TRI-BRAZE™
Impact- and Abrasion-Resistant Steel Alloy

Designed to tackle your toughest abrasion and impact applications, Tri-Braze™ combines a balance of alloying elements with controlled heat treating and extremely low sulfur for an ideal hardness:toughness ratio.

Tri-Braze™ is the standard by which all other impact and abrasion resistant alloy steels are measured.

Better Wear Resistance
High hardness for better wear resistance (typical hardness 444 BHN).

Weld Friendly
Tri-Braze™ chemistry provides excellent weldability in field conditions.

High Impact Resistance
Extremely low sulfur content, fine-grain structure and excellent internal cleanliness provide high impact resistance.

Thick Plates
Available in thicknesses up to 254mm (10").

Less Downtime
Long performance life and less downtime lower overall maintenance costs.

Bigger Applications
Available in widths up to 3048mm (120") and lengths up to 7315 mm (288").

Through Hardened
Tri-Braze™ chemistry and processing ensures full hardness throughout the plate, and avoids the soft middle of lesser quality plates.

Balanced Chemistry
Balanced alloy steel chemistry for optimum hardness:toughness ratio.
1. Material Preparation
- Thoroughly remove rust, scale, grease, or oil from the weld areas.

2. Preheating
- Preheating may be performed by furnace heating, localized gas torches, or thermal strip blankets.
- Localized preheating should be done in a manner to ensure that the weld area and 305mm (12”) beyond are uniformly heated through the material thickness.
- Preheat must be maintained until all welding has been completed.
- Cyclic heating and large temperature differentials should be avoided.
- Minimum preheat should be reached before gouging or welding is initiated.

Preheating Guidelines

3. Weld Interpass Temperature
- Maximum interpass temperature 260°C (500 °F).

4. Filler Material
   **Shielded Metal Arc Welding**
   - Welding electrodes should meet AWS 5.5 E8018 C-3 classification.
   - Tri-Weld 3™ electrodes recommended.
   - Electrode size for this procedure should not exceed 4.76mm (3/16”) diameter.
   - Ensure the electrodes are free of moisture.
   **Flux Cored Arc Welding**
   - The following listed AWS 5.29 wires can be used: E80T1Ni1, E80T5Ni1, E80T5K1, E81T1Ni1.
   - Tri-Weld 3 FCG™ wire recommended.
   - Wire should not exceed 2.38mm (3/32”) diameter.

5. Post Weld
- Allow complete weldment to slow cool to ambient temperature.
- Post-weld thermal treatment is generally not necessary but is suggested when the welded component is subject to extreme load conditions. When deemed necessary, the welded component can be stress relieved by heating to 204°C (400°F) and held for 30 minutes to one hour per inch of thickness of the plate. The cooling should be done in still air.
- Post-Weld Inspection — rough, irregular-shaped welds should be ground smooth to remove stress risers that could cause cracks. 48–72 hours after welding, visually examine for cracks, gouges, laps, undercut, or other imperfections.

6. Cold Forming
With adequate power and proper procedures, moderate forming is possible on all thicknesses. Tri-Braze™ requires 4x the power of carbon steel. Remove flame-cut and rough edges with a grinder in the bend area using the largest permissible forming radius. Generally, T8 is the minimum inside radius recommended.

7. Flame Cutting
Conventional flame cutting procedures and fuels are satisfactory for Tri-Braze™. Hardening of the cut edges may occur when the heated cut surface is drastically quenched by surrounding cold base metal. If machining torch-cut metal, allow sufficient stock removal to get below the hardened edge or preheat to approximately 204°C (400°F) prior to flame cutting. Plates that reach temperatures below 10 °C (50 °F) and plates thicker than 38mm (1-1/2”) should be preheated to approximately 93°C (200°F).

8. Plasma Cutting
Conventional gases and machine procedures recommended by the supplier of the equipment are usually sufficient for successful plasma cutting of Tri-Braze™. Plasma-cut heat-affected zones are generally more shallow than cuts made with flame. However, the same precautions apply.

9. Machining
Tri-Braze™ can be drilled and machined through conventional methods. Please contact your Tricon Wear Solutions representative for specific machining instructions.