

Sealed angle gripper

GG25 up to GG100

things worth knowing

Advantages and uses

... high-grip force ... all models available with grip force safety device ...



- ▶ high reliability and long service life
 - ▶ continuously adjustable stroke
 - ▶ compact design and minimal weight
 - ▶ centrally opening and closing
 - ▶ high precision
 - ▶ any desired installation position
 - ▶ multiple air connection possibilities
 - ▶ position sensing possible through inductive proximity switch

... mechanics sealed against liquid and dust! ...

... rust resistant

Characteristics

Function

Drive:
(depending upon model) double-acting pneumatic cylinder
double-acting pneumatic cylinder with integrated spring
as fail safe during pressure loss

Power transfer:
Guide: piston with cam lever linkage
multiple ball bearing

Material

Housing: hard-anodized aluminum
Functional parts: nitrided steel

Maintenance

Recommended at: 1.5 million cycles
Actuation: filtered high-pressure air (10 μ m), dry or oiled
Maintenance of the mechanics: via integrated stroke adjustment screw – see owners' manual –

Basic explanations

Terms and illustrations

Grip force safety device: required during pressure loss for maintaining position of work piece

- pneumatic: through pressure retention (one-way valve required DSV 1/8)
- mechanical: through spring pre-tension
- spring power: specifications based on minimum spring pre-tension

Total power: arithmetic sum of the individual elements on the gripper jaws

Closing and opening times: required time for the gripper jaws to cover the maximum stroke length

Schematic: displays static forces and momenta that can additionally affect grip force

Models

GG...	Drive	Internal gripping	External gripping	Grip force fail safe
...N	pneumatic	•	•	
...NC	pneumatic		•	•

Accessories

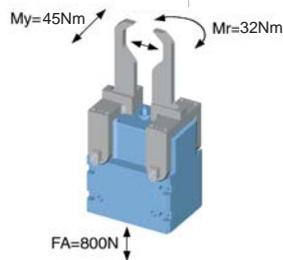
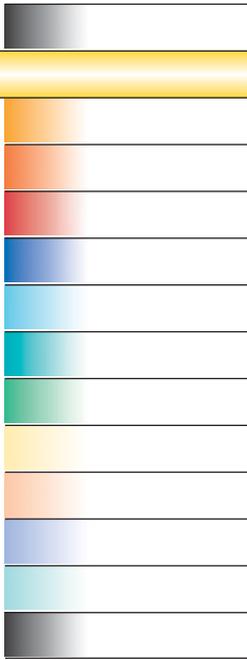
Included with purchase:

- ▶ Centering sleeves
- ▶ Bracket for inductive proximity switch

Additional accessory recommendation:

- ▶ Inductive proximity switch Page 428
- ▶ Pneumatic fittings Page 442
- ▶ Tubing Page 444
- ▶ Control valves Page 445
- ▶ Pressure safety valves Page 447

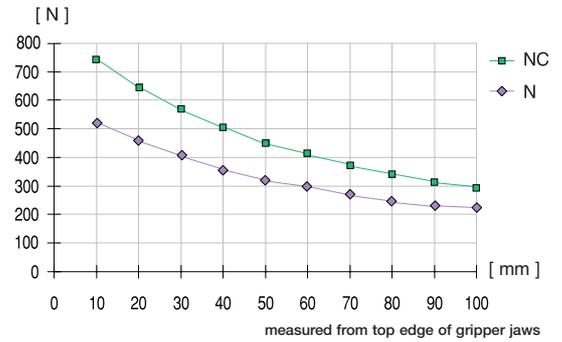




Sealed angle gripper

Advantages, benefits, comparisons and tips!
Stacks of information all about this product are
on page 143.

Gripping force as a function of jaw length



Order no.:

GG50
N NC

Drive:

pneum. pneum.

Stroke per jaw [°]:

35 35

Gripping torque in closing and opening [Nm]:

32 -

Gripping torque in closing [Nm]:

- 45

Self-locking via:

DSV1/8 Spring

Closing time/opening time [s]:

0,2 0,2

Repeatability ± [mm]:

0,05 0,05

Min./max. operating pressure [bar]:

3/10 5/10

Air volume per cycle [cm³]:

109 109

Min./max. operating temperature. [°C]:

5/80 5/80

Temp. resistant version up to 150°C [add to part number]:

T3 T3

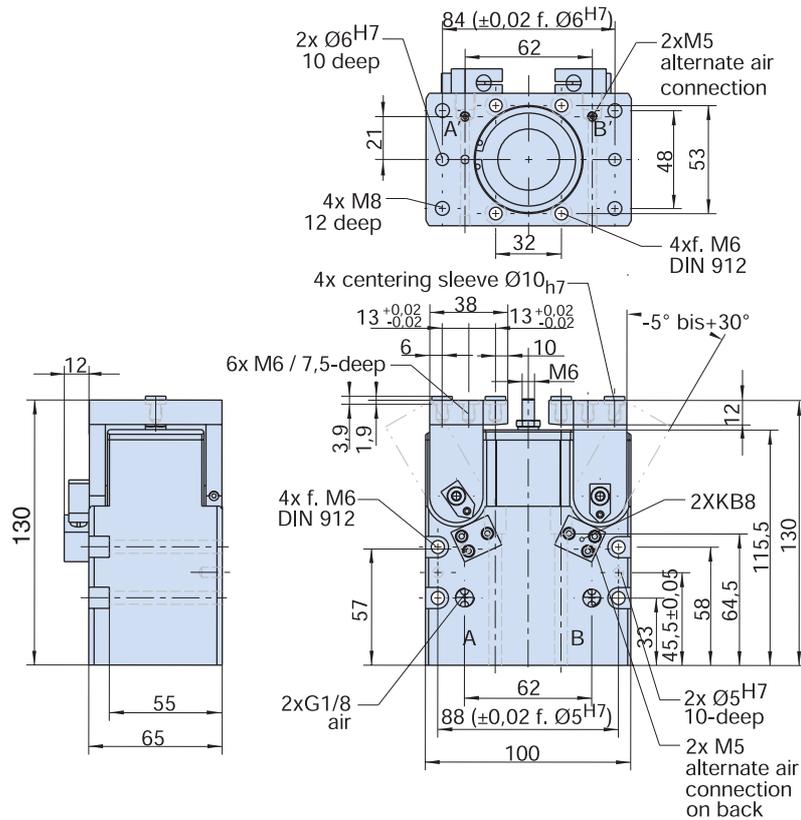
Piston diameter [mm]:

50 50

Weight [kg]:

2,1 2,4

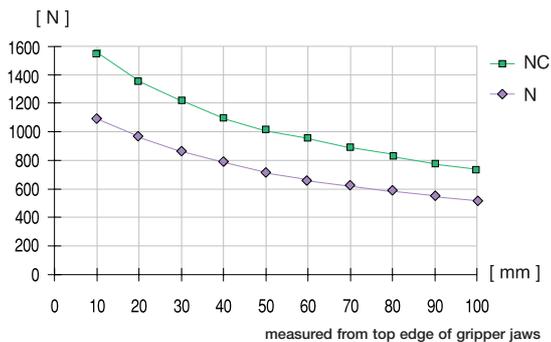
All data measured at 6 bar.



