



Universal Grippers P5GC Serie

Sizes 10, 16, 20 and 25 mm


Catalogue : PDE2532TCUK-po





Contents

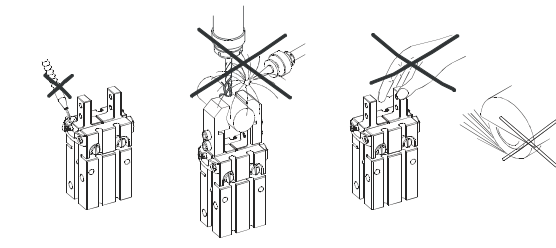
Product introduction.....	3
Gripper selection.....	4-6
Parallel grippers P5GCM H.....	7-18
Angular grippers P5GCM K.....	19-30
Radial grippers P5GCM B.....	31-42
Sensors.....	43
Spare parts.....	44



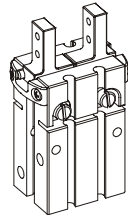
Warning !
Carefully check that gripper is de-pressurised and electric cables disconnected for ensuring an air cut prior doing any service on the gripper or on the attached components.



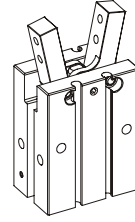
Note !
The air quality has a determining effect on the gripper lifetime (see ISO 8573).



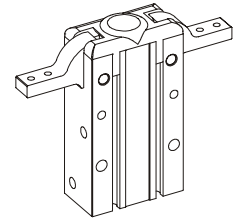
Note !
All the technical specifications included in that catalogue are only basic data.



**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) (± 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 ³ /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 **	●	●	●	●	●	●	●	●	—	—	—	—

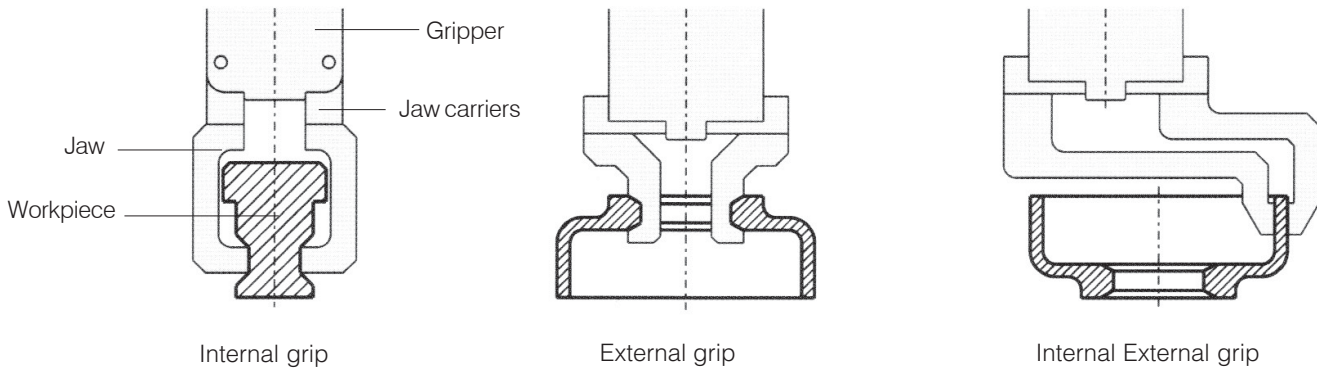
* In case of air supply failure the gripper will be closed

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

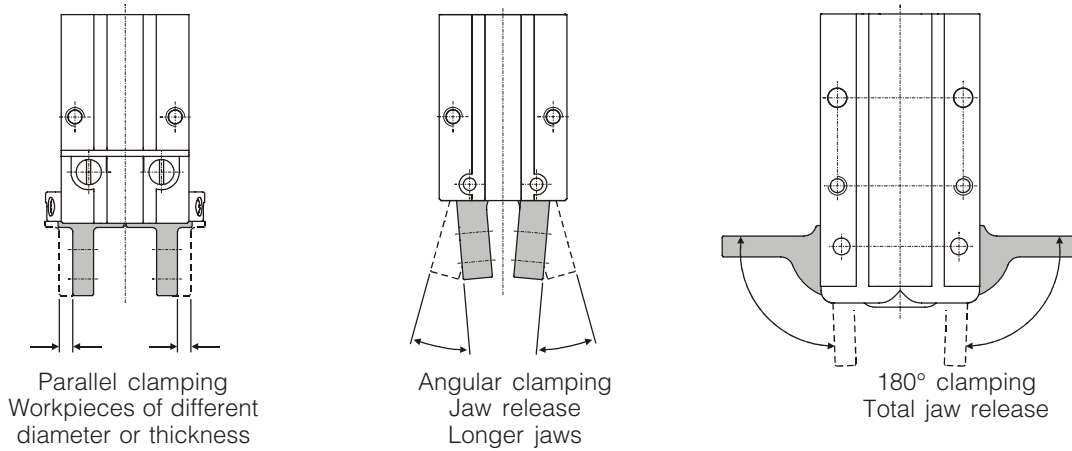
In case of air failure, the retention force is equal to the clamping force divided by 4.

Choice of gripper

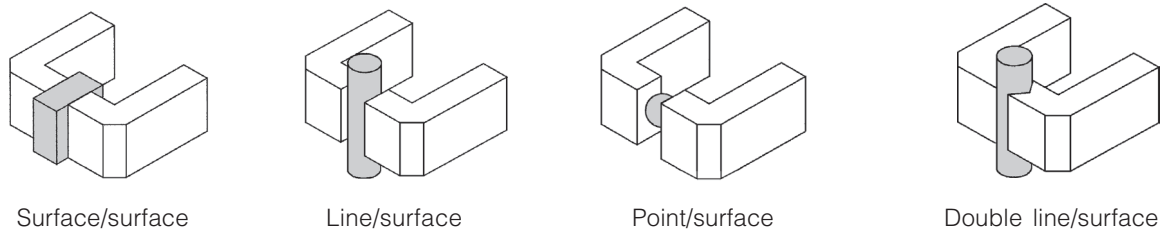
Type of grip



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 μ
Steel	Steel	0,25
Steel	Aluminium	0,35
Steel	Plastic	0,50
Aluminium	Aluminium	0,49
Aluminium	Plastic	0,70
Plastic	Plastic	1

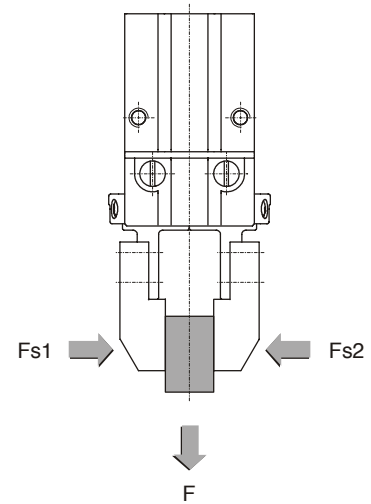
Formula of calculation of clamping force

For internal or external clamping

Fs1 = Fs2

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

- Fs : 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)
- So : safety factor (between 2 and 4, refer to chart below)



Safety factor So	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 So	2
Coefficient of friction μ	0,2
Mass acceleration g (m/s ²)	9,81
Ascending vertical acceleration avh (m/s ²)	5

Calculation of clamping force :

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

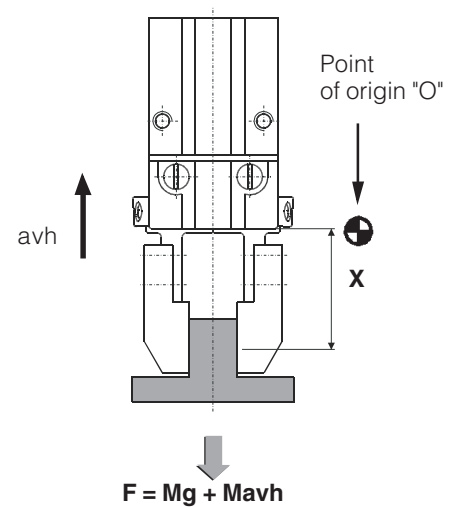
Verification of clamping force Fs :

At P = 6 bar and X = 20 mm the clamping force read on the graph opposite is Fs = 9,4 N.

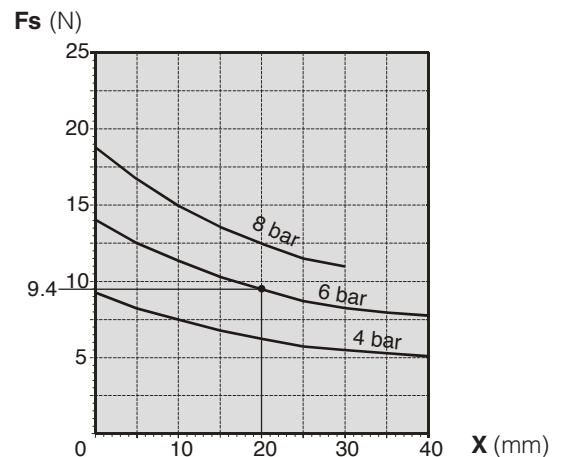
As 2 x 9,4 N > 8,9 N
a size 10 is sufficient.

Verification of tractive force FX on jaw carriers :
(see chart page 9)

F = Mg + Mavh = 0,06 x 9,81 + 0,06 x 5 = 0,90 N
For a parallel gripper size 10, Fx = 2 x 25 = 50N
As 50 N > 0,90 N
The selection of a size 10 is correct.



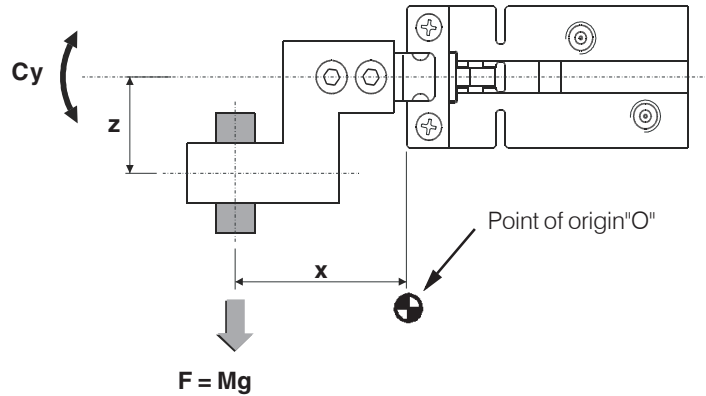
Clamping force per jaw (N) / jaw length (mm)



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 μ	0,15
Mass acceleration (m/s ²)	9,81



Calculation of the clamping force :

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

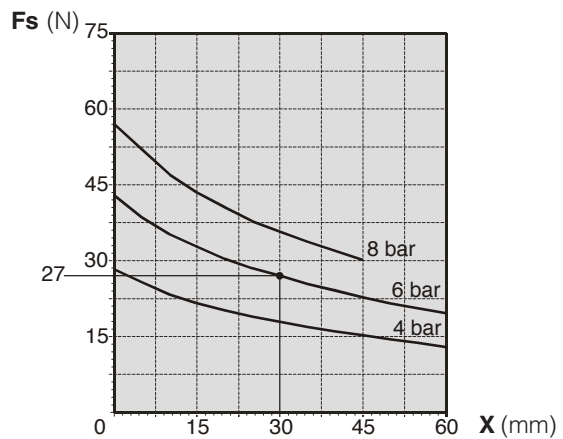
Verification of clamping force F_s :

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.

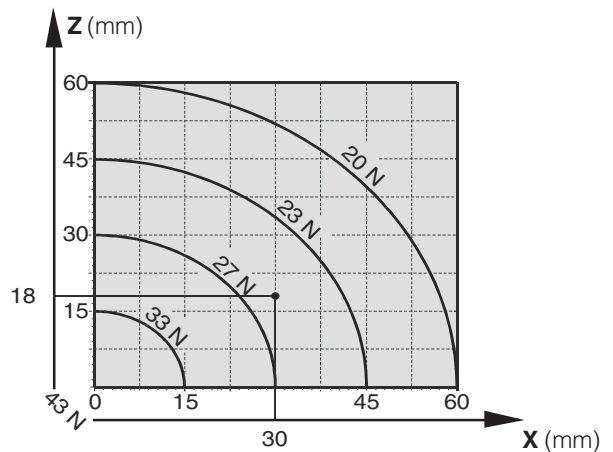
Verification of offset Z :

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 :

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

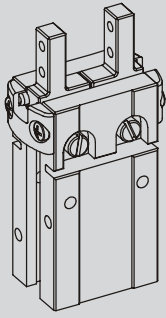
C_y should be < max. torque M_y read from the chart page 9, for a size 16 gripper.

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

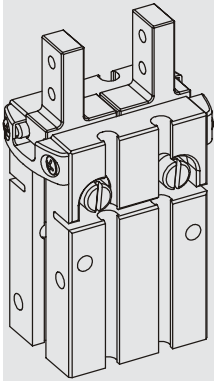
The selection of size 16 is correct.

Points ignored in selecting the grippers :

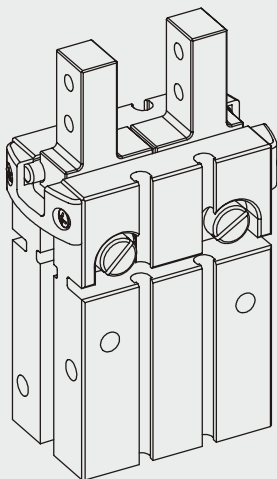
- ➔ the weight of jaws
- ➔ the geometry and the position of jaw mass of inertia
- ➔ the additional forces and torques (shocks, ...)
- ➔ the dynamic movement of the gripper and workpiece combination
- ➔ the opening and closing times requested
- ➔ the environmental conditions of use

**Size 10**

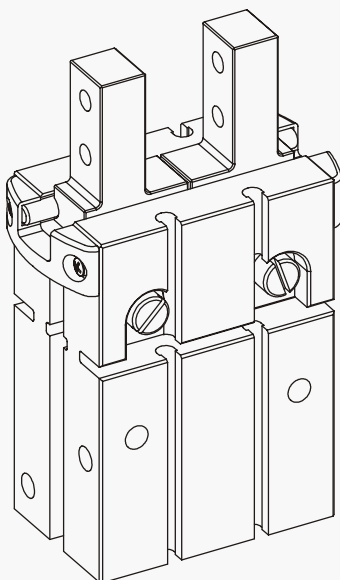
F_{sf} = 28 N
s = 4,4 mm
m = 0,045 kg
F_{so} = 36 N

**Size 16**

F_{sf} = 86 N
s = 6,6 mm
m = 0,098 kg
F_{so} = 100 N

**Size 20**

F_{sf} = 186 N
s = 10,2 mm
m = 0,207 kg
F_{so} = 212 N

**Size 25**

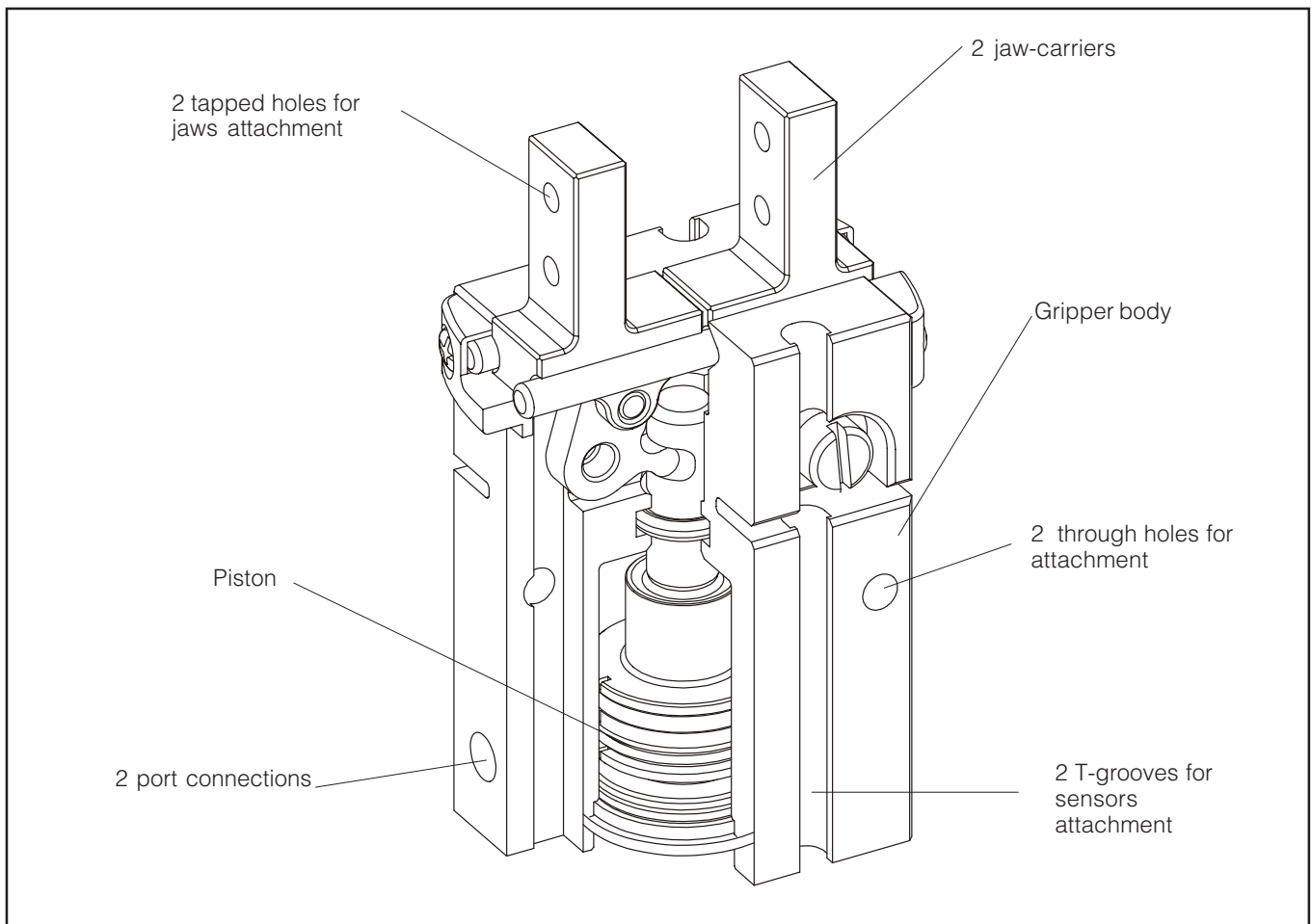
F_{sf} = 254 N
s = 14 mm
m = 0,365 kg
F_{so} = 282 N

s : stroke

m : weight

F_{sf} : clamping force at closing

F_{so} : 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.

