



# Universal Grippers P5GC Serie

Sizes 10, 16, 20 and 25 mm


Catalogue : PDE2532TCUK-po





## Contents

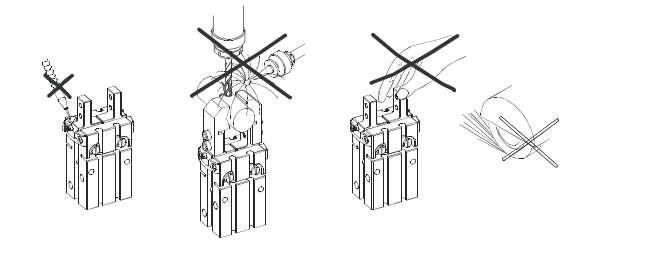
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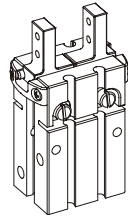
**Warning !**  
Carefully check that gripper is de-pressurised and electric cables disconnected for ensuring an air cut prior doing any service on the gripper or on the attached components.



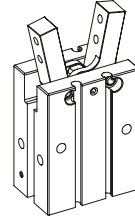
**Note !**  
The air quality has a determining effect on the gripper lifetime (see ISO 8573).



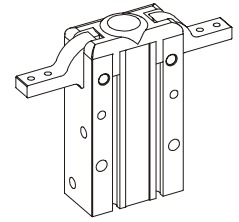
**Note !**  
All the technical specifications included in that catalogue are only basic data.



**Parallel gripper  
P5GCM H**



**Angular gripper  
P5GCM K**



**180° Radial gripper  
P5GCM B**

Size	Parallel gripper P5GCM H				Angular gripper P5GCM K				180° Radial gripper P5GCM B					
	10	16	20	25	10	16	20	25	10	16	20	25		
Total stroke (mm) ( $\pm 0.2$ mm)	4,4	6,6	10,2	14										
Total opening angle ( $^{\circ}$ ) ( $\pm 1^{\circ}$ )						2x20					2x92			
Clamping torque* (Nm) $\rightarrow\leftarrow$					0,16	0,72	1,56	3,20	0,56	2,12	4,56	9,26		
Max. clamping force* (N) $\rightarrow\leftarrow$	28	86	186	254	8	36	78	160	28	106	228	463		
$\varnothing$ piston bore (mm)	10	16	20	25	10	16	20	25	10	16	20	25		
$\varnothing$ port size	M3	M5	M5	M5	M3	M5	M5	M5	M5	M5	M5	M5		
Air consumption (cm <sup>3</sup> /cycle)* **	0,7	3	7	14	0,7	3	6	11	2	7	14	28		
Repeatability (mm)	$\pm 0,02$	$\pm 0,02$	$\pm 0,02$	$\pm 0,07$										
Repeatability ( $^{\circ}$ )					$\pm 0,04$	$\pm 0,04$	$\pm 0,04$	$\pm 0,04$	$\pm 0,06$	$\pm 0,06$	$\pm 0,06$	$\pm 0,06$		
Max. work frequency (Hz)	3	3	2	2	3	3	2	2	2	2	2	2		
Min. closing time (s)	0,01	0,02	0,05	0,07	0,005	0,005	0,02	0,02	0,1	0,1	0,15	0,15		
Mass (kg)	0,045	0,098	0,207	0,365	0,039	0,088	0,171	0,293	0,072	0,148	0,309	0,559		
Max. jaw length (mm)	40	60	80	100	40	60	80	100	40	60	80	100		
Max. temperature ( $^{\circ}$ )		5 to 60					5 to 60					5 to 60		
Max. pressure (bar)		2,5 to 8					2,5 to 8					2,5 to 8		
Operation	Dry air, lubricated or unlubricated				Dry air, lubricated or unlubricated				Dry air, lubricated or unlubricated					

\* At 6 bar at closing

\*\* Cycle = opening + closing (without jaws)

**Spring function**

Size	Parallel gripper P5GCM H				Angular gripper P5GCM K				180° Radial gripper P5GCM B			
	10	16	20	25	10	16	20	25	10	16	20	25
At closing*	●	●	●	●	●	●	●	●	—	—	—	—
At opening **	●	●	●	●	●	●	●	●	—	—	—	—

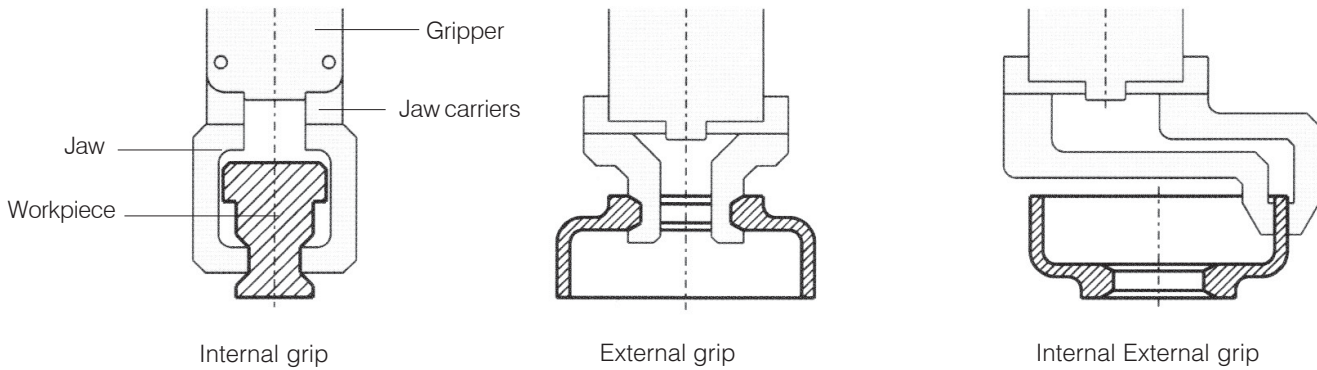
\* In case of air supply failure the gripper will be closed

\*\* In case of air supply failure the gripper will be opened

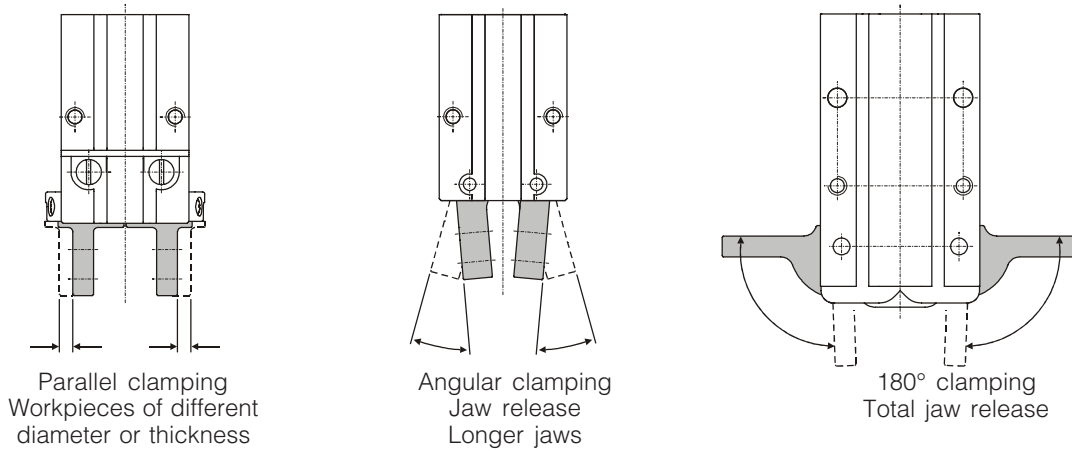
In case of air failure, the retention force is equal to the clamping force divided by 4.

**Choice of gripper**

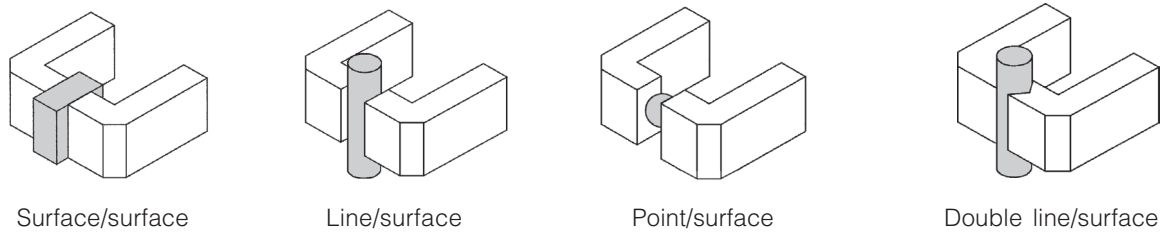
**Type of grip**



**Types of clamping**



**Contact between workpiece/jaw**



**Main points to note in selecting grippers :**

- the weight of the workpiece to be moved
- geometry and volume of the workpiece
- the type of gripper (parallel or angular)
- dynamic movement of gripper and workpiece combination
- environment (shocks, additional external forces...)
- coefficient of friction between workpiece and jaws (see chart below)

Workpiece material	Jaw material	Coefficient of friction $\mu$
Steel	Steel	0,25
Steel	Aluminium	0,35
Steel	Plastic	0,50
Aluminium	Aluminium	0,49
Aluminium	Plastic	0,70
Plastic	Plastic	1

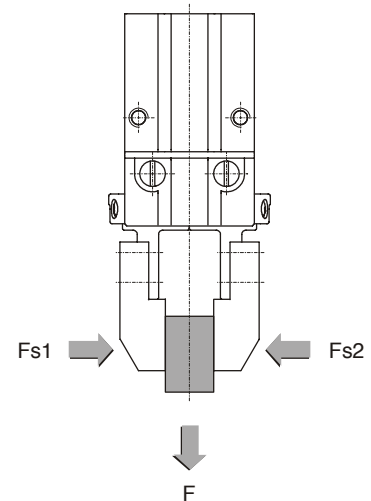
## Formula of calculation of clamping force

For internal or external clamping

$$F_{s1} = F_{s2}$$

$$F_s = F_{s1} + F_{s2} = \frac{F}{\mu} \times S_o$$

- F<sub>s</sub> : clamping force (N)
- F : force acting on jaws (N)  
(when static F corresponds to the weight of the workpiece in N)
- μ : coefficient of friction between the workpiece and jaws (μ < 1)
- S<sub>o</sub> : safety factor (between 2 and 4, refer to chart below)



Safety factor S <sub>o</sub>	Type of use
2	normal use
3	movement in several directions (slow acceleration or decelerations)
4	shocks, fast accelerations or decelerations

## Examples

### Parallel gripper in vertical position

#### Data

Length of jaws X (mm)	20
Mass of the workpiece to grip M (kg)	0,06
Pressure (bar)	6
Safety factor S <sub>o</sub>	2
Coefficient of friction μ	0,2
Mass acceleration g (m/s <sup>2</sup> )	9,81
Ascending vertical acceleration a <sub>vh</sub> (m/s <sup>2</sup> )	5

Calculation of clamping force :

$$F_s = \frac{0,06 \times 9,81 + 0,06 \times 5}{0,2} \times 2 = 8,9 \text{ N}$$

Verification of clamping force F<sub>s</sub> :

At P = 6 bar and X = 20 mm the clamping force read on the graph opposite

is F<sub>s</sub> = 9,4 N.

As 2 x 9,4 N > 8,9 N  
a size 10 is sufficient.

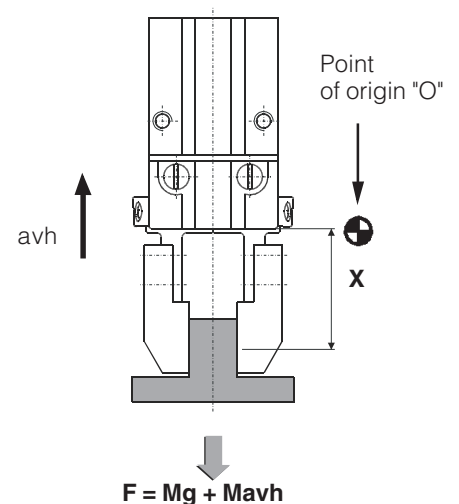
Verification of tractive force F<sub>X</sub> on jaw carriers :  
(see chart page 9)

$$F = Mg + Mavh = 0,06 \times 9,81 + 0,06 \times 5 = 0,90 \text{ N}$$

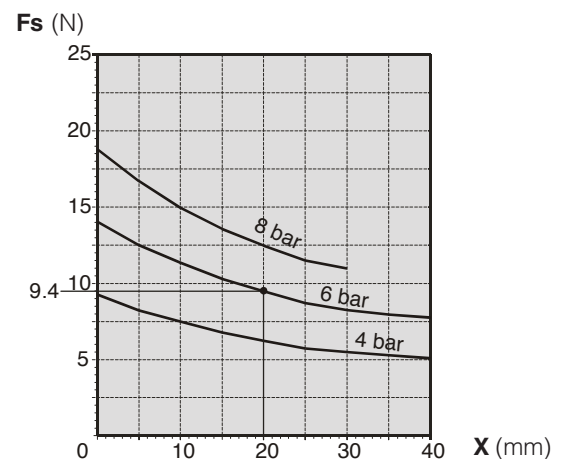
For a parallel gripper size 10, F<sub>x</sub> = 2 x 25 = 50N

As 50 N > 0,90 N

The selection of a size 10 is correct.



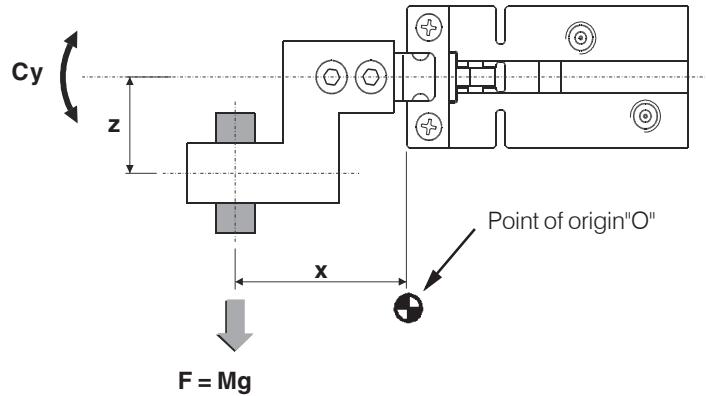
Clamping force per jaw (N) / jaw length (mm)



**Parallel gripper in horizontal position**

**Data**

Length of jaws X (mm)	30
Offset distance Z (mm)	18
Mass of the workpiece to grip M (kg)	0,15
Pressure (bar)	6
Safety factor So	2
Coefficient of friction $\mu$	0,15
Mass acceleration (m/s <sup>2</sup> )	9,81



Calculation of the clamping force :

$$F_s = \frac{0,15 \times 9,81}{0,15} \times 2 = 19,6 \text{ N}$$

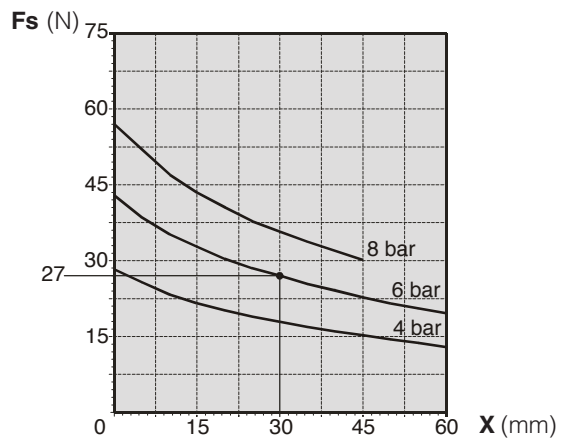
Verification of clamping force  $F_s$  :

At P = 6 bar and X = 30 mm the clamping force read from the graph opposite is  $F_s = 27 \text{ N}$ .  
As  $2 \times 27 \text{ N} > 19,6 \text{ N}$   
Size 16 is sufficient.

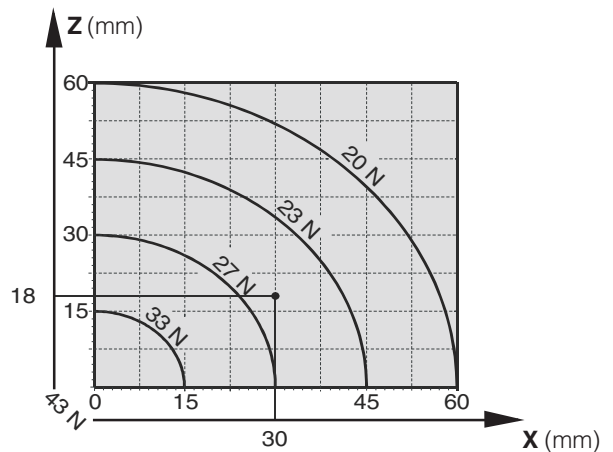
Verification of offset Z :

At P = 6 bar ; X = 30 mm and offset Z = 18 mm,  
 $F_s$  calculated should be < max. clamping force  
 $F_s$  read from the graph opposite.  
As  $2 \times 26 \text{ N} > 19,6 \text{ N}$   
Size 16 is sufficient.

Clamping force per jaw (N) / jaw length (mm)



Clamping force per jaw (N) / jaw length and / offset (mm) (at 6 bar)



Verification of torque  $M_y$  exerted on the jaw carriers :

(refer to chart page 9)

The torque around the axis "Oy" is :

$$C_y = F \times x = 0,15 \times 9,81 \times 0,03 = 0,044 \text{ Nm}$$

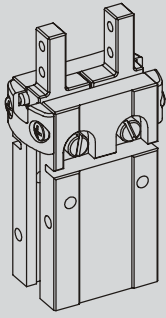
$C_y$  should be < max. torque  $M_y$  read from the chart page 9, for a size 16 gripper.

As  $0,044 \text{ Nm} < 2 \times 1,5 \text{ Nm}$

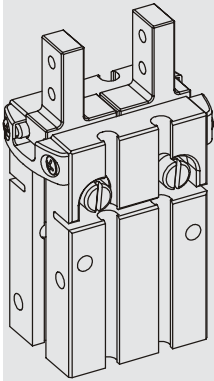
The selection of size 16 is correct.

