Superior Clamping and Gripping

SCHUNK®

Product Information

Heavy-load gripper SPG

Strong. Robust. Flexible.

Heavy-duty gripper SPG

Sturdy 2-finger parallel gripper for heavy components and a broad part range, equipped with robust guides

Field of application

suitable for clean working environments, covers a broad range of parts due to its long jaw stroke and high gripping forces for heavy workpieces

Advantages – Your benefits

Robust sliding guide for precise handling

High maximum moments possible suitable for using long gripper fingers

High efficiency through direct drive

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

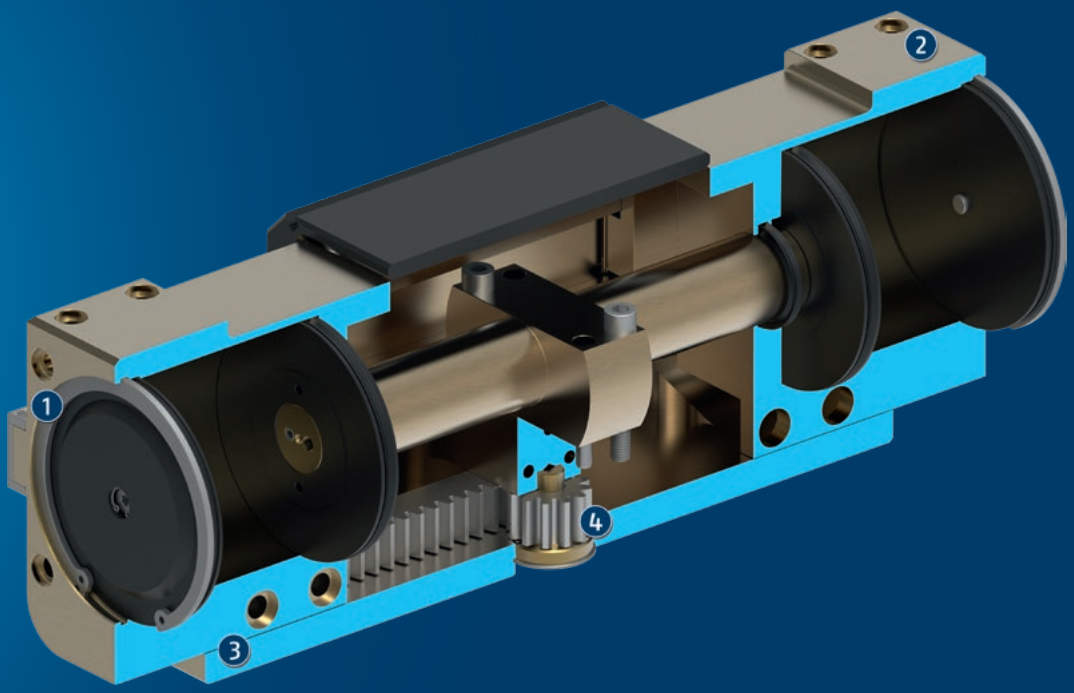
Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems

Sizes	Weight	Gripping force	Stroke per jaw	Workpiece weight
Quantity: 1	35 kg	10000 N	100 mm	50 kg

Functional description

The aligned base jaws are actuated with compressed air directly by the fixed piston, which opens and closes them. The base jaws are synchronized by the rack and pinion kinematics.

The direct flow of force enables a high degree of efficiency and therefore very high gripping forces.



① **Sliding guide**
precise gripping due to the use of a highly loadable guidance with minimum play

② **Base Jaw**
for the connection of workpiece-specific gripper fingers

③ **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

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

General notes about the series

Housing material: Aluminum alloy, anodized

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, cupped-type lubrication nipples, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

Gripping force maintenance device: corresponding version with ID 0302120 includes a pressure maintenance valve SDV-P 07 in the scope of delivery. The version with ID 0302121 is supplied without pressure maintenance valve, but can be retrofitted.

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.

