Superior Clamping and Gripping

Product Information

Long-stroke gripper PHL

Flexible. Precise. Powerful.

Long-stroke gripper PHL

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

Field of application

Optimum standard solution for many fields of application. Universal application in clean and slightly dirty surroundings in machine building and plant building industry, assembly and handling as well as automotive industry.

Advantages – Your benefits

Modular with two alternative guidances for optimal adaption to your application

High maximum moments possible suitable for using long gripper fingers

Double piston rack and pinion principle for centric clamping

Fastening at one gripper side in two screw directions for universal and flexible gripper assembly

Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems

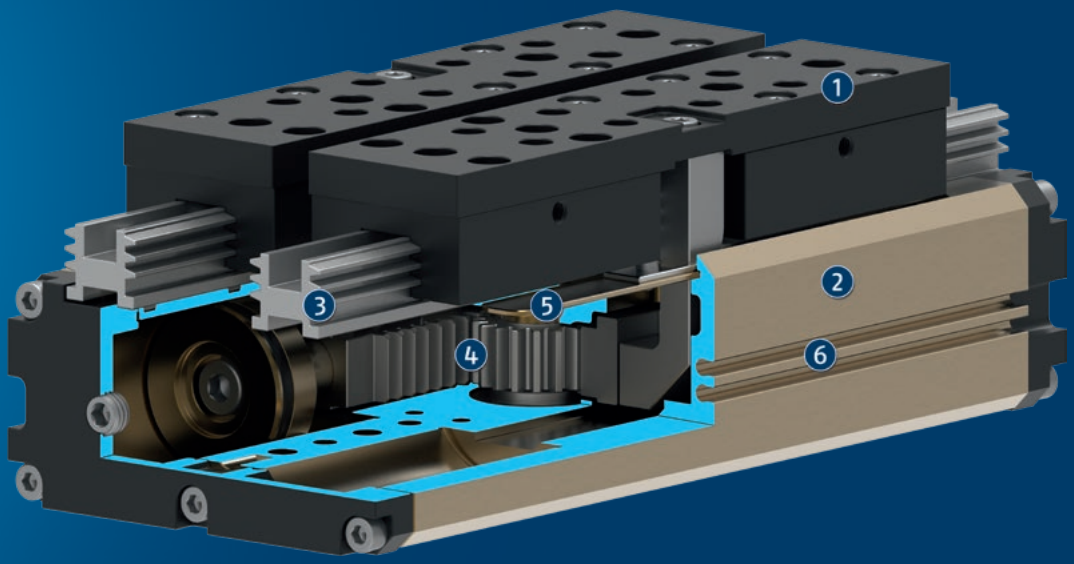
Comprehensive sensor accessory program for versatile querying possibilities and stroke position monitoring

Stroke versions for highest flexibility

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 5	1.38 .. 23.55 kg	390 .. 4630 N	30 .. 160 mm	1.95 .. 15.5 kg

Functional description

By pressure actuation of the opposing piston, the base jaws are guided by a carrier on the piston, and are set in motion. The synchronization of the jaw stroke is done with a rack and pinion principle.



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

② **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

③ **Multi-tooth guidance**
highly loadable, nearly backlash-free base jaw guidance for long finger lenghts

④ **Kinematics**
pinion and rack principle for centric clamping, even at large strokes

⑤ **Dust cover**
along the whole guidance length against coarse dirt

⑥ **Sensor system**
Brackets for proximity switches and adjustable control cams in the housing

General notes about the series

Operating principle: Double piston rack and pinion principle

Housing material: Aluminum (extruded profile)

Base jaw material: Aluminum alloy, anodized

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

Warranty: 24 months

Scope of delivery: Centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

Gripping force maintenance: possible by using the version with mechanical gripping force maintenance or pressure maintenance valve SDV-P

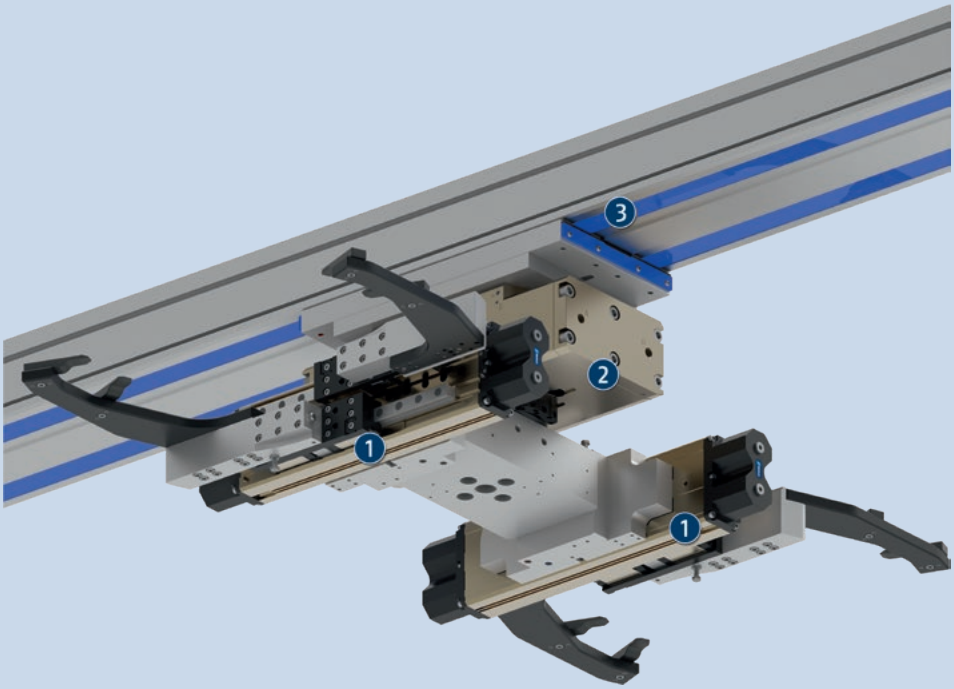
Gripping force: is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration).

Finger length: is measured from the reference surface as the distance P in direction to the main axis.
The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: is defined as a distribution of the end Position for 100 consecutive strokes.

Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.



Application example

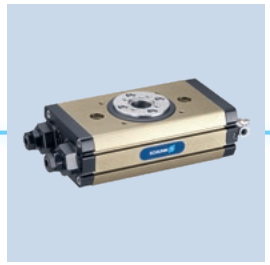
Turning unit for reorientation of large workpieces

1. 2-finger long-stroke gripper PHL
2. Universal rotary actuator SRU-plus
3. Flat linear module Delta with toothed-belt drive

SCHUNK offers more ...

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

Quick change system



Universal swivel unit

Pressure maintenance valve

Universal intermediate jaw

Inductive proximity switches

Magnetic switches

Finger blank

Jaw quick-change system

ⓘ For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

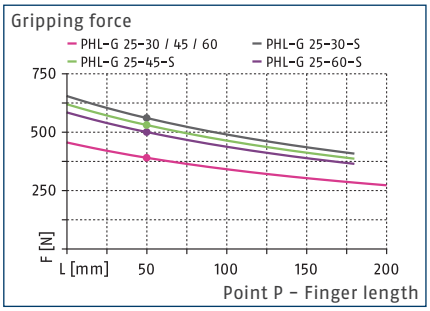
Options and special information

Sliding bearing version PHL-G: with proven SCHUNK multi-tooth guidance for robust and reliable applications
Roller bearing version PHL-W: with play-free, pre-loaded profile rail guides for higher precision, even larger loads, and longer finger lengths, and at the same time with an increased gripping force
Mechanical gripping force maintenance: ensures a minimum gripping force in the event of a pressure loss This acts as the closing force in the S version. The design of the top jaws means that they can also be used as an opening force.
High-temperature version V/HT: for use in hot environments
Additional stroke versions: available in three stroke variants as standard
Additional versions: Various options can be combined with each other. Numerous additional options are also available – just tell us what your task is!

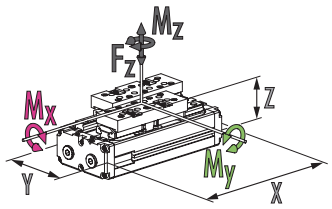
PHL 25

Long-stroke gripper

Gripping force



Dimensions and maximum loads



For values see technical data table

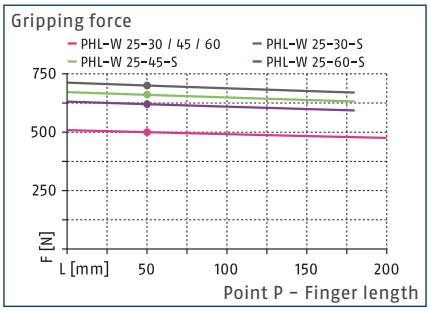
PHL-G technical data

Description		PHL-G 25-030	PHL-G 25-030-S	PHL-G 25-045	PHL-G 25-045-S	PHL-G 25-060	PHL-G 25-060-S
ID		0308120	0308123	0308121	0308124	0308122	0308125
Stroke per jaw	[mm]	30	30	45	45	60	60
Closing/opening force	[N]	390/390	560/-	390/390	530/-	390/390	500/-
Min. spring force	[N]		170		140		110
Weight	[kg]	1.38	1.63	1.64	2.04	1.9	2.13
Recommended workpiece weight	[kg]	1.95	1.95	1.95	1.95	1.95	1.95
Fluid consumption double stroke	[cm³]	77	150	107	180	138	210
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.12/0.12	0.14/0.31	0.19/0.19	0.18/0.41	0.23/0.23	0.23/0.51
Max. permissible finger length	[mm]	200	180	200	180	200	180
Max. permissible mass per finger	[kg]	1	1	1	1	1	1
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	158 x 74 x 59.8	235 x 74 x 59.8	203 x 74 x 59.8	280 x 74 x 59.8	248 x 74 x 59.8	325 x 74 x 59.8
Moments M_x max./M_y max./M_z max.	[Nm]	25/115/21	25/115/21	29/115/25	29/115/25	33/115/29	33/115/29
Forces F_z max.	[N]	1000	1000	1000	1000	1000	1000

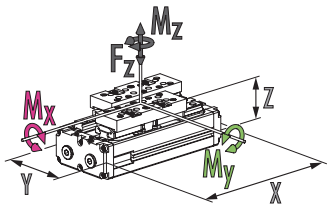
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Gripping force



Dimensions and maximum loads



For values see technical data table

PHL-W technical data

Description		PHL-W 25-030	PHL-W 25-030-S	PHL-W 25-045	PHL-W 25-045-S	PHL-W 25-060	PHL-W 25-060-S
ID		0308130	0308133	0308131	0308134	0308132	0308135
Stroke per jaw	[mm]	30	30	45	45	60	60
Closing/opening force	[N]	500/500	700/-	500/500	660/-	500/500	620/-
Min. spring force	[N]		200		160		120
Weight	[kg]	1.49	1.72	1.75	2.13	1.92	2.21
Recommended workpiece weight	[kg]	2.5	2.5	2.5	2.5	2.5	2.5
Fluid consumption double stroke	[cm³]	77	150	107	180	138	210
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.11/0.11	0.12/0.27	0.15/0.15	0.16/0.36	0.18/0.18	0.2/0.44
Max. permissible finger length	[mm]	200	180	200	180	200	180
Max. permissible mass per finger	[kg]	1	1	1	1	1	1
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	158 x 74 x 59.7	235 x 74 x 59.7	203 x 74 x 59.7	280 x 74 x 59.7	248 x 74 x 59.7	325 x 74 x 59.7
Moments M_x max./M_y max./M_z max.	[Nm]	25/120/27	25/120/27	29/120/33	29/120/33	33/120/46	33/120/46
Forces F_z max.	[N]	1000	1000	1000	1000	1000	1000

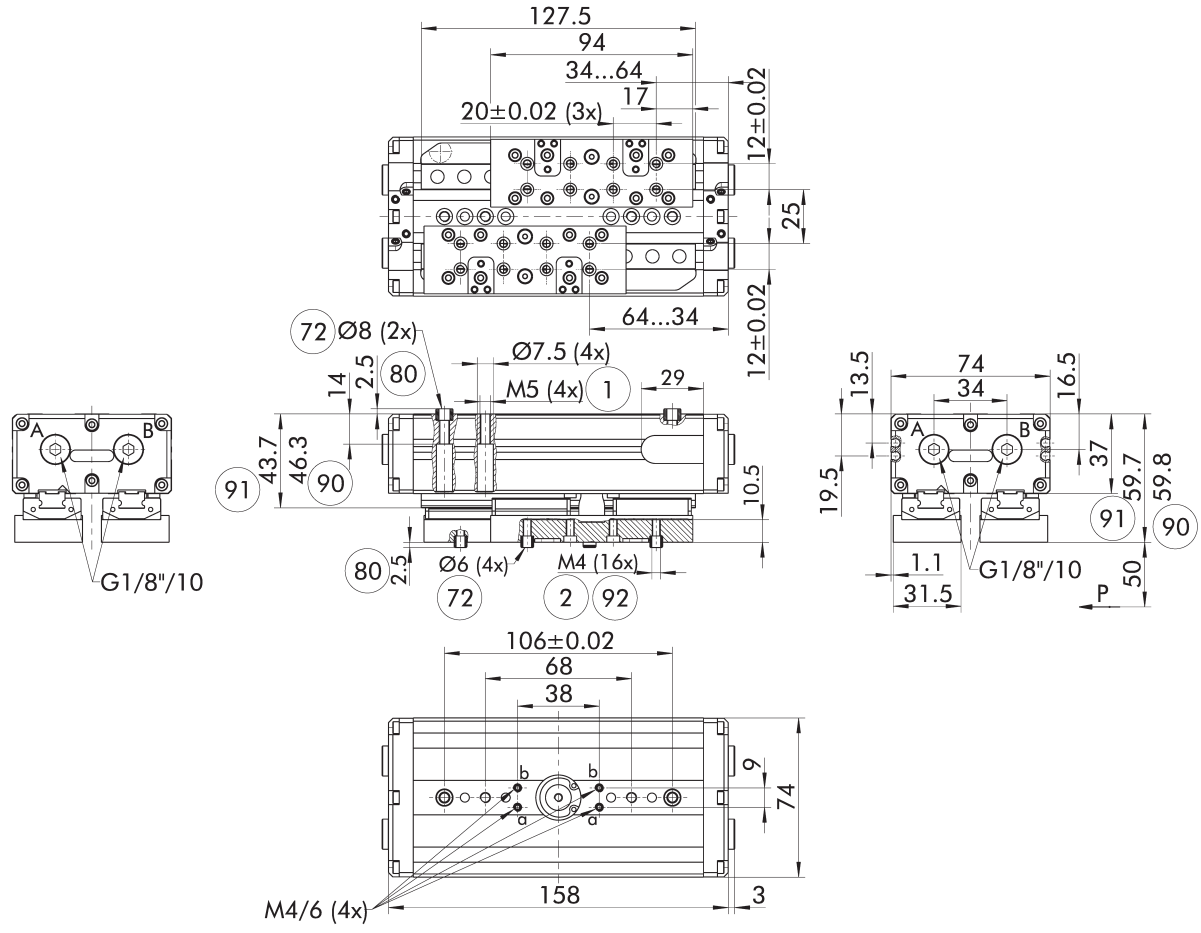
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