**Points ignored in selecting the grippers :**

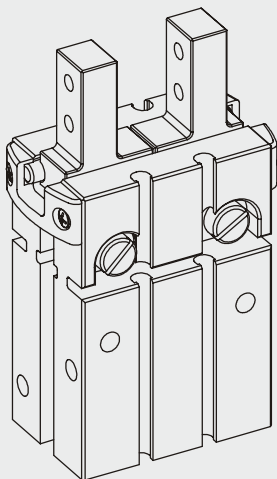
- ➔ the weight of jaws
- ➔ the geometry and the position of jaw mass of inertia
- ➔ the additional forces and torques (shocks, ...)
- ➔ the dynamic movement of the gripper and workpiece combination
- ➔ the opening and closing times requested
- ➔ the environmental conditions of use

**Size 10**

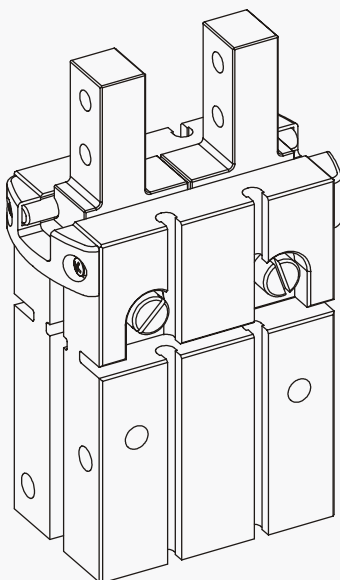
**Fsf** = 28 N  
**s** = 4,4 mm  
**m** = 0,045 kg  
**Fso** = 36 N

**Size 16**

**Fsf** = 86 N  
**s** = 6,6 mm  
**m** = 0,098 kg  
**Fso** = 100 N

**Size 20**

**Fsf** = 186 N  
**s** = 10,2 mm  
**m** = 0,207 kg  
**Fso** = 212 N

**Size 25**

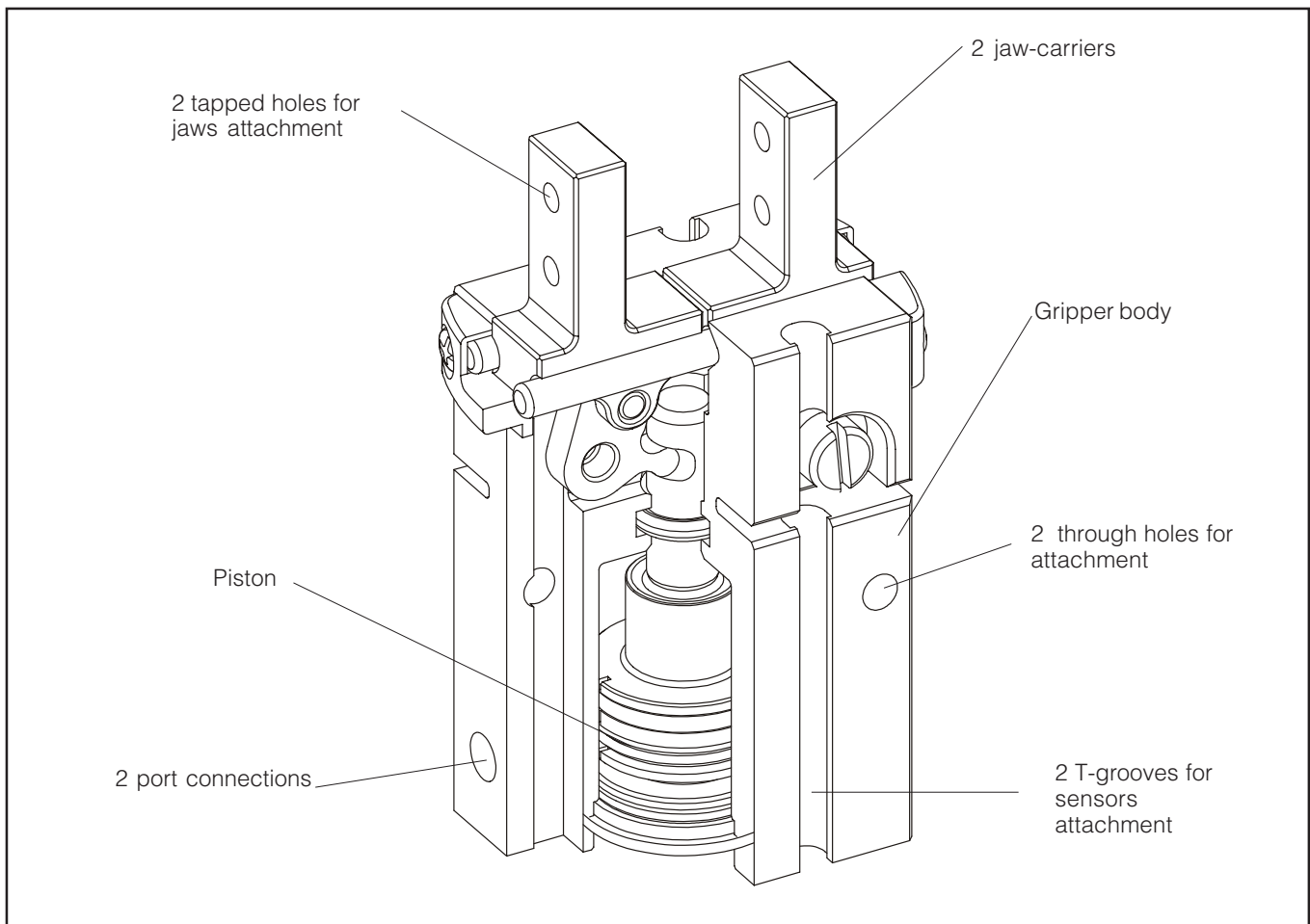
**Fsf** = 254 N  
**s** = 14 mm  
**m** = 0,365 kg  
**Fso** = 282 N

**s** : stroke

**m** : weight

**Fsf** : clamping force at closing

**Fso** : clamping force at opening



### Parallel grippers

These grippers, which are used for material handling and precision assembly, are part of the Parker Pneumatic automation product range. 4 sizes are available and can be used in most applications.

### Versions and sensors

There is one version : with 2 square jaw carriers. One or two magneto-inductive sensor can be mounted on all sizes to provide signal to monitor gripper opening and closing.

### Protection

The gripper body is made of hard anodised aluminium and the two jaw carriers are made of stainless steel.

### Safety

In the standard version, no internal spring ensures that the gripper remains closed if the air supply fails.

### Fixing

By tapped holes on 3 sides of the gripper.  
By tapped holes at the rear of the gripper.  
Accurate positioning of gripper through centring and dowel pin holes.

### Air supply

Port connections on one side of the gripper.

### Reliability

Grippers have been designed for  $10^7$  operations in normal working conditions.



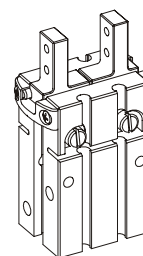
## Standard version

### Double acting, square jaw carriers

Gripper is opened and closed by pneumatic pressure.

No grip retention at closing.

4 sizes available.



## Options

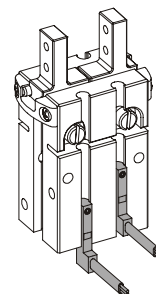
### Sensors

Check on closing and opening of gripper by means of magneto-inductive sensors.

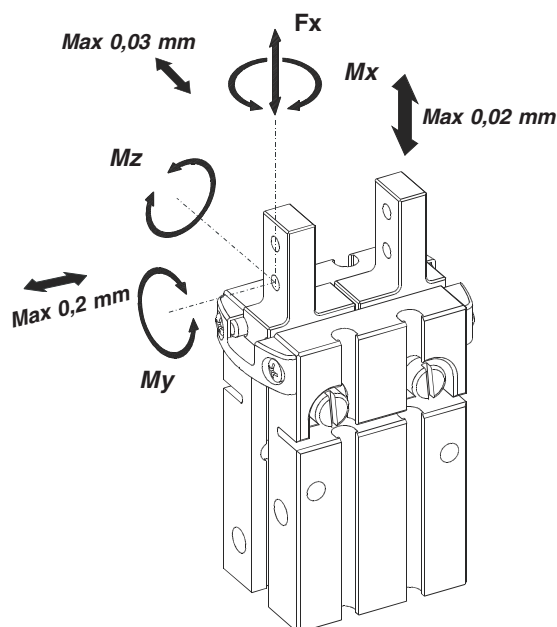
### Spring function

Self-locking in closed or opened position by internal spring.

In case of air failure, the retention force is equal to the clamping force divided by 4



## Permissible forces on each jaw carrier



### Static

Size	10	16	20	25
Fx	25N	50N	75N	125N
Mx	0,4Nm	1,5 Nm	5 Nm	8 Nm
My	0,4Nm	1,5 Nm	5 Nm	8 Nm
Mz	0,4Nm	1,5 Nm	5 Nm	8 Nm

Mz at 6 bar

### Dynamic\*

Size	10	16	20	25
Fxd	0,4N	0,8N	1,5N	2,5N
Mxd	0,4Ncm	1,5 Ncm	5 Ncm	8 Ncm
Myd	0,4Ncm	1,5 Ncm	5 Ncm	8 Ncm
Mzd	0,4Ncm	1,5 Ncm	5 Ncm	8 Ncm

Mzd at 6 bar

\* Jaw-carrier in motion, clamping at opening or at closing

### Mass of one of the 2 jaws (g) / closing and opening time (s) :

Size	10	16	20	25
m 0,2s	40g	80g	150g	250g
m 0,07s	25g	45g	75g	100g
m 0,05s	20g	35g	50g	-
m 0,02s	15g	25g	-	-
m 0,01s	10g	-	-	-

m is the permissible mass of the jaw for using gripper without flow controllers. If the mass of jaw is higher, use flow controllers to reduce the jaw-carriers speed.

m 0,2s gives the max. mass of jaw to fix on one of the jaw-carriers for a 0,2 s closing time.

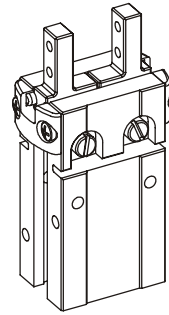
These indications must not be exceeded if :

- any extra forces are exerted on the workpiece or the jaws, in addition to the force of the clamping torque.
- handling forces (acceleration, shocks..) must also be added.

These values are cumulative if the forces act in different directions at the same time.

## Technical informations

Total stroke (mm) ( $\pm 0,2$ )	4,4
Clamping force per jaw at opening at 6 bar (N)	18
Max. clamping force at opening at 6 bar (N)	36
Clamping force per jaw at closing at 6 bar (N)	14
Max. clamping force at closing at 6 bar (N)	28
$\varnothing$ piston bore (mm)	10
$\varnothing$ port sizes (mm)	M3
Air consumption at 6 bar ( $\text{cm}^3 / \text{cycle}$ )	0,70
Repeatability (mm)	0,02
Max. operation frequency (Hz)	3
Min. closing time (s)	0,01
Max. jaw length (mm)	40
Mass (kg)	0,045



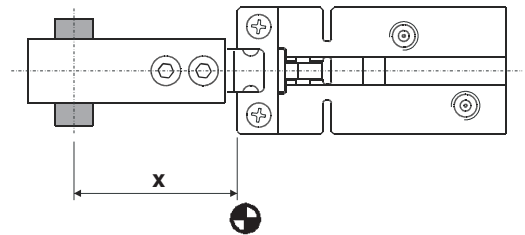
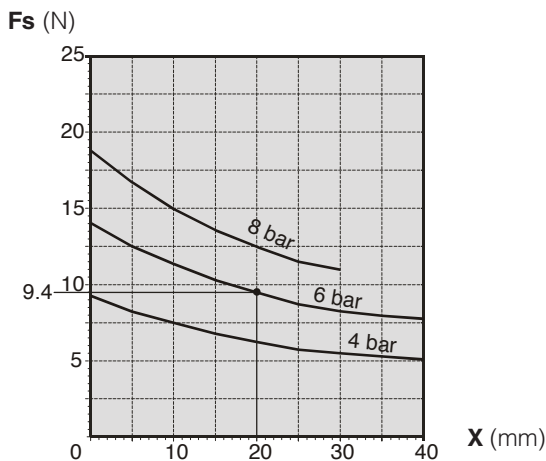
## Material

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature ( $^{\circ}\text{C}$ ) (with or without sensors)	5 to +60
Operation	dry air, lubricated or unlubricated

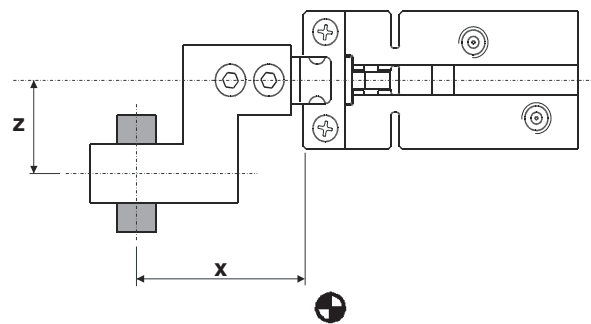
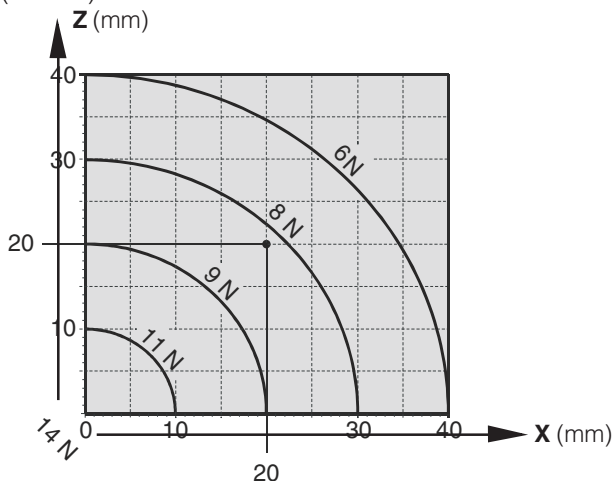
## Clamping force per jaw (N) / jaw length (mm)



Example : for  $X = 20 \text{ mm}$ ,  $F_s = 2 \times 9,4 \text{ N}$

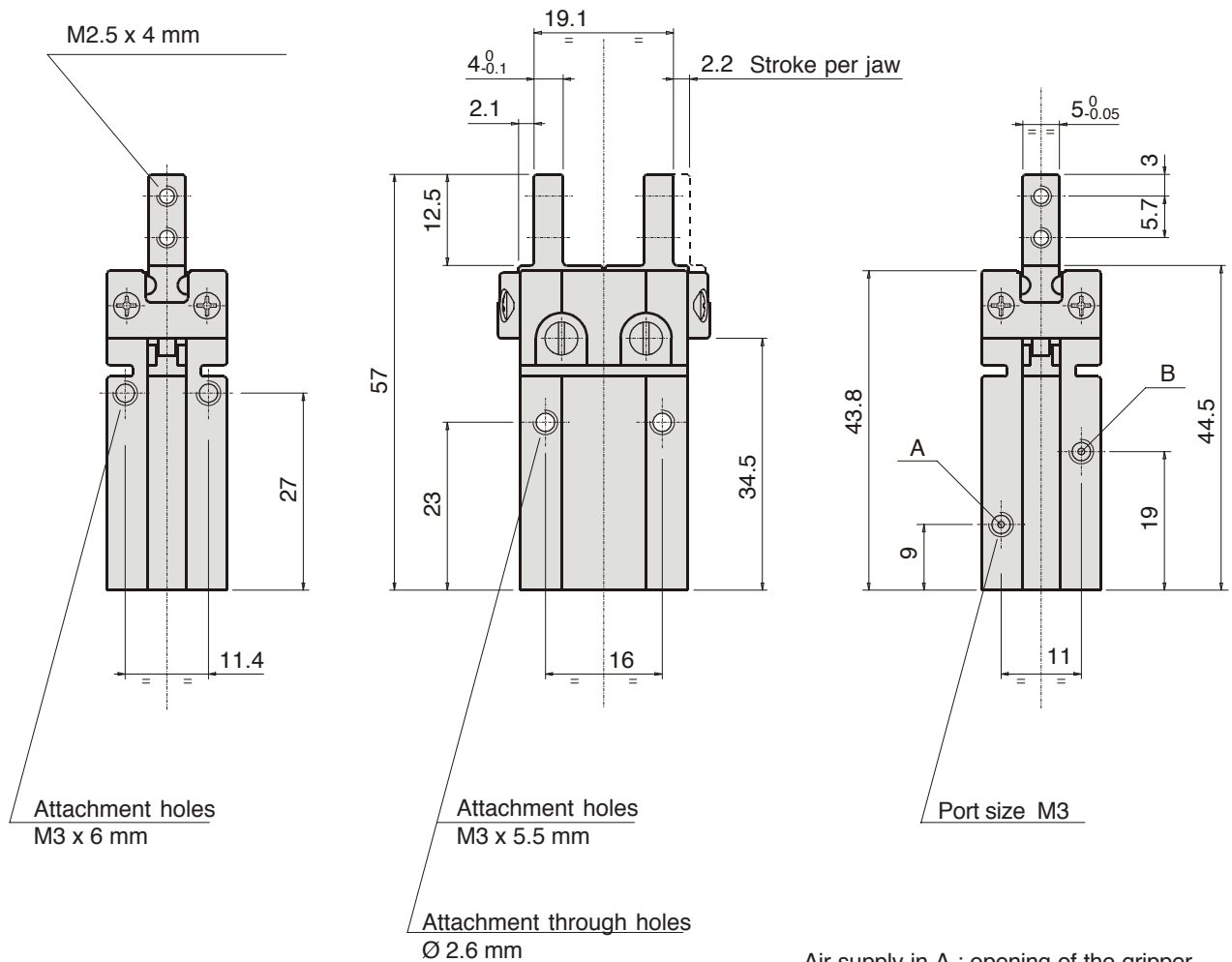
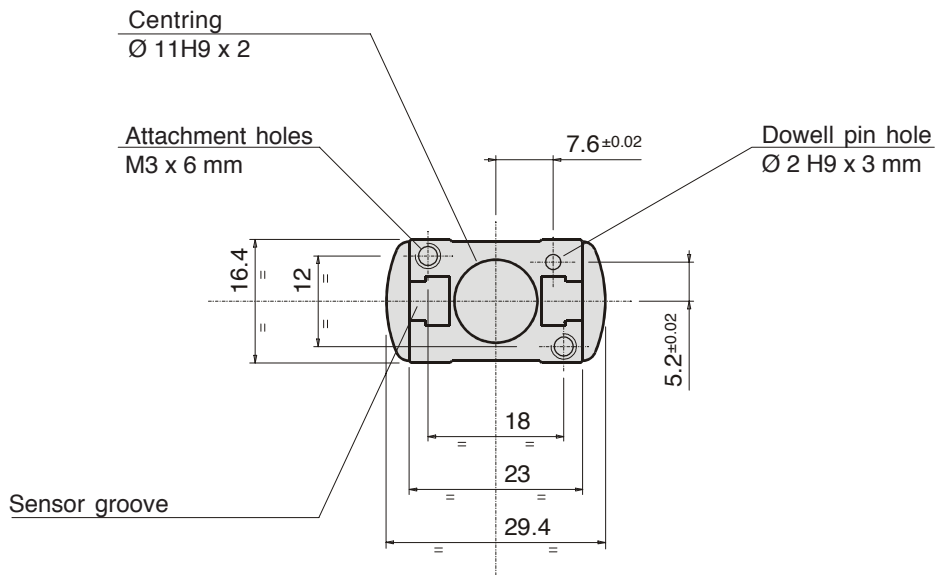
## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

(at 6 bar)



Example : for  $X = 20 \text{ mm}$  and  $Z = 20 \text{ mm}$   $F_s = 2 \times 8,2 \text{ N}$

Dimensions (mm)

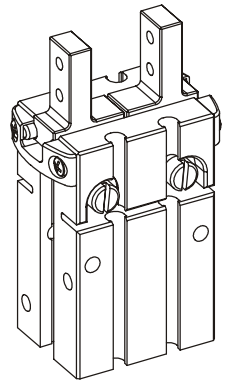


Air supply in A : opening of the gripper

Air supply in B : closing of the gripper

## Technical informations

Total stroke (mm) ( $\pm 0,2$ )	6,6
Clamping force per jaw at opening at 6 bar (N)	50
Max. clamping force at opening at 6 bar (N)	100
Clamping force per jaw at closing at 6 bar (N)	43
Max. clamping force at closing at 6 bar (N)	86
$\varnothing$ Piston bore (mm)	16
$\varnothing$ Port sizes (mm)	M5
Air consumption at 6 bar ( $\text{cm}^3$ / cycle)	3
Repeatability (mm)	0,02
Max. operation frequency (Hz)	3
Min. closing time (s)	0,02
Max. jaw length (mm)	60
Mass (kg)	0,098