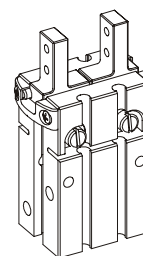
Standard version

Double acting, square jaw carriers

Gripper is opened and closed by pneumatic pressure.

No grip retention at closing.

4 sizes available.



Options

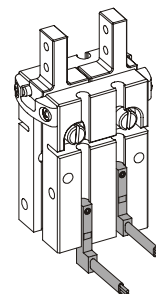
Sensors

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

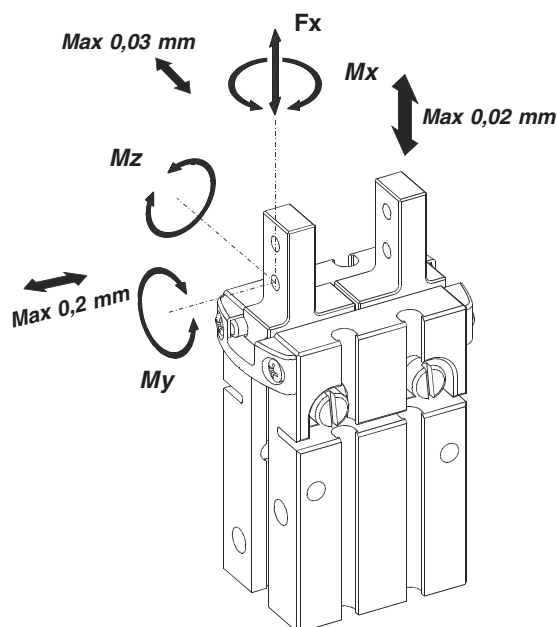
Spring function

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.

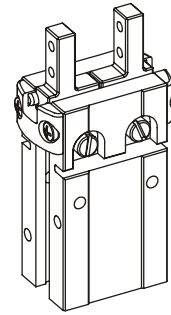
These indications must not be exceeded if :

- 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



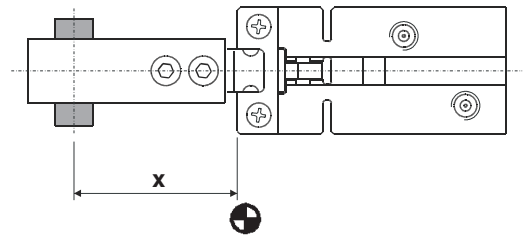
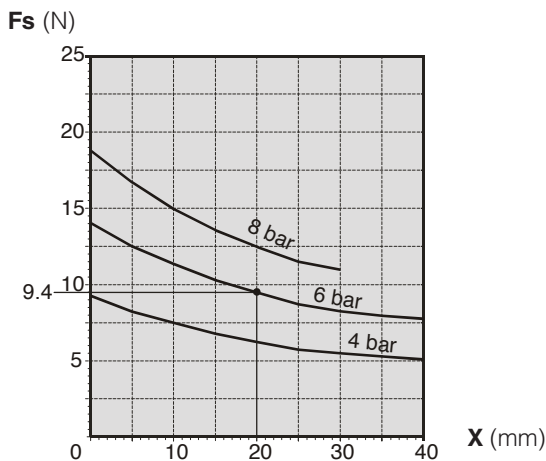
Material

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

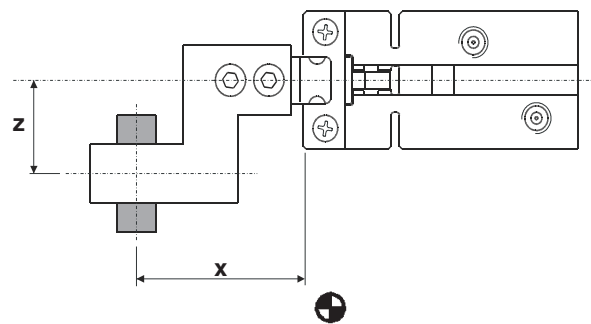
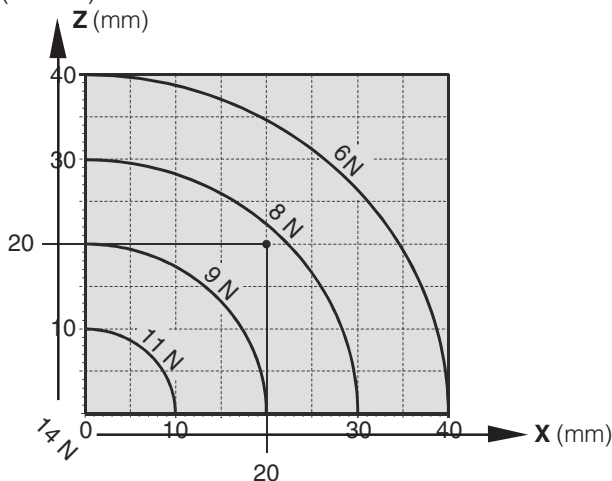
Clamping force per jaw (N) / jaw length (mm)



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

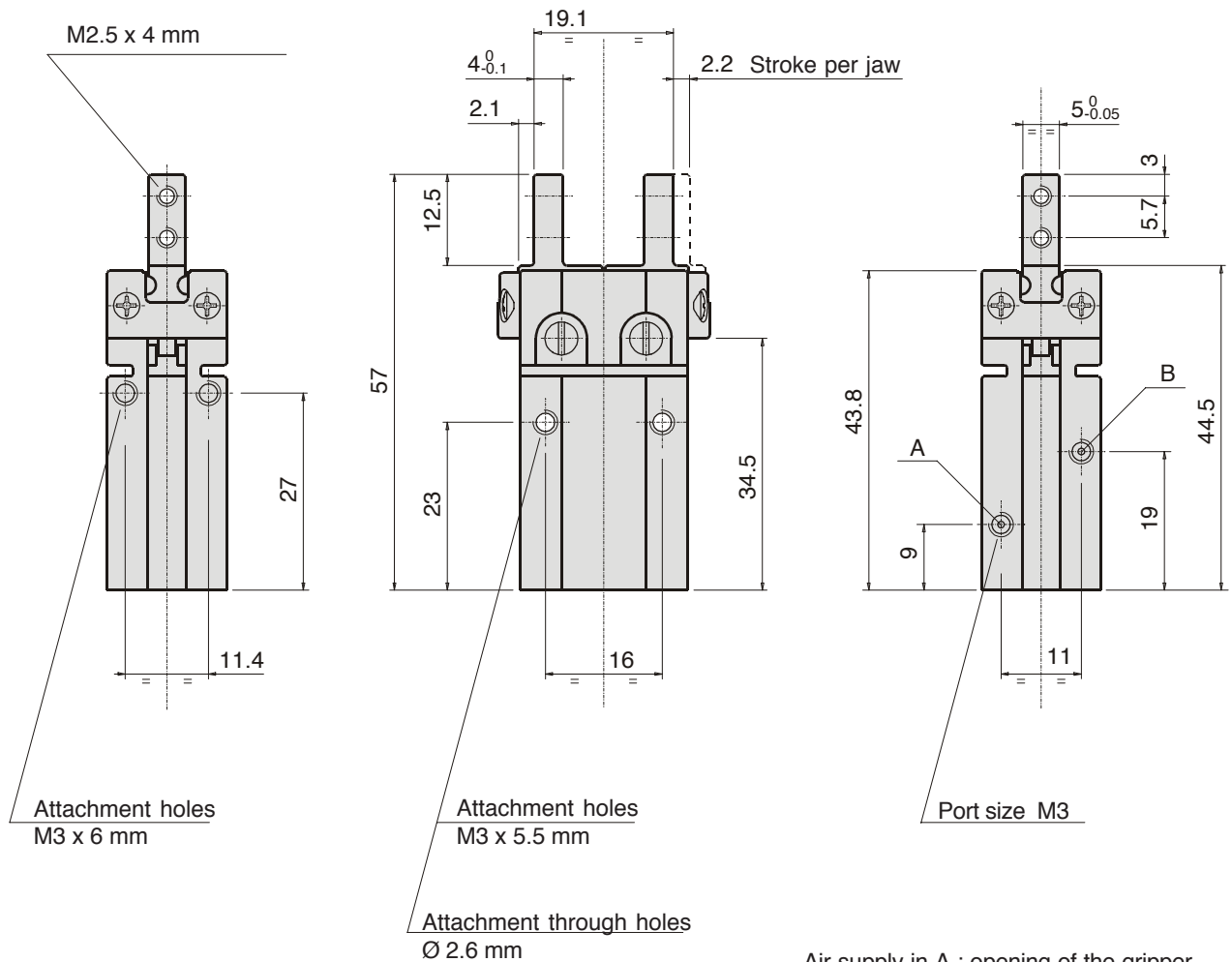
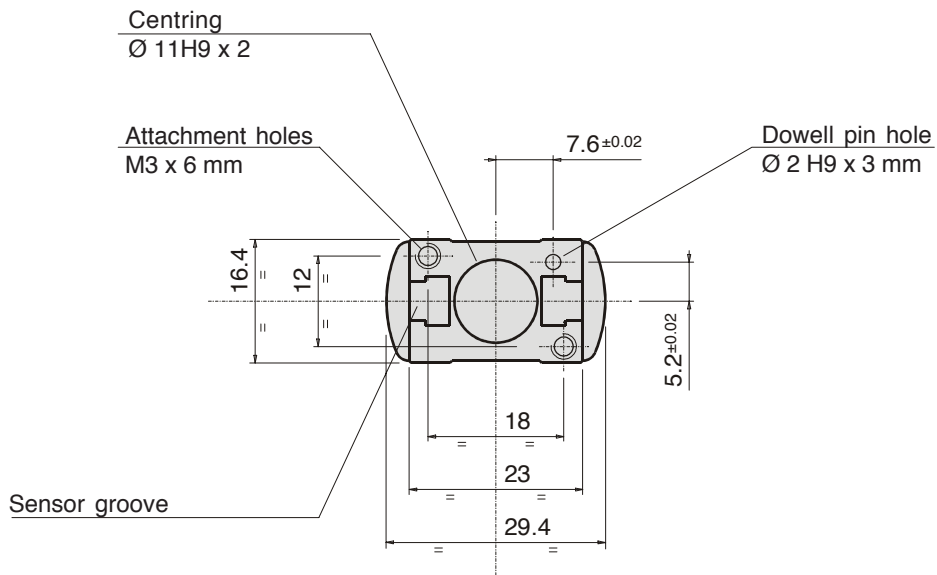
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

(at 6 bar)



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

Dimensions (mm)

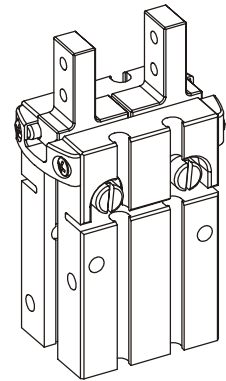


Air supply in A : opening of the gripper

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 (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



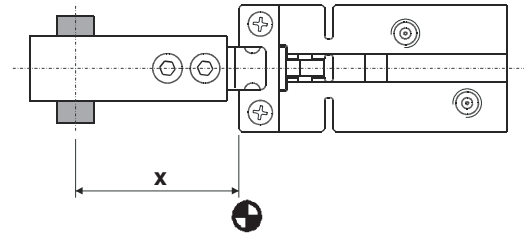
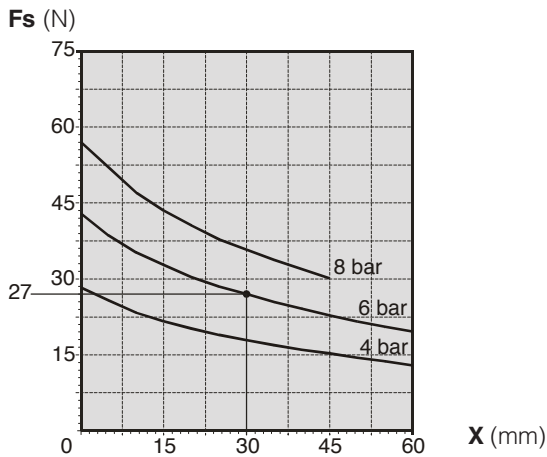
Material

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

Operating information

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

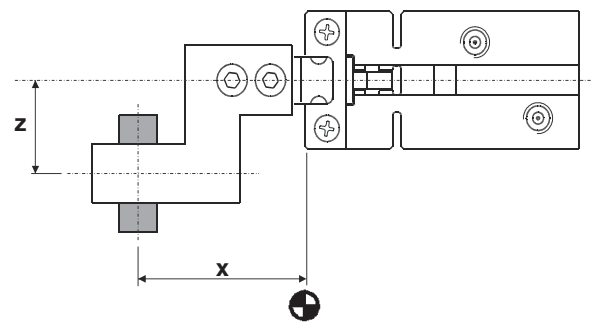
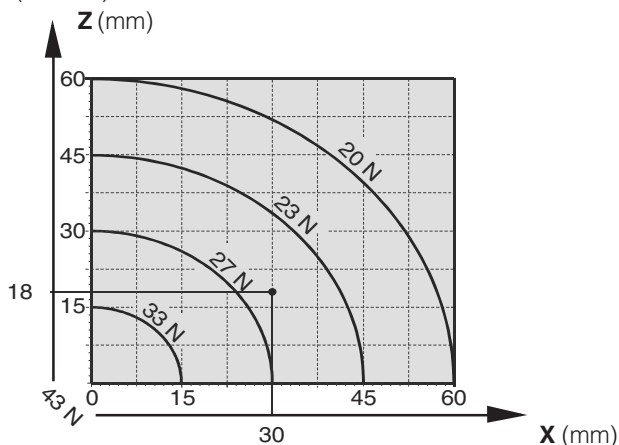
Clamping force per jaw (N) / jaw length (mm)



