

LB-52

(AWS A5.1 E7016)



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 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. 1 compares the hydrogen content in deposited metals of several types of covered electrode. It clearly shows the low-hydrogen type releases the lowest hydrogen content.

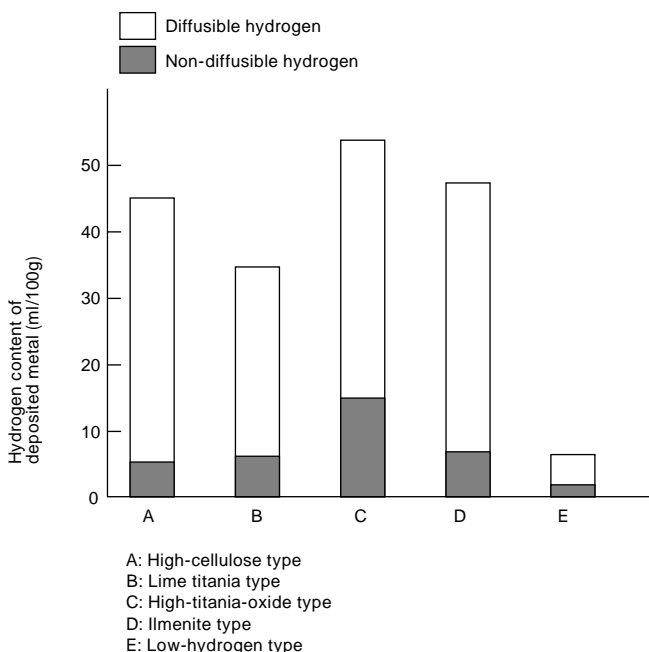


Fig.1 Hydrogen content in deposited metals of different types of covered electrode

Outstanding Features of LB-52

The outstanding features of LB-52 among other E7016 electrodes are:

- (1) Excellent usability in out-of-position welding: better arc concentration, easier slag removal, smoother bead appearance
- (2) Excellent mechanical properties: constant tensile strength, higher impact value
- (3) Excellent X-ray soundness

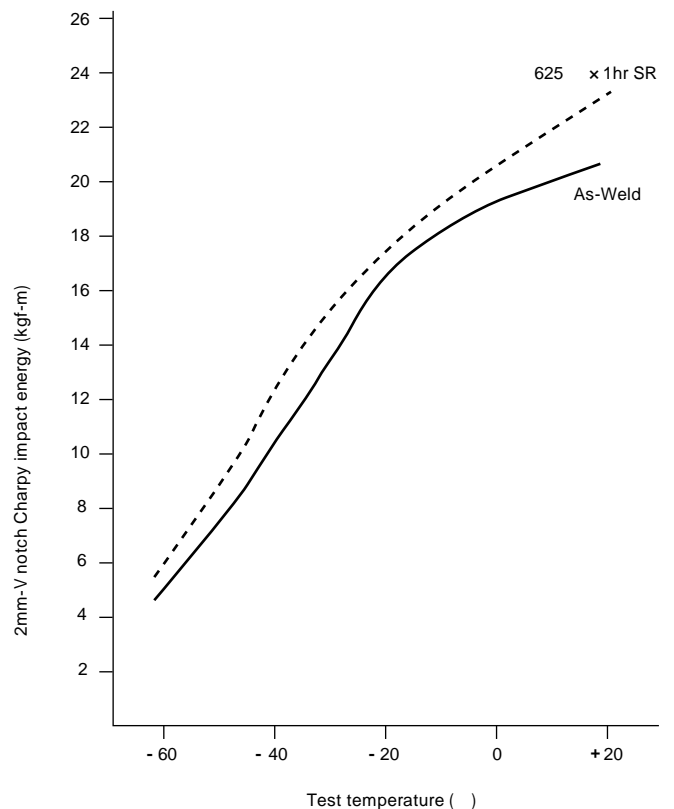


Fig.2 Impact test results of LB-52 deposited metal both as-welded and postweld heat treated

Fig. 2 shows the results of Charpy impact testing with 2mmV-notch specimens at a wide range of testing temperatures. Because of this high impact strength in both as-welded and postweld-heat-treated condition, LB-52 can be used for low-temperature applications down to -20 °C, in addition to room temperature and elevated temperature applications.

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 such various fields as pressure vessels, storage tanks, pipelines, machinery, offshore structures, ships, bridges, and steel structures. Kobe Steel is sure LB-52 will be a reliable electrode for your workshop.



Fig.3 LB-52 is a must for plant construction

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 lower 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 and fusion to the groove face.

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 condition lot by lot. 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:

- (1) Re-dry LB-52 at 300 - 350 for 30 - 60 minutes before use for every four-hour exposure to air without wetting unless otherwise specified. This is because the coating flux tends to pick up moisture in 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.

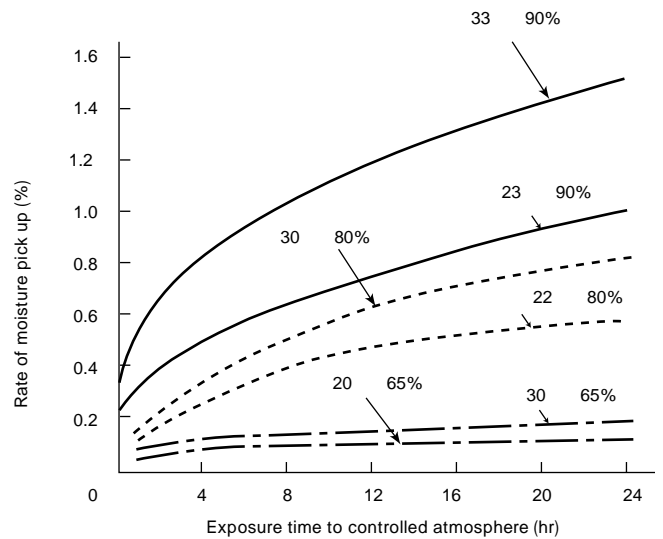


Fig.4 The moisture pick up vs. several temperatures and levels of humidity of the controlled testing atmosphere

- (2) Use the backstep technique at arc starting to prevent the occurrence of porosity at the starting area of the bead as illustrated in Fig. 5. This is common practice for all low hydrogen type electrodes.

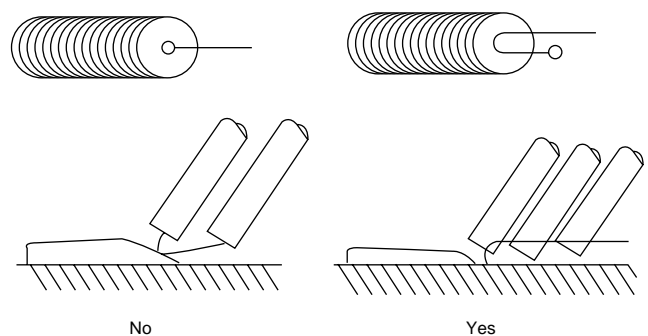


Fig.5 The backstep technique prevents porosity at the arc starting area of the weld bead