Robotic Cycloidal Gearboxes

GAM’s GCL Series Robotic Cycloidal Gearboxes provide low backlash and high rigidity for horizontal and vertical robotic and motion control applications.

- Backlash of $\leq 1$ arcmin with lost motion of $\leq 1$ arcmin
- Withstands the frequent start-stop impact loads of industrial robots with impact resistance 5x nominal torque
- Multi-tooth meshing for torsional rigidity
- Planetar gear for input speed reduction
- Flange output in 7 sizes with nominal output torque of 167 to 4410 Nm and ratios of 57:1 to 192.4:1
- Flanged hollow output in 6 sizes (up to 138 mm through hole) with nominal output torque of 490 to 4900 Nm
- Drops in for many competitors’ products
- Integrated motor adapter plate ready to mount your motor

Drive Sequence:

1. Input shaft/pinion
2. Planetary gears
3. Eccentric gearshafts
4. Cycloid gears
5. Pins
6. Pin Housing
7. Output

Applications

The GCL is well suited to high-end industrial robotics and motion control applications with its ability to withstand start-stop impact loads five times nominal torque.

- Robotics
- Tool changers
- Positioning
- Turntables
- Pick & Place
**Technical Specifications**

<table>
<thead>
<tr>
<th>GCLC-F/GCL-F</th>
<th>020</th>
<th>040</th>
<th>080</th>
<th>110</th>
<th>160</th>
<th>320**</th>
<th>450**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratios</strong></td>
<td>57, 81, 105, 121, 141, 161</td>
<td>57, 81, 105, 121, 153</td>
<td>57, 81, 101, 121, 153</td>
<td>81, 111, 161, 175.28</td>
<td>81, 101, 129, 145, 171</td>
<td>81, 101, 118.5, 129, 141, 153, 171, 185, 201</td>
<td>81, 101, 129, 153, 171, 192.4, 201, 210.23, 257.84</td>
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<tr>
<td>Outer Diameter mm</td>
<td>145</td>
<td>190</td>
<td>222</td>
<td>244</td>
<td>280</td>
<td>325</td>
<td>370</td>
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<tr>
<td>Nominal Output Torque* Nm</td>
<td>167</td>
<td>412</td>
<td>784</td>
<td>1078</td>
<td>1568</td>
<td>3136</td>
<td>4410</td>
</tr>
<tr>
<td>Input Capacity* kW</td>
<td>0.35</td>
<td>0.86</td>
<td>1.64</td>
<td>2.26</td>
<td>3.28</td>
<td>6.57</td>
<td>9.24</td>
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<tr>
<td>Power Density Nm/kg</td>
<td>33.4</td>
<td>45.8</td>
<td>60.3</td>
<td>63.4</td>
<td>60.3</td>
<td>71.3</td>
<td>66.8</td>
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<tr>
<td>Allowable Bending Moment Nm</td>
<td>882</td>
<td>1666</td>
<td>2156</td>
<td>2940</td>
<td>3920</td>
<td>7056</td>
<td>8820</td>
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<tr>
<td>Torsional Stiffness Nm/arcmin</td>
<td>49</td>
<td>108</td>
<td>196</td>
<td>294</td>
<td>392</td>
<td>980</td>
<td>1176</td>
</tr>
<tr>
<td>Tilting Rigidity Nm/arcmin</td>
<td>372</td>
<td>931</td>
<td>1176</td>
<td>1470</td>
<td>2940</td>
<td>4900</td>
<td>7448</td>
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<tr>
<td>Backlash</td>
<td>Lost Motion</td>
<td>Backlash: ≤1 arcmin</td>
<td>Lost Motion: ≤1 arcmin</td>
<td></td>
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</tr>
</tbody>
</table>

*Rated at 15 rpm output speed **Base ratio of gearbox, overall ratio determined by input pinion as specified by customer
The GAM Advantage

Find the your exact solution at GAM!

GAM’s product range of gear reducers, couplings, and other specialized mechanical drive solutions is one of the largest in the industry. Even with such a wide offering, we realize that you may not find a standard product that meets your exact requirements.

One of our greatest strengths is our ability to modify standard designs, provide completely customized solutions, and integrated product assemblies to meet your specific application requirements. And, because of our flexible manufacturing, we can cost-effectively produce small batches of customized product in short lead-times.

So if you can’t find what you are looking for, just ask!

GAM, a U.S. company, is your complete source for Gear Reducers, Servo Couplings, and other precision mechanical drive solutions used in automation technology.

With one of the largest product offerings in the motion control industry as well as the engineering expertise and manufacturing capabilities to develop customized solutions, GAM can help with your application.

U.S. manufacturing, being flexible to meet the needs of customer requests, and great service are what set us apart from the rest.

GAM Can.