

# 2-JAW PARALLEL GRIPPERS

## SERIES GP400

### ▶ PRODUCT ADVANTAGES



#### “The economical”

##### ▶ Concentration on the essentials

The most economic type of gripping: This is how you reduce your production costs









##### ▶ Proven T slot guide

This established and proven guiding technology stands for the highest process reliability like no other

##### ▶ Compact structure

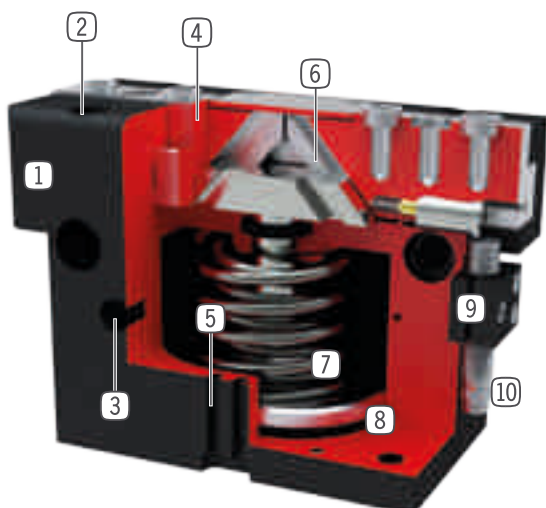
Reduces the interference contours for your application

### ▶ SERIES CHARACTERISTICS

| Installation size   | Version |    |    |   |    |    |
|---|---------|----|----|---|----|----|
| GP4XX   | N       | NC | NO | S | SC | SO |
|  Spring closing C                          |         | •  |    |   | •  |    |
|  Spring opening O                          |         |    | •  |   |    | •  |
|  High-strength S                           |         |    |    | • | •  | •  |
|  10 million maintenance-free cycles (max.) | •       | •  | •  | • | •  | •  |
|  Inductive sensor                          | •       | •  | •  | • | •  | •  |
|  Magnetic field sensor                     | •       | •  | •  | • | •  | •  |
|  Purged air                                | •       | •  | •  | • | •  | •  |
|  IP 40                                     | •       | •  | •  | • | •  | •  |



## ► BENEFITS IN DETAIL



- ① **Robust, lightweight housing**  
- Hard-coated aluminum alloy
- ② **Mounting and positioning**  
- mounting possible from several sides for versatile positioning
- ③ **Energy supply**  
- possible from several sides
- ④ **Gripper jaw**  
- individual gripper finger mounting
- ⑤ **Sensing slot**  
- mounting and positioning of magnetic field sensors
- ⑥ **Wedge hook mechanism**  
- synchronized the movement of the gripper jaws
- ⑦ **Integrated gripping force safety device**  
- spring integrated into cylinder as energy storage
- ⑧ **Position sensing**  
- permanent magnet for direct monitoring of piston movement
- ⑨ **Mounting block**  
- mounting for inductive proximity switch (10)

## ► TECHNICAL DATA

| Installation size | Stroke per jaw [mm] | Gripping force [N] | Weight [kg] | IP class |
|-------------------|---------------------|--------------------|-------------|----------|
| GP403             | 3                   | 85 - 115           | 0,08 - 0,1  | IP40     |
| GP404             | 2 - 4               | 170 - 500          | 0,14 - 0,16 | IP40     |
| GP406             | 3 - 6               | 300 - 950          | 0,27 - 0,32 | IP40     |
| GP408             | 4 - 8               | 550 - 1660         | 0,5 - 0,57  | IP40     |
| GP410             | 5 - 10              | 740 - 2340         | 0,85 - 1    | IP40     |
| GP412             | 6 - 12              | 1290 - 4130        | 1,5 - 1,78  | IP40     |
| GP416             | 8 - 16              | 1860 - 5780        | 2,9 - 3,4   | IP40     |
| GP420             | 10 - 20             | 3175 - 9400        | 5,5 - 6,7   | IP40     |
| GP430             | 15 - 30             | 6675 - 19275       | 14 - 18,9   | IP40     |

## ► FURTHER INFORMATION IS AVAILABLE ONLINE



All information just a click away at: [www.zimmer-group.com](http://www.zimmer-group.com). Find data, illustrations, 3D models and operating instructions for your installation size using the order number for your desired product. Quick, clear and always up-to-date.