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

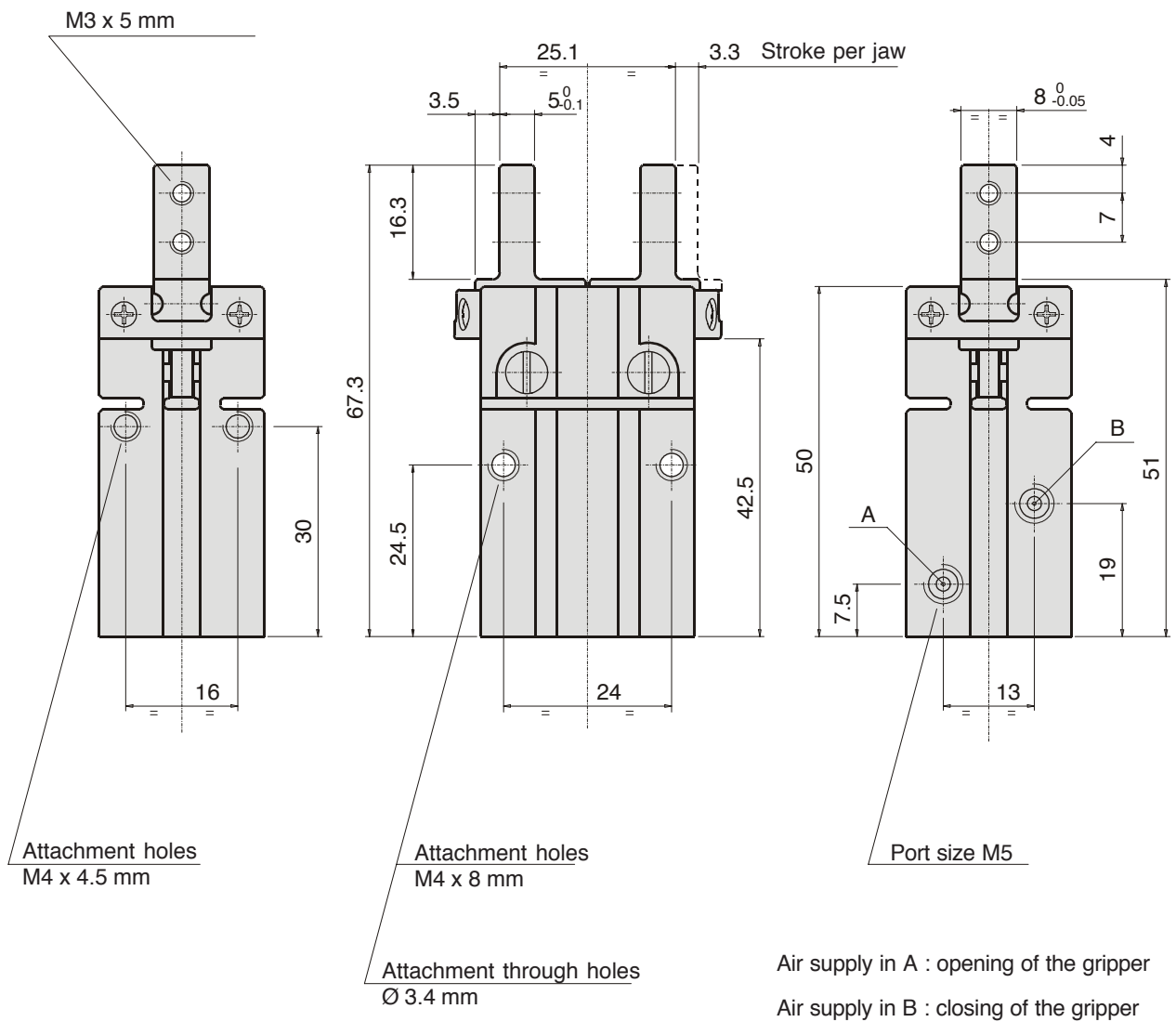
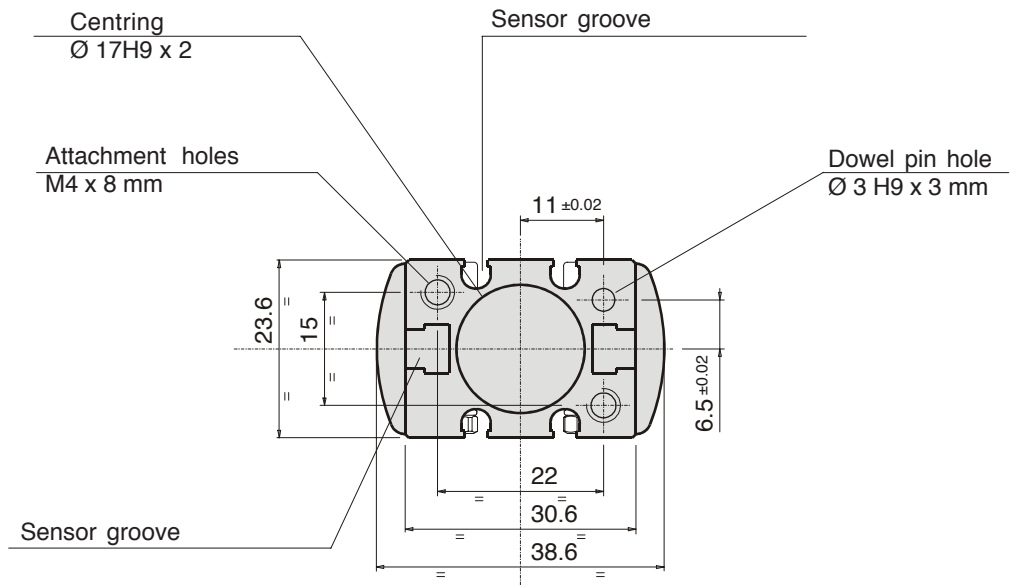
Clamping force per jaw (N) / jaw length and/ jaw offset (mm)

(at 6 bar)



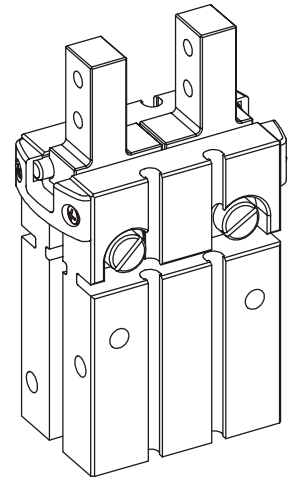
Example : for X = 30mm and Z = 18 mm $F_s = 2 \times 25,2$ N

Dimensions (mm)



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^3 / 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



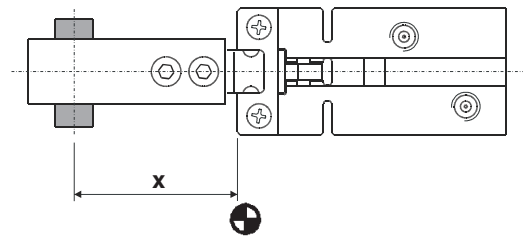
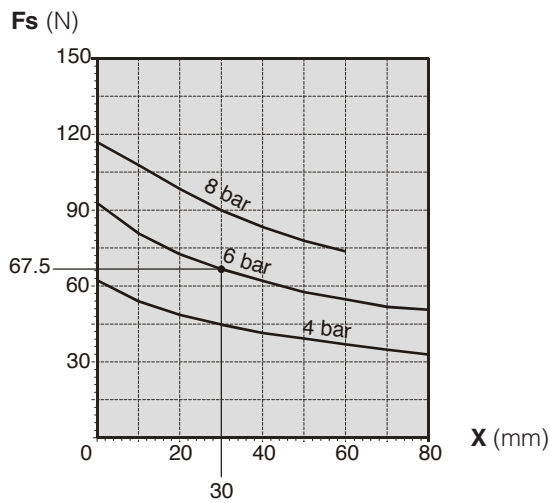
Material

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

Operating information

Pressure (bar)	2,5 to 8
Working temperature ($^{\circ}\text{C}$)	5 to +60
Operation	dry air, lubricated or unlubricated

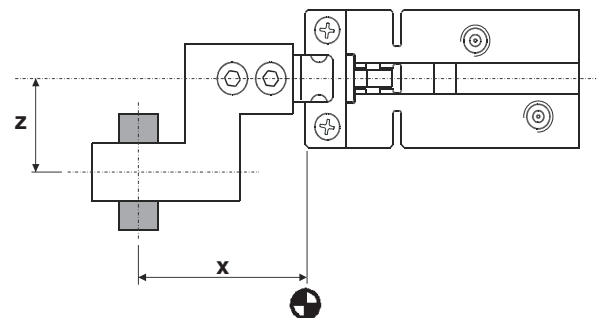
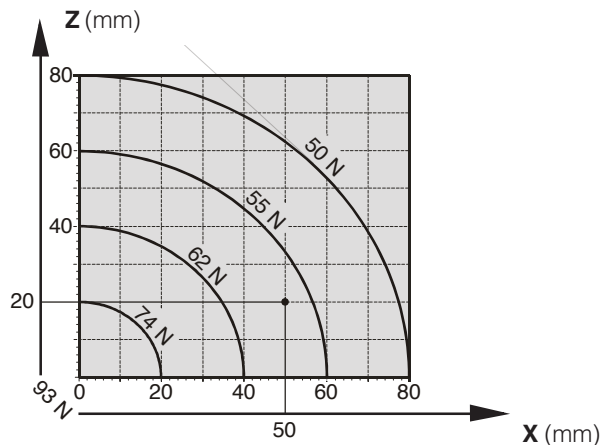
Clamping force per jaw (N) / jaw length (mm)



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

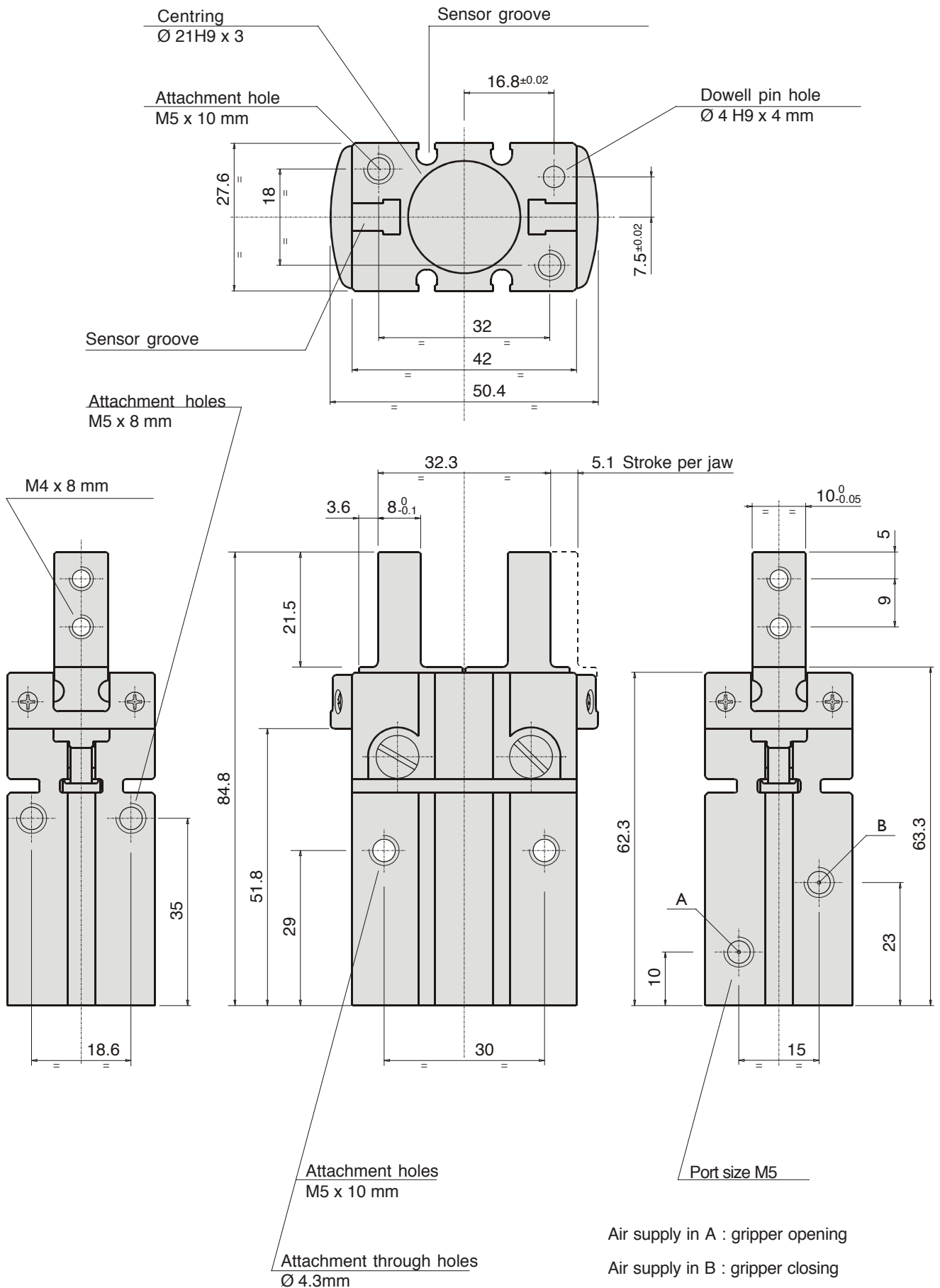
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

(at 6 bar)



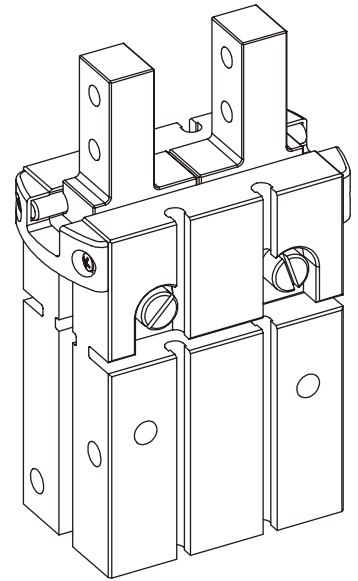
Example : for X = 50mm and Z = 20 mm $F_s = 2 \times 58 \text{ N}$

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 (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



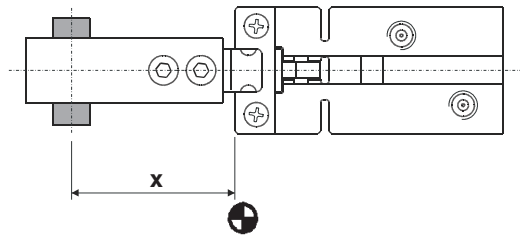
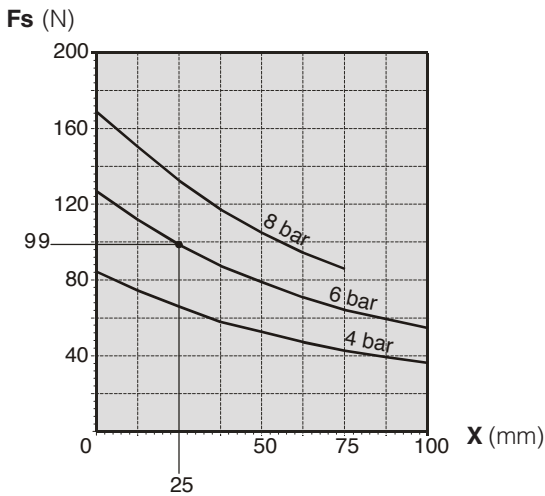
Material

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

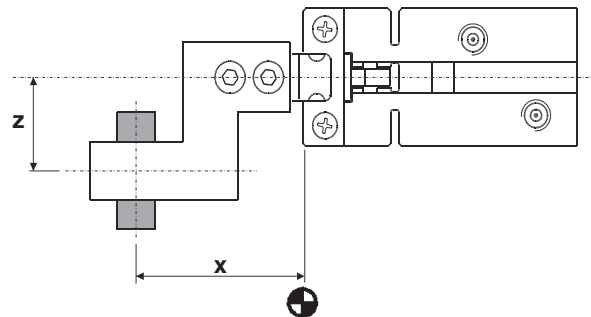
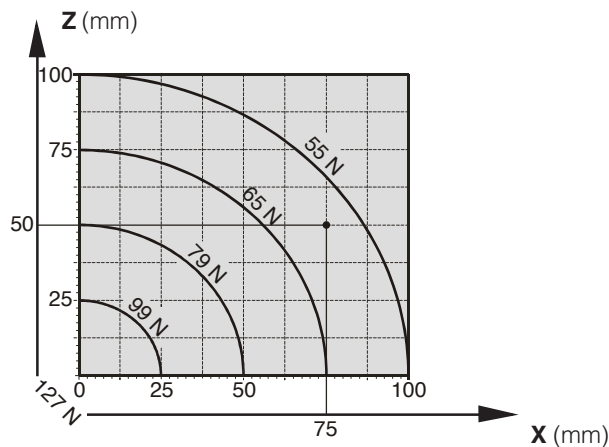
Clamping force per jaw (N) / Jaw length (mm)



