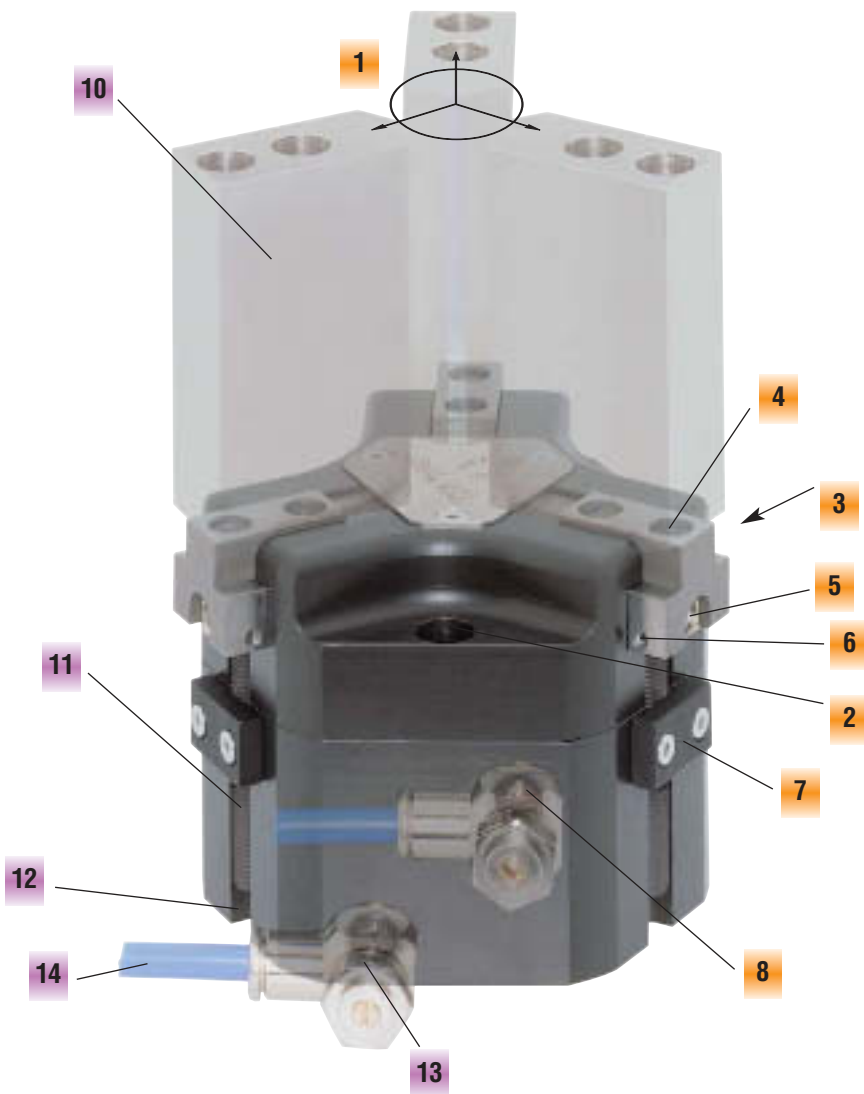


# Three-jaw gripper

## with T-slot guide



### Features

- 1 Stroke
- 2 Hole for socket head screw
- 3 Lubricating nipple (on the back)
- 4 Removable centering sleeves
- 5 Spring-loaded trip dogs
- 6 Trip dog setscrew
- 7 Sensor mount
- 8 Air connection at the front (alternatively at the rear and bottom)

### Accessories

- 10 Universal jaws
- 11 Proximity switch, plug-in
- 12 Cable, plug-in
- 13 One-way valve
- 14 PU-hose

## The final tests...

...have long been passed and in several respects the winner is: The T-slot guide. That's traditional mechanical engineering! Rugged and dependable in each direction.

All types are made from hard-coated aluminum and have hardened and ground T-slot steel jaws like chucks, providing maximum resistance to twisting loads and moments. We offer the first 6 sizes in up to 7 different models: with springs (for self-locking, opening and closing) and without springs. Except for the 2 smallest sizes, each is available in a hydraulic version with 30 bar operating pressure.

All jaws have a lubricating nipple on the front. Lubrication is required after one million operations. (Of course, it's possible to do without, but a little grease won't hurt...) The centering sleeves on the jaws ensure a precise mounting of the jaws, which is important if jaws are changed often. For this case, we also can supply universal jaws made of steel and

aluminum. For more details, see "Accessories". The pneumatic ports for opening and closing are located on the front and bottom. At the bottom, the ports are closed with grub screws and can be used for hoseless connections.

For sensing, we have come up with something very special: Under two of the three jaws, there are spring-actuated trip dogs, which can be adjusted precisely and infinitely with a screw. The adjustment can be fixed with the grub screws located on the side of the jaws. 8 mm sensor mounts are located below the trip dogs, allowing optimum mounting of proximity switch "NJ 8-E2". For more details on the proximity switch and other accessories, see the accessory pages.

### Explanations

The following abbreviations mean:

#### Opening / closing by spring:

**NO** = Standard design, self-locking, spring opening (long stroke – normal force)

**NC** = Standard design, self-locking, spring closing (long stroke – normal force)

**SC** = Heavy-duty design, self-locking, spring closing (short stroke – large force)

**SO** = Heavy-duty design, self-locking, spring opening (short stroke – large force)

#### Without spring:

**N** = Standard design, (long stroke – normal force)

**S** = Heavy-duty design (short stroke – large force)

#### Hydraulic version:

**NH** = Standard design, hydraulic up to 40 bar (long stroke – large force)

# Three-jaw gripper with T-slot guide

GD304 up to GD320

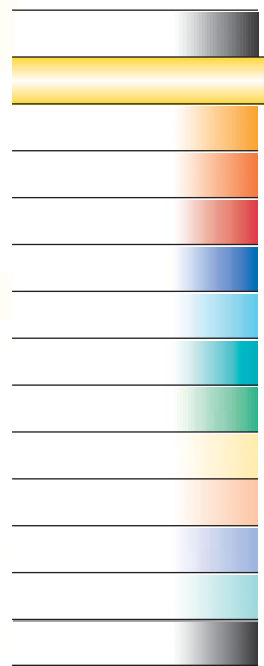
things worth knowing

## Advantages and uses

... high-grip force in combination with robust T-slot guide ... all versions available with grip force fail safe ... high reliability and long service life ...



- ▶ compact design and minimal weight
    - ▶ centrally opening and closing
    - ▶ high precision
      - ▶ any desired installation position
      - ▶ many air connection possibilities
      - ▶ position sensing possible through inductive proximity switch
- ... large selection of variations! ...



## Characteristics

### Function

Drive: double-acting pneumatic cylinder  
(depending upon model) double-acting pneumatic cylinder with integrated spring as mechanical grip force fail-safe

Power transfer: wedge and piston principle  
(depending on model)

Guide: T-slot guide for high moment absorption from all sides

### Material

Housing: hard-anodized aluminum  
Moving parts: nitrided steel

### Maintenance

Recommended at: 1.5 million cycles  
Actuation: clean environment – filtered high-pressure air (10 $\mu$ m), dry or oiled  
Maintenance of the mechanics: via integrated lubrication nipple – 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 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

### Models

GD 3...	Drive	Stroke	Power	Internal gripping	External gripping	Mechanical fail-safe
...N	pneumatic	large	normal	●	●	
...NC	pneumatic	large	normal		●	●
...NO	pneumatic	large	normal	●		●
...NH	hydraulic	large	normal	●	●	
...S	pneumatic	short	high	●	●	
...SC	pneumatic	short	high		●	●
...SO	pneumatic	short	high	●		●

## Accessories

### Included with purchase:

- ▶ Centering sleeves

### Additional accessory recommendation:

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

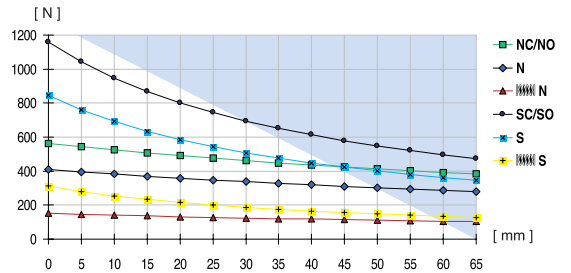


# Three-jaw gripper

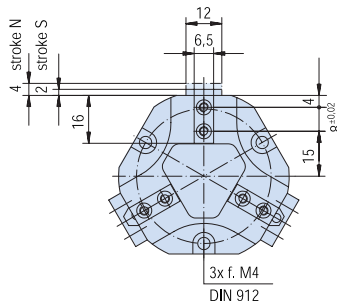
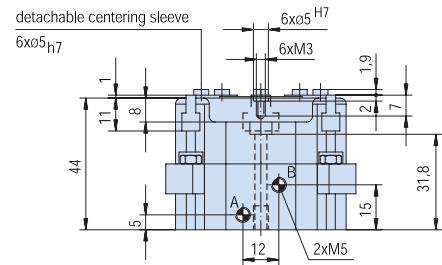
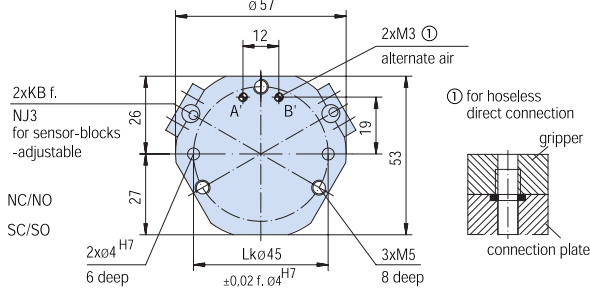
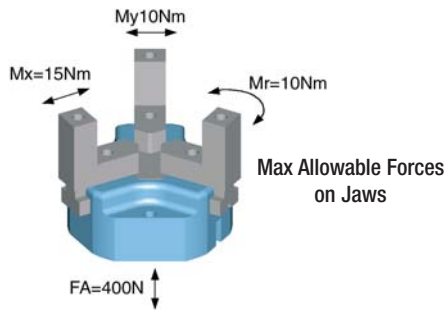
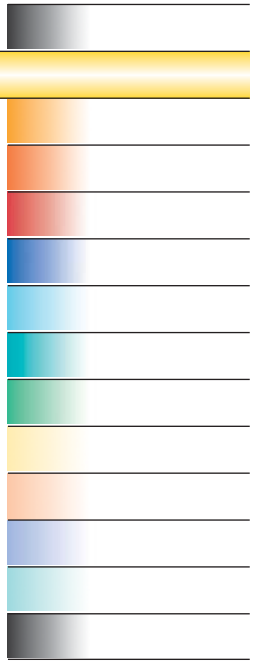
## with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

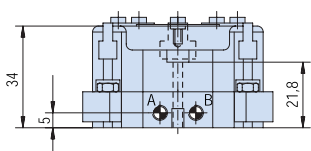
### Gripping force as a function of jaw length



Colored area: increased wear and tear to be expected



N/S



Order no.:					
GD304 N	GD304 NC	GD304 NO	GD304 S	GD304 SC	GD304 SO
<b>Drive:</b>					
pneum.	pneum.	pneum.	pneum.	pneum.	pneum.
<b>Stroke per jaw [mm]:</b>					
4	4	4	2	2	2
<b>Gripping force in closing and opening [N]:</b>					
420	-	-	850	-	-
<b>Gripping force in closing [N]:</b>					
-	560	-	-	1160	-
<b>Gripping force in opening [N]:</b>					
-	-	560	-	-	1160
<b>Self-locking via:</b>					
DSV1/8	Spring	Spring	DSV1/8	Spring	Spring
<b>Closing time/opening time [s]:</b>					
0,05	0,07	0,07	0,05	0,07	0,07
<b>Repeatability ± [mm]:</b>					
0,05	0,05	0,05	0,05	0,05	0,05
<b>Min./max. operating pressure [bar]:</b>					
3 / 8	5 / 8	5 / 8	3 / 8	5 / 8	5 / 8
<b>Air volume per cycle [cm<sup>3</sup>]:</b>					
9	18	18	9	18	18
<b>Min./max. operating temperature [°C]:</b>					
5 / 80	5 / 80	5 / 80	5 / 80	5 / 80	5 / 80
<b>Temp. resistant version up to 150° C [add to part number]:</b>					
T2	T2	T2	T2	T2	T2
<b>Piston diameter [mm]:</b>					
35	35	35	35	35	35
<b>Weight [kg]:</b>					
0,3	0,3	0,3	0,3	0,3	0,3

All data measured at 6 bar.