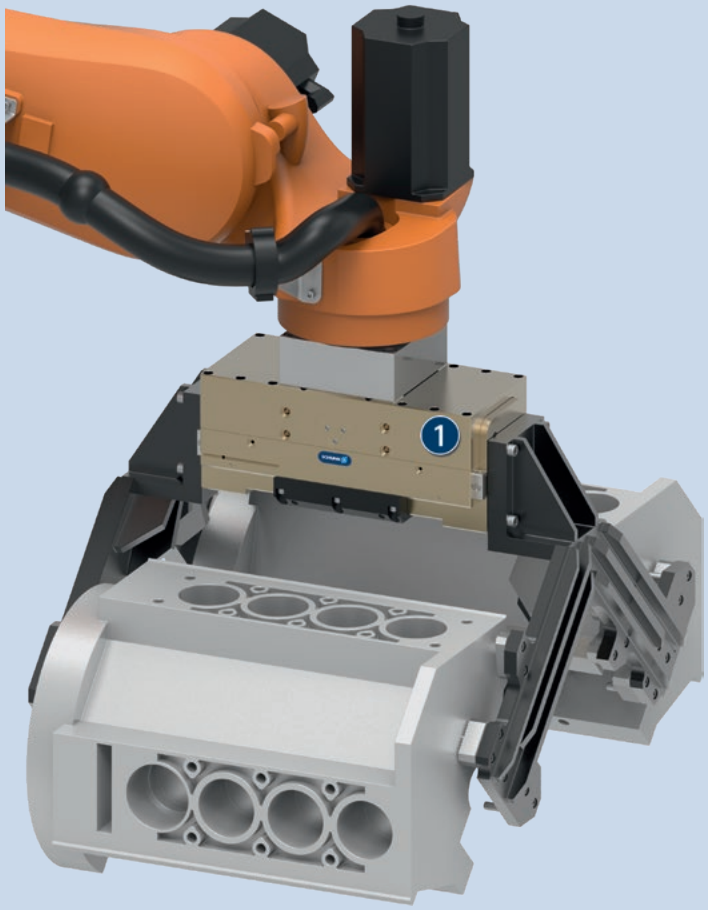
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

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

Gripper unit for heavy V8 motors

❶ 2-finger heavy-load gripper SPG



SCHUNK offers more ...

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

Quick change system

Pressure maintenance valve

Magnetic switches

Inductive proximity switches

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

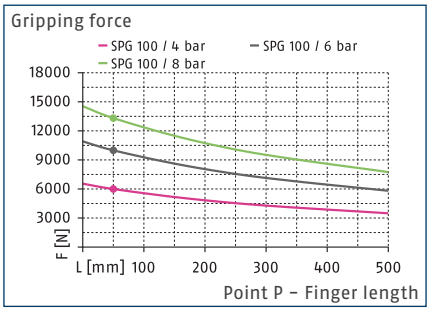
Options and special information

Two lubricating nipples TM6 on either side for relubricating the base jaws and purge air connections are already provided.
Gripping force maintenance device: The SPG 100 (ID 0302121) with shortened opening and closing times of 1.5 s is supplied without a pressure maintenance valve used for gripping force maintenance.

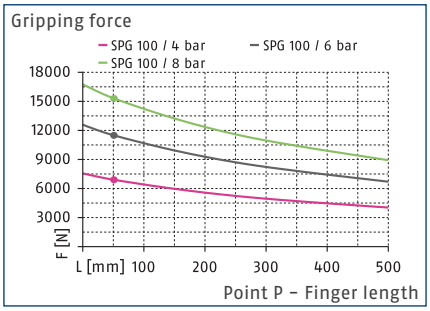
SPG 100

Heavy-load gripper

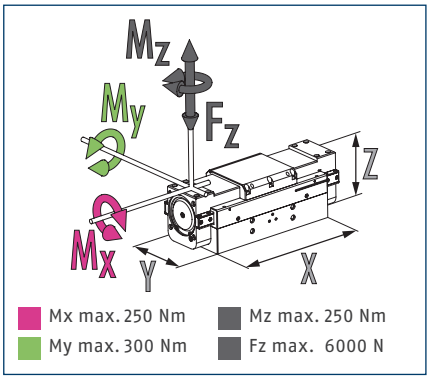
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



