
Superior Clamping and Gripping

SCHUNK®

# Product data sheet

## Anti-collision and overload protection sensor OPS

# Compliant. Highly responsive. Easy monitoring.

# Collision and overload sensor OPS

for control of robots and handling units in the event of a collisionsor 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

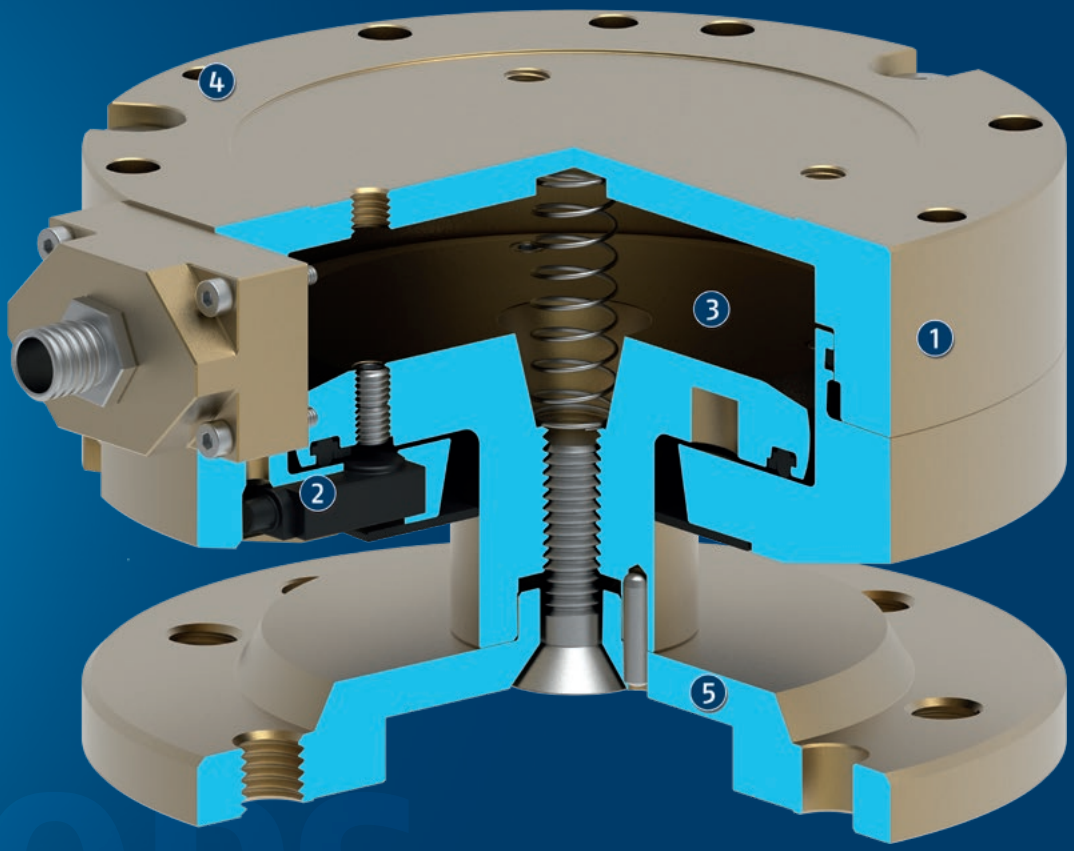
**Integrated monitoring** for signal transmission without delay in case of collisions so that the robot can be stopped immediately

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

| Sizes | Triggering force Fd | Trigger moment Mx | Trigger moment My | Trigger moment Mz |
|---|---|---|---|---|
| Quantity: 4 | 500 .. 7000 N | 7.5 .. 430 Nm | 7.5 .. 430 Nm | 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

# OPS

Anti-collision and overload protection sensor

## 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.

1. 2-finger parallel gripper PFH-mini with workpiece-specific gripper fingers
2. Collision sensor OPS

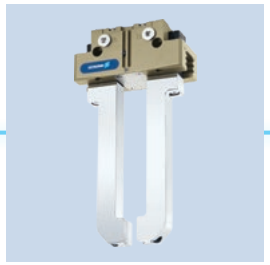
## SCHUNK offers more ...