See Page 103 for Accessory list.

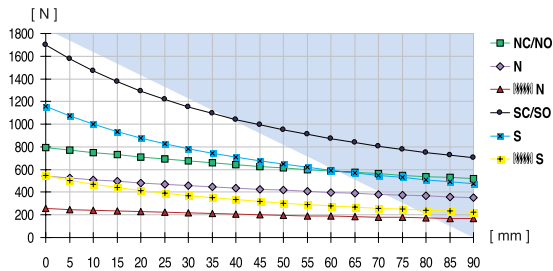
Parallel gripper	<b>Three-jaw gripper</b>	Angle gripper	Internal-hole gripper	Other grippers	Electric gripper			
GD304	<b>GD306</b>	GD308	GD310	GD312	GD316	GD320	Pressing star	Universal jaw

# Three-jaw gripper

## with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

### Gripping force as a function of jaw length

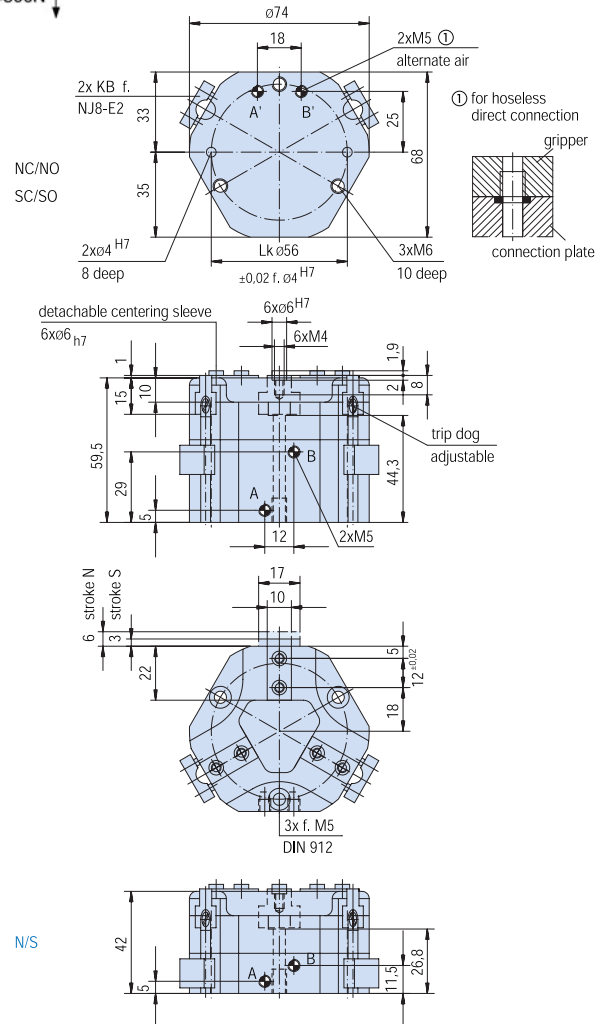
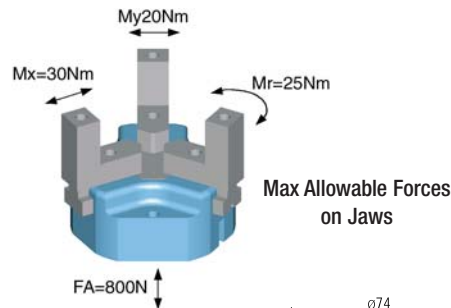


Colored area: increased wear and tear to be expected

Order no.:					
GD306 N	GD306 NC	GD306 NO	GD306 S	GD306 SC	GD306 SO
Drive:					
pneum.	pneum.	pneum.	pneum.	pneum.	pneum.
Stroke per jaw [mm]:					
6	6	6	3	3	3
Gripping force in closing and opening [N]:					
550	-	-	1150	-	-
Gripping force in closing [N]:					
-	800	-	-	1700	-
Gripping force in opening [N]:					
-	-	800	-	-	1700
Self-locking via:					
DSV1/8	Spring	Spring	DSV1/8	Spring	Spring
Closing time/opening time [s]:					
0,06	0,08	0,08	0,06	0,08	0,08
Repeatability ± [mm]:					
0,05	0,05	0,05	0,05	0,05	0,05
Min./max. operating pressure [bar]:					
3 / 8	5 / 8	5 / 8	3 / 8	5 / 8	5 / 8
Air volume per cycle [cm³]:					
18	40	40	18	40	40
Min./max. operating temperature [°C]:					
5 / 80	5 / 80	5 / 80	5 / 80	5 / 80	5 / 80
Temp. resistant version up to 150° C [add to part number]:					
T2	T2	T2	T2	T2	T2
Piston diameter [mm]:					
40	40	40	40	40	40
Weight [kg]:					
0,6	0,7	0,7	0,6	0,7	0,7

All data measured at 6 bar.

See Page 103 for Accessory list.  
Pressing star available (see page 111).

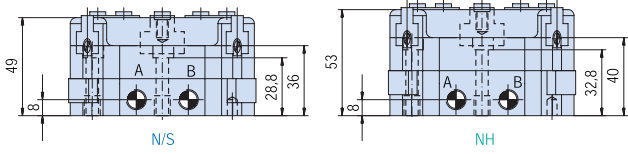
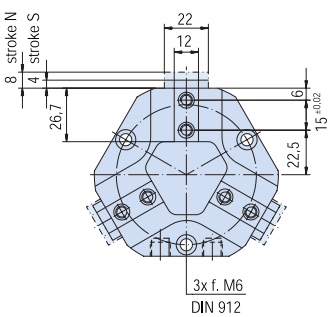
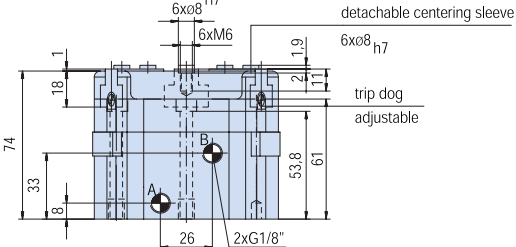
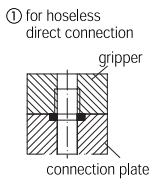
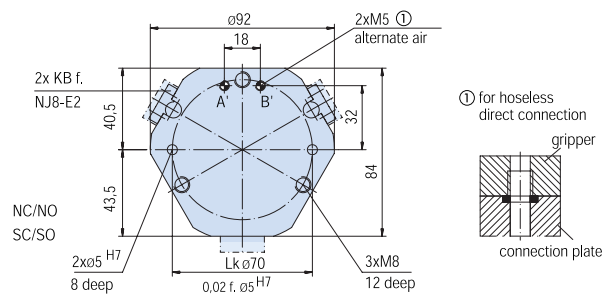
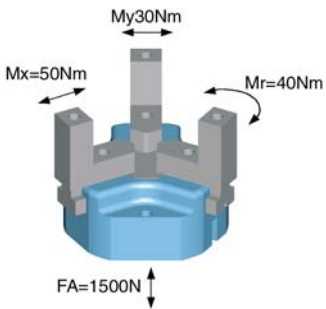
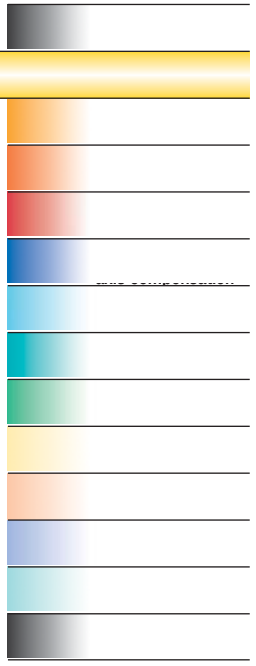
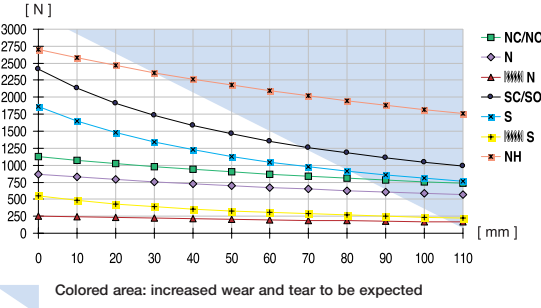


N/S

# Three-jaw gripper with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

Gripping force as a function of jaw length



Order no.:						
GD308 N	GD308 NC	GD308 NO	GD308 S	GD308 SC	GD308 SO	GD308 NH
Drive:						
pneum.	pneum.	pneum.	pneum.	pneum.	pneum.	hydr.
Stroke per jaw [mm]:						
8	8	8	4	4	4	8
Gripping force in closing and opening [N]:						
875	-	-	1850	-	-	2700
Gripping force in closing [N]:						
-	1125	-	-	2440	-	-
Gripping force in opening [N]:						
-	-	1125	-	-	2440	-
Self-locking via:						
DSV1/8	Spring	Spring	DSV1/8	Spring	Spring	-
Closing time/opening time [s]:						
0,07	0,09	0,09	0,07	0,09	0,09	0,4
Repeatability $\pm$ [mm]:						
0,05	0,05	0,05	0,05	0,05	0,05	0,05
Min./max. operating pressure [bar]:						
3/8	5/8	5/8	3/8	5/8	5/8	10/40
Air volume per cycle [cm <sup>3</sup> ]:						
36	85	85	36	85	85	-
Oil volume per cycle [cm <sup>3</sup> ]:						
-	-	-	-	-	-	23
Min./max. operating temperature [°C]:						
5/80	5/80	5/80	5/80	5/80	5/80	5/80
Temp. resistant version up to 150° C [add to part number]:						
T2	T2	T2	T2	T2	T2	T2
Piston diameter [mm]:						
50	50	50	50	50	50	40
Weight [kg]:						
1,0	1,3	1,3	1,0	1,3	1,3	1,0

All data measured at 6 bar (hydr. 30 bar).

