Stock-types for Groschopp- / Yaskawa- motors

**PD 120**

*modern, smooth compact-gearbox*

**planetary gearbox w. low tolerance**

- for AC-, DC-, servo- and stepping motors (up to shaft- Ø 24 mm)
- high output torque for compact models
- load balancing between 3 planetary wheels
- ratios from 3:1 to 100:1 possible
- low backlash
- high dynamic due to small moment of inertia
- high turning stiffness
- high overload reserves
- optimal efficiency
- many types for Groschopp- / Yaskawa- motors in stock and deliverable

**Certifications**

![CE certification](image)
technical data

backlash  
1-staged  < 10 arcmin  
2-staged  < 15 arcmin  

efficiency factor  
1-staged  96% (at nominal torque)  
2-staged  94% (at nominal torque)  

torque  
1-staged  3000 / 5000 min⁻¹  
2-staged  94% (at nominal torque)  

weight  
1-staged  ca. 6,0 kg  
2-staged  ca. 8,6 kg  

does not apply  20.000 h  
operation temperature  -25 up to + 90°C (for short intervals +120°C)  
mounting position  adjustable  
 protection class  IP64  
 sound emission  ≤ 70 dB (A)  
 chassis version  powder coated, RAL3020, flange Al  

available ratios / nominal torque

The output torque refers to a life expectancy of 20,000 h, nominal- and input torque, operation factor 1 and mode of operation S1 for electric machinery.

1-staged

<table>
<thead>
<tr>
<th>ratios</th>
<th>3:1</th>
<th>4:1</th>
<th>5:1</th>
<th>7:1</th>
<th>10:1</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₂nomimal output torque [Nm]</td>
<td>85</td>
<td>90</td>
<td>110</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>M₂acceleration torque [Nm]</td>
<td>160</td>
<td>180</td>
<td>210</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>M₂emergency-stop [Nm]</td>
<td>255</td>
<td>270</td>
<td>330</td>
<td>270</td>
<td>240</td>
</tr>
<tr>
<td>mass moment of inertia [kgcm²]</td>
<td>3,66</td>
<td>2,97</td>
<td>2,68</td>
<td>2,48</td>
<td>2,39</td>
</tr>
</tbody>
</table>

*) maximum 1,000 cycles per hour M₂-portion of total run time < 5%.

**) maximum 1,000-times during the gearbox-lifetime.

2-staged

<table>
<thead>
<tr>
<th>ratios</th>
<th>16:1</th>
<th>20:1</th>
<th>25:1</th>
<th>28:1</th>
<th>35:1</th>
<th>40:1</th>
<th>50:1</th>
<th>70:1</th>
<th>100:1</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₂nomimal output torque [Nm]</td>
<td>100</td>
<td>100</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>95</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>M₂acceleration torque [Nm]</td>
<td>180</td>
<td>180</td>
<td>210</td>
<td>210</td>
<td>180</td>
<td>210</td>
<td>175</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>M₂emergency-stop [Nm]</td>
<td>300</td>
<td>300</td>
<td>330</td>
<td>330</td>
<td>300</td>
<td>330</td>
<td>285</td>
<td>255</td>
<td></td>
</tr>
<tr>
<td>mass moment of inertia [kgcm²]</td>
<td>2,96</td>
<td>2,68</td>
<td>2,67</td>
<td>2,48</td>
<td>2,47</td>
<td>2,40</td>
<td>2,39</td>
<td>2,39</td>
<td>2,39</td>
</tr>
</tbody>
</table>

*) maximum 1,000 cycles per hour M₂-portion of total run time < 5%.

**) maximum 1,000-times during the gearbox-lifetime.
drawings PD 120

axial length L9

1-staged 196
2-staged 232

rest-dimensions

<table>
<thead>
<tr>
<th></th>
<th>L5</th>
<th>L6</th>
<th>L7</th>
<th>L8</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>D8</th>
<th>D9</th>
<th>D10</th>
<th>U</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>shaft</td>
<td>centering</td>
<td>assembly</td>
<td>feather-key</td>
<td>length</td>
<td>output</td>
<td>shaft</td>
<td>centering</td>
<td>hole-circle</td>
<td>thread</td>
<td>chassis</td>
<td>center</td>
<td>feather-key</td>
</tr>
<tr>
<td>1-, 2-staged</td>
<td>50</td>
<td>10</td>
<td>61</td>
<td>40</td>
<td>25 k6</td>
<td>80 h7</td>
<td>100</td>
<td>M8x16</td>
<td>120</td>
<td>DM 10</td>
<td>8</td>
<td>28</td>
</tr>
</tbody>
</table>
simple engine mounting with shaft coupling / clamp ring

**tightening torque for the clamp screw**

M8: 43 Nm

**radial and axial shaft thoughness**