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

Quick change system

Manual change system

Rotary feed-through



Universal gripper

Universal gripper

Angular gripper

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

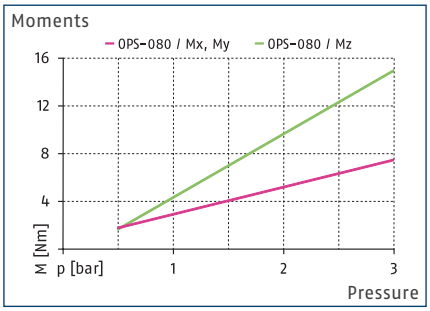
## Options and special information

**Anti-rotation protection:** The VS variant limits the rotational deflection to ± 45°.
**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.

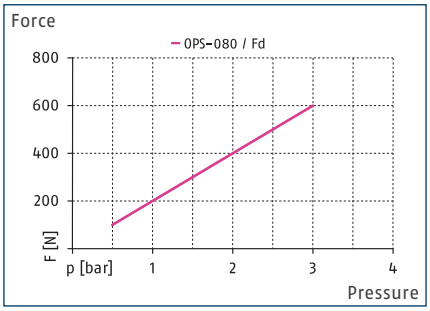
# OPS 080

Anti-collision and overload protection sensor

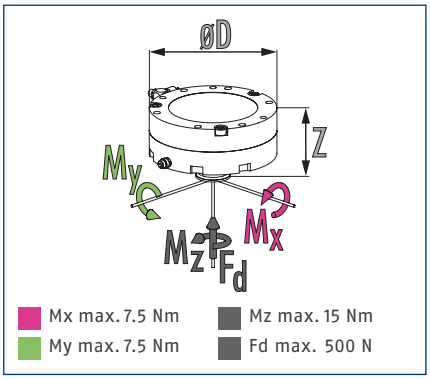

## Trigger moment $M_x$, $M_y$, $M_z$




## Triggering force $F^d$




## Dimensions and maximum loads

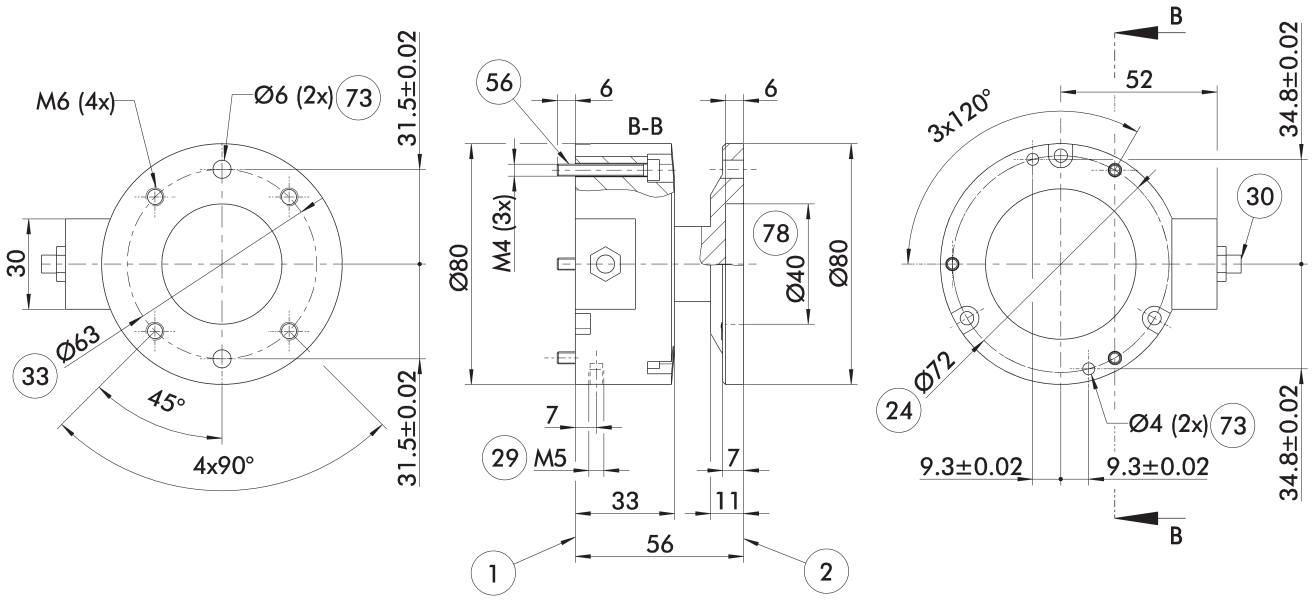



ⓘ The design of a collision sensor is defined by the occuring forces and moments in your application.