PHL 25

Long-stroke gripper

Main view PHL 25-030



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

(72) Fit for centering sleeves

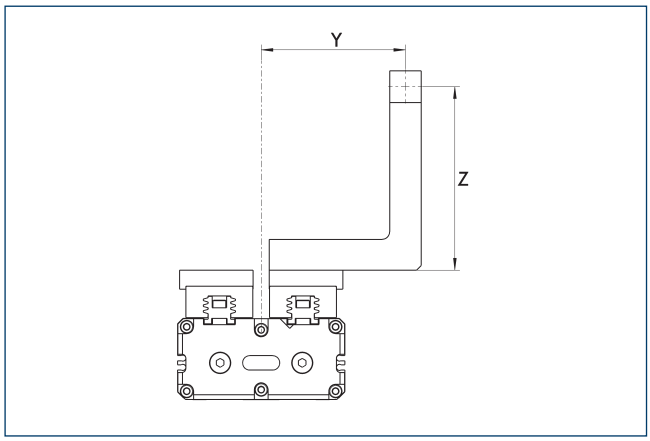
(80) Depth of the centering sleeve hole in the counter part

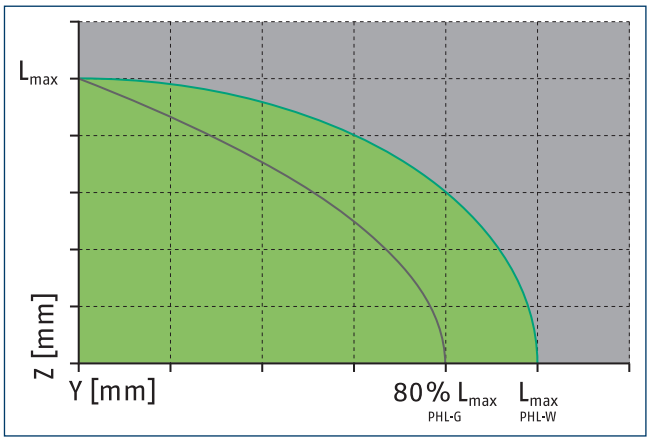
(90) Height of version G

(91) Height of version W

(92) Min. six screws per base jaw

Maximum permitted finger projection

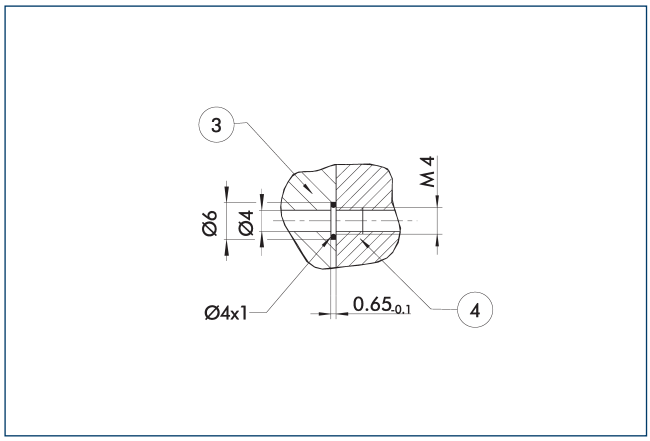




Permitted range Inadmissible range

L^{max} is equivalent to the maximum permitted finger length, see the technical data table.

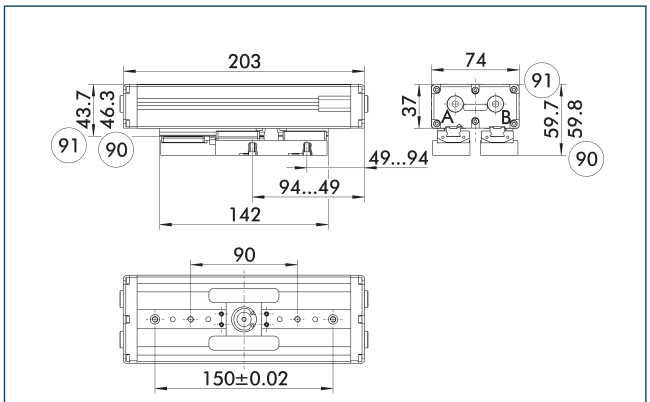
Hose-free direct connection M4



(3) Adapter (4) Grippers

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

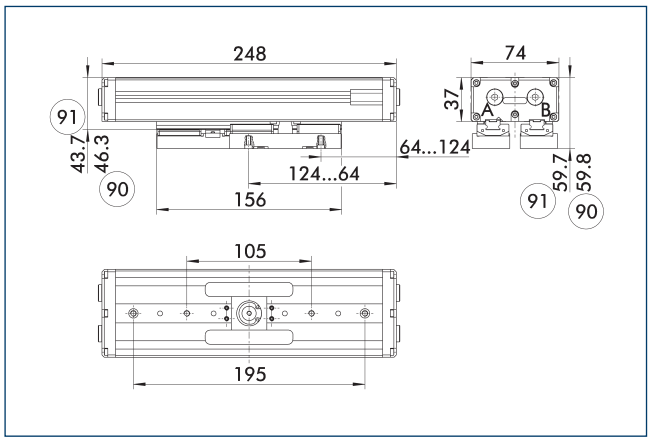
Stroke version PHL 25-045



(90) Height of version G (91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Stroke version PHL 25-060

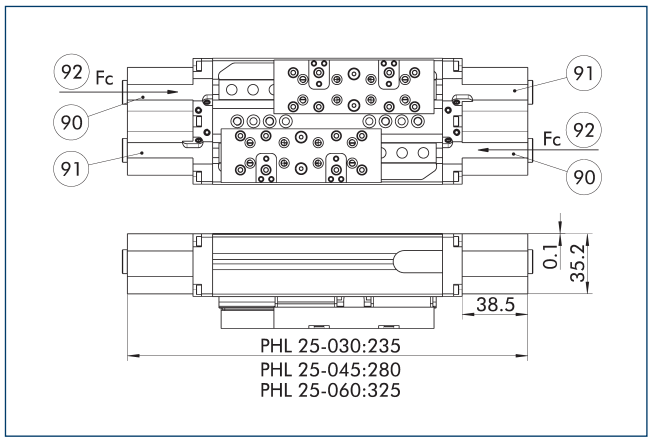


(90) Height of version G

(91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Gripping force maintenance S



(90) Piston chamber with spring

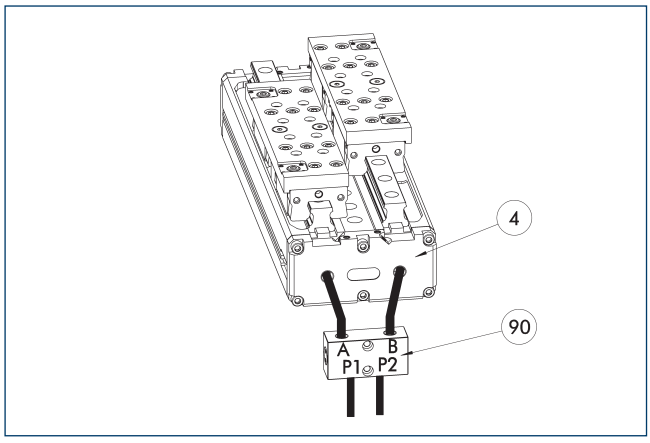
(91) Piston chamber without spring

(92) Direction of force of the pressure springs

The mechanical gripping force maintenance ensures a minimum clamping force in the event of a pressure drop. This acts as the closing force in the S variant. The design of the top jaws means that they can also be used as an opening force. Besides this, the gripping force maintenance can be used to increase the gripping force.

ⓘ The gripper is shown in the basic position, closed by springs.

SDV-P pressure maintenance valve



(4) Grippers

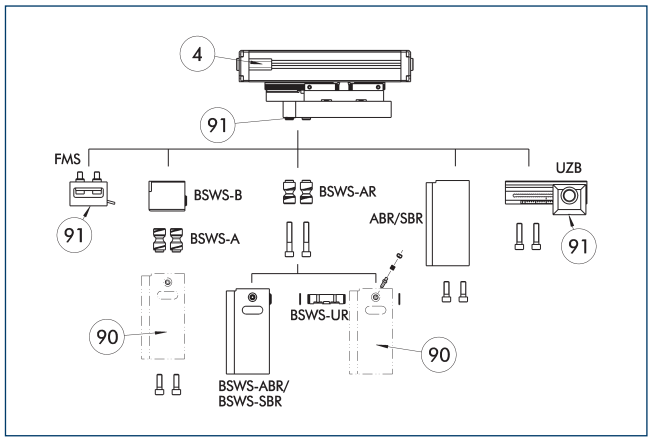
(90) SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Intermediate jaw interface



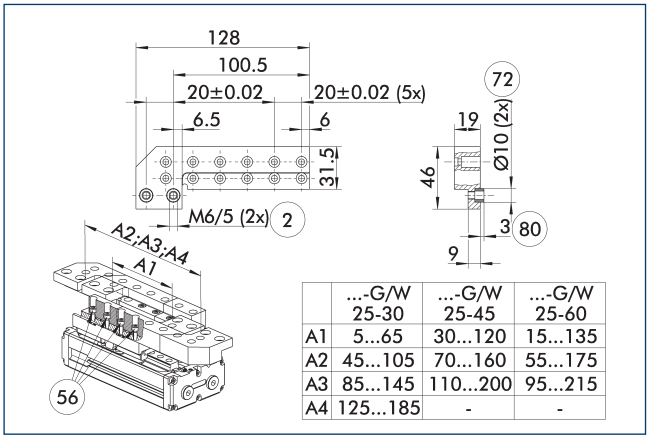
(4) Grippers

(90) Customized gripper fingers

(91) Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes force-measuring jaws, jaw quick-change systems, finger blanks, and universal intermediate jaws.

ZBA PHL 25-100 intermediate jaw



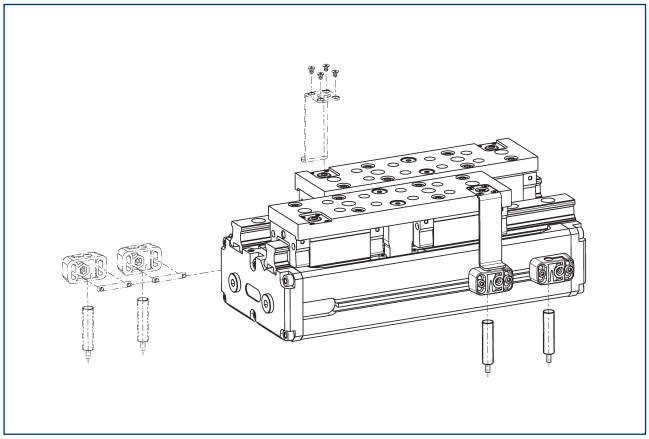
	...-G/W 25-30	...-G/W 25-45	...-G/W 25-60
A1	5...65	30...120	15...135
A2	45...105	70...160	55...175
A3	85...145	110...200	95...215
A4	125...185	-	-

(2) Finger connection
(56) Included in the scope of delivery
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PHL 25-100	0308129	Steel	PGN-plus 100	2

Inductive Proximity Switches

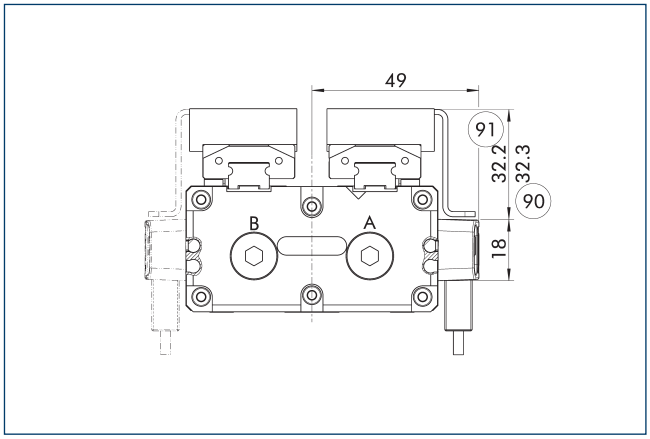


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PHL 25-IN80	0308830	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Attachment kit for proximity switch



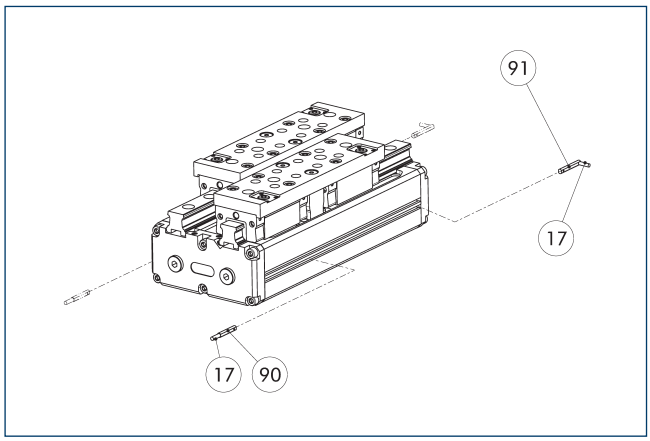
(90) Height of version G
(91) Height of version W

End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-PHL 25-IN80	0308830	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

Electronic magnetic switch MMS



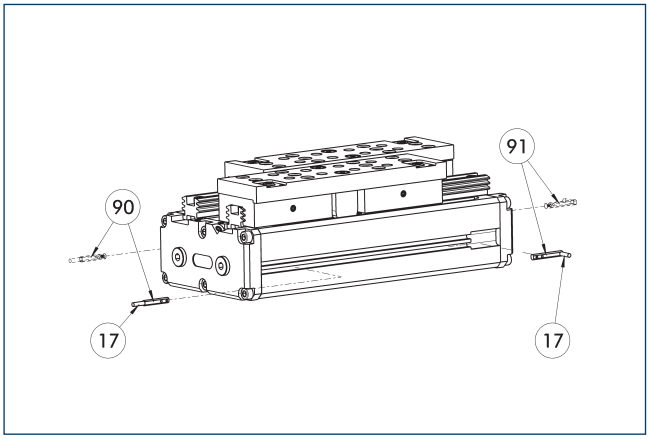
17 Cable outlet
91 Sensor MMS 22...-SA
90 Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

