

GENERAL WELDING PROCEDURE

OUTLINE

These General Welding Procedures are intended to provide background information and supplementary instructions to contractors and their welders who are using Talon Engineering products. Please refer to specific Product Welding Procedure Document for more in-depth instructions and details.

WELDING SAFETY

Welding, cutting and any allied process are a significant safety risk. Before undertaking any of these processes ensure that all precautions have been considered or implemented as per welding safety standards AS1674: 2007 or ANSI Z49.1: 2005 or equivalent globally recognized standard.

Of note please ensure the following is adhered to:

- Wear correct PPE including
 - Full sleeve non-flammable work wear. (No gaps)
 - Non-flammable welding gloves
 - Steel capped work boots
 - Safety glasses
 - Hearing protection
 - Full face welding shield
- Suitable ventilation is available for the person completing the operation.
- Welding is an electrical risk ensure the area where welding is to be conducted is not damp or wet.
- Welding is a fire risk ensure the area where welding is to be conducted is free of any thing flammable and that suitable fire extinguishers are easily available.
- If welding is to be conducted in an area where other people are working, ensure welding flash shields are utilized.
- Good general housekeeping to ensure the work area is safe and free of clutter.
- Ensure appropriate tags for your work place and work environment are used.

WELDING PREPARATION

The surfaces to be welded must be good and free from scale, grease, paint, water, or any other contaminants.

Preparation of the weld surfaces may be achieved by sand blasting, shot blasting, grinding, sanding, air carbon arc gouging, or a combination of any these processes. Should the air carbon arc gouging process be used, finish the surface by grinding to remove all carbon slag.

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WELDING PROCESS

Welding may be completed by any of the following processes:

- Gas Metal Arc Welding (GMAW)
- Flux-cored Arc Welding (FCAW)

A combination of GMAW or FCAW can be utilised.

THERMAL TREATMENT

Material	Thickness	Min Preheat Temp	Max Interpass Temp
Talon Castings	All Weld-on Castings	150°C / 300°F	260°C / 500°F
ASTM A514 Steels	Greater than 63mm / 2-1/2"	120°C / 250°F	260°C / 500°F
400-450 BHN Abrasion Resistant Steel	Greater than 63mm / 2-1/2"	150°C / 300°F	260°C / 500°F

Notes:

- If the ambient humidity is high and or the temperature is below 4°C / 40°F, the tabulated thermal treatment temperature should be increased by 27°C / 80°F. At no time should any material type or thickness be welded when the temperature of the steel is at or below 4°C / 40°F.
- All material within 100mm / 4" of the weld zone must be within the specified temperature.
- Cool weld slowly, for a minimum of 8 hours, utilising thermal blankets. Do not allow drafts or cool ambient temperatures to cool the parts or assembly. Cool down rate should not exceed 55°C / 130°F, per hour.

CRACK CHECKING

It is recommended that all finished welds are inspected for cracks using either MPI or Dye Penetrant Inspection. It is preferable to use the MPI process. Any cracks detected must be completely gouged out and filled with weld. Finish the repair with grinding and gauge inspection as detailed above and re-inspect for cracks.