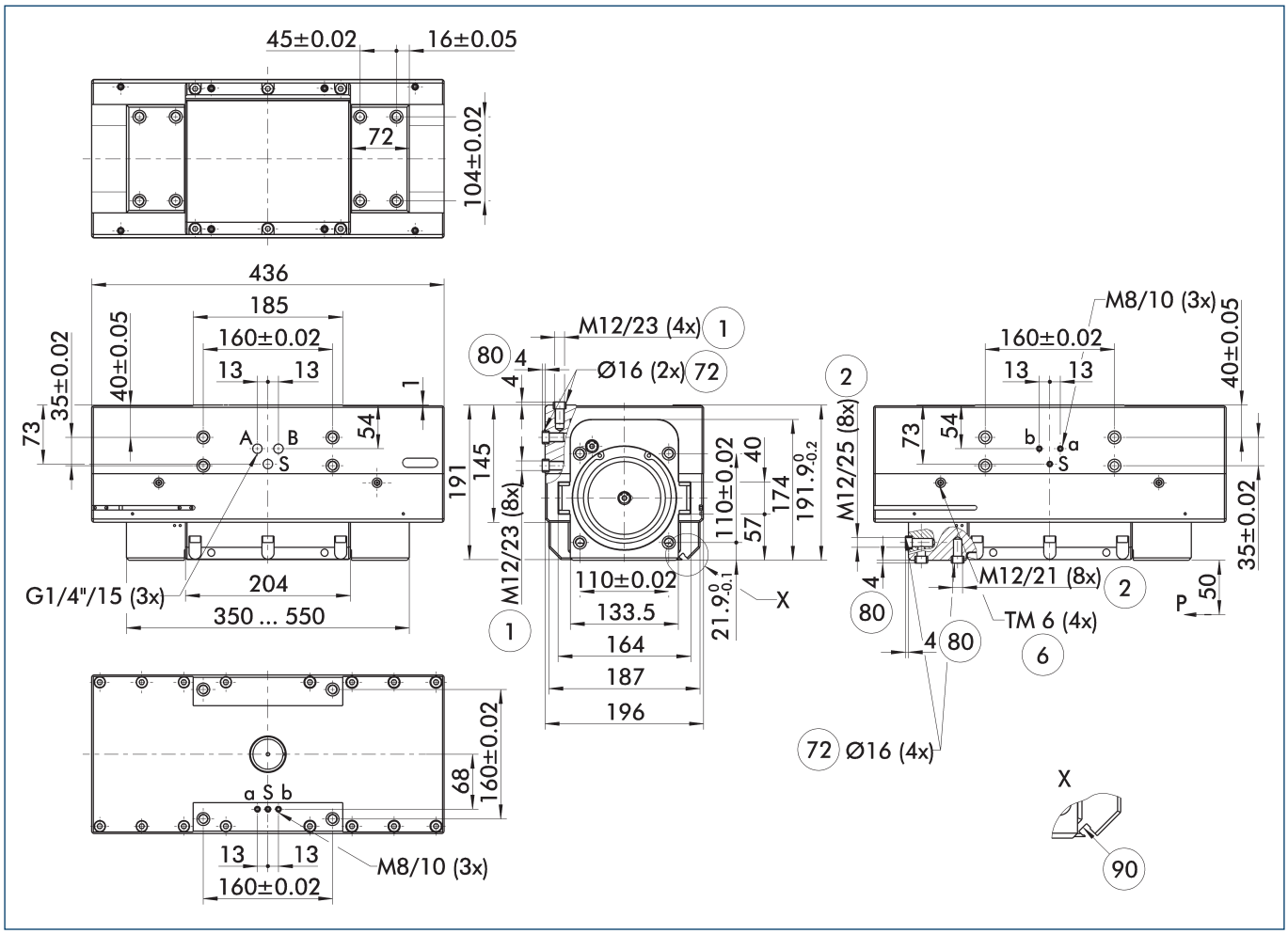
ⓘ The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		SPG 100	SPG 100-SDV-P
ID		0302121	0302120
Stroke per jaw	[mm]	100	100
Closing/opening force	[N]	10000/11480	10000/11480
Weight	[kg]	35	35
Recommended workpiece weight	[kg]	50	50
Fluid consumption double stroke	[cm³]	4600	4600
Min./nom./max. operating pressure	[bar]	2/6/8	2/6/8
Min./max. air purge pressure	[bar]	0.5/1	0.5/1
Closing/opening time	[s]	1.5/1.5	3/3
Max. permissible finger length	[mm]	500	500
Max. permissible mass per finger	[kg]	15	15
IP protection class		30	30
Min./max. ambient temperature	[°C]	5/90	5/90
Repeat accuracy	[mm]	0.1	0.1
Dimensions X x Y x Z	[mm]	436 x 196 x 191.9	436 x 196 x 191.9