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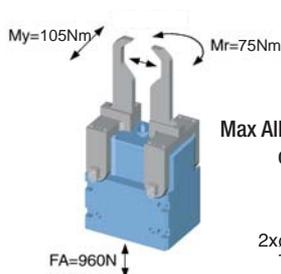
Gripping force as a function of jaw length



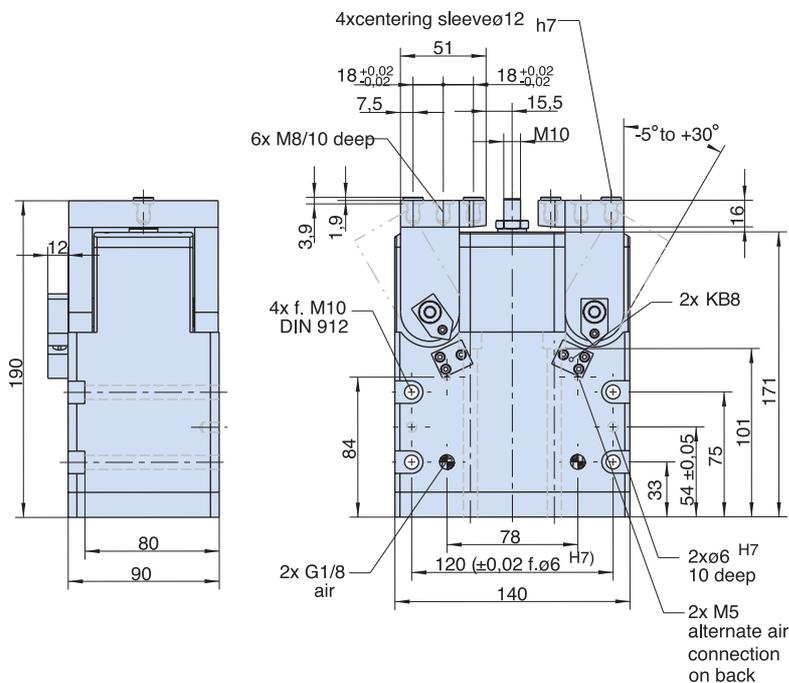
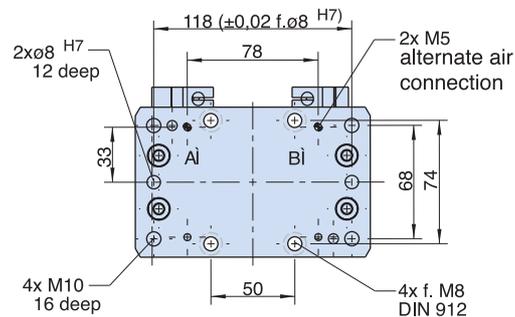
Order no.:	
GG70 N	GG70 NC
Drive:	
pneum.	pneum.
Stroke per jaw [°]:	
35	35
Gripping torque in closing and opening [Nm]:	
87	-
Gripping torque in closing [Nm]:	
-	122
Self-locking via:	
DSV1/8	Spring
Closing time/opening time [s]:	
0,3	0,3
Repeatability ± [mm]:	
0,05	0,05
Min./max. operating pressure [bar]:	
3/10	5/10
Air volume per cycle [cm³]:	
285	285
Min./max. operating temperature. [°C]:	
5/80	5/80
Temp. resistant version up to 150°C [add to part number]:	
T3	T3
Piston diameter [mm]:	
70	70
Weight [kg]:	
5,9	6,8

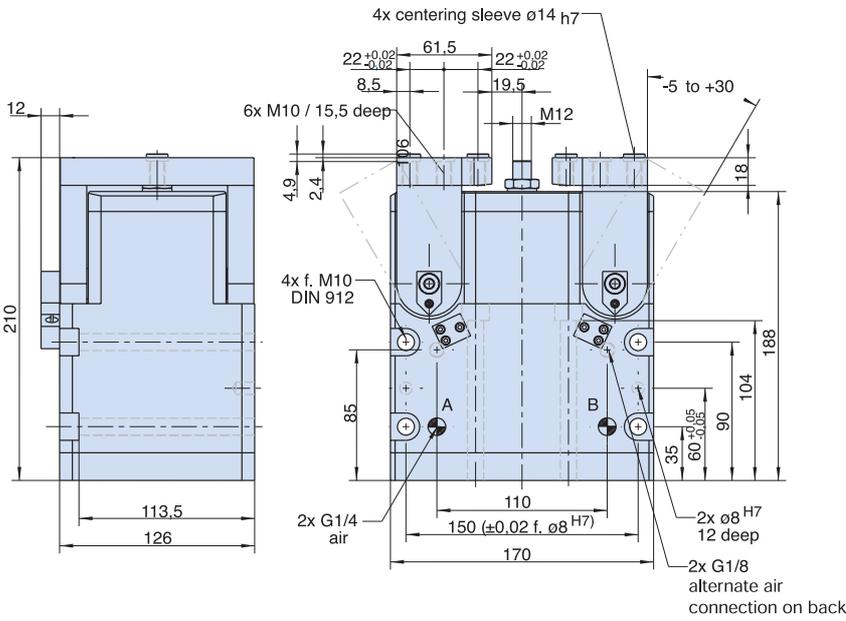
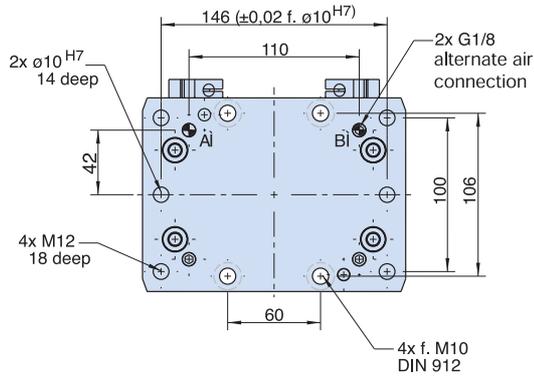
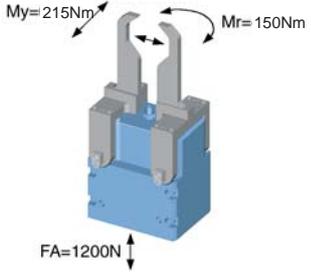
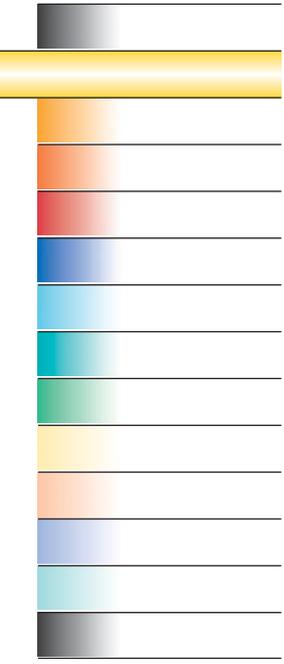
All data measured at 6 bar.

See Page 143 for Accessory list.



