PFH

Sizes
30 .. 50

Weight
2.65 kg .. 9.7 kg

Gripping force
510 N .. 2650 N

Stroke per finger
30 mm .. 50 mm

Workpiece weight
2.55 kg .. 11.5 kg

Application example

Assembly unit for intermediate sleeves in various diameters. The unit has collision protection to prevent damages.

1 PFH 30 2-Finger Parallel Gripper with workpiece-specific gripper fingers

2 OPS 100 collision and overload protection

Long-stroke Gripper

2-Finger parallel gripper with long jaw stroke for large parts and/or a broad range of parts

Area of application

Clean to slightly dirty environments

Your advantages and benefits

Robust guidance
for the precise handling of all kinds of workpieces

High moment capabilities
suitable for the use of long gripper fingers

Rack and pinion principle
for centric gripping

Mounting from two sides in three screw-on directions
for universal and flexible gripper assembly

Air supply via hose-free direct connection or screw connections
for the flexible supply of compressed air in all automation systems

General information on the series

Working principle
Pneumatic double piston system synchronized by rack and pinion principle

Housing material
Aluminum alloy, hard-anodized

Base jaw material
Steel

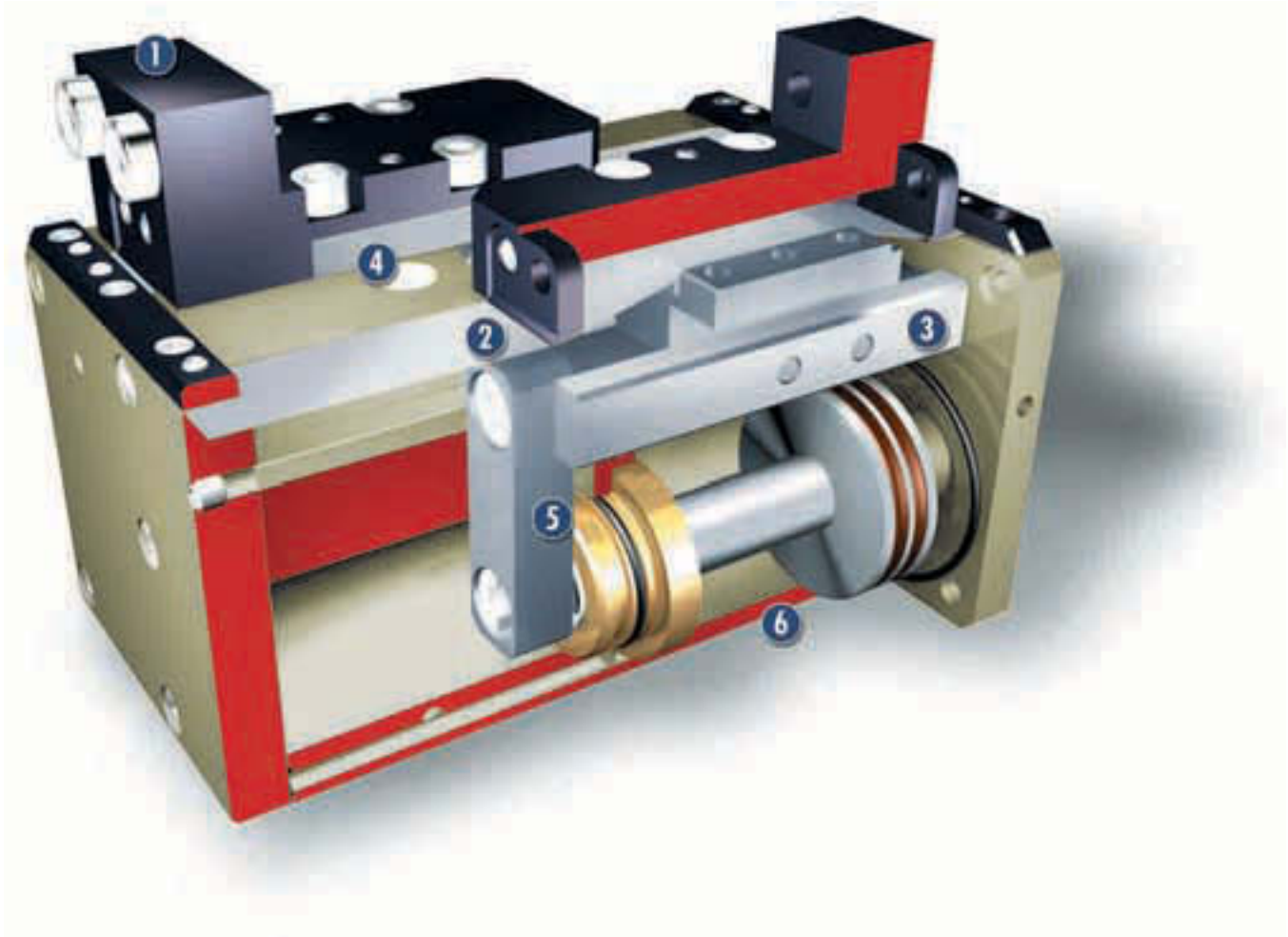
Actuation
Pneumatic, with filtered compressed air (10 µm): Dry, lubricated or non-lubricated
Pressure medium: Required quality class of compressed air according to DIN ISO 8573-1: Quality class 4

Warranty
24 months

Scope of delivery
Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

Maintenance of gripping force
possible with SDV-P pressure maintenance valve

Sectional diagram



1 **Base jaws**
for the connection of workpiece-specific gripper fingers

2 **Dirt cover**
protects against rough contamination along the entire length of the guide

3 **Guidance**
for precise gripping with minimum play and high load capacity

4 **Centering and mounting possibilities**
for universal gripper mounting

5 **Kinematics**
rack and pinion principle for centric gripping

6 **Housing**
weight-reduced through the use of a hard-anodized, high-strength aluminum alloy

Function description

The application of pressure on the opposite piston sets the base jaws, each of which is guided by a carrier on the piston, in motion. The jaw stroke is synchronized by means of rack and pinion kinematics.

Options and special information

Gripper with guide cover
to protect against rough contamination. Gripper available on request as a special unit with double stroke but with the same gripping forces.

Accessories

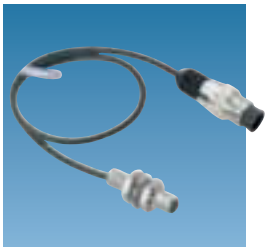
SCHUNK accessories – the suitable complement for the highest level of functionality, reliability and controlled production of all automation modules.