## 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



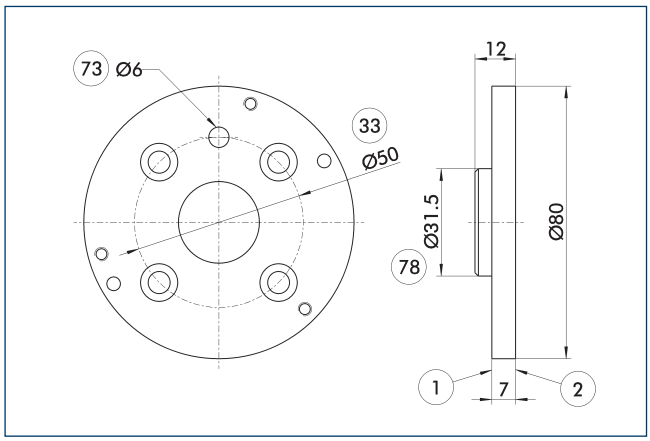

The main view shows the unit in its basic version.

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

# OPS 080

Anti-collision and overload protection sensor

## Adapter plate ISO 9409-A50-R

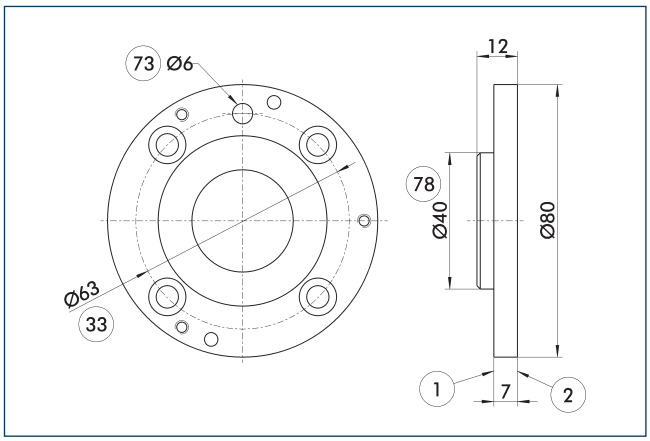



(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

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

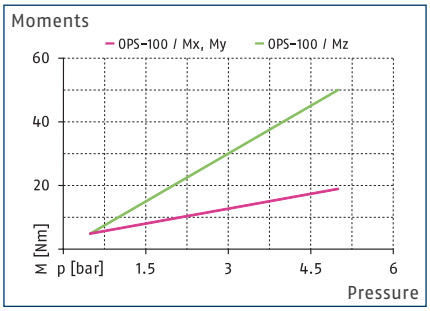
Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-63-4-M6.

