



Superior Clamping and Gripping



Product Information

Angular gripper GMW

2-finger angular gripper with stable kinematics for high power transmission

Field of application

Gripping and moving of small to medium-sized workpieces in low contaminated environments, such as assembly, testing, laboratory and pharmaceutical industry

Advantages – Your benefits

Stable kinematics for high power transmission and synchronized gripping

Choice of I.D. or O.D. gripping for maximum flexibility in applications

The gripper head for the drive unit can be continuously rotated

Integration of a gripping force maintenance is optional for firm grip even in the event of power failure

End-position monitoring up to four monitoring sets possible

Standardized mounting bores for numerous combinations with other components from the modular system

Factory-made combinations for rotary gripper modules without rotating power lines are possible



Sizes
Quantity: 4



Weight
0.14 .. 0.76 kg



Gripping moment
0.6 .. 5.5 Nm



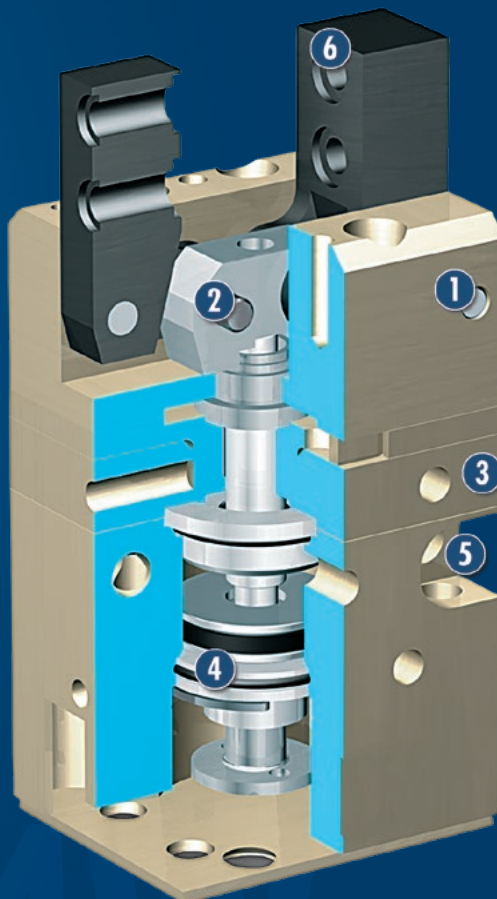
Angle per jaw
3 .. 16°



Repeat accuracy
0.02 mm

Functional description

The piston is moved up or down with compressed air. The kinematics guides the piston movement into a synchronized, rotatory opening and closing together with the bolt bearings of the base jaws.



- ① **Base jaw seated**
for rotatory movement over hardened cylindrical pivot pins
- ② **Kinematics**
Synchronization by lever principle for centric gripping
- ③ **Rotation adapter**
Flexible; twisting of the gripping head to the drive unit
- ④ **Drive**
double-acting piston drive system
- ⑤ **Sleeve with central bore for centering pin**
Completely integrated in the module system
- ⑥ **Base Jaws**
for the connection of workpiece-specific gripper fingers

General notes about the series

Operating principle: force-guided lever gear

Housing material: Aluminum alloy, anodized

Base jaw material: Steel

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

Warranty: 24 months

Scope of delivery: Completely ready for operation without bracket for proximity switch and without proximity switch

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

Closing moment: is the arithmetic sum of the individual moment applied to each jaw.

Finger length: is measured from the reference surface as the distance P in direction to the main axis.

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

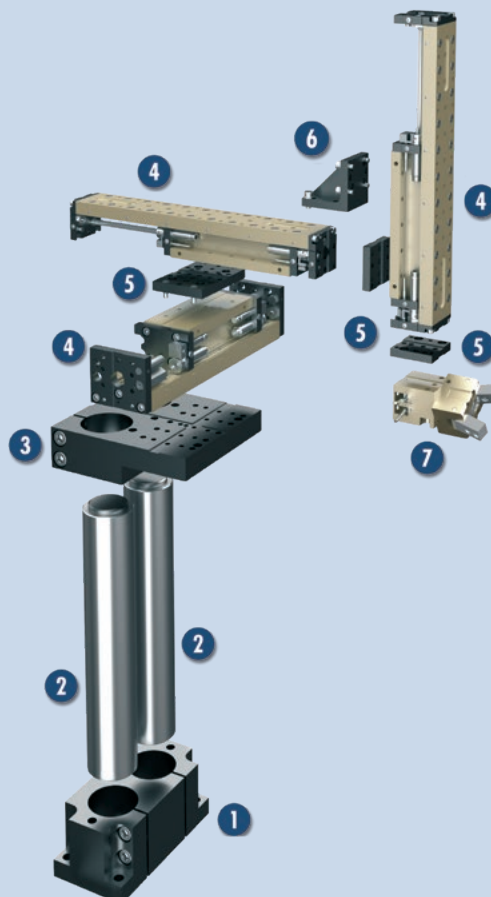
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

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

Pneumatic three-axis system featuring a gripper with flexible rotation and pillar assembly for small components

- ❶ Double socket SOD
- ❷ Hollow pillar SLH
- ❸ Double mounting plate, APDH
- ❹ Linear module LM
- ❺ Adapter plate APL
- ❻ Reinforcing bracket, VW
- ❼ GMWA angular gripping module



SCHUNK offers more ...

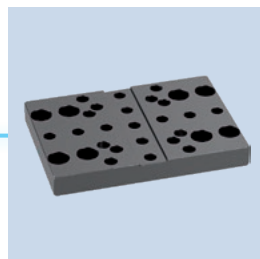
The following components make the product GMW even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



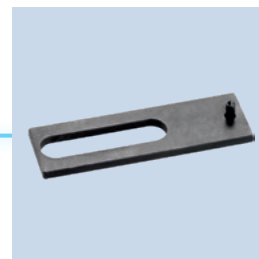
Fittings



Pillar assembly systems



Adapter plate



Centering strips



Pressure maintenance valve



Inductive Proximity Switches



Sensor cables

① 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

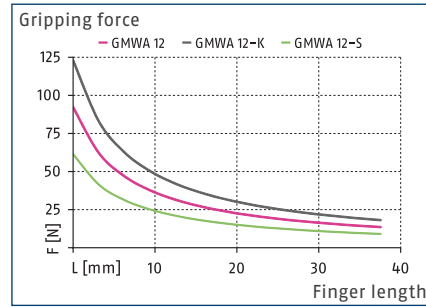
Options and special information

Rotation adapter version: The gripper head can be continuously adjusted and indexed in relation to the drive.