Max Allowable Forces on Jaws

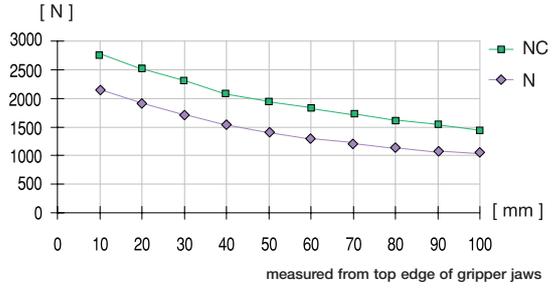




Sealed angle gripper

Advantages, benefits, comparisons and tips! Stacks of information all about this product are on page 143.

Gripping force as a function of jaw length



Order no.:					
GG100	GG100				
N	NC				
Drive:					
pneum.	pneum.				
Stroke per jaw [°]:					
35	35				
Gripping torque in closing and opening [Nm]:					
198	-				
Gripping torque in closing [Nm]:					
-	264				
Self-locking via:					
DSV1/8	Spring				
Closing time/opening time [s]:					
0,4	0,4				
Repeatability ± [mm]:					
0,05	0,05				
Min./max. operating pressure [bar]:					
3/10	5/10				
Air volume per cycle [cm³]:					
700	700				
Min./max. operating temperature. [°C]:					
5/80	5/80				
Temp. resistant version up to 150°C [add to part number]:					
T3	T3				
Piston diameter [mm]:					
100	100				
Weight [kg]:					
14,3	14,5				

All data measured at 6 bar.

Pivoting arm gripper

GK15N up to GK50N

things worth knowing

Advantages and uses ... high-grip force with compact design ... stainless ... continuously adjustable stroke ...

Highlight

The gripper can return "softly" to the end position using flow control without noticeable time loss, resulting in a longer service life!

... saves the robot a movement and with it, time! ...

- ▶ high reliability
 - ▶ integrated damping during opening
 - ▶ centrally opening and closing
 - ▶ any desired installation position
 - ▶ multiple air connection possibilities
 - ▶ position sensing possible through inductive proximity switch

Characteristics

Function

Drive: double-acting pneumatic cylinder
Power transfer: piston and toggle linkage
Guide: heavily loadable slide bearing

Material

Housing: hard-anodized aluminum
Functional parts: hard nicked steel

Maintenance

Recommended at: 1.5 million cycles
Actuation: filtered high-pressure air (10 µm), dry or oiled
Maintenance of the mechanics: – see owners' manual –

Basic explanations

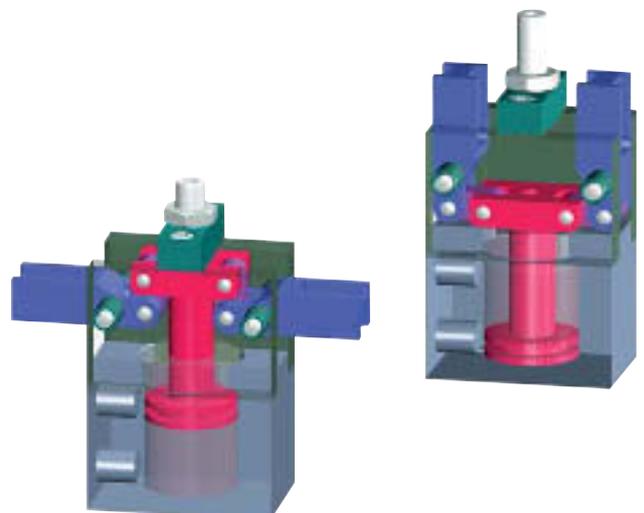
Terms and illustrations

Grip force safety device: required during pressure loss for maintaining position of workpiece
– mechanical: through the toggle linkage
Total power: arithmetic sum of the individual elements on the gripper jaws
Closing and opening times: required time for the gripper jaws to cover the maximum stroke length
Schematic: displays static forces and momenta that can additionally affect grip force

Accessories

Accessory recommendations:

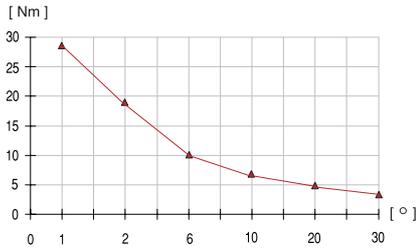
- ▶ Bumper blocks Page 154
- ▶ Inductive proximity switch Page 428
- ▶ Bracket for inductive proximity switch Page 432
- ▶ Pneumatic fittings Page 442
- ▶ Tubing Page 444
- ▶ Control valves Page 445
- ▶ Pressure safety valves Page 447



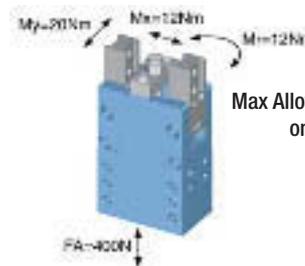
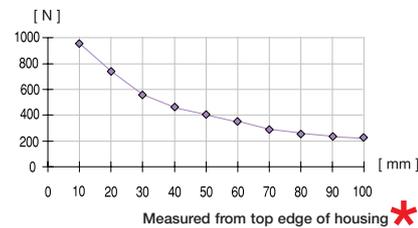
Pivoting arm gripper

Advantages, benefits, comparisons and tips!
Stacks of information all about this product are
on page 147.

Gripping force as a function of opening angle

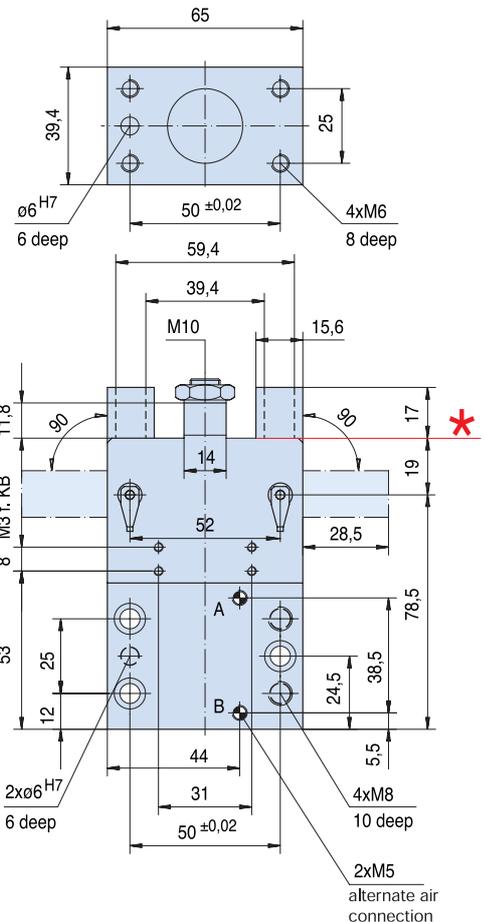


Gripping force as a function of jaw length (measured at 1° opening angle)



Max Allowable Forces
on Jaws

Flow control valves are recommended
(especially when using longer fingers)
in order to reduce the shock to jaw



Order no.:				
GK35				
N				
Drive:				
pneum.				
Stroke per jaw [°]:				
90				
Gripping force in closing [N]**:				
950				
Gripping torque in closing [Nm]:				
28				
Self-locking via:				
mech.				
Closing time/opening time [s]:				
0,35				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
4/10				
Air volume per cycle [cm³]:				
43				
Min./max. operating temperature. [°C]:				
5/80				
Temp. resistant version up to 150°C [add to part number]:				
T2				
Piston diameter [mm]:				
32				
Weight [kg]:				
0,785				

All data measured at 6 bar.

