

INTERLOCK WEAR SEGMENTS WELDING PROCEDURE

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 particular 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 workplace and work environment are used.

WELD 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 utilized.

Consumables

Process	AWS	AS / NZS	ISO	Shielding Gas
GMAW	AWS A5.18 ER70S-4	2717.1: ES4-GC/M-W503AH		100% CO2 Ar + 10-15%CO2 Ar + 15-25%CO2
GMAW	AWS A5.18 ER70S-6	2717.1: ES6-GC/M-W503AH		100% CO2 Ar + 10-15%CO2 Ar + 15-25%CO2
FCAW	AWS A5.20 E71T-1 H8	17632-B: T49 3 T1-1 CA-K-U H10		100%CO2 Ar + 20-25%CO2
FCAW	AWS A5.18 E70C-6M H4	17632-B: T49 2 T15-1 MA K-U H5		Ar + 20-25%CO2
FCAW	AWS A5.20 E70T-7	17632-B: T49 Z T11-0NA-H15		NR
FCAW	AWS A5.20 E71T-8	17632-B: T49 Z T8-1NA-H15		NR

ELECTRICAL PARAMETERS

The following table details recommended consumable diameters and corresponding welder voltage and current range settings. Please note these ranges are recommendations and the person completing the weld should consider their personal preferences, weld environment, and welding machine utilised to determine the optimal settings to complete the weld.

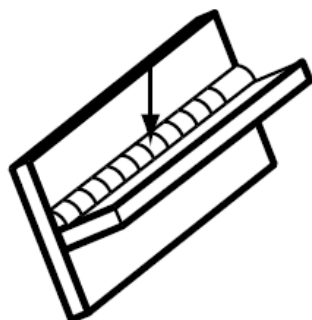
GMAW and FCAW			
Electrode Diameter	Volts	Amps	Pol
1.2mm / 0.045 in	22 to 30	220 to 320	+
1.4 mm / 0.052	25 to 30	250 to 325	+
1.6mm / 1/16 in.	25 to 35	250 to 360	+
2.4mm / 3/32 in	28 to 35	350 to 450	+

All welding shall be completed using direct current electrode positive (DCEP)

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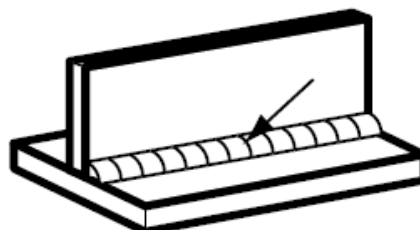
WELDING POSITION

FLAT



1F / PA
Adaptors

HORIZONTAL



2F / PB
Adaptors and
Bosses

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 / $2\frac{1}{2}$ "	120°C / 250°F	260°C / 500°F
400-450 BHN Abrasion Resistant Steel	Greater than 63mm / $2\frac{1}{2}$ "	150°C / 300°F	260°C / 500°F

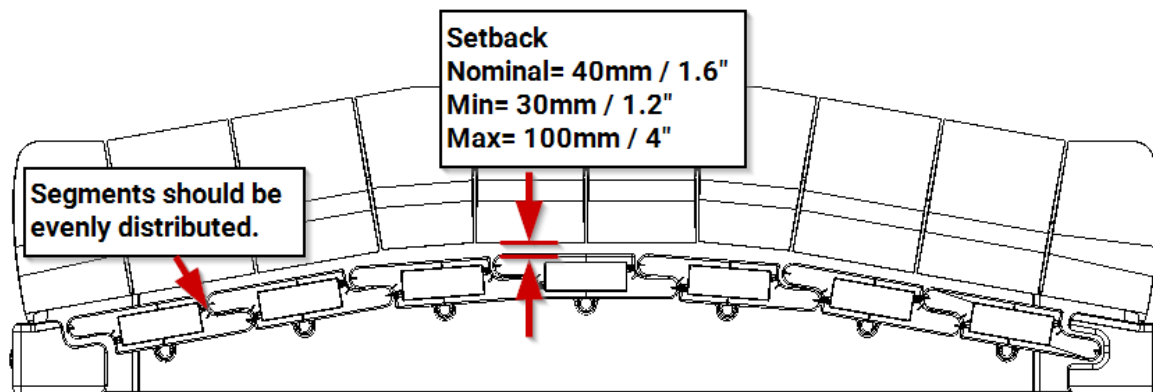
Notes:

- 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.