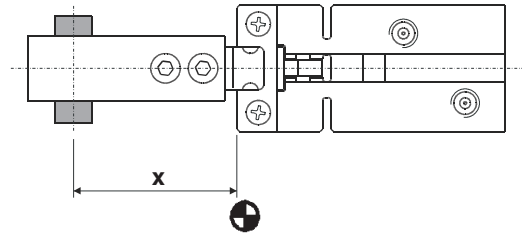
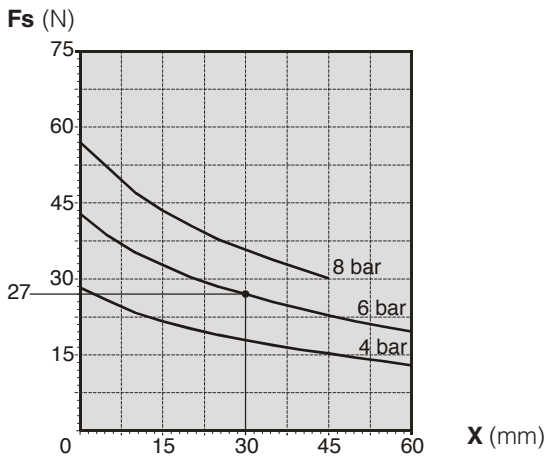
## Material

Body	hard anodised aluminium
Jaw-carriers	Stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature ( $^{\circ}\text{C}$ ) (with or without sensors)	5 to +60
Operating	dry air, lubricated or unlubricated

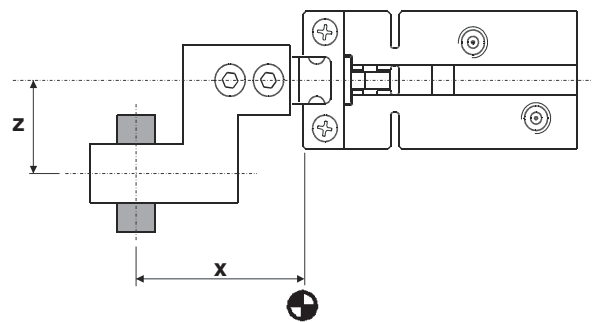
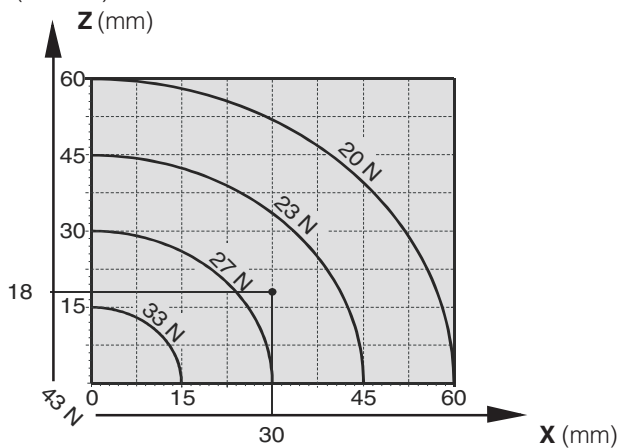
## Clamping force per jaw (N) / jaw length (mm)



Example : for X = 30 mm,  $F_s = 2 \times 27 \text{ N}$

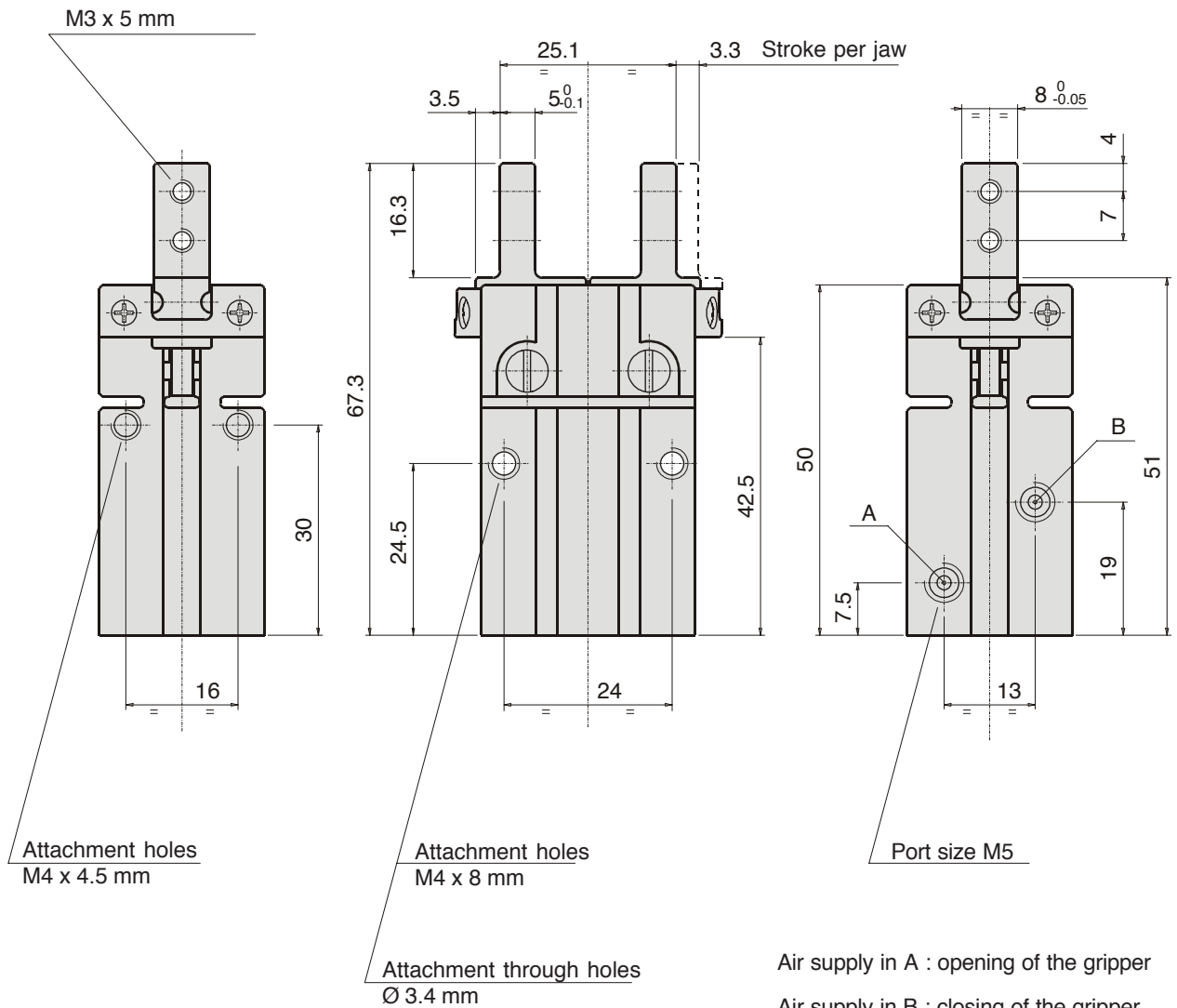
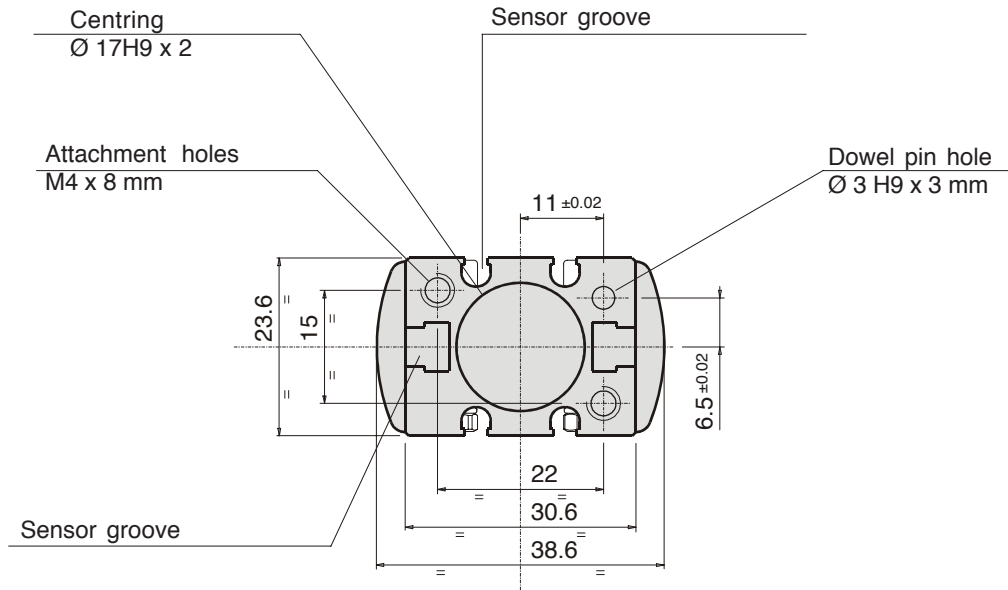
## Clamping force per jaw (N) / jaw length and/ jaw offset (mm)

(at 6 bar)



Example : for X = 30mm and Z = 18 mm  $F_s = 2 \times 25,2 \text{ N}$

Dimensions (mm)

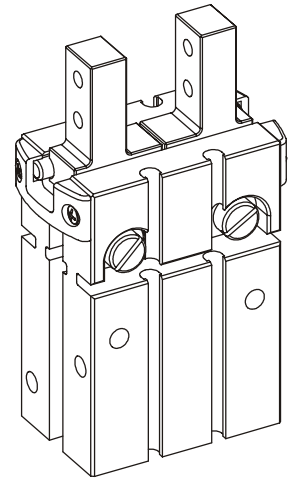


Air supply in A : opening of the gripper

Air supply in B : closing of the gripper

## Technical informations

Total stroke (mm) ( $\pm 0,2$ )	10,2
Clamping force per jaw at opening at 6 bar (N)	106
Max. clamping force at opening at 6 bar (N)	212
Clamping force per jaw at closing at 6 bar (N)	93
Max. clamping force at closing at 6 bar (N)	186
$\varnothing$ Piston bore (mm)	20
$\varnothing$ Port sizes (mm)	M5
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	7
Repeatability (mm)	0,02
Ma. operation frequency (Hz)	2
Min. closing time (s)	0,05
Max. jaw length (mm)	80
Mass (kg)	0,207



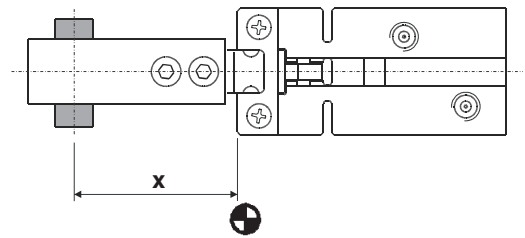
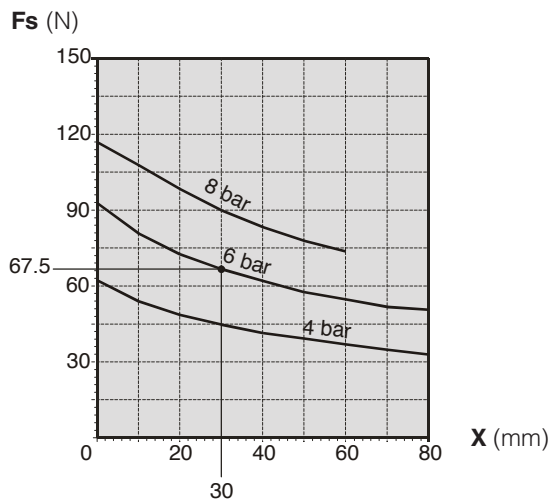
## Material

Body: hard anodised aluminium  
 Jaw-carriers: stainless steel  
 Seals: nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar): 2,5 to 8  
 Working temperature (°C): 5 to +60  
 Operation: dry air, lubricated or unlubricated

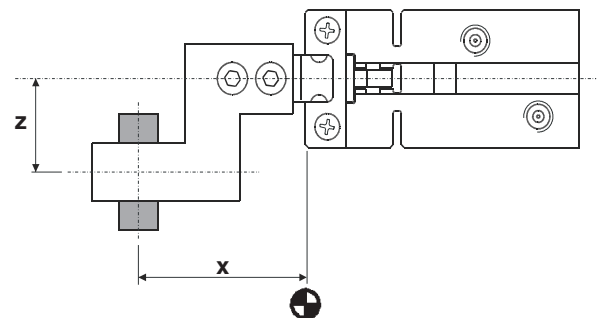
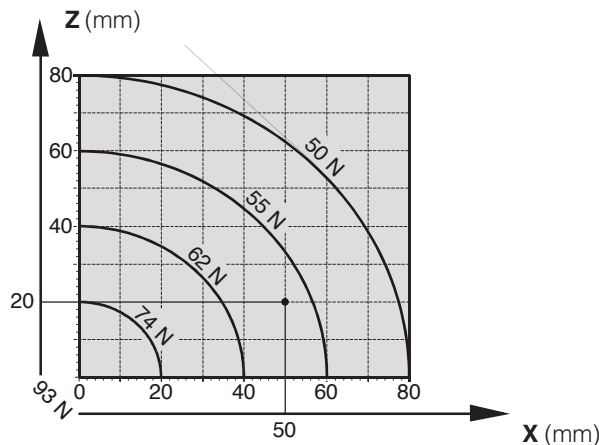
## Clamping force per jaw (N) / jaw length (mm)



Example : for X = 30 mm,  $F_s = 2 \times 67,5$  N

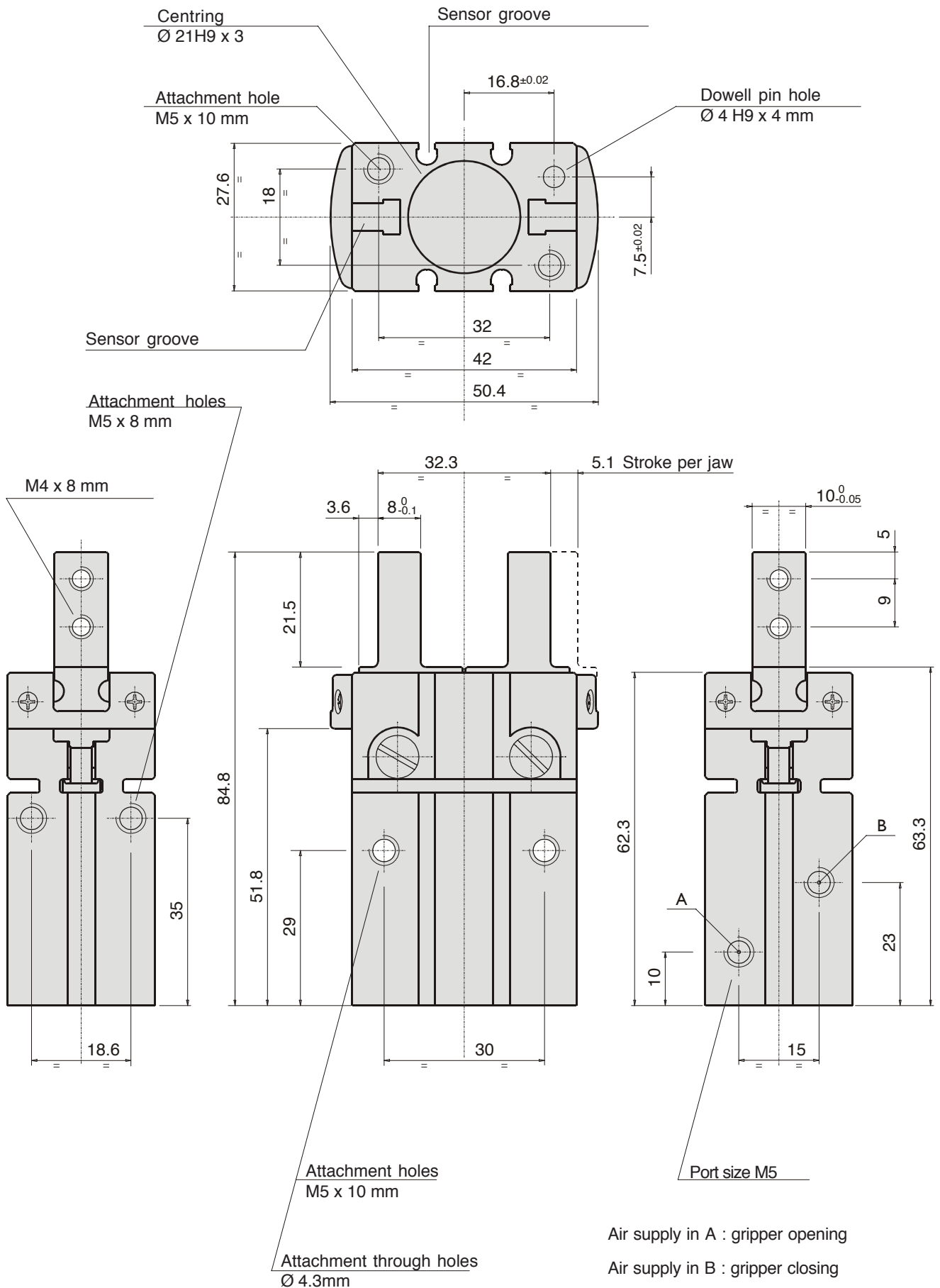
## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

(at 6 bar)



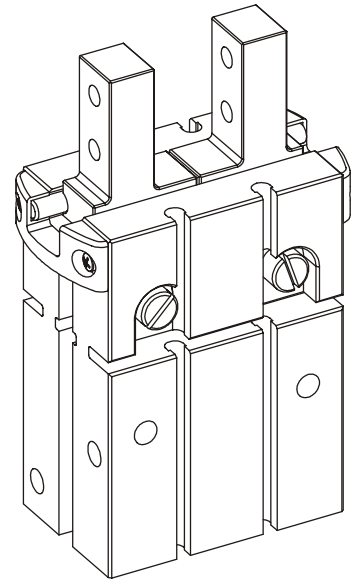
Example : for X = 50mm and Z = 20 mm  $F_s = 2 \times 58$  N

Dimensions (mm)



## Technical informations

Total stroke (mm) ( $\pm 0,2$ )	14
Clamping force per jaw at opening at 6 bar (N)	141
Max. clamping force at opening at 6 bar (N)	282
Clamping force per jaw at closing at 6 bar (N)	127
Max. clamping force at closing at 6 bar (N)	254
$\varnothing$ piston bore (mm)	25
$\varnothing$ Port sizes (mm)	M5
Air consumption at 6 bar ( $\text{cm}^3$ / cycle)	14
Repeatability (mm)	0,02
Max. operation frequency(Hz)	2
Min. closing time (s)	0,07
Max. jaw length (mm)	100
Mass (kg)	0,365