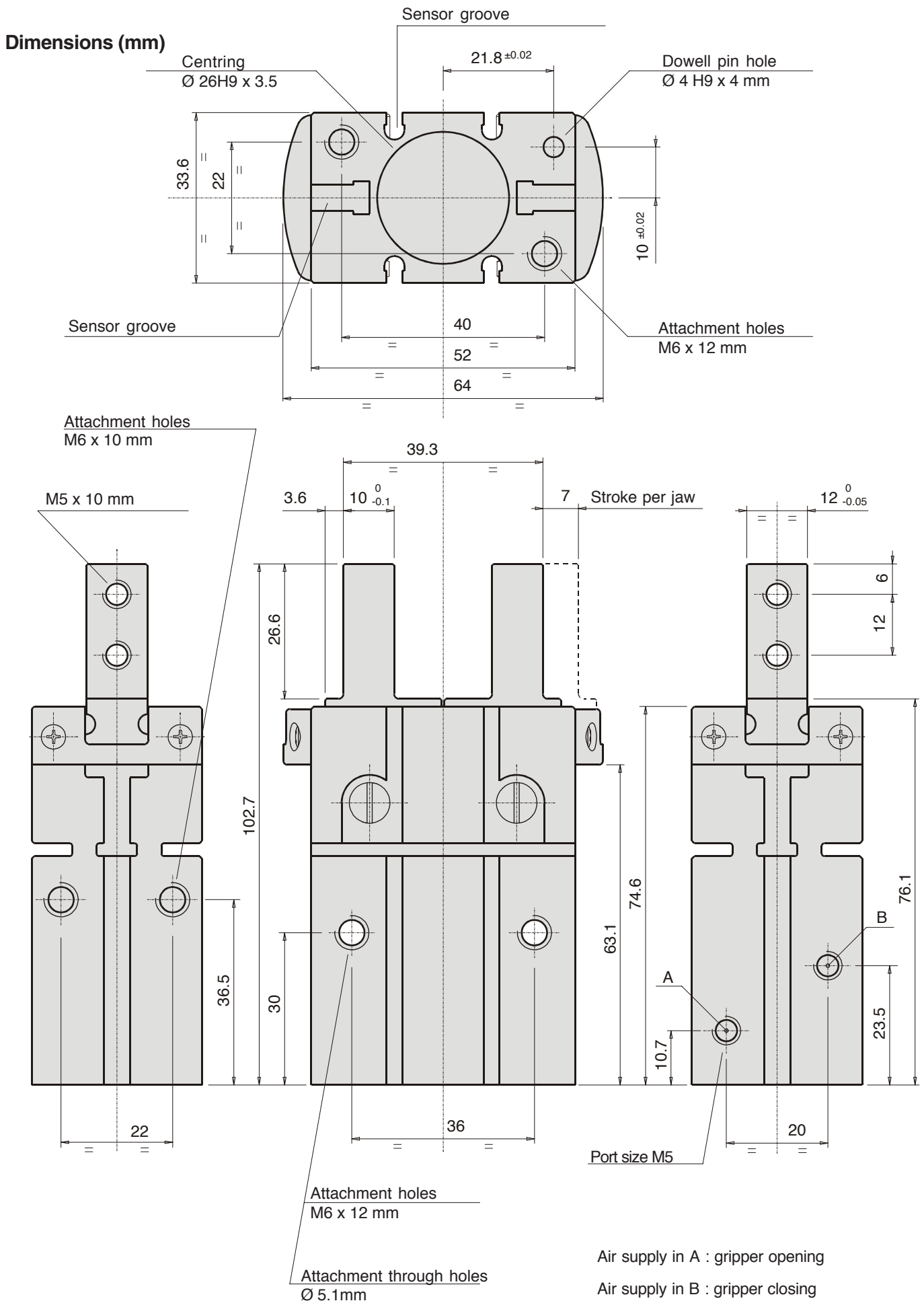
Example : for X = 25 mm, $F_s = 2 \times 99 \text{ N}$

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

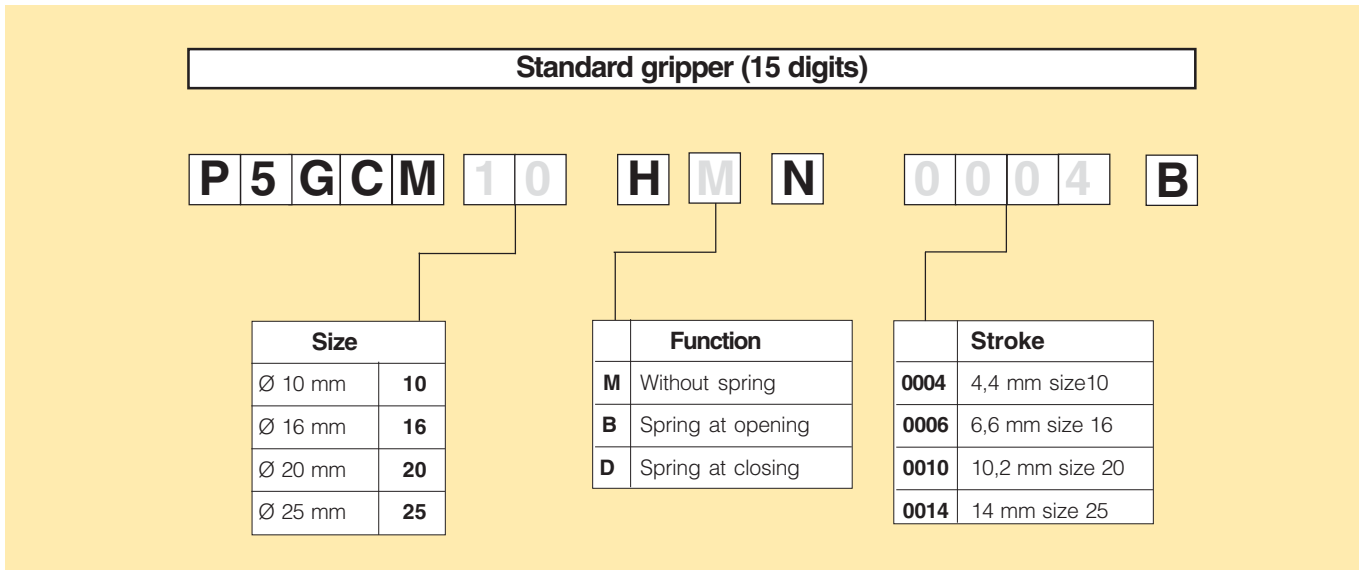
(at 6 bar)



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



Order key

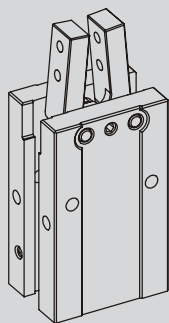


Nota : all grippers are equipped with a magnet for sensing.

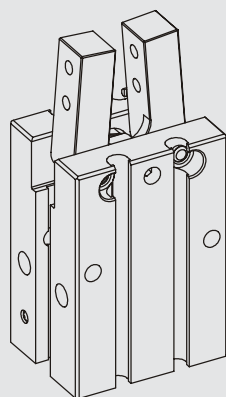
Example :

Parallel gripper, size 16 without spring :

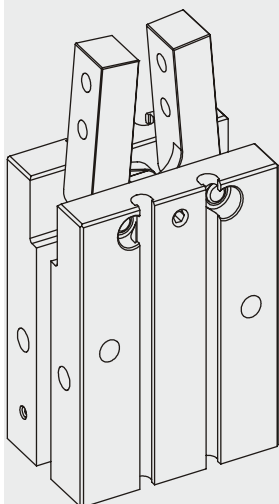
Order code : **P5GCM16HMN0006B**

**Size 10**

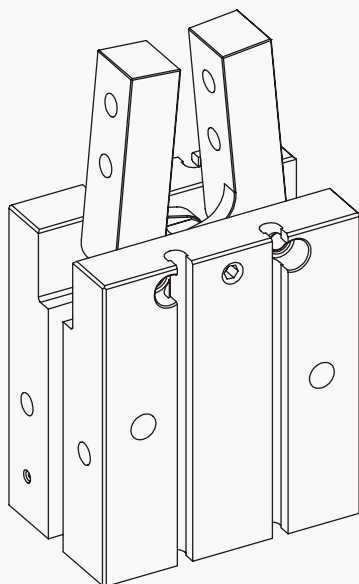
Csf = 0,16 Nm
Fsf = 8 N
s = 40°
m = 0,039 kg
Cso = 0,22 Nm
Fso = 11 N

**Size 16**

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

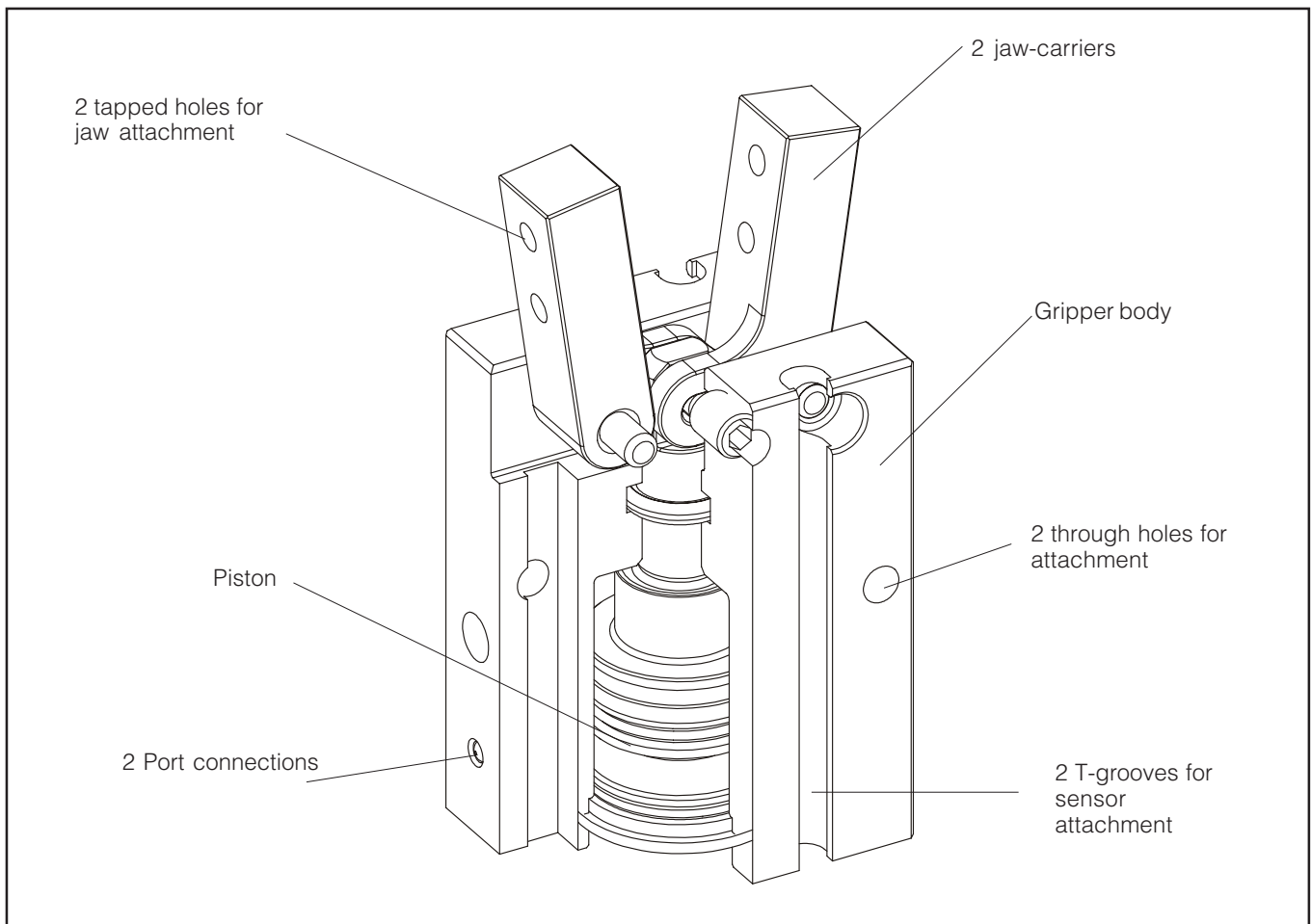
**Size 20**

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.

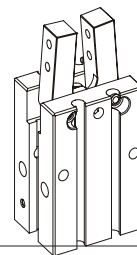
Reliability

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

Standard version

Double acting, square jaw-carriers

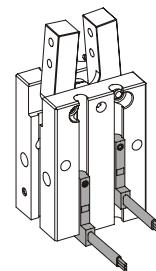
Gripper is opened and closed by pneumatic pressure.
 No self-locking in closed position.
 4 sizes available.



Options

Sensors

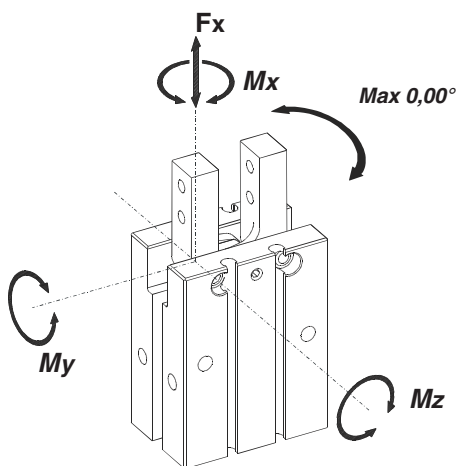
Check on opening and closing of the gripper by means of magneto-inductive sensors.



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



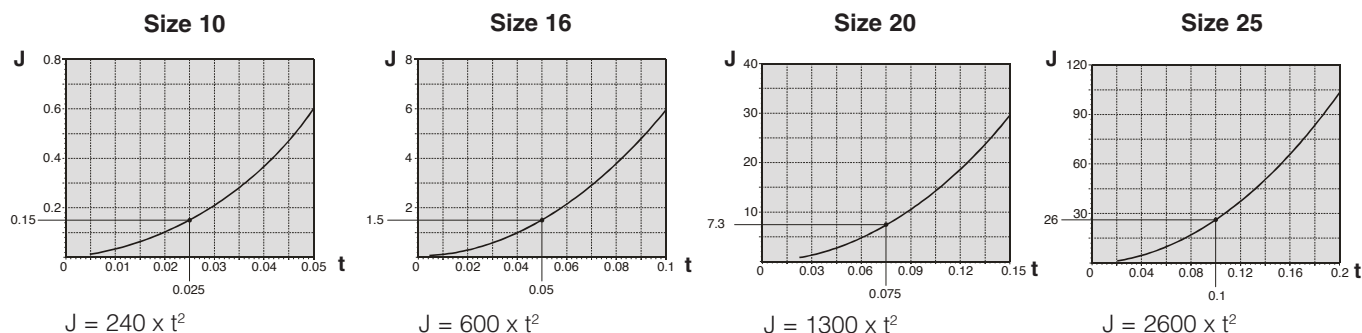
Static

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 (kgcm²)/ closing or opening time (s) :



For a 0,15 kgcm² inertia one of the 2 jaws, the closing or opening time of the gripper is 0,025s for a **size 10**.

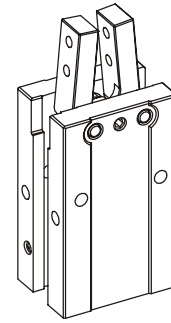
These indications should not be exceeded if :

- 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 ³ / 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



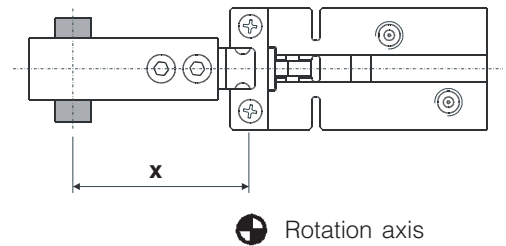
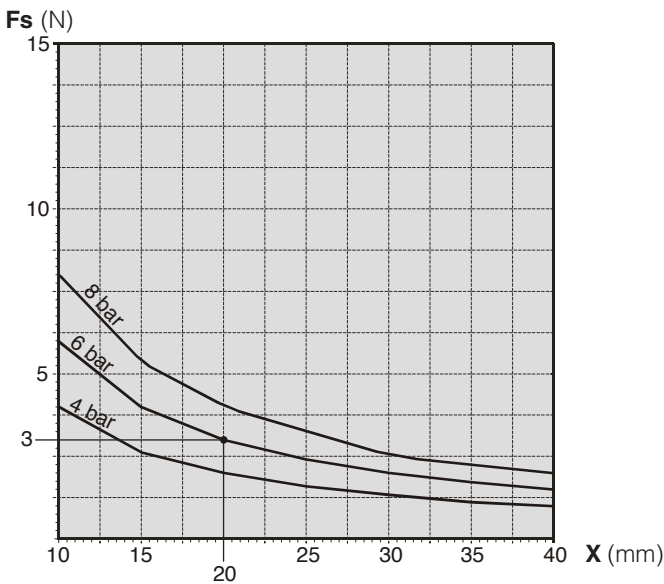
Material

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)