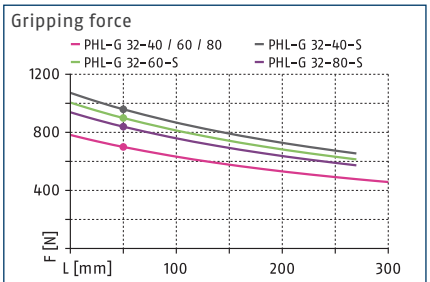
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

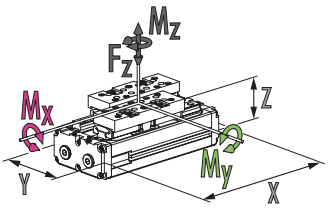
PHL 32

Long-stroke gripper

Gripping force



Dimensions and maximum loads



For values see technical data table

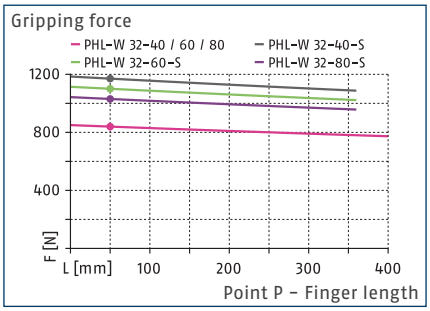
PHL-G technical data

Description		PHL-G 32-040	PHL-G 32-040-S	PHL-G 32-060	PHL-G 32-060-S	PHL-G 32-080	PHL-G 32-080-S
ID		0308140	0308143	0308141	0308144	0308142	0308145
Stroke per jaw	[mm]	40	40	60	60	80	80
Closing/opening force	[N]	700/700	960/-	700/700	900/-	700/700	840/-
Min. spring force	[N]		260		200		140
Weight	[kg]	2.62	3.12	3.11	3.59	3.55	4.05
Recommended workpiece weight	[kg]	3.5	3.5	3.5	3.5	3.5	3.5
Fluid consumption double stroke	[cm³]	161	309	227	375	292	440
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.23/0.23	0.23/0.45	0.31/0.31	0.31/0.6	0.39/0.39	0.39/0.75
Max. permissible finger length	[mm]	300	270	300	270	300	270
Max. permissible mass per finger	[kg]	2.5	2.5	2.5	2.5	2.5	2.5
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	201 x 89 x 73.9	294 x 89 x 73.9	261 x 89 x 73.9	354 x 89 x 73.9	321 x 89 x 73.9	414 x 89 x 73.9
Moments M_x max./M_y max./M_z max.	[Nm]	44/190/54	44/190/54	53/190/57	53/190/57	61/190/60	61/190/60
Forces F_z max.	[N]	2200	2200	2200	2200	2200	2200

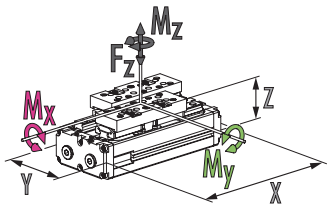
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Gripping force



Dimensions and maximum loads



For values see technical data table

PHL-W technical data

Description		PHL-W 32-040	PHL-W 32-040-S	PHL-W 32-060	PHL-W 32-060-S	PHL-W 32-080	PHL-W 32-080-S
ID		0308150	0308153	0308151	0308154	0308152	0308155
Stroke per jaw	[mm]	40	40	60	60	80	80
Closing/opening force	[N]	840/840	1170/-	840/840	1100/-	840/840	1030/-
Min. spring force	[N]		330		260		190
Weight	[kg]	3.43	3.93	3.92	4.41	4.37	4.87
Recommended workpiece weight	[kg]	4.2	4.2	4.2	4.2	4.2	4.2
Fluid consumption double stroke	[cm³]	161	309	227	375	292	440
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.19/0.19	0.2/0.39	0.26/0.26	0.27/0.52	0.32/0.32	0.34/0.65
Max. permissible finger length	[mm]	400	360	400	360	400	360
Max. permissible mass per finger	[kg]	2.5	2.5	2.5	2.5	2.5	2.5
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	201 x 89 x 77.2	294 x 89 x 77.2	261 x 89 x 77.2	354 x 89 x 77.2	321 x 89 x 77.2	414 x 89 x 77.2
Moments M_x max./M_y max./M_z max.	[Nm]	50/230/58	50/230/58	58/230/63	58/230/63	67/230/71	67/230/71
Forces F_z max.	[N]	2200	2200	2200	2200	2200	2200

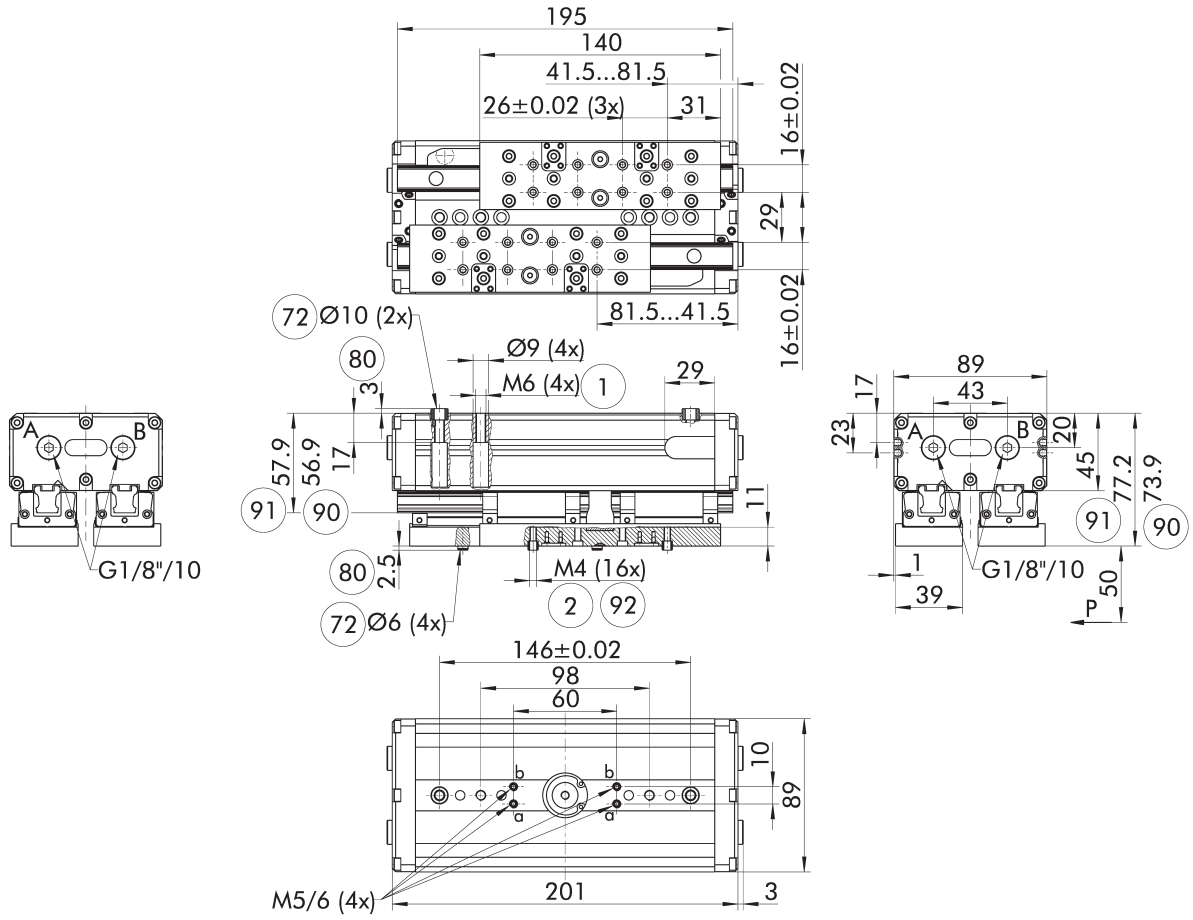
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

PHL 32

Long-stroke gripper

Main view PHL 32-040



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

(72) Fit for centering sleeves

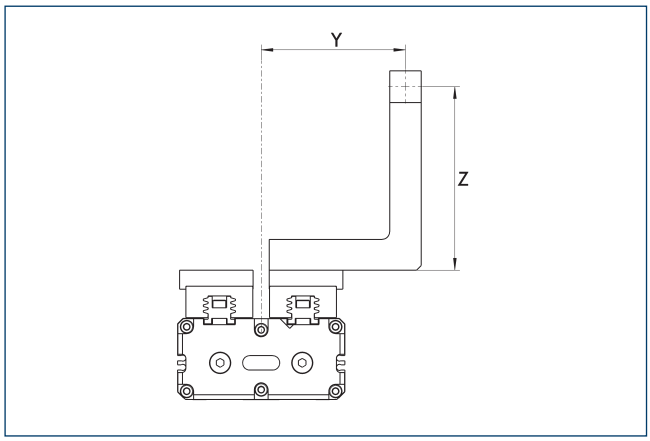
(80) Depth of the centering sleeve hole in the counter part

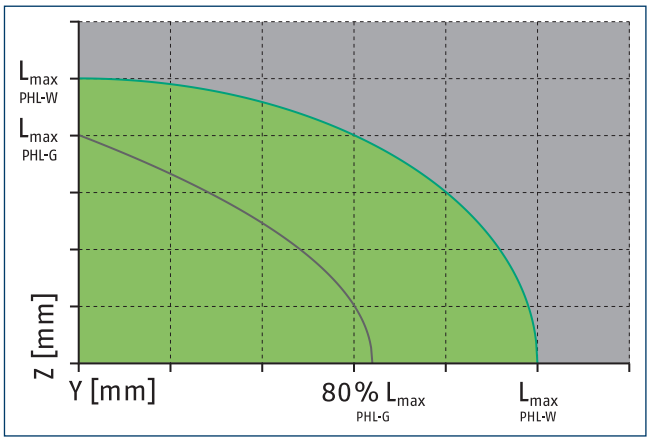
(90) Height of version G

(91) Height of version W

(92) Min. six screws per base jaw

Maximum permitted finger projection

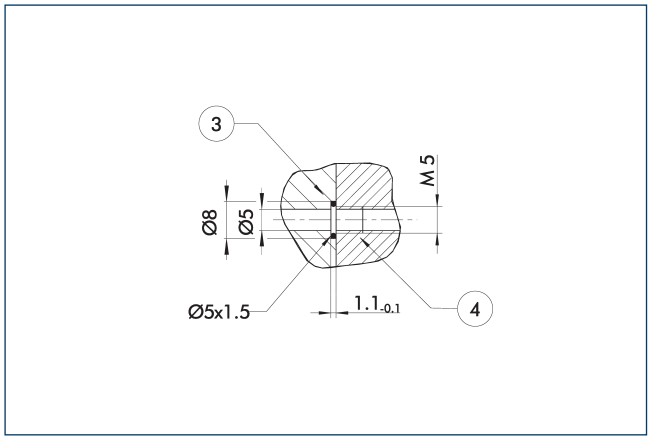




Permitted range Inadmissible range

L^{max} is equivalent to the maximum permitted finger length, see the technical data table.

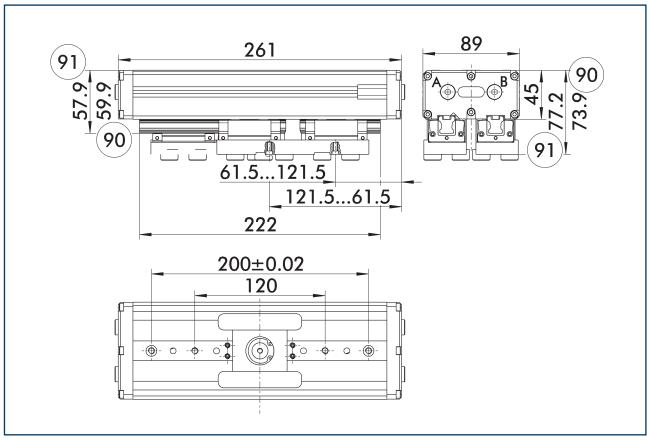
Hose-free direct connection M5



(3) Adapter (4) Grippers

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

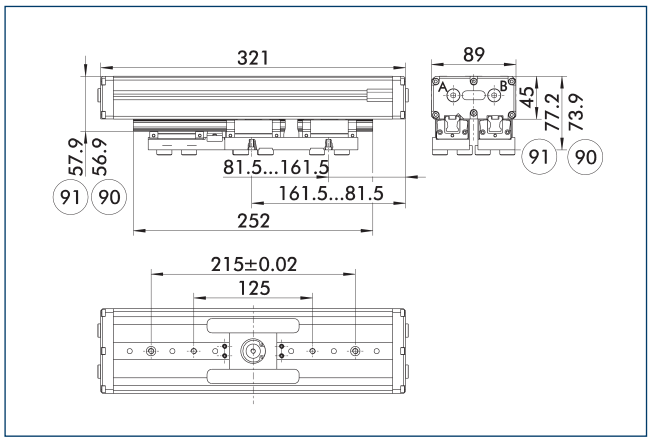
Stroke version PHL 32-060



(90) Height of version G (91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Stroke version PHL 32-080

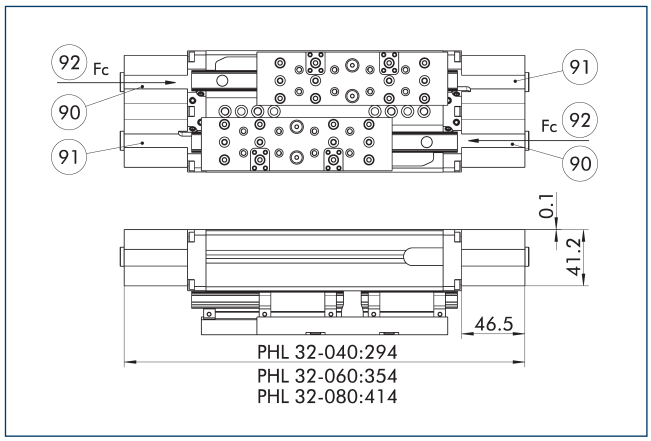


(90) Height of version G

(91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Gripping force maintenance S



(90) Piston chamber with spring

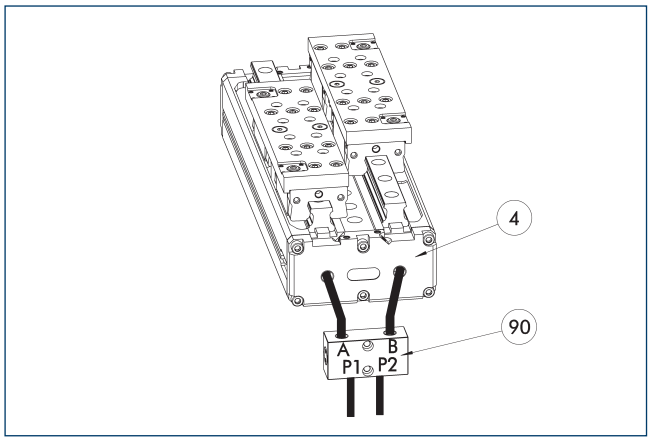
(91) Piston chamber without spring

(92) Direction of force of the pressure springs

The mechanical gripping force maintenance ensures a minimum clamping force in the event of a pressure drop. This acts as the closing force in the S variant. The design of the top jaws means that they can also be used as an opening force. Besides this, the gripping force maintenance can be used to increase the gripping force.

