



TYPES OF WELDING: AN ULTIMATE GUIDE

Welders are needed to work in almost every industry, just by the very definition of what welding is: permanently joining pieces of metal. Think of the job possibilities! There's construction, engineering, robots, aeronautics, ship building and repair, pipeline installation, NASCAR and the military, to name a few. Because of the high demand in so many industries, welders can change industries without changing careers—and may result in high earning potential.

If you're interested in becoming a welder, here's what you need to know about the different types of welding.

SHIELDED METAL ARC WELDING (SMAW)

Also known as “stick welding,” it is generally used in construction, fabrication, pipeline work and in the repair of heavy equipment. SMAW is a type of arc welding that uses a hand-held welding rod. The electric current runs between the rod (the electrode) and the metal that is being welded. The welding rod itself melts, and that creates the weld—the joining of materials. When the metal melts, the flux core—the chemical cleaner—prevents oxidation that can weaken the weld.

GAS METAL ARC WELDING (GMAW)

MIG welding (Metal Inert Gas welding), as it is also known, is similar to SMAW because the electrode is also consumable. The difference is that in GMAW, a solid wire fed through the welding gun melts, rather than a rod. An inert gas, such as carbon dioxide or a carbon dioxide/argon mix, runs through the welding gun to prevent oxidation and weakening. This type of welding results in fewer fumes and can be used on an array of metals. It is also the most popular type of welding because of its versatility, speed and ease of adaptation to robotic automation.

FLUX CORED ARC WELDING (FCAW)

Yet another type of welding, FCAW provides the speed of GMAW and the efficiency of SMAW. It also uses a wire that feeds through a welding gun, but this one has a flux core like the electrodes used in stick welding, eliminating the need for inert gas.

GAS TUNGSTEN ARC WELDING (GTAW)

You may have heard of GTAW by another name: TIG welding. GTAW is unlike other welding types because it does not use a consumable electrode. An external rod creates the molten weld to join metals. The benefits of a TIG weld are that it is strong, high quality, clean and visually superior. GTAW requires an inert gas shield, which is usually argon or an argon mix. The disadvantages are that it requires a higher skill set than other types of welding, generally produces more waste and is difficult to use on thinner materials.

THERMOPLASTIC WELDING PROCESS

There are other materials besides metals that need welding: thermoplastic materials—those that become pliable when they are heated above a certain temperature and left to harden. This process uses heating, pressure and cooling to create the weld. You can see evidence of thermoplastic welding in awnings, signs, tents, ductwork and packaging. The advantages include high strength, flexibility of design, low processing costs and lightweight materials.

MICRO WELDING

Although micro welding (or micro arc welding) is used in the manufacturing, defense and the oil and gas industries, it's also commonly used for medical equipment. As medical equipment technology pushes forward in innovation, design and materials, micro welding has been instrumental in repairing high-value equipment, often using lasers and microscopes to weld tiny wires with surgeon-like precision.

HOW TO BECOME A WELDER

Enroll in the welding programs at Summit College, and you can qualify to work as a welder in a variety of industries in just nine months. Choose from convenient day, afternoon or evening schedules in any of Summit's three locations (Colton, El Cajon and Santa Ana). You'll get hands-on instruction from industry pros in state-of-the-art welding facilities. Moreover, you'll benefit from personalized instruction and career services to help you find that important first job.

Call **Summit College** today and train for a welding career,
one that O*NET OnLine expects to grow by 128,500 jobs between 2014 and 2024.