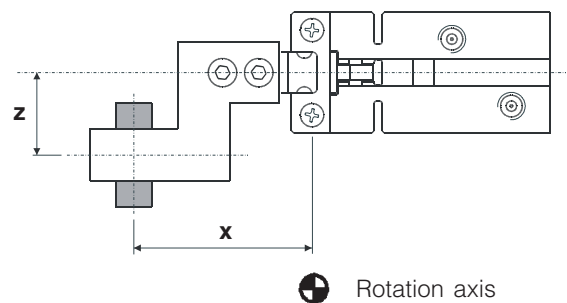


Example : for X = 20 mm, Fs = 2 x 3 N

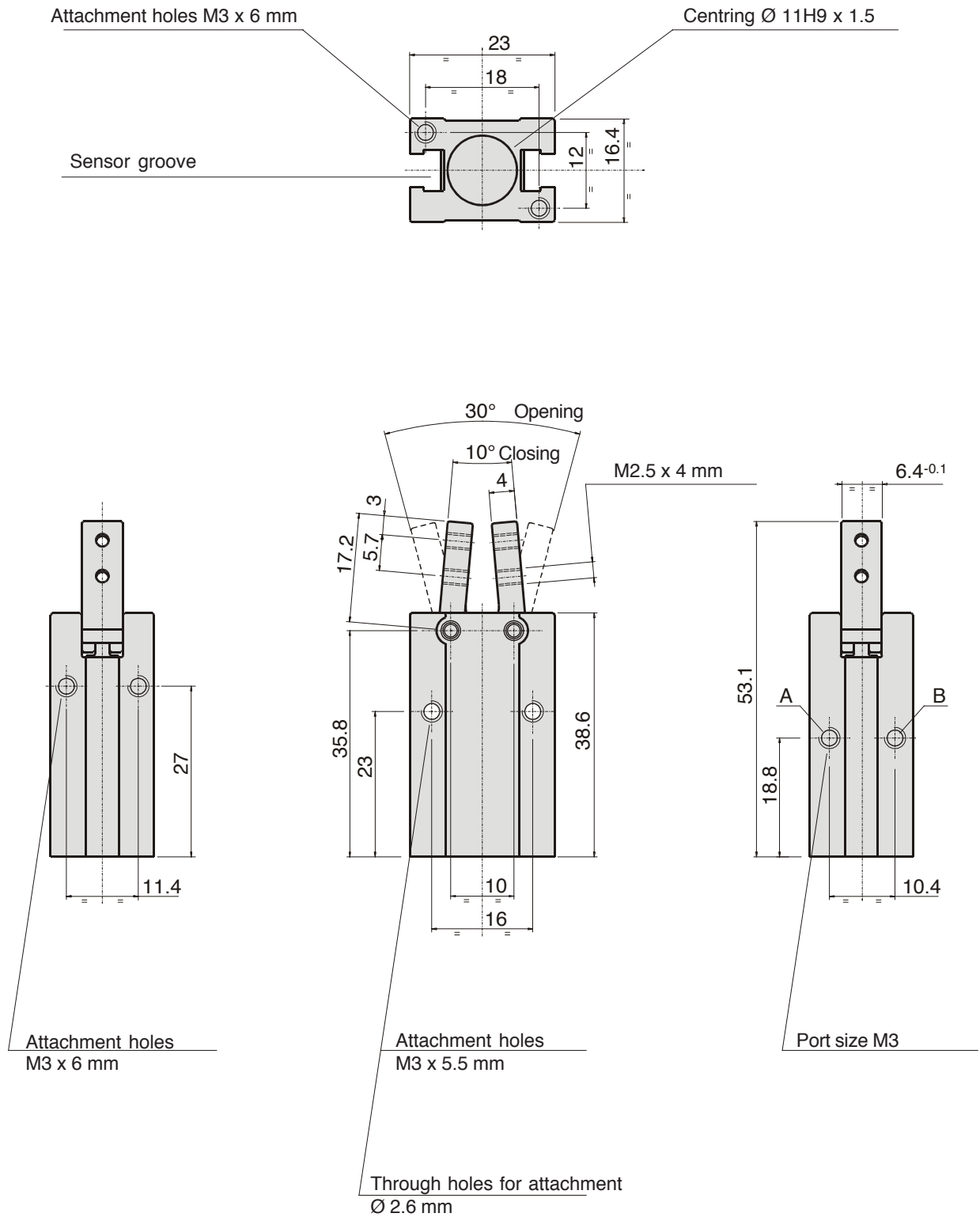
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

Use the above graph ignoring the jaw offset values Z.

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



Dimensions (mm)

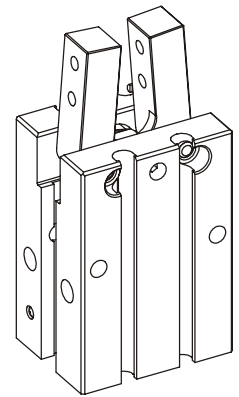


Air supply in A : gripper opening

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 ³ / 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



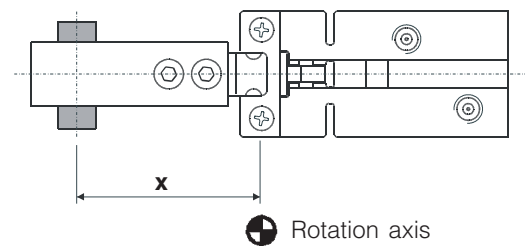
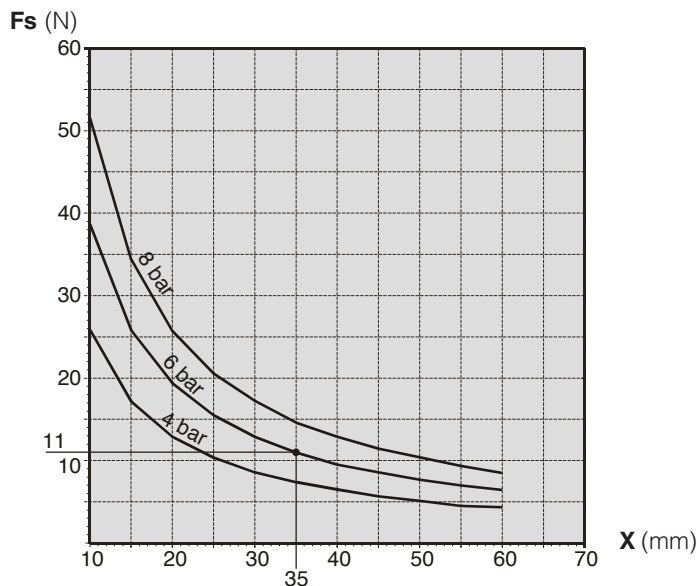
Material

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)

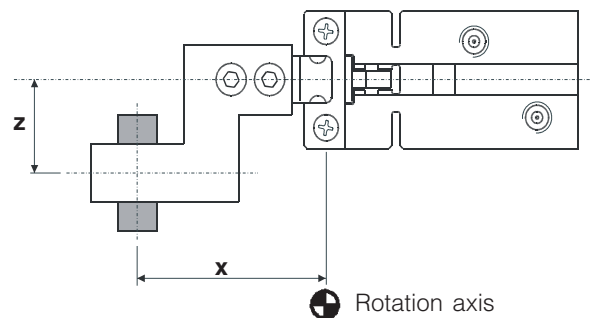


Example : for X= 35 mm, Fs = 2 x 11 N

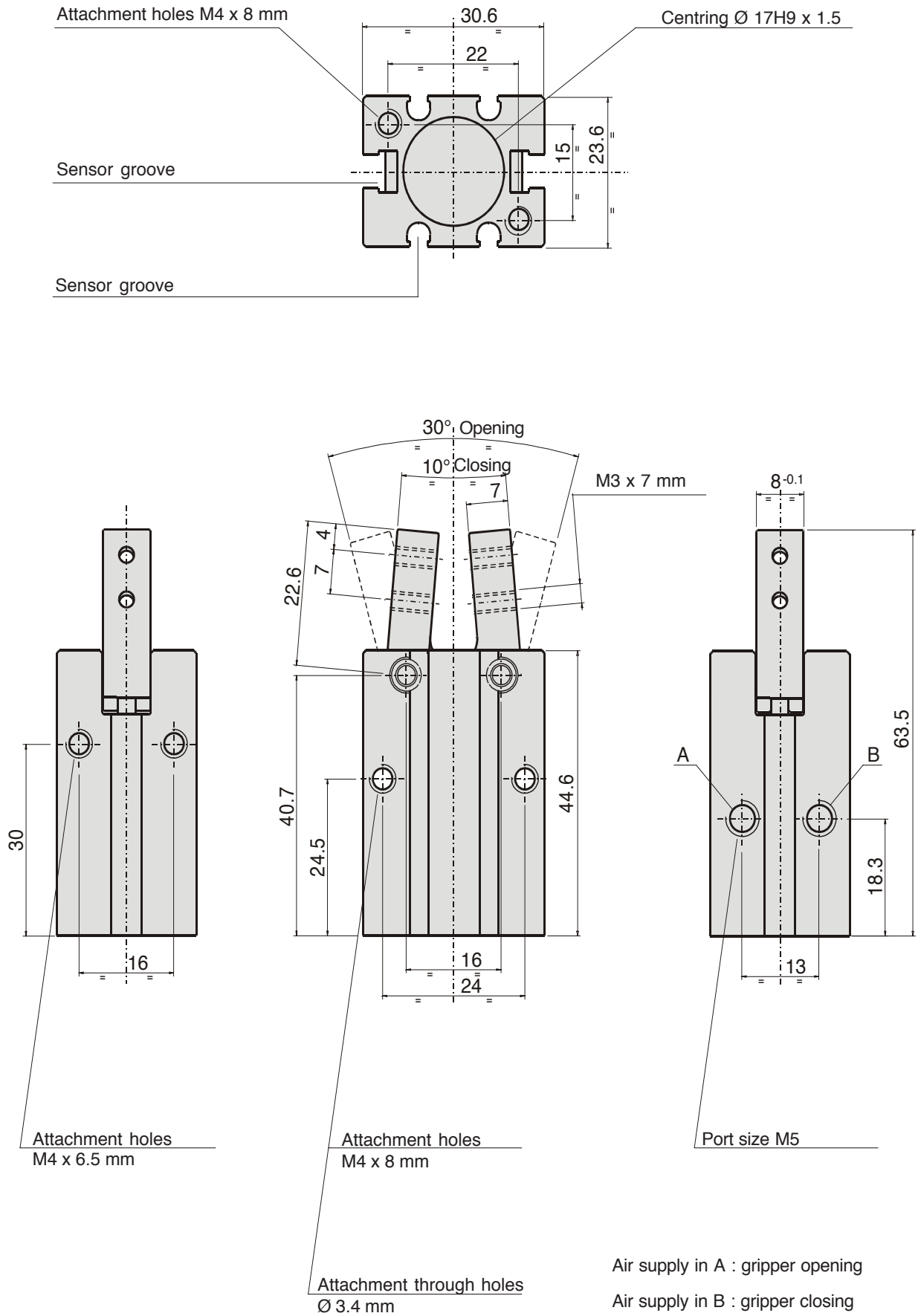
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

Use the above graph ignoring the jaw offset value Z.

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

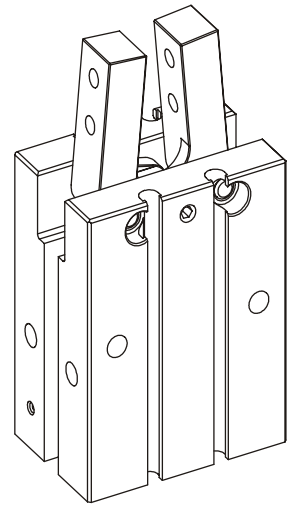


Dimensions (mm)



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 ³ / 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



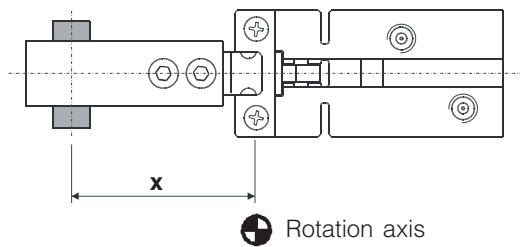
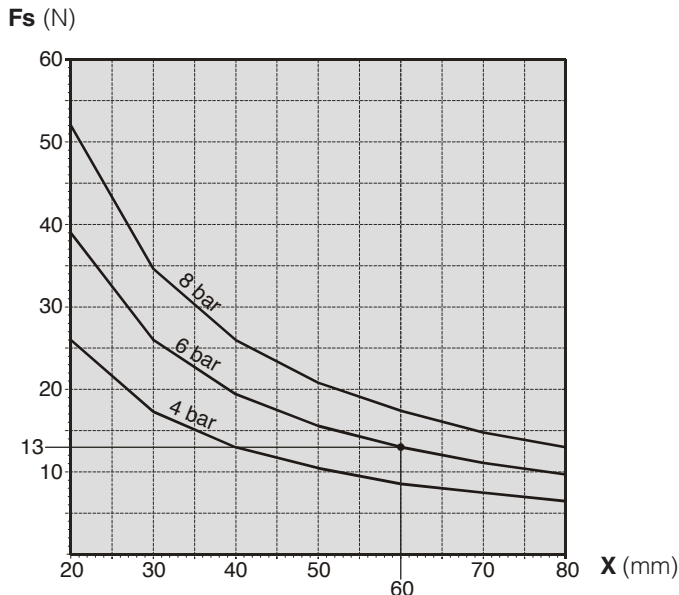
Material

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)

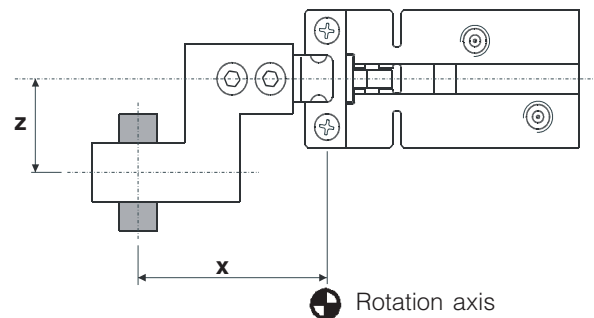


Example : for X = 60 mm, Fs = 2 x 13 N

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

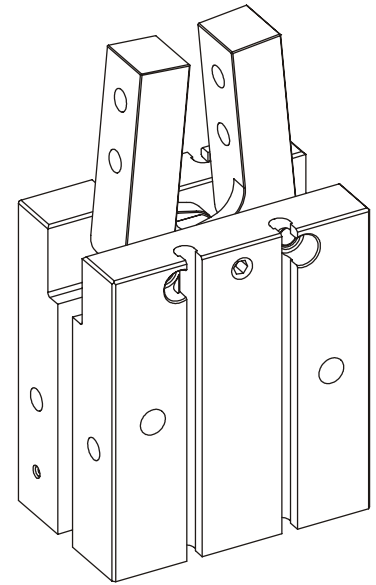
Use the above graph ignoring the jaw offset value Z.

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



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



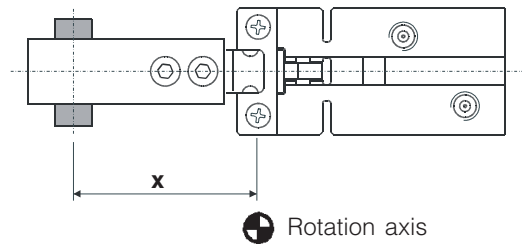
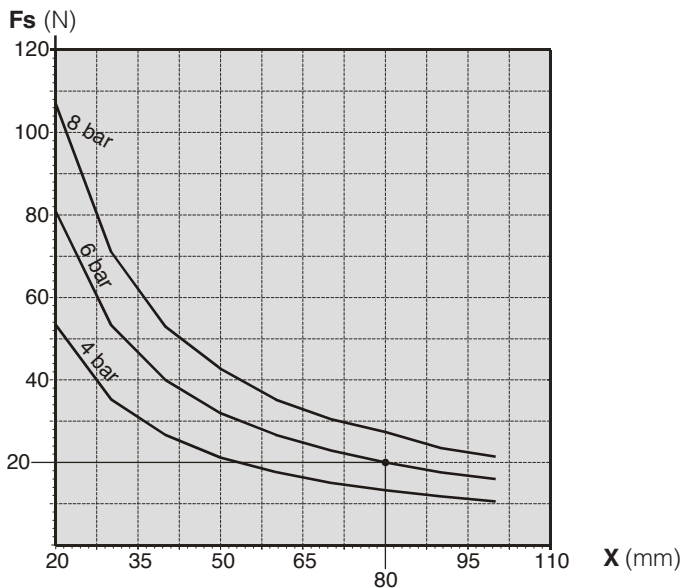
Material

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)

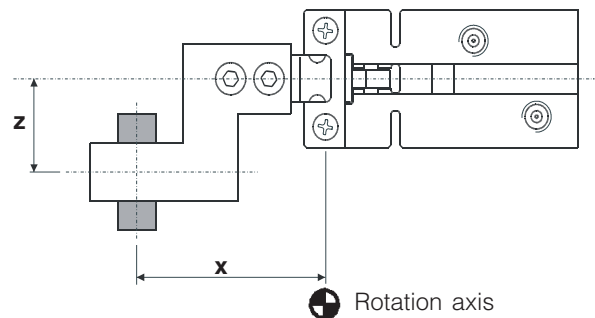


Example : for X = 80 mm, Fs = 2 x 20 N

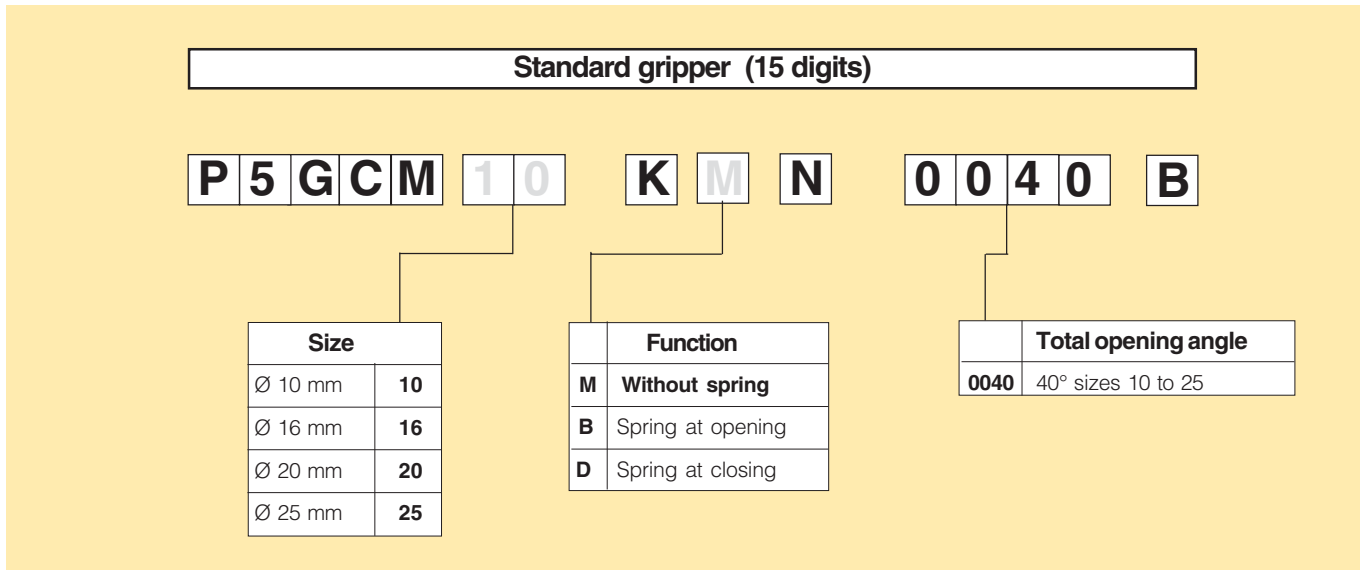
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

Use the above graph ignoring the jaw offset value Z.