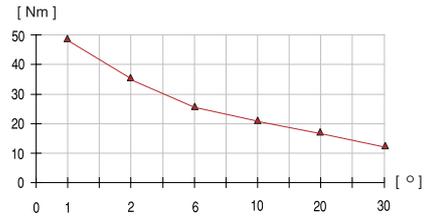
See Page 147 for Accessory list.

** Measured at 10 mm from top edge of housing. *

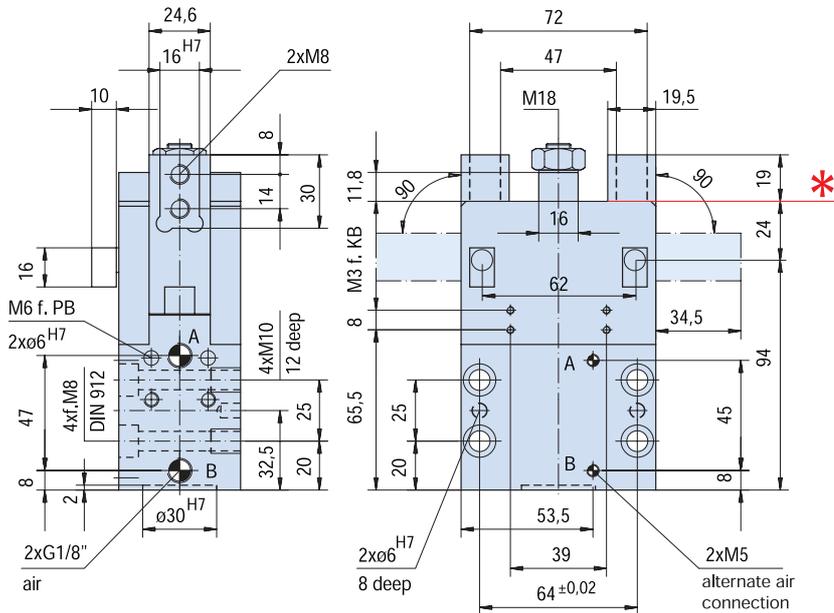
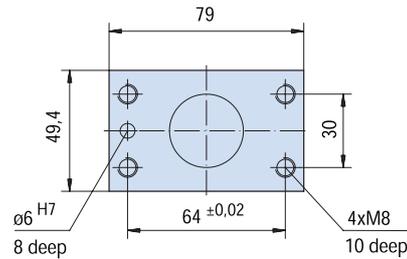
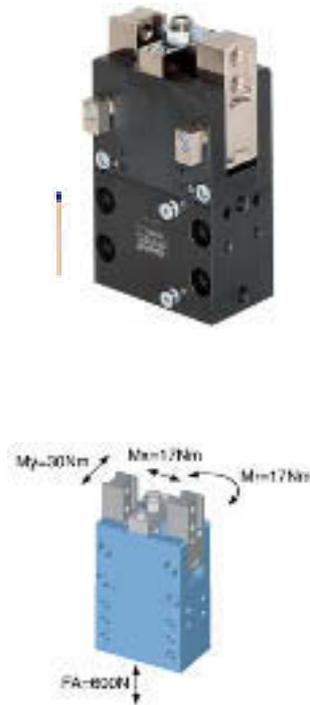
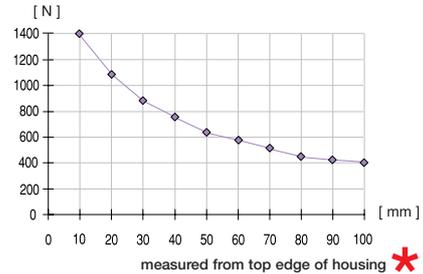
Pivoting arm gripper

Advantages, benefits, comparisons and tips!
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Gripping force as a function of opening angle



Gripping force as a function of jaw length (measured at 1° opening angle)



Order no.:				
GK40 N				
Drive:				
pneum.				
Stroke per jaw [°]:				
90				
Gripping force in closing [N]**:				
1400				
Gripping torque in closing [Nm]:				
48				
Self-locking via:				
mech.				
Closing time/opening time [s]:				
0,4				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
4/10				
Air volume per cycle [cm³]:				
78				
Min./max. operating temperature. [°C]:				
5/80				
Temp. resistant version up to 150°C [add to part number]:				
T2				
Piston diameter [mm]:				
40				
Weight [kg]:				
1,67				

All data measured at 6 bar.

See Page 147 for Accessory list.

** Measured at 10 mm from top edge of housing. *

Compliant finger gripper

GZ8 up to GZ65

things worth knowing

Advantages and uses

... high-grip force ... also available with grip force safety device ...



- ▶ continuously adjustable stroke
 - ▶ compact design and minimal weight
 - ▶ any desired installation position
 - ▶ position sensing possible through inductive proximity switch
 - ▶ high reliability and long service life
- ... simple construction,
The best functionality, with a great price! ...

Characteristics

Function

Drive:
(depending upon model) two unsynchronized, single-action cylinders with direct drive
single-action cylinder with integrated spring for grip force safety devices

Transfer: lever principle

Piece-positioning: via dominant gripper jaw with adjustment screw

Material

Housing: hard-anodized aluminum

Functional parts: hard nicked steel

Maintenance

Recommended at: 1.5 million cycles

Actuation: filtered high-pressure air (10 µm), dry or oiled

Maintenance of the mechanics: – see owners' manual –

Basic explanations

Terms and illustrations

Grip force safety device: required during pressure loss for maintaining position of workpiece

- pneumatic: through pressure retention (one-way valve required DSV 1/8)
- mechanical: through spring pre-tension
- spring power: specifications based on minimum spring pre-tension

Total power: arithmetic sum of the individual elements on the gripper jaws

Closing and opening times: required time for the gripper jaws to cover the maximum stroke length

Schematic: displays static forces and momenta that can additionally affect grip force

Models

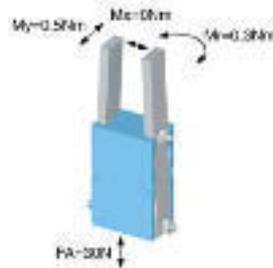
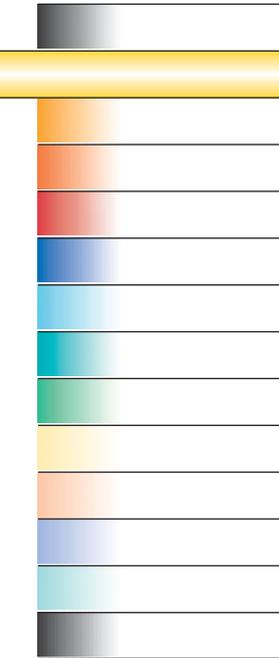
GZ...	Cylinder	Spring recoil	Integrated grip force safety device
...E	1x effective	•	
...D	2x effective		•

