Thermal conductivity (w/m K)

<table>
<thead>
<tr>
<th>Brand</th>
<th>NAK55</th>
<th>NAK80</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C</td>
<td>20.0</td>
<td>20.5</td>
</tr>
<tr>
<td>40°C</td>
<td>21.0</td>
<td>21.5</td>
</tr>
<tr>
<td>60°C</td>
<td>22.0</td>
<td>22.5</td>
</tr>
</tbody>
</table>

Magnetic properties

<table>
<thead>
<tr>
<th>Brand</th>
<th>NAK55</th>
<th>NAK80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand</td>
<td>Daido</td>
<td>Daido</td>
</tr>
<tr>
<td>D (T)</td>
<td>1.635</td>
<td>---</td>
</tr>
<tr>
<td>B (T)</td>
<td>0.850</td>
<td>---</td>
</tr>
<tr>
<td>Hc (Oe)</td>
<td>4.47</td>
<td>---</td>
</tr>
<tr>
<td>Br (T)</td>
<td>1.69</td>
<td>---</td>
</tr>
<tr>
<td>Bs (T)</td>
<td>1.79</td>
<td>---</td>
</tr>
</tbody>
</table>

[Precautions for Use]

Build-up Welding should be conducted according to the procedures and methods noted below:

1. Preparation
   - Fully clean all oil, grease material, and rust
   - Remove all cracks and surface treatment layers

2. Build-up Welding Rod
   - NAK-W (for both NAK 55 and NAK 80)
   - Rod diameter: 20~100 C

3. Pre-heating
   - Remove all cracks and surface treatment layers
   - Fully clean all oils, foreign material, and scales
   - Gradual heat with furnace, propane, or natural gas burner
   - Remove any scale deposits formed during build-up welding or during use
   - Changes, it is still often necessary to prepare for heating during repair, such as when repairing cracks which have occurred during build-up welding or during use, even though 450-500 C is adequate for welding to prevent distortion after welding

4. Welding
   - Electrode diameter: 2.4 mm
   - Use a special melting method
   - A high-precision mirror surface polishability and good EDM surface
   - The material is sometimes used for mirror surface polishes
   - High-precision, high-precision mold steel for plastic mold steels

5. Post-heating
   - Gradually cool in the furnace
   - Post-heating is conducted with a temperature of 380°C for 1 hour

[Quality Characteristics IV]

Thermal expansion coefficient (x 10^-6 C^-1)

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<tr>
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<td>20°C</td>
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<td>12.5</td>
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<tr>
<td>40°C</td>
<td>13.4</td>
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[Physical Properties]

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<td>Thermal expansion coefficient (x 10^-6 C^-1)</td>
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<td>Thermal conductivity (w/m K)</td>
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Document Disclaimer

The product characteristics included in this brochure are the representative values based on the result of our measurement, and do not guarantee the performance in use of the products. Please inquire for the latest information to our department in charge as the information of this brochure is updated without previous notice as needed. Copyright © 2012 Daido Steel Co., Ltd. All rights reserved.
Typical hardness distribution after EDM:

Grinding #220 #320 #400
PX4, PXA30
S - STAR

[Cutting speed (m/min)]

Though both are easily machined, the properties of NAK 80 are slightly inferior to those of NAK 55.

30
50

Typical drill tool life

[Typical Mechanical Properties of Rolled Bars]

Tensile strength (initial hardness 40 HRC) NAK80 NAK55 Brand Daido

Tensile strength (initial hardness 40 HRC) NAK80 NAK55

[Quality Characteristics I]

[Quality Characteristics II]

Typical hardness distribution after Welded:

As welded

Typical hardness distribution after Welded:

NAXS, NAK 80

[Electrical Discharge Machinability]

There is no increase in hardness of welded sections. If aging is performed after welding, uneven etching structure will be improved.

Typical hardness distribution after Welded:

NAXS, NAK 80

[Gas Soft-Nitriding Capability]

[Build-up Welding Properties]

There is no increase in hardness of welded section. So fine machining can be easily carried out.

Typical hardness distribution after Welded:

NAXS, NAK 80

[Electrical Discharge Machinability]

There is no increase in hardness of EDM surface. So fine machining can be easily carried out.

Typical hardness distribution after EDM:

NAXS, NAK 80

[Electrical Discharge Machinability]

There is no increase in hardness of welded sections. If aging is performed after welding, uneven etching structure will be improved.

Typical hardness distribution after Welded:

NAXS, NAK 80

[Electrical Discharge Machinability]

There is no increase in hardness of welded sections. So fine machining can be easily carried out.

Typical hardness distribution after EDM:

NAXS, NAK 80

[Electrical Discharge Machinability]

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Typical hardness distribution after Welded:

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[Gas Soft-Nitriding Capability]

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