Centering sleeves

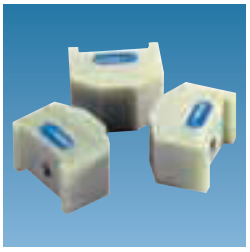
Fittings

MMS magnetic switch

IN inductive proximity switches

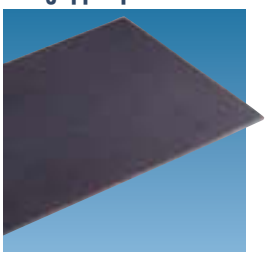


Quentes plastic inserts



W/WK/KV/GK sensor cables

HKI gripper pads

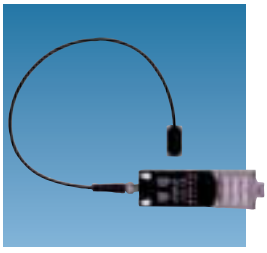


V sensor distributors

SDV-P pressure maintenance valves

Finger blanks

FPS flexible position sensor



ⓘ For the exact size of the required accessories, availability of this size and the designation and ID, please refer to the additional views at the end of the size in question. You can find more detailed information on our accessory range in the "Accessories" catalog section.

General information on the series

Gripping force

is the arithmetic total of the gripping force applied to each base jaw at distance P (see illustration), measured from the upper edge of the gripper.

Finger length

is measured from the upper edge of the gripper housing in the direction of the main axis.

Repeat accuracy

is defined as the spread of the limit position after 100 consecutive strokes.

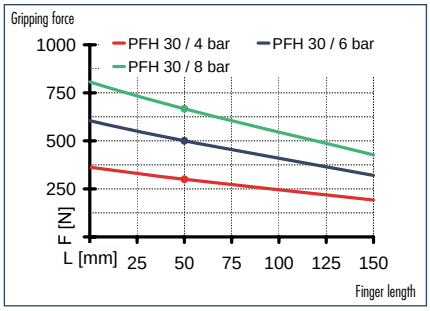
Workpiece weight

The recommended workpiece weight is calculated for a force-type connection with a coefficient of friction of 0.1 and a safety factor of 2 against slippage of the workpiece on acceleration due to gravity g. Considerably heavier workpiece weights are permitted with form-fit clamping.

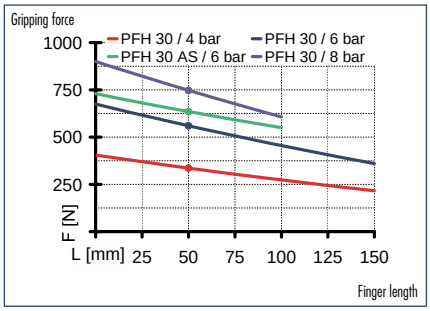
Closing and opening times

Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

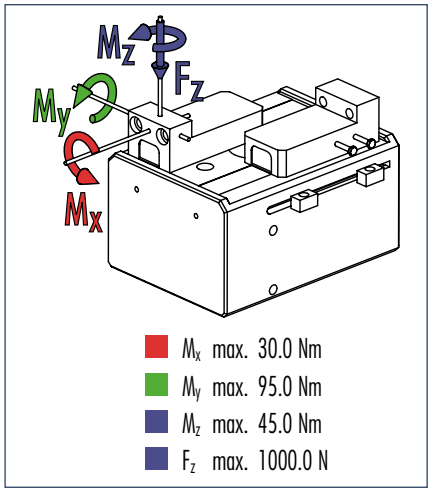
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

