**CarTech® PremoMet® Alloy**

**TYPICAL COMPOSITION**

<table>
<thead>
<tr>
<th>C</th>
<th>Si</th>
<th>Ni</th>
<th>Cu</th>
<th>Mn</th>
<th>Cr</th>
<th>Mo</th>
<th>V</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>.40</td>
<td>1.5</td>
<td>3.8</td>
<td>.50</td>
<td>.90</td>
<td>1.25</td>
<td>.50</td>
<td>.30</td>
<td>Balance</td>
</tr>
</tbody>
</table>

CarTech PremoMet alloy is a patent pending, ultra-high strength, high toughness, quench and temper alloy steel manufactured by Carpenter Technology Corporation. The material may be considered as a lower-cost alternative to cobalt-containing steel alloys.

CarTech PremoMet alloy may be considered for high-performance applications in power train components in heavy-duty diesel engines and other commercial transportation and locomotive applications. PremoMet alloy possesses high strength and toughness with superior fatigue resistance compared to many alloy steels currently in use. This alloy may be considered for applications such as:

- Gears
- Connecting Rods
- Crankshafts
- Springs
- Drive shafts
- Fasteners

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th></th>
<th>Typical Gear Materials</th>
<th>High Strength Heat Treated Steels</th>
<th>CarTech PremoMet Alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2% YS (ksi/MPa)</td>
<td>90-203 ksi (550-140 MPa)</td>
<td>145-225 ksi (1000-1550 MPa)</td>
<td>240/1655</td>
</tr>
<tr>
<td>UTS (ksi/MPa)</td>
<td>61-151 ksi (420-1040 MPa)</td>
<td>200 ksi (1200-1850 MPa)</td>
<td>295/2037</td>
</tr>
<tr>
<td>% El</td>
<td>10-13</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>% RA</td>
<td>28-36</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>10' Cycles Fatigue</td>
<td></td>
<td>75-85 ksi (545-586 MPa)</td>
<td>145/1000</td>
</tr>
<tr>
<td>Strength (MPa)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fracture Toughness</td>
<td></td>
<td>55/60</td>
<td>65/71</td>
</tr>
<tr>
<td>(ksi/√in/ MPa√m)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardness (HRC)</td>
<td></td>
<td></td>
<td>54</td>
</tr>
</tbody>
</table>

**BENEFITS**

- High Strength
- High Toughness
- Superior fatigue resistance
- Strength-to-weight ratio
- Clean alloy steel microstructure

**PRODUCT FORMS**

- Bar - Rounds
- Plate
- FBB
- Wire
- Strip

**CONTACT**

Carpenter Technology Corporation
P.O. Box 14662
Reading, PA 19612-4662 USA
service@cartech.com

USA
TF: 800-654-6543
Tel: 610-208-2000

Canada
TF: 800-268-4740

England
Tel: +44-1527-512200

Europe
Belgium
Tel: +32-10-686-010

Mexico and South America
Querétaro
Tel: 52 (442) 29-09-04-001
Palmas
Tel: 52 (55) 50-03-02-33

Asia
Singapore
Tel: 65-6738-2401
China
Tel: 86-021-2411 3500
Fax: 86-021-2411 3555

Visit us at www.cartech.com

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