# Alloy 740H

**CATEGORY**
GMAW-GTAW Solid wires

**TYPE**
Solid Nickel based (GMAW) welding wire with precipitation hardening weld deposit.

**APPLICATIONS**
A Superalloy Specifically Designed For Advanced Ultra Supercritical Power Generation. Potential applications include advanced power production boiler tubes and diesel engine exhaust valves.

**PROPERTIES**
Alloy 740H is a nickel-base, precipitation hardenable superalloy that offers a unique combination of high strength and creep resistance at elevated temperatures along with resistance to coal ash corrosion. The alloy was originally targeted for use as A-USC boiler tubes in the superheater sections of these plants but was then adapted for application as a material for the steam headers to which the boiler tubes are connected.

**CLASSIFICATION**
AWS A 5.14: ER NiCrCo-1 (proposed)
UNS: N07740
EN ISO 18274:

**SUITABLE FOR**
Inconel alloy 740H

**APPROVALS**
CE approved

**WELDING POSITION:**
![Welding Positions]

**WELD METAL ANALYSIS ACC. AWS %**

<table>
<thead>
<tr>
<th></th>
<th>Ni</th>
<th>Cr</th>
<th>Co</th>
<th>Al</th>
<th>Ti</th>
<th>Nb</th>
<th>Fe</th>
<th>C</th>
<th>Mn</th>
<th>Mo</th>
<th>Si</th>
<th>Cu</th>
<th>B</th>
<th>Rem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23.5-25.5</td>
<td>15-22</td>
<td>0.2-2.0</td>
<td>0.5-2.5</td>
<td>0.5-2.5</td>
<td>&lt;3.0</td>
<td>0.005-0.08</td>
<td>&lt;1.0</td>
<td>&lt;2.0</td>
<td>&lt;1.0</td>
<td>&lt;0.5</td>
<td>0.0006-0.006</td>
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</table>

**MECHANICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Heat Treatment</th>
<th>RP0.2 (N/mm²)</th>
<th>Rm (N/mm²)</th>
<th>A5 (%)</th>
<th>Impact Energy (J)</th>
<th>ISO-V</th>
<th>-20°C</th>
<th>-40°C</th>
<th>-196°C</th>
<th>Hardness HRc / HV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWHT</td>
<td>750</td>
<td>1050</td>
<td>20</td>
<td></td>
<td></td>
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</tbody>
</table>

**WELDING PARAMETERS / PACKING**

<table>
<thead>
<tr>
<th>D (mm)</th>
<th>Voltage (V)</th>
<th>Current (A) (pulsed)</th>
<th>Packing (kg)</th>
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</thead>
<tbody>
<tr>
<td>0,9</td>
<td>23-26</td>
<td>90-130</td>
<td>13,6</td>
</tr>
<tr>
<td>1,14</td>
<td>26-28</td>
<td>110-180</td>
<td>13,6</td>
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</table>

**REDRYING TEMPERATURE**
not required

**GAS ACC. EN ISO 14175:**
I1, Ar/He (75-25)