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

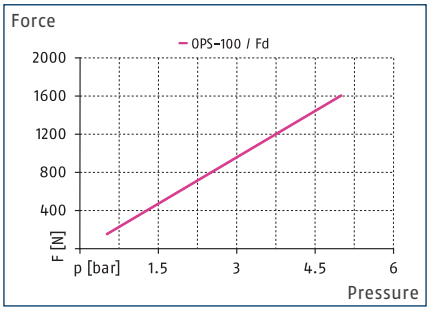
# OPS 100

Anti-collision and overload protection sensor

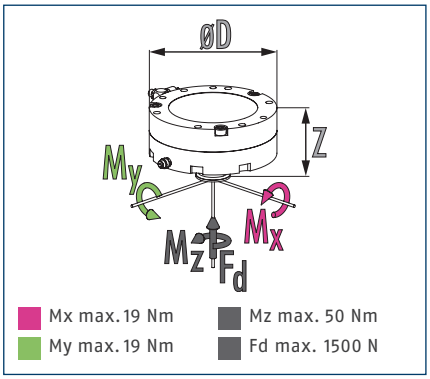

## Trigger moment $M_x$, $M_y$, $M_z$




## Triggering force $F^d$




## Dimensions and maximum loads

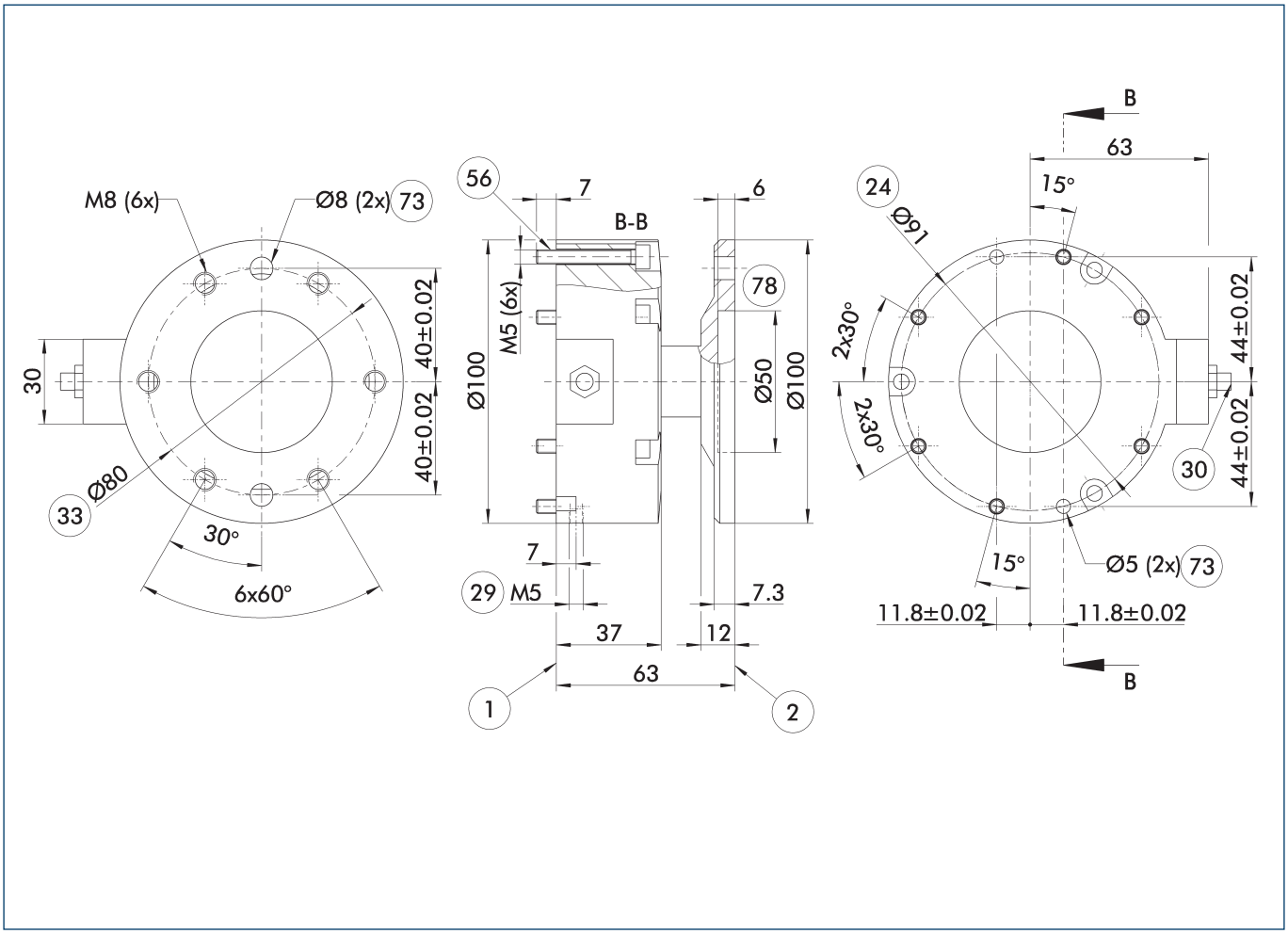



ⓘ The design of a collision sensor is defined by the occuring forces and moments in your application.

