Universal Grippers

**P5GC Serie**
Sizes 10, 16, 20 and 25 mm

**FLUIDS UNDER CONTROL**
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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.
<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total stroke (mm) (±0.2 mm)</td>
<td>4,4</td>
<td>6.6</td>
<td>10.2</td>
<td>14</td>
<td>2x20</td>
<td></td>
<td></td>
<td></td>
<td>0,16</td>
<td>0,72</td>
<td>1,56</td>
<td>3,20</td>
</tr>
<tr>
<td>Total opening angle (°) (±1°)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2x92</td>
<td></td>
<td></td>
<td></td>
<td>0,56</td>
<td>2,12</td>
<td>4,56</td>
<td>9,26</td>
</tr>
<tr>
<td>Clamping torque* (Nm)</td>
<td>0,16</td>
<td>0,72</td>
<td>1,56</td>
<td>3,20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>36</td>
<td>78</td>
<td>160</td>
</tr>
<tr>
<td>Max. clamping force* (N)</td>
<td>28</td>
<td>86</td>
<td>186</td>
<td>254</td>
<td>10</td>
<td>16</td>
<td>20</td>
<td>25</td>
<td>10</td>
<td>16</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Ø piston bore (mm)</td>
<td>M3</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M3</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
</tr>
<tr>
<td>Ø port size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air consumption (cm³/cycle)*</td>
<td>0,7</td>
<td>3</td>
<td>7</td>
<td>14</td>
<td>0,7</td>
<td>3</td>
<td>6</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>±0,02</td>
<td>±0,02</td>
<td>±0,02</td>
<td>±0,07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>±0,06</td>
<td>±0,06</td>
<td>±0,06</td>
<td>±0,06</td>
</tr>
<tr>
<td>Repeatability (°)</td>
<td>±0,04</td>
<td>±0,04</td>
<td>±0,04</td>
<td>±0,04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Max. work frequency (Hz)</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0,05</td>
<td>0,05</td>
<td>0,02</td>
<td>0,02</td>
</tr>
<tr>
<td>Min. closing time (s)</td>
<td>0,01</td>
<td>0,02</td>
<td>0,05</td>
<td>0,07</td>
<td>0,005</td>
<td>0,005</td>
<td>0,02</td>
<td>0,02</td>
<td>0,1</td>
<td>0,1</td>
<td>0,15</td>
<td>0,15</td>
</tr>
<tr>
<td>Mass (kg)</td>
<td>0,045</td>
<td>0,098</td>
<td>0,207</td>
<td>0,365</td>
<td>0,039</td>
<td>0,088</td>
<td>0,171</td>
<td>0,293</td>
<td>0,072</td>
<td>0,148</td>
<td>0,309</td>
<td>0,559</td>
</tr>
<tr>
<td>Max. jaw length (mm)</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Max. temperature (°)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>60</td>
<td>5</td>
<td>60</td>
<td>5</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. pressure (bar)</td>
<td>2,5</td>
<td>8</td>
<td></td>
<td></td>
<td>2,5</td>
<td>8</td>
<td></td>
<td></td>
<td>2,5</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Dry air, lubricated or un lubricated</td>
<td>Dry air, lubricated or un lubricated</td>
<td>Dry air, lubricated or un lubricated</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

* At 6 bar at closing
** Cycle = opening + closing (without jaws)

** Spring function **

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>At closing*</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>At opening **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

* 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

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)

<table>
<thead>
<tr>
<th>Workpiece material</th>
<th>Jaw material</th>
<th>Coefficient of friction $\mu$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>Steel</td>
<td>0,25</td>
</tr>
<tr>
<td>Steel</td>
<td>Aluminium</td>
<td>0,35</td>
</tr>
<tr>
<td>Steel</td>
<td>Plastic</td>
<td>0,50</td>
</tr>
<tr>
<td>Aluminium</td>
<td>Aluminium</td>
<td>0,49</td>
</tr>
<tr>
<td>Aluminium</td>
<td>Plastic</td>
<td>0,70</td>
</tr>
<tr>
<td>Plastic</td>
<td>Plastic</td>
<td>1</td>
</tr>
</tbody>
</table>
Formula of calculation of clamping force

