3-Finger Concentric Gripper
Universal gripper

**Housing**
weight optimized using high-strength hard-anodized aluminum alloy

**Kinetics**
wedge system, for high power transmission and concentric gripping

**Drive**
powerful pneumatic system

**Guidance**
extremely precise for gripping with small clearance under heavy loads

**Base jaws**
for mounting the workpiece-specific gripper fingers

**Location and mounting**
gripper has universal mount
Benefits

- compact design
- high gripping forces
- very reliable and long-wearing
- suitable for high torques
- suitable for I.D. and O.D. gripping
- universal connection
- detailed operating and maintenance instructions
- proven, in numerous applications
- 2-position stroke monitoring using proximity switch. Option of 5-position monitoring using FPS flexible position sensor. Exception: PZN 50
- 12 month warranty

Technical data

Operating principle:
- wedge and piston design with mechanically restricted guides

Material:
- the housing is made from a high-tensile, hard-coated aluminium alloy. Functional components are made of hardened steel

Operation:
- pneumatic, filtered compressed air (10 µm [3.937 mils]), dry or lubricated

Operating pressure range:
- from 2 to 8 bar (29 to 116 psi)

Installation:
- various positions

Operating temperature range:
- 5° to 60° C (41°F to 140°F). Version suitable for use up to 130° C (266°F) available on request

Parts supplied:
- brackets for proximity switches, screws for mounting and direct connection, operating and maintenance instructions, manufacturer’s declaration

Gripping force safety in the event of a power failure:
- option with integrated spring or pressure maintenance valve

Accessories:
- proximity switches, flexible positioning sensor, finger blanks, spring operated pressure plate

Hydraulic version:
- on request
Max. admissible forces and moments at the gripper fingers *

\[
\begin{align*}
M_x &= 100 \text{ Nm} \\
M_y &= 80 \text{ Nm} \\
M_z &= 80 \text{ Nm}
\end{align*}
\]

\[73.8 \text{ lbf·ft} \quad 629 \text{ lbf} \quad 59.0 \text{ lbf·ft} \quad 59.0 \text{ lbf·ft}\]

\(F_a = 2800 \text{ N} \quad 629 \text{ lbf}\)

Gripping force diagram

In relation to the finger length

L at 6 bar (87 psi)

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PZN 160 - 1
PZN 160 - 2
PZN 160 - 1 / AS/IS
PZN 160 - 2 / AS/IS

---

Finger length L in mm [inch]

Gripping force in N

Gripping force in lbf

\[
\begin{align*}
&0 \\
&2500 \\
&5000 \\
&7500 \\
&10000 \\
&12500 \\
&15000 \\
&17500 \\
&20000
\end{align*}
\]

\[
\begin{align*}
&0 \\
&2248 \\
&4496 \\
&6934 \\
&9372 \\
&11810 \\
&14248 \\
&16686
\end{align*}
\]

Change in dimensions for PZN 160 with gripping force safety device

\[
\begin{align*}
&\text{Ø 128 [5.039]} \\
&Jaw connection for PZN 160 top jaw blanks
\end{align*}
\]

Dimensions for spring operated pressure plate.

Spring force: 180 – 320 N, Stroke: 6 mm

\[
\begin{align*}
&\text{Ø 11 [0.433] for screw DIN 7991} \\
&\text{24.5 [0.965]} \\
&\text{22.5 [0.881]}
\end{align*}
\]

Brackets and proximity switches

with Ø 12 mm for 3-Finger Concentric Gripper

Type HG-PZN 160, Id.-No. 300 733

Dimensions for PZN 160 with FPS monitoring

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* which may occur in addition to the gripping force
### Accessories for PZN 160

#### Inductive proximity switches
Easy to fit with LED lamp. For technical details see chapter “Accessories”.

<table>
<thead>
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<tbody>
<tr>
<td>INW 80/S*</td>
<td>301 508 or 301 408</td>
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<tr>
<td>INW 80/O*</td>
<td>301 518 or 301 418</td>
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</tbody>
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* S = Normally open  
* O = Normally closed

#### Flexible Positioning Sensor FPS
Stroke monitoring of up to 5 positions with a Flexible Positioning Sensor FPS is possible with PZN 160-1. For technical details see chapter “Accessories”.

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<td>301 714</td>
</tr>
<tr>
<td>FPS-S 13</td>
<td>301 705</td>
</tr>
<tr>
<td>FPS-A 5</td>
<td>301 800</td>
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<td>FPS-A 5</td>
<td>Steel</td>
<td>300 738</td>
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### System modules and additional accessories for PZN

#### Swivel units
For compatible swivel units and swivel heads see chapter “Swivel Units”.

#### Linear units
For compatible linear units see chapter “Linear Units”.

#### Custom solutions
We can supply cost-effective custom solutions, customized fingers, adapter plates and complete units to suit your specialized requirements quickly.

#### Additional accessories
Gripper pads to increase friction factors, pressure maintenance valves or multiple connectors for proximity switches are found in our chapter “Accessories”.

### Gripping force safety
Operating pressure min. 5 bar (73 psi), max. 6.5 bar (94 psi). Operating pressure min. 4 bar (58 psi) available on request — reduced gripping force.

Gripping force = pneumatic gripping force + spring force.

The dimensions for compressed air connection and fastening bores as for standard version.

**Note:** Pressure maintenance valve SDV-P can be used as an alternative to mechanical gripping force safety device for O.D. and I.D. gripping. (See chapter “Accessories”)

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* Gripping force is the arithmetic sum of the individual forces occurring at the jaws at distance “P” at 6 bar [87 psi].
  ** Values are higher with form fit fingers. Please also consider the gripping force maintained by spring.
  *** After 100 consecutive strokes worst case.

### Inductive proximity switches

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**Note:** Please note that the life span of these units can be reduced considerably if they are used in extreme conditions (e.g. where coolant is used, or dust from casting or grinding processes is present). We cannot be held responsible in these cases. Solutions do exist for many problems — please contact us to find out more.