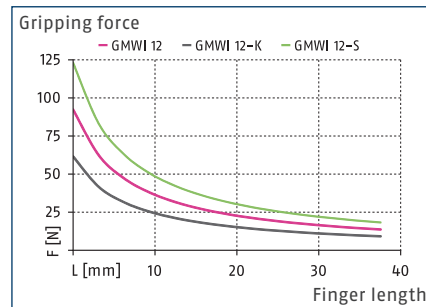
Anti-corrosion version K: for use in corrosion-inducing atmospheres



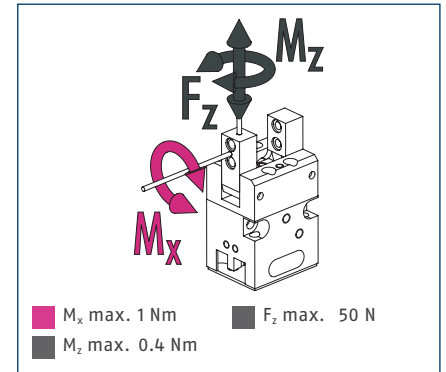
Gripping force O.D. gripping



Gripping force I.D. gripping



Max. loads

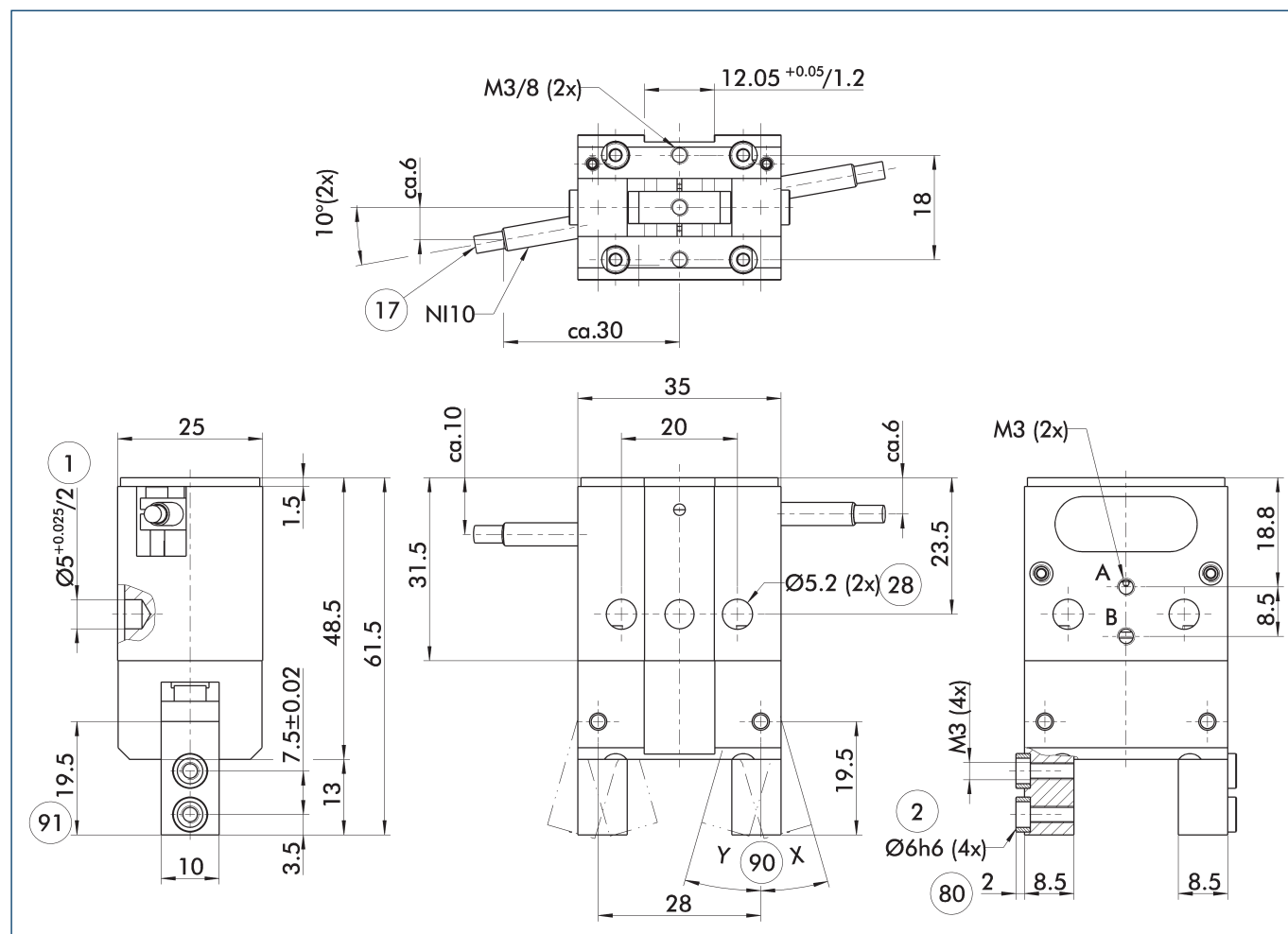


① The indicated moments and forces are static values, apply for each base jaw and should not appear simultaneously.

Technical data

Description		GMWA 12	GMWA 12-K	GMWA 12-S	GMWI 12	GMWI 12-K	GMWI 12-S
ID		0313140	0313142	0313141	0313158	0313160	0313159
Closing angle per jaw	[°]	3	3	3	16	16	16
Opening angle per jaw	[°]	16	16	16	3	3	3
Closing moment	[Nm]	0.6	0.8		0.6	0.8	
Opening moment	[Nm]	0.6		0.8	0.6		0.8
Min. closing moment by spring	[Nm]		0.2			0.2	
Min. opening moment by spring	[Nm]			0.2			0.2
Weight	[kg]	0.14	0.16	0.16	0.14	0.16	0.16
Fluid consumption double stroke	[cm³]	0.87	0.87	0.87	0.87	0.87	0.87
Min./nom./max. operating pressure	[bar]	3/6/8	5/6/8	5/6/8	3/6/8	5/6/8	5/6/8
Closing/opening time	[s]	0.02/0.02	0.015/0.025	0.025/0.015	0.02/0.02	0.015/0.015	0.025/0.025
Max. permissible finger length	[mm]	25	25	25	25	25	25
Max. permissible mass per finger	[kg]	0.05	0.05	0.05	0.05	0.05	0.05
IP protection class		40	40	40	40	40	40
Min./max. ambient temperature	[°C]	5/60	5/60	5/60	5/60	5/60	5/60
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Options and their characteristics							
Rotation adapter version		GMWA 12-D	GMWA 12-Z	GMWA 12-X	GMWI 12-D	GMWI 12-Z	GMWI 12-X
ID		0313143	0313145	0313144	0313161	0313163	0313162
Weight	[kg]	0.16	0.18	0.18	0.16	0.18	0.18