For internal or external clamping

\[ F_{s1} = F_{s2} \]

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

Fs : clamping force (N)
F : force acting on jaws (N)
(when static F corresponds to the weight of the workpiece in N)
\( \mu \) : coefficient of friction between the workpiece and jaws, \( (\mu < 1) \)
S_o : safety factor (between 2 and 4, refer to chart below)

<table>
<thead>
<tr>
<th>Safety factor S_o</th>
<th>Type of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>normal use</td>
</tr>
<tr>
<td>3</td>
<td>movement in several directions (slow acceleration or decelerations)</td>
</tr>
<tr>
<td>4</td>
<td>shocks, fast accelerations or decelerations</td>
</tr>
</tbody>
</table>

Examples

Parallel gripper in vertical position

Data

<table>
<thead>
<tr>
<th>Length of jaws X (mm)</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass of the workpiece to grip M (kg)</td>
<td>0.06</td>
</tr>
<tr>
<td>Pressure (bar)</td>
<td>6</td>
</tr>
<tr>
<td>Safety factor S_o</td>
<td>2</td>
</tr>
<tr>
<td>Coefficient of friction ( \mu )</td>
<td>0.2</td>
</tr>
<tr>
<td>Mass acceleration g (m/s²)</td>
<td>9.81</td>
</tr>
<tr>
<td>Ascending vertical acceleration avh (m/s²)</td>
<td>5</td>
</tr>
</tbody>
</table>

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 \( F_s \) :

At \( P = 6 \text{ bar} \) and \( X = 20 \text{ mm} \) the clamping force read on the graph opposite is \( F_s = 9.4 \text{ N} \).
As \( 2 \times 9.4 \text{ N} > 8.9 \text{ N} \) a size 10 is sufficient.

Verification of tractive force \( F_x \) on jaw carriers :

(see chart page 9)

\[ F_x = Mg + Mavh = 0.06 \times 9.81 + 0.06 \times 5 = 0.90 \text{ N} \]

For a parallel gripper size 10, \( F_x = 2 \times 25 = 50 \text{ N} \)
As \( 50 \text{ N} > 0.90 \text{ N} \) the selection of a size 10 is correct.
Parallel gripper in horizontal position

Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of jaws X (mm)</td>
<td>30</td>
</tr>
<tr>
<td>Offset distance Z (mm)</td>
<td>18</td>
</tr>
<tr>
<td>Mass of the workpiece to grip M (kg)</td>
<td>0.15</td>
</tr>
<tr>
<td>Pressure (bar)</td>
<td>6</td>
</tr>
<tr>
<td>Safety factor S_{o}</td>
<td>2</td>
</tr>
<tr>
<td>Coefficient of friction μ</td>
<td>0.15</td>
</tr>
<tr>
<td>Mass acceleration (m/s^2)</td>
<td>9.81</td>
</tr>
</tbody>
</table>

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 \( P = 6 \text{ bar} \) and \( X = 30 \text{ mm} \) 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 \( P = 6 \text{ bar} \); \( X = 30 \text{ mm} \) and offset \( Z = 18 \text{ mm} \),
\( F_s \) 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.

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

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Size 10

\[
\begin{align*}
F_{sf} &= 28 \text{ N} \\
 s &= 4,4 \text{ mm} \\
 m &= 0,045 \text{ kg} \\
F_{so} &= 36 \text{ N}
\end{align*}
\]

Size 16

\[
\begin{align*}
F_{sf} &= 86 \text{ N} \\
 s &= 6,6 \text{ mm} \\
 m &= 0,098 \text{ kg} \\
F_{so} &= 100 \text{ N}
\end{align*}
\]

Size 20

\[
\begin{align*}
F_{sf} &= 186 \text{ N} \\
 s &= 10,2 \text{ mm} \\
 m &= 0,207 \text{ kg} \\
F_{so} &= 212 \text{ N}
\end{align*}
\]