## Technical data

| Description | | OPS-100 |
|---|---|---|
| ID | | 0321130 |
| Axial deflection | [mm] | 14 |
| Angular deflection | [°] | ±12 |
| Deflection rotatory | [°] | ±360 |
| Min. triggering moment, angular Mx, My | [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



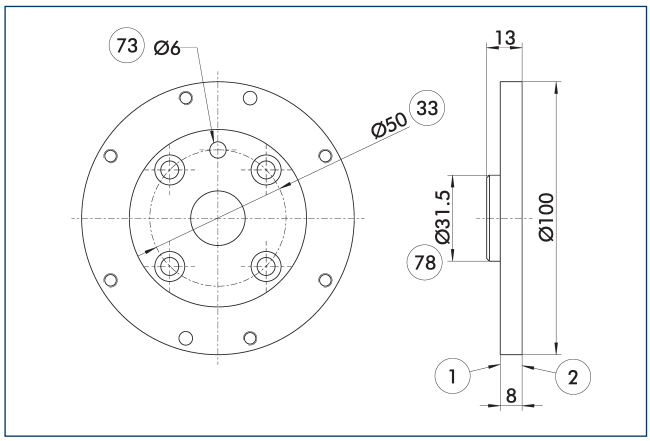

The main view shows the unit in its basic version.

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

# OPS 100

Anti-collision and overload protection sensor

## Adapter plate ISO 9409-A50-R

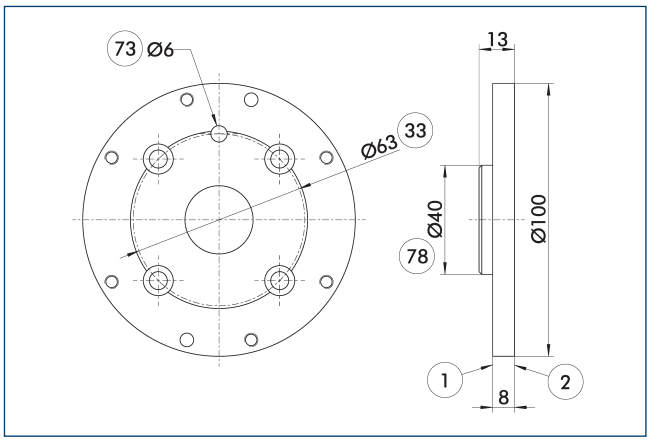



(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

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

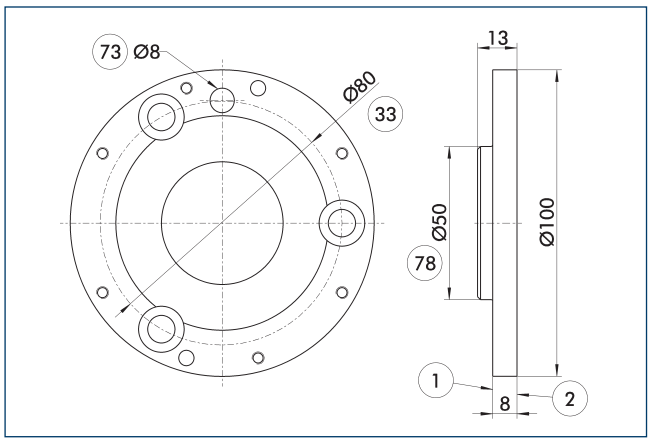



(1) Robot-side connection
(2) Tool-side connection
(33) DIN ISO-9409 bolt circle
(73) Fit for centering pins
(78) Fit for centering

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

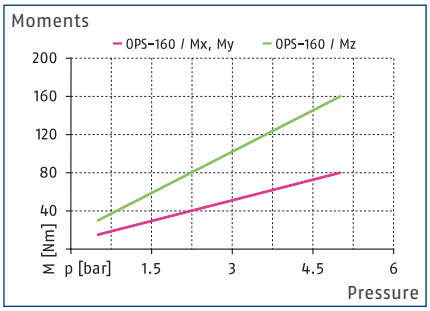
Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-80-6-M8.