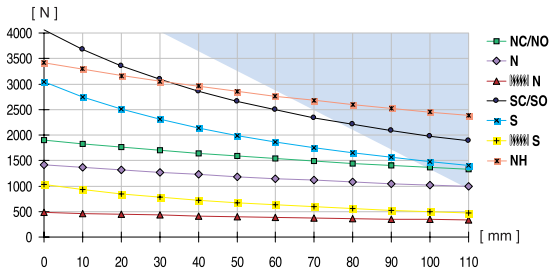
Parallel gripper		<b>Three-jaw gripper</b>			Angle gripper	Internal-hole gripper	Other grippers		Electric gripper
GD304	GD306	GD308	<b>GD310</b>	GD312	GD316	GD320	Pressing star	Universal jaw	

# Three-jaw gripper

with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

## Gripping force as a function of jaw length



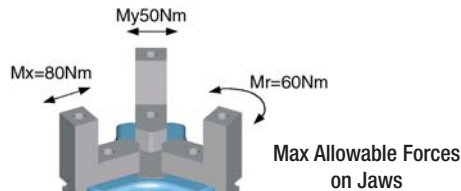
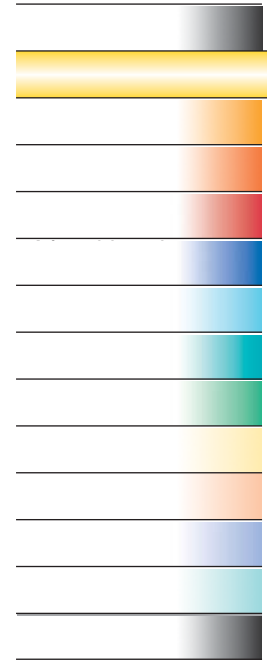
Colored area: increased wear and tear to be expected

Order no.:						
<b>GD310</b>	<b>GD310</b>	<b>GD310</b>	<b>GD310</b>	<b>GD310</b>	<b>GD310</b>	<b>GD310</b>
N	NC	NO	S	SC	SO	NH
Drive:						
pneum.	pneum.	pneum.	pneum.	pneum.	pneum.	hydr.
Stroke per jaw [mm]:						
10	10	10	5	5	5	10
Gripping force in closing and opening [N]:						
1400	-	-	3000	-	-	3400
Gripping force in closing [N]:						
-	1800	-	-	4000	-	-
Gripping force in opening [N]:						
-	-	1800	-	-	4000	-
Self-locking via:						
DSV1/8	Spring	Spring	DSV1/8	Spring	Spring	-
Closing time/opening time [s]:						
0,09	0,11	0,11	0,09	0,11	0,11	0,5
Repeatability ± [mm]:						
0,05	0,05	0,05	0,05	0,05	0,05	0,05
Min./max. operating pressure [bar]:						
3/8	5/8	5/8	3/8	5/8	5/8	10/40
Air volume per cycle [cm³]:						
74	150	150	74	150	150	-
Oil volume per cycle [cm³]:						
-	-	-	-	-	-	36
Min./max. operating temperature [°C]:						
5/80	5/80	5/80	5/80	5/80	5/80	5/80
Temp. resistant version up to 150° C [add to part number]:						
T2	T2	T2	T2	T2	T2	T2
Piston diameter [mm]:						
63	63	63	63	63	63	45
Weight [kg]:						
1,8	2,4	2,4	1,8	2,4	2,4	1,9

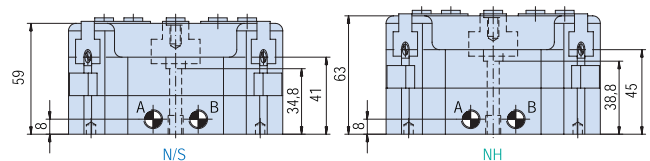
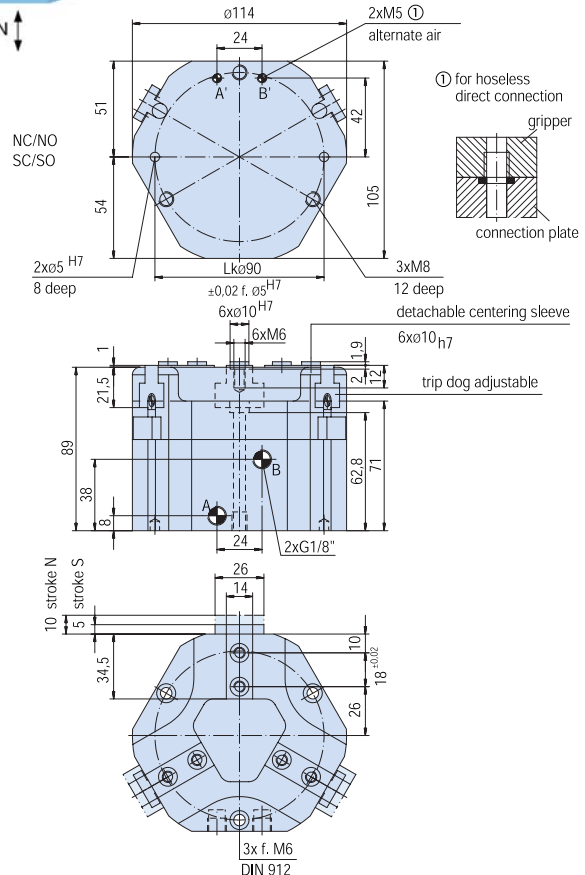
All data measured at 6 bar (hydr. 30 bar).

See Page 103 for Accessory list.

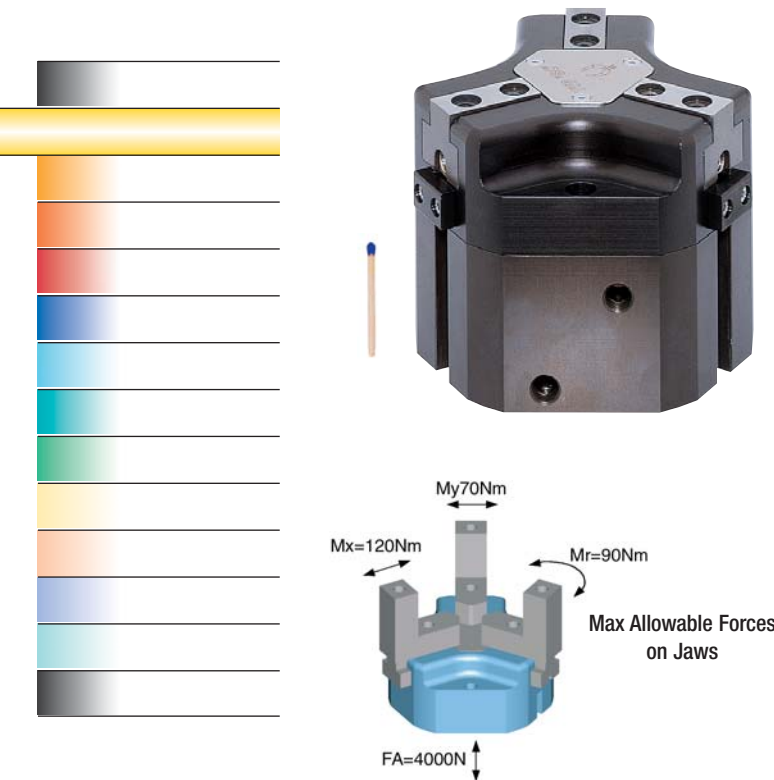
Pressing star available (see page 111).



Max Allowable Forces on Jaws



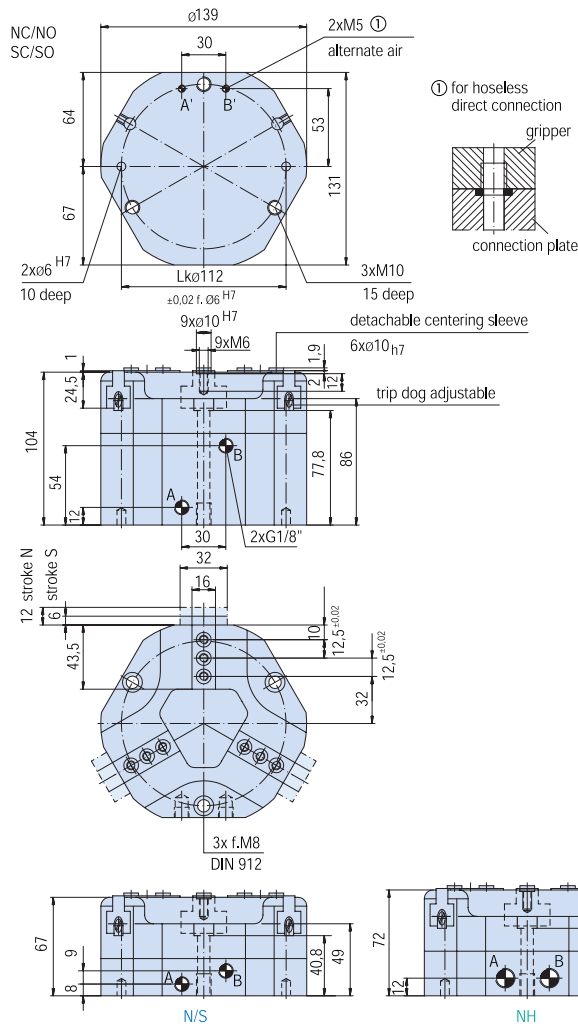
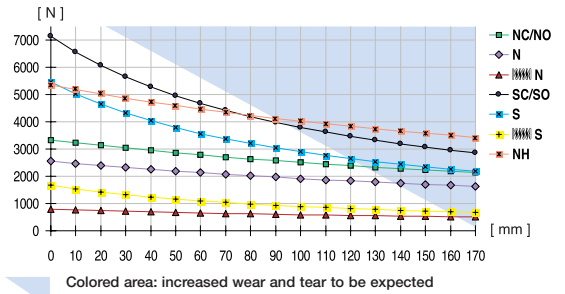
Parallel gripper		<b>Three-jaw gripper</b>			Angle gripper	Internal-hole gripper	Other grippers		Electric gripper
GD304	GD306	GD308	GD310	<b>GD312</b>	GD316	GD320	Pressing star	Universal jaw	



## Three-jaw gripper with T-slot guide

Advantages, benefits, comparisons and tips! Stacks of information all about this product are on page 103.

### Gripping force as a function of jaw length



#### Order no.:

GD312 N	GD312 NC	GD312 NO	GD312 S	GD312 SC	GD312 SO	GD312 NH
---------	----------	----------	---------	----------	----------	----------

#### Drive:

pneum.	pneum.	pneum.	pneum.	pneum.	pneum.	hydr.
--------	--------	--------	--------	--------	--------	-------

#### Stroke per jaw [mm]:

12	12	12	6	6	6	12
----	----	----	---	---	---	----

#### Gripping force in closing and opening [N]:

2500	-	-	5500	-	-	5400
------	---	---	------	---	---	------

#### Gripping force in closing [N]:

-	3250	-	-	7000	-	-
---	------	---	---	------	---	---

#### Gripping force in opening [N]:

-	-	3250	-	-	7000	-
---	---	------	---	---	------	---

#### Self-locking via:

DSV1/8	Spring	Spring	DSV1/8	Spring	Spring	-
--------	--------	--------	--------	--------	--------	---

#### Closing time/opening time [s]:

0,12	0,15	0,15	0,12	0,15	0,15	0,6
------	------	------	------	------	------	-----

#### Repeatability ± [mm]:

0,05	0,05	0,05	0,05	0,05	0,05	0,05
------	------	------	------	------	------	------

#### Min./max. operating pressure [bar]:

3/8	5/8	5/8	3/8	5/8	5/8	10/40
-----	-----	-----	-----	-----	-----	-------

#### Air volume per cycle [cm³]:

162	350	350	162	350	350	-
-----	-----	-----	-----	-----	-----	---

#### Oil volume per cycle [cm³]:

-	-	-	-	-	-	66
---	---	---	---	---	---	----

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

5/80	5/80	5/80	5/80	5/80	5/80	5/80
------	------	------	------	------	------	------

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

T2	T2	T2	T2	T2	T2	T2
----	----	----	----	----	----	----

#### Piston diameter [mm]:

83	83	83	83	83	83	55
----	----	----	----	----	----	----

#### Weight [kg]:

3,0	4,8	4,8	3,0	4,8	4,8	3,3
-----	-----	-----	-----	-----	-----	-----

All data measured at 6 bar (hydr. 30 bar).

See Page 103 for Accessory list.

