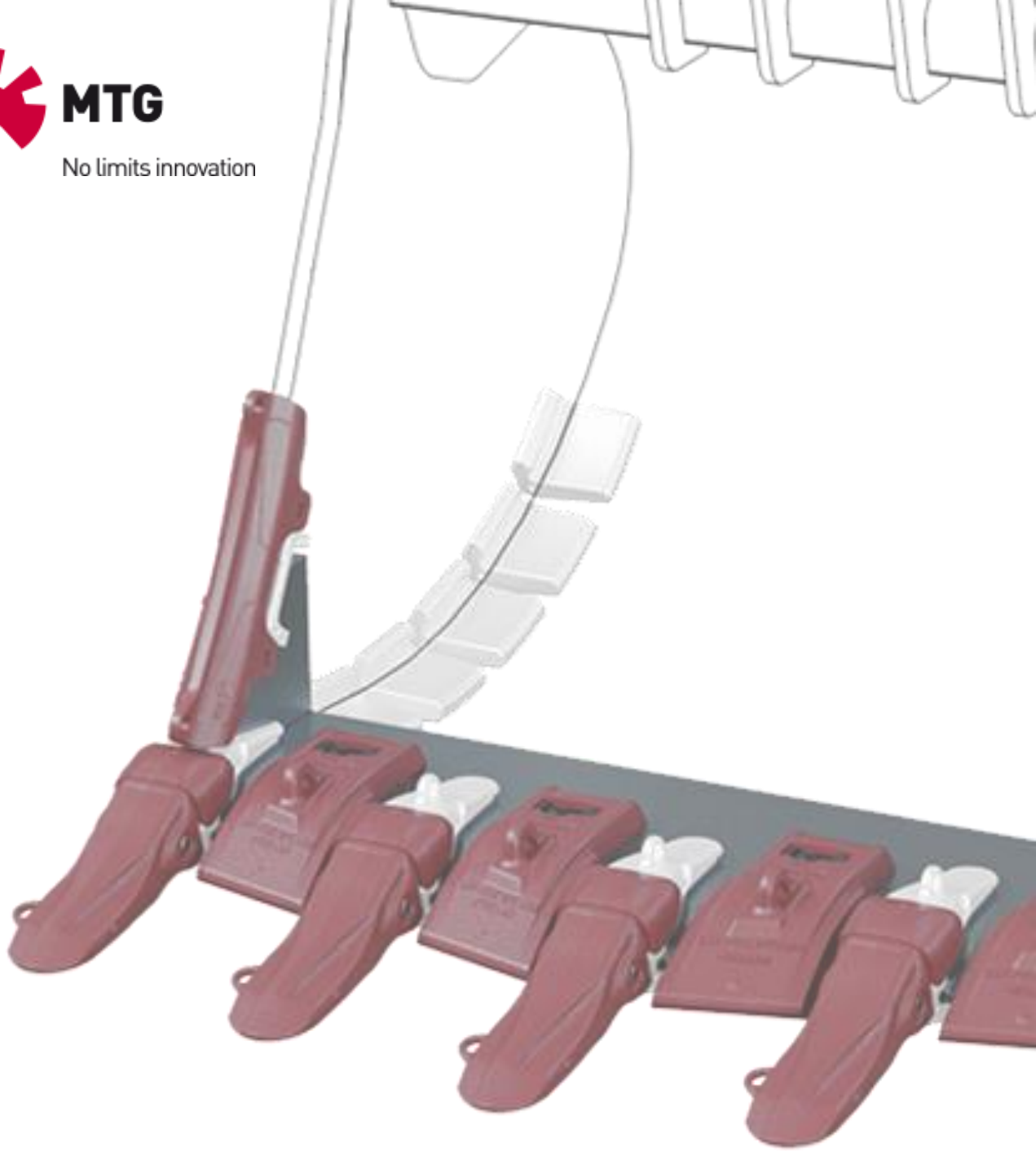
MTG

No limits innovation



INS.2.2.2

FC Flush Weld-on Adapter

Installation procedure

DISCLAIMER

Liability: To ensure the correct use and handling of the MTG products without risk, please carefully read the corresponding service instructions set out on the MTG website. MTG will not be held liable for damages, loss, injury, or death arising from incorrect use or failure to heed the provisions of this guide. Similarly, MTG will not be held liable for damages caused due to the faulty installation or handling of its products. MTG likewise declines all liability for recommendations related to the use or handling of MTG products set out in documents not expressly authorized by MTG.

1. SAFETY

The practices described in this manual can be taken as guidelines for operating safely in many conditions and in addition to the safety standards that are current and enforceable in your area or region.