ⓘ It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.
The closing and opening times can be further reduced by fitting rapid deaeration valves to the air connections. However, care must be taken to ensure that the jaw motion occurs without any hitting or bouncing.

Main view



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

S Air purge connection

(1) Gripper connection

(2) Finger connection

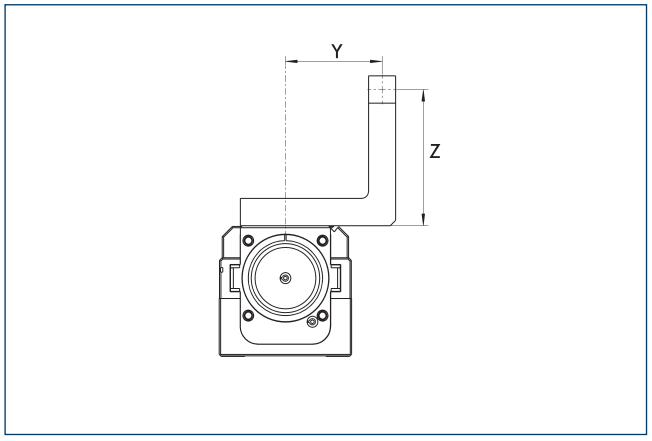
(6) Lubricating nipple connection

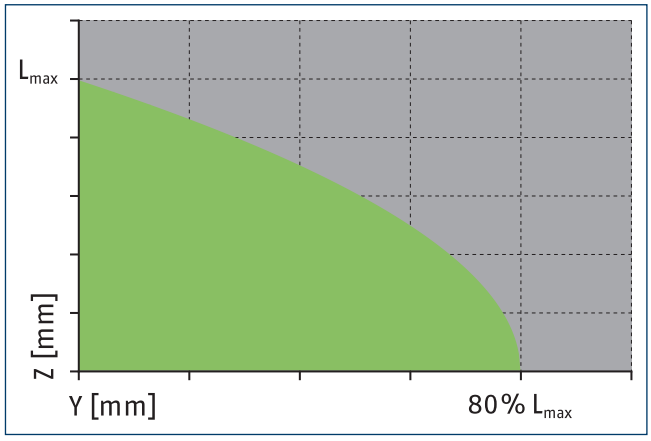
(72) Fit for centering sleeves

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

(90) MMS 30

Maximum permitted finger projection





Permitted range

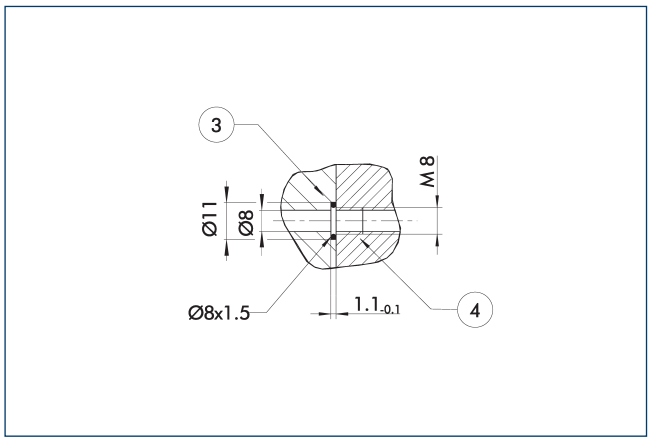
Inadmissible range

Lmax is equivalent to the maximum permitted finger length, see the technical data table.