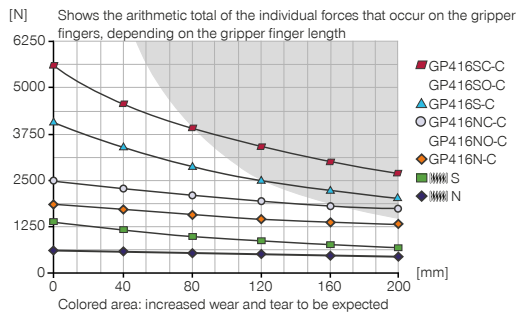
# 2-JAW PARALLEL GRIPPERS

## INSTALLATION SIZE GP416

### ▶ PRODUCT SPECIFICATIONS



#### ▶ Gripping force diagram



#### ▶ Forces and moments

Displays static forces and moments that can also have an effect, besides the gripping force.



|         |      |
|---------|------|
| Mr [Nm] | 140  |
| Mx [Nm] | 160  |
| My [Nm] | 180  |
| Fa [N]  | 5000 |

### ▶ INCLUDED IN DELIVERY



2 [piece]  
Mounting block  
KB8K



4 [piece]  
Centering Disc  
DST41600

### ▶ RECOMMENDED ACCESSORIES



#### GRIPPING COMPONENTS



**UB416**  
Universal jaw set aluminium



**UB416ST**  
Universal jaw set steel



#### SENSORS



**KHA416-B-8**  
Alternate proximity bracket



**MFS01-S-KHC-P1-PNP**  
Magnetic field sensor angled, cable 0.3 m - M8 connector



**MFS02-S-KHC-P1-PNP**  
Magnetic field sensor straight, cable 0.3 m - M8 connector



**MFS01-S-KHC-P2-PNP**  
2-point sensor angled, cable 0.3 m - M8 connector



**MFS02-S-KHC-P2-PNP**  
2-point sensor straight, cable 0.3 m - M8 connector



#### ENERGY SUPPLY



**GV1-8X8**  
Straight Fittings - Quick Connect Style



**WV1-8X8**  
Angled Fittings - Quick Connect Style



**DSV1-8**  
Pressure safety valve



**DSV1-8E**  
Pressure safety valve with quick exhaust

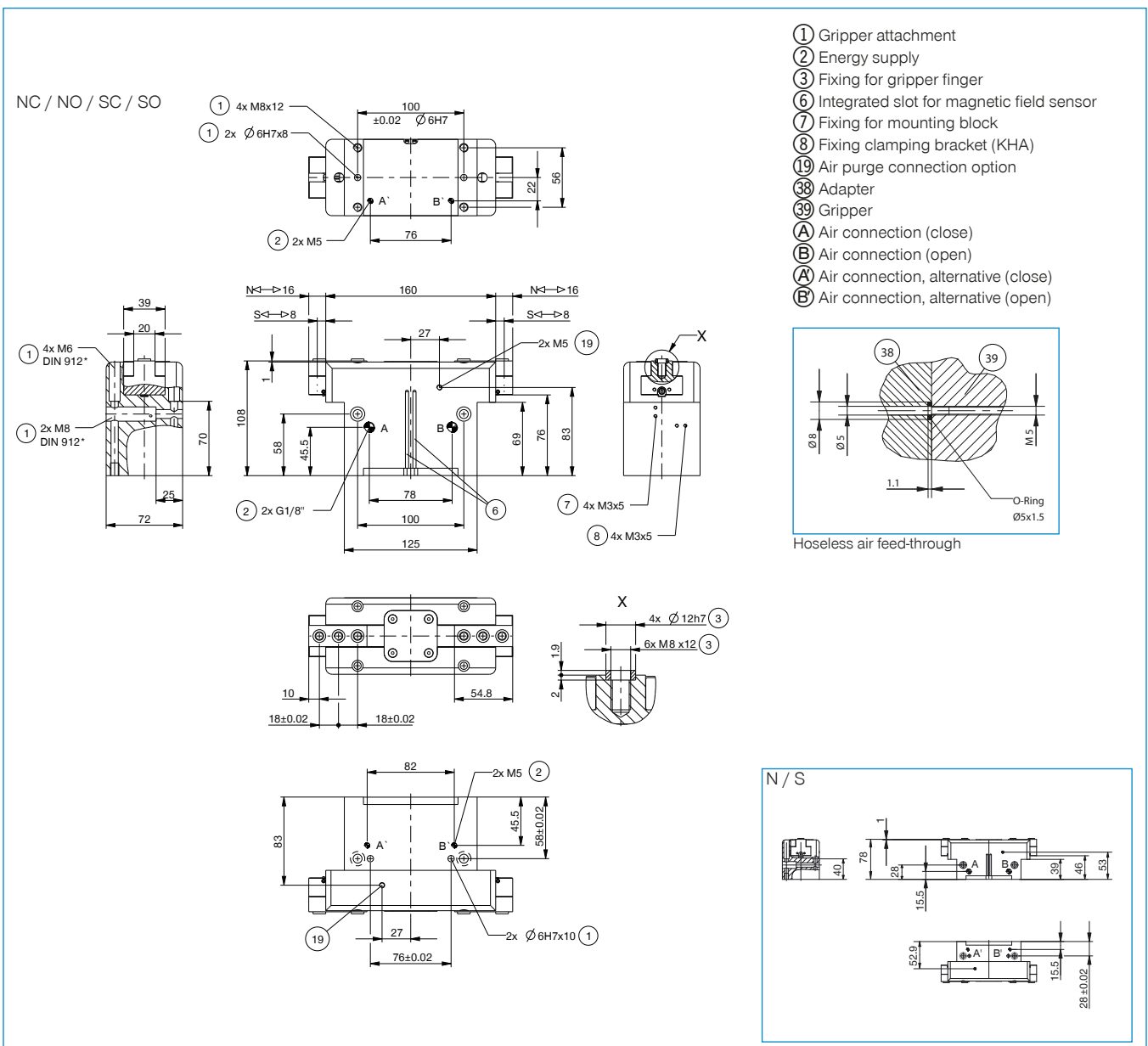


#### CONNECTIONS / OTHER



**KAG500**  
Plug-in connector Straight Cable 5m - Socket M8 (female)

| Order no.                                     | ► Technical data |           |           |          |           |           |
|---|------------------|-----------|-----------|----------|-----------|-----------|
|   | GP416N-C         | GP416NC-C | GP416NO-C | GP416S-C | GP416SC-C | GP416SO-C |
| Stroke per jaw [mm]                           | 16               | 16        | 16        | 8        | 8         | 8         |