Main view



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

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

① Gripper connection

② Finger connection

⑬ Cable outlet

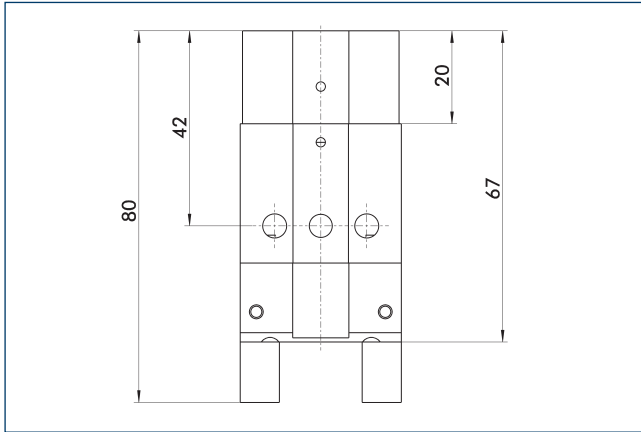
⑳ Through-hole

⑧① Depth of the centering sleeve hole in the counter part

⑨① See technical data for closing angle "Y" and opening angle "X" per jaw

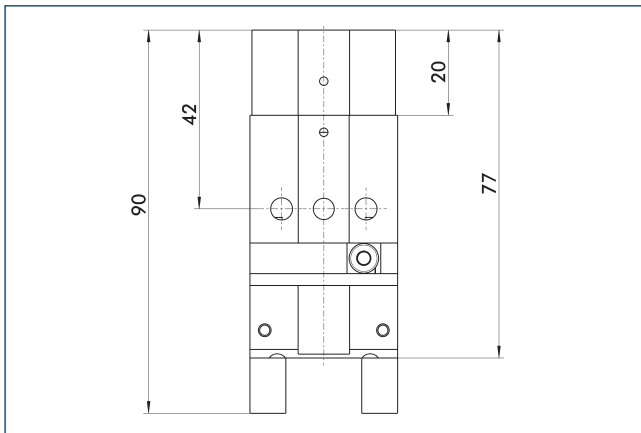
⑨① Length of the usable jaw screwing surface

Gripping force maintenance K/S



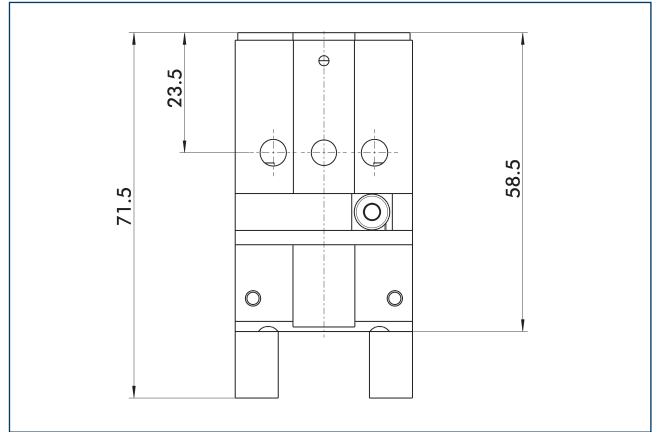
The mechanical gripping force maintenance ensures that a minimum gripping force will be applied even if there is a drop in pressure. This acts as closing force for the K variant and as opening force for the S variant. The gripping force safety can be installed without other components from the K variant into the S variant and vice versa. Besides this, the gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Gripping force safety & rotation adapter Z/X



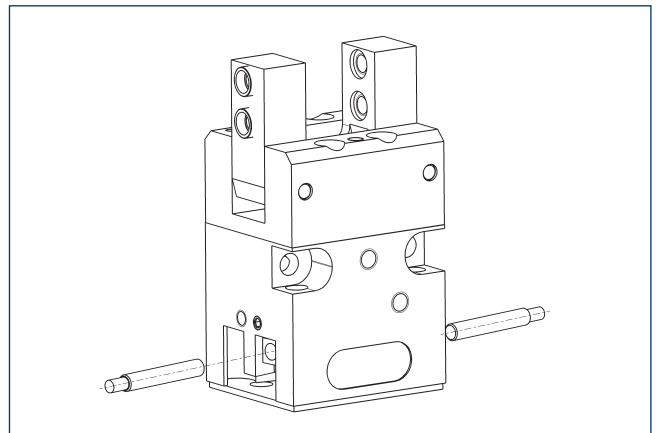
This variant combines the functions of the gripping force maintenance with the one of the rotation adapter. The gripping force maintenance acts as a closing force for the Z-variant and as an opening force for the X-variant.

Rotation adapter D



The two-part rotation adapter enables the gripping head to be continuously rotated in order to flexibly adjust the position of the gripper fingers on the workpiece. The only thing to do is to release the clamping screw. After the adjustment has been made, a hole can be drilled out to place a cylindrical pin or a fixing thread for clamping.

Inductive Proximity Switches



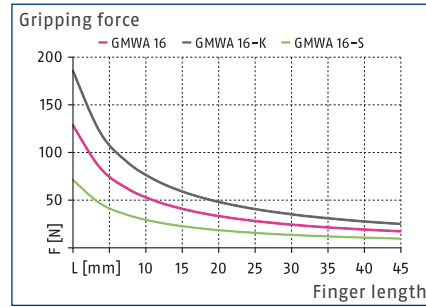
Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
GMNS 12-G	0313331	●
GMNS 12-W	0313332	
GMNS 12-X	0313330	
clip for plug/socket		
CLI-M8	0301463	

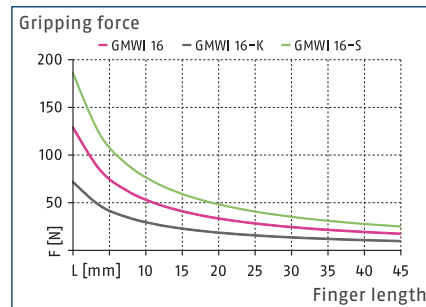
- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.



