Spur Gearheads

0.03 Nm

For combination with
DC-Micromotors
Brushless DC-Motors
Stepper Motors

Series 12/3

<table>
<thead>
<tr>
<th>12/3</th>
<th>12/3K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>metal</td>
</tr>
<tr>
<td>Geartrain material</td>
<td>metal</td>
</tr>
</tbody>
</table>

Recommended max. input speed for:
- continuous operation 5,000 min⁻¹ 5,000 min⁻¹
- Backlash, at no-load ≤ 3 ° ≤ 3 °
- Bearings on output shaft sintered bearings ball bearings
- Shaft load, max.:
  - radial (4.5 mm from mounting face) ≤ 3 N ≤ 5 N
  - axial ≤ 2 N ≤ 10 N
- Shaft play:
  - radial (4.5 mm from mounting face) ≤ 0.06 mm ≤ 0.08 mm
  - axial ≤ 0.1 mm ≤ 0.05 mm
- Operating temperature range -30 °C to +100 °C -30 °C to +100 °C

Technical data

<table>
<thead>
<tr>
<th>Number of gear stages</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous torque mNm</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Intermittent torque mNm</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Mass without motor, g</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Efficiency, %</td>
<td>90</td>
<td>86</td>
<td>81</td>
<td>77</td>
<td>74</td>
<td>70</td>
<td>66</td>
<td>63</td>
<td>60</td>
</tr>
<tr>
<td>Direction of rotation, drive to output</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>=</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
<td>≠</td>
</tr>
<tr>
<td>Reduction ratio</td>
<td>9.17:1</td>
<td>20.6:1</td>
<td>46.4:1</td>
<td>104.4:1</td>
<td>235:1</td>
<td>529:1</td>
<td>1190:1</td>
<td>2677:1</td>
<td>6023:1</td>
</tr>
</tbody>
</table>

L2 [mm] = length without motor
L1 [mm] = length with motor
1016E...SR 31.3 33.4 35.5 37.6 39.7 41.8 43.9 46.0 48.1
1024E...SR 39.3 41.4 43.5 45.6 47.7 49.8 51.9 54.0 56.1
1219E...G 34.1 36.2 38.3 40.4 42.5 44.6 46.7 48.8 50.9
1224E...SR 39.6 41.7 43.8 45.9 48.0 50.1 52.2 54.3 56.4
1028E...8 43.5 45.6 47.7 49.8 51.9 54.0 56.1 58.2 60.3
1218E...8 33.4 35.5 37.6 39.7 41.8 43.9 46.0 48.1 50.2
1226E...8 41.4 43.5 45.6 47.7 49.8 51.9 54.0 56.1 58.2
AM1020...10 31.3 33.4 35.5 37.6 39.7 41.8 43.9 46.0 48.1
DM1220...57 32.8 34.9 37.0 39.1 41.2 43.3 45.4 47.5 49.6

1) The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

For more combinations see table.
Example of combination with 1219...G.
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**0.03 Nm**

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**Recommended max. input speed for:**
- Continuous operation: 5 000 min⁻¹
- Backlash, at no-load: ≤ 3 °
- Bearings on output shaft: sintered bearings
- Shaft load, max.:
  - radial (4,5 mm from mounting face) ≤ 3 N
  - axial ≤ 2 N
- Shaft press fit force, max:
  - radial (4,5 mm from mounting face) ≤ 0,06 mm
  - axial ≤ 0,1 mm
- Operating temperature range: - 30 ... + 100 °C

**Technical data**

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<thead>
<tr>
<th>Number of gear stages</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous torque mNm</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Intermittent torque mNm</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Mass without motor, ca. g</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Efficiency, max. %</td>
<td>57</td>
<td>54</td>
<td>51</td>
<td>49</td>
</tr>
</tbody>
</table>

**Reduction ratio**¹

- L2 [mm] = length without motor
  - 1016E...SR 34,3
  - 1024E...SR 50,2
  - 1219E...G 53,0
  - 1224E...SR 58,5
  - 1028E...B 62,4
  - 1218E...B 52,3
  - 1226E...B 60,3
  - AM1020...10 50,2
  - DM1220...57 51,7

- L1 [mm] = length with motor
  - 1016E...SR 50,2
  - 1024E...SR 58,5
  - 1219E...G 53,0
  - 1224E...SR 58,5
  - 1028E...B 62,4
  - 1218E...B 52,3
  - 1226E...B 60,3
  - AM1020...10 50,2

¹ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.