ⓘ The gripper is shown in the basic position, closed by springs.

SDV-P pressure maintenance valve



(4) Grippers

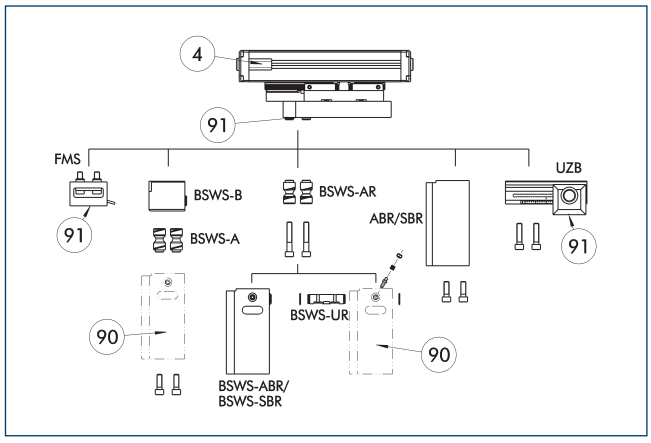
(90) SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Intermediate jaw interface



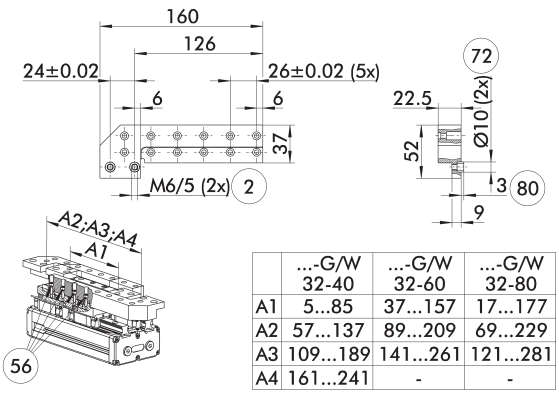
(4) Grippers

(90) Customized gripper fingers

(91) Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes force-measuring jaws, jaw quick-change systems, finger blanks, and universal intermediate jaws.

Intermediate jaw ZBA PHL 32-125



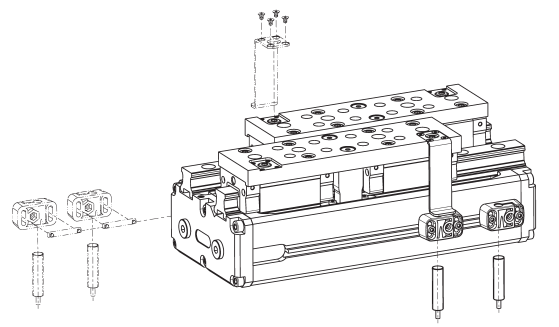
	...-G/W 32-40	...-G/W 32-60	...-G/W 32-80
A1	5...85	37...157	17...177
A2	57...137	89...209	69...229
A3	109...189	141...261	121...281
A4	161...241	-	-

(2) Finger connection
(56) Included in the scope of delivery
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PHL 32-125	0308149	Steel	PGN-plus 125	2

Inductive Proximity Switches

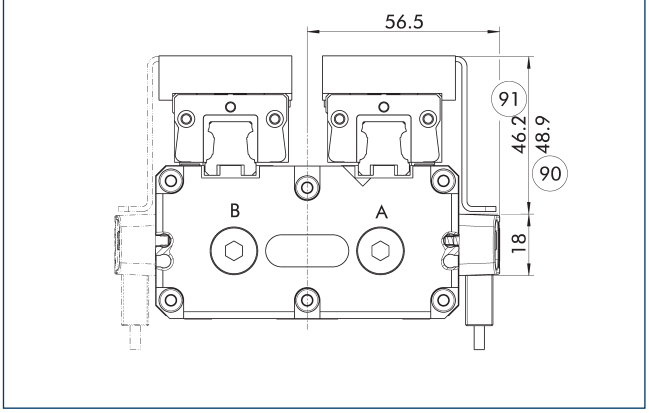


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PHL-G 32-IN80	0308831	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Attachment kit for proximity switch



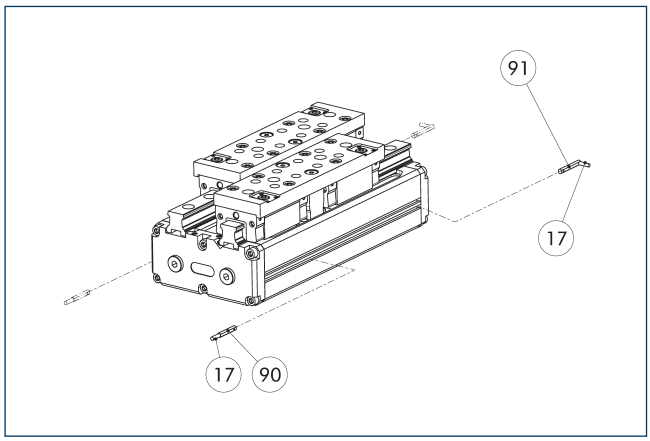
(90) Height of version G
(91) Height of version W

End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-PHL-G 32-IN80	0308831	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

Electronic magnetic switch MMS



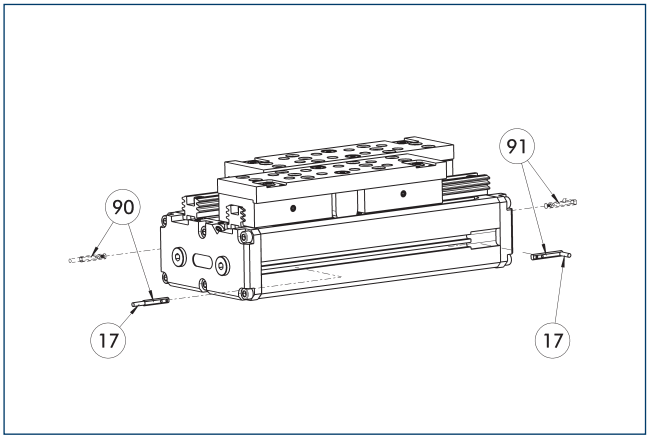
17 Cable outlet
91 Sensor MMS 22...-SA
90 Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

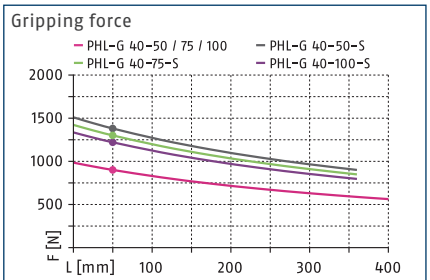
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

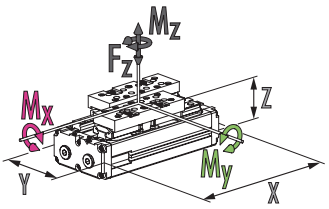
PHL 40

Long-stroke gripper

Gripping force



Dimensions and maximum loads



For values see technical data table

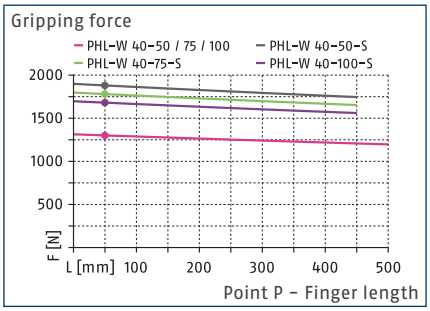
PHL-G technical data

Description		PHL-G 40-050	PHL-G 40-050-S	PHL-G 40-075	PHL-G 40-075-S	PHL-G 40-100	PHL-G 40-100-S
ID		0308160	0308163	0308161	0308164	0308162	0308165
Stroke per jaw	[mm]	50	50	75	75	100	100
Closing/opening force	[N]	900/900	1380/-	900/900	1300/-	900/900	1220/-
Min. spring force	[N]		480		400		320
Weight	[kg]	4.72	5.57	5.54	7.1	6.35	7.49
Recommended workpiece weight	[kg]	4.5	4.5	4.5	4.5	4.5	4.5
Fluid consumption double stroke	[cm³]	302	559	430	686	558	814
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.32/0.32	0.34/0.58	0.42/0.42	0.45/0.78	0.53/0.53	0.57/0.97
Max. permissible finger length	[mm]	400	360	400	360	400	360
Max. permissible mass per finger	[kg]	5	5	5	5	5	5
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	247 x 110 x 84.8	350 x 110 x 84.8	320 x 110 x 84.8	423 x 110 x 84.8	395 x 110 x 84.8	498 x 110 x 84.8
Moments M_x max./M_y max./M_z max.	[Nm]	83/290/121	83/290/121	100/290/121	100/290/121	117/290/121	117/290/121
Forces F_z max.	[N]	3000	3000	3000	3000	3000	3000

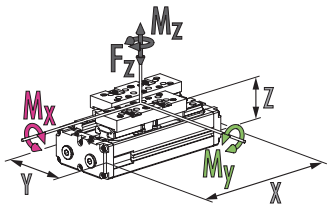
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Gripping force



Dimensions and maximum loads



For values see technical data table

PHL-W technical data

Description		PHL-W 40-050	PHL-W 40-050-S	PHL-W 40-075	PHL-W 40-075-S	PHL-W 40-100	PHL-W 40-100-S
ID		0308170	0308173	0308171	0308174	0308172	0308175
Stroke per jaw	[mm]	50	50	75	75	100	100
Closing/opening force	[N]	1300/1300	1880/-	1300/1300	1780/-	1300/1300	1680/-
Min. spring force	[N]		580		480		380
Weight	[kg]	5.71	6.42	6.53	8.05	7.34	8.39
Recommended workpiece weight	[kg]	6.5	6.5	6.5	6.5	6.5	6.5
Fluid consumption double stroke	[cm³]	302	559	430	686	558	814
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.28/0.28	0.3/0.51	0.38/0.38	0.4/0.68	0.47/0.47	0.49/0.85
Max. permissible finger length	[mm]	500	450	500	450	500	450
Max. permissible mass per finger	[kg]	5	5	5	5	5	5
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	247 x 110 x 90.2	350 x 110 x 90.2	320 x 110 x 90.2	423 x 110 x 90.2	395 x 110 x 90.2	498 x 110 x 90.2
Moments M_x max./M_y max./M_z max.	[Nm]	100/350/121	100/350/121	117/350/121	117/350/121	133/350/121	133/350/121
Forces F_z max.	[N]	3000	3000	3000	3000	3000	3000

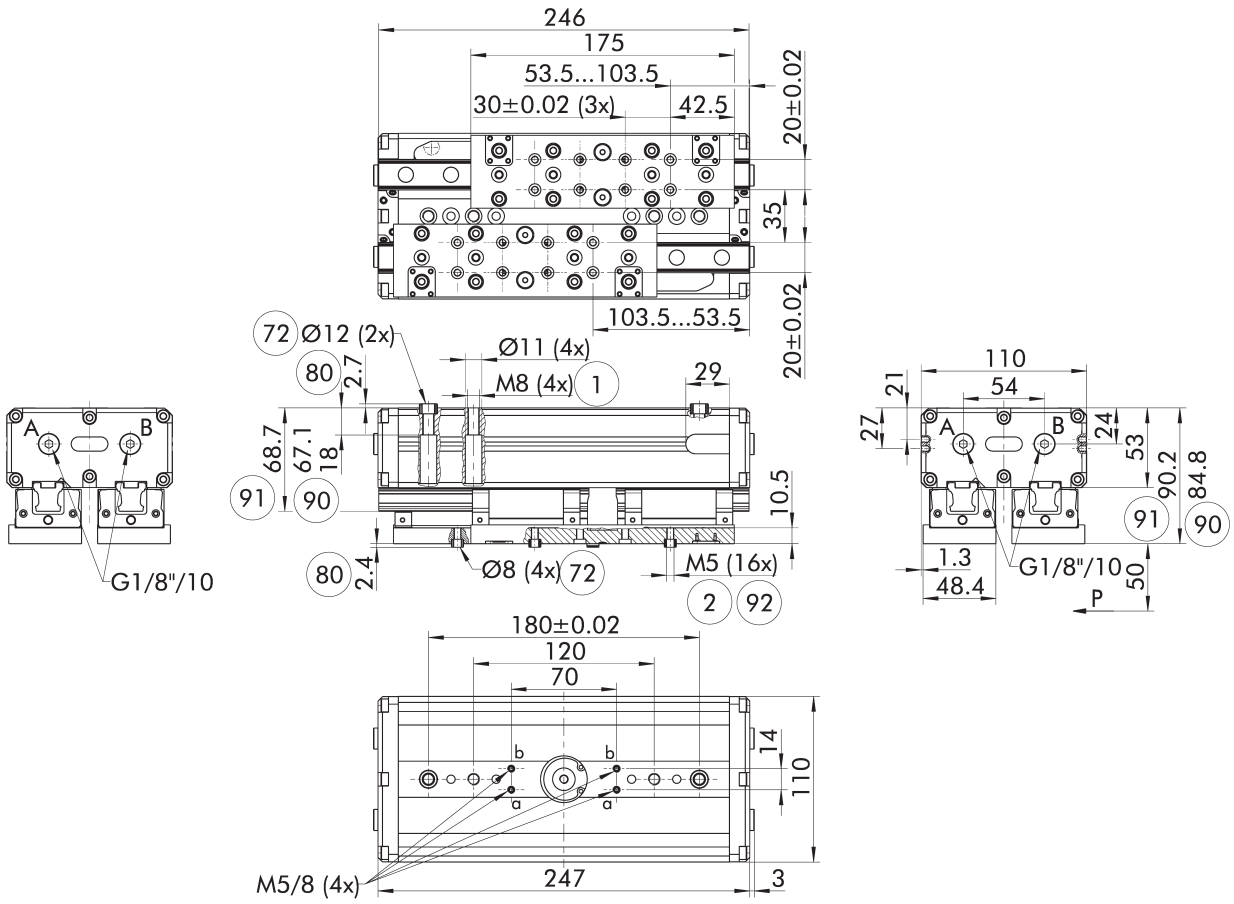
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