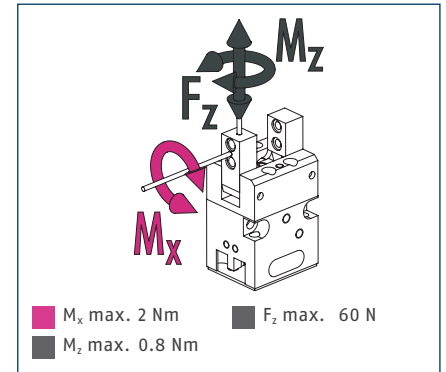
Gripping force O.D. gripping



Gripping force I.D. gripping



Max. loads

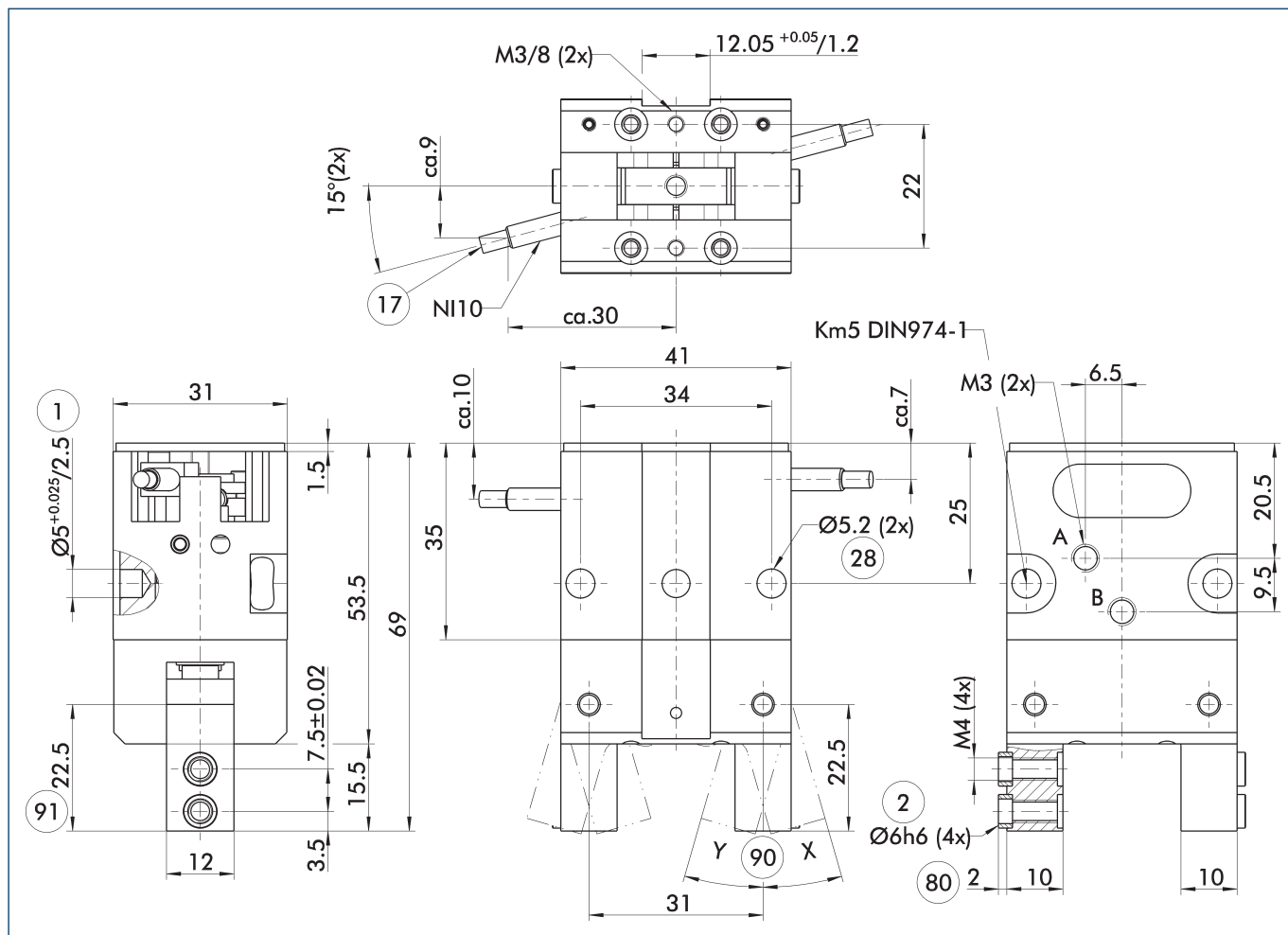


① The indicated moments and forces are static values, apply for each base jaw and should not appear simultaneously.

Technical data

Description		GMWA 16	GMWA 16-K	GMWA 16-S	GMWI 16	GMWI 16-K	GMWI 16-S
ID		0313146	0313148	0313147	0313164	0313166	0313165
Closing angle per jaw	[°]	3	3	3	14	14	14
Opening angle per jaw	[°]	14	14	14	3	3	3
Closing moment	[Nm]	0.9	1.3		0.9	1.3	
Opening moment	[Nm]	0.9		1.3	0.9		1.3
Min. closing moment by spring	[Nm]		0.4			0.4	
Min. opening moment by spring	[Nm]			0.4			0.4
Weight	[kg]	0.2	0.26	0.26	0.2	0.26	0.26
Fluid consumption double stroke	[cm³]	1.1	1.1	1.1	1.1	1.1	1.1
Min./nom./max. operating pressure	[bar]	3/6/8	5/6/8	5/6/8	3/6/8	5/6/8	5/6/8
Closing/opening time	[s]	0.02/0.02	0.015/0.025	0.025/0.015	0.02/0.02	0.015/0.025	0.025/0.015
Max. permissible finger length	[mm]	30	30	30	30	30	30
Max. permissible mass per finger	[kg]	0.075	0.075	0.075	0.075	0.075	0.075
IP protection class		40	40	40	40	40	40
Min./max. ambient temperature	[°C]	5/60	5/60	5/60	5/60	5/60	5/60
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Options and their characteristics							
Rotation adapter version		GMWA 16-D	GMWA 16-Z	GMWA 16-X	GMWI 16-D	GMWI 16-Z	GMWI 16-X
ID		0313149	0313151	0313150	0313167	0313169	0313168
Weight	[kg]	0.24	0.28	0.28	0.24	0.28	0.28

Main view

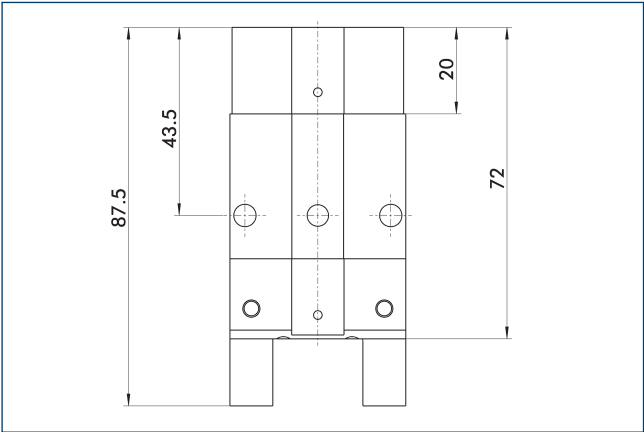


The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

- A, a Main / direct connection, gripper opening
- B, b Main / direct connection, gripper closing
- ① Gripper connection
- ② Finger connection
- ①⑦ Cable outlet

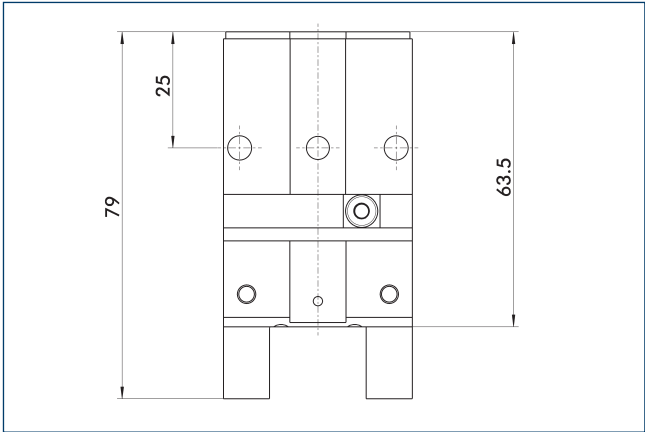
- ②⑧ Through-hole
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑨⑩ See technical data for closing angle "Y" and opening angle "X" per jaw
- ⑨① Length of the usable jaw screwing surface