Your safety and the safety of third parties is the result of putting into practice your knowledge of the correct operational procedures.

Attention, when performing the work described in these instructions, always work safely and use the personal protection elements required to minimize or avoid injury. Always wear:

HARD HAT | SAFETY GLASSES | EAR PROTECTION | STEEL TOED BOOTS | PROTECTION GLOVES

To avoid eye injury, always wear safety goggles or a protective mask when using any equipment, hammer or similar tool. When equipment is under pressure or when objects are struck, chips or other debris can be thrown out. Make sure no one gets hurt by the debris that is fired before applying pressure or hitting an object. Wear eye protection that complies with ANSI Z87.1 and OSHA standards. Also wear hearing protection and gloves.

Lifting a heavy object can cause serious or fatal injury. DO NOT exceed the maximum rated capacity of lifting and positioning devices: Stay away from the area under a suspended load.

Make sure that the chain is not damaged and that the load is always balanced.

LIFTING LUG

2. WELDING

Following is a quick reference on consumables that can be used to weld MTG products. For a complete reference on welding procedures, refer to the document entitled "General welding recommendations".

WELDING UNALLOYED FILLER CONSUMABLES

PROCESS	EN CLASS	AWS CLASS
SMAW	EN ISO 2560-S E42X	E70X ACCORDING TO A5.1 OR EQUIVALENT UNDER A5.5
GMAW	EN ISO 14341-A G42X	E70C-X ACCORDING TO A5.18 OR EQUIVALENT UNDER A5.28
	EN ISO 14341-A G46X	E70S-X ACCORDING TO A5.18 OR EQUIVALENT UNDER A5.28
FCAW	EN ISO 16834-A T42X	E7XT-X ACCORDING TO A5.20 OR EQUIVALENT UNDER A5.29

WELDING AUSTENITIC STAINLESS FILLER CONSUMABLES

PROCESS	AWS CLASS
SMAW	E307-X ACCORDING TO A5.4
GMAW	ER307T-X ACCORDING TO A5.22
	ER307 ACCORDING TO A5.9
FCAW	307-X ACCORDING TO A5.22

NOTE: "X" MAY STAND FOR ONE OR SEVERAL CHARACTERS

3. IMPORTANT

Please read the entire document before starting any operation as there may be some steps that require prior checks/operations.

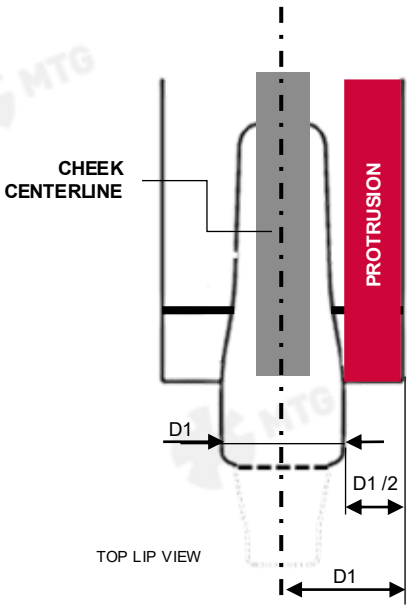
This document is a generic procedure for all MTG flush adapters, regardless of the kind of nose system they have.

4. INITIAL CONSIDERATIONS

4.1 CONSIDERATIONS REGARDING BLADE PROTRUSION IN CORNER POSITIONS

At corner positions, leaving a blade protrusion is recommended to ensure proper adapter positioning and to protect the weld area from wear during operation.

The recommended protrusion should be the same as the adapter width, using the cheek plate centerline as a reference, as shown in the figure below.



RECOMMENDED MEASURES
D1 → Adapter width.
D1 /2 → Half adapter width.

4.2 GENERAL CONSIDERATIONS

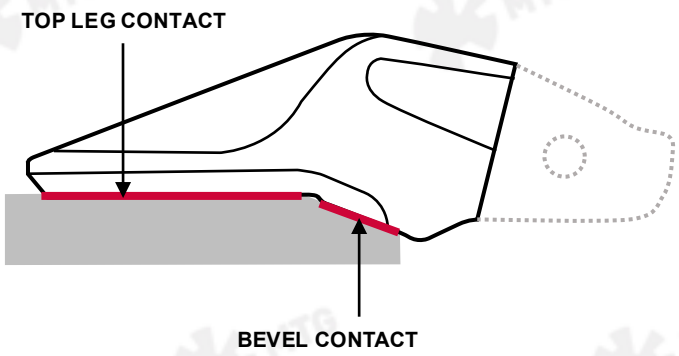
The following statements should be taken into consideration:

1. All mill scale, rust, paint, oil grease, arc air slag, or moisture shall be removed from the surfaces within 12.5 mm - 1/2 in. of any weld location
   The surfaces must be sufficiently clean so that there is nothing that might contain moisture or hydrocarbons, which could break down in the arc's heat producing hydrogen that can be absorbed in the weld causing cracks.