Accessories

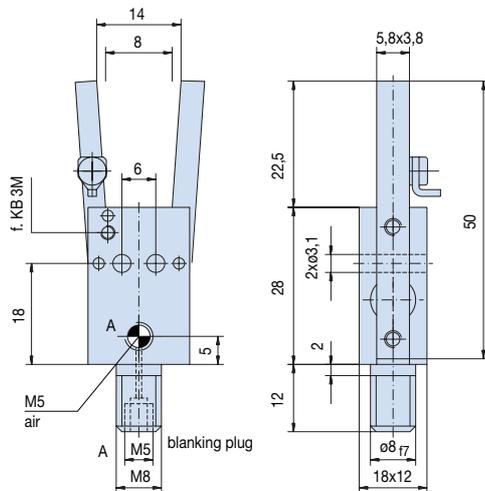
Accessory recommendations:

- ▶ Inductive proximity switch Page 428
- ▶ Bracket for inductive proximity switch Page 432
- ▶ Pneumatic fittings Page 442
- ▶ Tubing Page 444
- ▶ Control valves Page 445
- ▶ Pressure safety valves Page 447

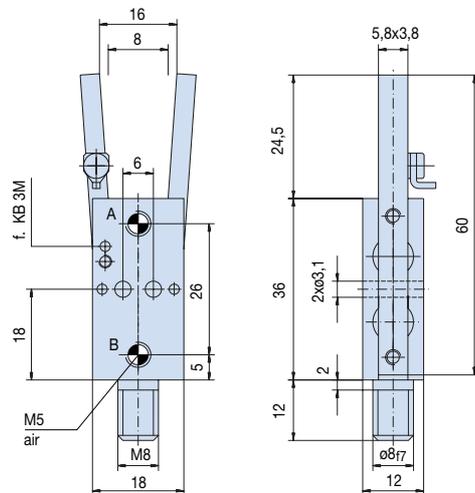




GZ8-16E



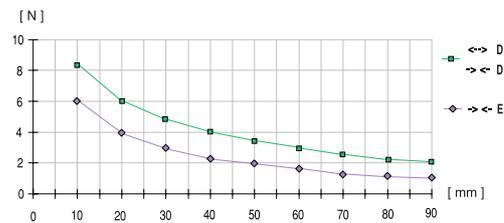
GZ8-16D



Compliant finger gripper

Advantages, benefits, comparisons and tips!
Stacks of information all about this product are on page 155.

Gripping force as a function of jaw length



measured from top edge of housing

Order no.:					
GZ8-16E	GZ8-16D				
Drive:					
pneum.	pneum.				
Stroke per jaw adjustable [mm]:					
3	4				
Stroke per jaw adjustable [°]:					
5	5				
Gripping torque in closing [Nm]:					
0,12	0,15				
Gripping torque in opening [Nm]:					
-	0,23				
Self-locking via:					
DSV1/8	DSV1/8				
Closing time/opening time [s]:					
0,05	0,05				
Repeatability ± [mm]:					
0,1	0,1				
Min./max. operating pressure [bar]:					
5/8	5/8				
Air volume per cycle [cm³]:					
0,23	0,5				
Min./max. operating temperature [°C]:					
5/80	5/80				
Temp. resistant version up to 150° C [add to part number]:					
TS	TS				
Weight [kg]:					
0,05	0,047				

All data measured at 6 bar.

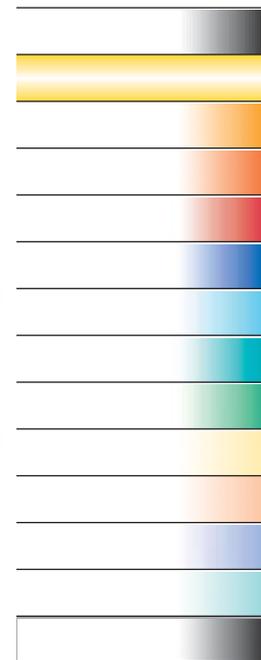
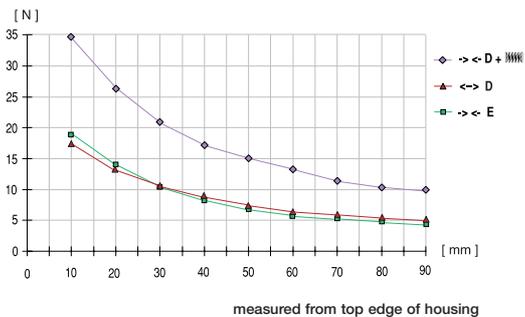
* Measured at 10 mm from top edge of housing.

Parallel gripper		Three-jaw gripper		Angle gripper		Internal-hole gripper		Other grippers		Electric gripper	
GZ8-16E	GZ8-16D	GZ11-18E	GZ18-23D	GZ25-35E	GZ25-35G	GZ25-35D	GZ55-65D				

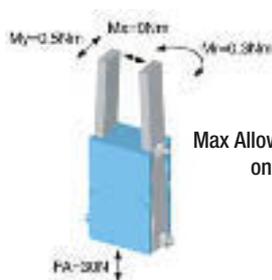
Compliant finger gripper

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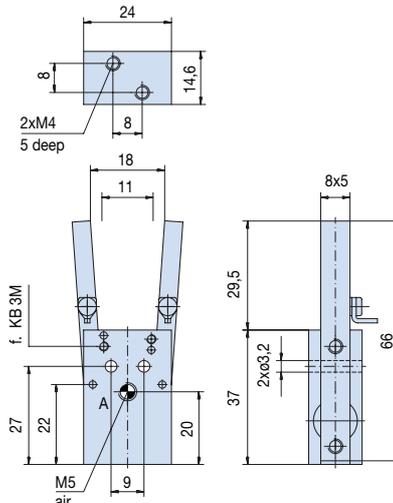
Gripping force as a function of jaw length



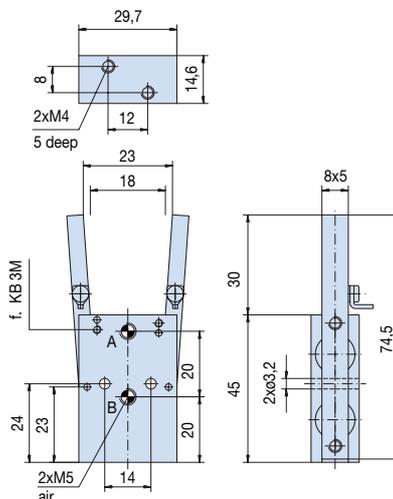
Order no.:					
GZ11-18E	GZ18-23D				
E	D				
Drive:					
pneum.	pneum.				
Stroke per jaw adjustable [mm]:					
3,5	2,5				
Stroke per jaw adjustable [°]:					
4,5	3,5				
Gripping torque in closing [Nm]:					
0,48	1,10				
Gripping torque in opening [Nm]:					
-	0,56				
Self-locking via:					
DSV1/8	Spring				
Closing time/opening time [s]:					
0,2/0,04	0,2/0,03				
Repeatability ± [mm]:					
0,1	0,1				
Min./max. operating pressure [bar]:					
5/8	5/8				
Air volume per cycle [cm³]:					
1	0,5				
Min./max. operating temperature [°C]:					
5/80	5/80				
Temp. resistant version up to 150° C [add to part number]:					
TS	TS				
Weight [kg]:					
0,065	0,08				