Gripping force maintenance K/S



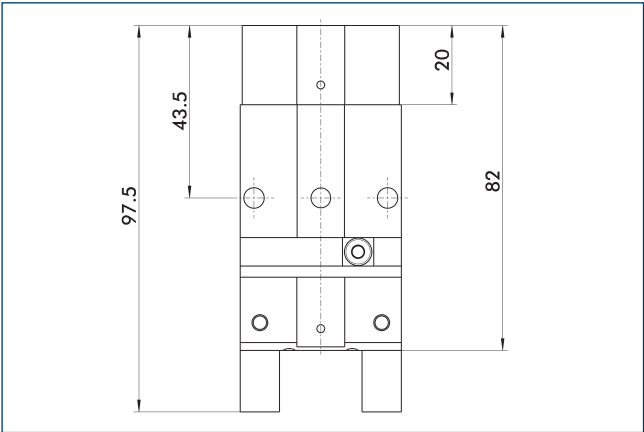
The mechanical gripping force maintenance ensures that a minimum gripping force will be applied even if there is a drop in pressure. This acts as closing force for the K variant and as opening force for the S variant. The gripping force safety can be installed without other components from the K variant into the S variant and vice versa. Besides this, the gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Rotation adapter D



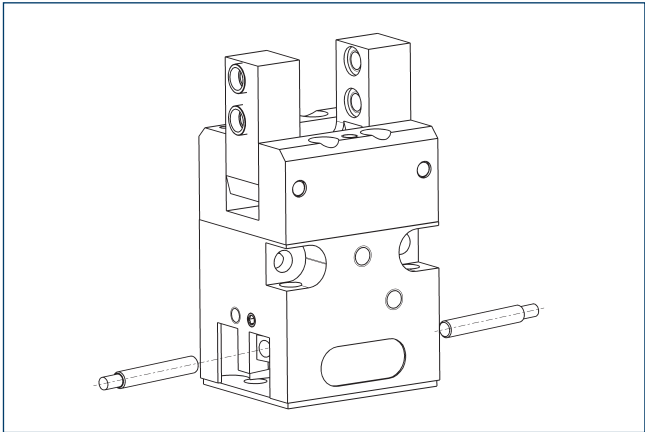
The two-part rotation adapter enables the gripping head to be continuously rotated in order to flexibly adjust the position of the gripper fingers on the workpiece. The only thing to do is to release the clamping screw. After the adjustment has been made, a hole can be drilled out to place a cylindrical pin or a fixing thread for clamping.

Gripping force safety & rotation adapter Z/X



This variant combines the functions of the gripping force maintenance with the one of the rotation adapter. The gripping force maintenance acts as a closing force for the Z-variant and as an opening force for the X-variant.

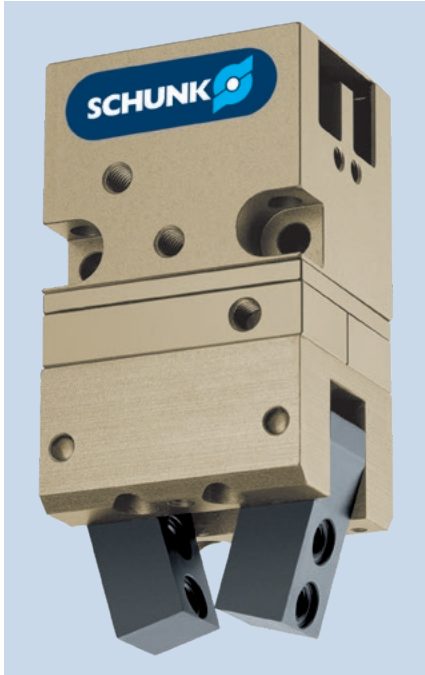
Inductive Proximity Switches



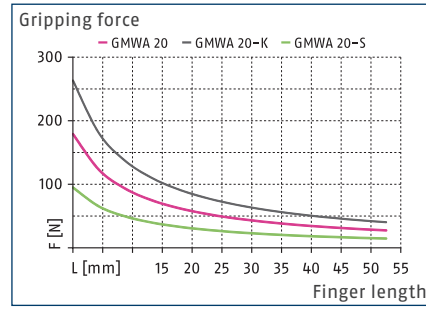
Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
GMNS 16-G	0313334	●
GMNS 16-W	0313335	
GMNS 16-X	0313333	

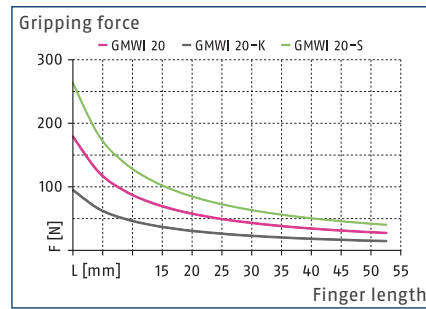
① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.