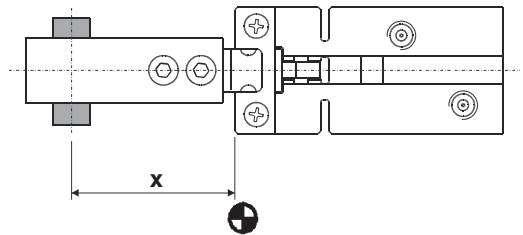
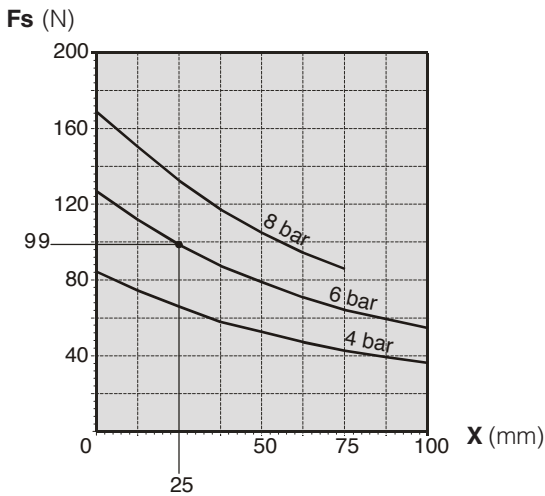
## Material

Body	har anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature ( $^{\circ}\text{C}$ ) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

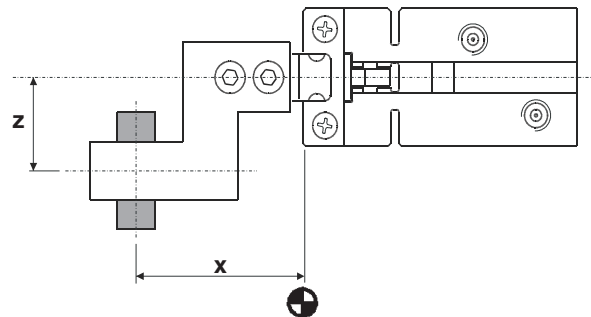
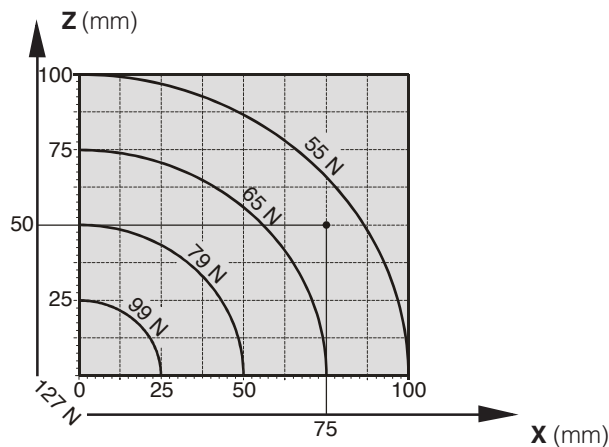
## Clamping force per jaw (N) / Jaw length (mm)



Example : for X = 25 mm,  $F_s = 2 \times 99 \text{ N}$

## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

(at 6 bar)

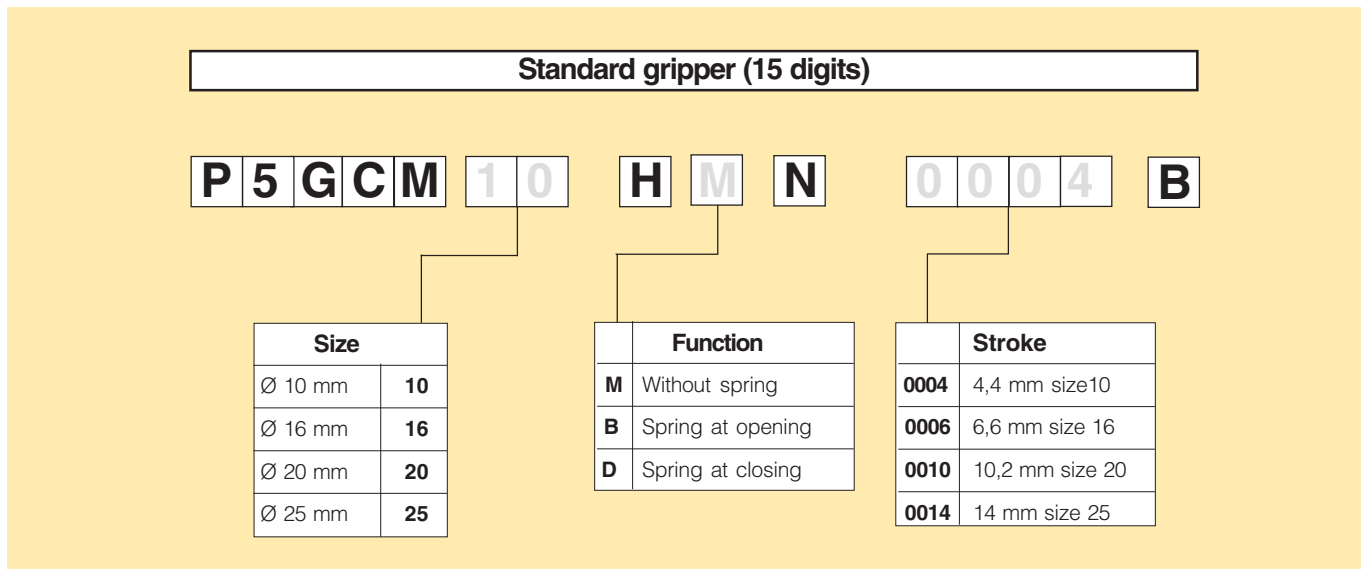


Example : for X = 75mm and Z = 50 mm  $F_s = 2 \times 60 \text{ N}$





Order key

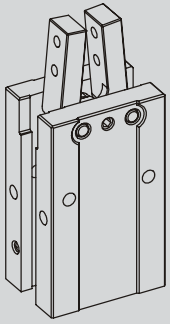


**Nota :** all grippers are equipped with a magnet for sensing.

**Example :**

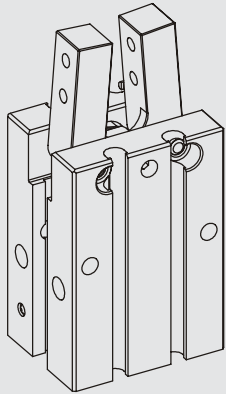
Parallel gripper, size 16 without spring :

Order code : **P5GCM16HMN0006B**



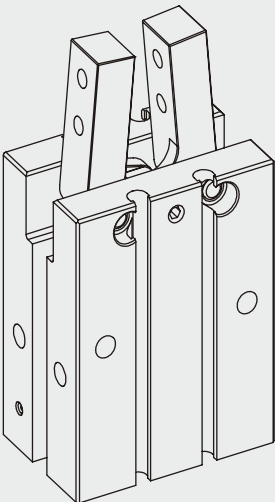
**Size 10**

**Csf** = 0,16 Nm  
**Fsf** = 8 N  
**s** = 40°  
**m** = 0,039 kg  
**Cso** = 0,22 Nm  
**Fso** = 11 N



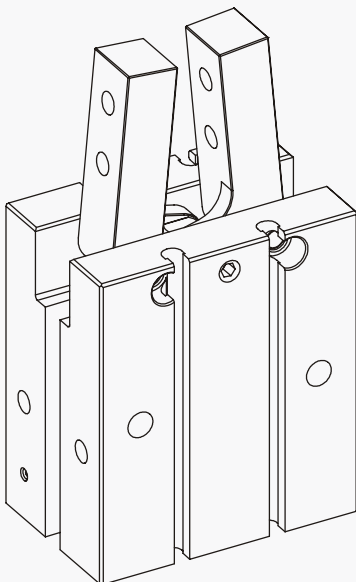
**Size 16**

**Csf** = 0,72 Nm  
**Fsf** = 36 N  
**s** = 40°  
**m** = 0,88 kg  
**Cso** = 0,90 Nm  
**Fso** = 45 N



**Size 20**

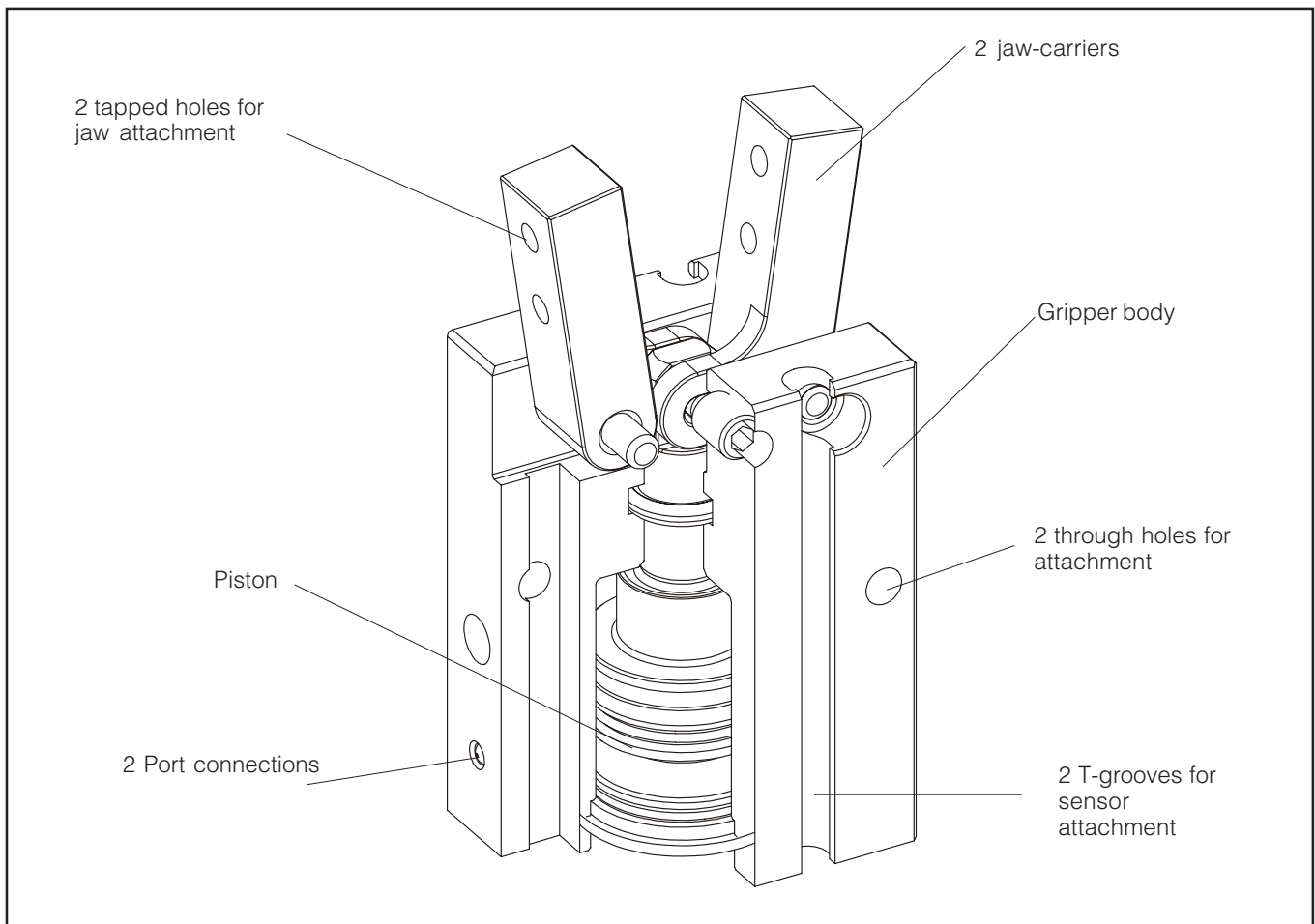
**Csf** = 1,56 Nm  
**Fsf** = 78 N  
**s** = 40°  
**m** = 0,171 kg  
**Cso** = 1,78 Nm  
**Fso** = 89 N



**Size 25**

**Csf** = 3,20 Nm  
**Fsf** = 160 N  
**s** = 40°  
**m** = 0,293 kg  
**Cso** = 3,56 Nm  
**Fso** = 178 N

**s** : stroke  
**m** : weight  
**Csf** : clamping torque at closing  
**Cso** : clamping torque at opening  
**Fsf** : clamping force at closing  
**Fso** : clamping force at opening



### Angular grippers

These grippers, which are used for material handling and precision assembly, are part of the Parker Pneumatic automation product range.

4 sizes are available and can be used in most applications.

### Versions and sensors

There is one version : with 2 square jaw carriers. One or two magneto-inductive sensors can be mounted on all sizes, to provide signal to monitor opening and closing of the grippers

### Protection

The gripper body is made of hard anodised aluminium and the two jaw-carriers are made of stainless steel.

### Safety

In the standard version, no internal spring ensures that the grippers remain closed if the air supply fails.

### Fixing

By tapped holes on 3 sides of the gripper.  
By tapped holes on the rear of the gripper.  
Precise location of the gripper through centring holes.

### Air supply

Port connections on one of the sides of the gripper.

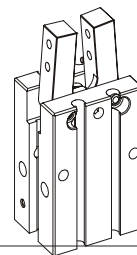
### Reliability

The grippers have been designed for  $10^7$  cycles in normal working conditions.

## Standard version

### Double acting, square jaw-carriers

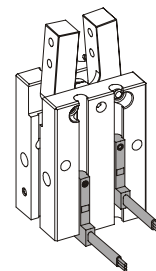
Gripper is opened and closed by pneumatic pressure.  
 No self-locking in closed position.  
 4 sizes available.



## Options

### Sensors

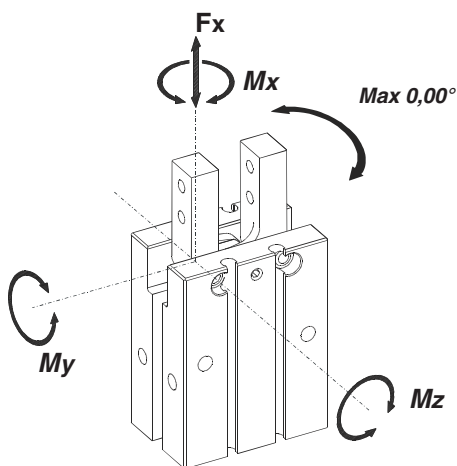
Check on opening and closing of the gripper by means of magneto-inductive sensors.



### Spring function

Self-locking in closed or opened position by internal spring.  
 In case of air failure, the retention force is equal to the clamping force divided by 4.

### Permissible forces on each jaw-carrier



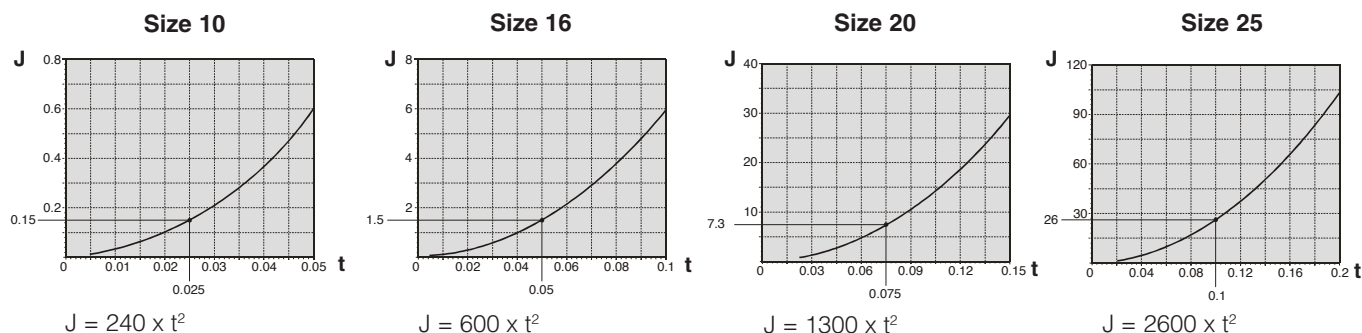
### Static

Size	10	16	20	25
Fx	40N	60N	100N	100N
Mx	0,5Nm	0,9 Nm	2,2 Nm	2,2 Nm
My	0,5Nm	0,9 Nm	2,2 Nm	2,2 Nm
Mz	0,4Nm	1,2 Nm	1,5 Nm	2,2 Nm

MZ at 6 bar

## Dynamic

Inertia of one of the jaws (kgcm<sup>2</sup>)/ closing or opening time (s) :



For a 0,15 kgcm<sup>2</sup> inertia one of the 2 jaws, the closing or opening time of the gripper is 0,025s for a **size 10**.

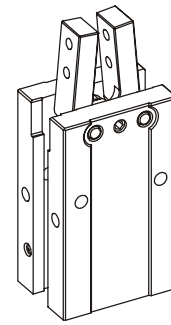
These indications should not be exceeded if :

- any extra forces are exerted on the workpiece or on the jaws, in addition to the force or the clamping torque.
- handling forces (acceleration, shocks, ...) must also be added.

These values are cumulative if the forces act in different directions at the same time.