Max Allowable Forces on Jaws



GZ11-18E

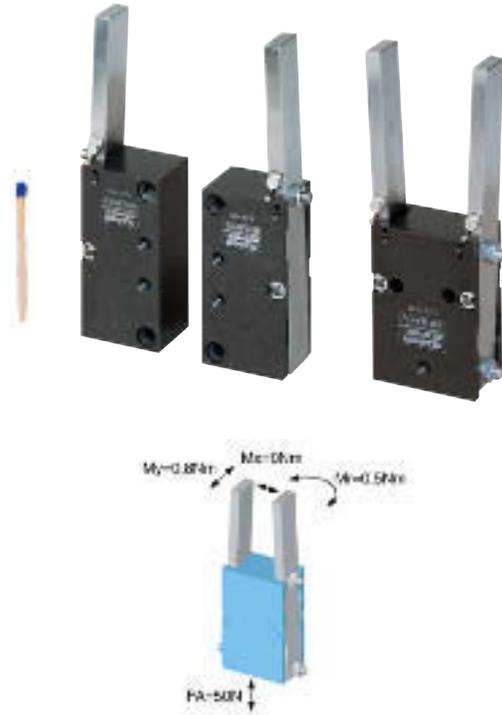
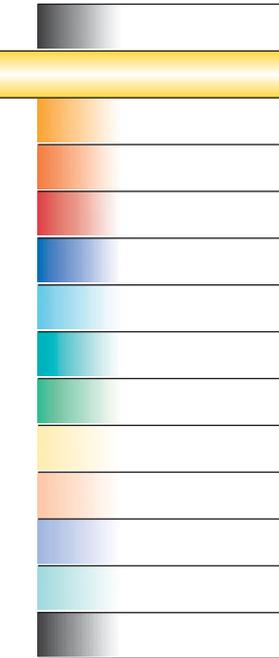


GZ18-23D

All data measured at 6 bar.

* Measured at 10 mm from top edge of housing.

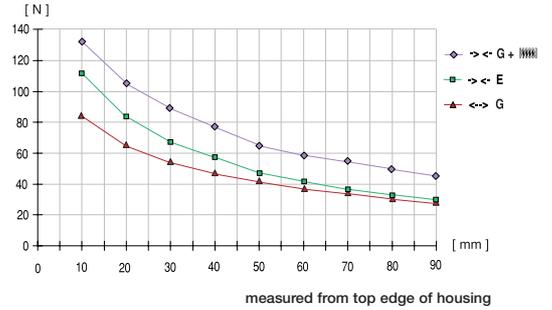
See Page 155 for Accessory list.



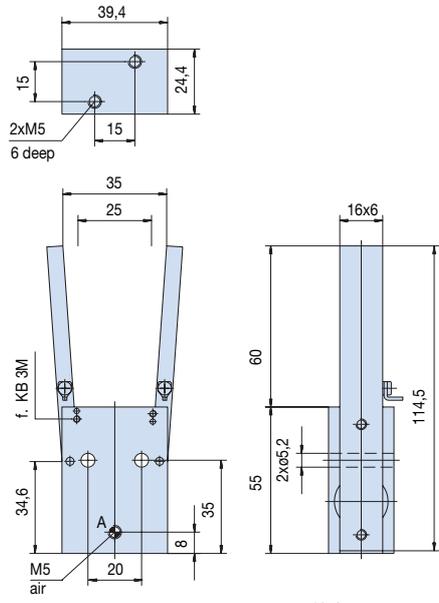
Compliant finger gripper

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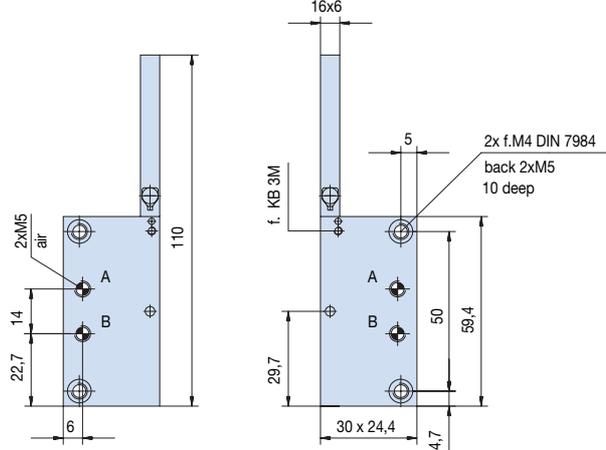
Gripping force as a function of jaw length



GZ25-35E



GZ25-35G



Order no.:					
GZ25-35	GZ25-35				
E	G				
Drive:					
pneum.	pneum.				
Stroke per jaw [mm]:					
5	5				
Stroke per jaw [°]:					
4	4				
Gripping torque in closing [Nm]:					
4	5,4				
Gripping torque in opening [Nm]:					
-	3,4				
Self-locking via:					
Spring	Spring				
Closing time/opening time [s]:					
0,2/0,3	0,2/0,2				
Repeatability ± [mm]:					
0,1	0,1				
Min./max. operating pressure [bar]:					
5/8	4/8				
Air volume per cycle [cm³]:					
6	6				
Min./max. operating temperature [°C]:					
5/80	5/80				
Temp. resistant version up to 150° C [add to part number]:					
TS	TS				
Weight [kg]:					
0,253	0,313				

All data measured at 6 bar.

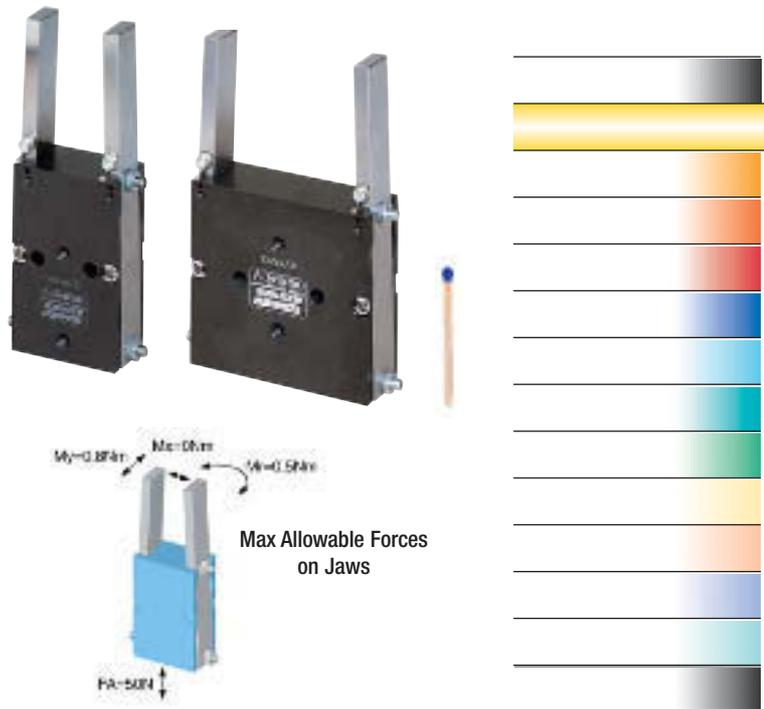
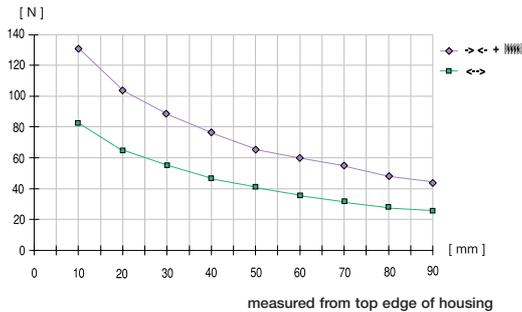
* Measured at 10 mm from top edge of housing.

