

TIG Welders

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Welding & Thermal Cutting



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A TIG welder uses a non-consumable tungsten electrode with separate filler rod, giving precise control and clean, high-quality welds on steel, stainless, aluminium and exotic metals. It is the process for thin material, visible welds and exacting work.

Key Features

- Outputs 160-250 A typical
- AC and DC modes for aluminium and steel
- High-frequency start and pulse control
- Foot or hand amperage control
- Gas and water cooling options

Typical Uses in the Workshop

- Weld thin sheet and visible joints cleanly
- Weld aluminium and stainless projects
- Fabricate frames, fixtures and art metalwork
- Produce inspection-grade fillets and butt welds

Safe Operation

1. Set AC or DC for the metal and clean the joint
2. Select the tungsten, filler and gas flow
3. Keep the arc short and the torch angle steady
4. Feed filler rod at the leading edge of the pool
5. Cool slowly to avoid distortion

SAFETY NOTES

- Arc flash and UV are intense - full protection required
- The tungsten is radioactive grade - grind it safely
- Ventilate strongly - fumes from coated metals are toxic
- Do not touch the tungsten while hot
- Keep gas cylinders secured and valves closed

Maintenance & Consumables

- Sharpen the tungsten on a dedicated grinder
- Replace the cup and collet when worn
- Check cables and the torch for damage
- Drain and refill coolant if water-cooled
- Check the regulator settings

Specification & Buying Notes

TIG requires practice and quality equipment: choose a 200 A AC/DC inverter with pulse for school. Budget for tungstens, cups, filler rods and argon cylinders. Add a foot pedal for control.