**Technical informations**

Opening angle (°) (±1°)	2x20
Clamping torque per jaw at opening at 6 bar (Nm)	0,11
Max. clamping torque per jaw at opening at 6 bar (Nm)	0,22
Clamping torque per jaw at closing at 6 bar (Nm)	0,08
Max. clamping torque per jaw at closing at 6 bar (Nm)	0,16
Ø piston bore (mm)	10
Ø port sizes (mm)	M3
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	0,70
Repeatability (°)	±0,04
Max. working frequency (Hz)	3
Min. closing time (s)	0,005
Max. jaw length (mm)	40
Mase (kg)	0,039



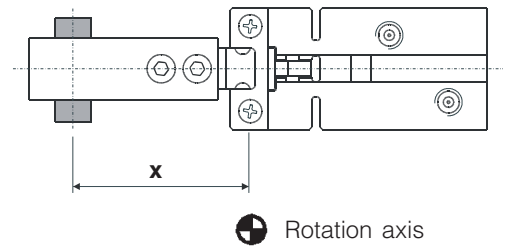
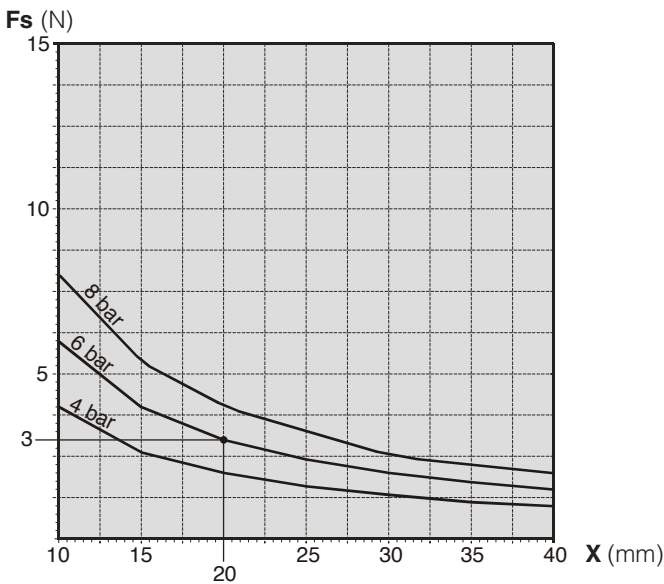
**Material**

Body	hard anodised aluminium
Jaw-carrier	stainless steel
Seaks	nitrile butadiene rubber (NBR)

**Operating information**

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air lubricated or unlubricated

**Clamping force per jaw (N) / jaw length (mm)**

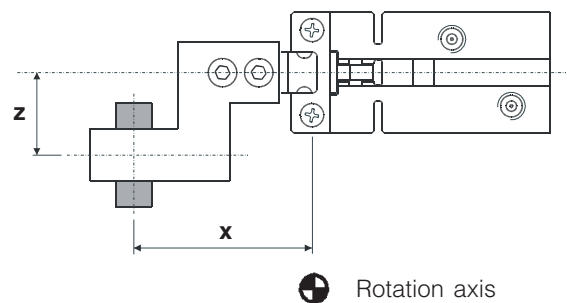


Example : for X = 20 mm, Fs = 2 x 3 N

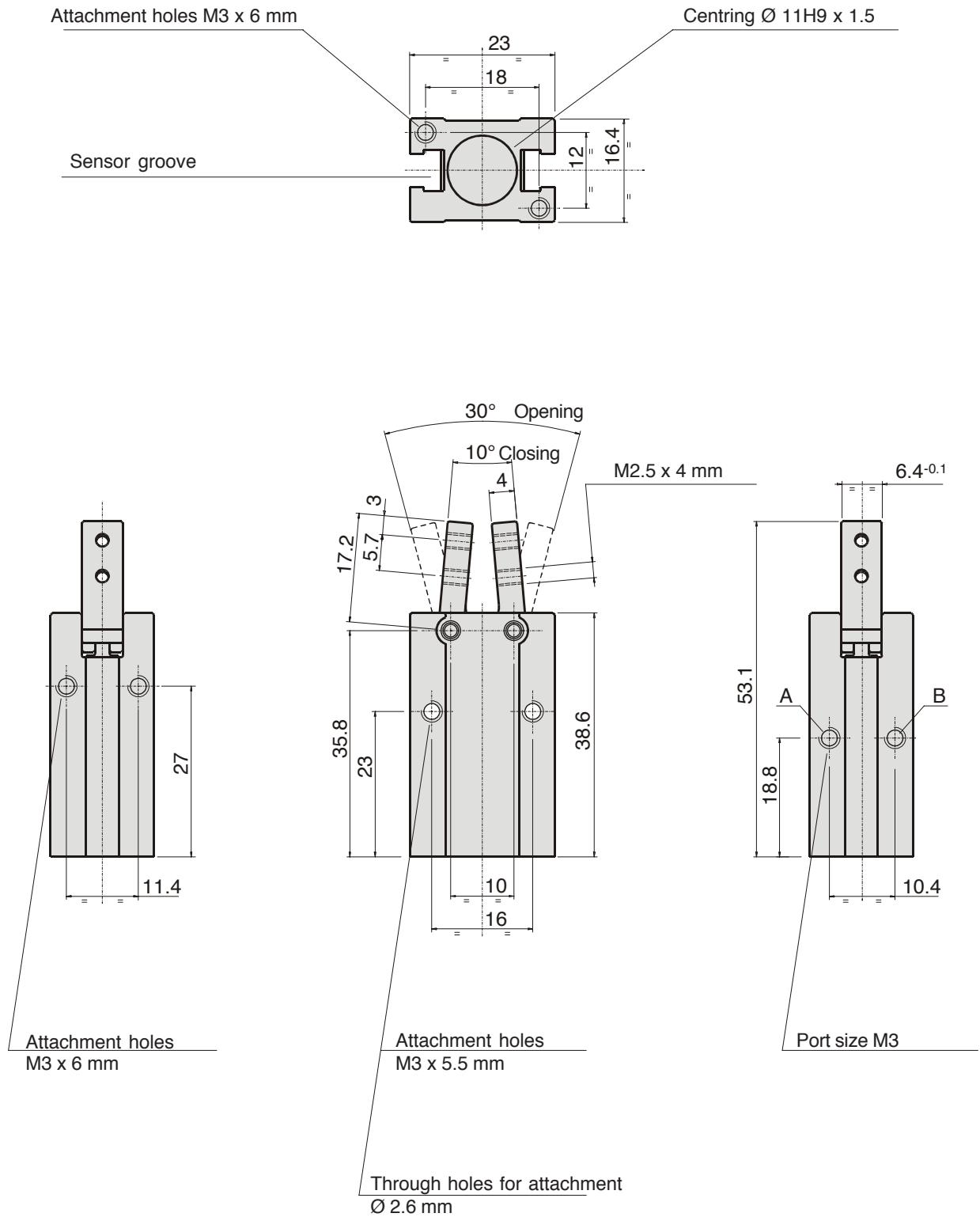
**Clamping force per jaw (N) / jaw length and / jaw offset (mm)**

Use the above graph ignoring the jaw offset values Z.

Don't overrun value : Z maxi. = X maxi. / 2



Dimensions (mm)

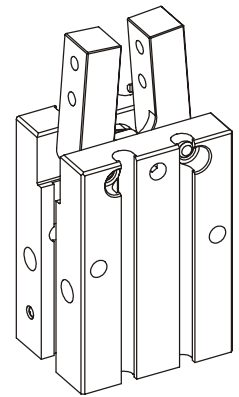


Air supply in A : gripper opening

Air supply in B : gripper closing

## Technical informations

Opening angle (°) (±1°)	2x20
Clamping torque per jaw at opening at 6 bar (Nm)	0,45
Max. clamping torque at opening at 6 bar (Nm)	0,90
Clamping torque per jaw at closing at 6 bar (Nm)	0,36
Max. clamping torque at closing at 6 bar (Nm)	0,72
Ø piston bore (mm)	16
Ø port sizes (mm)	M5
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	3
Repeatability (mm)	±0,04
Max. operation frequency (Hz)	3
Min. closing time (s)	0,005
Max. jaw length (mm)	60
Mass (kg)	0,088



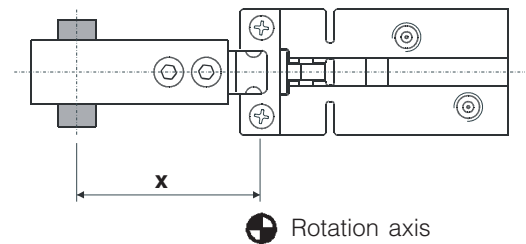
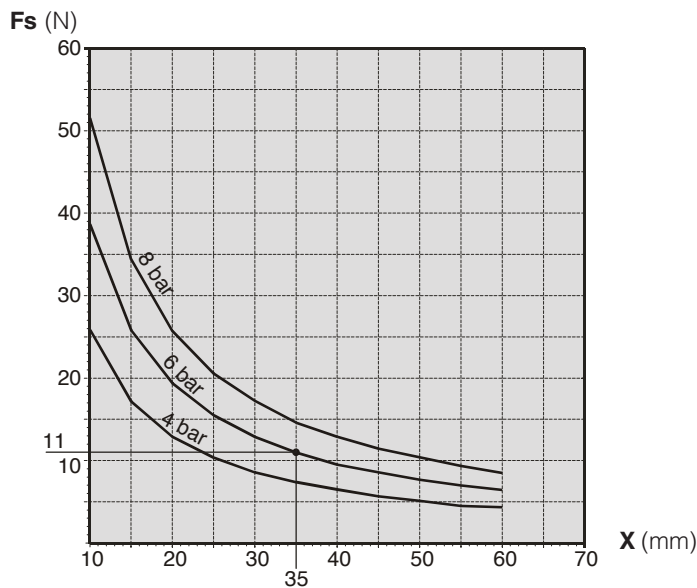
## Material

Body	hard anodised aluminium
Jaw carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

## Clamping force per jaw (N) / jaw length (mm)

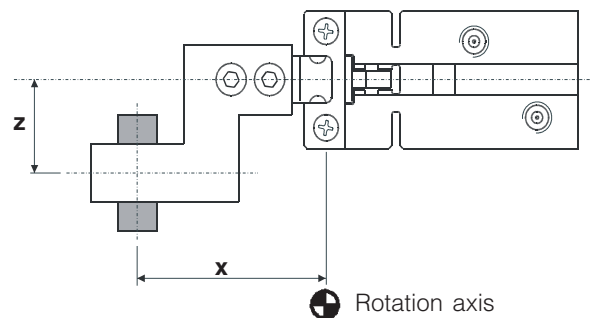


Example : for X= 35 mm, Fs = 2 x 11 N

## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

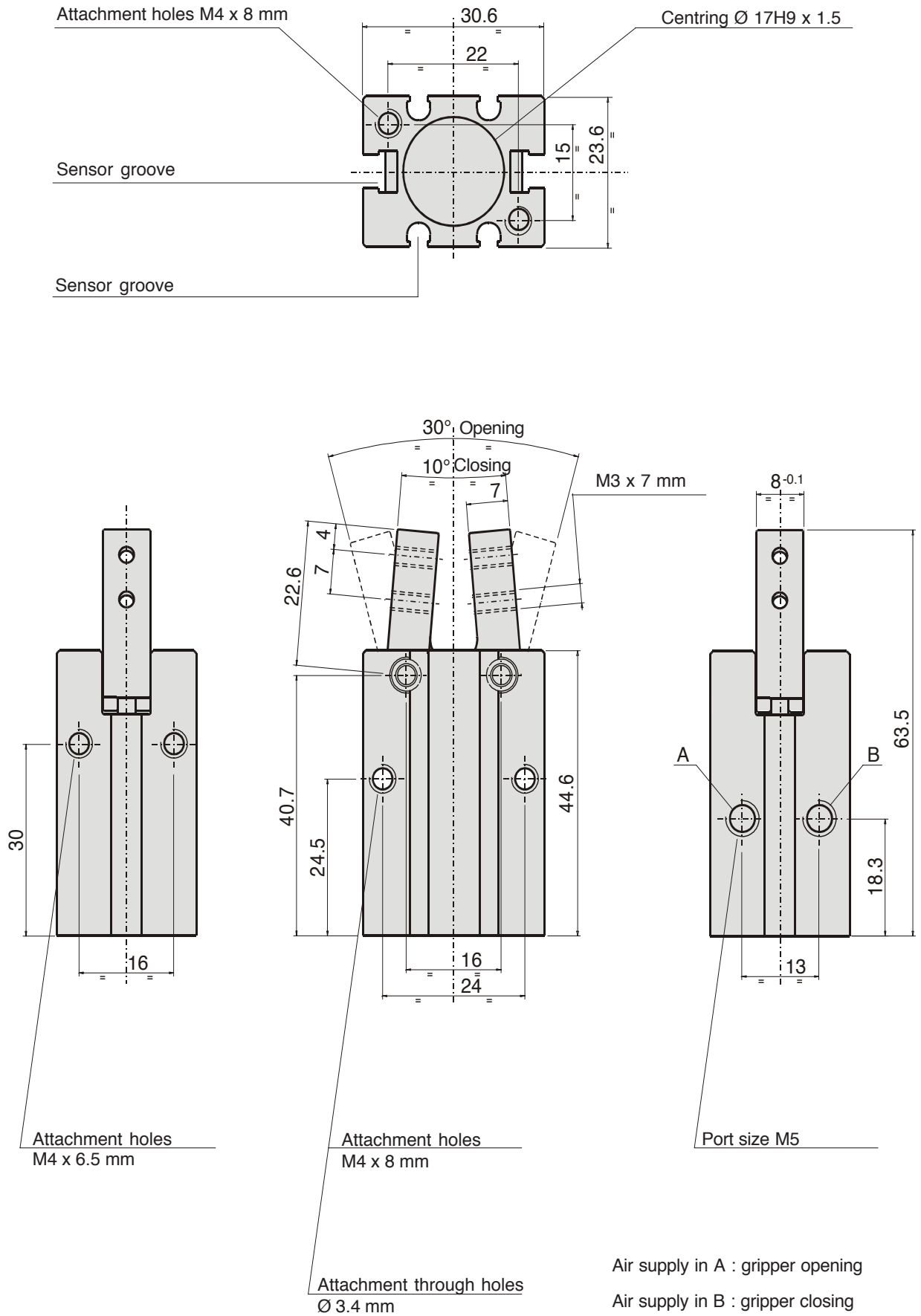
Use the above graph ignoring the jaw offset value Z.

Don't overrun value : Z maxi. = X maxi. / 2



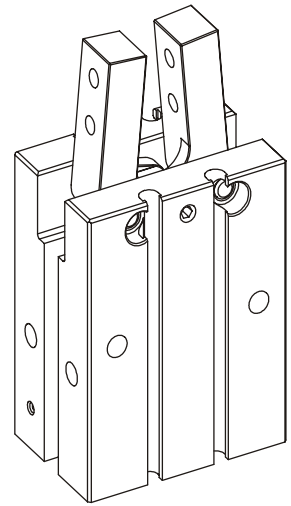


Dimensions (mm)



**Technical information**

Opening angle (°) (±1°)	2x20
Clamping torque per jaw at opening at 6 bar (Nm)	0,89
Max. opening torque at opening at 6 bar (Nm)	1,78
Clamping torque per jaw at closing at 6 bar (Nm)	0,78
Max. clamping torque at closing at 6 bar (Nm)	1,56
Ø piston bore (mm)	20
Ø port sizes (mm)	M5
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	6
Repeatability (mm)	±0,04
Max. working frequency (Hz)	2
Min. closing time (s)	0,02
Max. jaw length (mm)	80
Mass (kg)	0,171



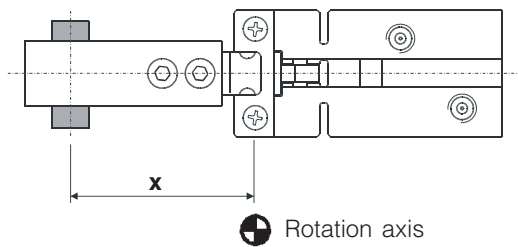
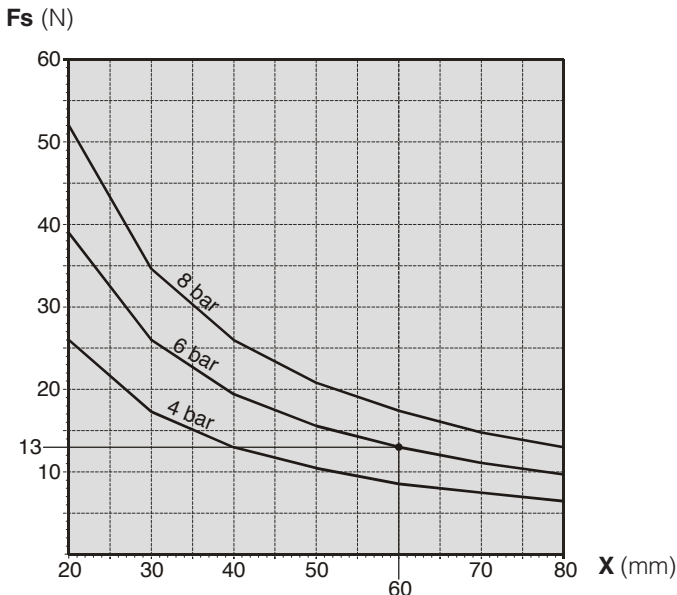
**Material**

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

**Operating information**

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

**Clamping force per jaw (N) / jaw length (mm)**

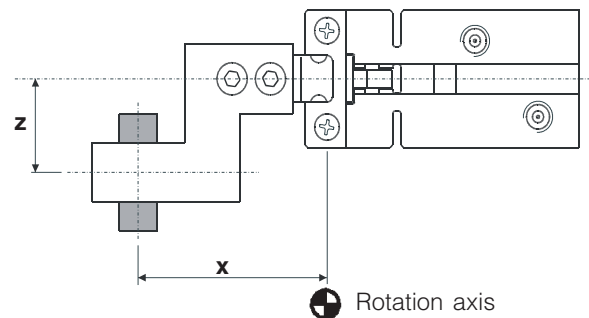


Example : for X = 60 mm, Fs = 2 x 13 N

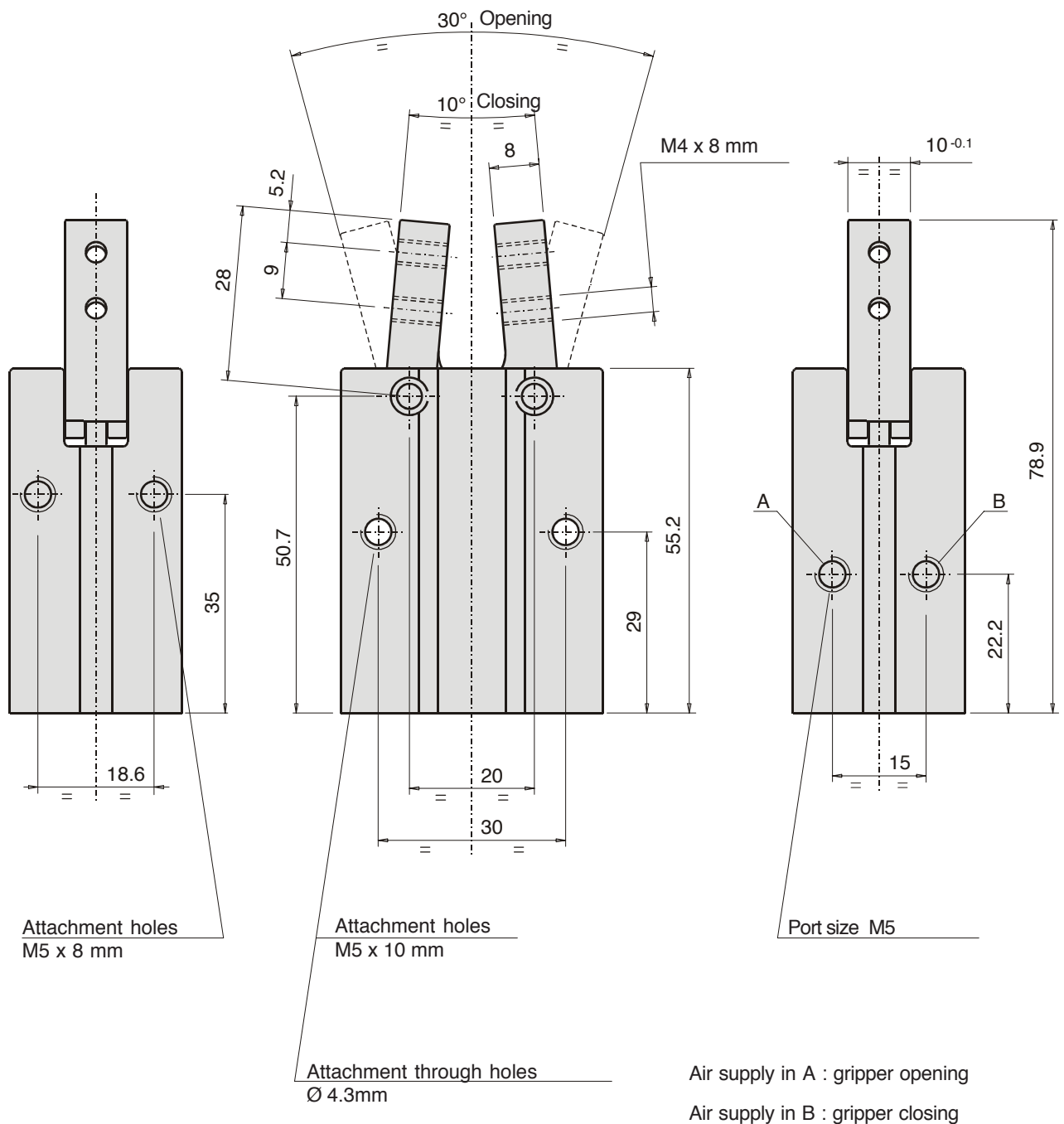
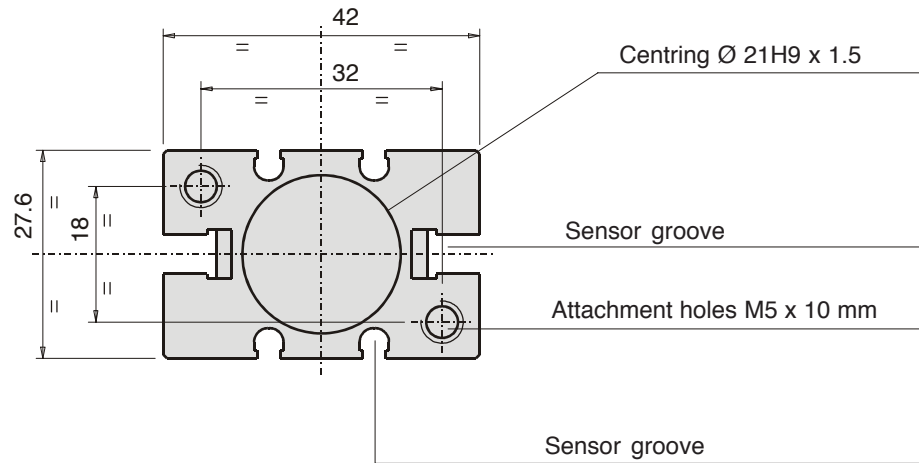
**Clamping force per jaw (N) / jaw length and / jaw offset (mm)**

Use the above graph ignoring the jaw offset value Z.