See Page 155 for Accessory list.

Compliant finger gripper

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on page 155.

Gripping force as a function of jaw length



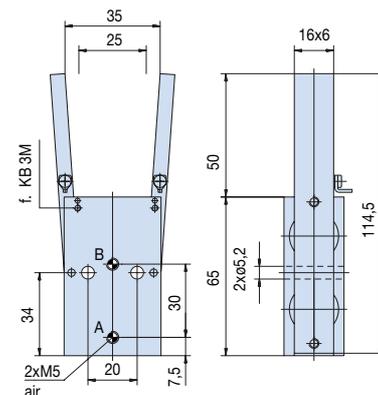
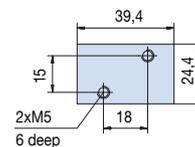
Max Allowable Forces
on Jaws

Order no.:	
GZ25-35	GZ55-65
D	D
Drive:	
pneum.	pneum.
Stroke per jaw [mm]:	
5	5
Stroke per jaw [°]:	
4	4
Gripping torque in closing [Nm]:	
5,4	5,4
Gripping torque in opening [Nm]:	
3,4	3,4
Self-locking via:	
Spring	Spring
Closing time/opening time [s]:	
0,2/0,2	0,2/0,3
Repeatability ± [mm]:	
0,1	0,1
Min./max. operating pressure [bar]:	
4/8	4/8
Air volume per cycle [cm³]:	
12	13
Min./max. operating temperature [°C]:	
5/80	5/80
Temp. resistant version up to 150° C [add to part number]:	
TS	TS
Weight [kg]:	
0,265	0,38

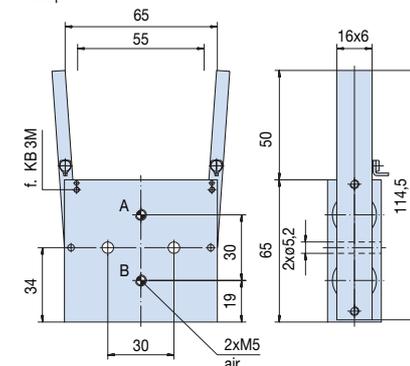
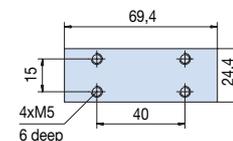
All data measured at 6 bar.

* Measured at 10 mm from top edge of housing.

See Page 155 for Accessory list.

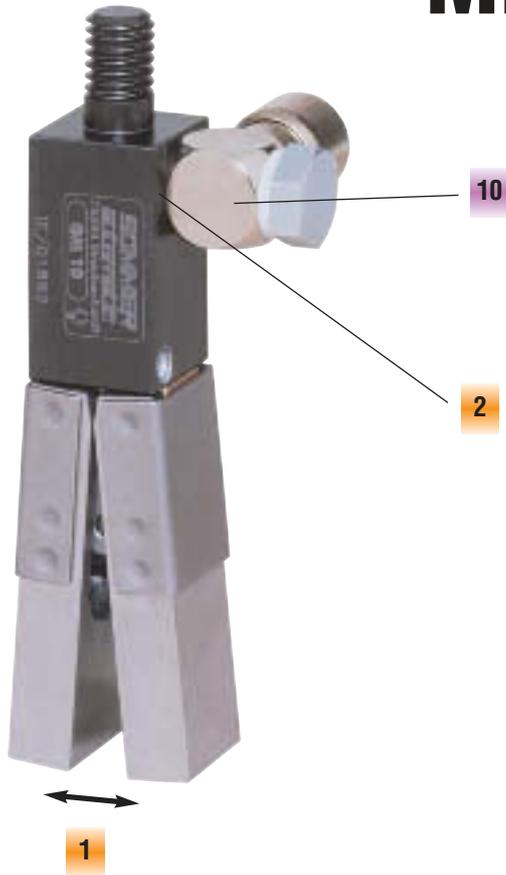


GZ25-35D



GZ55-65D

Mini-finger gripper



Features

- 1 Stroke
- 2 Air connection at the side

Accessories

- 10 Compressed air fitting

Operation

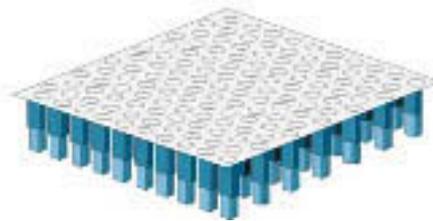
A double-acting pneumatic cylinder drives an internal linkage. The jaws move concentrically and are connected to the center section by links (pivoting arms).

So simple it's scary

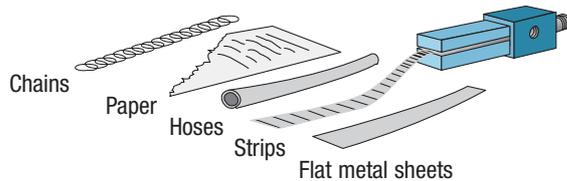
Due to its slim design, it doesn't need much space. By changing the pin linkage configuration, the gripper can be changed from air-closing and spring-opening to air-opening and spring-closing. The jaws are made of steel and the face can be machined up to 10 mm (12 mm in case of the GM16). Depending on the form of the work piece, the jaw can be turned, milled or drilled as shown in the examples. On the GM10 and GM16, the air connections are on the front and side. The GM16 is also available in a double-acting version (without spring) for fast cycles - see GM16D. On this model, the two air connections are located on the front. Sensing is not possible due to the small size of these grippers; it must be done by means of valves. A special gripper, the double-acting GM22D is available as a larger and more powerful size without a spring (closing force = 55 Ncm, opening force = 30 Ncm). A drawing is available upon request.

By the way:

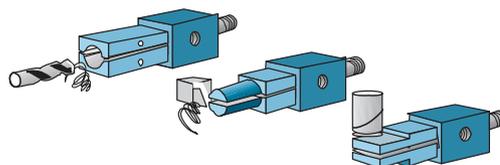
The GM10 is supplied with a spacer with which the gripper fingers can be set exactly parallel for machining. On the GM16, this function is assumed by the grub screw in the right-hand jaw.



The slim design of these grippers allows several of them to be installed side by side.



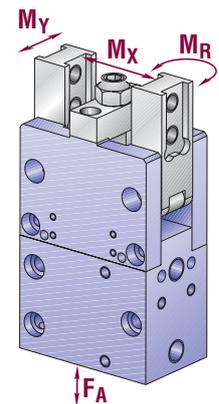
can be gripped without any problems.