Size 25

\[
\begin{align*}
F_{sf} &= 254 \text{ N} \\
 s &= 14 \text{ mm} \\
 m &= 0,365 \text{ kg} \\
F_{so} &= 282 \text{ N}
\end{align*}
\]

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

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fx</strong></td>
<td>25N</td>
<td>50N</td>
<td>75N</td>
<td>125N</td>
</tr>
<tr>
<td><strong>Mx</strong></td>
<td>0.4Nm</td>
<td>1.5 Nm</td>
<td>5 Nm</td>
<td>8 Nm</td>
</tr>
<tr>
<td><strong>My</strong></td>
<td>0.4Nm</td>
<td>1.5 Nm</td>
<td>5 Nm</td>
<td>8 Nm</td>
</tr>
<tr>
<td><strong>Mz</strong></td>
<td>0.4Nm</td>
<td>1.5 Nm</td>
<td>5 Nm</td>
<td>8 Nm</td>
</tr>
</tbody>
</table>

Mz at 6 bar

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fx</strong></td>
<td>0.4N</td>
<td>0.8N</td>
<td>1.5N</td>
<td>2.5N</td>
</tr>
<tr>
<td><strong>Mx</strong></td>
<td>0.4Ncm</td>
<td>1.5 Ncm</td>
<td>5 Ncm</td>
<td>8 Ncm</td>
</tr>
<tr>
<td><strong>My</strong></td>
<td>0.4Ncm</td>
<td>1.5 Ncm</td>
<td>5 Ncm</td>
<td>8 Ncm</td>
</tr>
<tr>
<td><strong>Mz</strong></td>
<td>0.4Ncm</td>
<td>1.5 Ncm</td>
<td>5 Ncm</td>
<td>8 Ncm</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>m 0.2s</td>
<td>40g</td>
<td>80g</td>
<td>150g</td>
<td>250g</td>
</tr>
<tr>
<td>m 0.07s</td>
<td>25g</td>
<td>45g</td>
<td>75g</td>
<td>100g</td>
</tr>
<tr>
<td>m 0.05s</td>
<td>20g</td>
<td>35g</td>
<td>50g</td>
<td>–</td>
</tr>
<tr>
<td>m 0.02s</td>
<td>15g</td>
<td>25g</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>m 0.01s</td>
<td>10g</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

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) (±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
- Ø piston bore (mm) 10
- Ø port sizes (mm) M3
- Air consumption at 6 bar (cm³ / 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 (°C): 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 9.4 N

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

Example: for X = 20 mm and Z = 20 mm Fs = 2 x 8.2 N
Dimensions (mm)

- Centring: Ø 11H9 x 2
- Attachment holes: M3 x 6 mm
- Dowell pin hole: Ø 2 H9 x 3 mm
- Sensor groove

- Attachment holes: M3 x 6 mm
- Attachment holes: M3 x 5.5 mm
- Attachment through holes: Ø 2.6 mm

- M2.5 x 4 mm

Port size M3

Air supply in A: opening of the gripper
Air supply in B: closing of the gripper
**Technical informations**

- **Total stroke (mm) (±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
- **Ø Piston bore (mm)**: 16
- **Ø Port sizes (mm)**: M5
- **Air consumption at 6 bar (cm³ / 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)**

![Graph showing clamping force per jaw (N) / jaw length (mm)]

**Example**: for X = 30 mm, Fs = 2 x 27 N

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

![Graph showing clamping force per jaw (N) / jaw length and jaw offset (mm)]

**Example**: for X = 30 mm and Z = 18 mm Fs = 2 x 25,2 N
Dimensions (mm)

- Centring: Ø 17H9 x 2
- Sensor groove
- Attachment holes: M4 x 8 mm
- Dowel pin hole: Ø 3 H9 x 3 mm
- M3 x 5 mm
- Attachment holes: M4 x 4.5 mm
- Port size: M5

Air supply in A: opening of the gripper
Air supply in B: closing of the gripper
Technical informations