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

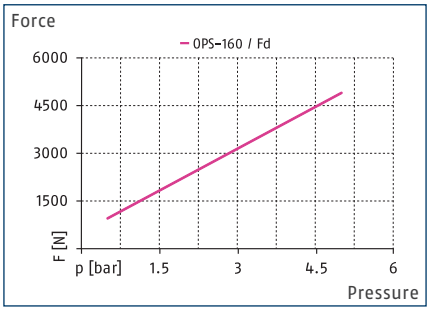
# OPS 160

Anti-collision and overload protection sensor

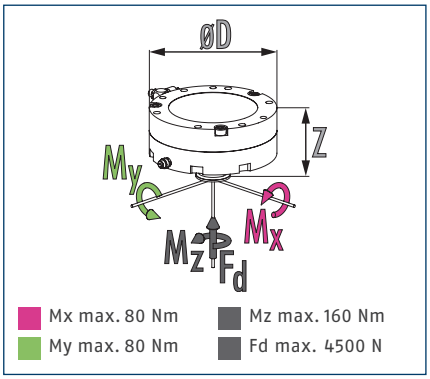
## Trigger moment $M_x$, $M_y$, $M_z$




## Triggering force $F^d$




## Dimensions and maximum loads

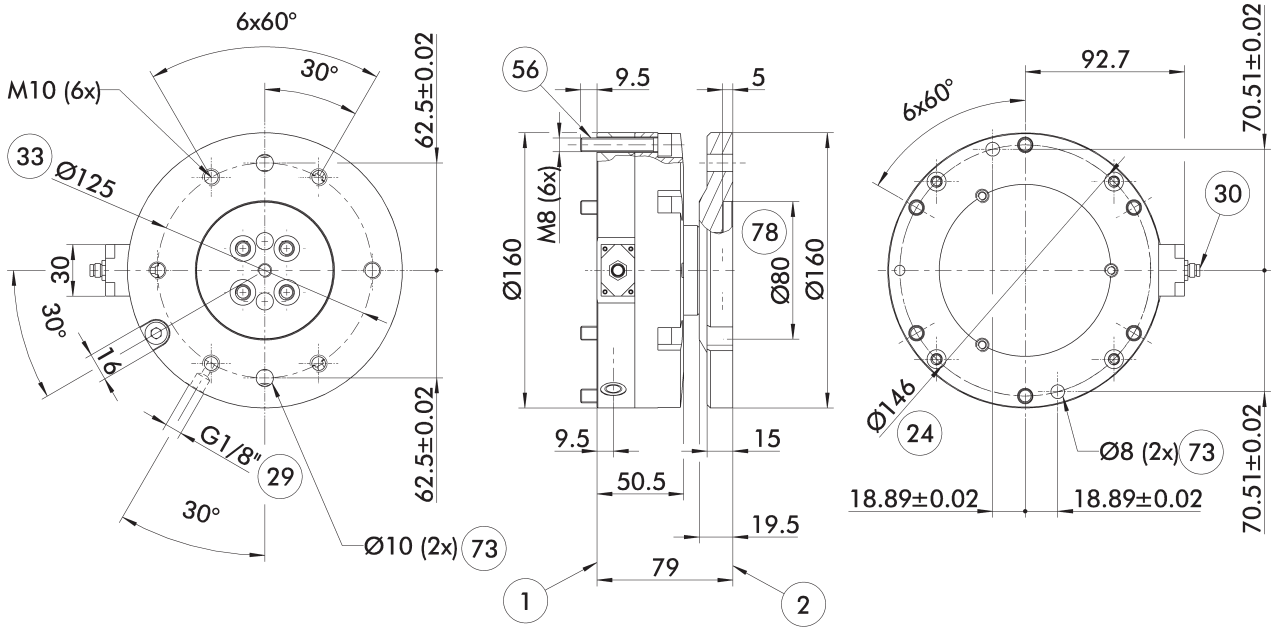



ⓘ The design of a collision sensor is defined by the occuring forces and moments in your application.

## 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



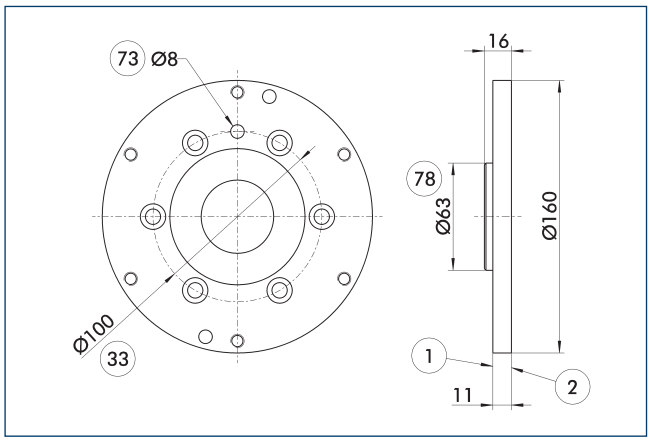

The main view shows the unit in its basic version.