Don't overrun value : Z maxi. = X maxi. / 2

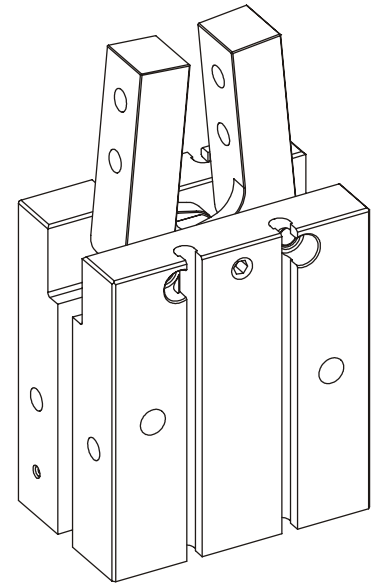


Dimensions (mm)



## Technical informations

Opening angle (°) (±1°)	2x20
Clamping torque per jaw at opening at 6 bar (Nm)	1,78
Max. clamping torque at opening at 6 bar (Nm)	3,56
Clamping torque per jaw at closing at 6 bar (Nm)	1,60
Max. clamping torque at closing at 6 bar (Nm)	3,20
Ø piston bore (mm)	25
Ø port sizes (mm)	M5
Air consumption at 6 bar (cm³ / cycle)	11
Repeatability (mm)	±0,04
Max. working frequency (Hz)	2
Min. closing time (s)	0,02
Max. jaw length (mm)	100
Mass (kg)	0,293



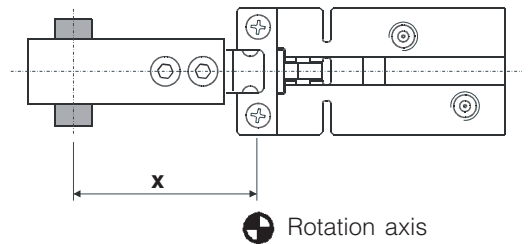
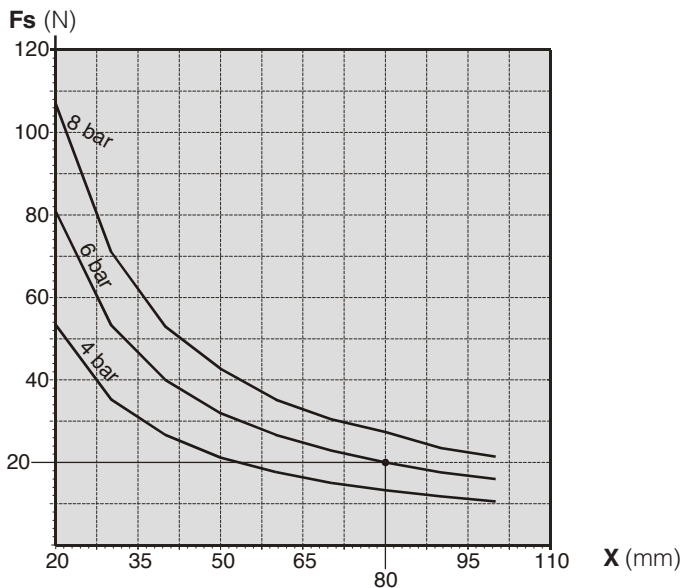
## Material

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

## Clamping force per jaw (N) / jaw length (mm)

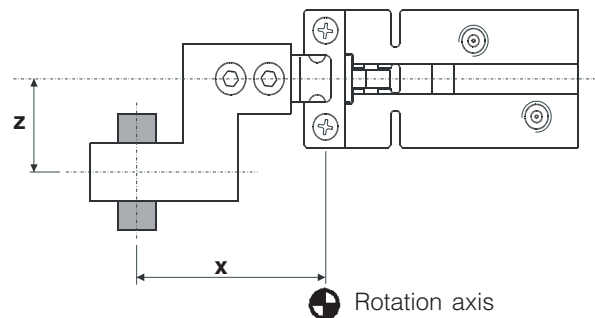


Example : for X = 80 mm, Fs = 2 x 20 N

## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

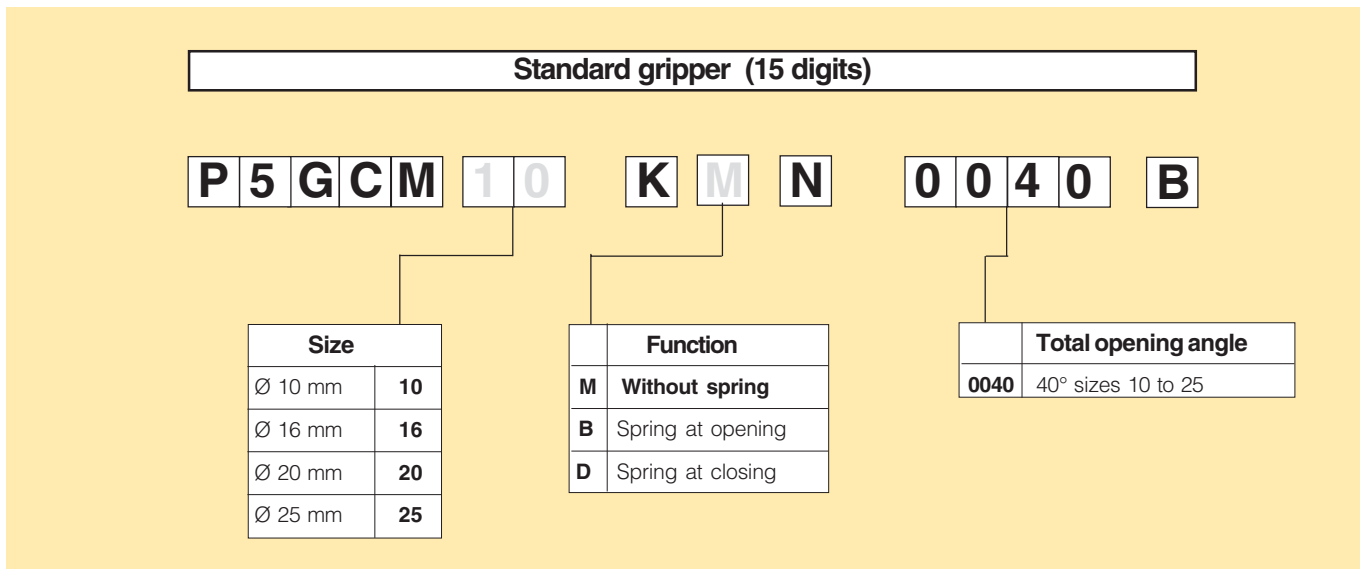
Use the above graph ignoring the jaw offset value Z.

Don't overrun value : Z maxi. = X maxi. / 2





Order key

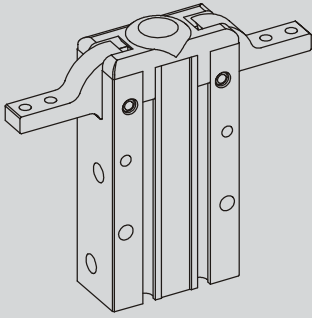


**Nota :** tall grippers are equipped with a magnet for sensing.

**Example :**

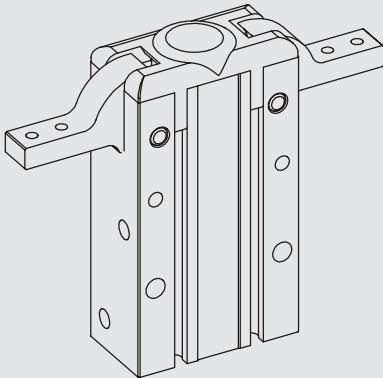
Angular gripper, size 16 without spring :

Order code : **P5GCM16KMN0040B**



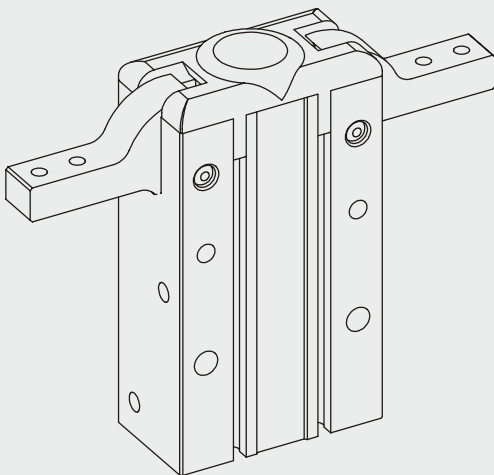
**Size 10**

**Csf** = 0,56 Nm  
**Fsf** = 28 N  
**s** = 180°  
**m** = 0,072 kg  
**Cso** = 0,74 Nm  
**Fso** = 37 N



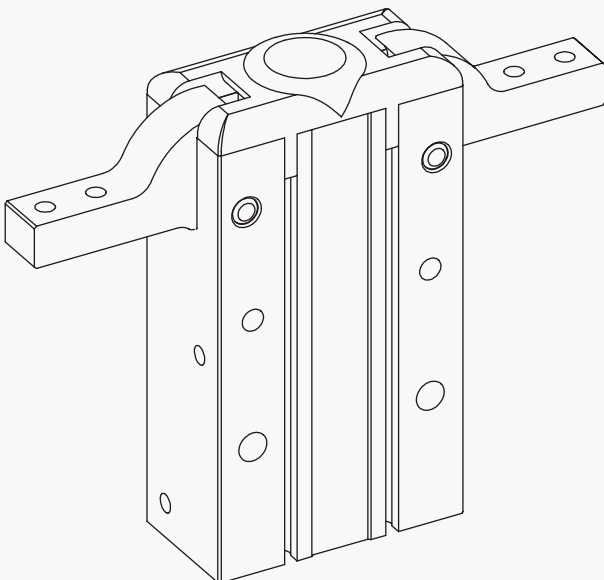
**Size 16**

**Csf** = 2,12 Nm  
**Fsf** = 106 N  
**s** = 180°  
**m** = 0,148 kg  
**Cso** = 2,48 Nm  
**Fso** = 124 N



**Size 20**

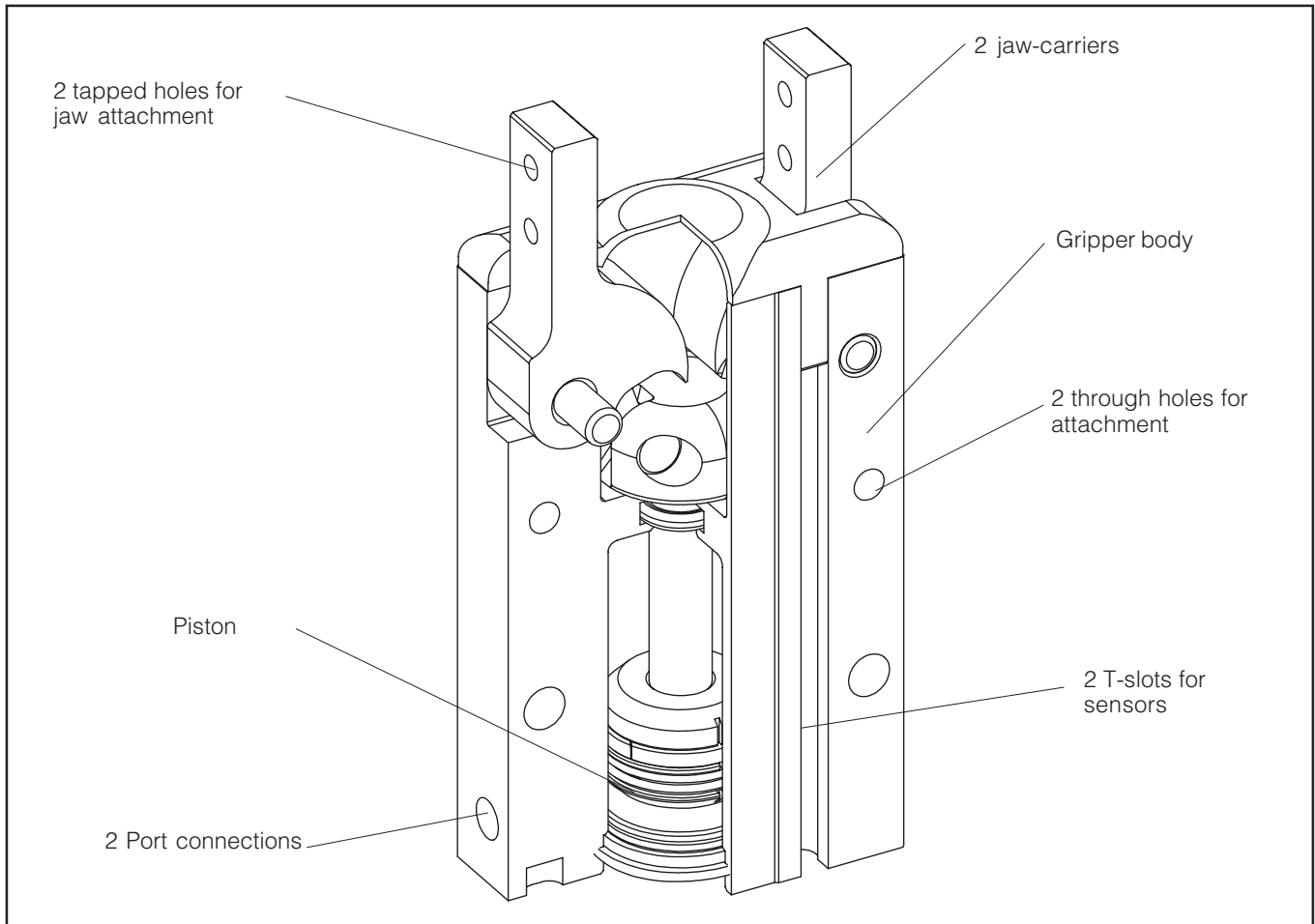
**Csf** = 4,56 Nm  
**Fsf** = 228 N  
**s** = 180°  
**m** = 0,309 kg  
**Cso** = 5,20 Nm  
**Fso** = 260 N



**Size 25**

**Csf** = 9,26 Nm  
**Fsf** = 463 N  
**s** = 180°  
**m** = 0,559 kg  
**Cso** = 10,32 Nm  
**Fso** = 516 N

**s** : stroke  
**m** : weight  
**Csf** : clamping torque at closing  
**Cso** : clamping torque at opening  
**Fsf** : clamping force at closing  
**Fso** : clamping force at opening



### Radial grippers

These grippers, which are used for material handling and precision assembly, are part of the Parker Pneumatic automation product range. 4 sizes are available, and can be used in most applications.

### Versions et detection

There is one version : with 2 square jaw-carriers. Or or two magneto-inductive sensors can be mounted on all sizes to provide signal to monitor opening and closing of the jaws.

### Protection

The gripper body is made of hard anodised aluminium and the two jaw-carriers are made of stainless steel.

### Safety

A mechanical system ensures that the grippers remain closed if the air supply fails in the last degrees of movement.

### Fixing

By tapped holes on 3 sides of the gripper.  
By tapped holes on the rear of the gripper.  
Precise location of the gripper through centring and dowel pin holes.

### Air supply

Port connections on one of the sides of the gripper.

### Reliability

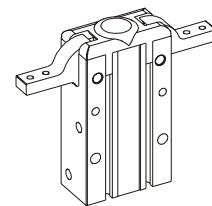
The grippers have been designed for  $10^7$  operations in normal working conditions.



## Standard version

### Double acting, square jaw carriers

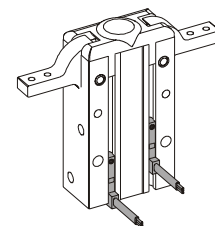
Gripper is opened and closed by pneumatic pressure.  
Automatic grip retention by mechanical system.  
4 sizes available.



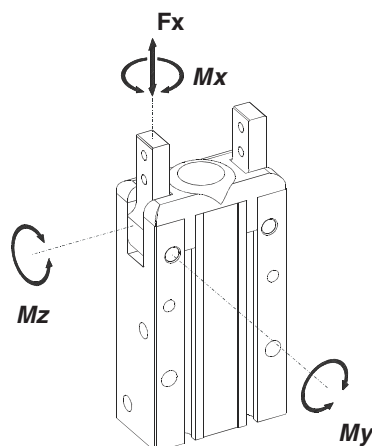
## Options

### Detection

Check on opening and closing of the gripper by means of magneto-inductive sensors.



## Permissible forces on each jaw carrier



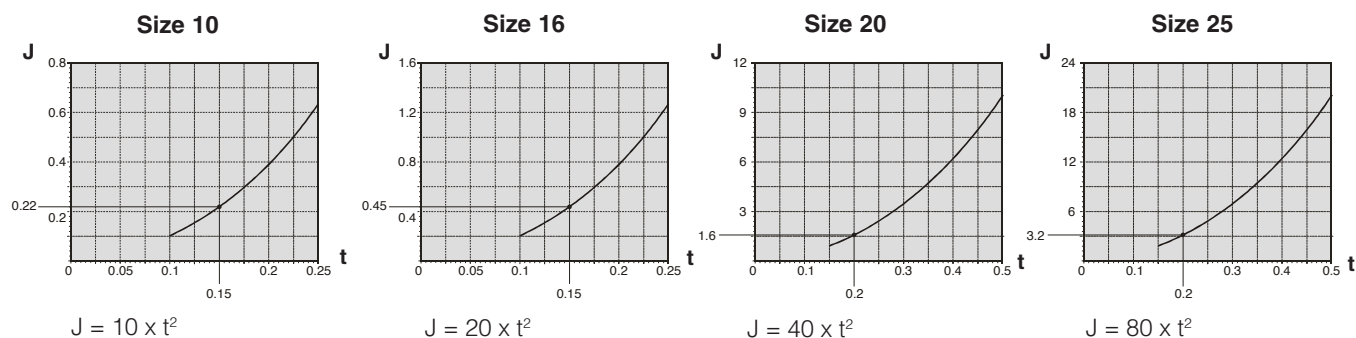
### Static

Size	10	16	20	25
Fx	35N	60N	100N	140N
Mx	0,5Nm	2 Nm	4 Nm	7 Nm
My	0,5Nm	2 Nm	4 Nm	7 Nm
Mz	0,5Nm	1 Nm	2 Nm	7 Nm

MZ at 6 bar .