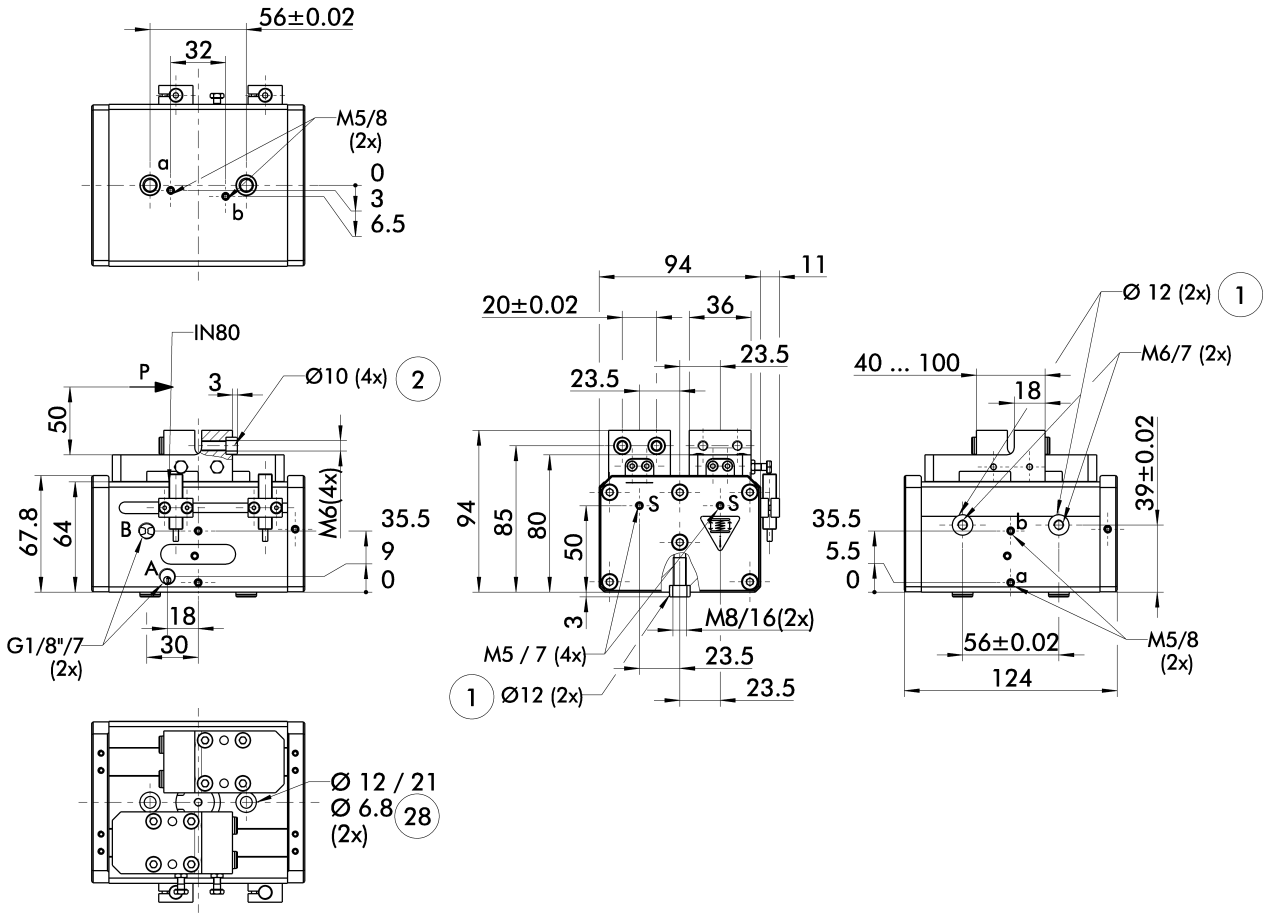


ⓘ Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

Technical data

Description		PFH 30	PFH 30-60	PFH 30-AS
	ID	0302030	0302033	0302031
Stroke per finger	[mm]	30.0	60.0	30.0
Closing force	[N]	630.0	630.0	720.0
Opening force	[N]	570.0	570.0	
Min. gripping force through spring	[N]			40.0
Weight	[kg]	2.65	3.5	2.7
Recommended workpiece weight	[kg]	3.15	3.15	3.15
Air consumption per double stroke	[cm^3]	95.0	187.0	95.0
Nominal pressure	[bar]	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	2.0	5.0
Maximum pressure	[bar]	8.0	8.0	6.5
Closing time	[s]	0.3	0.4	0.35
Opening time	[s]	0.3	0.5	0.35
Closing/opening time with spring only	[s]			0.4
Max. permitted finger length	[mm]	150.0	150.0	100.0
Max. permitted weight per finger	[kg]	2.0	2.0	2.0
IP rating		41	41	41
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0
Repeat accuracy	[mm]	0.05	0.05	0.05

Main views

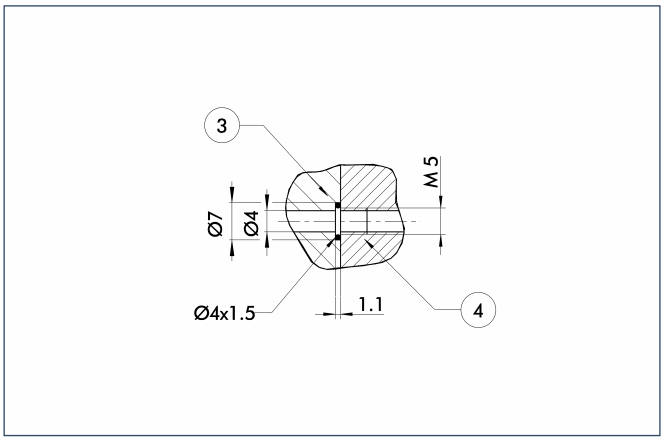


The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

ⓘ The SDV-P pressure maintenance valve can also be used (see "Accessories" catalog section) for I.D. or O.D. gripping as an alternative or in addition to the spring-loaded, mechanical gripping force safety device.

A,a Main/direct connection, gripper opening
B,b Main/direct connection, gripper closing
S,s Air purge connection or bleeder ventilation hole
① Gripper connection
② Finger connection
㉘ Through-bore

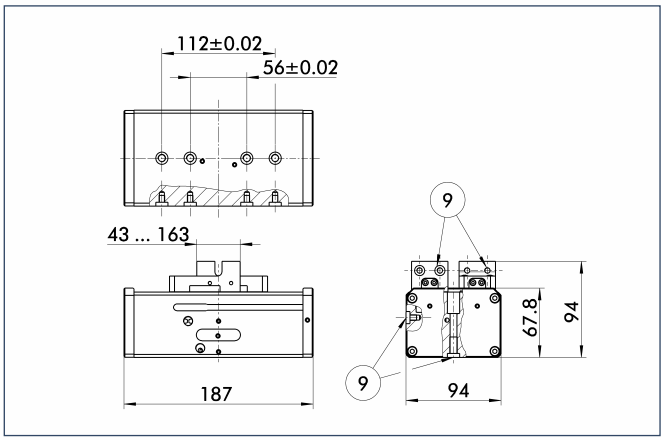
Hoseless direct connection



③ Adapter
④ Gripper

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

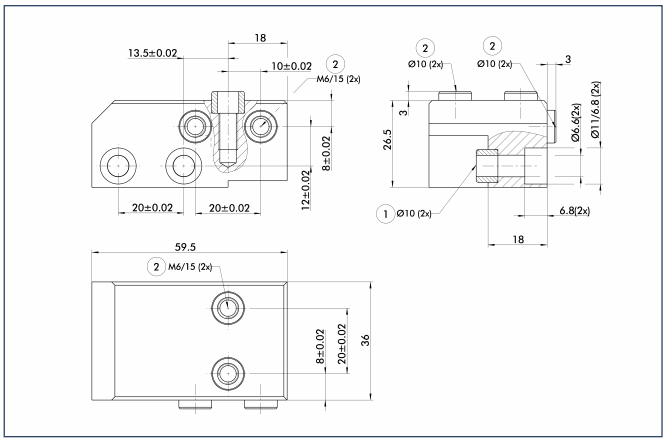
PFH 30-60 (double stroke)



⑨ For screw connection diagram, see basic version

The PFH 30-60 is a version with a stroke of double length.

Intermediate jaws

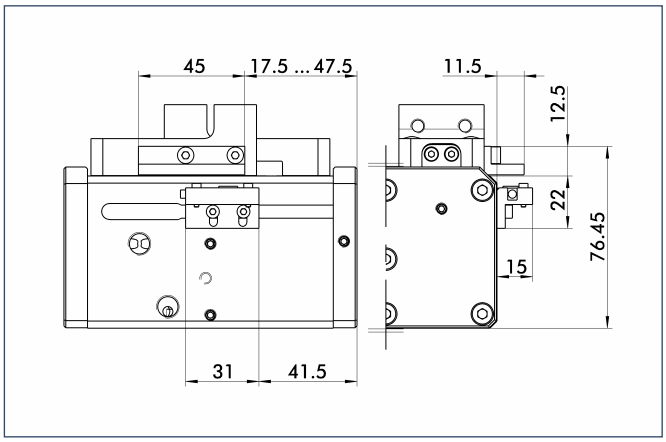


① Gripper connection
② Finger connection

The optional intermediate jaws produce a symmetrical, centered screw connection diagram. This facilitates the design and manufacture of customized top jaws.