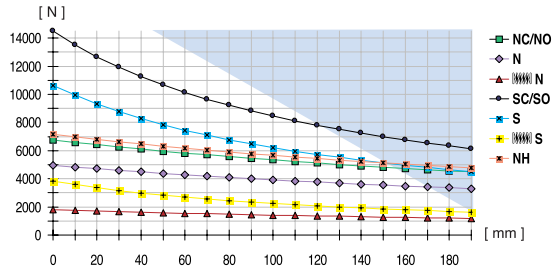
Parallel gripper		<b>Three-jaw gripper</b>			Angle gripper	Internal-hole gripper	Other grippers		Electric gripper
GD304	GD306	GD308	GD310	GD312	<b>GD316</b>	GD320	Pressing star	Universal jaw	

# Three-jaw gripper

## with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

### Gripping force as a function of jaw length



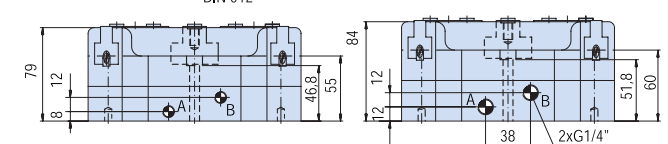
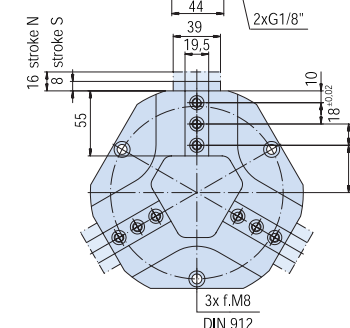
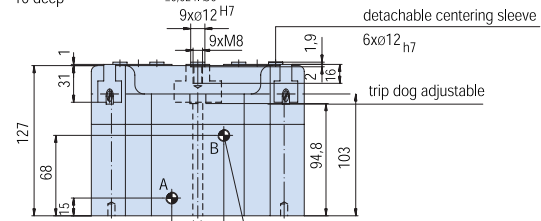
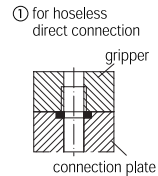
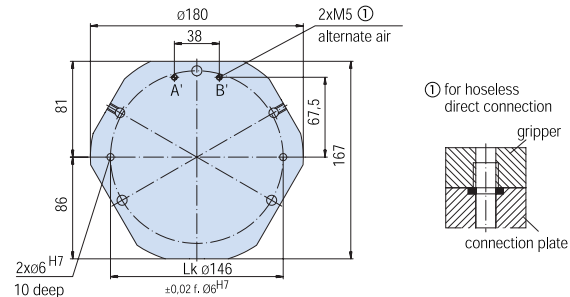
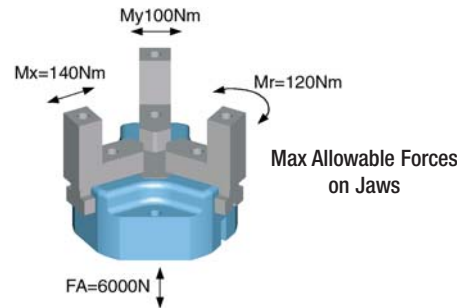
Colored area: increased wear and tear to be expected

Order no.:						
<b>GD316</b>	<b>GD316</b>	<b>GD316</b>	<b>GD316</b>	<b>GD316</b>	<b>GD316</b>	<b>GD316</b>
N	NC	NO	S	SC	SO	NH
Drive:						
pneum.	pneum.	pneum.	pneum.	pneum.	pneum.	hydr.
Stroke per jaw [mm]:						
16	16	16	8	8	8	16
Gripping force in closing and opening [N]:						
5000	-	-	10500	-	-	7000
Gripping force in closing [N]:						
-	6800	-	-	14100	-	-
Gripping force in opening [N]:						
-	-	6800	-	-	14100	-
Self-locking via:						
DSV1/8	Spring	Spring	DSV1/8	Spring	Spring	-
Closing time/opening time [s]:						
0,15	0,18	0,18	0,15	0,18	0,18	0,65
Repeatability ± [mm]:						
0,05	0,05	0,05	0,05	0,05	0,05	0,05
Min./max. operating pressure [bar]:						
3/8	5/8	5/8	3/8	5/8	5/8	10/40
Air volume per cycle [cm³]:						
395	783	783	395	783	783	-
Oil volume per cycle [cm³]:						
-	-	-	-	-	-	120
Min./max. operating temperature [°C]:						
5/80	5/80	5/80	5/80	5/80	5/80	5/80
Temp. resistant version up to 150° C [add to part number]:						
T2	T2	T2	T2	T2	T2	T2
Piston diameter [mm]:						
115	115	115	115	115	115	64
Weight [kg]:						
5,9	9,3	9,3	5,9	9,3	9,3	6,3

All data measured at 6 bar (hydr. 30 bar).

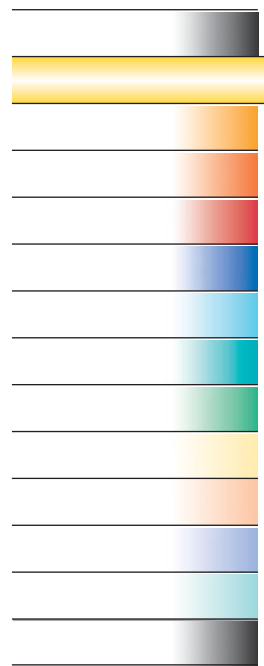
See Page 103 for Accessory list.

Pressing star available (see page 111).



N/S

NH



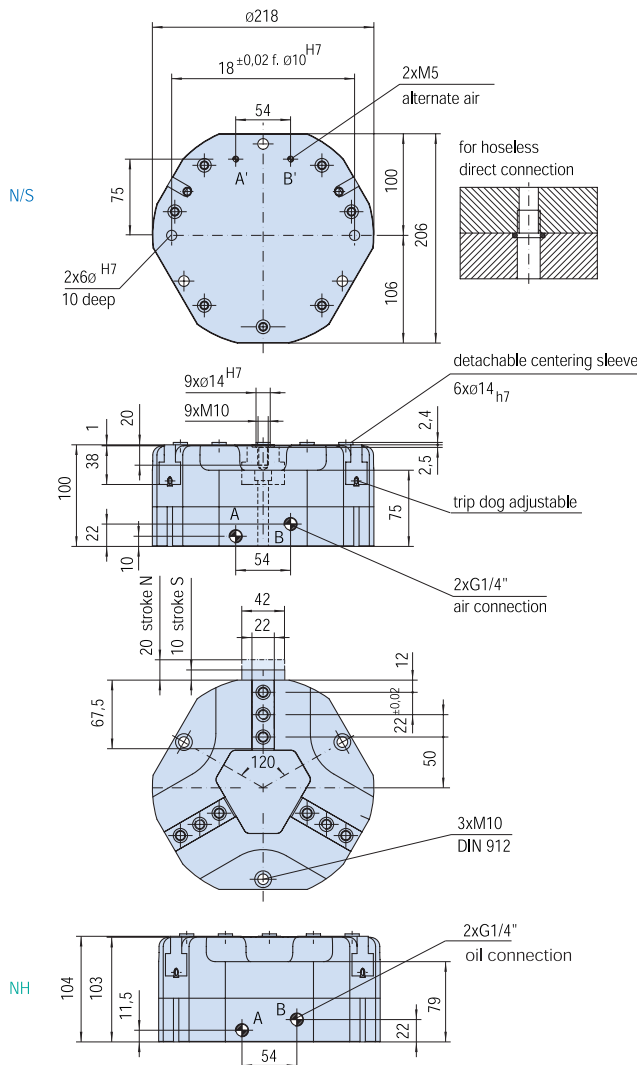
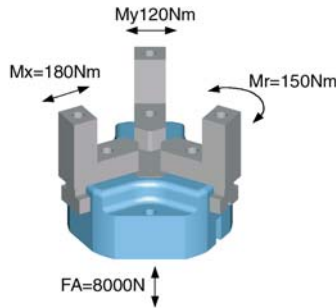
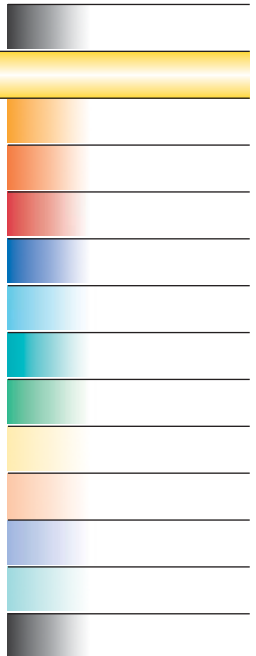
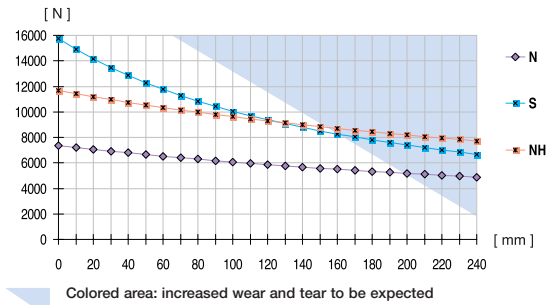


# Three-jaw gripper

## with T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 103.

### Gripping force as a function of jaw length



Order no.:					
GD320 N	GD320 S	GD320 NH			
<b>Drive:</b>					
pneum.	pneum	hydr.			
<b>Stroke per jaw [mm]:</b>					
20	10	20			
<b>Gripping force in closing [N]:</b>					
7100	15800	11800			
<b>Gripping force in opening [N]:</b>					
7100	15800	11800			
<b>Self-locking via:</b>					
DSV1/8	DSV1/8	-			
<b>Closing time/opening time [s]:</b>					
0,25	0,25	0,7			
<b>Repeatability <math>\pm</math> [mm]:</b>					
0,05	0,05	0,05			
<b>Min./max. operating pressure [bar]:</b>					
3/8	3/8	10/40			
<b>Air volume per cycle [cm<sup>3</sup>]:</b>					
733	733	-			
<b>Oil volume per cycle [cm<sup>3</sup>]:</b>					
-	-	230			
<b>Min./max. operating temperature [°C]:</b>					
5/80	5/80	5/80			
<b>Temp. resistant version up to 150° C [add to part number]:</b>					
T3	T3	T3			
<b>Piston diameter [mm]:</b>					
140	140	80			
<b>Weight [kg]:</b>					
10,64	10,64	11,59			

All data measured at 6 bar (hydr. 30 bar).

See Page 103 for Accessory list.

# Three-jaw gripper with center thru hole

GD312MB

## things worth knowing

### Advantages and uses

- ... high-grip force in combination with robust T-slot guide ...
- ... all variations available with grip force fail-safe ...

Highlight

- ▶ high reliability and long service life
    - ▶ compact design and minimal weight
    - ▶ centrally opening and closing
    - ▶ high precision
    - ▶ any desired installation position
    - ▶ position sensing possible through inductive proximity switch
- ... large center thru hole! ...