| Gripping force in closing [N]                 | 1860             | 2490      |           | 4160     | 5560      |           |
| Gripping force in opening [N]                 | 1960             |           | 2590      | 4390     |           | 5780      |
| Gripping force secured by spring min. [N]     |                  | 630       | 630       |          | 1400      | 1400      |
| Closing time [s]                              | 0.2              | 0.15      | 0.25      | 0.2      | 0.15      | 0.25      |
| Opening time [s]                              | 0.2              | 0.25      | 0.15      | 0.2      | 0.25      | 0.15      |
| Repetition accuracy +/- [mm]                  | 0.01             | 0.01      | 0.01      | 0.01     | 0.01      | 0.01      |
| Operating pressure min. [bar]                 | 3                | 4         | 4         | 3        | 4         | 4         |
| Operating pressure max. [bar]                 | 8                | 8         | 8         | 8        | 8         | 8         |
| Nominal operating pressure [bar]              | 6                | 6         | 6         | 6        | 6         | 6         |
| Max. operating pressure for sealing air [bar] | 0.5              | 0.5       | 0.5       | 0.5      | 0.5       | 0.5       |
| Operating temperature min. [°C]               | 5                | 5         | 5         | 5        | 5         | 5         |
| Operating temperature max. [°C]               | +80              | +80       | +80       | +80      | +80       | +80       |
| Air volume per cycle [cm <sup>3</sup> ]       | 268              | 477       | 477       | 268      | 477       | 477       |
| Weight [kg]                                   | 2.9              | 3.4       | 3.4       | 2.9      | 3.4       | 3.4       |