Description	Material	Scope of delivery	ID
ZBH 30	16 MnCr 5	2	**0300220**

Mounting kit for FPS

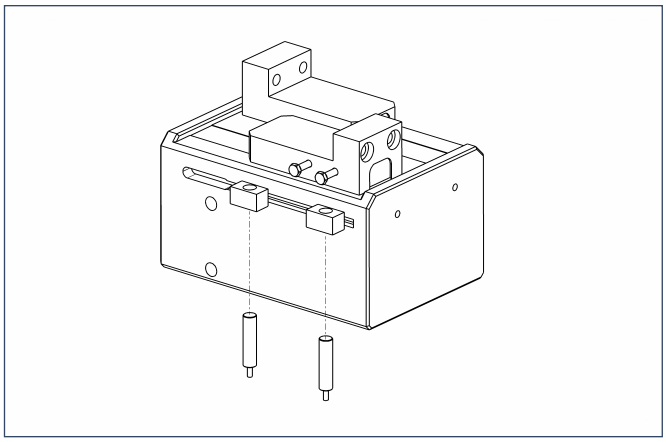


The FPS mounting kit is used for mounting the FPS sensor on the gripper. The FPS system can distinguish between five freely programmable ranges or switching points for the stroke of a gripper and can be used in conjunction with a PC as a measuring system.

Description	ID
AS-PFH 30	**0301733**

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

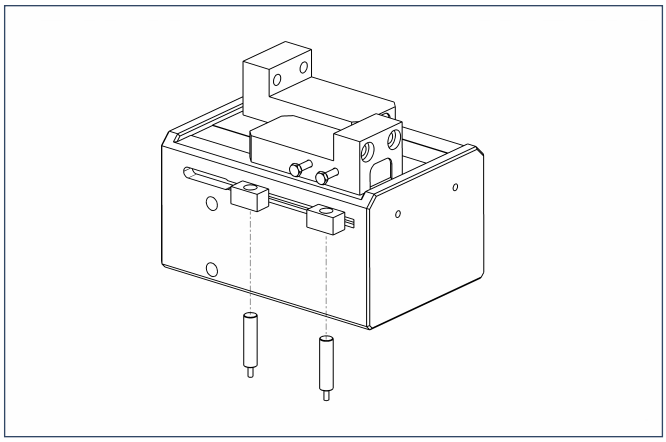
Sensor system



End position monitoring:
Inductive proximity switches, for direct mounting

Description	ID	Recommended product
IN 80/S-M12	0301578	
IN 80/S-M8	0301478	•
INK 80/S	0301550	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.



End position monitoring:
Inductive proximity switches, mounted with mounting kit

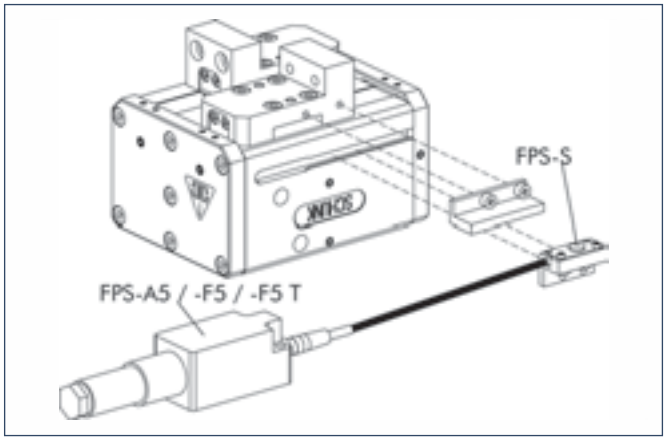
Description	ID	Recommended product
HG-PFH 30	0300743	
IN 120/S-M12	0301592	•
INK 120/S	0301562	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M8	0301622
KV 10-M12	0301596
KV 10-M8	0301496
KV 20-M12	0301597
KV 20-M8	0301497
KV 3-M12	0301595
KV 3-M8	0301495
W 3-M12	0301503
W 5-M12	0301507
WK 3-M8	0301594
WK 5-M8	0301502

ⓘ Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.



Measuring system:
FPS position monitor

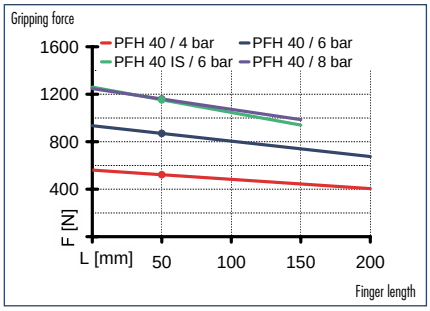
Description	ID
AS-PFH 30	0301733
FPS-A5	0301802
FPS-F5	0301805
FPS-F5 T	0301807
FPS-S 13	0301705

When using an FPS system, an FPS sensor (FPS-S) and an electronic processor (FPS-F5 / F5 T or A5) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are available as options in the "Accessories" catalog section.

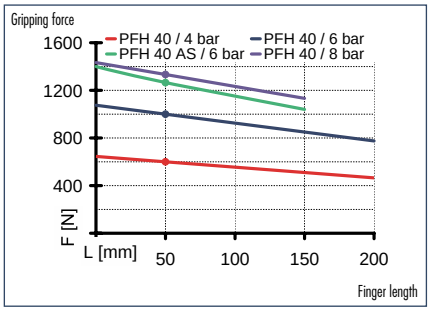
You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

PFH 40

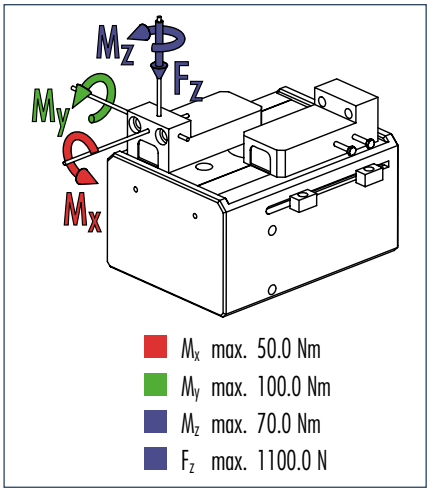
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