### Characteristics

#### Function

Drive:	double-acting pneumatic cylinder
Power transfer:	wedge and piston principle
Guide:	T-groove guide for high momenta absorption from all sides

#### Material

Housing:	hard-anodized aluminum
Moving parts:	nitrided steel

#### Maintenance

Recommended at:	1.5 million cycles
Actuation:	filtered high-pressure air (10 $\mu$ m), dry or oiled
Maintenance of the mechanics:	via integrated lubrication nipple – see owners' manual –

## Basic explanations

### Terms and illustrations

Grip force safety device:	required during pressure failure for maintaining position of workpiece
– pneumatic:	through pressure retention (one-way valve required DSV 1/8)
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

## Accessories

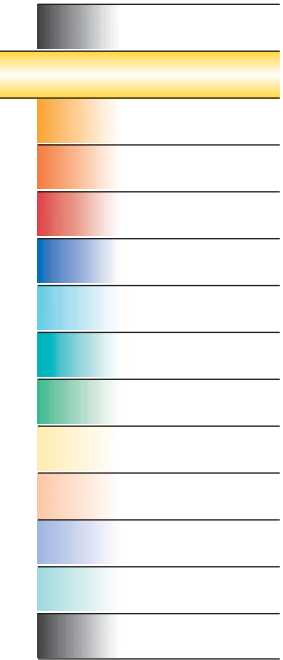
### Included with purchase:

- ▶ Centering sleeves
- ▶ Bracket for inductive proximity switch

### Accessory recommendation:

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

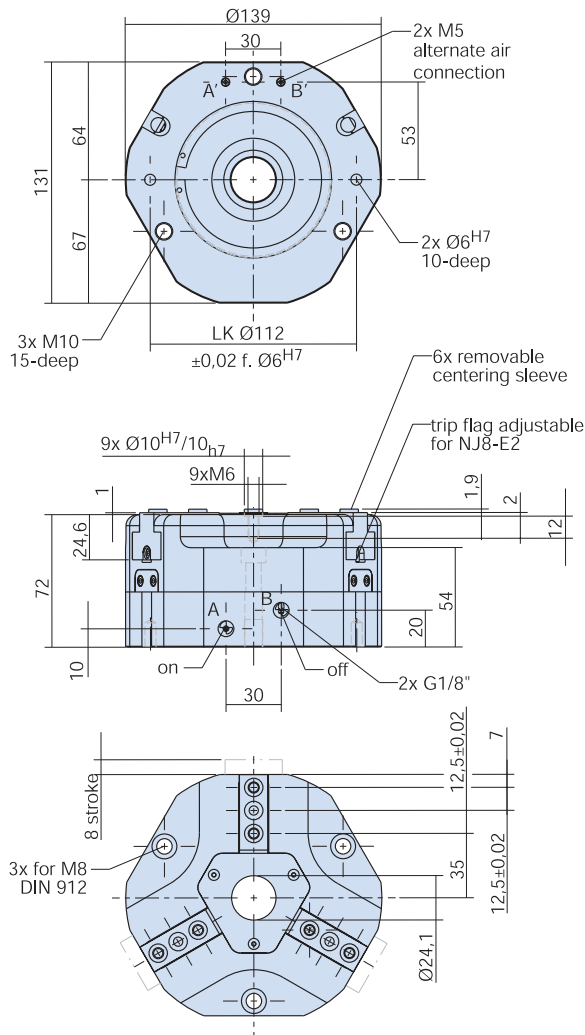
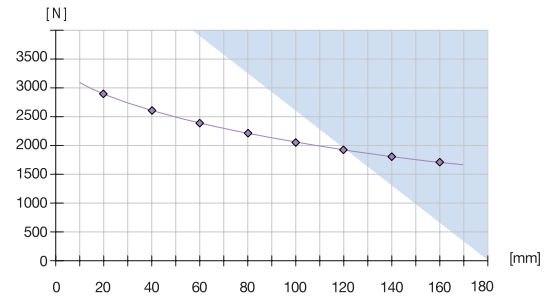




# Three-jaw gripper

with center thru hole and T-slot guide

Central thru hole can be used for:  
 Parts inspection with camera  
 Parts ejection with linear cylinder  
 Pulling wire or bar stock



Order no.:				
GD312				
MB				
Drive:				
pneum.				
Stroke per jaw [mm]:				
8				
Gripping force in closing and opening [N]:				
3300				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,08				
Repeatability ± [mm]:				
0,05				
Min./max. operating pressure [bar]:				
3/10				
Air volume per cycle [cm <sup>3</sup> ]:				
127				
Min./max. operating temperature [°C]:				
5/80				
Temp. resistant version up to 150° C [add to part number]:				
T3				
Piston diameter [mm]:				
83				
Weight [kg]:				
3,2				

All data measured at 6 bar.

# Three-jaw long-stroke gripper with T-slot guide

GD530/GD540/GD560

## things worth knowing

### Advantages and uses

- ... long stroke combined with robust T-slot guide ...
- ... optimal guide relationship allows the use of long gripper jaws ...

- ▶ high reliability and long service life
  - ▶ centrally opening and closing
  - ▶ high precision
    - ▶ any desired installation position
    - ▶ position sensing possible through inductive proximity switch

Highlight

... ultraflat design! ...

### Characteristics

### Long-stroke ... small package

#### Function

Drive: three double-acting cylinders  
 Power transfer: via piston driving cam disk  
 Guide: T-slot guide for high momenta absorption from all sides

#### Material

Housing: hard-anodized aluminum  
 Moving parts: nitrided steel

#### Maintenance

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

When you need a larger stroke and only have a small space to put it in, these grippers will save the day!

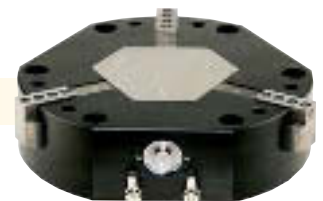
The GD540 and GD560 are only 100 mm thick but offer up to 60 mm per jaw of stroke and 2480 N of gripping force (with pneumatic versions) and 12,400 N in hydraulic versions.

The T-slot guides help to make it rigid against load deflections giving you high torque and load capacity.

## 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 DSV 1/8)  
 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



### Models

GD5...	Drive	Stroke	Power	Internal gripping	External gripping
...N	pneumatic	large	normal	●	●
...NH	hydraulic	large	high	●	●

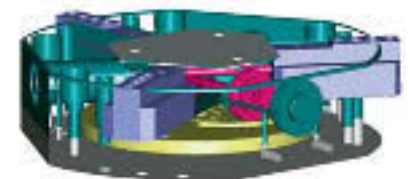
## Accessories

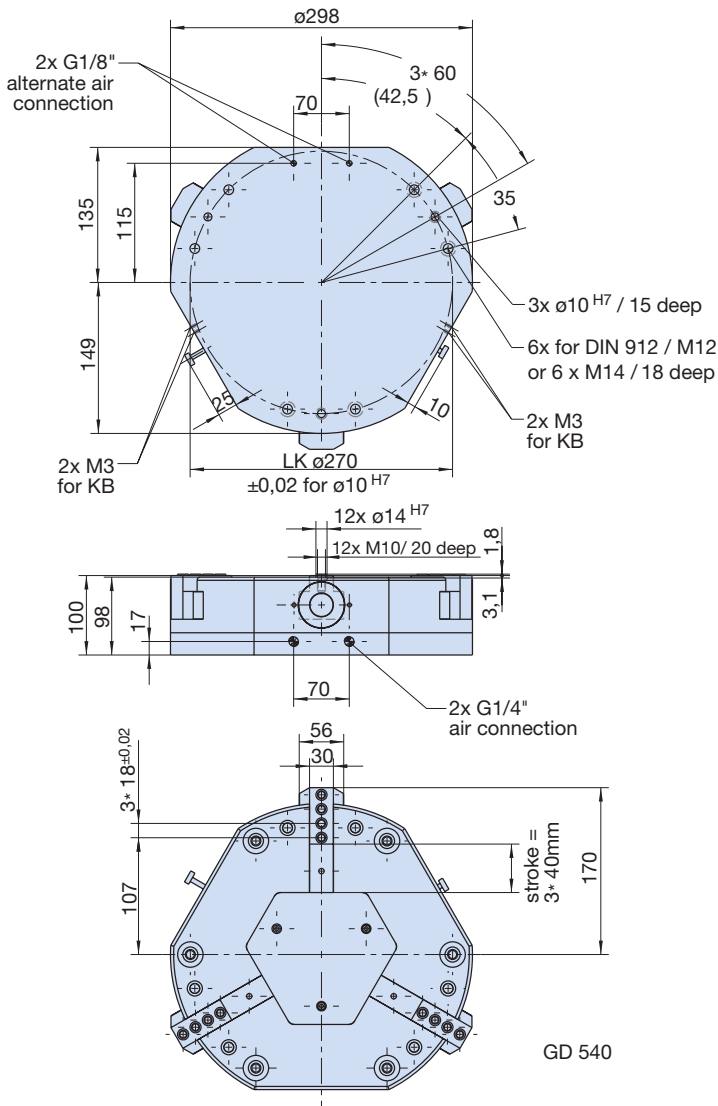
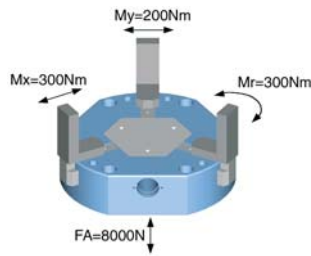
### Included with purchase:

- ▶ Centering sleeves
- ▶ Bracket for inductive proximity switch

### Accessory recommendation:

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



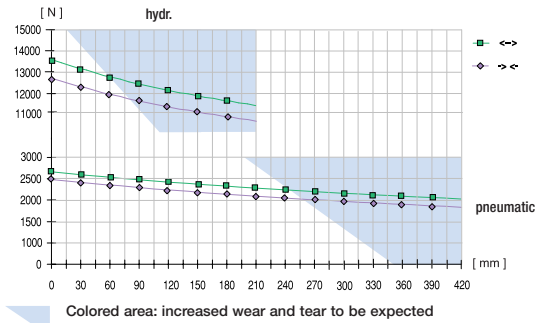


GD 540

## Three-jaw long-stroke gripper with T-slot guide

Advantages, benefits, comparisons and tips! Stacks of information all about this product are on page 124.

### Gripping force as a function of jaw length



#### Order no.:

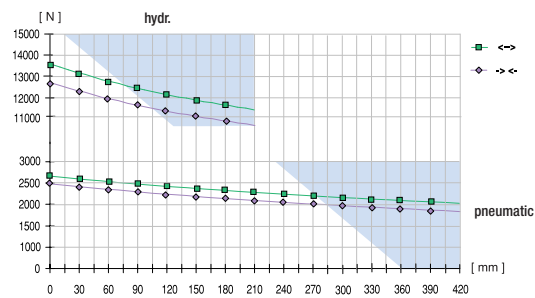
GD540	GD540				
-	H				
<b>Drive:</b>					
pneum.	hydr.				
<b>Stroke per jaw [mm]:</b>					
40	40				
<b>Gripping force in closing and opening [N]:</b>					
2480	12400				
<b>Self-locking via:</b>					
DSV 1/8	-				
<b>Closing time/opening time [s]:</b>					
0,35	0,6				
<b>Repeatability <math>\pm</math> [mm]:</b>					
0,05	0,05				
<b>Min./max. operating pressure [bar]:</b>					
3/6	10/40				
<b>Air volume per cycle [cm<sup>3</sup>]:</b>					
440	-				
<b>Oil volume per cycle [cm<sup>3</sup>]:</b>					
-	440				
<b>Min./max. operating temperature [°C]:</b>					
5-80	5-80				
<b>Temp. resistant version up to 150°C [add to part number]</b>					
T6	T6				
<b>Piston diameter [mm]:</b>					
45	45				
<b>Weight [kg]:</b>					
19,0	19,0				

All data measured at 6 bar (hydr. 30 bar).

## Three-jaw long-stroke gripper with T-slot guide

Advantages, benefits, comparisons and tips! Stacks of information all about this product are on page 124.

### Gripping force as a function of jaw length



Colored area: increased wear and tear to be expected

#### Order no.:

GD560  
- H

#### Drive:

pneum. hydr.

