Lincore® T&D

GENERAL DESCRIPTION
Delivers a deposit similar to H12 tool steel
For build-up of tool steel dies and edges, or applying wear resistance surface on carbon or low alloy steels
To be used on carbon steel, low alloy steel or tool steel

CLASSIFICATION
EN 14700 T Fe8

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

<table>
<thead>
<tr>
<th>C</th>
<th>Mn</th>
<th>Si</th>
<th>Cr</th>
<th>Al</th>
<th>Mo</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.65</td>
<td>1.5</td>
<td>0.8</td>
<td>7.0</td>
<td>1.8</td>
<td>1.4</td>
<td>1.6</td>
</tr>
</tbody>
</table>

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Typical hardness values
As welded 48 - 55 HRc
Tempered at 540°C 55 - 65 HRc
Welded on Mild Steel Plate (12mm)

STRUCTURE
In the as welded condition the microstructure consists mainly of martensite in an austenite-carbide eutectic matrix. After tempering, the microstructure consists of tempered martensite with secondary carbides

WELDING POSITIONS (ISO/ASME) CURRENT TYPE
PA/1G DC+

PACKAGING AND AVAILABLE SIZES

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>1.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.34kg coil 22RR</td>
<td>X</td>
</tr>
</tbody>
</table>

All information in this data sheet is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.eu for any updated information.
Fumes: Material Safety Data Sheets (MSDS) are available on our website.
**Lincore® T&D**

**APPLICATION**

Lincore T&D produces a crack-free wear resistant tool steel deposit with a hardness range of 48-55HRC. The hardness can be further increased to between 55-65HRC after tempering. It is particularly suitable for applications involving severe metal to metal wear coupled with elevated temperatures (up to 540°C). Ideally suited to the build up of worn steel dies, cutting tools or the APL of wear resistant surfaces to carbon and low alloy steels.

Typical applications include:
- Punch dies
- Shear blades

**ADDITIONAL INFORMATION**

A preheat and interpass temperature of 325°C, or higher (up to 540°C), are necessary to avoid cracking. It is important to ensure that an adequate “soak” is achieved prior to the welding operation. After welding, the component should be covered and slow cooled down to room temperature. Once cooled, the weldment should be post weld heat treated to temper the martensite and toughen the deposit. Tempering at 540°C normally produces the optimum combination of hardness and toughness.

The deposited weld metal is not machinable by conventional methods although the deposit can be shaped by grinding.

Annealing at 850°C for several hours and slow cooling will reduce the hardness to approximately 30HRC. This deposit can be readily machined. Rehardening is achieved by heating to about 1200°C for several hours to dissolve all carbides and homogenise the steel, followed by air cooling and tempering.

Lincore T&D cannot be cut by the oxy-fuel processes. Plasma arc and air-carbon arc processes can be used to both cut and gouge the weld deposit. Preheat temperatures similar to those for welding may be necessary to prevent cracking along the cut edge.

**CALCULATION DATA**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Wire Feed Speed (cm/min)</th>
<th>Current (A)</th>
<th>Arc Voltage (V)</th>
<th>Deposition rate (kg/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>3.8-8.9</td>
<td>170-300</td>
<td>22-26</td>
<td>2.4-5.4</td>
</tr>
</tbody>
</table>

**COMPLEMENTARY PRODUCTS**

Complementary products include Wearshield® T&D