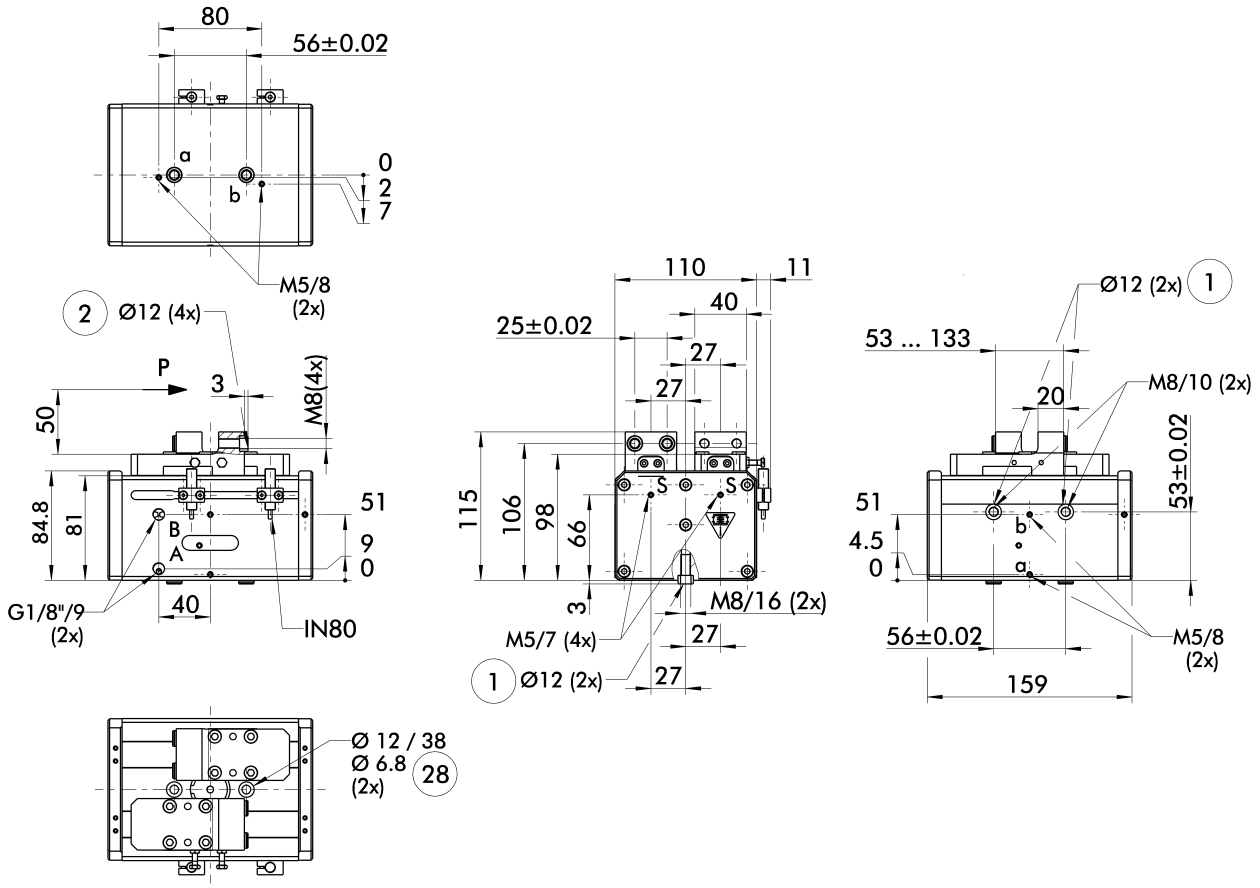


ⓘ Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

Technical data

Description		PFH 40	PFH 40-80	PFH 40-AS	PFH 40-IS
	ID	0302040	0302043	0302041	0302042
Stroke per finger	[mm]	40.0	80.0	40.0	40.0
Closing force	[N]	1260.0	1260.0	1540.0	
Opening force	[N]	1100.0	1100.0		1380.0
Min. gripping force through spring	[N]			100.0	100.0
Weight	[kg]	4.6	6.2	4.7	4.7
Recommended workpiece weight	[kg]	6.3	6.3	6.3	5.5
Air consumption per double stroke	[cm³]	245.0	487.0	245.0	245.0
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	2.0	5.0	5.0
Maximum pressure	[bar]	8.0	8.0	6.5	6.5
Closing time	[s]	0.3	0.5	0.25	0.4
Opening time	[s]	0.3	0.6	0.4	0.25
Closing/opening time with spring only	[s]			0.7	0.7
Max. permitted finger length	[mm]	200.0	200.0	150.0	150.0
Max. permitted weight per finger	[kg]	3.0	3.0	3.0	3.0
IP rating		41	41	41	41
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0	90.0
Repeat accuracy	[mm]	0.05	0.05	0.05	0.05

Main views

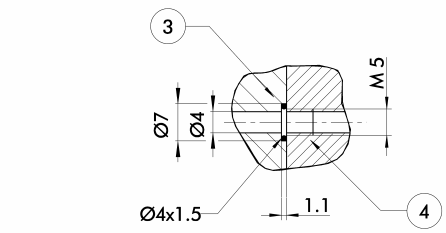


The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

ⓘ The SDV-P pressure maintenance valve can also be used (see "Accessories" catalog section) for I.D. or O.D. gripping as an alternative or in addition to the spring-loaded, mechanical gripping force safety device.