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SEGMENT ARRANGEMENT

Place Talon Interlock Segments on the lip plate in the desired locations to suit your bucket size and configuration. Segments should be evenly distributed on the bucket surface allowing for the segment ends to overlap a minimum of 50mm / 2". Segment should be positioned a nominal set back of 40mm / 1.6" behind the lip shrouds (min = 30mm / 1.2" & max = 100mm / 4").

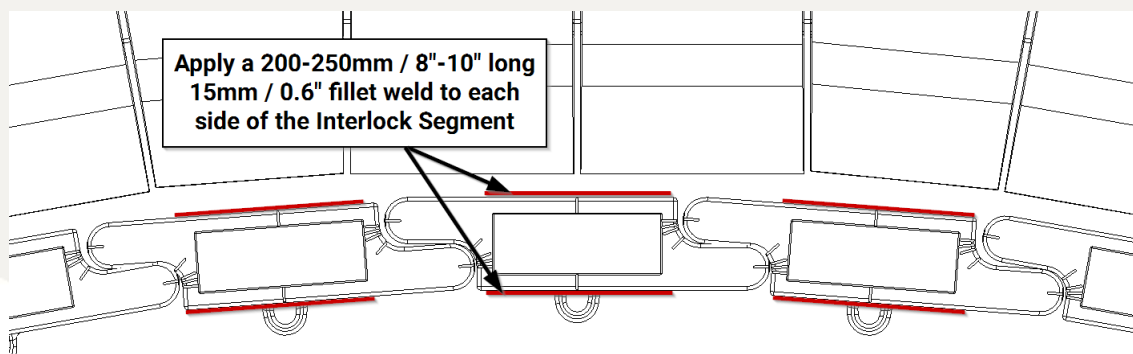


WELDING SEQUENCE

Fix the Talon Interlock Segments in place with small tack welds no larger than 25mm / 1" tack weld. Preheat the lip plate and Talon Interlock Segments to 150°C / 300°F as specified in the Thermal Treatment section of this document.

