

Is it Possible to Weld Dura-Bar?

The simple answer is "Yes, both gray and ductile CAN be welded." It welds in about the same amount of time as steel, but just like when machining Dura-Bar, it requires a different process to maximize the results. A high nickel welding rod is usually recommended; therefore welding on cast iron will be more expensive than welding on steel. The price of the nickel in the filler metal makes it up to ten times the cost of welding rods made for steel.

Typically when welding iron, the lower the pearlite the easier it is to achieve a successful weld. Of our standard grades, 65-45-12 would offer the best chance for a successful weld. Pearlitic material, such as 80-55-06, requires a preheat in the 400° F range.

Special Metals conducted a test a few years ago and welded several Dura-Bar end caps to steel tubing. They determined the ideal application for welding iron to steel is when the cross section is round and the process is easy to automate. (ie: welding a drive shaft to a yoke or an end cap to a hydraulic cylinder tube.) In fact, a few hydraulic cylinders were made for use on our bar line.

The best joint is a bevel and socket, but one not as deep as a traditional steel joint due to the higher mechanicals of the filler material. Compared to steel, iron welds at a lower temperature, but uses a higher speed and more passes to temper the weld. So, weld time for both metals is about the same.

Like machining, welding media and process will vary based on the application. The best way to answer questions regarding weld repairs or assemblies is to get the experts involved. Often the customer's welding supplier can help with methods, joint configurations, passes, tacks, weld time, etc. Also, the welding rod manufacturer can help. One manufacturer familiar with Dura-Bar and cast iron is:

Special Metals
Newton, NC
(828) 465-0352, ext. 205
<http://www.specialmetals.com/ni-rod>



Label on a Spool of Special Metals NiRod Filler for Welding Iron



Steel tube and Dura-Bar Butt Plate, bevel & socket joint, ready for welding