

# **Metal Inert Gas (MIG) Welding**

## **20 points to remember**

1. MIG welding (GMAW) is often referred to by the manufacturer's trade name, e.g. Micro-wire, Aircomatic, Sigma, Milleromatic Welding, etc.
2. MIG welding is faster than stick electrode welding (SMAW) and is much easier to learn.
3. Spray transfer type of welding is particularly adapted for welding heavy gage metals.
4. Short circuiting transfer welding is best for welding light gage metals.
5. For optimum efficiency, DCRP current is required for MIG welding.
6. For MIG welding, a constant potential power supply with a nearly flat volt-ampere characteristic produces the best results.
7. As a general rule, an air-cooled gun is satisfactory when welding with amperage around 200 and a water-cooled gun for welding heavy metals requiring higher amperages.
8. The use of CO<sub>2</sub> as a shielding gas is most effective and less expensive when welding steel.
9. Argon or a mixture of argon and oxygen will produce the most effective results in welding aluminum and stainless steel.
10. The rate of gas flow for welding most metals is approximately 35 cu.ft/h. However, this rate may have to be varied depending on electrode size, and type and thickness of metal.
11. The effectiveness of the shielding gas is often governed by the distance of the gun from the workpiece. Generally, the gas nozzle should not be more than 2" from the workpiece.
12. The use of correct diameter wire electrode is necessary for good welds. Check recommendations for correct electrode diameters.
13. The correct current for welding must often be determined by trial. Check recommendations for starting current.
14. Be sure the wire feed is set for the amperage which is to be used for welding.
15. For most MIG welding applications, the wire stick-out should be about 3/8" to 3/4".
16. Keep the gun properly positioned to insure uniform weld with proper penetration.
17. Cold laps will occur if the arc does not melt the base metal sufficiently.
18. Check the weld for surface porosity, that usually is caused by improper gas shielding.
19. Do not remove the gun from the weld area until the puddle has solidified, otherwise cracks may develop.
20. Remember, insufficient or excessive penetration is the result of failure to control heat input.