#### Stroke per jaw [mm]:

60 60

#### Gripping force in closing and opening [N]:

2480 12400

#### Self-locking via:

DSV 1/8 -

#### Closing time/opening time [s]:

0,45 0,8

#### Repeatability ± [mm]:

0,05 0,05

#### Min./max. operating pressure [bar]:

3/6 10/40

#### Air volume per cycle [cm<sup>3</sup>]:

650 -

#### Oil volume per cycle [cm<sup>3</sup>]:

- 650

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

5-80 5-80

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

T6 T6

#### Piston diameter [mm]:

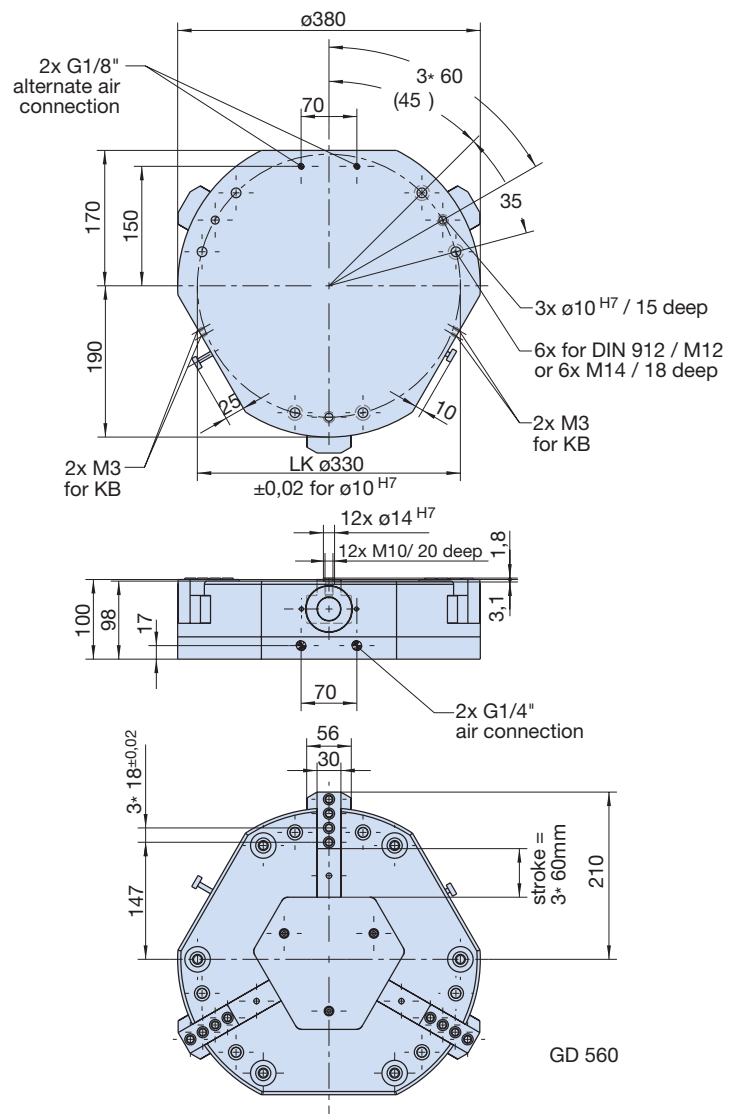
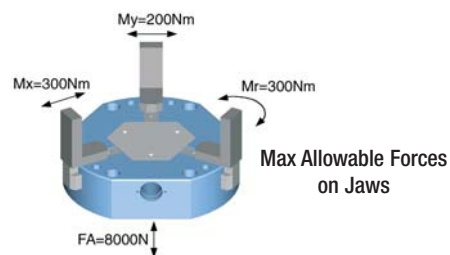
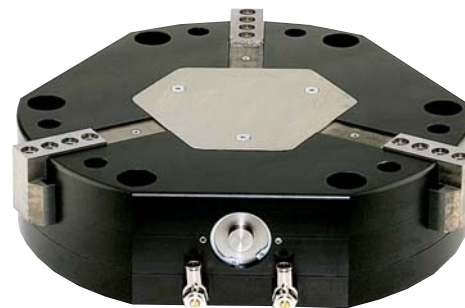
45 45

#### Weight [kg]:

29,0 29,0

All data measured at 6 bar (hydr. 30 bar).

See Page 124 for Accessory list.



GD 560

# Three-jaw gripper sealed and rust-resistant

GD46/GD70/GD110/GD160

things worth knowing

## Advantages and uses

... sealed gripper with precise round guides ...  
... compact construction with low weight ...

Highlight

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

... rust-resistant! ...

## Characteristics

### Function

Drive: double-acting pneumatic cylinder  
Power transfer: piston and wedge principle  
Guide: sealed round guide

### Material

Housing: hard-anodized aluminum  
Guides & Jaws: steel nickel-plated  
Screws: plated steel  
Moving parts: nitrided steel

### Maintenance

Recommended at: 1.5 million Cycles  
Actuation: filtered high-pressure air (10 $\mu$ m), dry or oiled subsequent  
Maintenance of the mechanics: – see owners' manual –

## Basic explanations

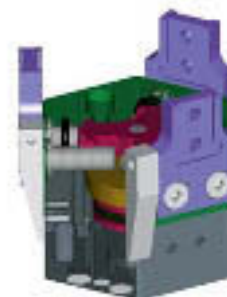
### Terms and illustrations

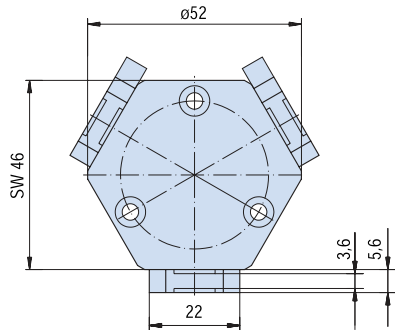
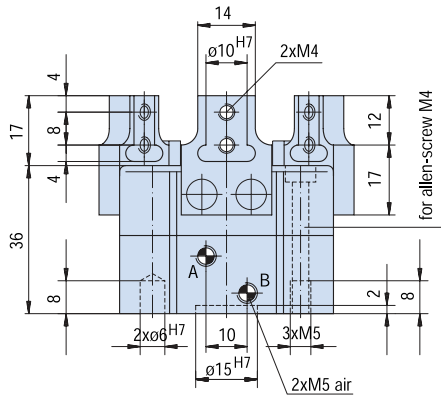
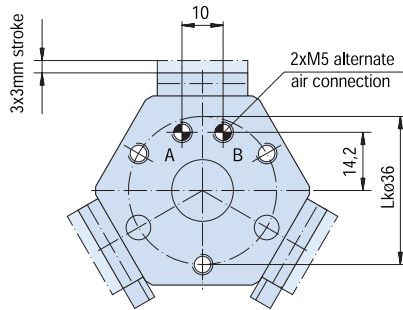
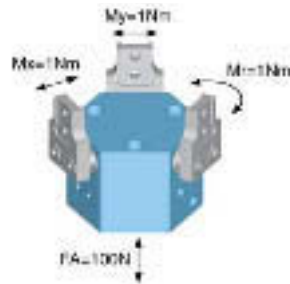
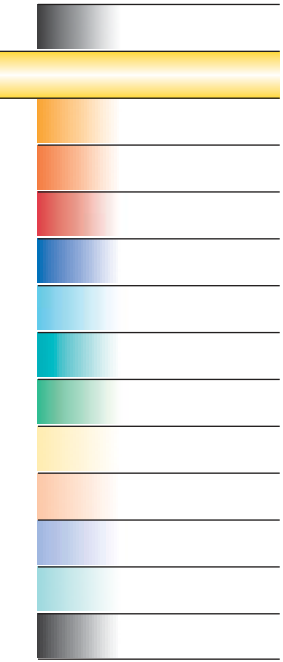
Grip force safety device: required during pressure loss for maintaining position of workpiece  
– pneumatic: through pressure retention (via one-way valve DSV 1/8)  
Total power: arithmetic sum of the individual elements on the gripper jaws  
Closing and opening time: required time for the gripper jaws to cover the maximum stroke length  
Schematic: displays static forces and momenta that can additionally affect grip force

## Accessories

### Accessory recommendation:

- ▶ Universal jaws Page 134
- ▶ 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



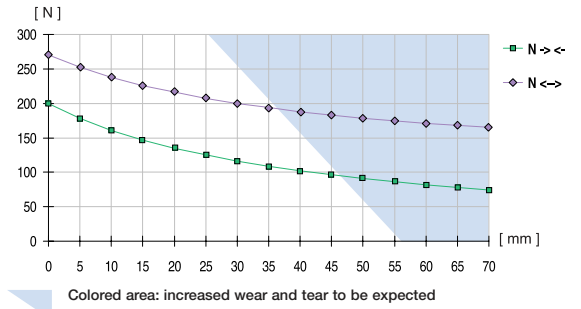


## Three-jaw gripper

sealed and rust-resistant

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are on page 129.

Gripping force as a function of jaw length



Order no.:				
GD46				
N				
Drive:				
pneum.				
Stroke per jaw [mm]:				
3				
Gripping force in closing [N]:				
200				
Gripping force in opening [N]:				
270				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,03				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
4/8				
Air volume per cycle [cm³]:				
5				
Min./max. operating temperature. [°C]:				
5/80				
Temp. resistant version up to 150° C [add to part number]:				
T3				
Piston diameter [mm]:				
22				
Weight [kg]:				
0,18				

All data measured at 6 bar.

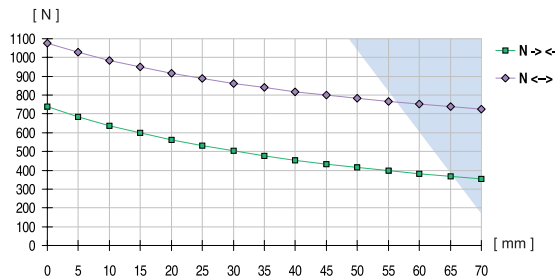


# Three-jaw gripper

sealed and rust-resistant

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 129.

## Gripping force as a function of jaw length

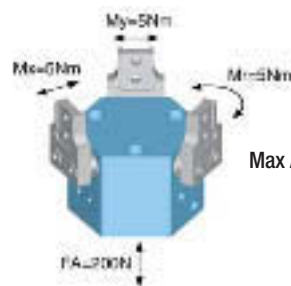


Colored area: increased wear and tear to be expected

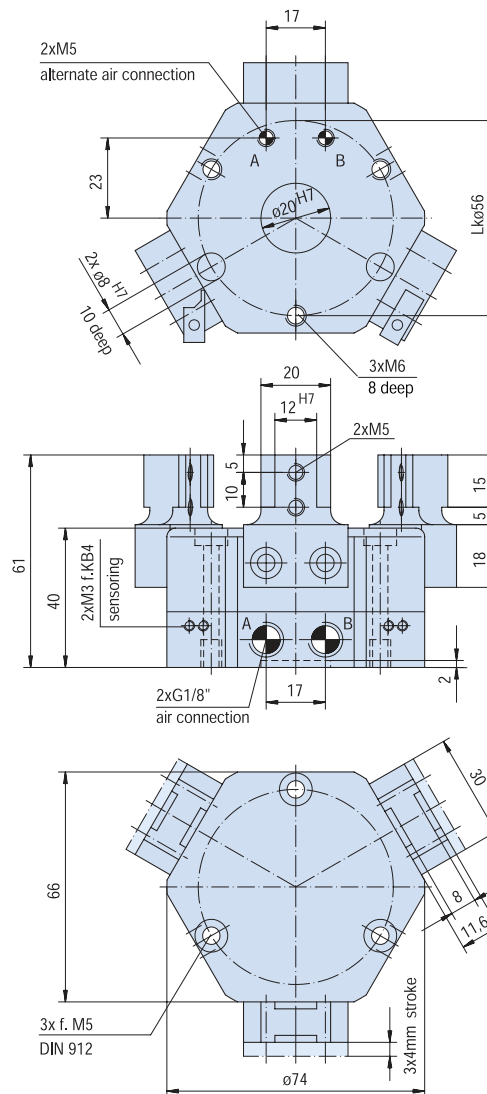
Order no.:				
<b>GD70</b>				
<b>N</b>				
Drive:				
pneum.				
Stroke per jaw [mm]:				
4				
Gripping force in closing [N]:				
740				
Gripping force in opening [N]:				
1180				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,04				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
4/8				
Air volume per cycle [cm <sup>3</sup> ]:				
25				
Min./max. operating temperature. [°C]:				
5/80				
Temp. resistant version up to 150° C [add to part number]:				
T3				
Piston diameter [mm]:				
40				
Weight [kg]:				
0,59				

All data measured at 6 bar.

