Actuators

Pneumatic actuators are usually utilized as executing elements in pneumatic systems. Available in a single-acting version (with a spring), double-acting and with a through-rod. In a single-acting version output position is forced by the spring, and a change of piston position requires compressed air intake. In a double-acting version both feed and return of the piston is obtained by compressed air. The actuators can be additionally equipped with magnets used for Non-contact Piston Position Detection and stroke cushioning.

Special design cylinders, "non-stick slip" version, are used to ensure smooth regulation of work. Used at low piston speed and transverse loads.

To prevent rotation of an actuator, it is recommended to use the piston rod of a special shape (TF actuator version) or guides. Then the piston rod and elements that are fixed to it are at constant angle or can transfer specified torque. All actuators are designed for operation with unlubricated air and do not require any maintenance. If lubricated air is used, lubrication must be continuous because it replaces the factory-applied grease.

**Construction of ISO 15552 actuator**

1. Piston rod: C45 steel or stainless steel, thick chromed.
2. Head: die cast aluminium.
3. Piston rod seal: polyurethane, NBR or FKM/FPM.
7. Piston seal: polyurethane, NBR or FKM/FPM.
9. Buffer + static O-rings: NBR or FKM/FPM.
10. Cushioning seal: polyurethane, NBR or FKM/FPM.
11. Cushioning needle: OT 58 brass, with needle out movement safety system even when fully open.
ISO 6432 mini-cylinders

**ISO 6432 Ø 8 ÷ 25 mm**

- **Piston diameter:** Ø 8, 10, 12, 16, 20, 25 mm
- **Working stroke:** Up to 500 mm
- **Working press.:** From 0.8 up to 10 bar - Ø 8 ÷ 12 mm
  - From 0.6 up to 10 bar - Ø 16 ÷ 25 mm
- **Working temp.:** From -35°C up to +150°C

<table>
<thead>
<tr>
<th>Version</th>
<th>Construction</th>
<th>Piston Diameter</th>
<th>Working Stroke</th>
<th>Material</th>
<th>Sealing</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>SE axial connection</td>
<td>08**</td>
<td>up to 500 mm</td>
<td>A</td>
<td>NBR</td>
</tr>
<tr>
<td>102</td>
<td>DEM axial connection</td>
<td>10**</td>
<td></td>
<td>C</td>
<td>polyurethane</td>
</tr>
<tr>
<td>106*</td>
<td>SE</td>
<td>12**</td>
<td></td>
<td>Z</td>
<td>Viton***</td>
</tr>
<tr>
<td>109*</td>
<td>DEA</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>DE</td>
<td>20</td>
<td></td>
<td>X</td>
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<tr>
<td>111</td>
<td>SE</td>
<td>25</td>
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<td></td>
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<tr>
<td>112</td>
<td>DEM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>DEMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **A** - piston rod: C45 chrome, piston: aluminium
- **C** - piston rod: C45 chrome, piston: technopolymer
- **Z** - piston rod and nut: stainless steel, piston: aluminium
- **X** - piston rod and nut: stainless steel, piston: technopolymer

- **SE** - single-acting (magnetic), cushioned (101, 111), adjustable cushioning (106),
- **DE** - double-acting (non-magnetic), cushioned,
- **DEA** - double-acting (non-magnetic), adjustable cushioning,
- **DEM** - double-acting (magnetic), cushioned (102, 112),
- **DEMA** - double-acting (magnetic), adjustable cushioning.

* - available from Ø16mm piston diameter,
** - stainless steel piston rod,
*** - only for non-magnetic versions and with aluminium piston.