INTERLOCK SEGMENT

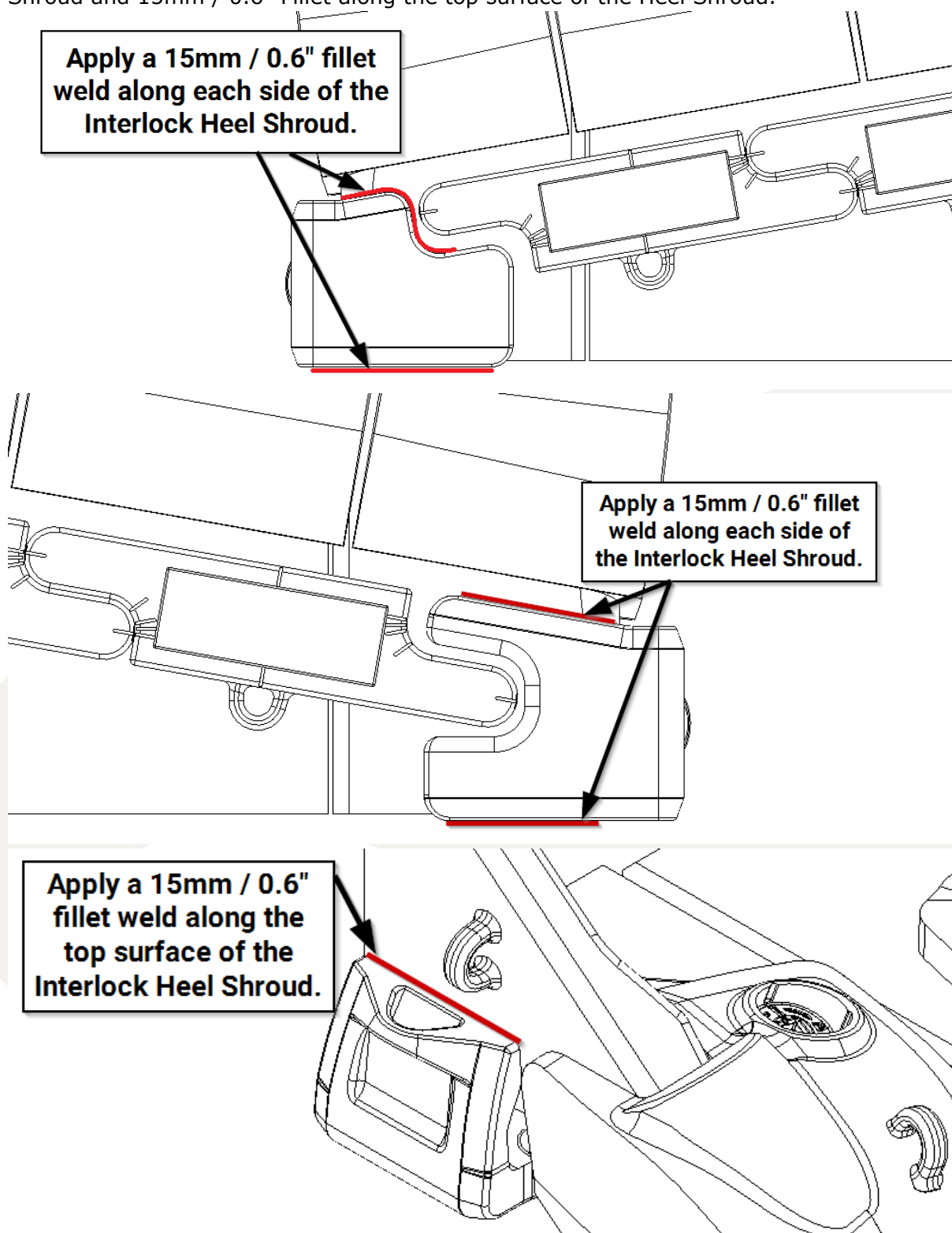
Weld Interlock Segments with 15mm / 0.6" Fillet welds 200-250mm / 8" – 10" long on each side of the interlock bar.



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INTERLOCK HEEL SHROUD

Weld Interlock Heel Shrouds with 15mm / 0.6" Fillet welds along each side of the Heel Shroud and 15mm / 0.6" Fillet along the top surface of the Heel Shroud.

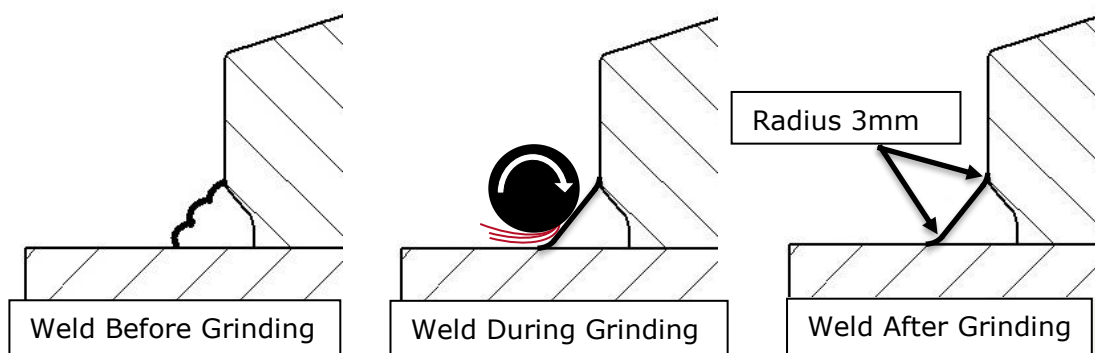


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WELD FINISHING

Welds shall be ground such that the surface of the weld becomes a smooth surface free of any roughness or ripples associated with fresh welds. The toes of the weld shall transition to the lip and Talon Adaptor smoothly, such that the transition exhibits a minimum of a 3mm / 1/8" radius.

Although various methods of grinding maybe used to remove the bulk of the weld roughness. Grinding shall be finished such that any remaining grinding markings are all perpendicular to the weld.



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CHANGE REGISTER

Rev	Date	Changes from previous version
0	28/05/18	Original issue
1	24/07/19	Content updated to match new part design