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



Order key

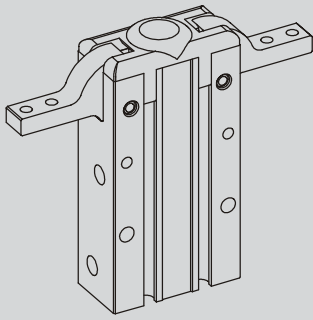


Nota : tall grippers are equipped with a magnet for sensing.

Example :

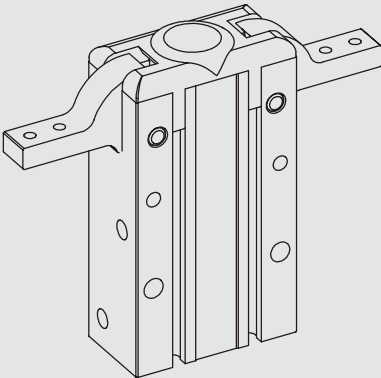
Angular gripper, size 16 without spring :

Order code : **P5GCM16KMN0040B**



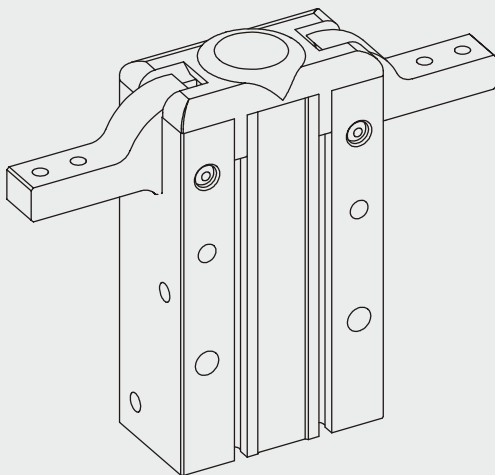
Size 10

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



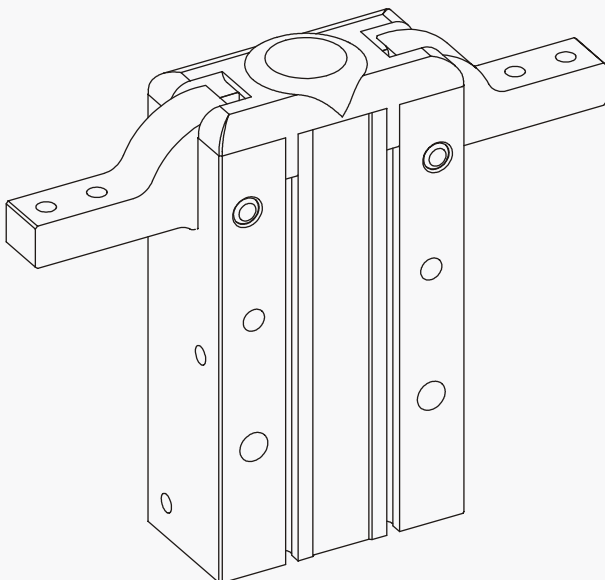
Size 16

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



Size 20

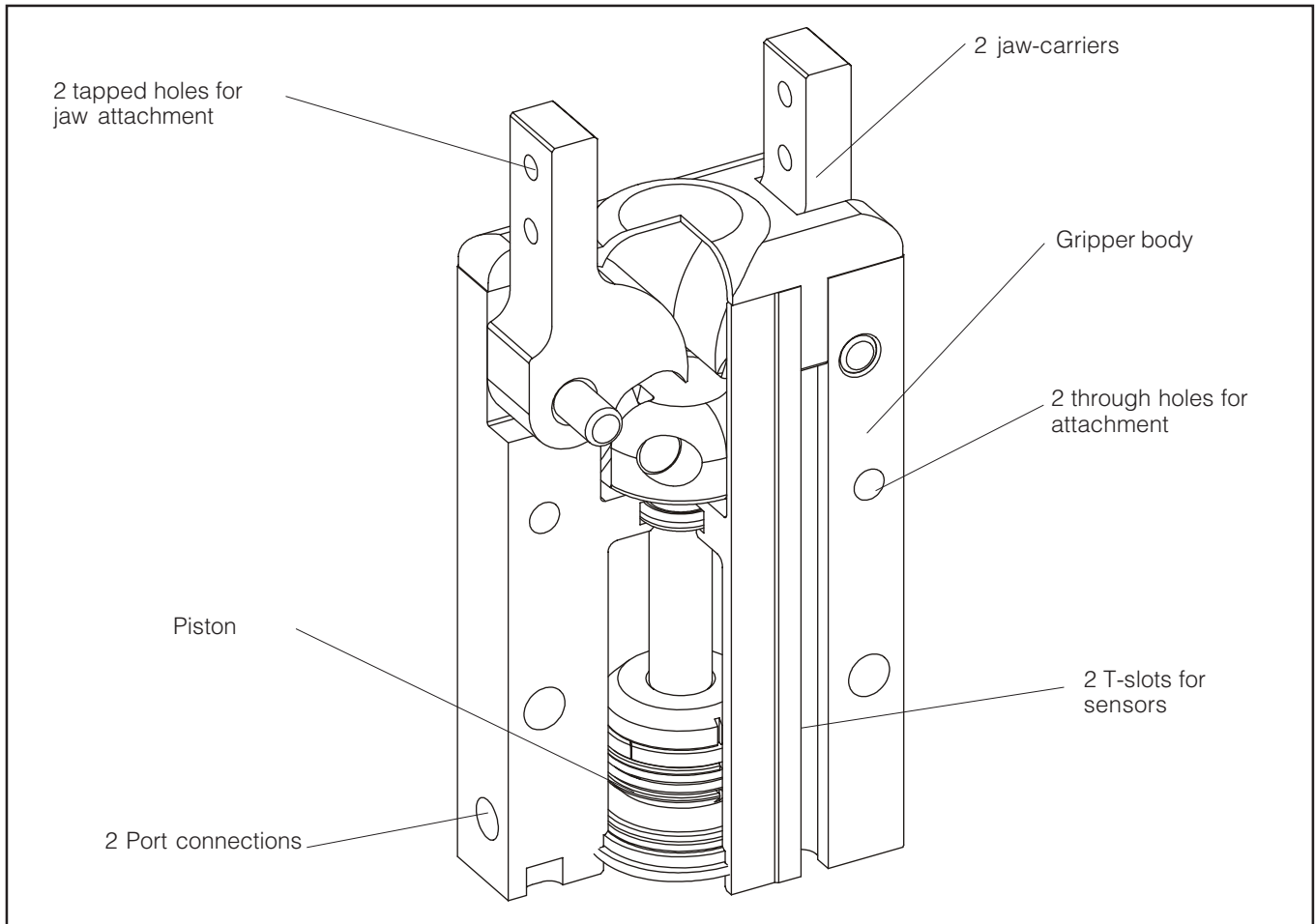
Csf = 4,56 Nm
Fsf = 228 N
s = 180°
m = 0,309 kg
Cso = 5,20 Nm
Fso = 260 N



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.

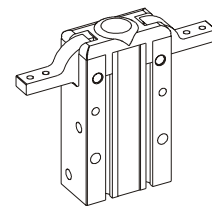
Reliability

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

Standard version

Double acting, square jaw carriers

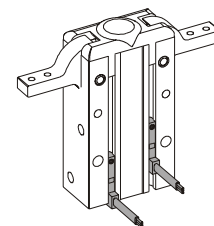
Gripper is opened and closed by pneumatic pressure.
Automatic grip retention by mechanical system.
4 sizes available.



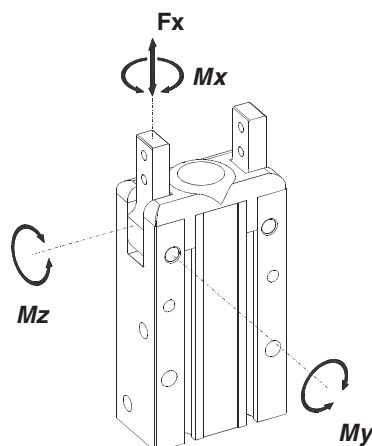
Options

Detection

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



Permissible forces on each jaw carrier



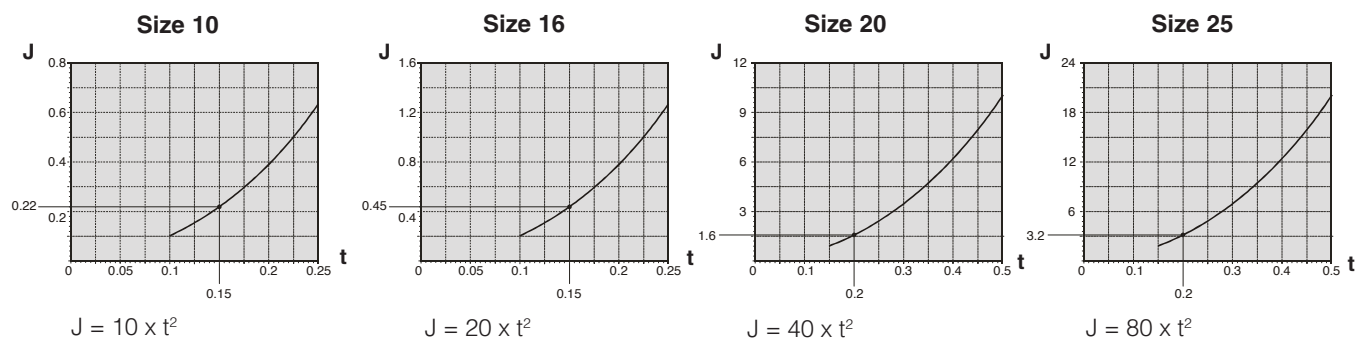
Static

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 (kgcm²)/ closing or opening time (s) :



For a inertia of one of the 2 jaws of 0,22 kgcm², the opening or closing time of the gripper is 0,15 s for a **size 10**.

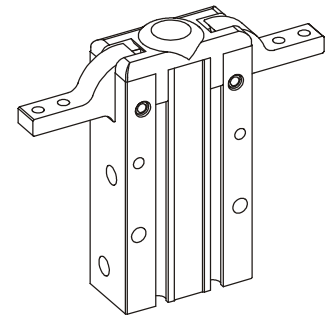
These indications should not be exceeded if :

- 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 ³ / 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



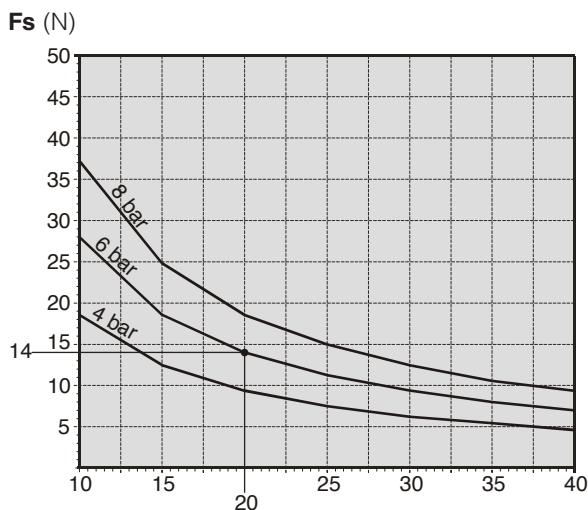
Material

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

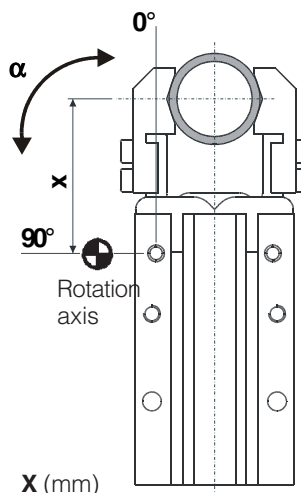
Operating information

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)



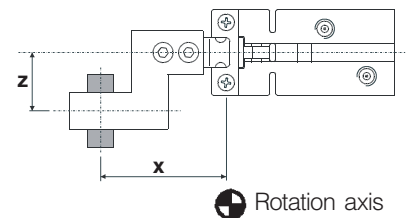
Example : for X = 20 mm, Fs = 2 x 14 N



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

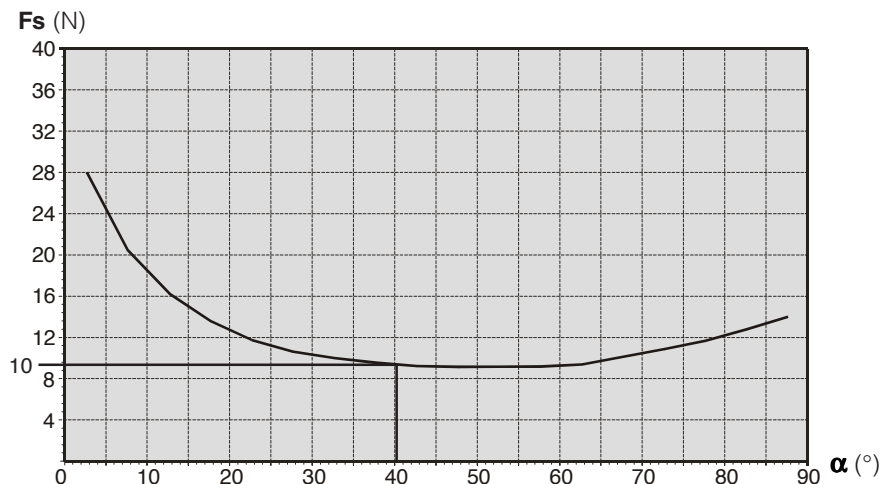
Use the opposite graph ignoring the jaw offset value Z.