PHL 40

Long-stroke gripper

Main view PHL 40-050



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

(72) Fit for centering sleeves

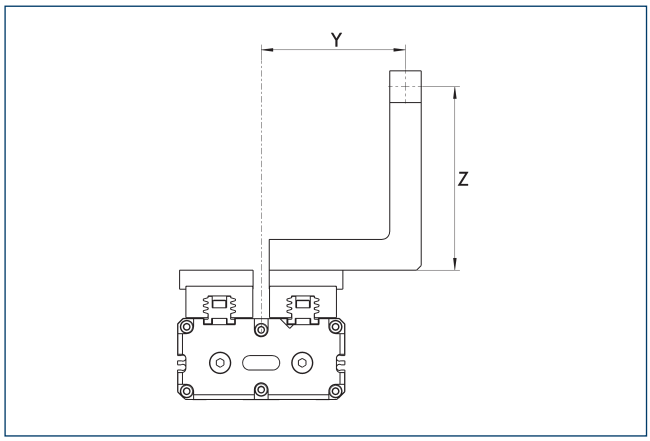
(80) Depth of the centering sleeve hole in the counter part

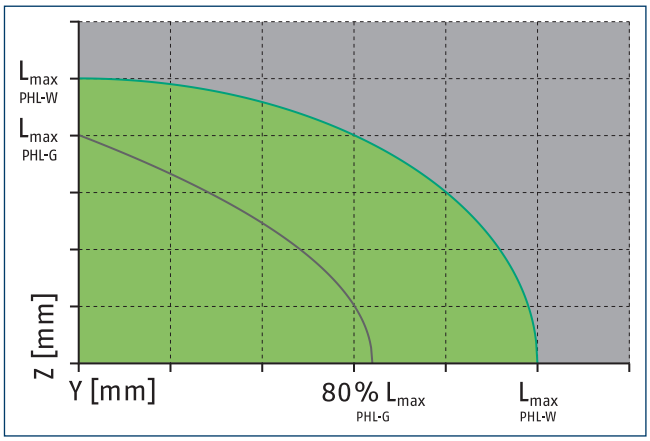
(90) Height of version G

(91) Height of version W

(92) Min. six screws per base jaw

Maximum permitted finger projection

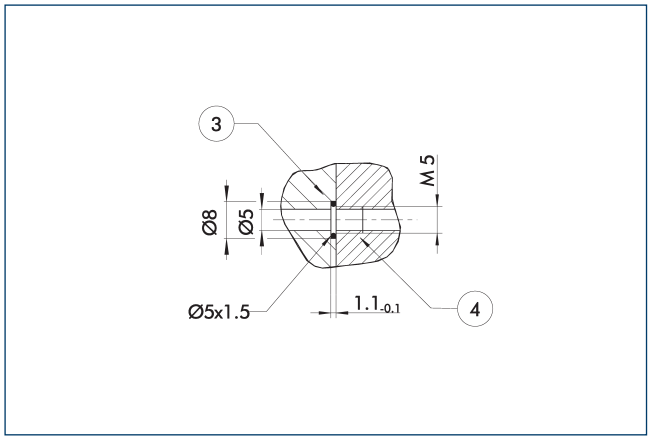




Permitted range Inadmissible range

L^{max} is equivalent to the maximum permitted finger length, see the technical data table.

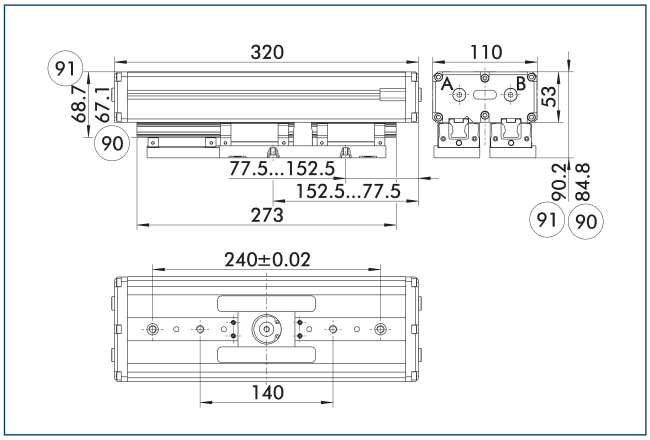
Hose-free direct connection M5



(3) Adapter (4) Grippers

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

Stroke version PHL 40-075



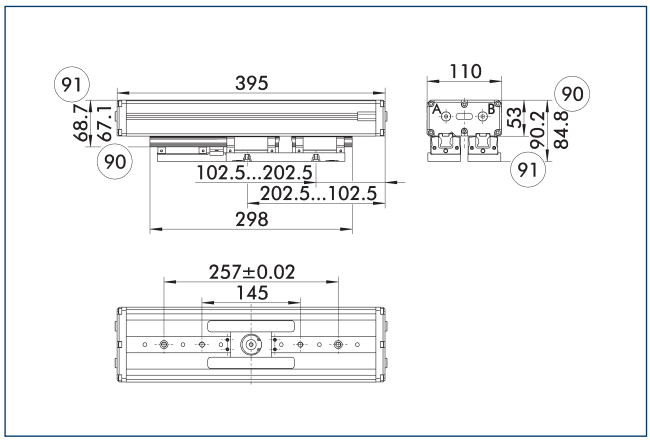
(90) Height of version G (91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

PHL 40

Long-stroke gripper

Stroke version PHL 40-100

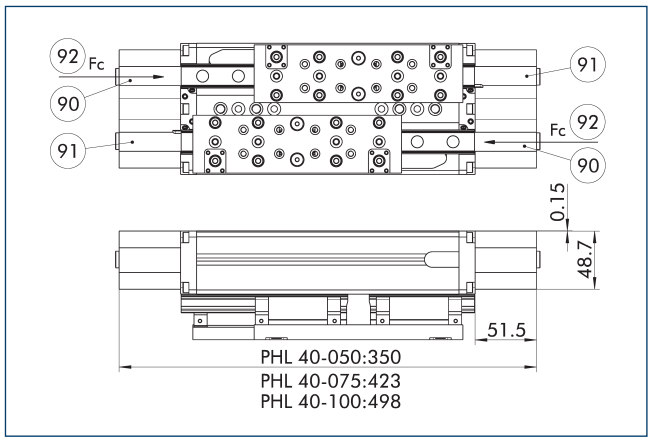


90 Height of version G

91 Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Gripping force maintenance S



90 Piston chamber with spring

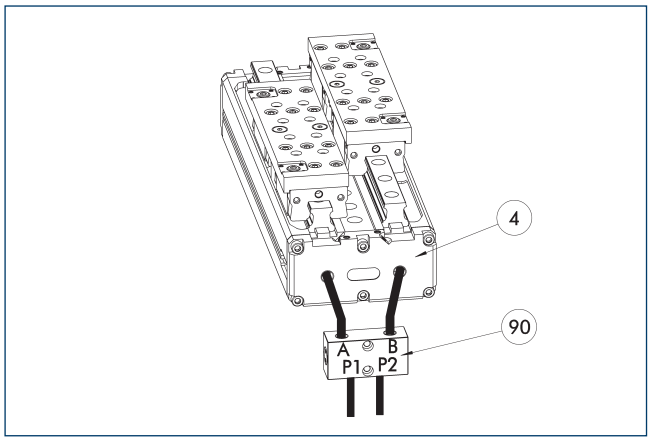
91 Piston chamber without spring

92 Direction of force of the pressure springs

The mechanical gripping force maintenance ensures a minimum clamping force in the event of a pressure drop. This acts as the closing force in the S variant. The design of the top jaws means that they can also be used as an opening force. Besides this, the gripping force maintenance can be used to increase the gripping force.

ⓘ The gripper is shown in the basic position, closed by springs.

SDV-P pressure maintenance valve



4 Grippers

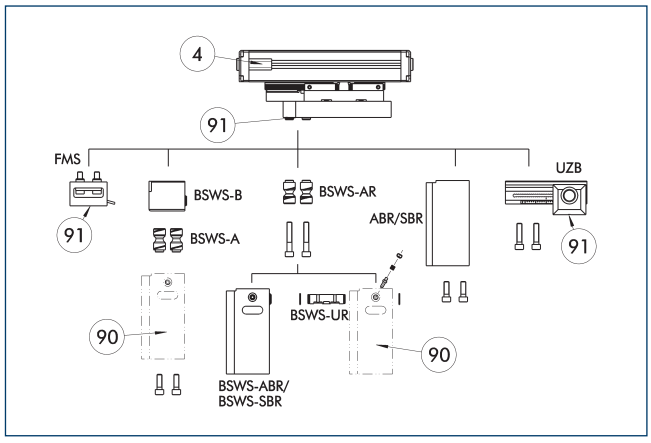
90 SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Intermediate jaw interface



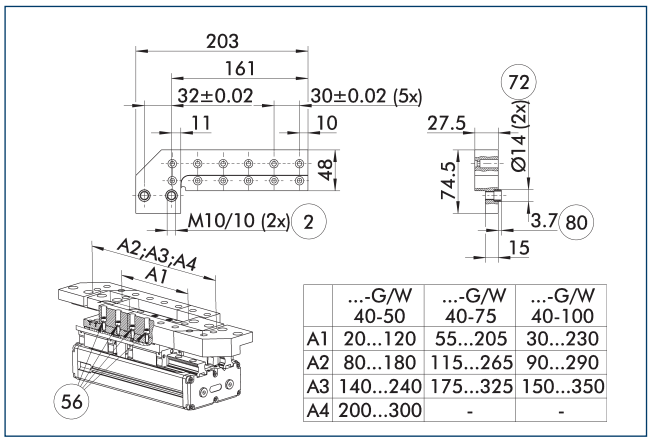
4 Grippers

90 Customized gripper fingers

91 Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes force-measuring jaws, jaw quick-change systems, finger blanks, and universal intermediate jaws.

ZBA PHL 40-160 intermediate jaw



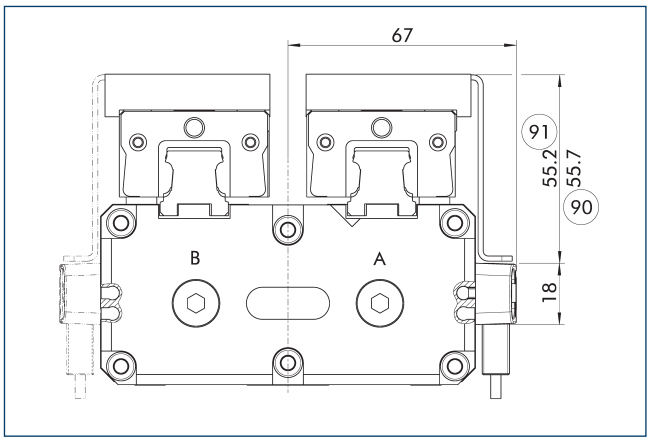
	...-G/W 40-50	...-G/W 40-75	...-G/W 40-100
A1	20...120	55...205	30...230
A2	80...180	115...265	90...290
A3	140...240	175...325	150...350
A4	200...300	-	-

(2) Finger connection
(56) Included in the scope of delivery
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PHL 40	0308169	Steel	PGN-plus 160	2

Attachment kit for proximity switch



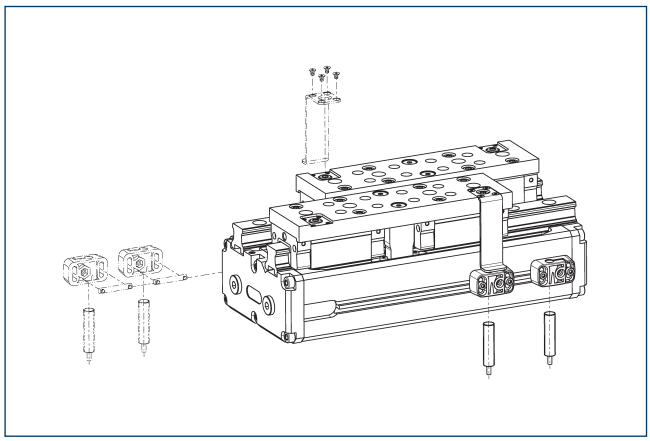
(90) Height of version G
(91) Height of version W

End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-PHL 40-IN80	0308832	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

Inductive Proximity Switches

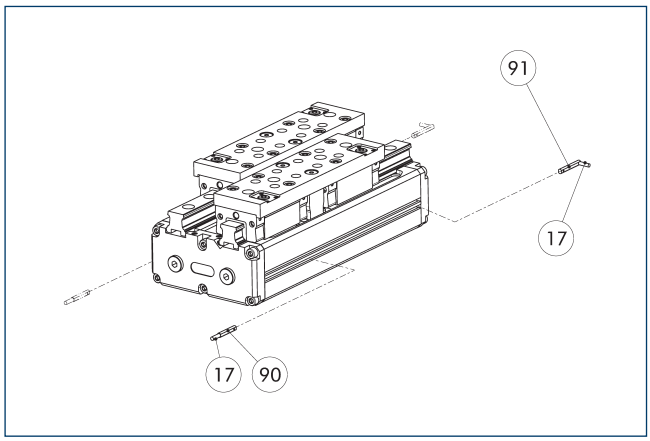


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PHL 40-IN80	0308832	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Electronic magnetic switch MMS



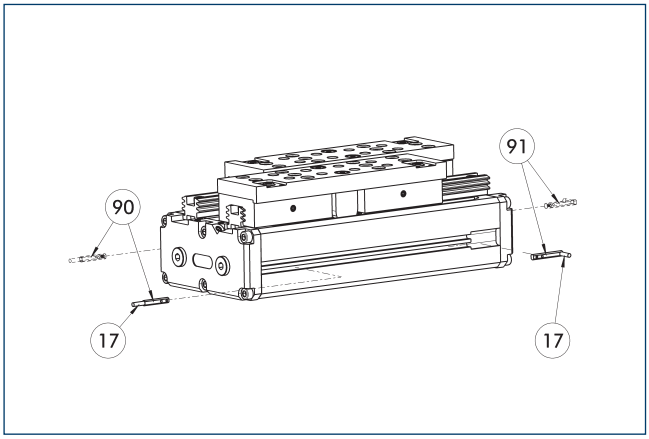
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	
Wireless sensor system		
RSS-T2	0377715	
RSS-T2-US/CA	0377717	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

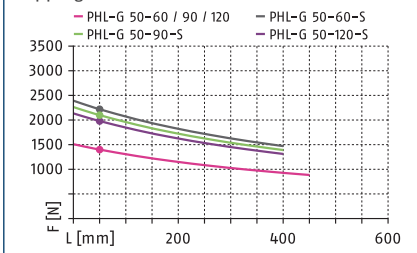
Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