## Dynamic

Inertia of one of the 2 jaws (kgcm<sup>2</sup>)/ closing or opening time (s) :



For a inertia of one of the 2 jaws of 0,22 kgcm<sup>2</sup>, the opening or closing time of the gripper is 0,15 s for a **size 10**.

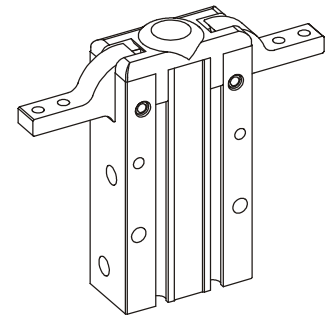
These indications should not be exceeded if :

- any extra forces are exerted on the workpiece or on the jaws, in addition to the force or to the clamping torque.
- handling forces (acceleration, shocks, ...) must also be added.

These values are cumulative if the forces act in different directions at the same time.

## Technical informations

Opening angle (°) (±1°)	2x92
Clamping torque per jaw at opening at 6 bar (Nm)	0,37
Max. clamping torque at opening at 6 bar (Nm)	0,74
Clamping torque per jaw at closing at 6 bar (Nm)	0,28
Max. clamping torque at closing at 6 bar (Nm)	0,56
Ø piston bore (mm)	10
Ø port sizes (mm)	M5
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	2
Repeatability (°)	±0,06
Max. working frequency (Hz)	3
Min. closing time (s)	0,1
Max. jaw length (mm)	40
Mass (kg)	0,072



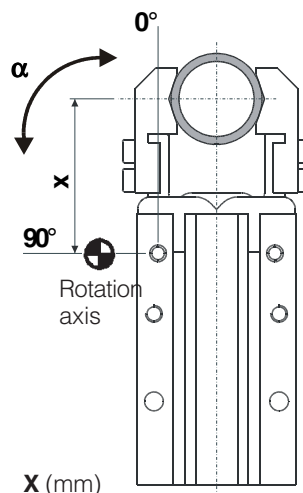
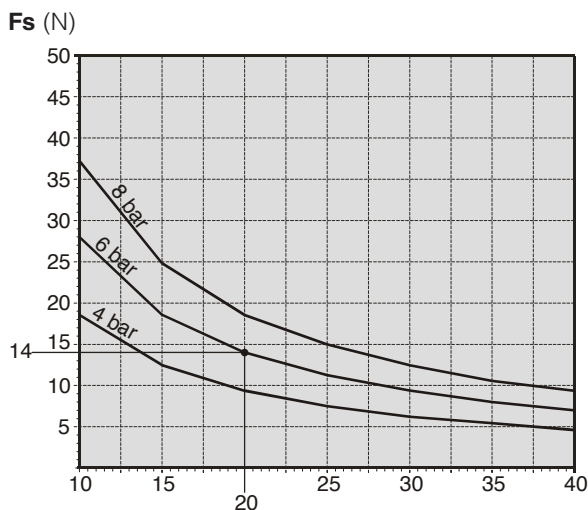
## Material

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

## Clamping force per jaw (N) / jaw length (mm)

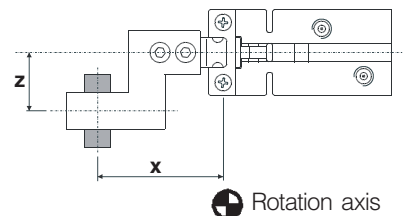


Example : for X = 20 mm, Fs = 2 x 14 N

## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

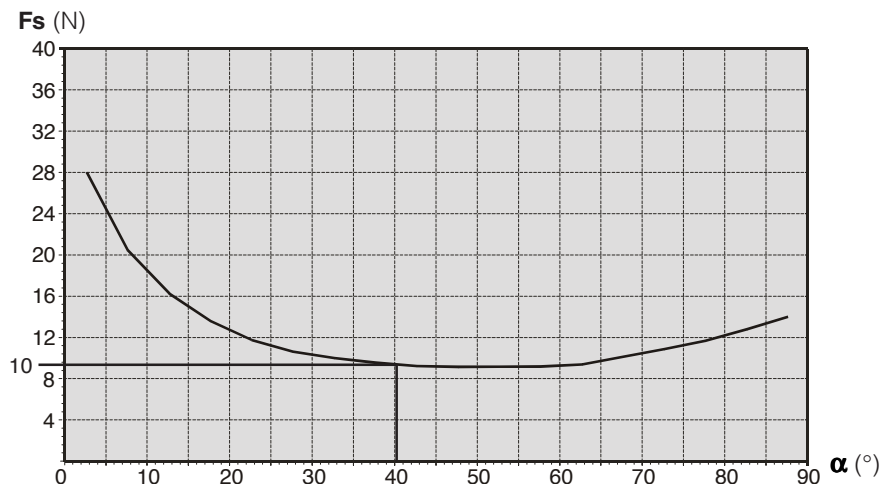
Use the opposite graph ignoring the jaw offset value Z.

Don't overrun value : Z maxi. = X maxi. / 2



## Clamping force per jaw (N) / jaw opening (°)

(at 6 bar)

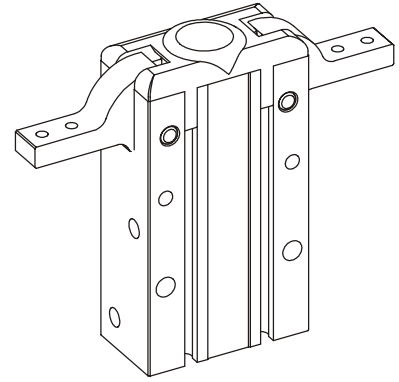


Example : for alpha = 40°, Fs = 2 x 10 N



## Technical informations

Opening angle (°) (±1°)	2x92
Clamping torque per jaw at opening at 6 bar (Nm)	1,24
Max. clamping torque at opening at 6 bar (Nm)	2,48
Clamping torque per jaw at closing at 6 bar (Nm)	1,06
Max. clamping torque at closing at 6 bar (Nm)	2,12
Ø piston bore (mm)	16
Ø port size (mm)	M5
Air consumption at 6 bar (cm³ / cycle)	7
Repeatability (°)	±0,06
Max. working frequency (Hz)	2
Min. closing time (s)	0,1
Max. jaw length (mm)	60
Masse (kg)	0,148



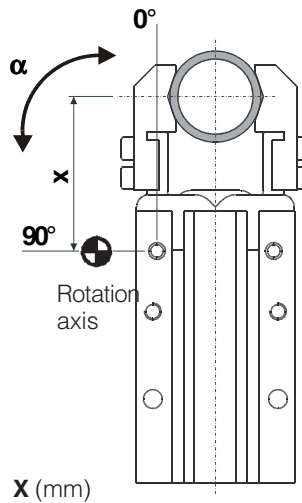
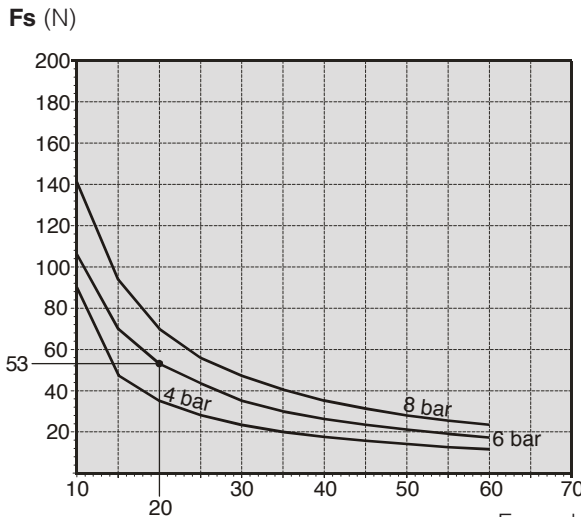
## Material

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

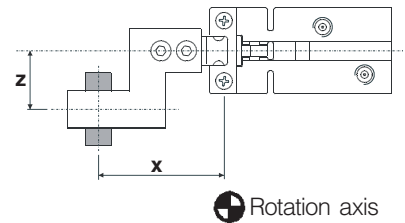
## Clamping force per jaw (N) / jaw length (mm)



Example : for X = 20 mm, Fs = 2 x 53 N

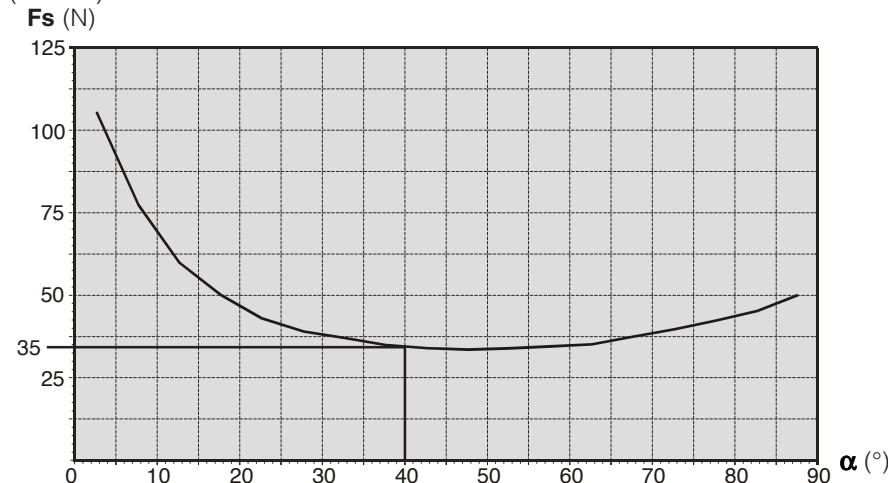
## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

Use the opposite graph ignoring the jaw offset value Z.  
Don't overrun value : Z maxi. = X maxi. / 2



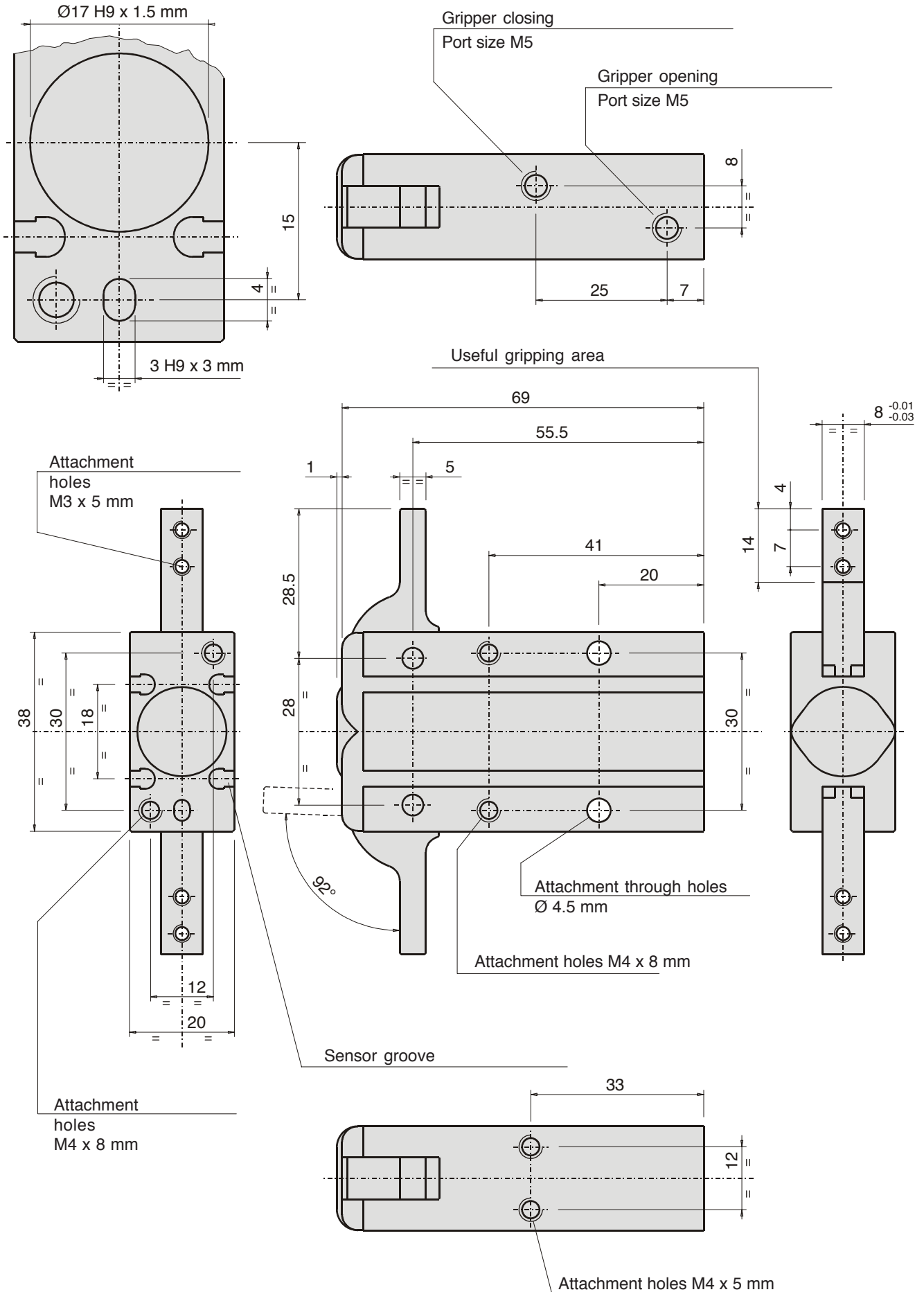
## Clamping force per jaw (N) / jaw opening (°)

(at 6 bar)



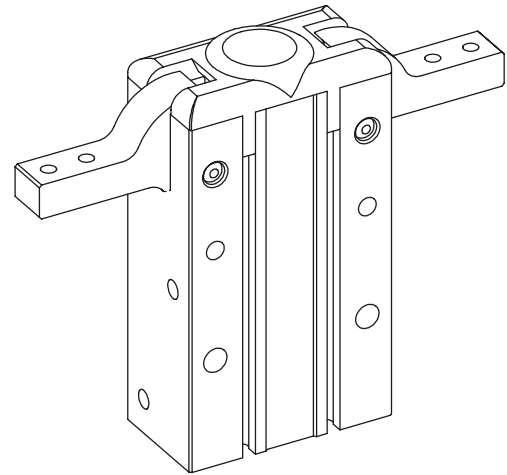
Example : for alpha = 40° , Fs = 2 x 35 N

Dimensions (mm)



## Technical information

Opening angle (°) ( $\pm 1^\circ$ )	2x92
Clamping torque per jaw at opening at 6 bar (Nm)	2,60
Max. clamping torque at opening at 6 bar (Nm)	5,20
Clamping torque per jaw at closing at 6 bar (Nm)	2,28
Max. clamping torque at closing at 6 bar (Nm)	4,56
$\varnothing$ piston bore (mm)	20
$\varnothing$ port size (mm)	M5
Air consumption at 6 bar (cm <sup>3</sup> / cycle)	14
Repeatability (°)	$\pm 0,06$
Max. working frequency (Hz)	2
Min. closing time (s)	0,15
Max. jaw length (mm)	80
Mass (kg)	0,309



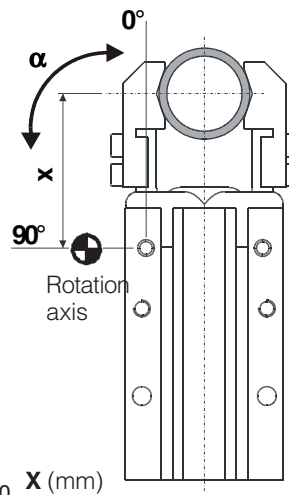
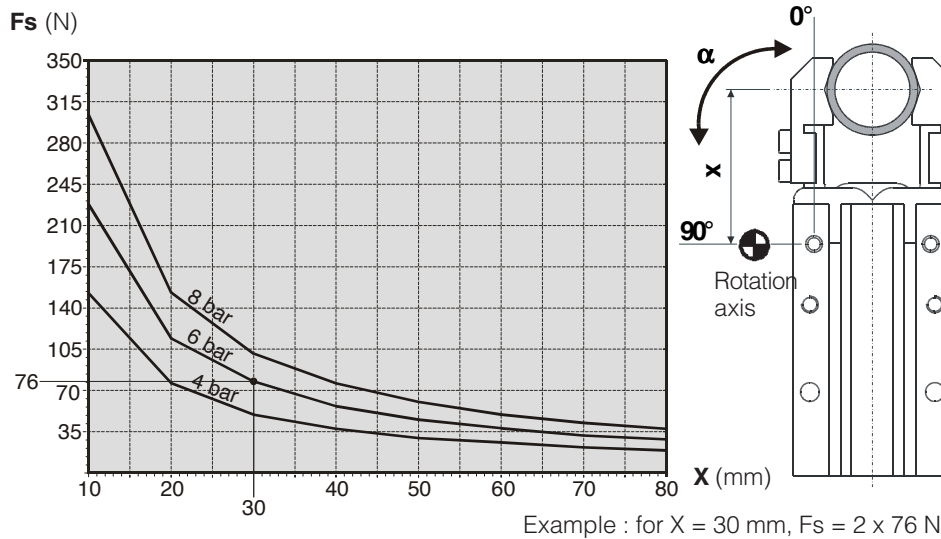
## Material

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

## Operating information

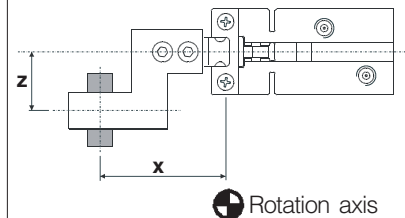
Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

