



Weld Settings Overview -

Practical Considerations Before Welding

To help make your welding project successful we recommend that you consider and follow these steps:

1. Consider the physical properties of the materials to be welded
2. Practice welding on a parts with similar size and composition (until you feel comfortable)
3. Consider the joint and part to be welded
4. Use the Metal Information Table as a guide

Consider physical properties

Different metals and alloys can respond quite differently during the welding process. To help determine the correct starting parameters it is helpful to understand some physical properties associated with the metal. For example does this material conduct heat away quickly (high thermal conductivity). If so you may need to start with more energy to get the same spot size as a less conductive material. Does the material have a low melting temperature? If so you may need to turn down the power but extend the time of the weld. Adding to much weld current (directly related to the power setting) to a low melting temperature metal may cause it to vaporize.

After a short time welding on a variety of metals the user will gain an intuition about selecting a weld setting. It is always advisable when welding a new material to start with very low power and work upward as needed.

Practice on similar sized material

Work piece volume can play a large role on weld properties. Practice on a test piece of similar size and geometry to help find the exact settings desired. During your practice welds phase hold the work piece with a welding attachment and not directly with your fingers. This will help you get a feel for the final temperature of the part. The temperature of the work piece will depend of material properties - especially the volume of the work piece vs. the amount of weld energy. If the piece is large its overall temperature will likely stay low, regardless of the weld energy. If the work piece is small and the energy input is small (e.g. micro mode) its temperature will also stay low.

Consider the joint and part to be welded

Remember that some materials, such as solder, perform poorly when welded with the pulse arc setting. If your joint contains solder you should remove it prior to welding. If your joint has cracked you may consider adding filler material out past the cracked area to restore metal strength. Consider the type of joint (I, X, V, Y etc.) and plan to use an appropriately sized filler wire if needed.

Metal Information Table

Base Metal	Thermal Conductivity (J/m-sec-deg)	Melting Point (°F)
Chromium	93.9	3407
Copper	401	1981
Gold	318	1945
Nickel	90.9	2647
Palladium	71.8	2826
Platinum	71.6	3217
Rhodium	150	3569
Silver	429	1761
Titanium	21.9	3035
Tungsten	173	6170