PNEUMATIC CLUTCHES (SAFETY COUPLINGS)
Up to 30,000 Nm of torque and 120 mm bore

AP
A friction clutch or roller with torque adjustment even during operation. Ability to disengage the drive and driven by pneumatic or electrical impulse. Low residual torque after disengagement. Calibration adjustable by changing the pressure (pneumatic) air supply.

**APPLICATION FIELD**
- Machines with variable torque requirements.
- Test benches.
- Coiler and uncoilers.
- Cut format systems.

**ADVANTAGES AND BENEFITS**
- Engage/disengage different product transmission lines.
- Maintain tension of wire/film coils.
- Regulate different torques depending on the change of the format.
- Protect the motor gearbox against every form of overload.

<table>
<thead>
<tr>
<th>Clutch Model</th>
<th>Description</th>
<th>Torque Range</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSR/F/AP</td>
<td>Complete engagement-disengagement of the transmission, also for long periods</td>
<td>from 7 to 30000 Nm 120 mm max bore</td>
<td>67</td>
</tr>
<tr>
<td>DSR/F/AP + GEC</td>
<td>Compact coaxial connection for simple maintenance without being forced to remove the coupling</td>
<td>from 7 to 30000 Nm 180 mm max bore</td>
<td>68</td>
</tr>
<tr>
<td>DSF/TF/AP</td>
<td>Friction motion transmission as tensioner.</td>
<td>from 3 to 875 Nm 65 mm max bore</td>
<td>69</td>
</tr>
<tr>
<td>DSF/TF/AP/TAC</td>
<td>Simple and economic coaxial shaft connection.</td>
<td>from 3 to 875 Nm 80 mm max bore</td>
<td>70</td>
</tr>
</tbody>
</table>

**ASSEMBLY EXAMPLES**

- Model DSR/F/AP with plate wheel for parallel shaft transmission.
- Model DSF/TF/AP with plate wheel for parallel shaft transmission.
- Model DSR/F/AP Compact elastic coupling GEC for coaxial shaft transmission.

**NOTES**
- Avoid rigid locking of the anti-rotating pin of the cylinder as it can cause imbalances during rotation.
Transmission through rollers with re-engagement in phase 360° (equidistant on request, 30°, 45°, ...).
Free rotation for long periods after overload: ... / CS.
Suitable for high rotation speeds.
Maintenance free for high reliability.
Arranged to add a microswitch / proximity to stop the motor drive.
Torque range: 5 – 30,000 Nm; max. bore ø120 mm.

Transmission through rollers with re-engagement in phase 360° (equidistant on request, 30°, 45°, ...).
Free rotation for long periods after overload: ... / CS.
Suitable for high rotation speeds.
Maintenance free for high reliability.
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Suitable for high rotation speeds.
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Torque range: 5 – 30,000 Nm; max. bore ø120 mm.
... + GEC - model with compact elastic coupling: technical data

### DIMENSIONS

<table>
<thead>
<tr>
<th>Size</th>
<th>Torque [Nm] A3</th>
<th>D3</th>
<th>E3 H7</th>
<th>M3 N3 U3 V3</th>
<th>D H7</th>
<th>F</th>
<th>R</th>
<th>U3</th>
<th>V3</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSR/F/AP</td>
<td>Nom</td>
<td>Max</td>
<td>pilot bore</td>
<td>max</td>
<td>max</td>
<td>max</td>
<td>max</td>
<td>max</td>
<td>max</td>
</tr>
<tr>
<td>0.56</td>
<td>0</td>
<td>70</td>
<td>110</td>
<td>78</td>
<td>50</td>
<td>10</td>
<td>28</td>
<td>63.5</td>
<td>32</td>
</tr>
<tr>
<td>1.90</td>
<td>1</td>
<td>280</td>
<td>420</td>
<td>108</td>
<td>70</td>
<td>12</td>
<td>38</td>
<td>89</td>
<td>49</td>
</tr>
<tr>
<td>2.110</td>
<td>2</td>
<td>570</td>
<td>860</td>
<td>130</td>
<td>80</td>
<td>15</td>
<td>45</td>
<td>111</td>
<td>65</td>
</tr>
<tr>
<td>3.130</td>
<td>3</td>
<td>980</td>
<td>1500</td>
<td>161</td>
<td>100</td>
<td>15</td>
<td>60</td>
<td>140</td>
<td>85</td>
</tr>
<tr>
<td>4.160</td>
<td>4</td>
<td>2340</td>
<td>3600</td>
<td>206</td>
<td>120</td>
<td>20</td>
<td>70</td>
<td>168</td>
<td>105</td>
</tr>
<tr>
<td>5.194</td>
<td>5</td>
<td>3880</td>
<td>5800</td>
<td>239</td>
<td>135</td>
<td>30</td>
<td>80</td>
<td>201</td>
<td>130</td>
</tr>
</tbody>
</table>