## Clamping force per jaw (N) / jaw length (mm)

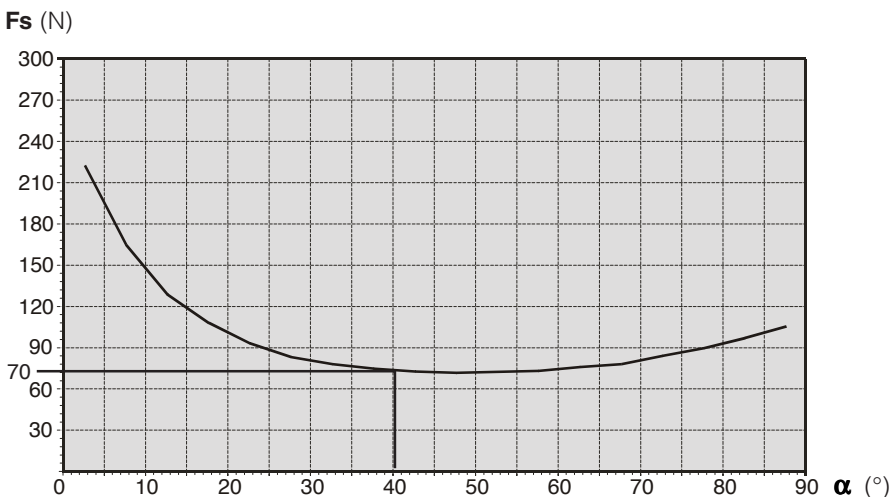


## Clamping force per jaw (N) / jaw length and / jaw offset (mm)

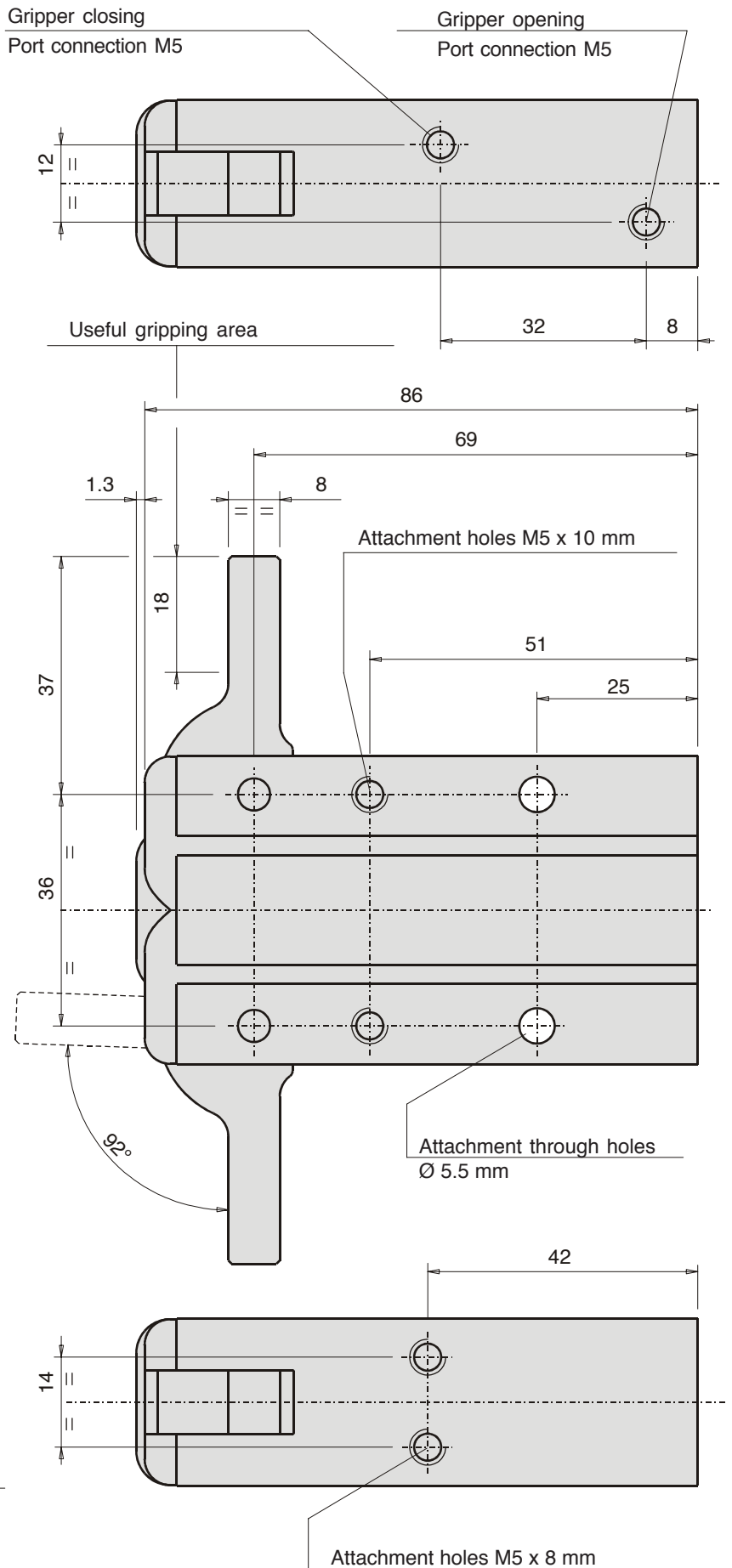
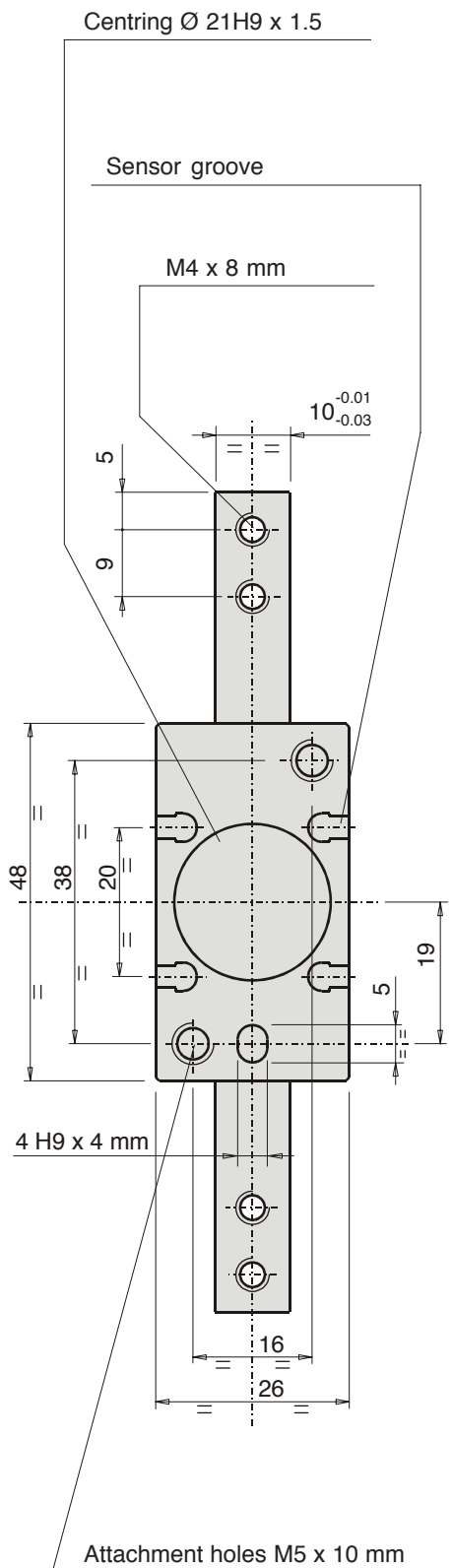
Use the opposite graph ignoring the jaw offset value Z.  
Don't overrun value : Z maxi. = X maxi. / 2



## Clamping force per jaw (N) / jaw opening (°) (at 6 bar)

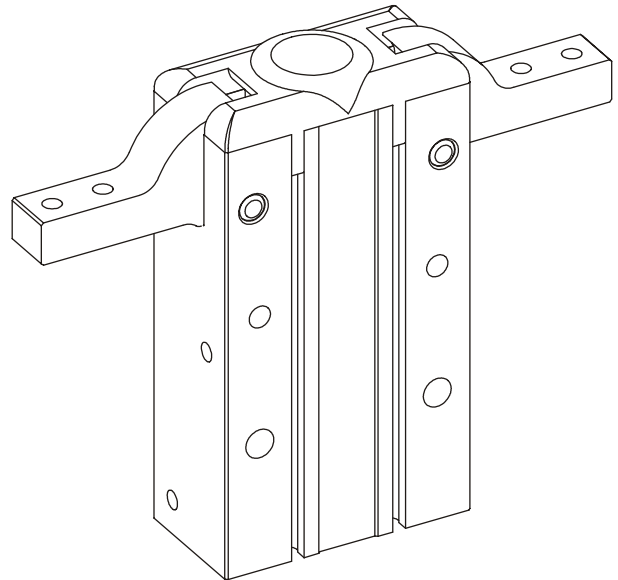


Dimensions (mm)



**Technical information**

Opening angle (°) (±1°)	2x92
Clamping torque per jaw at opening at 6 bar (Nm)	5,16
Max. clamping torque at opening at 6 bar (Nm)	10,32
Clamping torque per jaw at closing at 6 bar (Nm)	4,63
Max. clamping torque at closing at 6 bar (Nm)	9,26
Ø piston bore (mm)	25
Ø port size (mm)	M5
Air consumption at 6 bar (cm³ / cycle)	28
Repeatability (°)	±0,06
Max. working frequency (Hz)	2
Min. closing time (s)	0,15
Max. jaw length (mm)	100
Mass (kg)	0,554



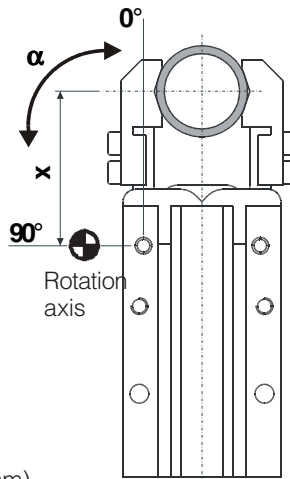
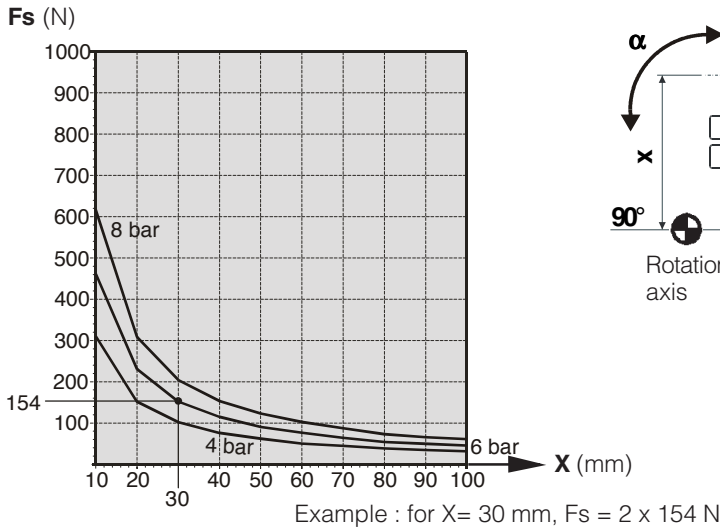
**Material**

Body	hard anodised aluminium
Jaw-carriers	stainless steel
Seals	nitrile butadiene rubber (NBR)

**Operating information**

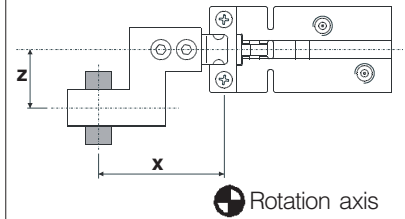
Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

**Clamping force per jaw (N) / jaw length (mm)**



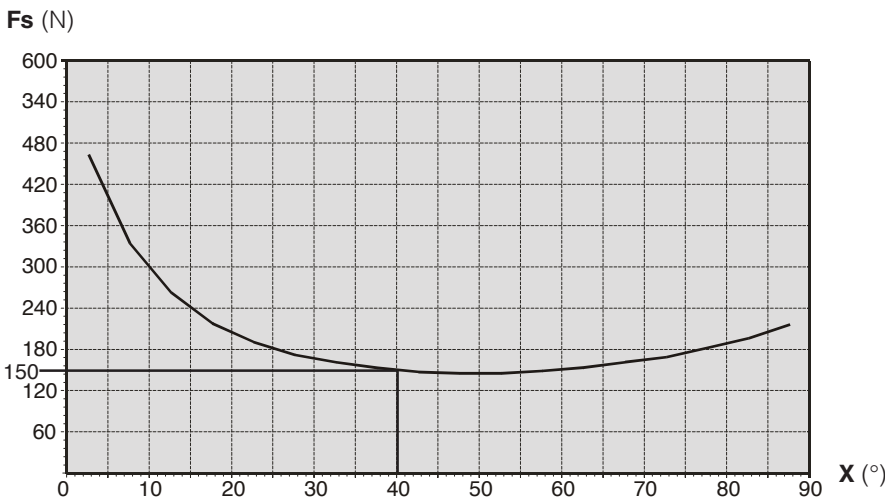
**Clamping force per jaw (N) / jaw length and / jaw offset (mm)**

Use the opposite graph ignoring the jaw offset value Z.  
Don't overrun value : Z maxi. = X maxi. / 2



**Clamping force per jaw (N) / jaw opening (°)**

(at 6 bar)

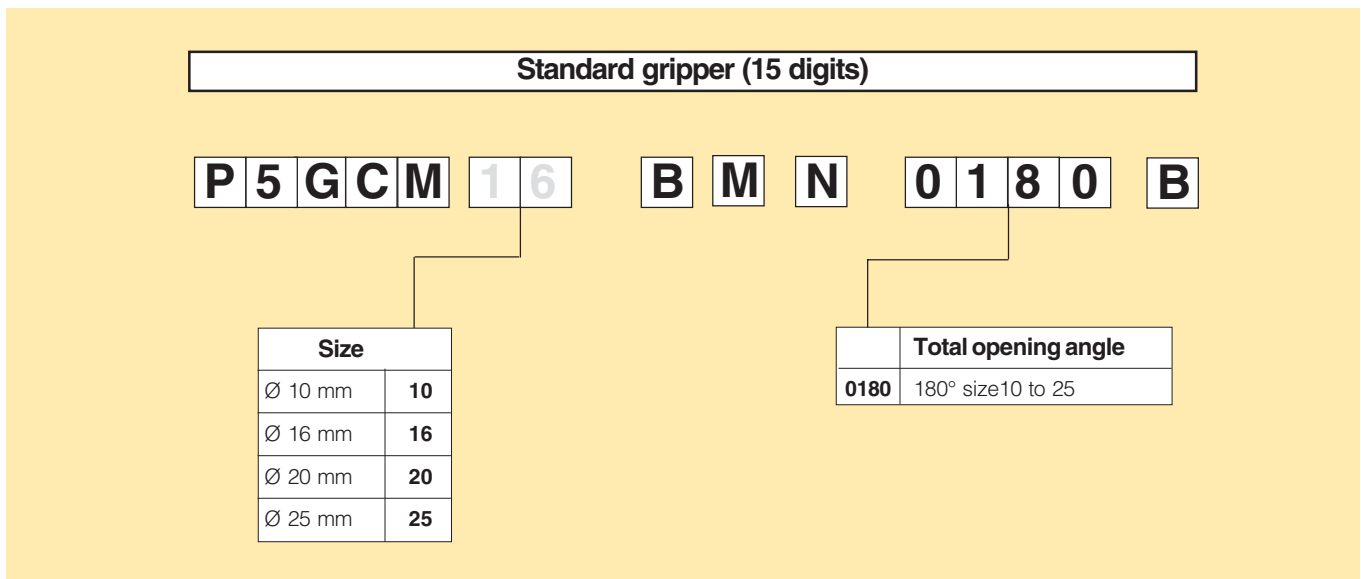


Example : for  $\alpha = 40^\circ$  ,  $F_s = 2 \times 150 \text{ N}$





Order key



**Nota :** all grippers are equipped with a magnet for sensing.

**Example :**

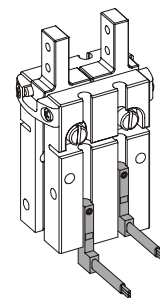
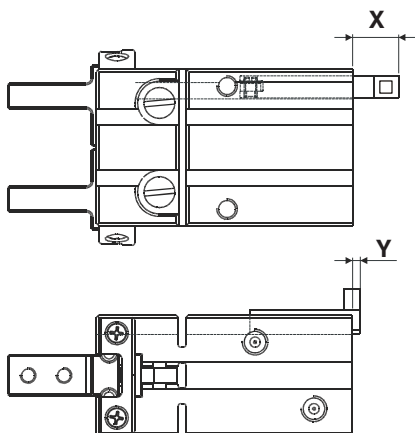
Radial griper, size 16 :

Order code : **P5GCM16BMN0180B**

## Sensors for P5GC gripper

Sensors can be adjusted along grooves

### Dimensions (mm)



Size	10	16	20	25
X gripper closed	1	2	0	0
Y gripper opened	0	2	0	0
In grooves*				

### Nota: Mounting in T-groove and cylindrical groove

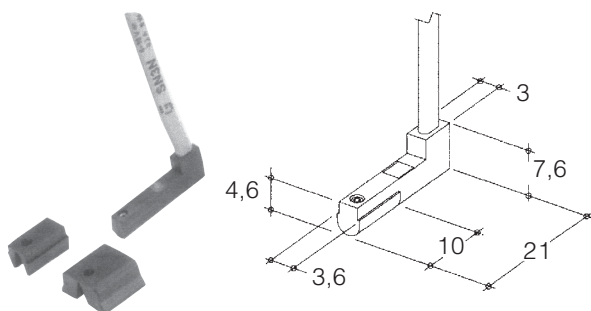
- Mounting in T-groove by the side with plastic adaptor
- Mounting by slipping into the cylindrical groove on the rear of the gripper.

\* Only in cylindrical groove for radial grippers.

### Technical data

Specifications	Order code
	P8S-SPTHZ
Cable length (m)	0,3
Connector	Plug-in Male M8
Type	PNP N.O.
Supply voltage (Vdc)	6 + max 30
Switching frequency (kHz)	200
Switching current (A)	0,2
Power (W)	max. 6
Switching voltage (Vdc)	<1
Response time "ON" (µs)	0,8
Response time "OFF" (µs)	0,3
Working temperature (°C)	-10 to +70
Inverse polarity protection	yes
Short circuit protection	yes
Life time (imp.)	10 <sup>9</sup>
Protection	IP67
Body	Polyamid PA12
Cable	Flat in PUR CEI20/22 II

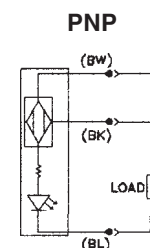
### Dimensions (mm)



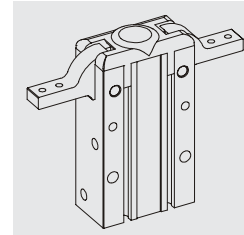
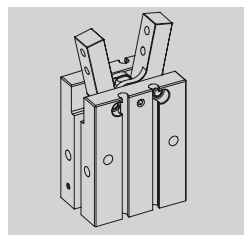
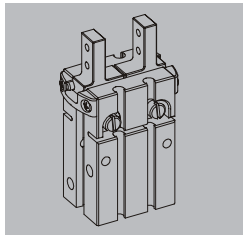
### Sensing point



### Wiring diagram



**Repair kits**



Size	Parallel gripper	Angular gripper	Radial gripper
10	P5GCM10H6RM	P5GCM10K6RM	P5GCM10B6RM
16	P5GCM16H6RM	P5GCM16K6RM	P5GCM16B6RM
20	P5GCM20H6RM	P5GCM20K6RM	P5GCM20B6RM
25	P5GCM25H6RM	P5GCM25K6RM	P5GCM25B6RM

The kit contains seals.

**Spare parts**

Size	Parallel gripper	Angular gripper	Radial gripper
10	P5GCM10H6PS	P5GCM10K6PS	P5GCM10B6PS
16	P5GCM16H6PS	P5GCM16K6PS	P5GCM16B6PS
20	P5GCM20H6PS	P5GCM20K6PS	P5GCM20B6PS
25	P5GCM25H6PS	P5GCM25K6PS	P5GCM25B6PS

The kit contains the levers and their spindles.

**Jaw-carriers**

Size	Parallel gripper	Angular gripper	Radial gripper
10	P5GCM10H6P	P5GCM10K6P	P5GCM10B6P
16	P5GCM16H6P	P5GCM16K6P	P5GCM16B6P
20	P5GCM20H6P	P5GCM20K6P	P5GCM20B6P
25	P5GCM25H6P	P5GCM25K6P	P5GCM25B6P

The kit contains the jaw-carriers and their spindles.

**Connectors and Flow controllers**

Connection	Order code	Description
<b>M3</b>	C68PK4M3	Swivel elbow compact connector M3
	F28PB4M3	Straight male connector M3
	—	Swivel flow controller M3
<b>M5</b>	F28PB4M5	Straight male connector M5
	C68PK4M5	Swivel elbow compact connector M5
	PTFL8PB4M5	Swivel flow controller M5

**WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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