See Page 129 for Accessory list.



Max Allowable Forces  
on Jaws

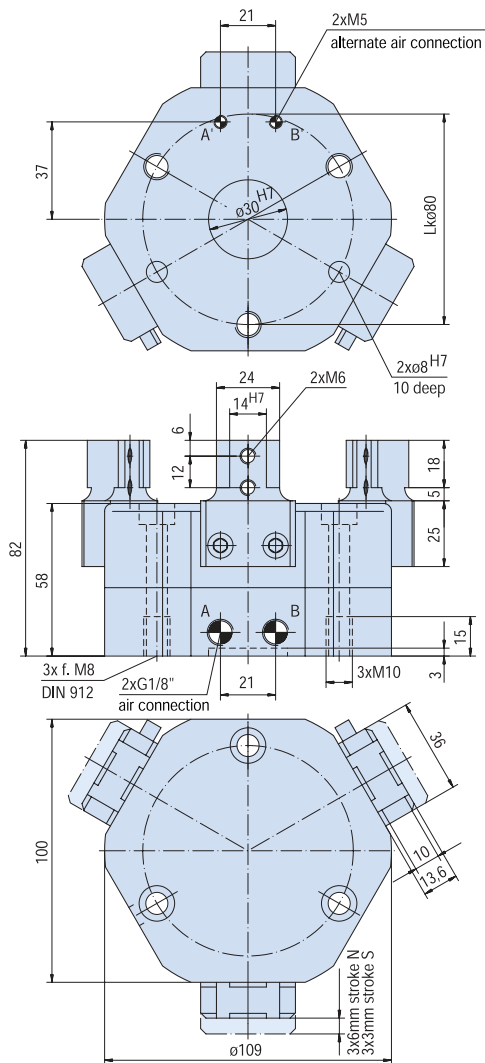
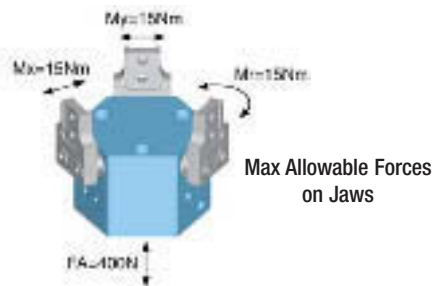
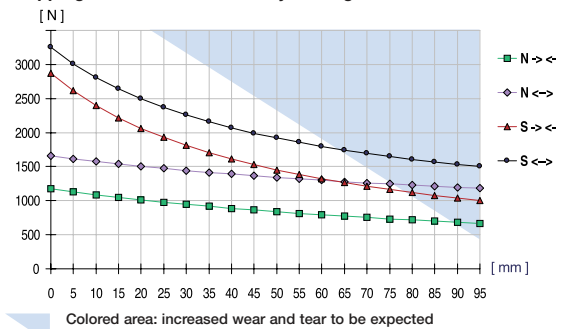


## Three-jaw gripper

sealed and rust-resistant

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 129.

### Gripping force as a function of jaw length



### Order no.:

GD110 N	GD110 S				
<b>Drive:</b>					
pneum.	pneum.				
<b>Stroke per jaw [mm]:</b>					
6	3				
<b>Gripping force in closing [N]:</b>					
1200	2800				
<b>Gripping force in opening [N]:</b>					
1700	3300				
<b>Self-locking via:</b>					
DSV1/8	DSV1/8				
<b>Closing time/opening time [s]:</b>					
0,05	0,05				
<b>Repeatability ± [mm]:</b>					
0,1	0,1				
<b>Min./max. operating pressure [bar]:</b>					
4/8	4/8				
<b>Air volume per cycle [cm<sup>3</sup>]:</b>					
47	47				
<b>Min./max. operating temperature. [°C]:</b>					
5/80	5/80				
<b>Temp. resistant version up to 150° C [add to part number]:</b>					
T3	T3				
<b>Piston diameter [mm]:</b>					
50	50				
<b>Weight [kg]:</b>					
1,67	1,67				

All data measured at 6 bar.

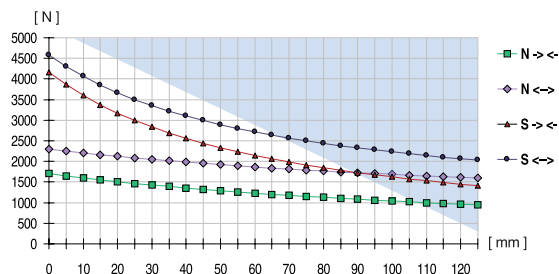
See Page 129 for Accessory list.

# Three-jaw gripper

sealed and rust-resistant

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 129.

## Gripping force as a function of jaw length



Colored area: increased wear and tear to be expected

### Order no.:

**GD160**    **GD160**

**N**                      **S**

### Drive:

pneum.    pneum.

### Stroke per jaw [mm]:

8                      4

### Gripping force in closing [N]:

1740                  4160

### Gripping force in opening [N]:

2320                  4580

### Self-locking via:

DSV1/8    DSV1/8

### Closing time/opening time [s]:

0,08                  0,08

### Repeatability ± [mm]:

0,1                    0,1

### Min./max. operating pressure [bar]:

4/8                    4/8

### Air volume per cycle [cm<sup>3</sup>]:

73                    73

### 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]:

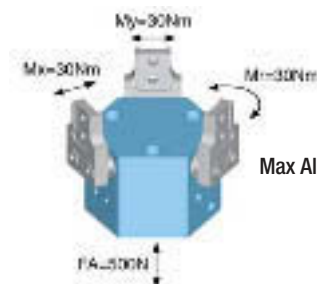
60                    60

### Weight [kg]:

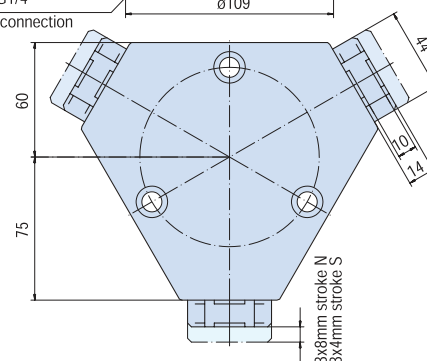
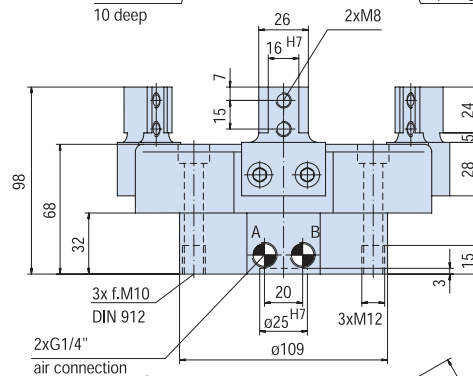
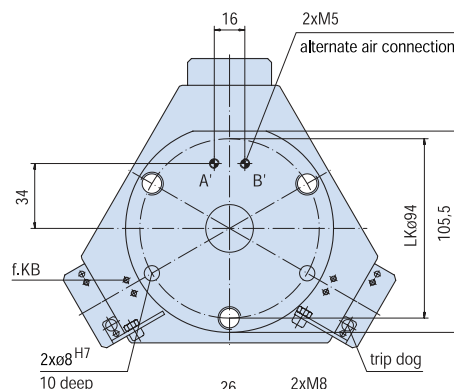
3,05                  3,05

All data measured at 6 bar.

See Page 129 for Accessory list.



Max Allowable Forces  
on Jaws



# Three-point gripper with long stroke

GD1/GD10/GD50

## things worth knowing

### Advantages and uses

- ... long stroke with compact design ...
- ... very reliable and long service life ...

Highlight

... ideal for pieces with varying diameter! ...

- ▶ centrally opening and closing
  - ▶ any desired installation position
  - ▶ position sensing possible through inductive proximity switch

### Characteristics

#### Function

Drive:	pneumatic rotary vane cylinders
Power transfer:	planetary gear
Guide:	round guide

#### Material

Housing:	hard-anodized aluminum
Moving parts:	steel

#### Maintenance

Recommended at:	1.5 million cycles
Actuation:	filtered high-pressure air (10 $\mu$ m), 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)
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

## Accessories

### Accessory recommendation:

▶ Stop levers	Page 372
▶ Rotation limiter & stop-stroke	Page 374
▶ Inductive proximity switch	Page 428
▶ Pneumatic fittings	Page 442
▶ Tubing	Page 444
▶ Control valves	Page 445
▶ Pressure safety valves	Page 447

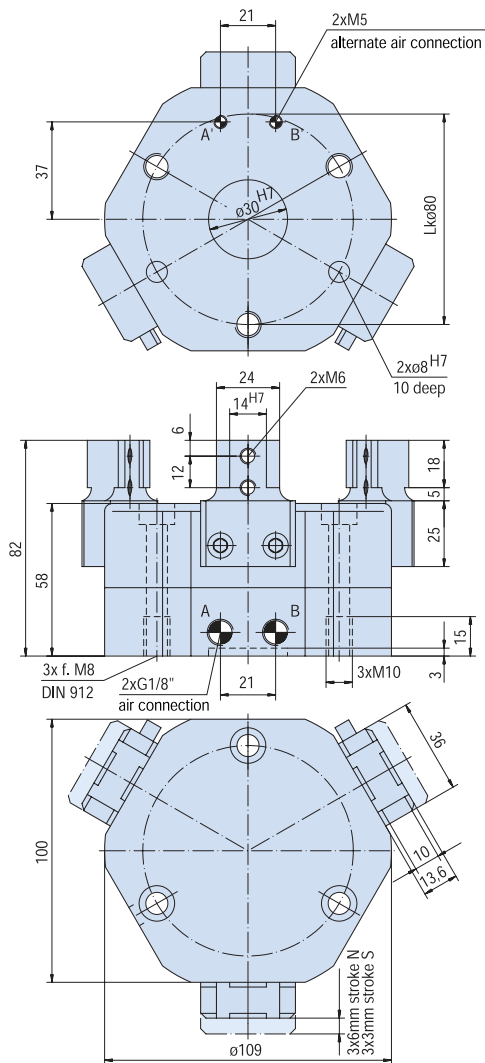
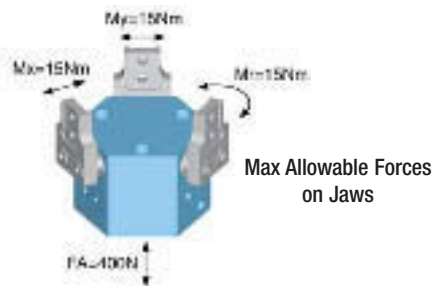
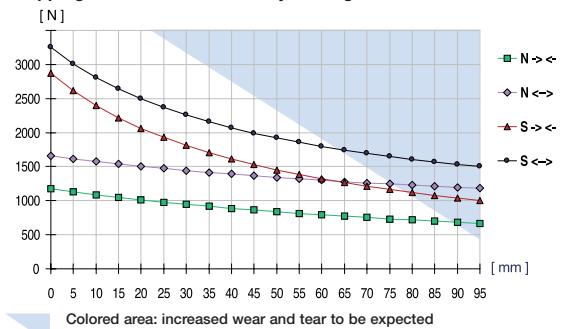


## Three-jaw gripper

sealed and rust-resistant

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 129.

