AnCorsteel® FLD-48

AnCorsteel steel powders were developed to extend the capability of PM parts to satisfy the needs of today’s technology where higher strength and toughness are required.

Typical Analysis and Properties

<table>
<thead>
<tr>
<th></th>
<th>Ni</th>
<th>Mo</th>
<th>Cu</th>
<th>C</th>
<th>Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>AnCorsteel FLD-48</td>
<td>4.0</td>
<td>0.5</td>
<td>1.5</td>
<td>&lt;0.01</td>
<td>0.13</td>
</tr>
<tr>
<td>AnCorsteel FD-4800A</td>
<td>4.0</td>
<td>0.5</td>
<td>1.5</td>
<td>&lt;0.01</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Description
AnCorsteel FLD-48 material has the same nominal chemical composition as the current AnCorsteel FD-4800A product. The difference is the molybdenum prealloyed in the base iron rather than diffusion alloyed during annealing. This gives AnCorsteel FLD-48 higher strength (TRS, YS, UTS) and greater hardenability, with only minor reduction in ductility and impact toughness. This material is best utilized in applications where increased hardness is necessary. The recommended density range is 6.8 g/cm³ and above.

Application
- Parts requiring higher hardenability than achieved with standard diffusion alloyed materials.
- Parts subjected to “brinelling” type of loading
- Parts subject to dynamic loading
- Parts with close dimensional tolerances

Compressibility
Compressibility equivalent to AnCorsteel FD-4800A

Green Strength
Ancorsteel® FLD-48

**TRS and Apparent Hardness**

Ancorsteel FLD-48 gives superior TR strength and apparent hardness.

**Tensile Properties**

Ancorsteel FLD-48 gives higher strength, lower elongation.

**Impact Toughness**

Ancorsteel FLD-48 has slightly lower impact toughness compared to Ancorsteel FD-4800A.

As-sintered test specimens were compacted to 7.0 g/cm³ and sintered in a belt furnace at 1120 °C (2050 °F) in 90 v/o N₂ − 10 v/o H₂ atmosphere, with accelerated cooling (~1.6 °C/s). Tempering was performed at 200 °C for one hour in air.
The improved hardenability of Ankorsteel FLD-48 results in higher martensite content and apparent hardness.