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



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

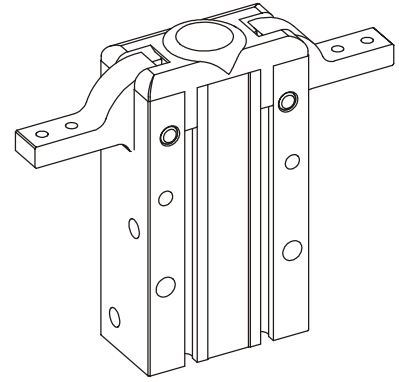
(at 6 bar)



Example : for α = 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



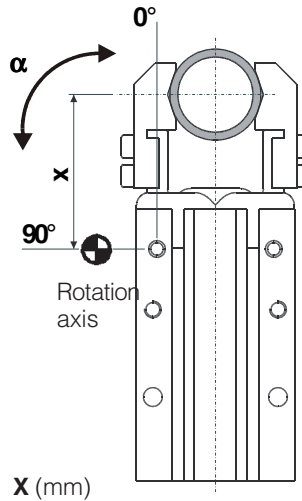
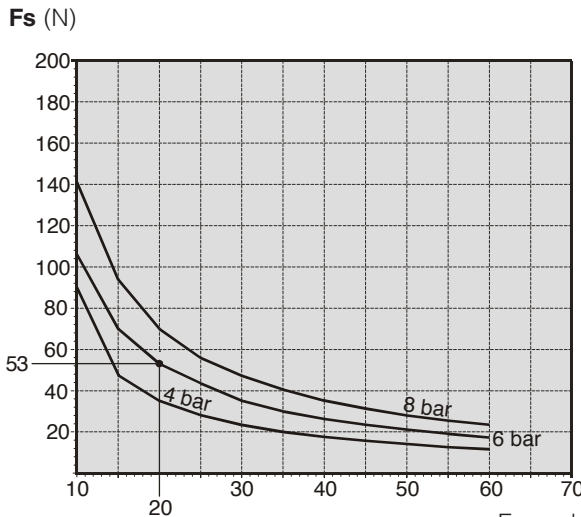
Material

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

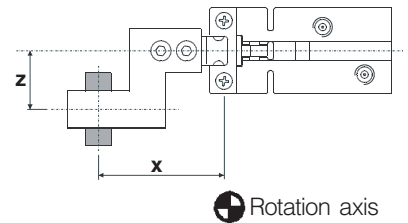
Clamping force per jaw (N) / jaw length (mm)



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

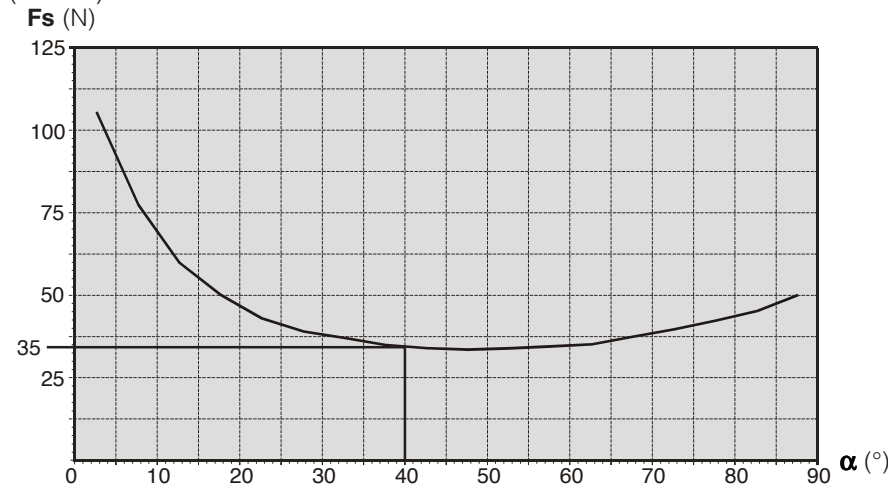
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

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



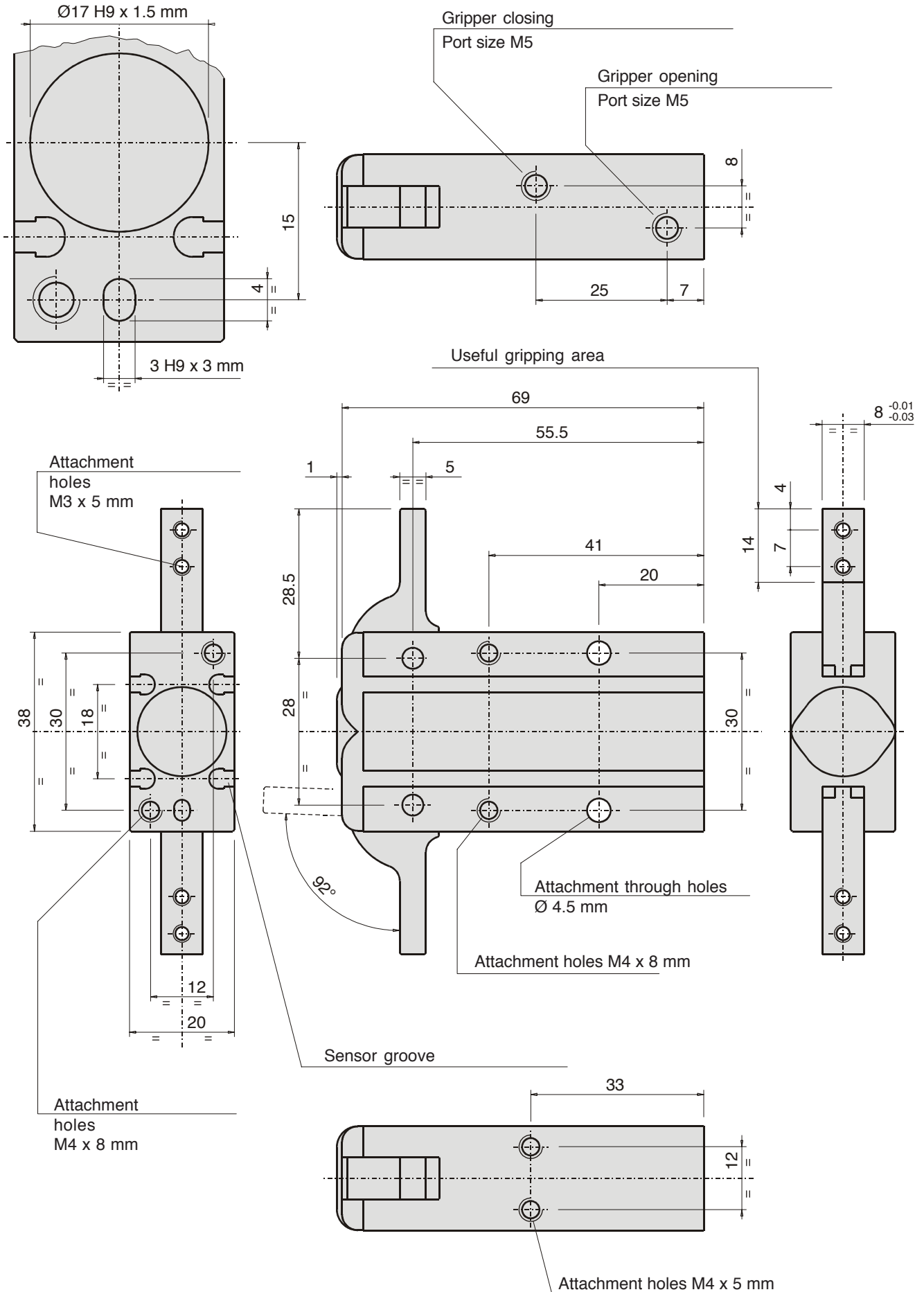
Clamping force per jaw (N) / jaw opening (°)

(at 6 bar)



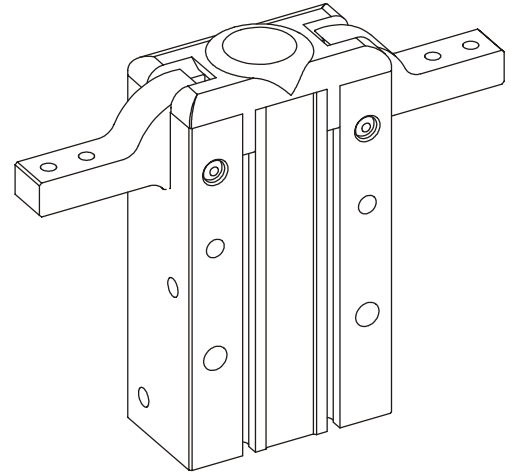
Example : for alpha = 40° , Fs = 2 x 35 N

Dimensions (mm)



Technical information

Opening angle (°) (±1°)	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
Ø piston bore (mm)	20
Ø port size (mm)	M5
Air consumption at 6 bar (cm ³ / cycle)	14
Repeatability (°)	±0,06
Max. working frequency (Hz)	2
Min. closing time (s)	0,15
Max. jaw length (mm)	80
Mass (kg)	0,309



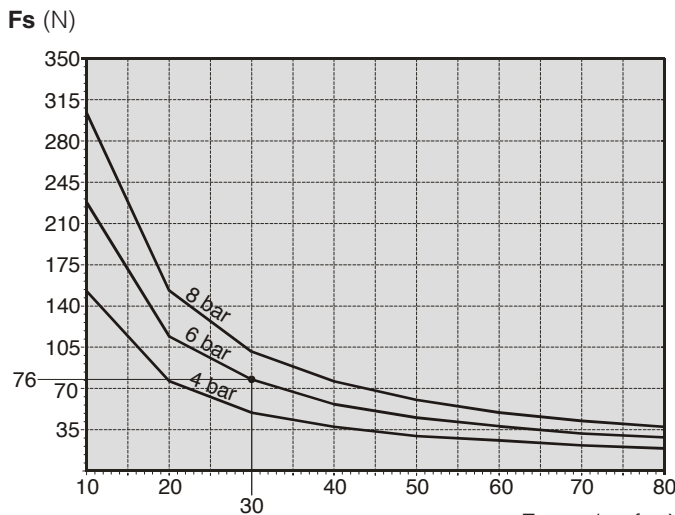
Material

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

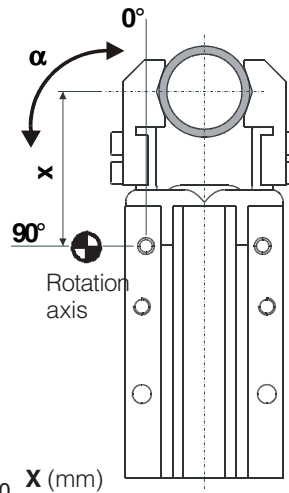
Operating information

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)

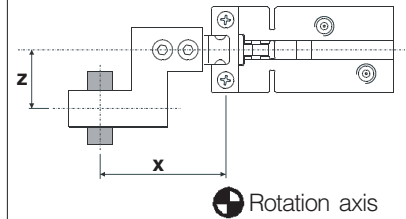


Example : for X = 30 mm, Fs = 2 x 76 N

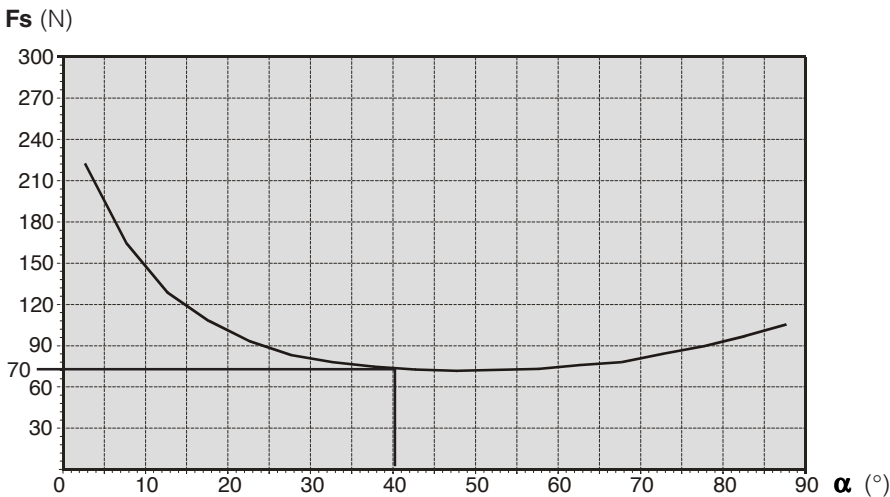


Clamping force per jaw (N) / jaw length and / jaw offset (mm)

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

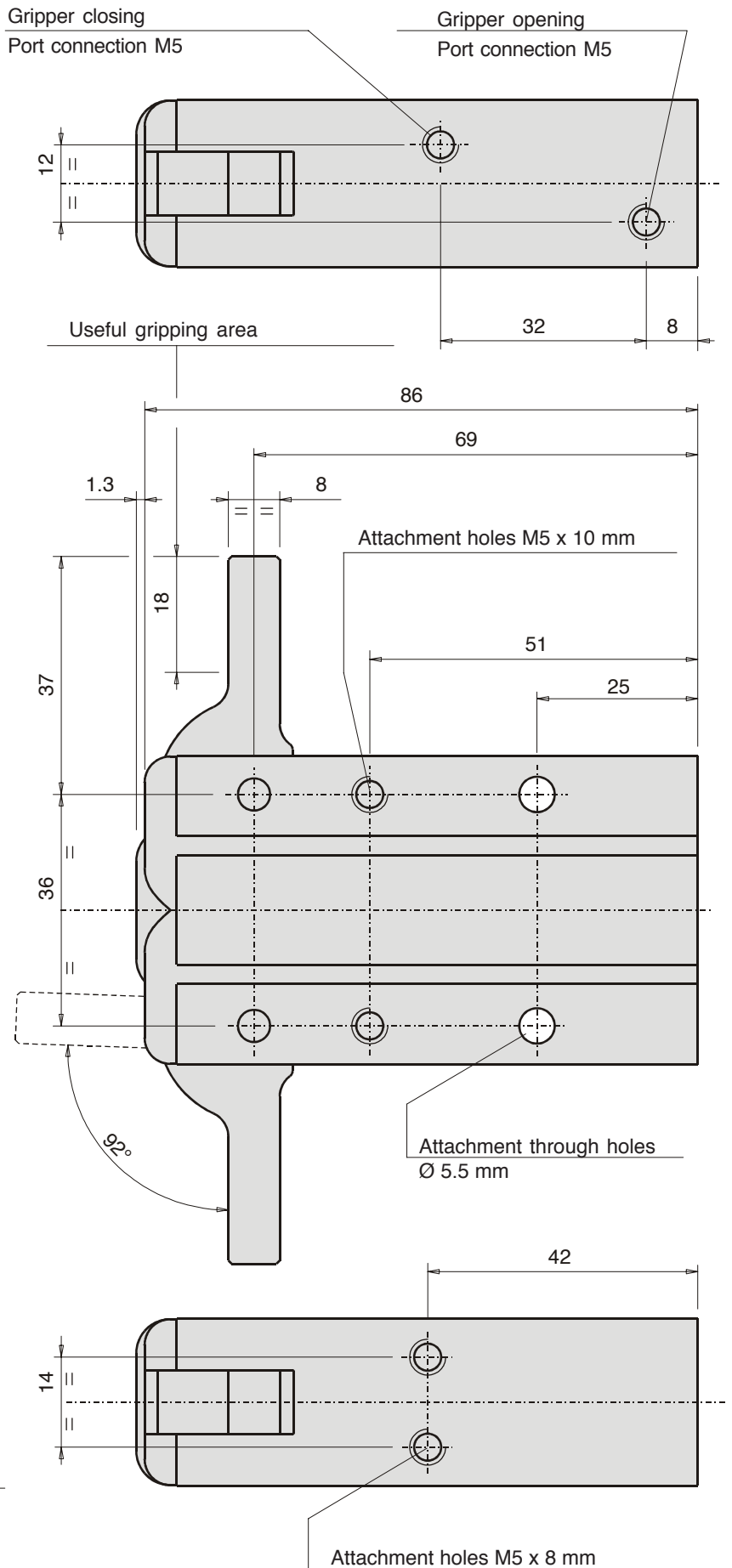
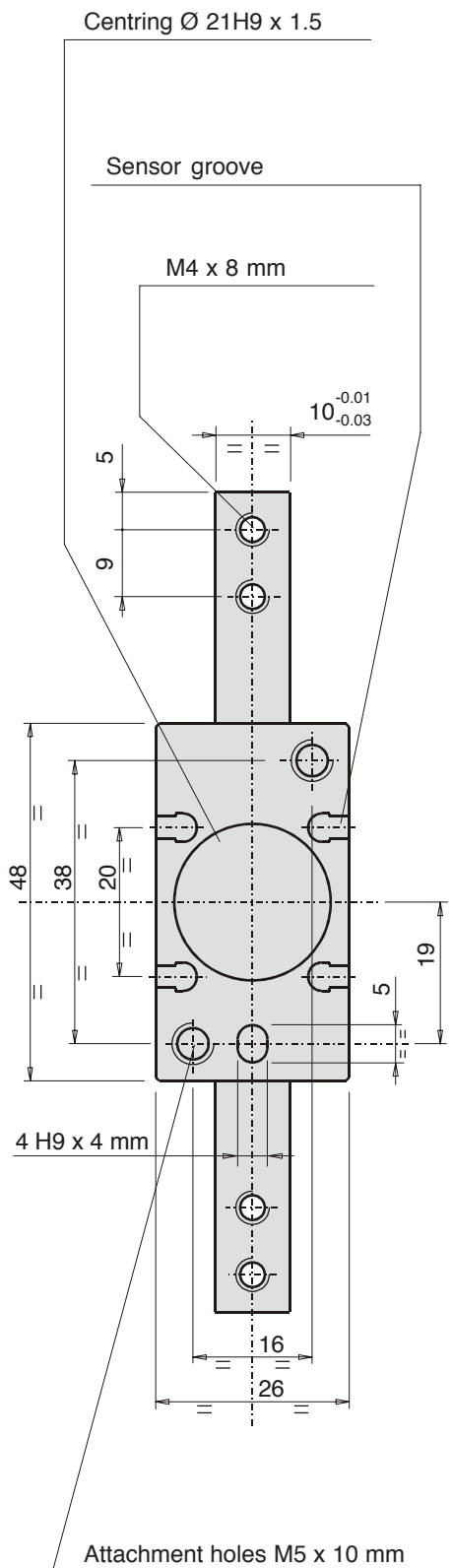


