Only NYLOIL from Cast Nylons Ltd. offers three grades of self-lubricating Nylon bearing material tailored to meet your specific application.

A cast nylon with built-in oil lubrication, NYLOIL provides superior machinability, performance, and durability compared to other plastic and traditional bearing materials. Three grades of NYLOIL are available to fit the most demanding applications: original Green Nyloil for most bearing applications; food-grade, Natural Nyloil-FG for direct contact with food; and MoS2 filled Gray Nyloil-MDX with slightly higher compressive load capabilities than original NYLOIL.

The incorporation of an oil lubricant package into the nylon matrix provides significant advantages over other bearing materials:

- Lubrication results in 25% lower coefficient of friction than other grades of nylon.
- Performs in harsh environments where lubrication is difficult, impossible, or un-desirable.
- Operates efficiently in direct contact with abrasive slurries.
- Works successfully in marine applications.
- Reduced water absorption promotes higher dimensional stability.
- Works and machines as easily as brass.
- Oil will not spin out, dry out, or drain out, even under the harshest operating conditions.

During NYLOIL’s manufacturing process, an oil lubricant package is completely dispersed within the cast nylon matrix, making it an integral part of the casting’s structure.

### Average Thrust Bearing Test Results

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PV = 2500 \; @ \; V = 40 \; fpm
\]

<table>
<thead>
<tr>
<th>Material</th>
<th>Wear Factor (K^1)</th>
<th>Coefficient of Friction Dynamic (K^2)</th>
<th>Comparative Wear Rate to NYLOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYCAST NYLOIL</td>
<td>4</td>
<td>.12</td>
<td>1</td>
</tr>
<tr>
<td>ACETAL/PTFE FILLED</td>
<td>16</td>
<td>.15</td>
<td>4</td>
</tr>
<tr>
<td>NYLATRON NSM (2)</td>
<td>33</td>
<td>.17</td>
<td>8</td>
</tr>
<tr>
<td>NYCAST 6 PA MoS(_2) FILLED</td>
<td>274</td>
<td>.22</td>
<td>68</td>
</tr>
<tr>
<td>NYLON 6/6</td>
<td>900</td>
<td>.43</td>
<td>225</td>
</tr>
<tr>
<td>BRONZE (ASTM B-147)</td>
<td>3,000</td>
<td>.34</td>
<td>750</td>
</tr>
</tbody>
</table>

(1) Measured on thrust washer testing machine, unlubricated @ 40 fpm and 50 lb./sq. in.
(2) Polymer Corporation

### Dimensional Stability

With their higher crystallinity, all NYCAST® products exhibit improved dimensional stability compared to their extruded nylon counterparts. But NYLOIL provides even better dimensional stability than regular grades of cast nylon: its oil droplets fill gaps in the amorphous structure of the polymer, allowing less room for water to be absorbed into these areas. The moisture absorption graph shows that despite a slow absorption rate, NYLOIL stabilizes at approximately 2.5% moisture content - less than half the moisture content of other unfilled nylons.

### Water Absorption

Although not evident by sight or touch, the oil lubricant in NYLOIL is always at the surface regardless of the amount of material removed during finish machining or normal wear.

NYLOIL-FG is a self lubricating nylon bearing material which meets the provisions of FDA Regulations 21 CFR, Section 177.15 (and others) and USDA 3A Sanitary Standards 20-17 for direct contact with food. This is a particularly useful material where additional lubrication is not desirable because of cleanability, contamination, or other considerations.

Gray NYLOIL-MDX is formulated with a Molybdenum Disulfide filler which promotes higher crystallinity in the cast polymer, in addition to the oil lubricant package. This yields a bearing material with more consistent intermolecular structure and generally a narrower distribution within the range of physical property values, while retaining the advanced friction properties of unfilled Nyloil.
| Physical Properties | Because of the presence of oil in the matrix of the nylon, NYLOIL exhibits superior physical properties including notched load impact (NYLOIL is two times less likely to break under load impact than a regular cast nylon), improved elongation (twice the elongation of 6PA Natural), coefficient of friction (because oil is constantly present at the material’s surface) and water absorption (the oil in the matrix leaves less room for water to be absorbed). |