

# HOW TO WELD WITH LH-D ELECTRODES



Bob Dissauer has worked at Lincoln Electric since 1989 and has over 20 years of experience helping customers weld with Lincoln Electric equipment and consumables in various applications from offshore pipelines to automotive manufacturing. In his daily job at Lincoln Electric, Bob assists welding operators from all over the world maximize their welding output by using the correct operating procedures.

As an Application Engineer for the Lincoln Electric Company, I work with many pipeline fabricators and have seen an increase in the use of low hydrogen downhand (LH-D) stick electrodes. I receive many questions from our customers about how to properly weld with these electrodes and have seen firsthand how incorrect use can lead to weld inconsistencies.

LH-D stick electrodes differ from the common cellulosic electrodes used in the pipeline industry, like Pipeliner® 5P+, 6P+, 7P+, or 8P+. The high deposition rates and low hydrogen levels make LH-D electrodes ideal for welding the high strength steel specific to this market. For more information please visit [www.lincolnelectric.com](http://www.lincolnelectric.com).

The first thing to remember when welding LH-D electrodes is that they run at a higher current than cellulosic electrodes. A good rule of thumb when switching from a cellulosic electrode to LH-D is that you can move down a size in diameter, from 5.0 mm to 4.0 mm for example, while maintaining the same amperage setting. Also keep your machine capacity in mind when welding with these electrodes. Higher amperage output engine drives work the best.

It is important to note that LH-D electrodes perform the best when run at the highest amperage possible without overheating.

## **STRIKING THE ARC**

The most important difference when welding with LH-D electrodes is to use a touch start technique when initiating your arc. If this starting procedure is difficult for you, try switching to a helmet with an autodarkening lens, like Lincoln Electric's VIKING™ 1840, 2450, and 3350 Series helmets.

## **TECHNIQUE**

When running LH-D electrodes, we recommend you maintain an arc length somewhere between dragging and 1/16 in. while maintaining a 0-20° pull angle for the majority of the weld time.

Run a stringer bead with minimal weaving. Make sure the bead width does not exceed 2 times the diameter of the electrode coating, as this can cause slag entrapment.

## **WELDING POSITIONS**

When you get to the 3 o'clock position on the pipe avoid stopping or try to stop before you reach this position. At 3 o'clock, be sure to utilize the maximum recommended arc length of 1/16 in. to hold the puddle up and prevent the slag from running over. When you reach the 6 o'clock position use a slight push angle of about 10-20°. This will help flatten the bead.

## **EXTINGUISHING THE ARC**

When you reach the end of your electrode quickly pull away from the weld puddle along the path of travel. Pulling outwards while stopping will cause stopping porosity.

If you have any further questions please visit [www.lincolnelectric.com](http://www.lincolnelectric.com) or call your local Lincoln Electrical Technical Sales Representative.