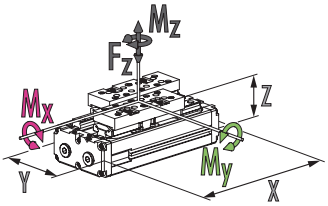
PHL 50

Long-stroke gripper

Gripping force



Dimensions and maximum loads



For values see technical data table

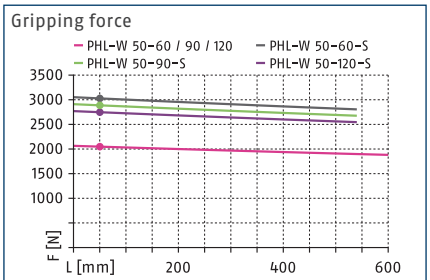
PHL-G technical data

Description		PHL-G 50-060	PHL-G 50-060-S	PHL-G 50-090	PHL-G 50-090-S	PHL-G 50-120	PHL-G 50-120-S
ID		0308180	0308183	0308181	0308184	0308182	0308185
Stroke per jaw	[mm]	60	60	90	90	120	120
Closing/opening force	[N]	1400/1400	2220/-	1400/1400	2100/-	1400/1400	1980/-
Min. spring force	[N]		820		700		580
Weight	[kg]	7.83	9.52	9.28	10.95	10.67	12.37
Recommended workpiece weight	[kg]	7	7	7	7	7	7
Fluid consumption double stroke	[cm³]	575	1070	814	1309	1053	1548
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.68/0.68	0.72/1.17	0.91/0.91	0.96/1.55	1.14/1.14	1.2/1.94
Max. permissible finger length	[mm]	450	400	450	400	450	400
Max. permissible mass per finger	[kg]	8	8	8	8	8	8
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	287.4 x 132 x 99.8	416.4 x 132 x 99.8	377.4 x 132 x 99.8	506.4 x 132 x 99.8	467.4 x 132 x 99.8	596.4 x 132 x 99.8
Moments M_x max./M_y max./M_z max.	[Nm]	142/390/219	142/390/219	161/390/219	161/390/219	181/390/219	181/390/219
Forces F_z max.	[N]	5300	5300	5300	5300	5300	5300

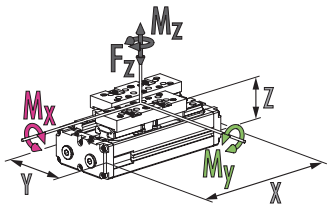
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Gripping force



Dimensions and maximum loads



For values see technical data table

PHL-W technical data

Description		PHL-W 50-060	PHL-W 50-060-S	PHL-W 50-090	PHL-W 50-090-S	PHL-W 50-120	PHL-W 50-120-S
ID		0308190	0308193	0308191	0308194	0308192	0308195
Stroke per jaw	[mm]	60	60	90	90	120	120
Closing/opening force	[N]	2050/2050	3030/-	2050/2050	2890/-	2050/2050	2750/-
Min. spring force	[N]		980		840		700
Weight	[kg]	9.24	10.94	10.74	11.63	12.16	13.86
Recommended workpiece weight	[kg]	10.25	10.25	10.25	10.25	10.25	10.25
Fluid consumption double stroke	[cm³]	575	1070	814	1309	1053	1548
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.61/0.61	0.62/1.01	0.81/0.81	0.83/1.35	1.02/1.02	1.04/1.69
Max. permissible finger length	[mm]	600	540	600	540	600	540
Max. permissible mass per finger	[kg]	8	8	8	8	8	8
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	287.4 x 132 x 105.2	416.4 x 132 x 105.2	377.4 x 132 x 105.2	506.4 x 132 x 105.2	467.4 x 132 x 105.2	596.4 x 132 x 105.2
Moments M_x max./M_y max./M_z max.	[Nm]	150/590/219	150/590/219	169/590/219	169/590/219	188/590/219	188/590/219
Forces F_z max.	[N]	5300	5300	5300	5300	5300	5300

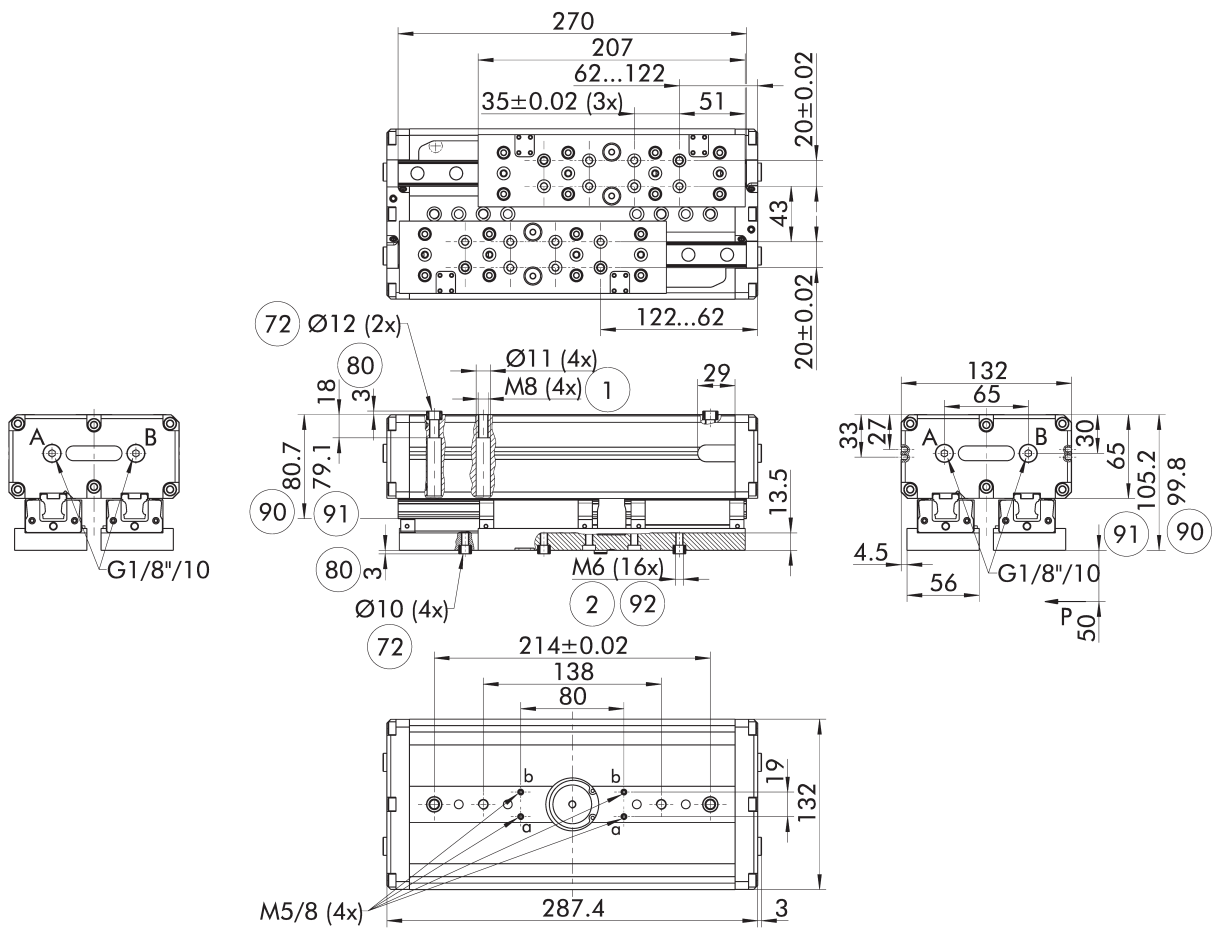
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

PHL 50

Long-stroke gripper

Main view PHL 50-060



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

(72) Fit for centering sleeves

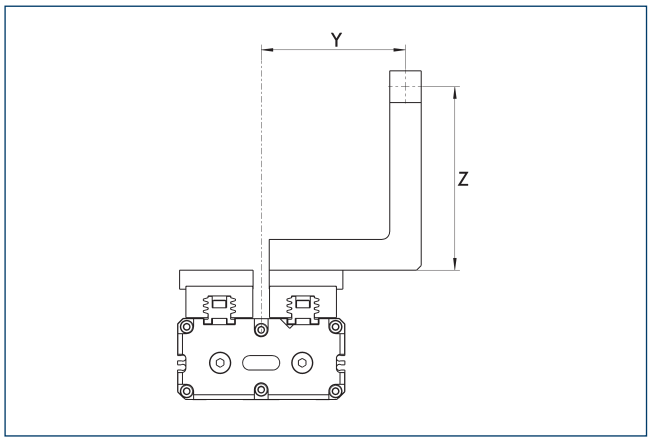
(80) Depth of the centering sleeve hole in the counter part

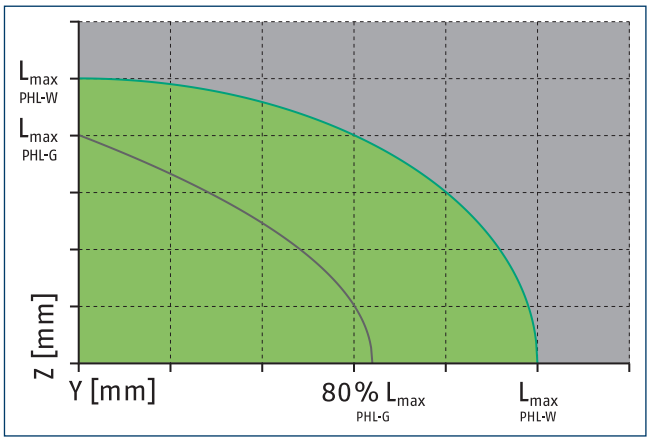
(90) Height of version G

(91) Height of version W

(92) Min. six screws per base jaw

Maximum permitted finger projection

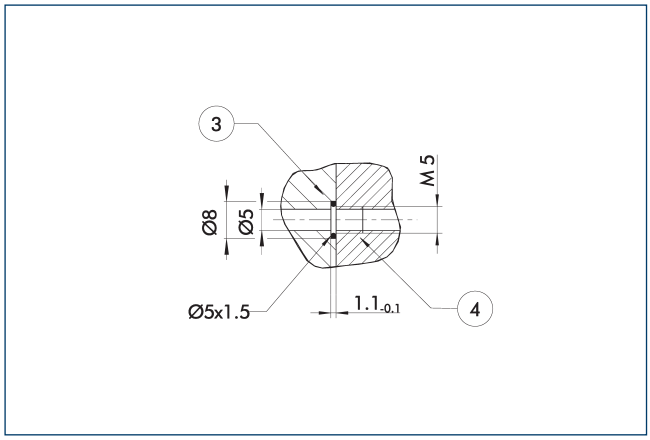




Permitted range Inadmissible range

L^{max} is equivalent to the maximum permitted finger length, see the technical data table.

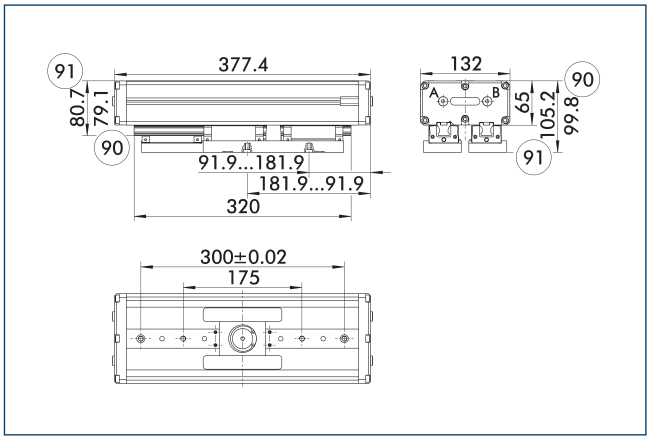
Hose-free direct connection M5



(3) Adapter (4) Grippers

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

Stroke version PHL 50-090



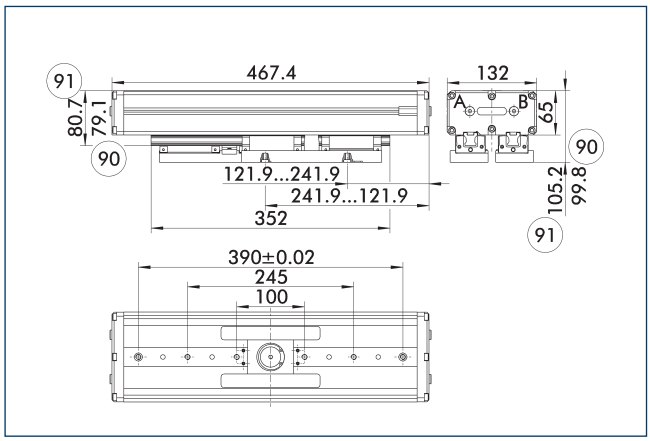
(90) Height of version G (91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

PHL 50

Long-stroke gripper

Stroke version PHL 50-120

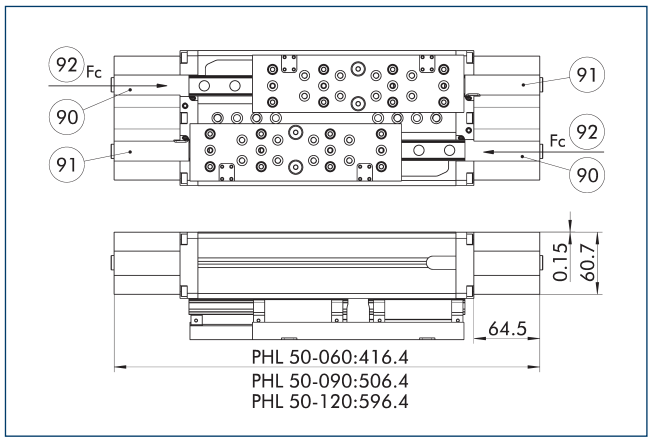


90 Height of version G

91 Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Gripping force maintenance S



90 Piston chamber with spring

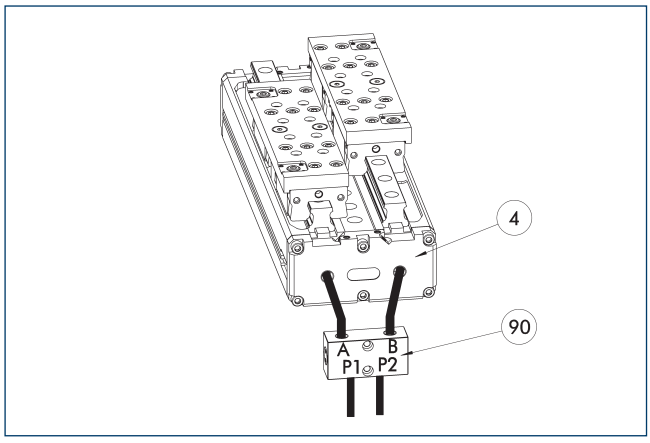
91 Piston chamber without spring

92 Direction of force of the pressure springs

The mechanical gripping force maintenance ensures a minimum clamping force in the event of a pressure drop. This acts as the closing force in the S variant. The design of the top jaws means that they can also be used as an opening force. Besides this, the gripping force maintenance can be used to increase the gripping force.

ⓘ The gripper is shown in the basic position, closed by springs.