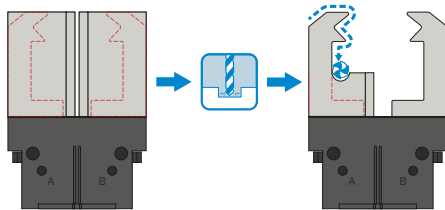


# 2-JAW PARALLEL GRIPPERS

## SERIES GP400 FUNCTIONAL DESCRIPTION



### GRIPPING COMPONENTS



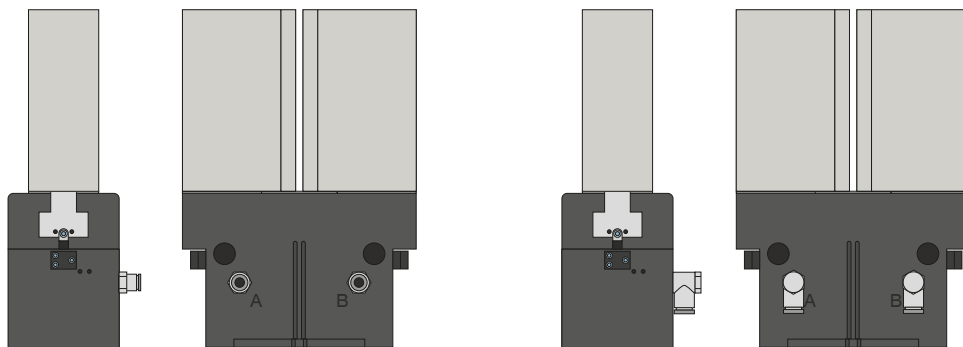
#### Universal jaws – UB400

Can be used immediately or for individual reprocessing

The gripper blanks are available in an aluminum (AL) and also in a steel (ST) version and are installed directly on the gripper using the screws in the scope of delivery. The fits for the centering sleeves are already in place for this purpose. One universal jaw set is required for each gripper.



### ENERGY SUPPLY

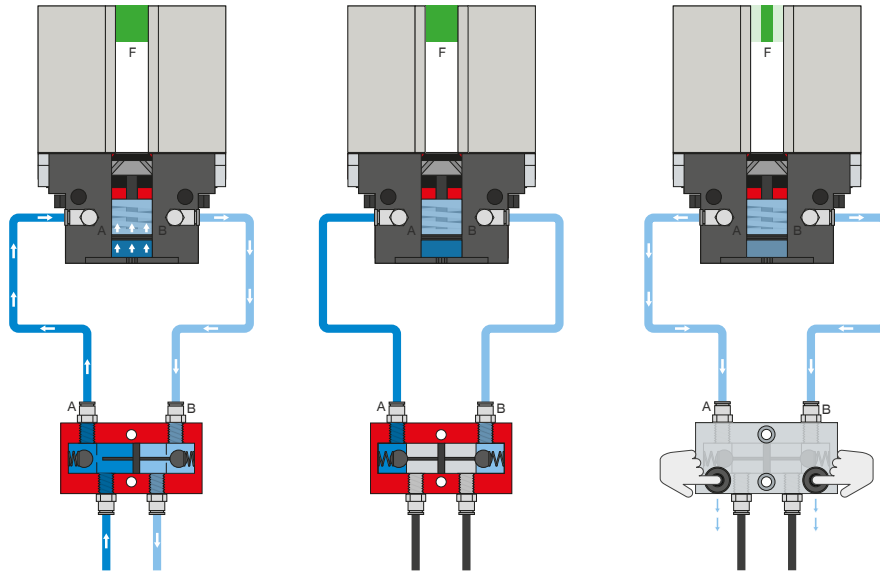


#### Pneumatic threaded connections

Available in straight and angled design. Can be chosen freely depending on the space conditions or installation situation.



