Lincore® 33

**CLASSIFICATION**

EN 14700 : T Fe 1

**GENERAL DESCRIPTION**

Lincore 33 is a self shielded, open arc, flux cored tubular electrode designed primarily for the build-up of steel parts or as a buttering layer prior to hardfacing. Arc characteristics are excellent producing a soft low penetration arc (ideal for build-up) that exhibits low spatter levels and excellent slag removal. Although, Lincore 33 is primarily designed for the open arc operation, it may be used under a neutral flux for conditions requiring spatter elimination and removal of arc glare.

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

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>Mn</th>
<th>Si</th>
<th>Cr</th>
<th>Al</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.15</td>
<td>2.0</td>
<td>0.7</td>
<td>2.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

**STRUCTURE**

In the as welded condition the microstructure consists mainly of a mixture of ferrite and bainite.

**MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL**

**Typical hardness values**

Layer 1  
21-30 HRc (230-290HB)

Layer 2  
26-32 HRc (260-300HB)

Layer 3  
28-34 HRc (250-330HB)

Welded on Mild Steel Plate (12mm)

**PACKAGING AND AVAILABLE SIZES**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>1.1</th>
<th>1.6</th>
<th>2.0</th>
<th>2.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: 6.35 kg coil 14C</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.34kg coil 22RR</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>22.7 kg coil 50C</td>
<td>X</td>
<td>X</td>
<td></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.
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APPLICATION

Lincore 33 produces a crack-free wear resistant deposit with a hardness range of 25-35 HRc depending on material dilution and number of layers. Designed primarily as a final overlay on steel parts which need to be machined or as a build-up layer of other hardfacing materials. It is particularly suitable of conditions of moderate abrasion and friction, coupled with resistance to impact such as APLs involving rolling, sliding and metal to metal wear.

Typical applications include:

Hardfacing:

- Crane and mine car wheels
- Tractor rolls, idlers, links and sprockets
- Cable drums
- Roller guides
- Shafts

ADDITIONAL INFORMATION

All work-hardened base material should be removed prior to applying Lincore 33 to prevent embrittlement and cracking. Preheat and postweld heat treatment is not generally necessary on C/Mn steels, however, preheat up to 260°C may be necessary on high carbon steels or large complex or restrained components.

The deposited weld metal can be machined to exact dimensions using high speed or carbide cutting tools. There is no limit to the deposit build-up with this electrode.

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>
<th>Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>5.1 to 12.7</td>
<td>80-150</td>
<td>25-31</td>
<td>1.5-3.9</td>
<td>80-85</td>
</tr>
<tr>
<td>1.6</td>
<td>3.8 to 8.9</td>
<td>125-225</td>
<td>26-32</td>
<td>2.1-5.0</td>
<td>79-84</td>
</tr>
<tr>
<td>2.0</td>
<td>3.2 to 6.4</td>
<td>200-325</td>
<td>23-29</td>
<td>3.1-6.1</td>
<td>87-86</td>
</tr>
</tbody>
</table>

COMPLEMENTARY PRODUCTS

Wearshield® BU30