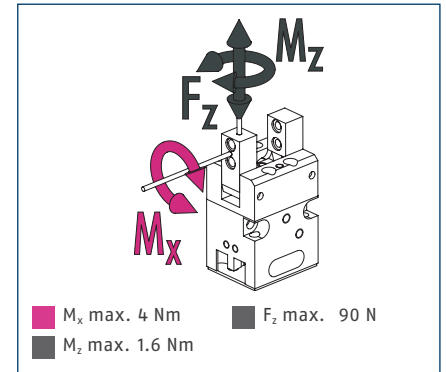
Gripping force O.D. gripping



Gripping force I.D. gripping



Max. loads

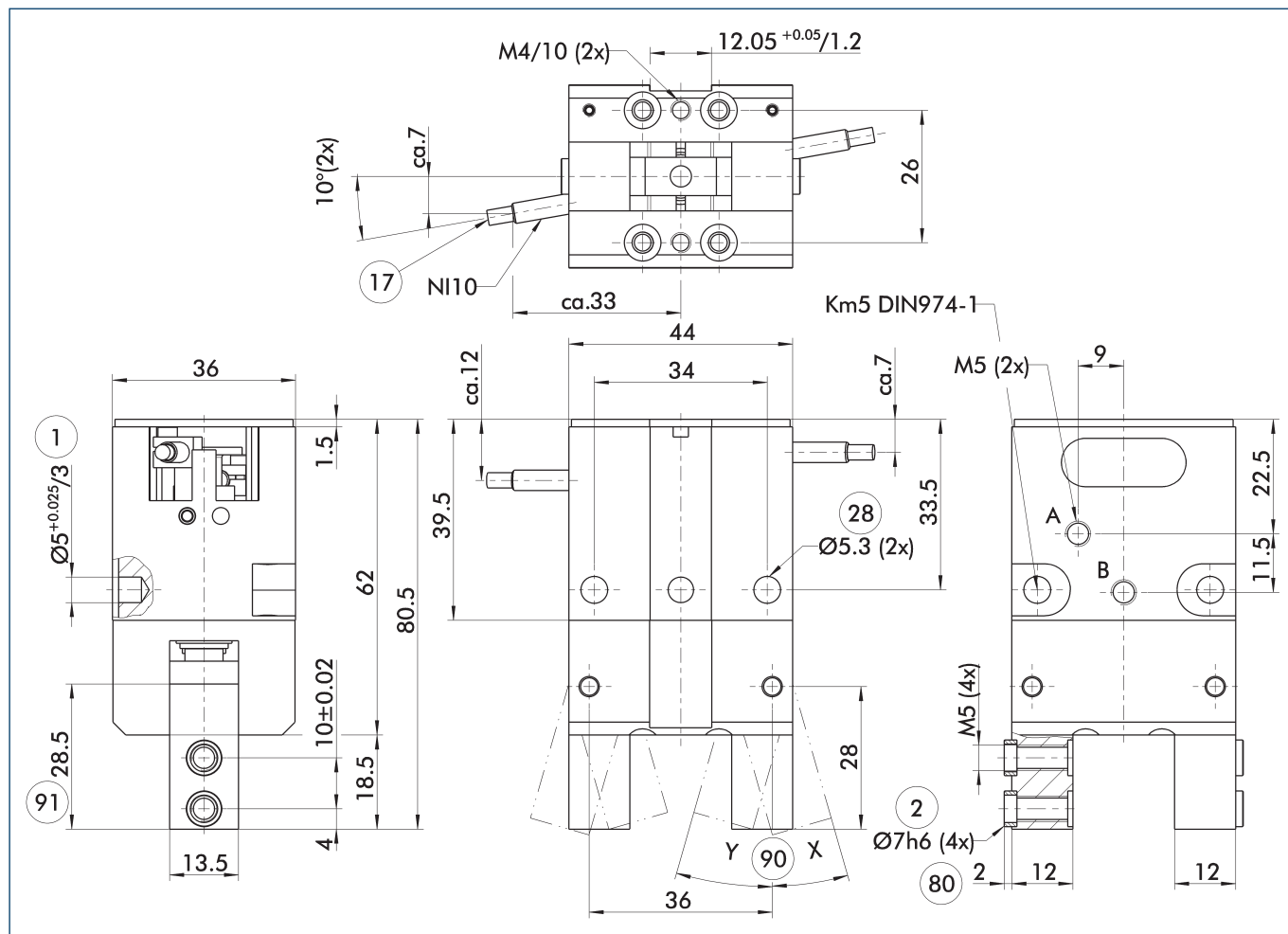


① The indicated moments and forces are static values, apply for each base jaw and should not appear simultaneously.

Technical data

Description		GMWA 20	GMWA 20-K	GMWA 20-S	GMWI 20	GMWI 20-K	GMWI 20-S
ID		0313152	0313154	0313153	0313170	0313172	0313171
Closing angle per jaw	[°]	7	7	7	16	16	16
Opening angle per jaw	[°]	16	16	16	7	7	7
Closing moment	[Nm]	1.7	2.5		1.7	2.5	
Opening moment	[Nm]	1.7		2.5	1.7		2.5
Min. closing moment by spring	[Nm]		0.8			0.8	
Min. opening moment by spring	[Nm]			0.8			0.8
Weight	[kg]	0.3	0.38	0.38	0.3	0.38	0.38
Fluid consumption double stroke	[cm³]	2.86	2.86	2.86	2.86	2.86	2.86
Min./nom./max. operating pressure	[bar]	3/6/8	5/6/8	5/6/8	3/6/8	5/6/8	5/6/8
Closing/opening time	[s]	0.03/0.03	0.025/0.04	0.04/0.025	0.03/0.03	0.025/0.04	0.04/0.025
Max. permissible finger length	[mm]	35	35	35	35	35	35
Max. permissible mass per finger	[kg]	0.1	0.1	0.1	0.1	0.1	0.1
IP protection class		40	40	40	40	40	40
Min./max. ambient temperature	[°C]	5/60	5/60	5/60	5/60	5/60	5/60
Repeat accuracy	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Options and their characteristics							
Rotation adapter version		GMWA 20-D	GMWA 20-Z	GMWA 20-X	GMWI 20-D	GMWI 20-Z	GMWI 20-X
ID		0313155	0313157	0313156	0313173	0313175	0313174
Weight	[kg]	0.36	0.44	0.44	0.36	0.44	0.44

Main view



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

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

① Gripper connection

② Finger connection

①⑦ Cable outlet

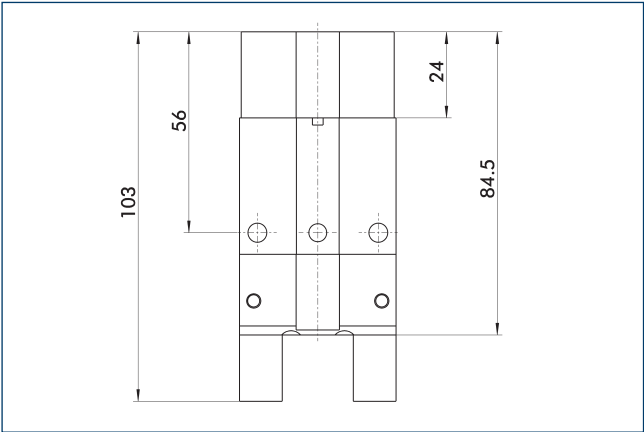
②⑧ Through-hole

⑧⑩ Depth of the centering sleeve hole in the counter part

⑨⑩ See technical data for closing angle "Y" and opening angle "X" per jaw

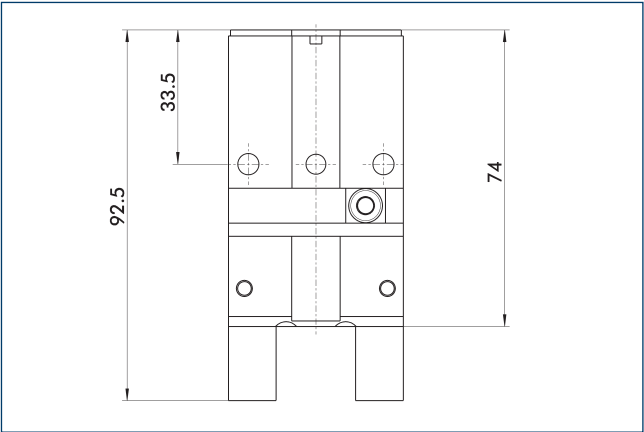
⑨① Length of the usable jaw screwing surface

Gripping force maintenance K/S



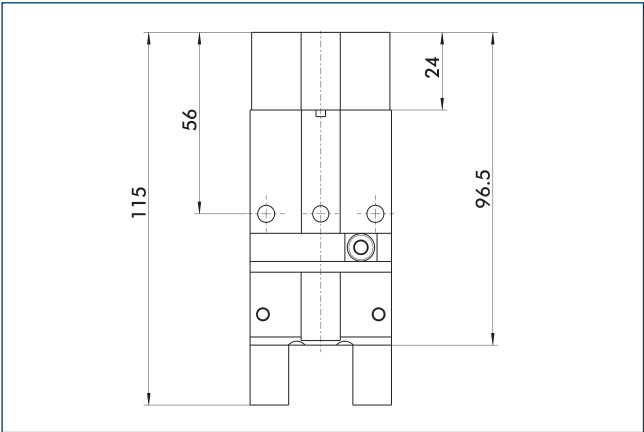
The mechanical gripping force maintenance ensures that a minimum gripping force will be applied even if there is a drop in pressure. This acts as closing force for the K variant and as opening force for the S variant. The gripping force safety can be installed without other components from the K variant into the S variant and vice versa. Besides this, the gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Rotation adapter D