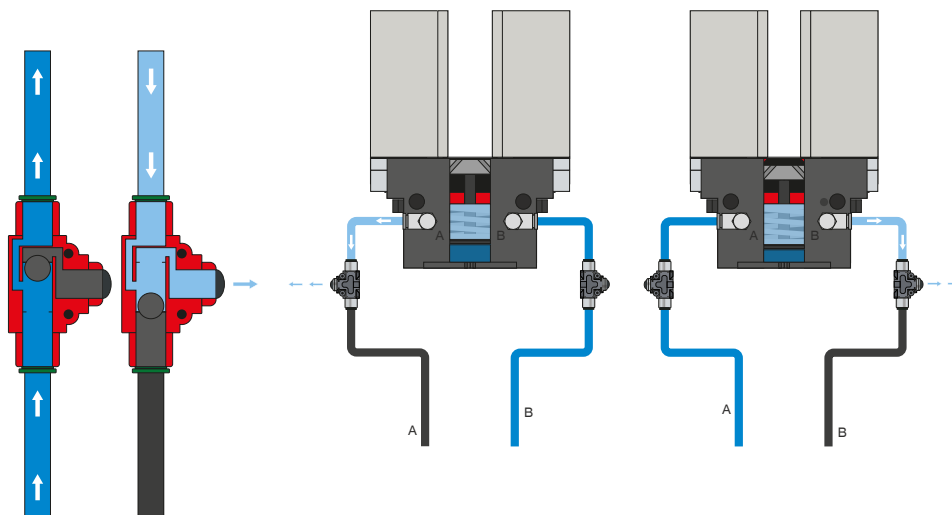
## ENERGY SUPPLY



### Pressure safety valve – DSV

Ensures safe retention of force and position if the system pressure drops

The integrated double check valve, which can be unlocked, retains the system pressure of the gripper in case of EMERGENCY STOP. To ensure the function, the valve must be installed as close to the gripper's air connection as possible. In variant E, two pushbuttons are installed that allow for controlled bleeding of the gripper.



### Quick exhaust valve – DEV

For rapid bleeding of the compressed air and preventing back pressure

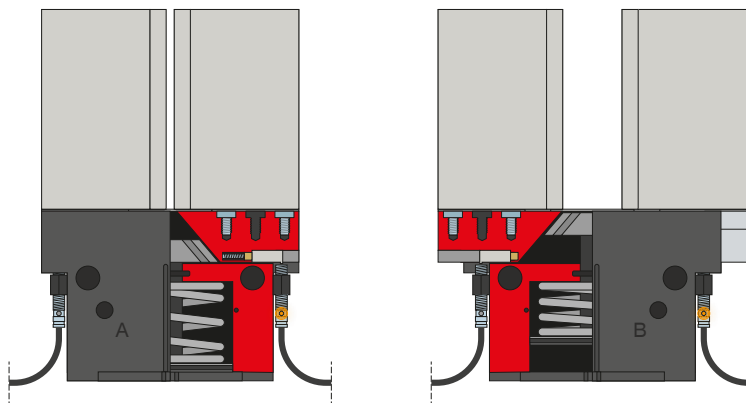
The inline valves make a faster cycle time possible and prevent the formation of condensate in grippers with a small cylinder volume. To ensure the function, the valve must be installed as close to the gripper's air connection as possible.

# 2-JAW PARALLEL GRIPPERS

## SERIES GP400 FUNCTIONAL DESCRIPTION

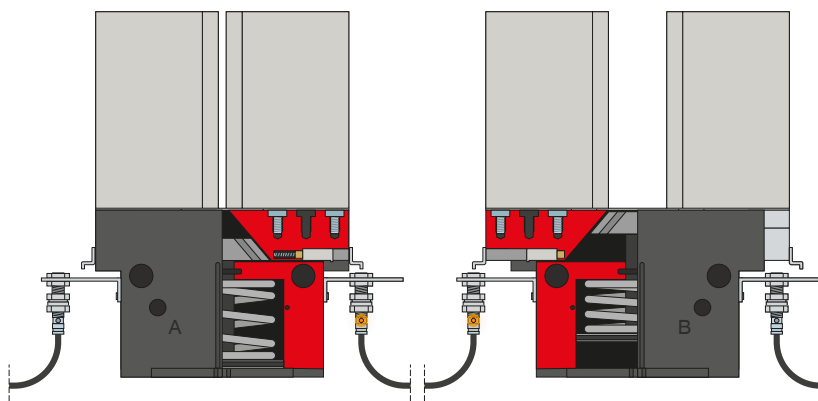


### SENSORS



#### Inductive sensors – NJ

The sensor is inserted into the mounting block as far as it will go and secured. Tuning to the desired position then takes place by adjusting the cam switch. The sensors are available in versions with 5 m cables with exposed leads and 0,3 m cable with connector, as well as with direct plug orientation.