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

# OPS 160

Anti-collision and overload protection sensor

## Adapter plate ISO 9409-A100-R

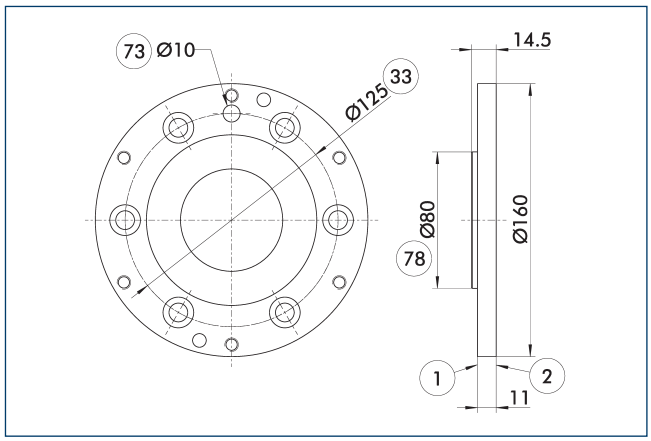



1 Robot-side connection
2 Tool-side connection
33 DIN ISO-9409 bolt circle
73 Fit for centering pins
78 Fit for centering

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

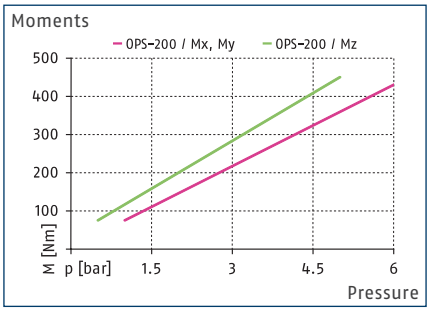
Robot-side adapter plate to mount the OPS to a mounting pattern according to ISO 9409-125-6-M10.