### Gripping force as a function of jaw length

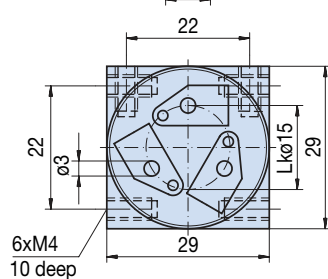
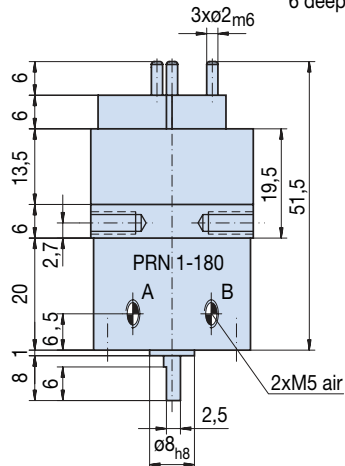
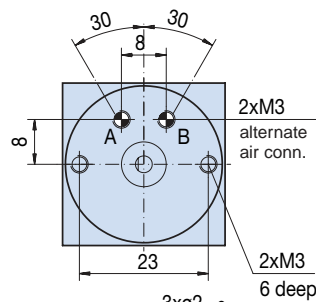


### Order no.:

GD110 N	GD110 S				
<b>Drive:</b>					
pneum.	pneum.				
<b>Stroke per jaw [mm]:</b>					
6	3				
<b>Gripping force in closing [N]:</b>					
1200	2800				
<b>Gripping force in opening [N]:</b>					
1700	3300				
<b>Self-locking via:</b>					
DSV1/8	DSV1/8				
<b>Closing time/opening time [s]:</b>					
0,05	0,05				
<b>Repeatability ± [mm]:</b>					
0,1	0,1				
<b>Min./max. operating pressure [bar]:</b>					
4/8	4/8				
<b>Air volume per cycle [cm<sup>3</sup>]:</b>					
47	47				
<b>Min./max. operating temperature. [°C]:</b>					
5/80	5/80				
<b>Temp. resistant version up to 150° C [add to part number]:</b>					
T3	T3				
<b>Piston diameter [mm]:</b>					
50	50				
<b>Weight [kg]:</b>					
1,67	1,67				

All data measured at 6 bar.

See Page 129 for Accessory list.



## Three-point gripper with long stroke

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 135.

Order no.:				
GD1				
Drive:				
pneum.				
Stroke per jaw [°]:				
130				
Grip diameter in closing, min./max. [mm]:				
3 - 22				
Grip diameter in opening, min./max. [mm]:				
8 - 25				
Gripping torque in closing a. Öffnen [Nm]:				
0,12				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,3				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
3/8				
Air volume per cycle [cm <sup>3</sup> ]:				
6				
Min./max. operating temperature. [°C]:				
5/60				
Weight [kg]:				
0,08				

All data measured at 6 bar.

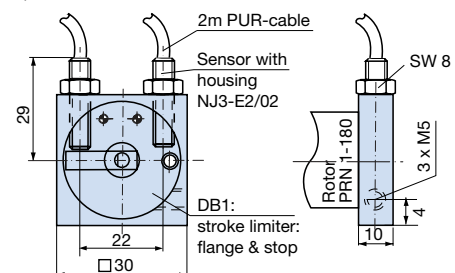
### Position inquiry:

#### Order no.: DB1

Rotation limitation with stop lever

#### Order no.: NJ3-E2/02

Stop with integrated inductive proximity switch



# Three-point gripper with long stroke

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 135.



Order no.:				
<b>GD10</b>				
Drive:				
pneum.				
Stroke per jaw [°]:				
130				
Grip diameter in closing, min./max. [mm]:				
5 - 45				
Grip diameter in opening, min./max. [mm]:				
11 - 50				
Gripping torque in closing a. Öffnen [Nm]:				
1				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,3				
Repeatability ± [mm]:				
0,1				
Min./max. operating pressure [bar]:				
3/8				
Air volume per cycle [cm³]:				
17				
Min./max. operating temperature. [°C]:				
5/60				
Weight [kg]:				
0,365				

All data measured at 6 bar.

See Page 135 for Accessory list.

### Position inquiry:

**Order no.: DB10**

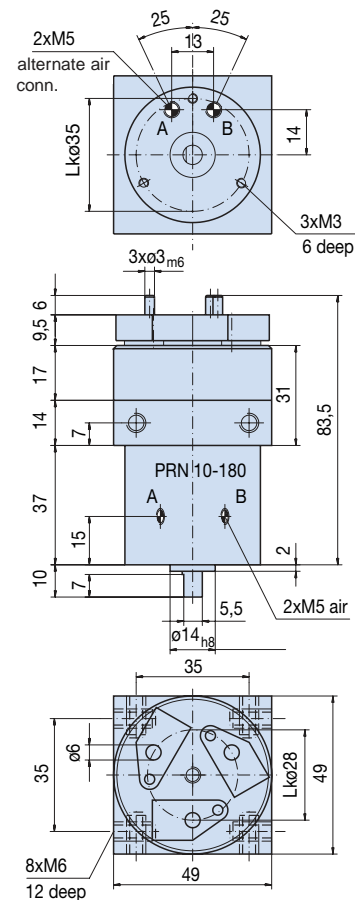
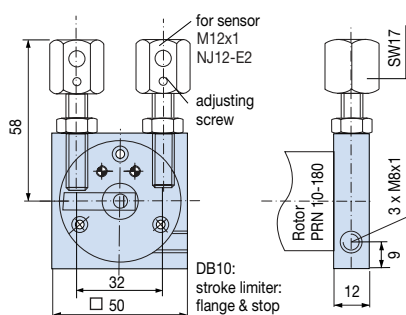
Rotation limitation with stop lever

**Order no.: AI-M8x1-38**

Stop-stroke adjusting screw

**Order no.: NJ12-E2**

Proximity switch



# Three-jaw gripper with cam drive

GD29

## things worth knowing

### Advantages and uses

... high-grip force in combination with robust T-slot guide ...  
... very reliable and long service life ...



- ▶ centrally opening and closing
  - ▶ high precision
    - ▶ any desired installation position
      - ▶ position request possible through inductive proximity switch

... compact construction ...

### Characteristics

#### Function

Drive: pneumatic blade-type cylinders  
Power transfer: cam drive  
Guide: T-slot guide for high moment absorption from all sides

#### Material

Housing: hard-anodized aluminum  
Functional parts: nitrided steel

#### Maintenance

Recommended at: .5 million Cycles  
Actuation: filtered high-pressure air (10 $\mu$ m), dry or oiled  
Maintenance of the mechanics: – see owners' manual –

## Basic explanations

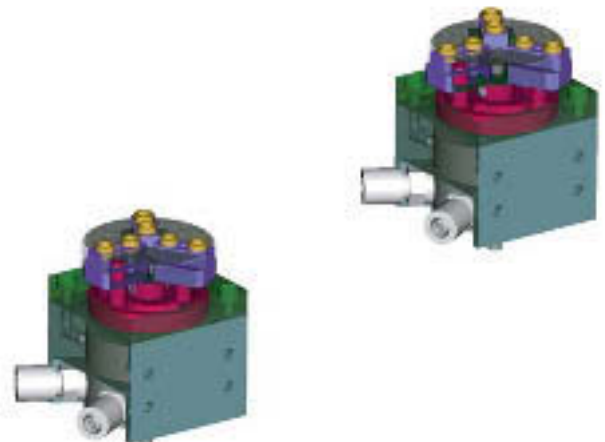
### Terms and illustrations

Grip force safety device: required during pressure loss for maintaining position of workpiece through pressure retention (one-way valve required DSV 1/8)  
– pneumatic:  
Total power: arithmetic sum of the individual elements on the gripping jaws  
Closing and opening times: required time for the gripping jaws to cover the maximum stroke length

## Accessories

### Accessory recommendation:

- ▶ Stop levers Page 372
- ▶ Rotation limiter Page 374
- ▶ Stop-stroke adjusting screw Page 374
- ▶ Inductive proximity switch Page 428
- ▶ Pneumatic fittings Page 442
- ▶ Tubing Page 444
- ▶ Control valves Page 445
- ▶ Pressure safety valves Page 447







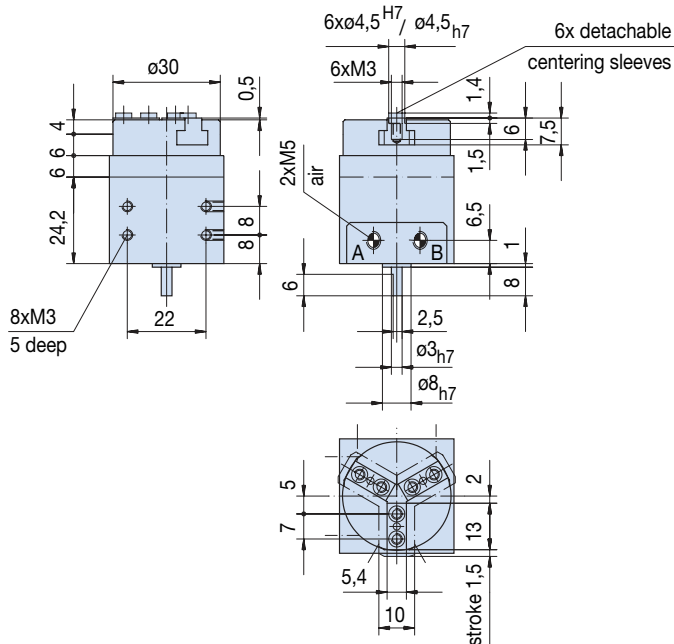
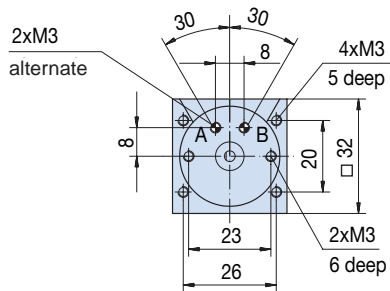
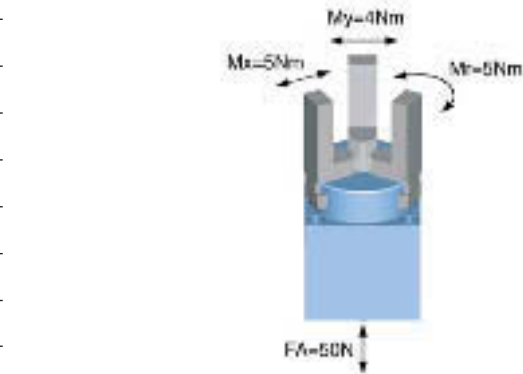
## Three-jaw gripper

with cam drive and T-slot guide

Advantages, benefits, comparisons and tips!  
Stacks of information all about this product are  
on page 139.

Order no.:				
GD29				
Drive:				
pneum.				
Stroke per jaw [mm]:				
1,5				
Gripping force in closing and opening [N]:				
45				
Self-locking via:				
DSV1/8				
Closing time/opening time [s]:				
0,03				
Repeatability ± [mm]:				
0,02				
Min./max. operating pressure [bar]:				
4/8				
Air volume per cycle [cm <sup>3</sup> ]:				
2				
Min./max. operating temperature. [°C]:				
5/60				
Weight [kg]:				
0,1				

All data measured at 6 bar.



### Position sensing:

**Order no. DB1**  
Rotation limiter

**Order no. NJ3-E2/02**  
Stop with integrated inductive proximity switch

