LB-52 is the most popular electrode for 490MPa class high tensile steel in ships, bridges, buildings and pressure vessels. This electrode was adopted in the first nuclear reactor vessel of Japan. Its usability is good in all positions and it deposits weld metal of high quality.

**General Characteristics**

**Workability**

- In all positions the workability is good and both fluidity and removability of slag are fine.
- The arc is stable and bead appearance is quite beautiful.

**Production Sizes and Recommended Welding Current**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>AC (A)</th>
<th>DC + (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrode Diameter (mm)</td>
<td>2.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Electrode Length (mm)</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>Current Range (Amp)</td>
<td>55–85</td>
<td>90–130</td>
</tr>
</tbody>
</table>

Table 1: Production sizes and recommended welding current (AC or DC ±)

<table>
<thead>
<tr>
<th>Electrode Diameter (mm)</th>
<th>4.0</th>
<th>5.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrode Length (mm)</td>
<td>400</td>
<td>460</td>
</tr>
<tr>
<td>Current Range (Amp)</td>
<td>130–180</td>
<td>180–240</td>
</tr>
<tr>
<td>Vertical &amp; Overhead</td>
<td>110–170</td>
<td>150–200</td>
</tr>
</tbody>
</table>

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KOBE STEEL GROUP
**Technical Report**

The No. 1 Low-Hydrogen Type Electrode for both Mild Steel and 490N/mm² High Tensile Steel suited for almost limitless applications.

**Inception of LB-52**
LB-52 was developed around 1958. “L” stands for Low Hydrogen, while “B” symbolizes a slag-shielding covered electrode. “52” refers to the level of approximate tensile strength of the deposited metal when it was developed.

**How low is the Hydrogen content?**
The E7016 electrode is designated as a Low Hydrogen Type, stressing the very important factor of lower hydrogen content in the deposited metal. Hydrogen is a predominant element that accelerates cracking in welds. Fig. 2 compares the hydrogen content in deposited metals of several types of covered electrodes. It clearly shows the low-hydrogen type releases the lowest hydrogen content.

**Outstanding features of LB-52**
The outstanding features of LB-52 among other E7016 electrodes are:
- Excellent usability in out-of-position welding: better arc concentration, easier slag removal, smoother bead appearance.
- Excellent mechanical properties: constant tensile strength, higher impact value.
- Excellent X-ray soundness

The choice of LB-52 can be the solution for fulfilling stricter requirements for tensile strength and impact value in both as-welded and postweld heat-treated conditions. This is because of Kobe Steel’s keen quality control in every lot of production. However, you cannot obtain these benefits unless you follow some of the following precautions:
- Redry LB-52 at 300°C~350°C for 30~60 minutes before use for every four-hour exposure to air without wetting unless otherwise specified. This is the air as shown in Fig. 4. Moisture can be a source of hydrogen in weld metal. Fig. 4 clearly shows that higher temperatures and humidity accelerate the moisture pick up.

**Highly reputed for 40 years**
Since it was launched, LB-52 has seen its features refined and its markets expanded. Kobe Steel pursues keen quality control in order to maintain the outstanding features of LB-52 produced in Japan and overseas. The maintenance of quality is an important factor in persistently earning a high reputation for LB-52 in almost limitless applications in various fields such as pressure vessels, storage tanks, pipelines, machinery, offshore structures, ships, bridges and steel structures. Kobe Steel is sure LB-52 will be reliable electrode for your workshop.

**How to use LB-52**
The choice of LB-52 can prevent cracking in welding poor-weldability base metals that contain a high percentage of carbon, or that have thick sections. This is because of the merit of low hydrogen and higher ductility of the weld metal.

The choice of LB-52 can be the solution for passing stricter X-ray test. This is because of excellent arc concentration fusion to the groove face.