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total stroke (mm) (±0,2)</td>
<td>10,2</td>
</tr>
<tr>
<td>Clamping force per jaw at opening at 6 bar (N)</td>
<td>106</td>
</tr>
<tr>
<td>Max. clamping force at opening at 6 bar (N)</td>
<td>212</td>
</tr>
<tr>
<td>Clamping force per jaw at closing at 6 bar (N)</td>
<td>93</td>
</tr>
<tr>
<td>Max. clamping force at closing at 6 bar (N)</td>
<td>186</td>
</tr>
<tr>
<td>Ø Piston bore (mm)</td>
<td>20</td>
</tr>
<tr>
<td>Ø Port sizes (mm)</td>
<td>M5</td>
</tr>
<tr>
<td>Air consumption at 6 bar (cm³ / cycle)</td>
<td>7</td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>0,02</td>
</tr>
<tr>
<td>Max. operation frequency (Hz)</td>
<td>2</td>
</tr>
<tr>
<td>Min. closing time (s)</td>
<td>0,05</td>
</tr>
<tr>
<td>Max. jaw length (mm)</td>
<td>80</td>
</tr>
<tr>
<td>Mass (kg)</td>
<td>0,207</td>
</tr>
</tbody>
</table>

Material

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>hard anodised aluminium</td>
</tr>
<tr>
<td>Jaw-carriers</td>
<td>stainless steel</td>
</tr>
<tr>
<td>Seals</td>
<td>nitrile butadiene rubber (NBR)</td>
</tr>
</tbody>
</table>

Operating information

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (bar)</td>
<td>2.5 to 8</td>
</tr>
<tr>
<td>Working temperature (°C)</td>
<td>5 to +60</td>
</tr>
<tr>
<td>Operation</td>
<td>dry air, lubricated or unlubricated</td>
</tr>
</tbody>
</table>

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

![Graph showing clamping force per jaw vs jaw length at 6 bar]

Example: for X = 30 mm, Fs = 2 x 67.5 N

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

![Graph showing clamping force per jaw vs jaw length and jaw offset]

Example: for X = 50 mm and Z = 20 mm Fs = 2 x 58 N
Dimensions (mm)

- **Centring**
  - Ø 21H9 x 3

- **Attachment hole**
  - M5 x 10 mm

- **Sensor groove**
  - 16.8±0.02

- **Dowel pin hole**
  - Ø 4 H9 x 4 mm

- **Attachment holes**
  - M5 x 8 mm

- **M4 x 8 mm**

- **3.6**
  - 8

- **Attachmen through holes**
  - Ø 4.3mm

- **Port size M5**

- **Air supply in A : gripper opening**

- **Air supply in B : gripper closing**

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Technical informations

- Total stroke (mm) (±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
- Ø piston bore (mm) 25
- Ø Port sizes (mm) M5
- Air consumption at 6 bar (cm³ / 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 (°C) 5 to +60
- Operation: dry air, lubricated or un lubricated

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

![Graph showing clamping force per jaw (N) vs. jaw length (mm).](image)

Example: for X = 25 mm, Fs = 2 x 99 N

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

(at 6 bar)

![Graph showing clamping force per jaw (N) vs. jaw length and jaw offset (mm).](image)

Example: for X = 75 mm and Z = 50 mm Fs = 2 x 60 N
Dimensions (mm)

- **Centring**: Ø 26H9 x 3.5
- **Dowel pin hole**: Ø 4 H9 x 4 mm
- **Attachment holes**: M6 x 12 mm
- **Attachment holes**: M6 x 10 mm
- **M5 x 10 mm**
- **Sensor groove**
- **Attachment through holes**: Ø 5.1mm
- **Port size M5**
- **Stroke per jaw**: 39.3
- **Air supply in A**: gripper opening
- **Air supply in B**: gripper closing

---

**Pneumatic systems - grippers**

Paraller grippers P5GCM H size 25

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**Order key**

**Standard gripper (15 digits)**

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 10 mm</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 16 mm</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 20 mm</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 25 mm</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>M</th>
<th>B</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without spring</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring at opening</td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring at closing</td>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stroke</th>
<th>0004</th>
<th>0006</th>
<th>0010</th>
<th>0014</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4 mm size 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6,6 mm size 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10,2 mm size 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 mm size 25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Example:**

