plate ISO 9409-A160-R



- 1 Robot-side connection

2 Tool-side connection

33 DIN ISO-9409 bolt circle
- 73 Fit for centering pins

78 Fit for centering

Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-160-6-M10 and ISO 9409-160-10-M12.

Description	ID	
Robot side		
A-OPS-200-ISO-A160-R	0321118	



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