The jaws of the grippers can be machined in many different ways, for example, drilling, turning or milling.

Schematic...

On every product page, you will find the following schematic which helps describe the max allowable forces and movements for that particular model.



Mini-finger gripper

GM10/GM16/GM22

things worth knowing

Advantages and uses

... high-grip force with the smallest size ... gripper jaws configured as blank ...
... link adjustable for high power during closing or opening ...

- ▶ centrally opening and closing
 - ▶ any desired installation position
 - ▶ high reliability and long service life

Highlight

... extremely slender design takes little space!

Characteristics

Function

Drive GM10, GM16: single-acting cylinder with spring return
Drive GM16D, GM22D: double-acting pneumatic cylinder with integrated spring as grip force safety device
Power transfer: toggle type linkage

Material

Housing: hard-anodized aluminum
Functional parts: steel

Maintenance

Recommended at: 1.5 million cycles
Actuation: filtered high-pressure air (10 µm), dry or oiled maintenance of the mechanics:
Maintenance of the mechanics – see owners' manual –

Basic explanations

Terms and illustrations

Grip force safety device: required during pressure loss for maintaining position of workpiece
– pneumatic/hydraulic: through pressure retention (one-way valve required DSV1/8)
– mechanical: through spring pre-tension
– spring power: specifications based on minimum spring pre-tension
Total power: arithmetic sum of the individual elements on the gripper jaws
Closing and opening times: required time for the gripper jaws to cover the maximum stroke length
Schematic: displays static forces and momenta that can additionally affect grip force

Models

Joints convertible for either spring-opening or spring-closing.

Accessories

Accessory recommendations:

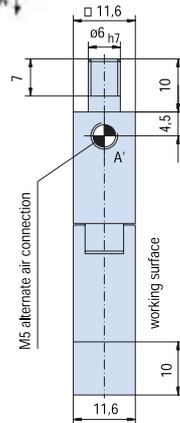
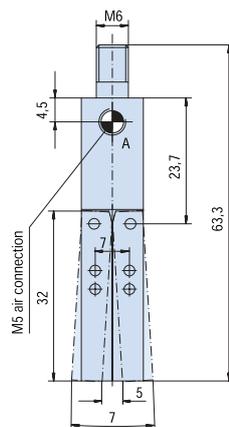
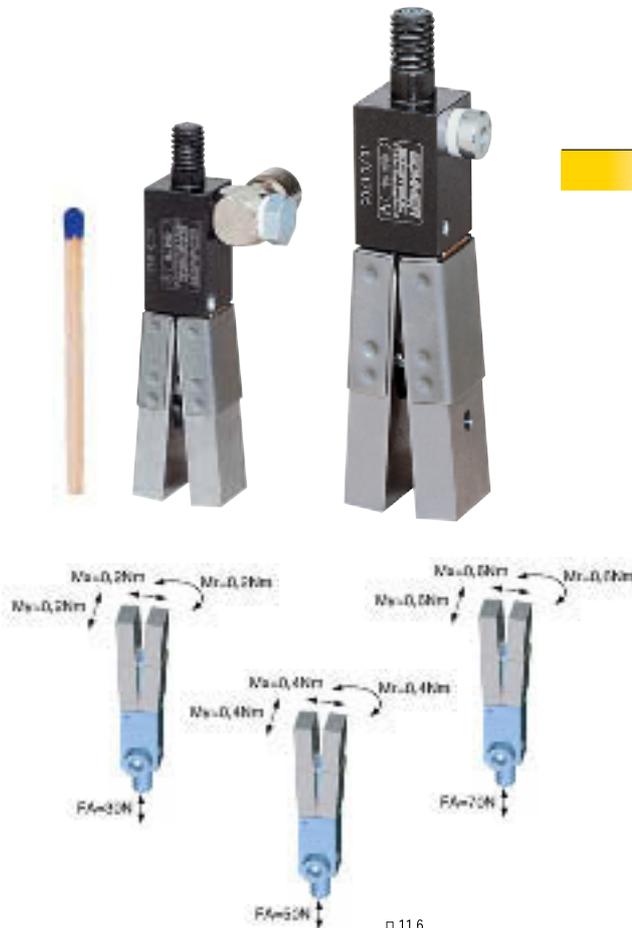
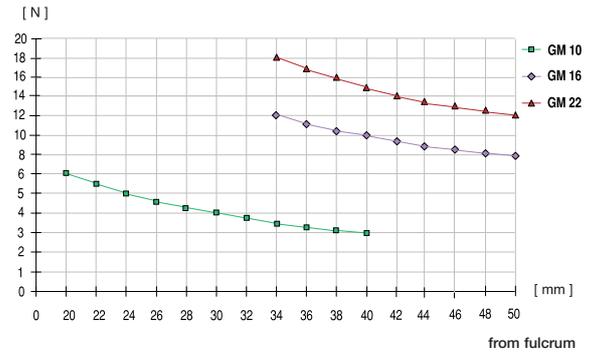
- ▶ Pneumatic fittings Page 442
- ▶ Tubing Page 444
- ▶ Control valves Page 445
- ▶ Pressure safety valves Page 447



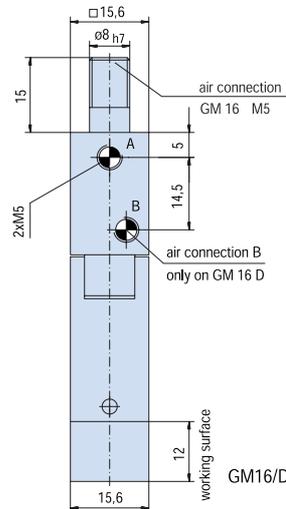
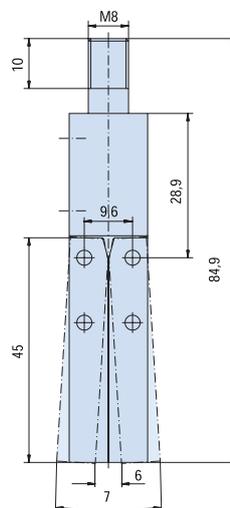
Mini-finger gripper

Advantages, benefits, comparisons and tips!
Stacks of information all about this product are
on page 161.

Gripping force as a function of jaw length



GM10



GM16/D

Order no.:

GM10	GM16	GM16 D	GM22 D

Drive:

pneum.	pneum.	pneum.	pneum.

Stroke per jaw [°]:

3,5	3,5	3,5	3,5

Gripping torque in closing [Nm]:

0,12	0,2	0,4	0,55

Gripping torque in opening [Nm]:

0,06	0,08	0,2	0,3

Self-locking via:

DSV1/8	DSV1/8	DSV1/8	DSV1/8

Closing time/opening time [s]:

0,2	0,2	0,2	0,2

Repeatability ± [mm]:

0,1	0,1	0,1	0,1

Min./max. operating pressure [bar]:

5/8	5/8	5/8	5/8

Air volume per cycle [cm³]:

2	5	5	8

Min./max. operating temperature [°C]:

5/80	5/80	5/80	5/80

Temp. resistant version up to 150° C [add to part number]:

T1	T1	T1	T1

Weight [kg]:

0,041	0,093	0,095	0,198

All data measured at 6 bar.

GM22 drawing available on request