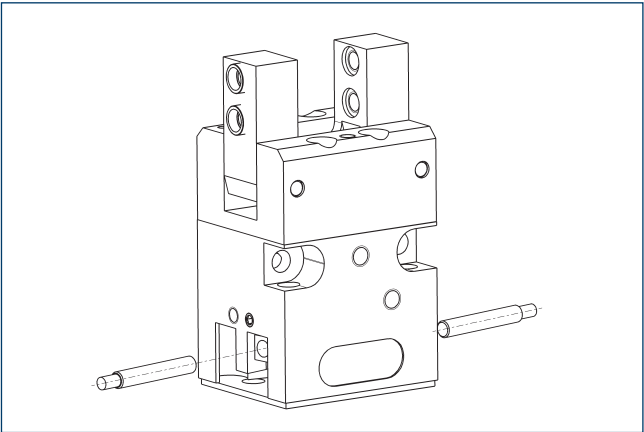
The two-part rotation adapter enables the gripping head to be continuously rotated in order to flexibly adjust the position of the gripper fingers on the workpiece. The only thing to do is to release the clamping screw. After the adjustment has been made, a hole can be drilled out to place a cylindrical pin or a fixing thread for clamping.

Gripping force safety & rotation adapter Z/X



This variant combines the functions of the gripping force maintenance with the one of the rotation adapter. The gripping force maintenance acts as a closing force for the Z-variant and as an opening force for the X-variant.

Inductive Proximity Switches



Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
GMNS 16-G	0313334	●
GMNS 16-W	0313335	
GMNS 16-X	0313333	

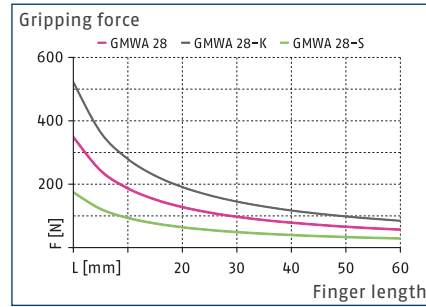
- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

GMW 28

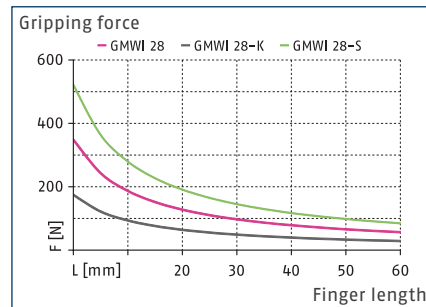
Angular gripper



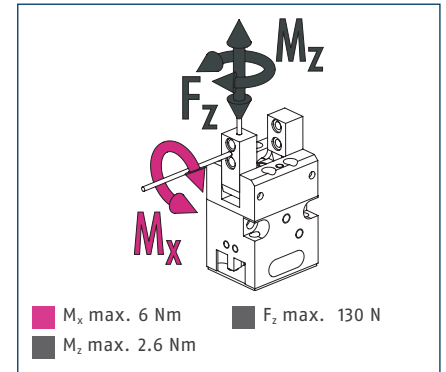
Gripping force O.D. gripping



Gripping force I.D. gripping



Max. loads

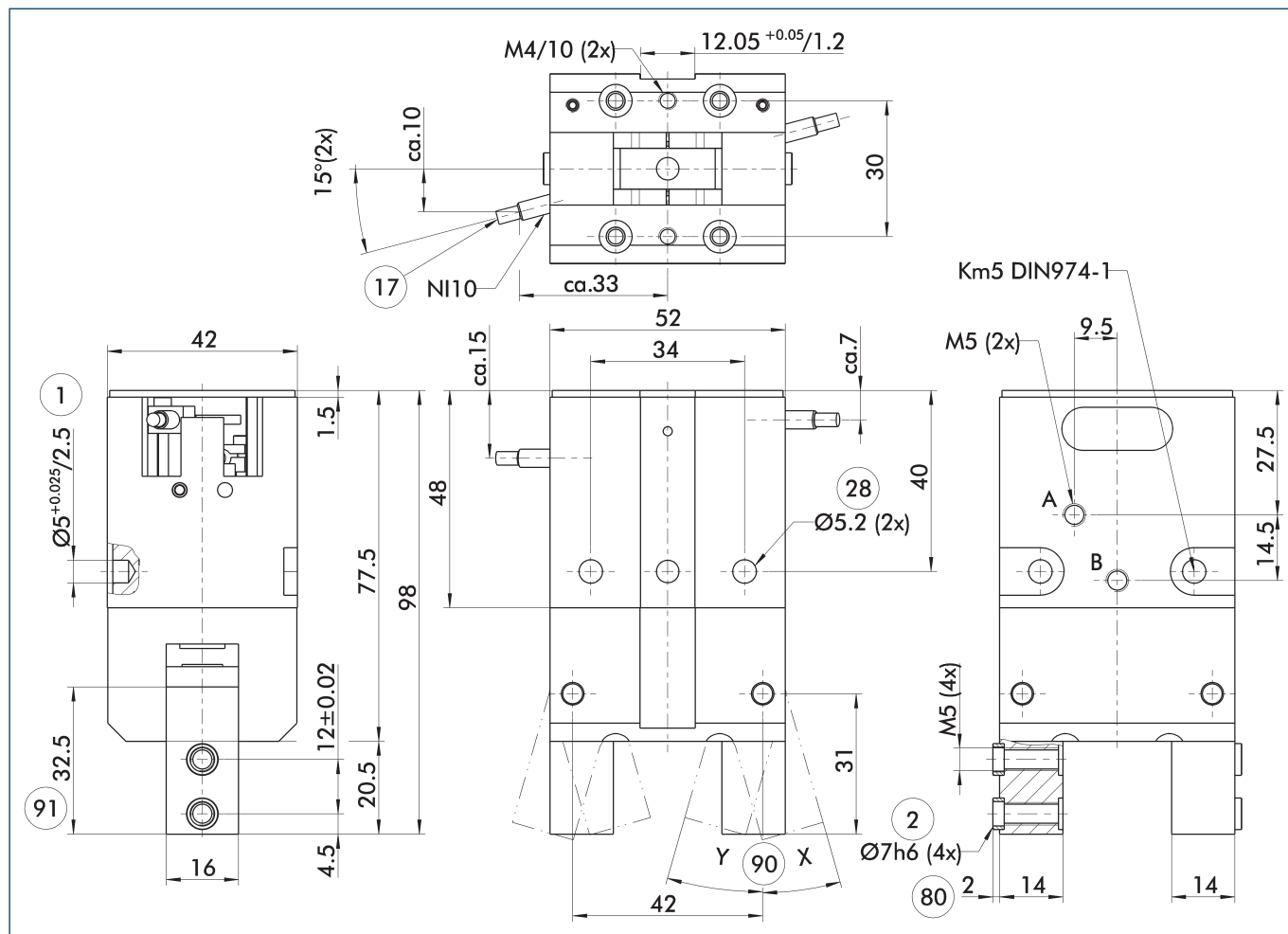


① The indicated moments and forces are static values, apply for each base jaw and should not appear simultaneously.