SDV-P pressure maintenance valve



4 Grippers

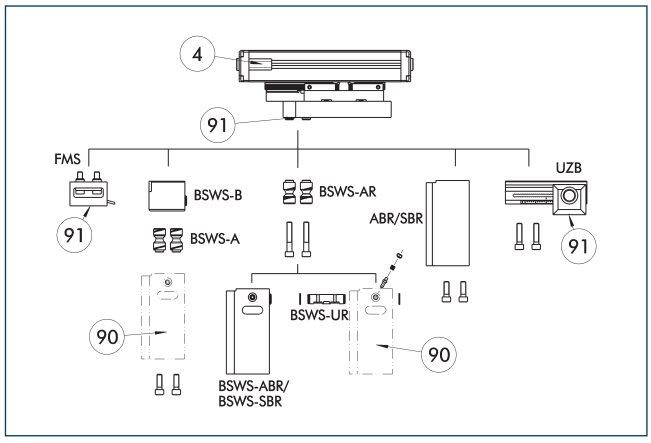
90 SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Intermediate jaw interface



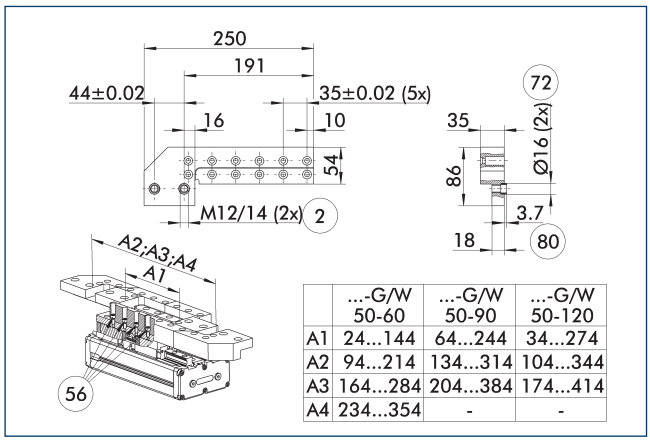
4 Grippers

90 Customized gripper fingers

91 Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes force-measuring jaws, jaw quick-change systems, finger blanks, and universal intermediate jaws.

Intermediate jaw ZBA PHL 50-240



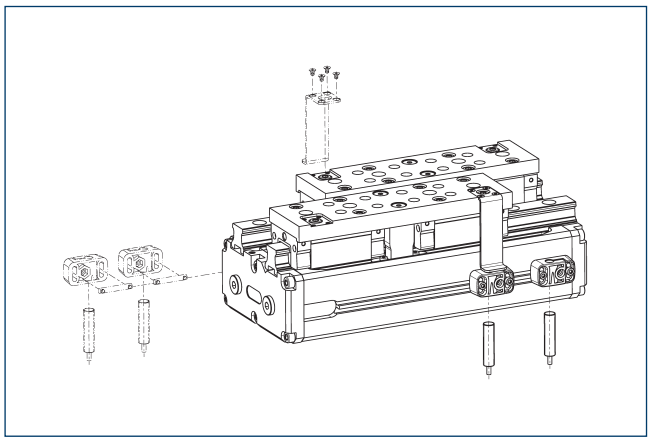
	...-G/W 50-60	...-G/W 50-90	...-G/W 50-120
A1	24...144	64...244	34...274
A2	94...214	134...314	104...344
A3	164...284	204...384	174...414
A4	234...354	-	-

(2) Finger connection
(56) Included in the scope of delivery
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PHL 50-240	0308189	Steel	PGN-plus 240	2

Inductive Proximity Switches

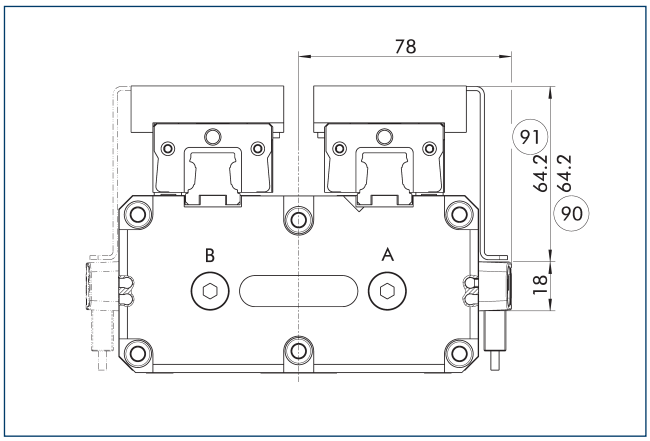


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PHL 50-IN80	0308833	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Attachment kit for proximity switch



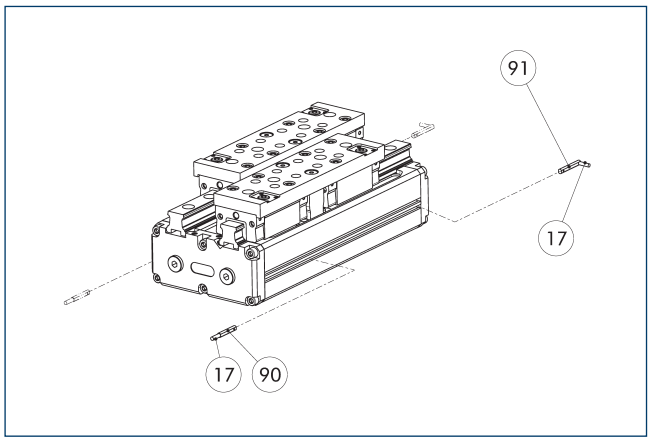
(90) Height of version G
(91) Height of version W

End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-PHL 50-IN80	0308833	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

Electronic magnetic switch MMS



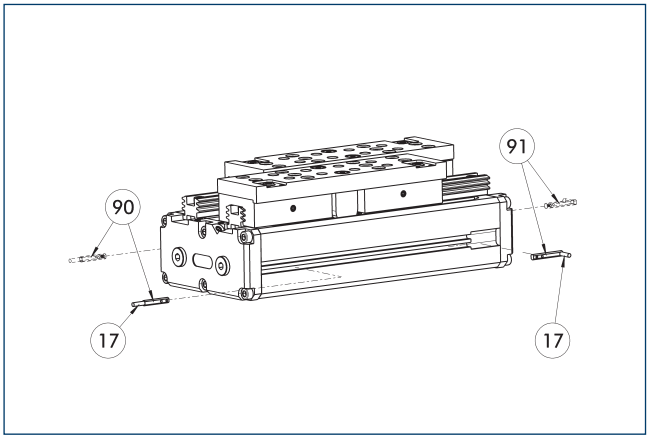
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

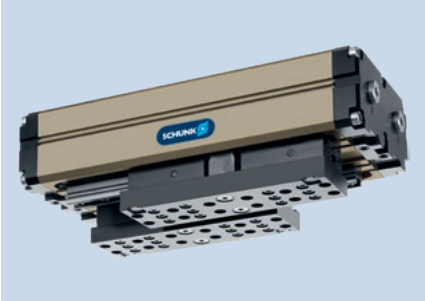
Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

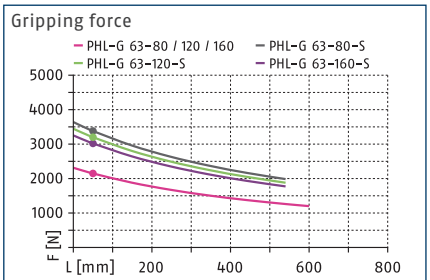
ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

PHL 63

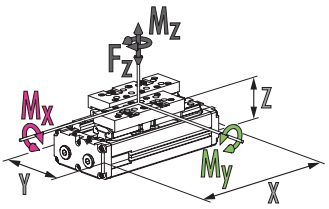
Long-stroke gripper



Gripping force



Dimensions and maximum loads



For values see technical data table

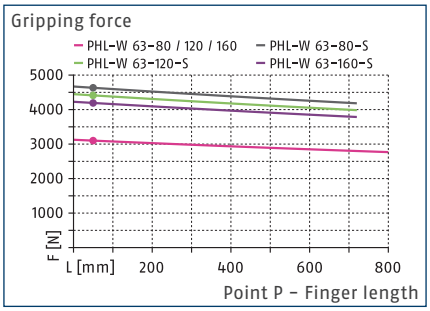
PHL-G technical data

Description		PHL-G 63 -080	PHL-G 63-080-S	PHL-G 63-120	PHL-G 63-120-S	PHL-G 63-160	PHL-G 63-160-S
ID		0308260	0308263	0308261	0308264	0308262	0308265
Stroke per jaw	[mm]	80	80	120	120	160	160
Closing/opening force	[N]	2150/2150	3380/-	2150/2150	3200/-	2150/2150	3020/-
Min. spring force	[N]		1260		1080		900
Weight	[kg]	13.71	17.2	15.58	19.42	18.55	22.04
Recommended workpiece weight	[kg]	10.75	10.75	10.75	10.75	10.75	10.75
Fluid consumption double stroke	[cm³]	1280	2303	1791	2814	2303	3325
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	1.05/1.05	1.26/2.01	1.4/1.4	1.68/2.67	1.76/1.76	2.1/3.34
Max. permissible finger length	[mm]	600	540	600	540	600	540
Max. permissible mass per finger	[kg]	12	12	12	12	12	12
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	371 x 164 x 123	541 x 164 x 123	491 x 164 x 123	661 x 164 x 123	611 x 164 x 123	781 x 164 x 123
Moments M_x max./M_y max./M_z max.	[Nm]	175/580/417	175/580/417	185/580/417	185/580/417	195/580/417	195/580/417
Forces F_z max.	[N]	10000	10000	10000	10000	10000	10000

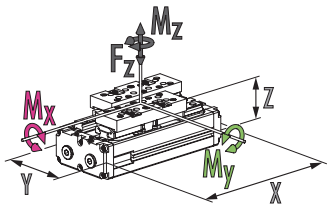
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Gripping force



Dimensions and maximum loads



For values see technical data table

PHL-W technical data

Description		PHL-W 63-080	PHL-W 63-080-S	PHL-W 63-120	PHL-W 63-120-S	PHL-W 63-160	PHL-W 63-160-S
ID		0308270	0308273	0308271	0308274	0308272	0308275
Stroke per jaw	[mm]	80	80	120	120	160	160
Closing/opening force	[N]	3100/3100	4630/-	3100/3100	4410/-	3100/3100	4190/-
Min. spring force	[N]		1530		1310		1090
Weight	[kg]	15.21	18.7	17.39	20.93	20.06	23.55
Recommended workpiece weight	[kg]	15.5	15.5	15.5	15.5	15.5	15.5
Fluid consumption double stroke	[cm³]	1280	2303	1791	2814	2303	3325
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.94/0.94	1.09/1.74	1.25/1.25	1.46/2.32	1.56/1.56	1.82/2.91
Max. permissible finger length	[mm]	800	720	800	720	800	720
Max. permissible mass per finger	[kg]	12	12	12	12	12	12
Protection class IP		41	41	41	41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Dimensions X x Y x Z	[mm]	371 x 164 x 128.7	541 x 164 x 128.7	491 x 164 x 128.7	661 x 164 x 128.7	611 x 164 x 128.7	781 x 164 x 128.7
Moments M_x max./M_y max./M_z max.	[Nm]	180/1080/417	180/1080/417	190/1080/417	190/1080/417	200/1080/417	200/1080/417
Forces F_z max.	[N]	10000	10000	10000	10000	10000	10000

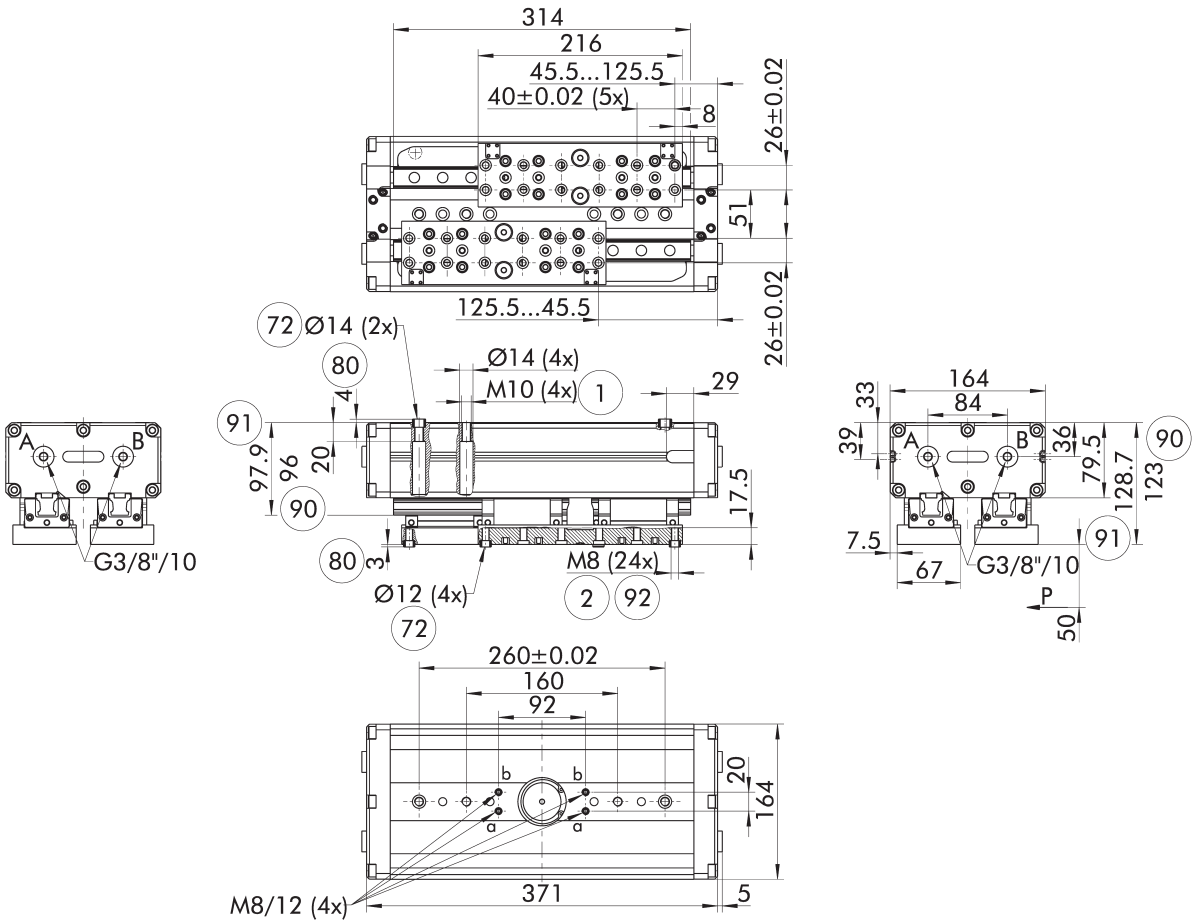
ⓘ In certain circumstances, the full gripping force as per the data table will only become effective for the PHL-G version, equipped with floating bearings after around 100 gripping cycles.

