



Welding gases	Health & safety	Business advice	Gas equipment & PPE	Materials	Welding processes	Common welding issues
						

What's the Right Welding Method for You?

There are many different welding techniques and, even if your current focus is on basic welding, it's important to apply the right method to the job in hand.

Read on to find out more about the different types of welding method available, and which technique is best for the metal you are welding.

Are you using the right method for the metal you're welding? Ask in-store for advice!

What's the right method for you?

There are several standard welding processes/approaches you can choose from:

MIG welding (Metal Inert Gas)

Both the workpiece you are welding and a continually fed consumable filler wire melt together in the weld pool which is generated by the high temperatures of an electric arc. The weld pool is surrounded by a shielding gas that shields it from external air contamination.

TIG welding (Tungsten Inert Gas)

Unlike MIG welding, this process can use no filler wire or filler wire can be added by hand. The electrode is made of non-consumable tungsten that creates a hot spot on the surface of the workpiece, making it melt. The filler wire, if needed, can also be applied to increase the strength or volume of weld metal.

MAG welding (Metal Active Gas)

Like MIG welding, a continually-fed filler wire is applied during welding. The difference being the shielding gas used to protect the weld pool from contamination. MIG applies an inert gas such as argon and is used mainly for welding non-ferrous metals such as aluminium. MAG can use active gases such as carbon dioxide or oxygen in its shielding gas and is mostly used for welding low or unalloyed steels.

MMA (Manual Metal Arc) / Stick welding

An electric current flows across the gap between a flux covered electrode rod (stick) and the metal you are welding. The intense heat created melts both the consumable electrode and the workpiece, creating a fusion weld. The rod has a coating of flux which produces a gas shield around the weld. MMA/Stick welding can be used outdoors and in bad weather. It also works well on rusty or dirty surfaces.

Choosing the best welding method

If you're buying your first welding kit, you should think carefully about what it will be needed for in the future, in particular the type of metal you will be welding, as well as metal thickness. The table below will help you decide which method is best for you.

	Welding method				
	MAG	MIG	TIG	Stick/ MMA	Gas/ oxy-fuel
Metal suitability					
Steel	Green	Red	Green	Green	Green
Stainless steel	Green	Red	Green	Green	Red
Aluminium alloys	Red	Green	Green	Red	Yellow
Cast iron	Red	Yellow	Yellow	Green	Green
Chromoly steel	Yellow	Red	Green	Red	Green
Copper	Red	Yellow	Green	Red	Green
Brass	Red	Yellow	Green	Red	Green
Titanium	Red	Yellow	Green	Red	Red
Metal thickness*					
Thick (6mm+)	Green	Green	Yellow	Green	Yellow
Medium (3-6mm)	Green	Green	Green	Green	Green
Thin (Up to 3mm)	Green	Yellow	Green	Yellow	Green

Best method
Possible
Not recommended

*The thicknesses provided are for guidance only

If you need more information on welding techniques, and the appropriate shielding gases to use, visit boconline.co.uk/shieldinggas



Potential hazards to be aware of

Welding presents a variety of hazards. Make sure you're fully aware of the dangers before starting work:

- Potential electric shocks
- Close proximity to magnetic fields
- Storing and handling compressed gases
- Flammable fuel gases
- Oxygen depletion from inert gas build-up
- Working in a confined space
- Radiation burns and 'arc eye' from welding arcs
- Overheating and heat exhaustion
- Inhaling welding fumes
- Noise
- Injuries from manual handling
- Vapour from solvents



Safety checklist

Following some simple rules will help you to stay safe:

- Install welding equipment according to national standards and manufacturer's guidance
- Transport and store fuel gas cylinders in a vertical position and use the correct regulator
- Wear properly fitted, protective clothing on your body, hands, arms, face and eyes
- Never leave flammable materials in welding areas
- Make sure welding fumes are properly extracted and correct respiratory protective equipment is worn
- Minimise exposure to noise
- Treat all solvents with caution

This leaflet is part of the welder's toolkit: whether you need welding tips, gases advice or safety guidance, you'll find it in the toolkit!

For more welding advice, visit boconline.co.uk/welders-toolkit

From the welder's toolkit: you may also like...

- An introduction to MIG welding
- Shielding gases: The Secret to Better Welds
- Shielding gases for carbon and low-alloy steels
- Shielding gases for stainless steel
- Shielding gases for non-ferrous metals.