Technical data

Description		GMWM 28	GMWM 28-K	GMWM 28-S
ID		0313176	0313178	0313177
Closing angle per jaw	[°]	16	16	16
Opening angle per jaw	[°]	16	16	16
Closing moment	[Nm]	3.7	5.5	
Opening moment	[Nm]	3.7		5.5
Min. closing moment by spring	[Nm]		2	
Min. opening moment by spring	[Nm]			2
Weight	[kg]	0.52	0.68	0.68
Fluid consumption double stroke	[cm³]	9.05	9.05	9.05
Min./nom./max. operating pressure	[bar]	3/6/8	5/6/8	5/6/8
Closing/opening time	[s]	0.05/0.05	0.04/0.06	0.06/0.04
Max. permissible finger length	[mm]	40	40	40
Max. permissible mass per finger	[kg]	0.13	0.13	0.13
IP protection class		40	40	40
Min./max. ambient temperature	[°C]	5/60	5/60	5/60
Repeat accuracy	[mm]	0.02	0.02	0.02
Options and their characteristics				
Rotation adapter version		GMWM 28-D	GMWM 28-Z	GMWM 28-X
ID		0313179	0313181	0313180
Weight	[kg]	0.58	0.76	0.76

Main view



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

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

① Gripper connection

② Finger connection

①⑦ Cable outlet

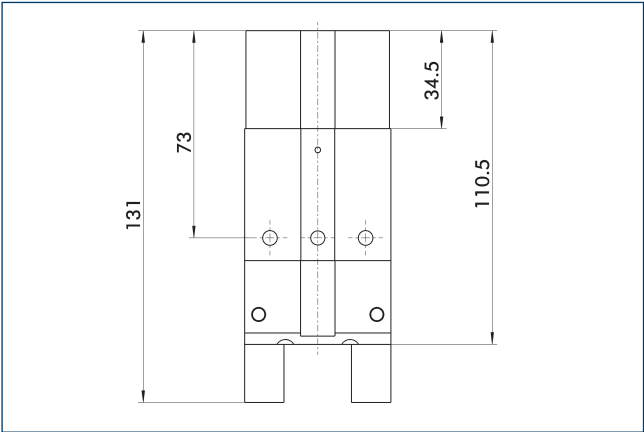
②⑧ Through-hole

⑧① Depth of the centering sleeve hole in the counter part

⑨① See technical data for closing angle "Y" and opening angle "X" per jaw

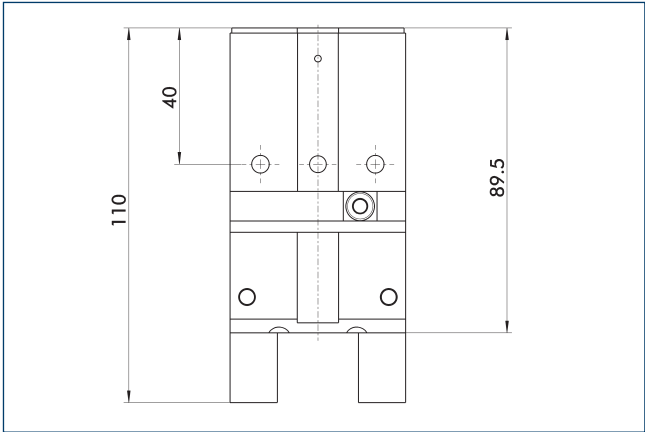
⑨① Length of the usable jaw screwing surface

Gripping force maintenance K/S



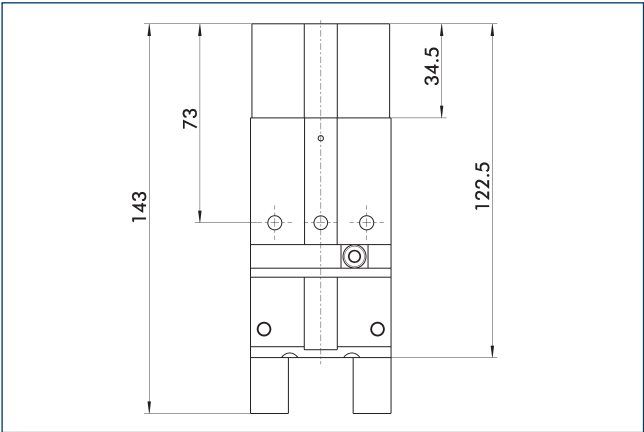
The mechanical gripping force maintenance ensures that a minimum gripping force will be applied even if there is a drop in pressure. This acts as closing force for the K variant and as opening force for the S variant. The gripping force safety can be installed without other components from the K variant into the S variant and vice versa. Besides this, the gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Rotation adapter D



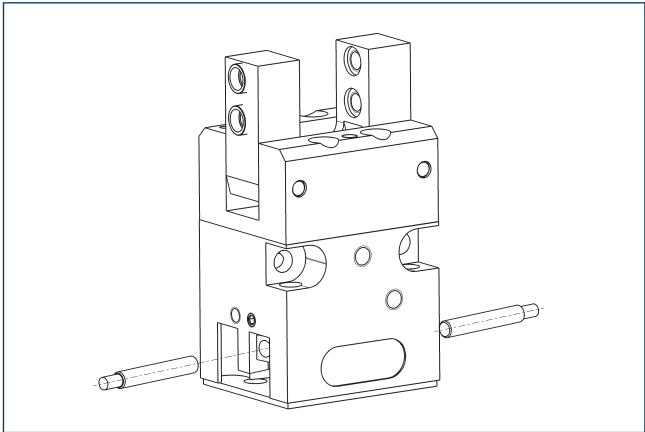
The two-part rotation adapter enables the gripping head to be continuously rotated in order to flexibly adjust the position of the gripper fingers on the workpiece. The only thing to do is to release the clamping screw. After the adjustment has been made, a hole can be drilled out to place a cylindrical pin or a fixing thread for clamping.

Gripping force safety & rotation adapter Z/X



This variant combines the functions of the gripping force maintenance with the one of the rotation adapter. The gripping force maintenance acts as a closing force for the Z-variant and as an opening force for the X-variant.

Inductive Proximity Switches



Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
GMNS 28-G	0313337	●
GMNS 28-W	0313338	
GMNS 28-X	0313336	

- ① 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.

SCHUNK GmbH & Co. KG
Spann- und Greiftechnik

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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