### TECHNICAL DETAILS

<table>
<thead>
<tr>
<th>Size</th>
<th>Misalignments</th>
<th>Angular α [°]</th>
<th>Axial X [mm]</th>
<th>Radial K [mm]</th>
<th>Max speed [Rpm]</th>
<th>Weight [Kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSR/F/AP</td>
<td>GEC</td>
<td>continuous</td>
<td>intermittent</td>
<td>continuous</td>
<td>intermittent</td>
<td>continuous</td>
</tr>
<tr>
<td>0.56</td>
<td>0</td>
<td>1°</td>
<td>1° 30’</td>
<td>± 0,7</td>
<td>± 1,5</td>
<td>0,5</td>
</tr>
<tr>
<td>1.90</td>
<td>1</td>
<td>0° 48’</td>
<td>1°</td>
<td>± 0,7</td>
<td>± 1,5</td>
<td>0,5</td>
</tr>
<tr>
<td>2.110</td>
<td>2</td>
<td>0° 36’</td>
<td>0° 48’</td>
<td>± 0,7</td>
<td>± 1,5</td>
<td>0,6</td>
</tr>
<tr>
<td>3.130</td>
<td>3</td>
<td>0° 30’</td>
<td>0° 42’</td>
<td>± 0,8</td>
<td>± 1,6</td>
<td>0,6</td>
</tr>
<tr>
<td>4.160</td>
<td>4</td>
<td>0° 24’</td>
<td>0° 30’</td>
<td>± 0,8</td>
<td>± 1,6</td>
<td>0,6</td>
</tr>
<tr>
<td>5.194</td>
<td>5</td>
<td>0° 24’</td>
<td>0° 30’</td>
<td>± 0,8</td>
<td>± 1,6</td>
<td>0,6</td>
</tr>
<tr>
<td>6.240</td>
<td>6</td>
<td>0° 24’</td>
<td>0° 30’</td>
<td>± 0,8</td>
<td>± 1,6</td>
<td>0,6</td>
</tr>
<tr>
<td>7.280</td>
<td>7</td>
<td>0° 24’</td>
<td>0° 30’</td>
<td>± 0,8</td>
<td>± 1,6</td>
<td>0,6</td>
</tr>
</tbody>
</table>

### OTHER COUPLING MODELS ON REQUEST

Model DSR/F/AP with single flexing disc coupling GTR-S, for applications where torsional rigidity is required and without the ability to accommodate radial misalignment.

Model DSR/F/AP with double flexing torsionally rigid metal disc coupling GTR-D, when torsional rigidity is required and ability to accommodate radial misalignment.

### NOTES

- These details refer only for the coupling (GEC); for connection details see on page 67.
- Weights are relevant only to the pilot bore (GEC).
- Microswitches EM1 or EM2 and inductive sensor PRX see page 73.
**AP - pneumatic clutch: versions on request**

**DSR/F/AP/CS**
Version with ball bearings as an alternative to the rollers. Suitable for long rotation on disengagement.

**.../PRX**
Version with proximity inductive sensor PRX M8x1, integrated into the DSR/F/AP. Compact and versatile solution, without adding equipment and/or external components.

**DSF/TF/AP/SI**
Friction clutch with intervention signal and further automatic re-engagement. This characteristic requires particular machining on the drive element, which has to be supplied together with the torque limiter.

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**AP - pneumatic clutch: additional information**

**EXAMPLE CIRCUIT CONNECTION TYRE**

The pneumatic clutch are designed for the connection of pneumatic circuit with connection type “GAS”.
Some examples for the control to the pressure are shown here:

A) Adjustable pressure with pressure regulator.

B) Control of two pressures using solenoid valves.

C) Control of variable pressure by PLC.
AP - pneumatic clutch: additional information

ORDER EXAMPLE

<table>
<thead>
<tr>
<th>TORQUE LIMITER</th>
<th>COUPLING</th>
<th>DRIVE ELEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td><strong>Model</strong></td>
<td><strong>Descrizione</strong></td>
</tr>
<tr>
<td>0.56</td>
<td>DSR/F/AP</td>
<td>Plate wheel 1/2&quot; Z16</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ø15 H7</td>
<td></td>
</tr>
<tr>
<td>Torque</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Both models available only with finished bores.