Parallel gripper, size 16 without spring:

Order code: **P5GCM16HMN0006B**
Angular grippers P5GCM K Ø 10 - 25 mm

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

<table>
<thead>
<tr>
<th>Size</th>
<th>Static</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fx</td>
<td>40N</td>
</tr>
<tr>
<td>Mx</td>
<td>0.5Nm</td>
</tr>
<tr>
<td>My</td>
<td>0.5Nm</td>
</tr>
<tr>
<td>Mz</td>
<td>0.4Nm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>J = 240 x t^2</td>
<td></td>
</tr>
<tr>
<td>J = 600 x t^2</td>
<td></td>
</tr>
<tr>
<td>J = 1300 x t^2</td>
<td></td>
</tr>
<tr>
<td>J = 2600 x t^2</td>
<td></td>
</tr>
</tbody>
</table>

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.
Pneumatic systems - grippers

Angular grippers P5GCM K size 10

Technical informations

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening angle (°) (± 1°)</td>
<td>2x20</td>
</tr>
<tr>
<td>Clamping torque per jaw at opening at 6 bar (Nm)</td>
<td>0,11</td>
</tr>
<tr>
<td>Max. clamping torque per jaw at opening at 6 bar (Nm)</td>
<td>0,22</td>
</tr>
<tr>
<td>Clamping torque per jaw at closing at 6 bar (Nm)</td>
<td>0,08</td>
</tr>
<tr>
<td>Max. clamping torque per jaw at closing at 6 bar (Nm)</td>
<td>0,16</td>
</tr>
<tr>
<td>Ø piston bore (mm)</td>
<td>10</td>
</tr>
<tr>
<td>Ø port sizes (mm)</td>
<td>M3</td>
</tr>
<tr>
<td>Air consumption at 6 bar (cm³ / cycle)</td>
<td>0,70</td>
</tr>
<tr>
<td>Repeatability (°)</td>
<td>± 0,04</td>
</tr>
<tr>
<td>Max. working frequency (Hz)</td>
<td>3</td>
</tr>
<tr>
<td>Min. closing time (s)</td>
<td>0,005</td>
</tr>
<tr>
<td>Max. jaw length (mm)</td>
<td>40</td>
</tr>
<tr>
<td>Mase (kg)</td>
<td>0,039</td>
</tr>
</tbody>
</table>

Material

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

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

![Clamping force graph]

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

Opening information

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (bar)</td>
<td>2.5 to 8</td>
</tr>
<tr>
<td>Working temperature (°C)</td>
<td>5 to +60</td>
</tr>
<tr>
<td>(with or without sensor)</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>dry air lubricated or</td>
</tr>
<tr>
<td>un lubricated</td>
<td></td>
</tr>
</tbody>
</table>

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### Dimensions (mm)

<table>
<thead>
<tr>
<th>Component</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment holes M3 x 6 mm</td>
<td>6.4 - 0.1 mm</td>
</tr>
<tr>
<td>Centring Ø 11H9 x 1.5</td>
<td></td>
</tr>
<tr>
<td>Sensor groove</td>
<td></td>
</tr>
<tr>
<td>Attachment holes M3 x 5.5 mm</td>
<td></td>
</tr>
<tr>
<td>Port size M3</td>
<td></td>
</tr>
<tr>
<td>Through holes for attachment Ø 2.6 mm</td>
<td></td>
</tr>
</tbody>
</table>

**Air supply**
- In **A**: gripper opening
- 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 (cm³ / 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) 5 to +60 (with or without sensor)
- Operation: dry air, lubricated or unlubricated

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

Use the above graph ignoring the jaw offset value Z.
Don't overrun value: Z maxi. = X maxi./ 2
Dimensions (mm)