ⓘ The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

PHL 63

Long-stroke gripper

Main view PHL 63-080



The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

ⓘ The SDV-P pressure maintenance valve can be used as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

(1) Gripper connection

(2) Finger connection

(72) Fit for centering sleeves

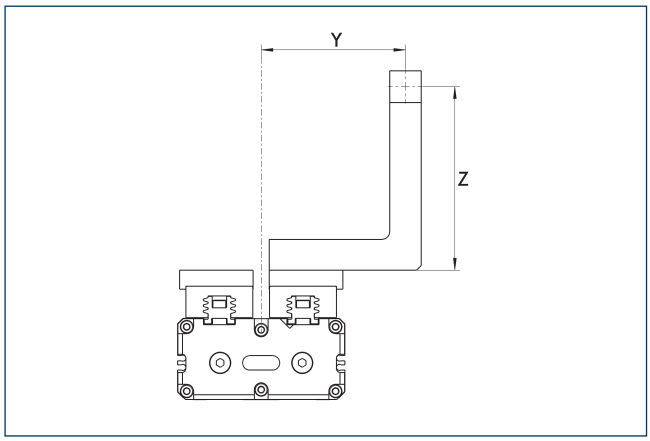
(80) Depth of the centering sleeve hole in the counter part

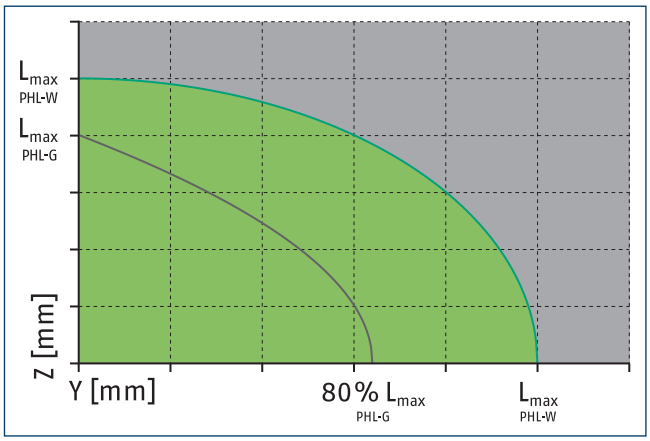
(90) Height of version G

(91) Height of version W

(92) Min. eight screws per base jaw

Maximum permitted finger projection

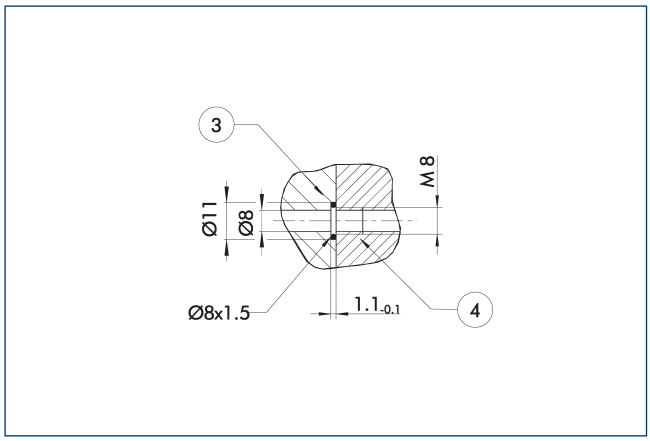




Permitted range Inadmissible range

L^{max} is equivalent to the maximum permitted finger length, see the technical data table.

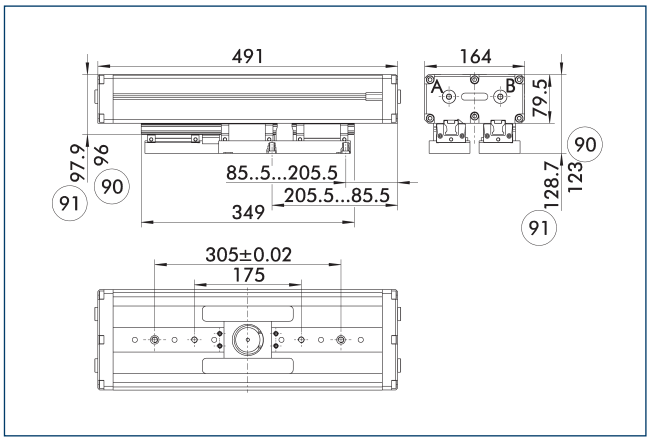
Hose-free direct connection M8



(3) Adapter (4) Grippers

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

Stroke version PHL 63-120



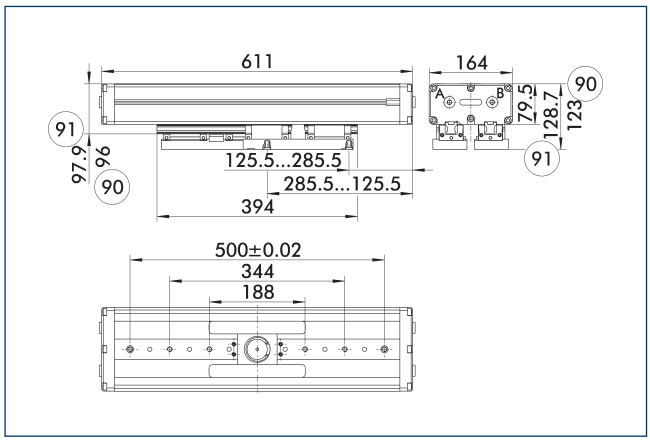
(90) Height of version G (91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

PHL 63

Long-stroke gripper

Stroke version PHL 63-160

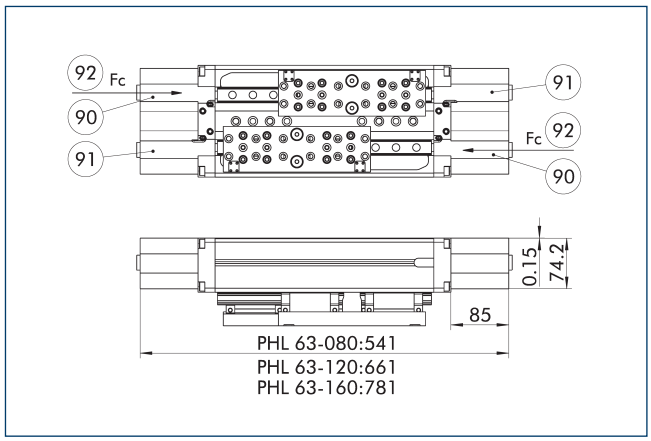


(90) Height of version G

(91) Height of version W

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

Gripping force maintenance



(90) Piston chamber with spring

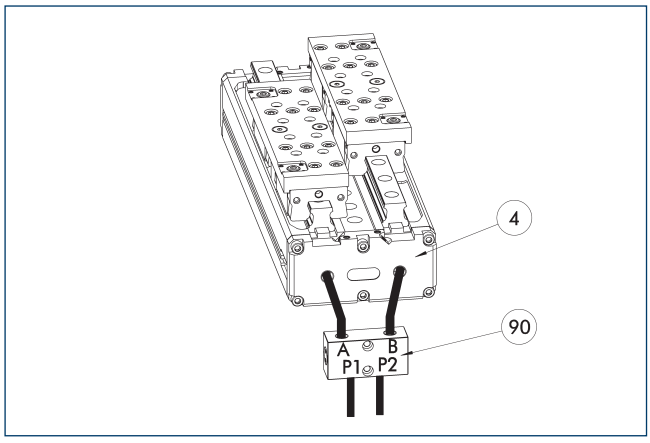
(91) Piston chamber without spring

(92) Direction of force of the pressure springs

The mechanical gripping force maintenance ensures a minimum clamping force in the event of a pressure drop. This acts as the closing force in the S variant. The design of the top jaws means that they can also be used as an opening force. Besides this, the gripping force maintenance can be used to increase the gripping force.

ⓘ The gripper is shown in the basic position, closed by springs.

SDV-P pressure maintenance valve



(4) Grippers

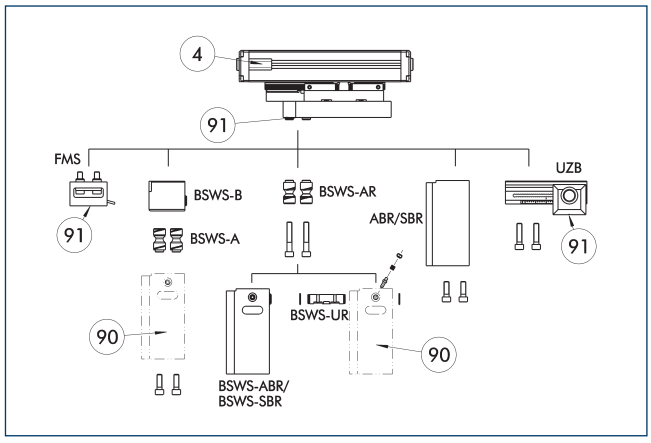
(90) SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 07	0403131	8
Pressure maintenance valve with air bleed screw		
SDV-P 07-E	0300121	8

ⓘ In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

Intermediate jaw interface



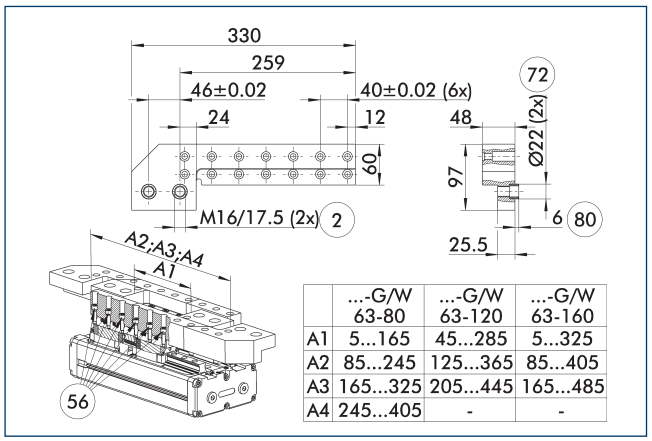
(4) Grippers

(90) Customized gripper fingers

(91) Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes force-measuring jaws, jaw quick-change systems, finger blanks, and universal intermediate jaws.

ZBA PHL 63-300 intermediate jaw



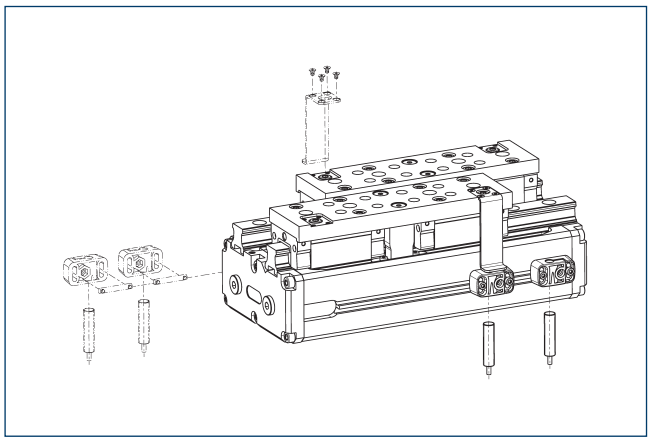
	...-G/W 63-80	...-G/W 63-120	...-G/W 63-160
A1	5...165	45...285	5...325
A2	85...245	125...365	85...405
A3	165...325	205...445	165...485
A4	245...405	-	-

(2) Finger connection
(56) Included in the scope of delivery
(72) Fit for centering sleeves
(80) Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PHL 63	0308269	Steel	PGN-plus 300	2

Inductive Proximity Switches

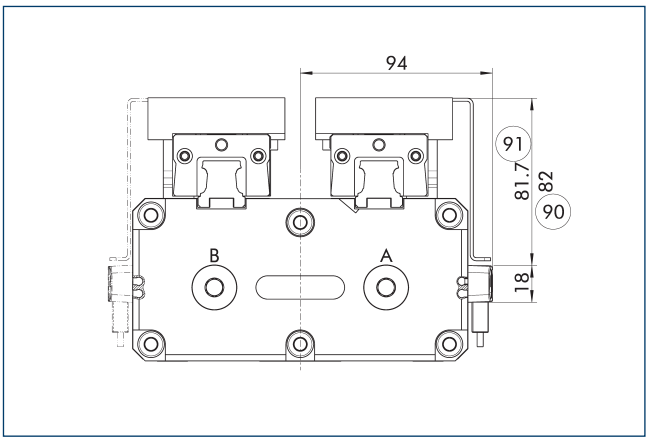


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PHL 63-IN80	0308834	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	

ⓘ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Attachment kit for proximity switch



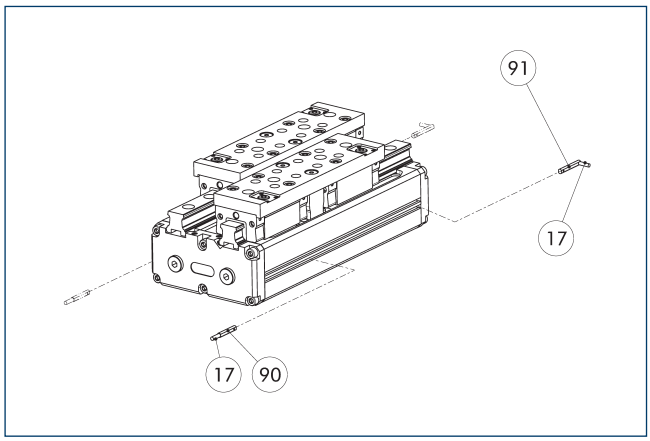
(90) Height of version G
(91) Height of version W

End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-PHL 63-IN80	0308834	

ⓘ This attachment kit needs to be ordered optionally as an accessory.

Electronic magnetic switch MMS



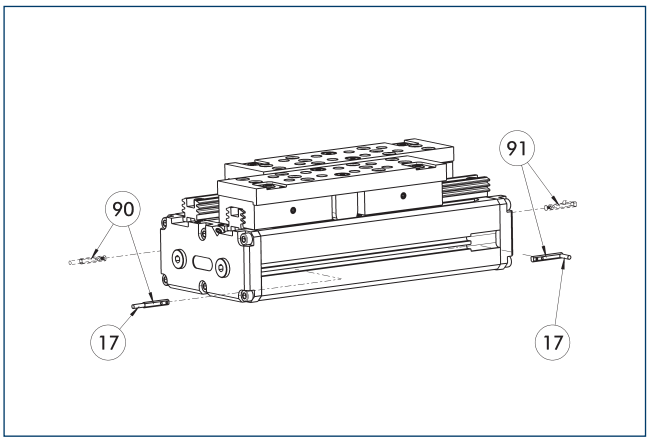
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet
(91) Sensor MMS 22 ..-PI1-...-SA
(90) Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Programmable magnetic switch		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	
Programmable magnetic switch with lateral cable outlet		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	

ⓘ Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

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