

# Crown 12-AH-10

Gas Tungsten Arc Welding  
(GTAW) TIG Alloy

Tool Steel

DCEN  
All Position



## Premium Air Hardening Tool Steel TIG Alloy (D-2)

### Typical Applications

**Crown 12-AH-10** is a high carbon, high chromium air-hardening TIG alloy that produces dense, fine-grained, heat treatable deposits which resist abrasion and mild impact. **Crown 12-AH-10** weld deposits match the hardening characteristics of AISI type D-2 tool steel. It can also be used for joining and building-up A-8, D-2, D-3 and D-4 tool steels. Specific applications include cold-working shears, punches, slitter knives, blanking dies, extrusion dies, trimming dies, coining dies, forming dies and for the fabrication of composite dies using a lower alloy base and for hardening wear areas on lower alloys or steel.

### Specifications

AISI D-2

- Hardness 38-42 (Rockwell C) as welded.  
59-61 (Rockwell C) after post weld heat treatment.
- Preheat 900°F when welding on "D" series tool steels.  
All other alloys, preheat according to base metal.
- Annealing Hardening in air 1700°F to 1775°F
- Drawing 350°F to 1000°F
- Heat Treatment Use D-2 procedure

Identifying Color:  
Orange End

### Procedure

Prepare area to be welded by grinding out cracks, heat checks and other defects. Remove all foreign material, fatigued metal and any sharp radii. Remove all oxides and other contaminants. Preheat according to chart above. Deposit stringer beads. Peening while hot can be very beneficial. For maximum hardness, the welded unit must be fully annealed and re-hardened.

#### Manual Welding – DC straight polarity (DCEN) – Use Argon Shielding Gas

**Tungsten:** Traditional choice is a 2% thoriated tungsten (Red Band), however, the more recent and safer introductions of 2% ceriated tungsten (Orange Band) or 1.5% lanthanated tungsten (Gold Band) have demonstrated superior performance in most applications.

**Safety note:** Thorium is radioactive & may present risks which are negligible under normal conditions of use.

Material Thickness (inches)	Tungsten Diameter	Filler Rod Diameter	Arc Voltage (volts)	Welding Current (amperage)	Gas Flow (cfh)
1/16 to 3/32	1/16	1/16	9 – 14	100 – 160	20
1/8	3/32	1/16	12 – 15	125 – 200	20
3/16	3/32	3/32	12 – 17	130 – 195	25

All suggested settings are approximate. Inverter-based welders generally require lower amps. Welds should be tested to comply to your specifications.

### Sizes and Part Numbers

TIG Diameter	Part Numbers	
	1# Package	5# Package
1/16 x 36"	TT12AH/TL-BP	TT12AH/TL
3/32 x 36"	TT12AH/TN-BP	TT12AH/TN



**!!!! WARNING !!!!**



**WELDING FUMES AND GASES CAN BE DANGEROUS TO YOUR HEALTH.**

**BEFORE USING THIS PRODUCT THE WELDER (END-USER) MUST READ AND UNDERSTAND THE COMPLETE PRODUCT WARNING LABEL AND THE NEW 16 SECTION SAFETY DATA SHEET (SDS).**

**THE SAFETY DATA SHEET (SDS) WHICH OUTLINES THE POTENTIAL HEALTH HAZARDS AND SAFETY INFORMATION RELATED TO THIS PRODUCT CAN BE DOWNLOADED FROM THE SDS PORTION OF THIS WEBSITE. IT IS ALSO AVAILABLE FROM YOUR EMPLOYER AND WELDING SUPPLY DISTRIBUTOR.**

**DO NOT PROCEED WITH USE OF THIS PRODUCT UNTIL YOU READ AND UNDERSTAND THE SAFETY DATA SHEET (SDS) AND PRODUCT WARNING STATEMENT.**

**BE SURE TO CONSULT THE LATEST VERSION OF THE SDS.**

**SEE THE PRODUCT WARNING LABEL AND SDS FOR COMPLETE WARNING INFORMATION.**

