

Welders Buying Guide - To TIG Or MIG, That Is The Question

Welding is a friction process used to join metals or thermoplastics by melting and fusing them together. A filler, usually a molten metal or plastic, is used in welding to hold the work pieces together. Welding can be carried out using different energy sources, including a gas flame, an electric arc, a laser, an electron beam, friction and ultrasound. The source used for welding depends on the work place, but this buying guide on welding supplies can help get you started!

What are the different types of welding, welders and welder equipment available in the market?

Shielded Metal Arc Welding:

Shielded metal arc welding (SMAW) is popularly known as manual metal arc (MMA) welding or stick welding. It uses a consumable electrode coated in flux to lay the weld. An electric arc between the electrode and metals to be joined is formed through an electric current produced by a welding power supply. As the weld is laid, the flux coating of the electrode disintegrates and vaporizes. This results in a shielding gas that provides a layer of slag. The shielding gas and the slag protect the weld area from atmospheric impurities. The shielded metal arc welders can be efficiently used outdoors with its enhanced shielding gas protection. SMAW welders usually consist of a welding power supply that offers continuous current, an electrode, an electrode holder and a work clamp. They also include welding cables to connect the power supply unit and electrode. It is recommended to use these welders for welding steel, stainless steel and cast iron.

Gas Metal Arc Welding:

Gas metal arc welding (GMAW) is also referred to as metal inert gas (MIG) welding or metal active gas (MAG) welding. This semi-automatic or automatic arc welding process uses a consumable wire electrode and a shielding gas fed through a welding gun to join two metals. The GMAW process requires constant voltage and a direct current power source. It is the widely preferred industrial welding process. The automobile industry in particular uses GMAW welders almost exclusively. MIG welders are rarely used outdoors or in other areas of air volatility. These welders can be used to weld steel, stainless steel, aluminum and cast iron.

Flux-Cored Arc Welding Gasless:

Wire-fed welding machines are used for the flux-cored arc welding (FCAW) process. Metals are heated, melted and then joined with continuously-fed consumable tubular electrode wire and work pieces. Constant voltage or a constant electric current welding power supply is required for FCAW. The externally supplied shielding gas depends on the flux core wire used. In general, the flux itself is relied upon to generate the necessary protection from the atmosphere. Since it offers high speed welding and portability, the FCAW process is preferred in construction. This process is great for welding oxidized materials and thick sections. However, it cannot be used in automotive body work, as the filler material is costly. The FCAW welders work well on rusty metals and are recommended for steel and stainless steel materials.

Gas Tungsten Arc Welding (GTAW):

This welding process is also termed tungsten inert gas (TIG) welding. It uses inert or argon gas for shielding purposes. GTAW is a manual welding process that requires a non-consumable tungsten electrode and an, individual filler material. A stable arc is created between the electrode wire and the work piece. It offers high-quality welding. It is perfect for welding thin metals but works at relatively low speeds. Special operating skills are needed to operate TIG welders and these welders can be primarily used to weld aluminum, magnesium alloys (DC TIG), steel, stainless steel, copper, brass, and titanium.

Resistance Spot Welding (RSW):

Resistance welding is an effective means of welding and creates less pollution. Spot welding is a widely used resistance welding method. Spot welding is mainly used in overlapping metals of about 3 mm thick. No arc is used in this process. It also does not require filler material. The process involves limited work piece distortion, a high production rate, simple automation and efficient energy consumption. Since the welding strength is low, RSW welders are used only for certain applications. RSW welders work well on steel and stainless steel work pieces.

Why do you need a welder?

Before buying a welder, decide what applications you need it for. You might be using welders in different areas like construction, farm/ranch maintenance, DIY, general home repair, or auto body work. Built-in features of a welder determine the applications it can handle.

What is the power input needed for a welder?

For homes and offices, a single phase input power is sufficient. The greater the thickness of the metal to be welded, the more amps required. For applications where you cannot access an electrical hook-up, you can use engine driven welding generators. These generators are powered by gas and can be slightly expensive.

Are welders portable?

There are some portable welders available in the market. These welders usually weigh around 30 kg or less. These portable welders can be moved to your work place with the help of few wheeled accessories.

What are the tools and accessories that you need for a welder?

Torch:

Welders usually come with an in-built torch. But you can purchase a euro torch separately at a relatively cheap price. It usually lasts longer and costs less than the built-in torch that comes with most welders.

Gas Regulator:

You have two choices for a gas regulator. A single gauge gas regulator calculates the pressure in the bottle. On the other hand, a twin gauge measures the flow rate of the gas along with the pressure. The twin gauge gas regulator is more expensive than the single gauge one.

What kind of safety equipment is required along with the welders?

Welding Gauntlet:

A welding gauntlet is a thick, heat resistant glove that is necessary during any welding process. Buy a pair of welding gauntlets to protect your hands from exposure to hot metals or the strong UV light.

Welding Helmet:

Use this headgear to protect the eyes, face and neck from flash burn, ultraviolet light, sparks and heat especially during arc welding processes. Use lightweight helmet to prevent strain on the neck.

Goggles:

Use goggles to safeguard your eyes. They prevent inflammation of the cornea due to exposure to the brightness of the weld area.

[Welding equipment](#) curtains:

The people who stand near the weld area can be shielded from the UV light and other hazards with the translucent welding curtains. These curtains are made up of a polyvinyl chloride plastic film for protection.

About the Author

Bob Shanty has been researching and writing articles that help shoppers find [online shopping bargains](#) and make more educated buying decisions on [welding equipment](#) for online mega store BIGshop for years. For more articles by Bob please visit <http://www.bigshop.com.au>.

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