Attachment holes M4 x 8 mm

Sensor groove

Centring Ø 17H9 x 1.5

Sensor groove

Attachment holes M4 x 6.5 mm

Attachment through holes Ø 3.4 mm

Air supply in A : gripper opening
Air supply in B : gripper closing

Port size M5
## Technical information

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening angle (°) (±1°)</td>
<td>2x20</td>
</tr>
<tr>
<td>Clamping torque per jaw at opening at 6 bar (Nm)</td>
<td>0.89</td>
</tr>
<tr>
<td>Max. opening torque at opening at 6 bar (Nm)</td>
<td>1.78</td>
</tr>
<tr>
<td>Clamping torque per jaw at closing at 6 bar (Nm)</td>
<td>0.78</td>
</tr>
<tr>
<td>Max. clamping torque at closing at 6 bar (Nm)</td>
<td>1.56</td>
</tr>
<tr>
<td>Ø piston bore (mm)</td>
<td>20</td>
</tr>
<tr>
<td>Ø port sizes (mm)</td>
<td>M5</td>
</tr>
<tr>
<td>Air consumption at 6 bar (cm³ / cycle)</td>
<td>6</td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>±0.04</td>
</tr>
<tr>
<td>Max. working frequency (Hz)</td>
<td>2</td>
</tr>
<tr>
<td>Min. closing timei (s)</td>
<td>0.02</td>
</tr>
<tr>
<td>Max. jaw length (mm)</td>
<td>80</td>
</tr>
<tr>
<td>Mass (kg)</td>
<td>0.171</td>
</tr>
</tbody>
</table>

## 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 sensor)
- **Operation**: dry air, lubricated or unlubricated

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

### Graph

```
<table>
<thead>
<tr>
<th>Fs (N)</th>
<th>X (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>10</td>
<td>80</td>
</tr>
</tbody>
</table>
```

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 max. = X max. / 2
Angular grippers P5GCM K size 20

**Dimensions (mm)**

- Centring Ø 21H9 x 1.5
- Sensor groove
- Attachment holes M5 x 10 mm
- Sensor groove
- M4 x 8 mm
- 30°, Opening
- 10°, Closing
- M4 x 8 mm
- 10 -0.1
- Attachment holes M5 x 8 mm
- Attachment holes M5 x 10 mm
- Attachment through holes Ø 4.3mm
- Air supply in A: gripper opening
- Air supply in B: gripper closing

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Technical informations

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

Material

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

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

![Clamping Force Graph]

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 max. = X max./2

Operating information

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (bar)</td>
<td>2.5 to 8</td>
</tr>
<tr>
<td>Working temperature (°C)</td>
<td>5 to +60</td>
</tr>
<tr>
<td>Operation (with or without sensor)</td>
<td>dry air, lubricated or un lubricated</td>
</tr>
</tbody>
</table>

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Angular grippers P5GCM K size 25

Dimensions (mm)

- Centring Ø 26H9 x 1.5
- Sensor groove
- Attachment holes M6 x 12 mm
- Sensor groove
- Attachment holes M6 x 10 mm
- M5 x 10 mm
- 30° Opening
- 10° Closing
- Port size M5
- Air supply in A: gripper opening
- Air supply in B: gripper closing

Attachment holes M6 x 12 mm
Attachment through holes Ø 5.1 mm

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Order key

Standard gripper (15 digits)

<table>
<thead>
<tr>
<th>Size</th>
<th>Function</th>
<th>Total opening angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 10 mm</td>
<td>M Without spring</td>
<td>0040 40° sizes 10 to 25</td>
</tr>
<tr>
<td>Ø 16 mm</td>
<td>B Spring at opening</td>
<td></td>
</tr>
<tr>
<td>Ø 20 mm</td>
<td>D Spring at closing</td>
<td></td>
</tr>
<tr>
<td>Ø 25 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Example:
Angular gripper, size 16 without spring:
Order code: P5GCM16KMN0040B
Radial grippers P5GCM B Ø 10 - 25 mm

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

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Radial grippers

Theses 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 of 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 centering and dowel pin holes.