A,a Main/direct connection, gripper opening
B,b Main/direct connection, gripper closing
S,s Air purge connection or bleeder ventilation hole
① Gripper connection
② Finger connection
㉘ Through-bore

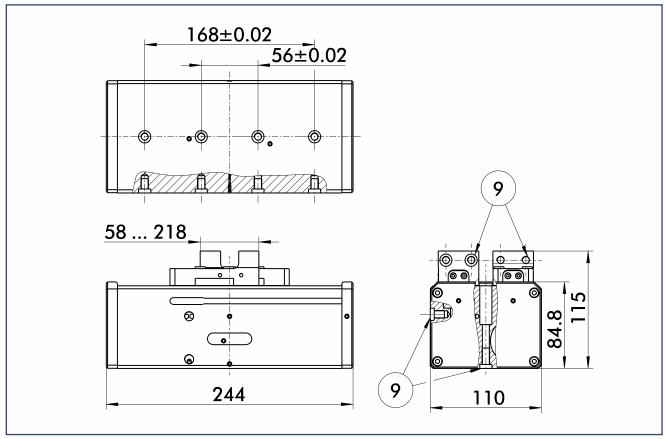
Hoseless direct connection



③ Adapter
④ Gripper

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

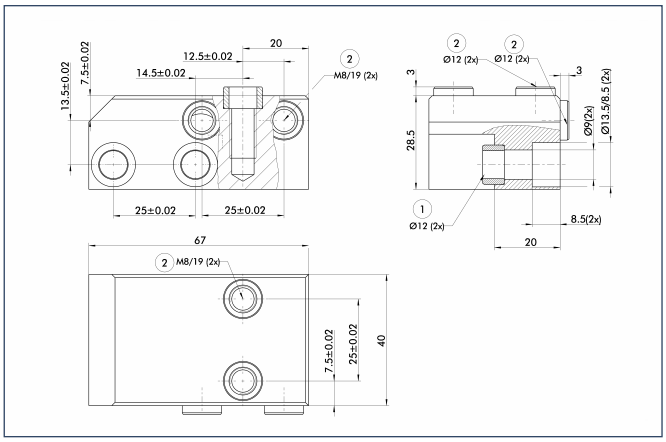
PFH 40-80 (double stroke)



⑨ For screw connection diagram, see basic version

The PFH 40-80 is a version with a stroke of double length.

Intermediate jaws



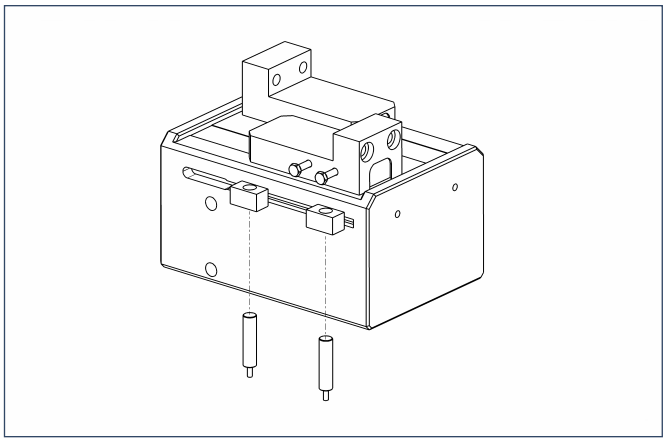
① Gripper connection
② Finger connection

The optional intermediate jaws produce a symmetrical, centered screw connection diagram. This facilitates the design and manufacture of customized top jaws.

Description	Material	Scope of delivery	ID
ZBH 40	16 MnCr 5	2	**0300221**

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

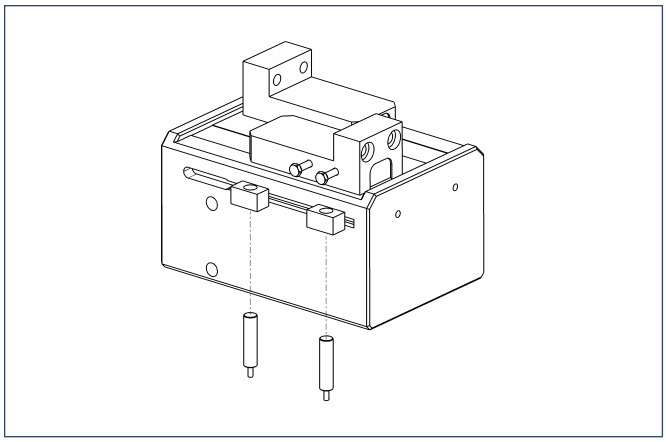
Sensor system



End position monitoring:
Inductive proximity switches, for direct mounting

Description	ID	Recommended product
IN 80/S-M12	0301578	
IN 80/S-M8	0301478	•
INK 80/S	0301550	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.



End position monitoring:
Inductive proximity switches, mounted with mounting kit

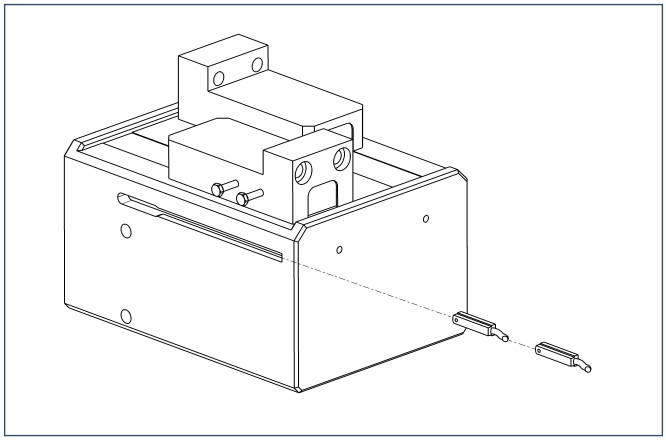
Description	ID	Recommended product
HG-PFH 40-50	0300744	
IN 120/S-M12	0301592	•
INK 120/S	0301562	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M8	0301622
KV 10-M12	0301596
KV 10-M8	0301496
KV 20-M12	0301597
KV 20-M8	0301497
KV 3-M12	0301595
KV 3-M8	0301495
W 3-M12	0301503
W 5-M12	0301507
WK 3-M8	0301594
WK 5-M8	0301502

ⓘ Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.



End position monitoring:
Electronic magnetic switches, for mounting in C-slot

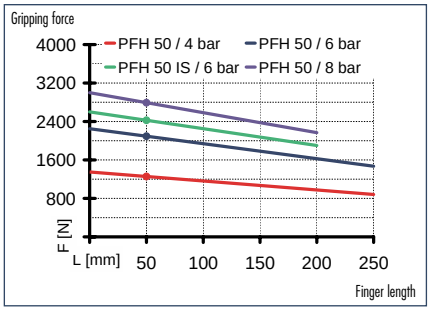
Description	ID	Recommended product
MMS 30-S-M12-PNP	0301571	
MMS 30-S-M8-PNP	0301471	•
MMSK 30-S-PNP	0301563	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.

