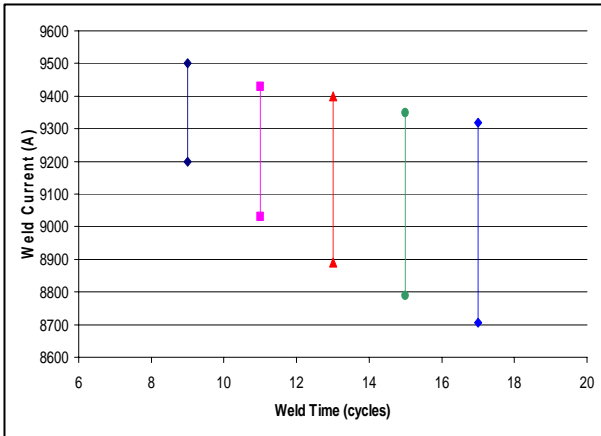


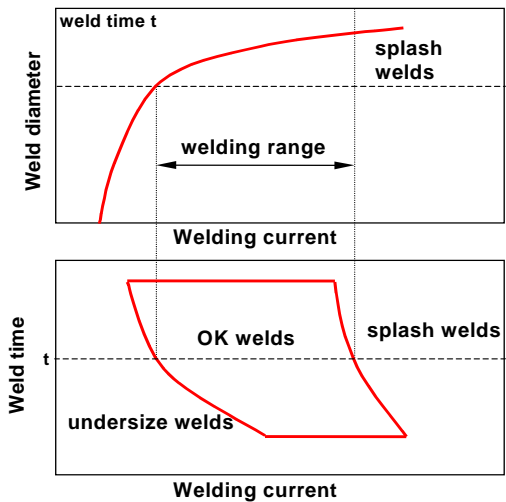


# MAXIMIZING WELDABILITY LOBES

Weldability is the ease with which a stack-up of worksheets or parts can be welded. Determining the weldability lobe of a stack-up can help to increase efficiency, production speed, quality and reduce maintenance costs. Knowing the upper and lower limits for both weld current and weld time will yield a weld schedule that is the most robust for the system and allows engineers to be welding at the maximum capability of the equipment and the worksheets.

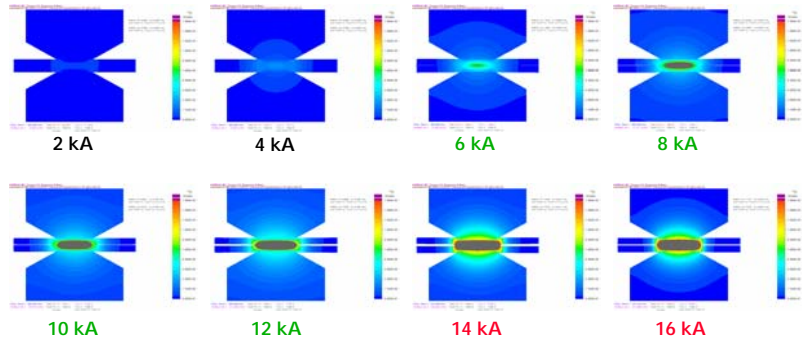


Construction of a **weldability lobe** requires testing to be carried out to determine the **weld current** and **time windows**. Starting points can be taken from recommended practices (such as published AWS standards) for weld parameters and testing must be done varying only one parameter at a time. Constructing a simple current-time lobe (at left) allows the range where an acceptable weld will be formed from no weld (too little current) to expulsion (too much current). Differing electrode materials, coatings and differing electrode geometries will have different lobes. The **widest** lobe provides the best assurance for the quality, speed, and efficiency.



At left is shown, the typical relationship between the weldability lobe (current-time, top chart) and the weld quality (bottom chart). Setting the weld schedule to be just under the expulsion limit (splash welds) with the desired weld time to reduce cycle times will yield the most robust schedule and increase electrode life and reduce maintenance. Software from the **Firstweld™** program offered by Huys Industries can determine the **best** weld current to be employed automatically, thus significantly reducing testing time. This program allows this determination to be made easily, and, further, to vary alternatives to maximum optimization.

At right are stills from the movie printouts from a report from a **Firstweld™** report illustrating the effect on weld quality with differing weld currents. Physical illustration and simulation of welds aids the optimization and maximizing of weld lobe.



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