There are also economic versions of actuators (reduced weight) or versions made of stainless steel available.
Round cylinders RNDC series

RNDC Ø 32 ÷ 50 mm

Piston diameter: Ø 32, 40, 50 mm
Working stroke: Up to 500 mm
Working press.: From 0.4 up to 10 bar - Ø 32, 40 mm
From 0.3 up to 10 bar - Ø 50 mm
Working temp.: From -35°C up to +150°C

<table>
<thead>
<tr>
<th>version</th>
<th>construction</th>
<th>piston diameter</th>
<th>working stroke</th>
<th>material</th>
<th>sealing</th>
</tr>
</thead>
<tbody>
<tr>
<td>109 - DEA</td>
<td>O - standard</td>
<td>Ø 32</td>
<td>up to 500 mm</td>
<td>A - piston rod: C45 chrome piston: aluminium</td>
<td></td>
</tr>
<tr>
<td>110 - DE</td>
<td>V - without head nut</td>
<td>Ø 40</td>
<td></td>
<td>C - piston rod: C45 chrome piston: technopolymer</td>
<td></td>
</tr>
<tr>
<td>111* - SE</td>
<td>S - non-magnetic</td>
<td>Ø 50</td>
<td></td>
<td>Z - piston rod and nut: stainless steel piston: aluminium</td>
<td></td>
</tr>
<tr>
<td>112 - DEM</td>
<td>G - non-stick slip</td>
<td>up to 500 mm</td>
<td></td>
<td>X - piston rod and nut: stainless steel piston: technopolymer</td>
<td></td>
</tr>
<tr>
<td>113 - DEMA</td>
<td></td>
<td></td>
<td></td>
<td>N - NBR</td>
<td></td>
</tr>
</tbody>
</table>

* - only for version with aluminium piston
** - only for non-magnetic versions and with aluminium piston

SE - single-acting (magnetic), cushioned (available only with aluminium piston)
DE - double-acting (non-magnetic), cushioned
DEA - double-acting (non-magnetic), adjustable cushioning
DEM - double-acting (magnetic), cushioned
DEMA - double-acting (magnetic), adjustable cushioning

Actuators made of stainless steel are also available.
ISO 15552 cylinders

**ISO 15552 type A  Ø 32 ÷ 125 mm**

**Piston diameter:** Ø 32, 40, 50, 63, 80, 100, 125 mm  
**Working stroke:** Up to 2800 mm  
**Working press.:**  
- From 0.4 up to 10 bar - Ø 32, 40 mm  
- From 0.3 up to 10 bar - Ø 50, 63 mm  
- From 0.2 up to 10 bar - Ø 80 ÷ 125 mm  
**Working temp.:** From -35°C up to +150°C

<table>
<thead>
<tr>
<th>version</th>
<th>construction</th>
<th>piston diameter</th>
<th>working stroke</th>
<th>material</th>
<th>sealing</th>
<th>sealing</th>
</tr>
</thead>
</table>
| 121 - DEMA  
124 - DEM  
126* - SE* | A - standard  
B - non stick slip  
C non-magnetic | 32  
40  
50  
63  
80  
A1 - 100  
A2 - 125 | up to 2800 mm | A - piston rod:  
C45 chrome  
piston: aluminium  
(standard for Ø ≥ 80 mm)  
C - piston rod:  
C45 chrome  
piston: technopolymer  
(standard for Ø ≤ 63 mm)  
Z - piston rod and nut:  
stainless steel  
piston: aluminium  
X - piston rod and nut:  
stainless steel  
piston: technopolymer | N - NBR  
P - polyurethane  
V - Viton**  
B - low temperature** |

* - available up to Ø 63, only with aluminium piston  
** - available only for non-magnetic versions and with aluminium piston

DEMA - double-acting (magnetic), adjustable cushioning  
DEM - double-acting (magnetic), cushioned  
SE - single-acting (magnetic), adjustable cushioning

There are also economic versions of actuators (reduced weight) or versions made of stainless steel available.
## ISO 15552 cylinders

### ISO 15522 Ø 160 ÷ 200 mm

- **Piston diameter:** Ø 160, 200, mm
- **Working stroke:** From 25 up to 2800 mm
- **Working press.:** Up to 10 bar
- **Working temp.:** From -10°C up to +70°C