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

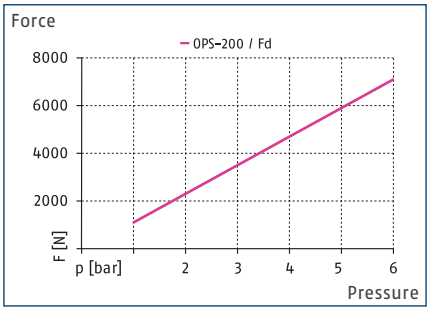
# OPS 200

Anti-collision and overload protection sensor

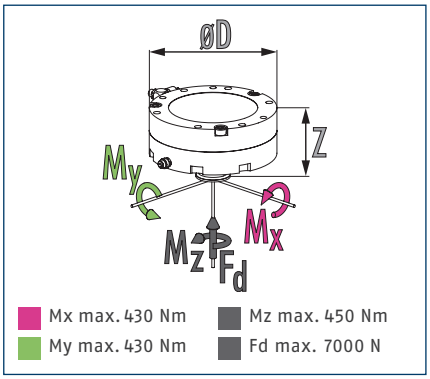
## Trigger moment $M_x$, $M_y$, $M_z$




## Triggering force $F^d$




## Dimensions and maximum loads

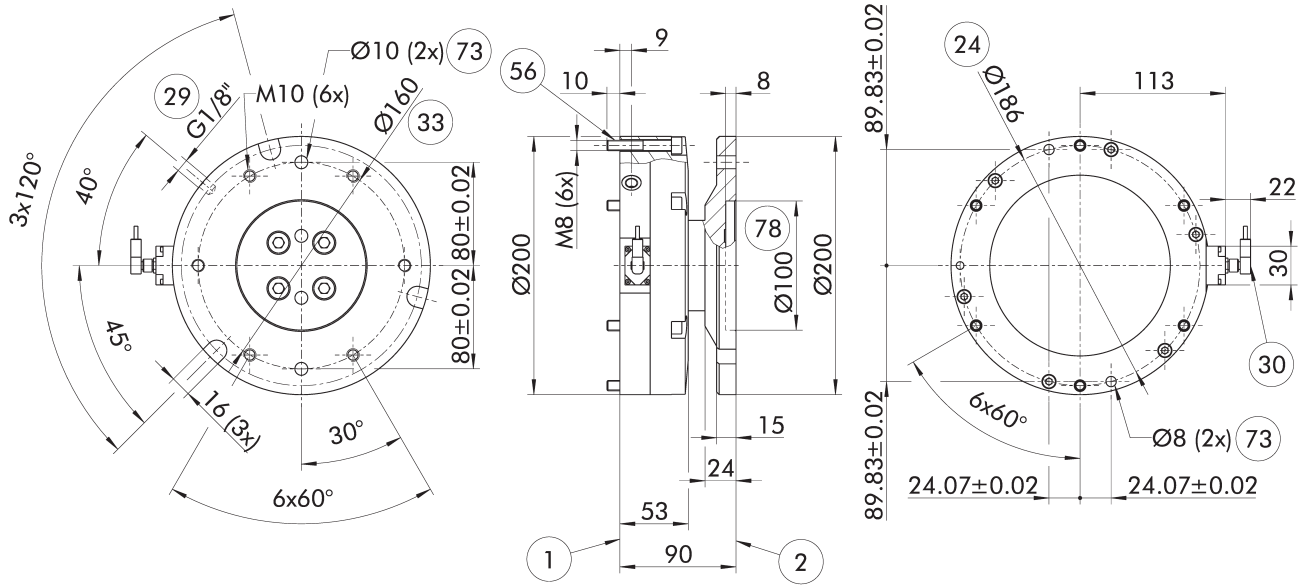



ⓘ The design of a collision sensor is defined by the occuring forces and moments in your application.

## 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 Mx, My | [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



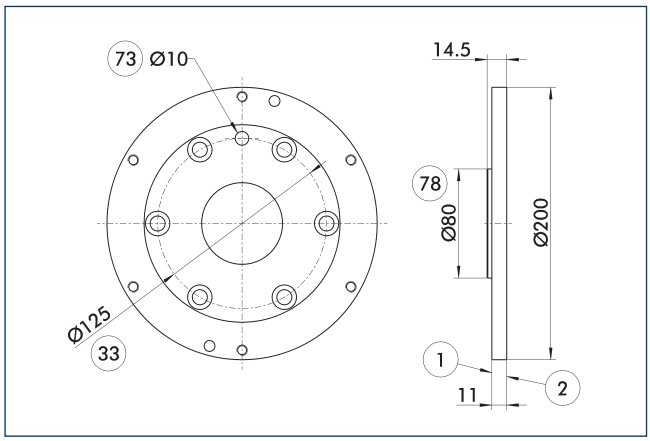

The main view shows the unit in its basic version.

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

# OPS 200

Anti-collision and overload protection sensor

## Adapter plate ISO 9409-A125-R

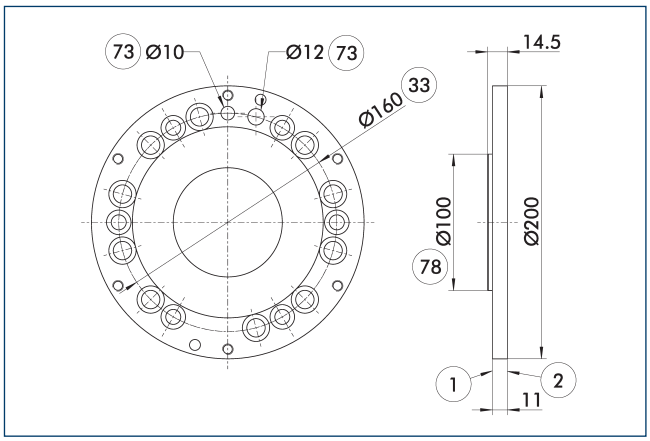



1 Robot-side connection
2 Tool-side connection
33 DIN ISO-9409 bolt circle
73 Fit for centering pins
78 Fit for centering

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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**Spann- und Greiftechnik**

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