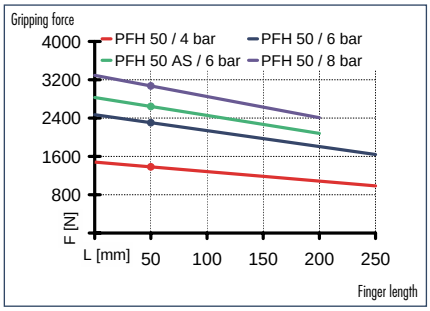
You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

PFH 50

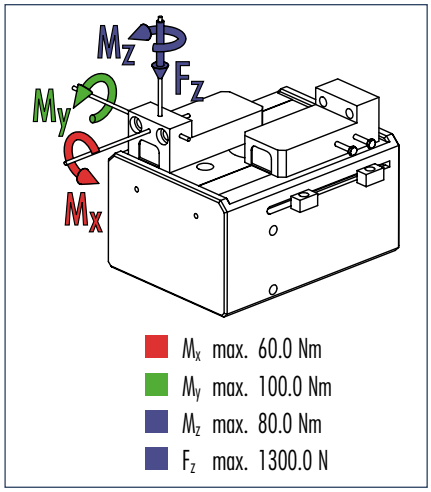
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

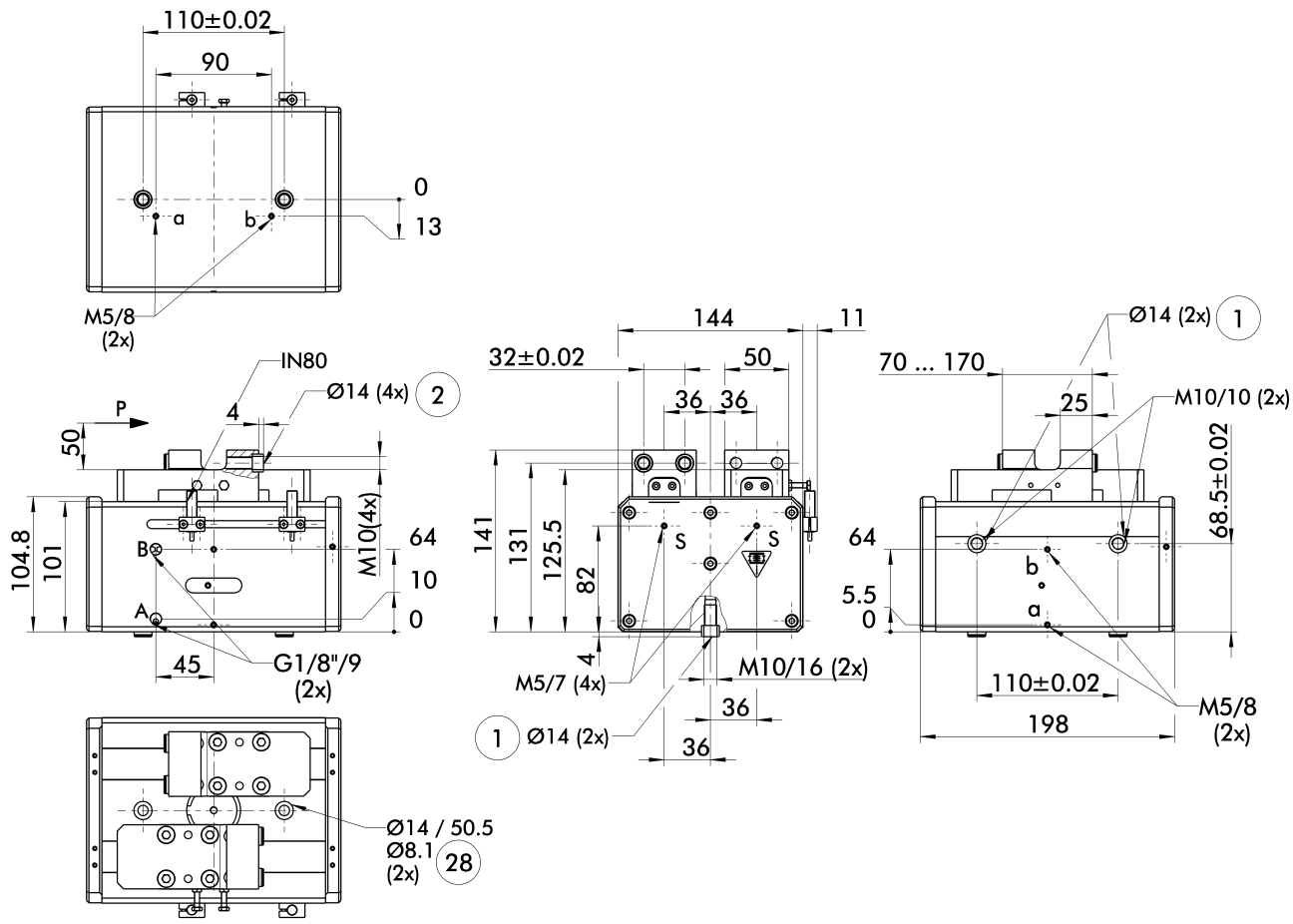


ⓘ Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

Technical data

Description		PFH 50	PFH 50-100	PFH 50-AS	PFH 50-IS
	ID	0302050	0302053	0302051	0302052
Stroke per finger	[mm]	50.0	100.0	50.0	50.0
Closing force	[N]	2600.0	2600.0	2950.0	
Opening force	[N]	2330.0	2330.0		2680.0
Min. gripping force through spring	[N]			170.0	170.0
Weight	[kg]	9.6	12.6	9.7	9.7
Recommended workpiece weight	[kg]	13.0	13.0	13.0	11.65
Air consumption per double stroke	[cm³]	603.0	1205.0	603.0	603.0
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	2.0	5.0	5.0
Maximum pressure	[bar]	8.0	8.0	6.5	6.5
Closing time	[s]	0.6	1.0	0.5	0.7
Opening time	[s]	0.7	1.2	0.8	0.6
Closing/opening time with spring only	[s]			0.8	0.8
Max. permitted finger length	[mm]	250.0	250.0	200.0	200.0
Max. permitted weight per finger	[kg]	4.0	4.0	4.0	4.0
IP rating		41	41	41	41
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0	90.0
Repeat accuracy	[mm]	0.05	0.05	0.05	0.05

Main views

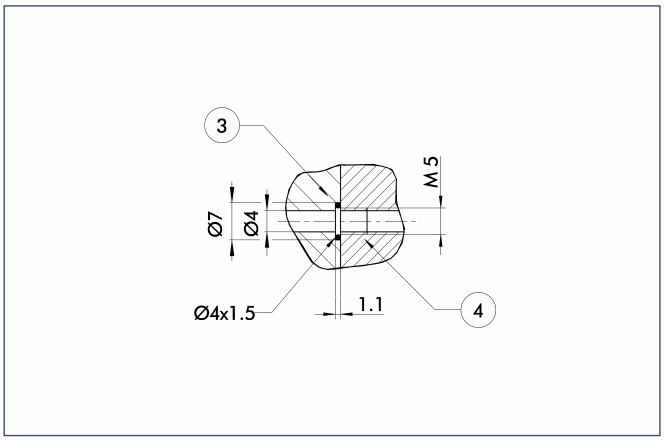


The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

ⓘ The SDV-P pressure maintenance valve can also be used (see "Accessories" catalog section) for I.D. or O.D. gripping as an alternative or in addition to the spring-loaded, mechanical gripping force safety device.