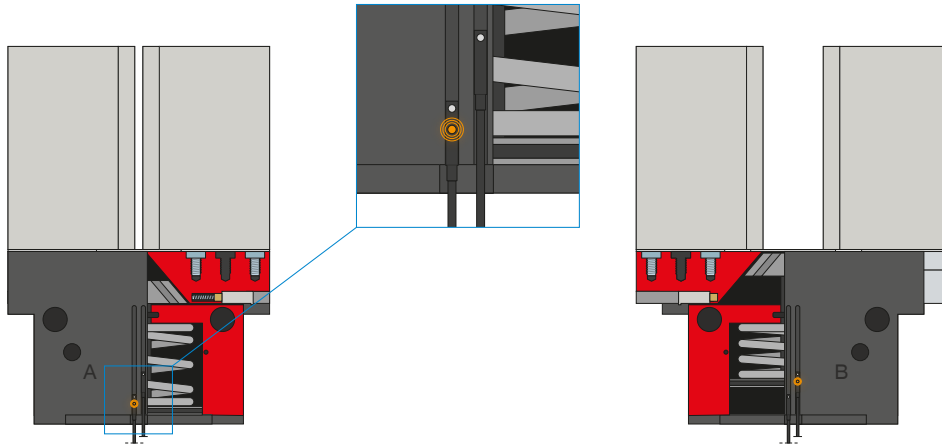
#### Clamping bracket – KHA

The KHA can be used as an alternative to installing the sensor via the mounting block. The sensor is inserted into the clamping bracket as far as it will go and secured. Tuning to the cam switch then takes place. Fine adjustment can be made by moving the clamping bracket again.

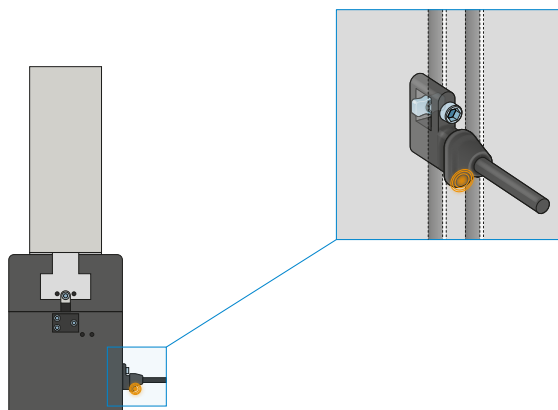


## SENSORS

MFS02



MFS01



### 1-point magnetic field sensors – MFS

#### For non-contact sensing of the piston position

These sensors are installed in the C-groove of the gripper and detect the magnet attached to the piston of the gripper. To ensure use in a wide variety of space conditions, the sensors are available in two variants. While the horizontal MFS02, with straight cable outlet, disappears into the C-groove of the gripper almost completely, the vertical MFS01 is taller, but has a cable outlet that is offset at an angle of 90°. The variants are available in versions with 5 m cables with exposed leads and 0,3 m cable with connector.