Air supply

Port connection 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

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fx</td>
<td>35N</td>
<td>60N</td>
<td>100N</td>
<td>140N</td>
</tr>
<tr>
<td>Mx</td>
<td>0.5Nm</td>
<td>2 Nm</td>
<td>4 Nm</td>
<td>7 Nm</td>
</tr>
<tr>
<td>My</td>
<td>0.5Nm</td>
<td>2 Nm</td>
<td>4 Nm</td>
<td>7 Nm</td>
</tr>
<tr>
<td>Mz</td>
<td>0.5Nm</td>
<td>1 Nm</td>
<td>2 Nm</td>
<td>7 Nm</td>
</tr>
</tbody>
</table>

Mz at 6 bar.

Dynamic

Inertia of one of the 2 jaws (kg cm²)/ closing or opening time (s):

- For a inertia of one of the 2 jaws of 0.22 kg cm², 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 (cm³ / 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) 5 to +60
(with or without sensor)
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 opening (°)
(at 6 bar)

Example : for α = 40°, Fs = 2 x 10 N
Dimensions (mm)

Sensor groove
Ø11 H9 x 1.5 mm
3 H9 x 3 mm

Attachment holes
M3 x 4 mm

Gripper closing
Port size M5

Gripper opening
Port size M5

Useful gripping area

Attachment holes
M3 x 6 mm

Attachment through holes
Ø 3.4 mm

Attachment holes
M3 x 6 mm

Attachment holes M3 x 4 mm

Port size M5

Radial grippers P5GCM B size 10
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)

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

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

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

Example: for α = 40°, Fs = 2 x 35 N

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

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

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**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 (cm³ / 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) 5 to +60
- Operation: dry air, lubricated or un lubricated

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

![Graph showing clamping force per jaw (N) / jaw length (mm)](image)

<table>
<thead>
<tr>
<th>Fs (N)</th>
<th>X (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td>10</td>
</tr>
<tr>
<td>315</td>
<td>20</td>
</tr>
<tr>
<td>280</td>
<td>30</td>
</tr>
<tr>
<td>245</td>
<td>40</td>
</tr>
<tr>
<td>210</td>
<td>50</td>
</tr>
<tr>
<td>175</td>
<td>60</td>
</tr>
<tr>
<td>140</td>
<td>70</td>
</tr>
<tr>
<td>105</td>
<td>80</td>
</tr>
<tr>
<td>70</td>
<td>90</td>
</tr>
</tbody>
</table>

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

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

(at 6 bar)

![Graph showing clamping force per jaw (N) / jaw opening (°)](image)

<table>
<thead>
<tr>
<th>Fs (N)</th>
<th>Fs (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>330</td>
<td>0°</td>
</tr>
<tr>
<td>300</td>
<td>10°</td>
</tr>
<tr>
<td>270</td>
<td>20°</td>
</tr>
<tr>
<td>240</td>
<td>30°</td>
</tr>
<tr>
<td>210</td>
<td>40°</td>
</tr>
<tr>
<td>180</td>
<td>50°</td>
</tr>
<tr>
<td>150</td>
<td>60°</td>
</tr>
<tr>
<td>120</td>
<td>70°</td>
</tr>
<tr>
<td>90</td>
<td>80°</td>
</tr>
<tr>
<td>60</td>
<td>90°</td>
</tr>
</tbody>
</table>

Example: for α = 40°, Fs = 2 x 70 N
Dimensions (mm)

- Centring Ø21H9 x 1.5
- Sensor groove
- M4 x 8 mm
- Attachment holes M5 x 10 mm
- 4 H9 x 4 mm
- Attachment holes M5 x 10 mm
- Attachment through holes Ø5.5 mm
- Attachment holes M5 x 8 mm

Gripper closing
- Port connection M5

Gripper opening
- Port connection M5

Useful gripping area

Attachment holes M5 x 10 mm

Sensor groove

M4 x 8 mm

Attachment holes M5 x 10 mm

Attachment through holes Ø5.5 mm

Attachment holes M5 x 8 mm

Port connection M5

Gripper closing

Gripper opening
Technical information

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

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, Fs = 2 x 154 N

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

(at 6 bar)

Example: for α = 40°, Fs = 2 x 150 N
Radial grippers P5GCM B size 25

Dimensions (mm)

