

## TIG Welding

AerMet 100 alloy can be TIG welded to AerMet 100 alloy or 4130 (Cr-Mo). The mitre must be properly executed and clean.

AerMet 100 alloy should only be welded with AerMet 100 alloy weld wire. When joining AerMet 100 alloy to AerMet 100 alloy, the joint and HAZ should be strong and ductile. When joining AerMet 100 alloy to 4130, dilution of the AerMet 100 alloy by the 4130 occurs. However, this joint should still be satisfactory. The weakest spot will be the HAZ in the 4130.

AerMet 100 alloy tubes have thin walls so it will take considerable skill to obtain a quality joint.

Welding has been performed with both .062" and .035" round wire. Most builders have reported that they prefer a .035" round but the advantage of the .062" round is that the larger size wire can keep the temperature under control more easily.

Following TIG welding the partially completed main frame should be stress relieved at 200-350°F (93-177°C) for at least 1 hour and may be left at temperature for up to 16 hours. The final

complete frame should also be stress relieved at 200°F (93°C) for 1 hour.

Following is a list of 200-300°F (93-177°C), 1 hour minimum to 16 hour maximum, annealing cycles required for AerMet 100 alloy tubing:

- Anneal after joining main triangle.
- Anneal after joining rear stays.
- Anneal after cold setting.

Settings we used when welding AerMet 100 alloy:

Welder: Hobart Cyber-TIG series 100  
Torch: Weldcraft WP-20 with gas lens  
Electrode: .040"-.0625" Tungsten  
Gas: Argon @ 15 cfm  
Filler wire: AerMet 100 alloy .035" rd.  
22-29 amps  
8-9 volts

AerMet 100 alloy can be welded with or without back purging. Use a slightly hotter setting (9 volts and 23-29 amps) when back purging using .035" filler wire.

It is not necessary to degauss the material before TIG welding as there is no erratic arc travel during welding.

## Contact

For further information, price, availability, or technical assistance, or a copy of our AerMet 100 alloy welding video, please contact:

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