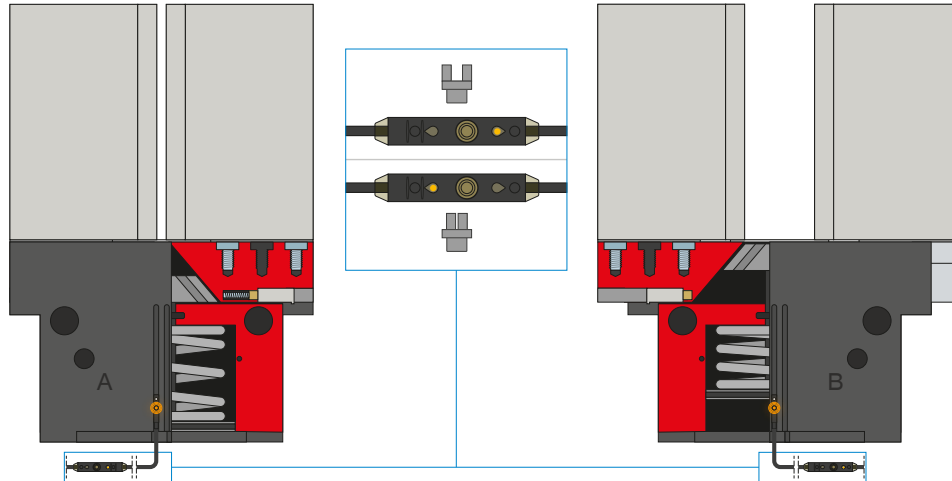


# 2-JAW PARALLEL GRIPPERS

## SERIES GP400 FUNCTIONAL DESCRIPTION



### SENSORS



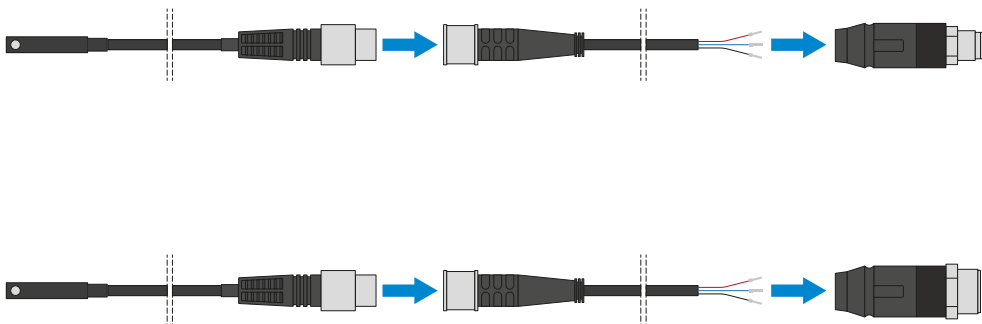
#### 2-point magnetic field sensors - MFS

With two freely programmable switching points

Using the programming unit integrated in the cable, two switch points can be freely defined for this sensor. To do so, the sensor is clamped in the C-groove, the gripper approaches position one and the position is taught in using the teach button. Afterwards, the second position is approached with the gripper and programmed. To ensure use in a wide variety of space conditions, the sensors are available in two variants. While the horizontal MFS02, with straight cable outlet, disappears into the C-groove of the gripper almost completely, the vertical MFS01 is taller, but has a cable outlet that is offset at an angle of 90°. The sensors are available in versions with 5 m cables with exposed leads and 0,3 m cable with connector.



### CONNECTIONS / OTHER



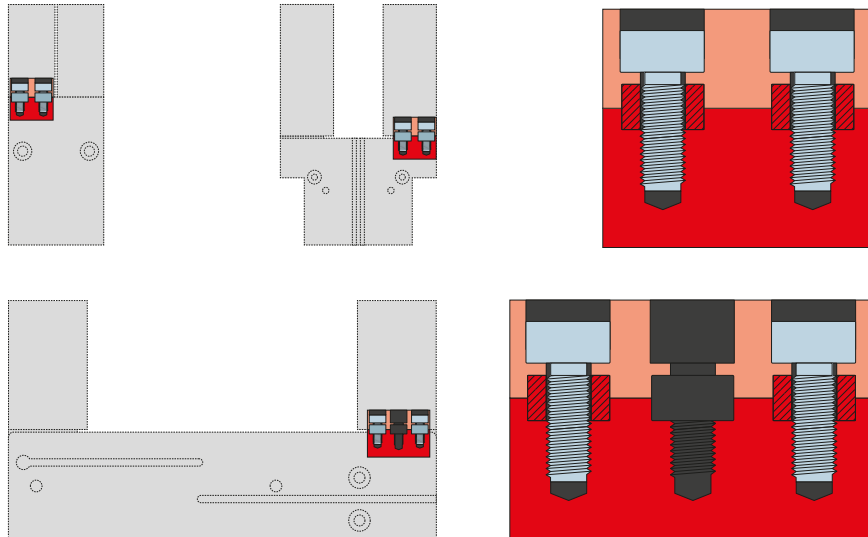
#### Plug-in connectors

For extending and fabricating the connection lines for the sensors

Cables with a length of 5 m with exposed leads are available. Depending on the specific needs, the cables can be shortened or fabricated with connectors in sizes M8 and M12.



## CONNECTIONS / OTHER



### Centering sleeves

#### For defined position measurement of the gripper fingers

The centering sleeves are inserted into the fits of the gripper jaws to define the position of the gripper fingers. The centering sleeves are comparable to a pin connection.