<table>
<thead>
<tr>
<th>W121</th>
<th>160</th>
<th>0050</th>
</tr>
</thead>
<tbody>
<tr>
<td>version</td>
<td>piston diameter</td>
<td>working stroke</td>
</tr>
<tr>
<td>W120 - DEA</td>
<td>160 - piston rod: C45 chrome</td>
<td>from 25 to 2800 mm</td>
</tr>
<tr>
<td>W121 - DEMA</td>
<td>160 - piston rod: C45 chrome</td>
<td></td>
</tr>
<tr>
<td>W124 - DEM</td>
<td>160 - piston rod: C45 chrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 - piston rod: C45 chrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td>XA3 - Ø 160 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>XA4 - Ø 200 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VA3 - Ø 160 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VA4 - Ø 200 mm</td>
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</tr>
<tr>
<td></td>
<td>KA3 - Ø 160 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KA4 - Ø 200 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- piston rod stainless steel seal: NBR</td>
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<tr>
<td></td>
<td>- piston rod stainless steel seal: NBR</td>
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<td>- piston rod stainless steel seal: NBR</td>
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<td></td>
<td>- piston rod stainless steel seal: FKM/FPM</td>
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<tr>
<td></td>
<td>- piston rod stainless steel seal: FKM/FPM</td>
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<tr>
<td></td>
<td>- piston rod: C45 chrome seal: FKM/FPM</td>
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<td></td>
<td>- piston rod: C45 chrome seal: FKM/FPM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- piston rod: C45 chrome seal: FKM/FPM</td>
<td></td>
</tr>
</tbody>
</table>

DEA - double-acting (non-magnetic), adjustable cushioning
DEMA - double-acting (magnetic), adjustable cushioning
DEM  - double-acting (magnetic), cushioned
Actuators

Mini actuator Ø 6 ÷ 16 mm - CRTC series
- Piston diameter: 6 - 10 - 16 mm
- Standard stroke length: 5, 10, 15 mm
- Threaded connection: M5
- Operation with unlubricated compressed air also possible
- Seals: NBR
- Versions: single-acting
- O-ring seal enables assembly directly in the machine body

Short-stroke actuator Ø 12 ÷ 100 mm - SSCY series
- Piston diameter: 12 ÷ 100 mm
- Standard stroke length: 5 ÷ 150 mm (depends on a version)
- Cushioning in end-of-stroke positions adjustable on both sides
- Operation with unlubricated compressed air also possible
- Seals: NBR, polyurethane, Viton
- Versions: single or double-acting, with a through-rod, protection against rotation, magnetic position sensors (standard), with a built-in oscillating flange
- Assembly set

Compact actuator Ø 12 ÷ 100 mm - CMPC series
- Piston diameter: 12 ÷ 100 mm
- Single or double-acting with extended or retracted piston rod, with a through-rod, protection against rotation
- Operation with unlubricated compressed air also possible
- Seals: polyurethane
- Fixing holes spacing according to: ISO 6431-VDMA 24562, NFE 49-004-1 and 2
- Can be mounted in series of 2, 3 or 4 actuators (multi-actuator units)
- Multi-position units (with 2, 3 stages) can be formed
- Assembly set

Actuator with double piston rod Ø 32 ÷ 100 mm - TWNC series
- Piston diameter: 32 ÷ 100 mm
- Standard stroke length: 25 ÷ 500 mm
- Axial dimensions according to ISO 6431
- Cushioning in end-of-stroke positions adjustable on both sides
- Operation with unlubricated compressed air also possible
- Seals: NBR, polyurethane
- Versions: double-acting, with a single or twin through-rod, magnetic position sensors (standard)
- Assembly set

Rotary actuator Ø 32 ÷ 100 mm - R1 series
- Piston diameter: 32 ÷ 100 mm
- Standard rotation angle: 90°, 180°, 270°, 360° with mechanical stroke adjustment
- Magnetic position sensors
- Cushioning in end-of-stroke positions adjustable on both sides
- Seals: NBR
- Operation with unlubricated compressed air also possible
- Driving shaft with male pinion or female hole
- Construction: pinion - rack mechanism
- Special versions: on request