- Centring Ø 26H9 x 1.5
- Sensor groove
- M5 x 10 mm
- 4 H9 x 4 mm
- Attachment holes M6 x 12 mm
- Attachment through holes Ø 6.6 mm
- Attachment holes M6 x 10 mm
- Useful gripping area
- Port connection M5
- Gripper opening
- Gripper closing

Attachment holes M6 x 12 mm
Attachment through holes Ø 6.6 mm
Useful gripping area
Port connection M5
Gripper opening
Gripper closing

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Order key

**Standard gripper (15 digits)**

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>16</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 10 mm</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 16 mm</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 20 mm</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 25 mm</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total opening angle**

| 0180 | 180° size 10 to 25 |

**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)

<table>
<thead>
<tr>
<th>Size</th>
<th>X (mm)</th>
<th>Y (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In grooves*

Nota:
Mounting in T-groove and cylindrical groove
- Mouting in T-groove by the side with plastic adaptator
- Mounting by slipping into the cylindrical groove on the rear of the gripper.
  * Only in cylindrical groove for radial grippers.

Technical data

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

Dimensions (mm)

Sensing point

Wiring diagram
Repair kits

<table>
<thead>
<tr>
<th>Size</th>
<th>Parallel gripper</th>
<th>Angular gripper</th>
<th>Radial gripper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>P5GCM10H6RM</td>
<td>P5GCM10K6RM</td>
<td>P5GCM10B6RM</td>
</tr>
<tr>
<td>16</td>
<td>P5GCM16H6RM</td>
<td>P5GCM16K6RM</td>
<td>P5GCM16B6RM</td>
</tr>
<tr>
<td>20</td>
<td>P5GCM20H6RM</td>
<td>P5GCM20K6RM</td>
<td>P5GCM20B6RM</td>
</tr>
</tbody>
</table>

The kit contains seals.

Spare parts

<table>
<thead>
<tr>
<th>Size</th>
<th>Parallel gripper</th>
<th>Angular gripper</th>
<th>Radial gripper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>P5GCM10H6PS</td>
<td>P5GCM10K6PS</td>
<td>P5GCM10B6PS</td>
</tr>
<tr>
<td>16</td>
<td>P5GCM16H6PS</td>
<td>P5GCM16K6PS</td>
<td>P5GCM16B6PS</td>
</tr>
<tr>
<td>20</td>
<td>P5GCM20H6PS</td>
<td>P5GCM20K6PS</td>
<td>P5GCM20B6PS</td>
</tr>
<tr>
<td>25</td>
<td>P5GCM25H6PS</td>
<td>P5GCM25K6PS</td>
<td>P5GCM25B6PS</td>
</tr>
</tbody>
</table>

The kit contains the levers and their spindles.

Jaw-carriers

<table>
<thead>
<tr>
<th>Size</th>
<th>Parallel gripper</th>
<th>Angular gripper</th>
<th>Radial gripper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>P5GCM10H6P</td>
<td>P5GCM10K6P</td>
<td>P5GCM10B6P</td>
</tr>
<tr>
<td>16</td>
<td>P5GCM16H6P</td>
<td>P5GCM16K6P</td>
<td>P5GCM16B6P</td>
</tr>
<tr>
<td>20</td>
<td>P5GCM20H6P</td>
<td>P5GCM20K6P</td>
<td>P5GCM20B6P</td>
</tr>
</tbody>
</table>

The kit contains the jaw-carriers and their spindles.

Connectors and Flow controllers

<table>
<thead>
<tr>
<th>Connection</th>
<th>Order code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td>C68PK4M3</td>
<td>Swivel elbow compact connector M3</td>
</tr>
<tr>
<td></td>
<td>F28PB4M3</td>
<td>Straight male connector M3</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>Swivel flow controller M3</td>
</tr>
<tr>
<td>M5</td>
<td>F28PB4M5</td>
<td>Straight male connector M5</td>
</tr>
<tr>
<td></td>
<td>C68PK4M5</td>
<td>Swivel elbow compact connector M5</td>
</tr>
<tr>
<td></td>
<td>PTFL8PB4M5</td>
<td>Swivel flow controller M5</td>
</tr>
</tbody>
</table>

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