SPG 100

Heavy-load gripper

Hose-free direct connection M8

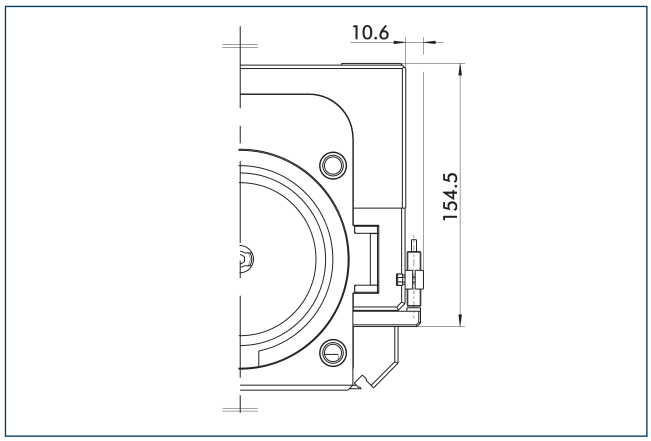


(3) Adapter

(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.

Attachment kit for proximity switch

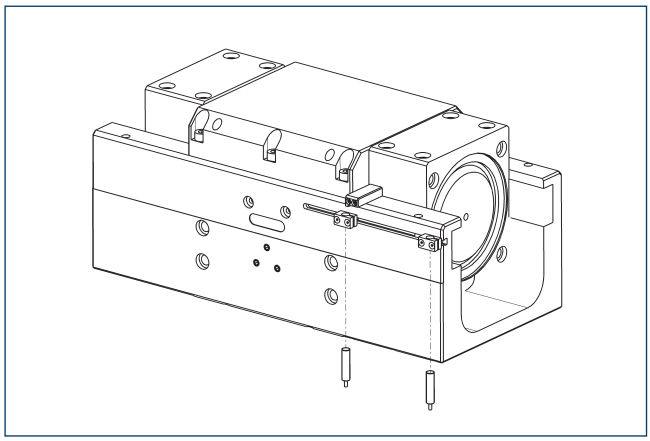


The attachment kit includes a bracket, switch cams, and mounting screws. Proximity switches have to be ordered separately.

Description	ID	
Attachment kit for proximity switch		
HG-SPG 100	0300765	

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

Inductive Proximity Switches

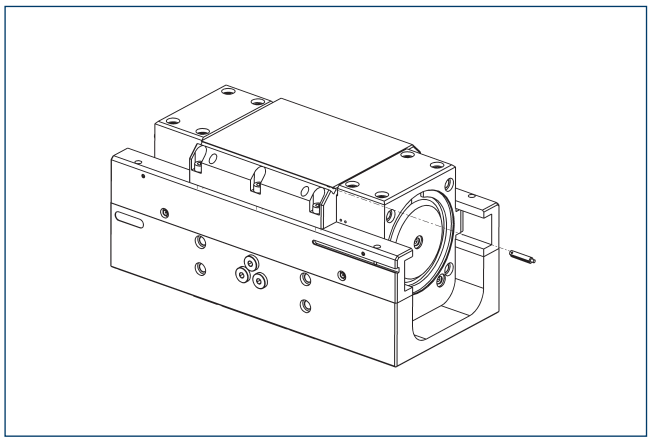


End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
HG-SPG 100	0300765	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
IN-C 80-S-M8-PNP	0301475	
INK 80-S	0301550	
INK 80-SL	0301579	

ⓘ 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



End position monitoring for mounting in the T-slot

Description	ID	Often combined
Electronic magnetic switch		
MMS 30-S-M12-PNP	0301571	
MMS 30-S-M8-PNP	0301471	●
MMSK 30-S-PNP	0301563	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
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.

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