Clamping force per jaw (N) / jaw opening (°) (at 6 bar)



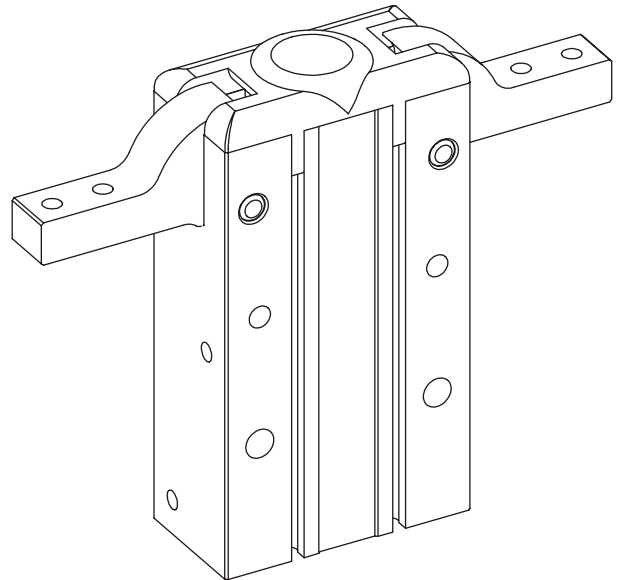
Example : for α = 40° , Fs = 2 x 70 N

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



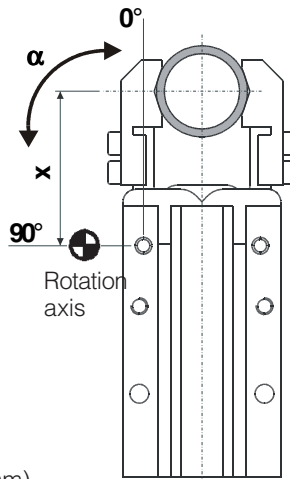
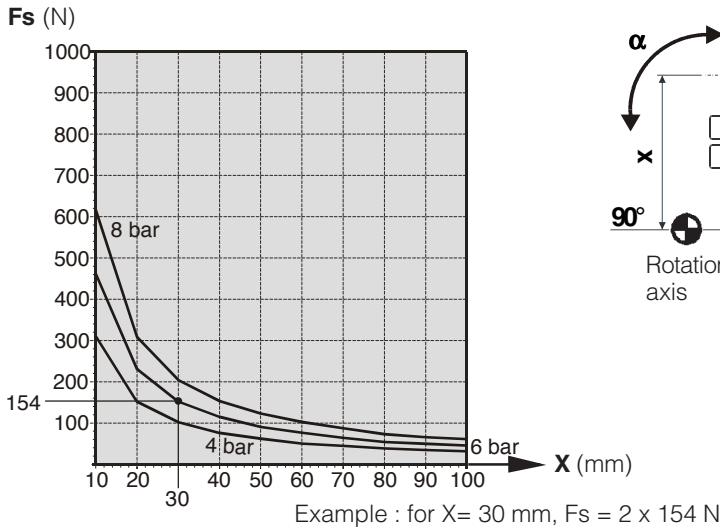
Material

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

Operating information

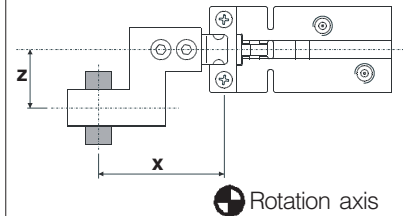
Pressure (bar)	2,5 to 8
Working temperature (°C) (with or without sensor)	5 to +60
Operation	dry air, lubricated or unlubricated

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



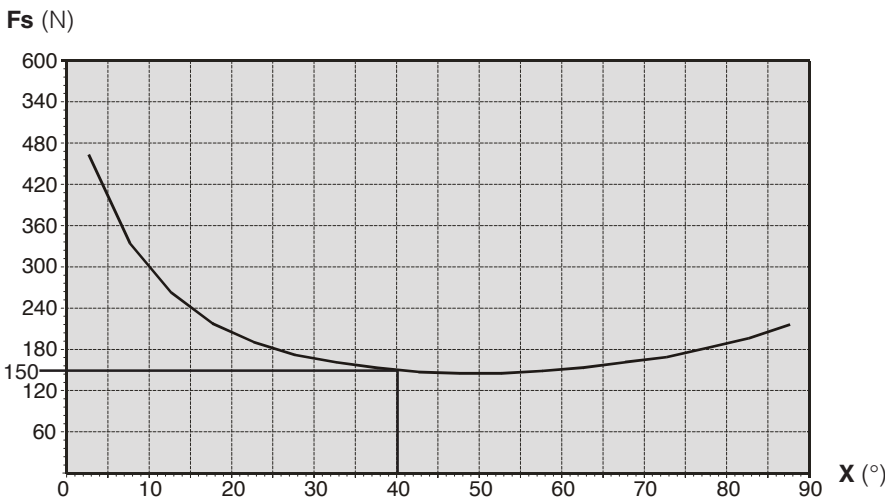
Clamping force per jaw (N) / jaw length and / jaw offset (mm)

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



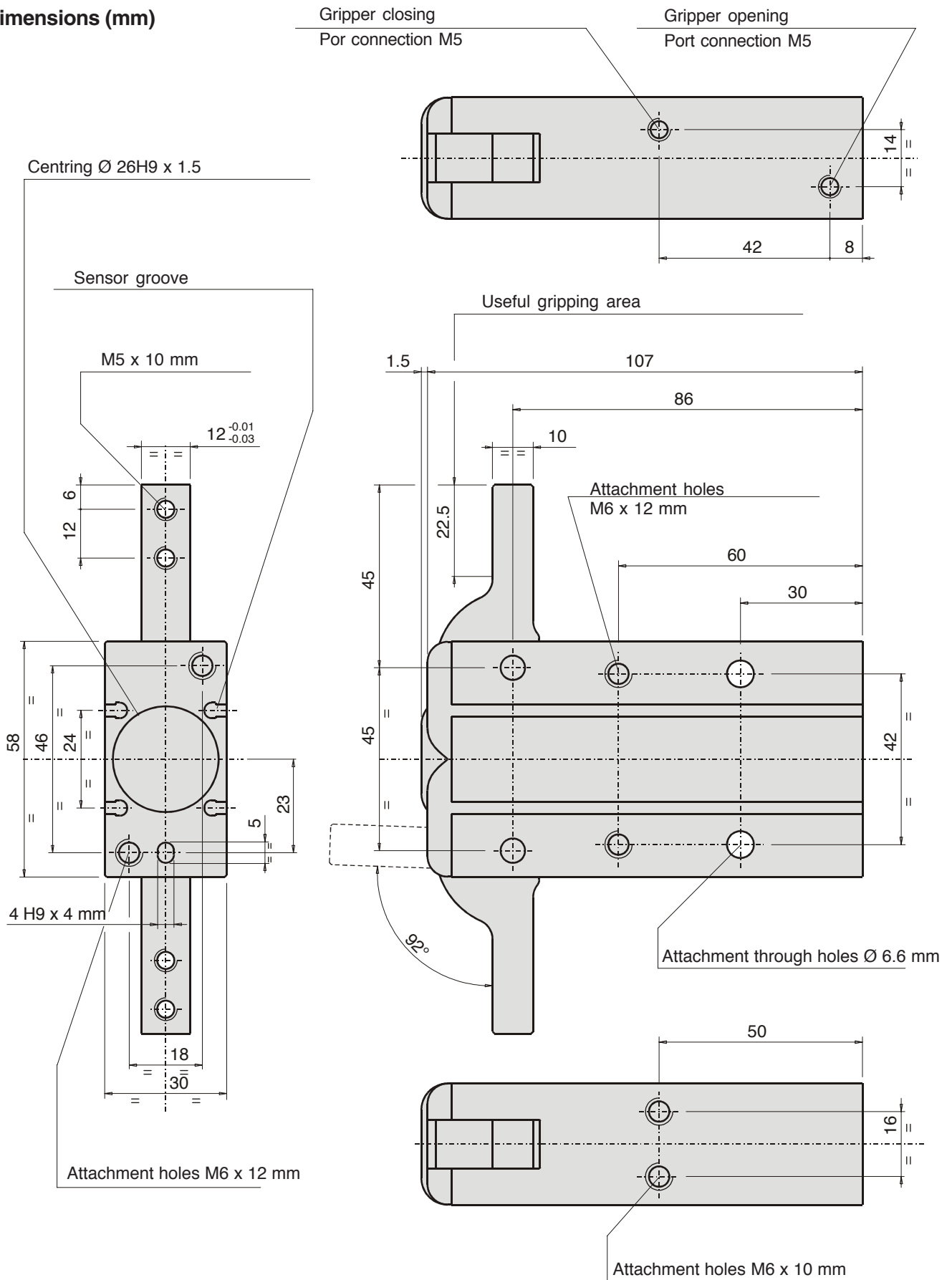
Clamping force per jaw (N) / jaw opening (°)

(at 6 bar)

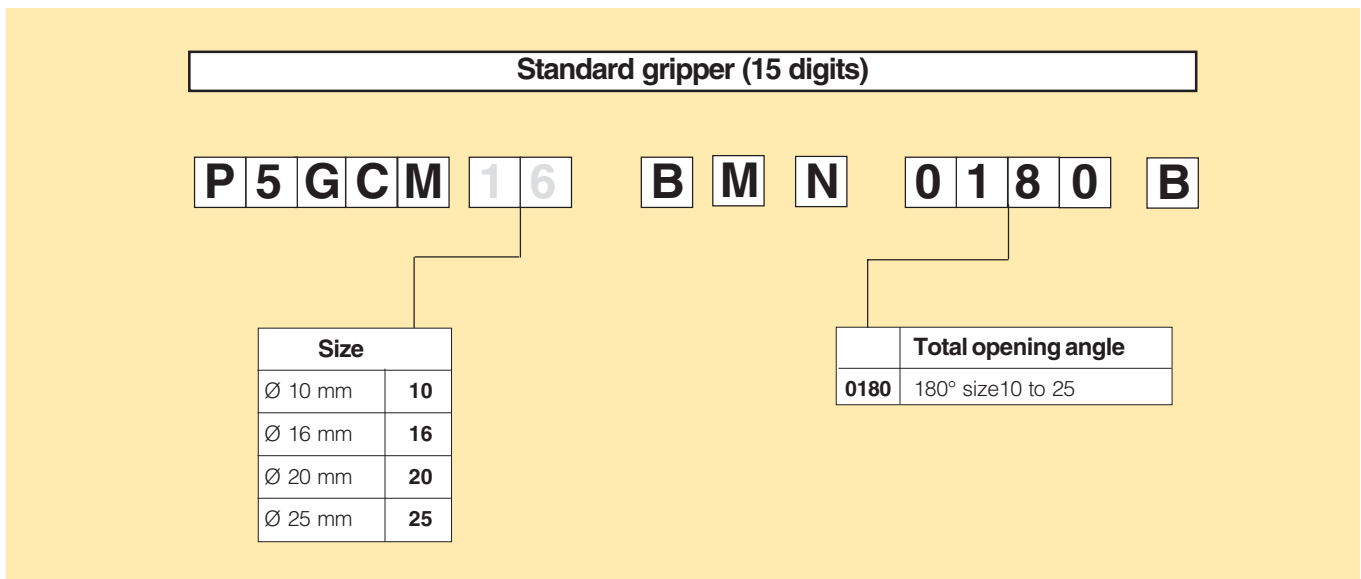


Example : for $\alpha = 40^\circ$, $F_s = 2 \times 150 \text{ N}$

Dimensions (mm)



Order key



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

Example :

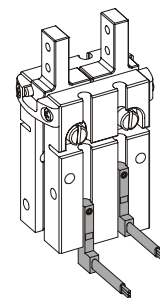
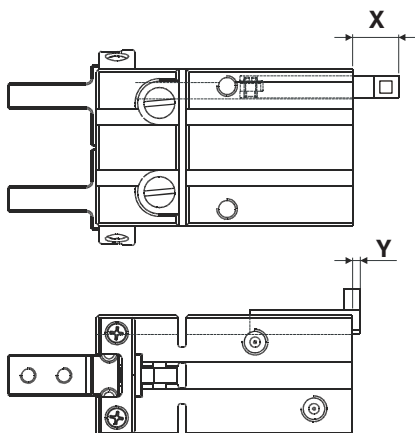
Radial gripper, size 16 :

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

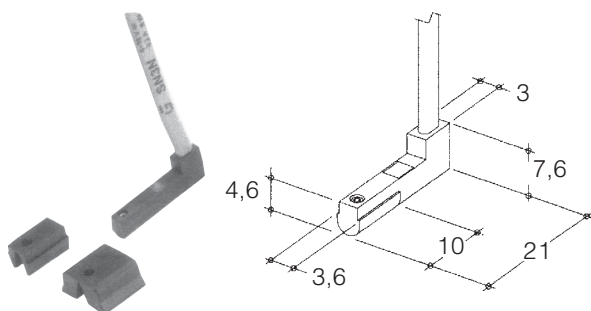
- Mounting in T-groove by the side with plastic adaptor
- Mounting by slipping into the cylindrical groove on the rear of the gripper.

* 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 ⁹
Protection	IP67
Body	Polyamid PA12
Cable	Flat in PUR CEI20/22 II

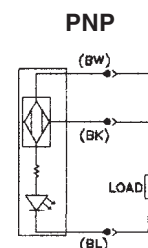
Dimensions (mm)



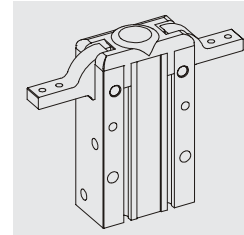
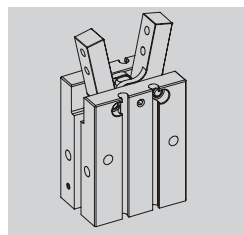
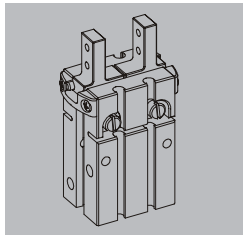
Sensing point



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
M3	C68PK4M3	Swivel elbow compact connector M3
	F28PB4M3	Straight male connector M3
	—	Swivel flow controller M3
M5	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.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

SALE CONDITIONS

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered into by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).

Pneumatic Division Sales Offices

UK-Cannock

Tel: +44 1543 456000
Fax: +44 1543 456001

Czech Republic - Prague

Tel: +420 (2) 6134 1701
Fax: +420 (2) 6134 1703

France - Evreux

Tel: +33 232 233400
Fax: +33 232 289807

Denmark - Ishøj

Tel: +45 43 560400
Fax: +45 43 733107

Germany - Mettmann

Tel: +49 2104 137-0
Fax: +49 2104 137-500

Spain - Madrid

Tel: +34 91 675 7300
Fax: +34 91 675 7711

Switzerland - Briel

Tel: +41 32 3653711
Fax: +41 32 3653730

Finland - Vantaa

Tel: +358 9 4767 31
Fax: +358 9 4767 3201

Sweden - Ulricehamn

Tel: +46 321 67 57 00
Fax: +46 321 67 56 04

Italy - Corsico, Milan

Tel: +39 02 4519 21
Fax: +39 02 4479 340

Belgium - Nivelles

Tel: +32 067 280 900
Fax: +32 067 280 999

Hungary - Budapest

Tel: +36 1 252 8137
Fax: +36 1 252 8129

Norway - Langhus

Tel: +47 64 867760
Fax: +47 64 866888

Netherlands - Oldenzaal

Tel: +31 541 585000
Fax: +31 541 585459

Poland - Warsaw

Tel: +48 22 863 49 42
Fax: +48 22 863 49 44

Austria - Vienna

Tel: +43 26 22 23501
Fax: +43 26 22 66212

Greece - Athens

Tel: +30 1 933 6450
Fax: +30 1 936 451

Romania - Bucharest

Tel: +40 125 23 381
Fax: +40 125 23 381



Parker Hannifin plc

Pneumatic Division
Walkmill Lane, Bridgtown,
Cannock, Staffs. WS11 0LR. U.K.
Web site : www.parker.com

We reserve the right to make
alterations without prior notification.
Edition 04.02