A,a Main/direct connection, gripper opening
B,b Main/direct connection, gripper closing
S,s Air purge connection or bleeder ventilation hole
① Gripper connection
② Finger connection
㉘ Through-bore

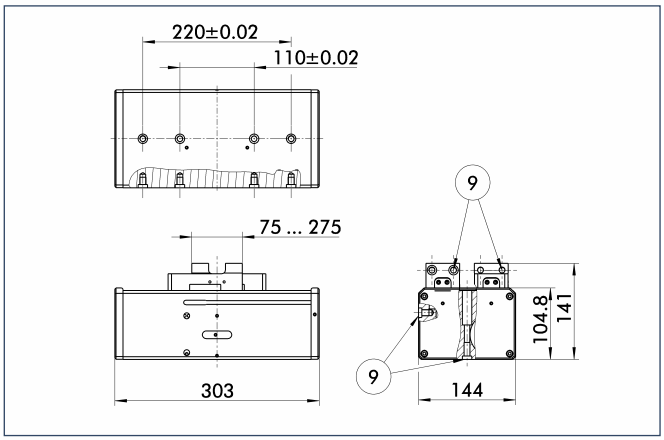
Hoseless direct connection



③ Adapter
④ Gripper

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

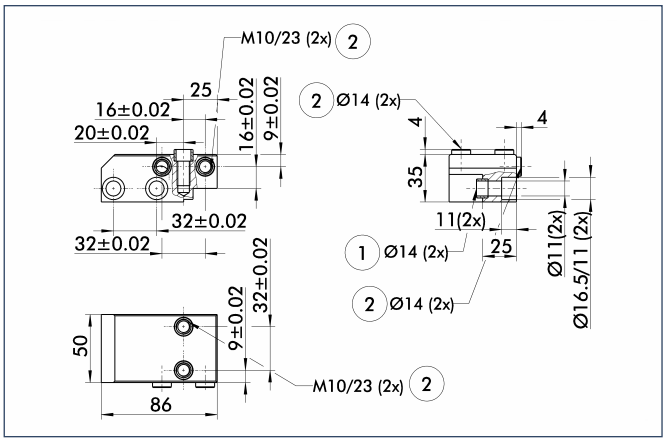
PFH 50-100 (double stroke)



⑨ For screw connection diagram, see basic version

The PFH 50-100 is a version with a stroke of double length.

Intermediate jaws



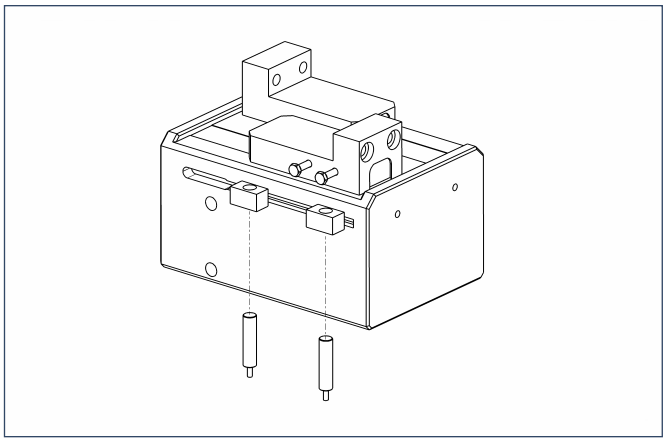
① Gripper connection
② Finger connection

The optional intermediate jaws produce a symmetrical, centered screw connection diagram. This facilitates the design and manufacture of customized top jaws.

Description	Material	Scope of delivery	ID
ZBH 50	16 MnCr 5	2	**0300222**

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

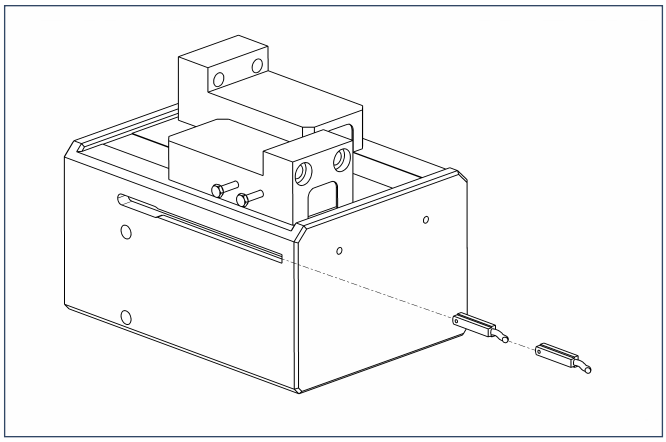
Sensor system



End position monitoring:
Inductive proximity switches, for direct mounting

Description	ID	Recommended product
IN 80/S-M12	0301578	
IN 80/S-M8	0301478	•
INK 80/S	0301550	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.



End position monitoring:
Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 30-S-M12-PNP	0301571	
MMS 30-S-M8-PNP	0301471	•
MMSK 30-S-PNP	0301563	

ⓘ Two sensors (NO contacts) are required for each gripper, plus extension cables as an option.

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M8	0301622
KV 10-M12	0301596
KV 10-M8	0301496
KV 20-M12	0301597
KV 20-M8	0301497
KV 3-M12	0301595
KV 3-M8	0301495
W 3-M12	0301503
W 5-M12	0301507
WK 3-M8	0301594
WK 5-M8	0301502

ⓘ Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

You can find more detailed information and individual parts of the above-mentioned accessories in the “Accessories” catalog section.