   Removal may be accomplished by shot blasting, sand blasting, grinding, or machining.

   Any porosity, burned-in sand, or other defects visible on the weld prep surfaces must be removed by grinding or arc air gouging.

2. Place adapter on lip plate as per the desired location from side to side. Bottom leg and bevel angle should be in full contact as show in figure.

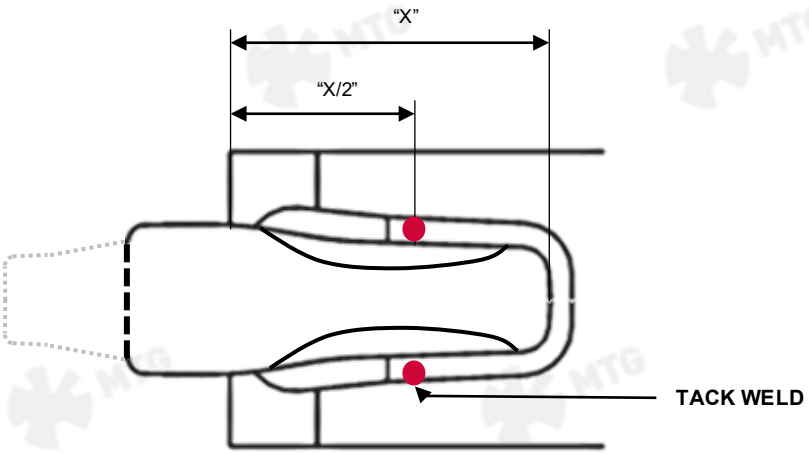


5. INSTALLATION PROCEDURE

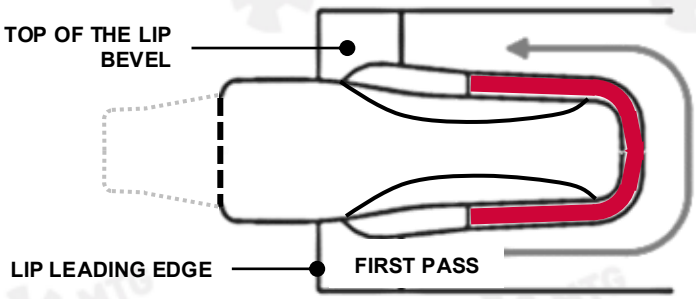
5.1 WELDING PROCEDURE

5.1.1 Preheat adapter and lip to a temperature between 175ºC to 200ºC - 347ºF to 392ºF within an offset of 100mm - 4 in. all around according to what is exposed on the document entitled “General welding recommendations”. Do not overpass 250°C - 480°F.

5.1.2 Apply one 25mm - 1 in. long tack weld at the root of the weld groove on each side of the top leg, midway between the end of the leg and the trailing edge of the lip bevel.



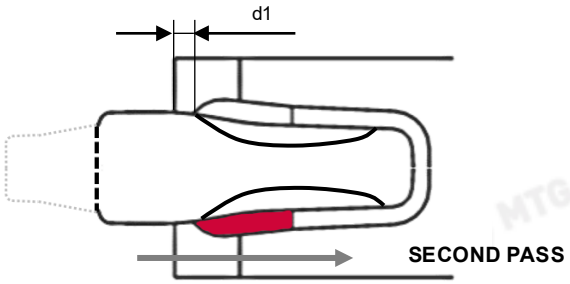
5.1.3 Begin welding at the center of top leg and weld one pass around the back of the leg to the center of the opposite side.

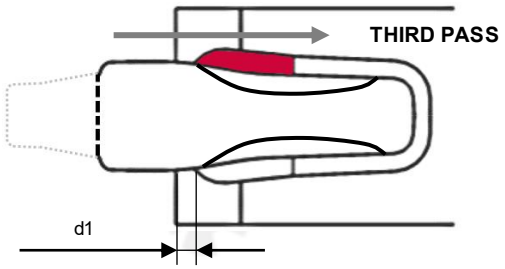


5.1.4 On the initially welded side, begin welding at the front of the weld groove and proceed to the starting point of the first bead.

Do not weld within “d1” distance, from the lip leading edge, as shown the below table.

5.1.5 Place a similar bead on the opposite side of the top leg.



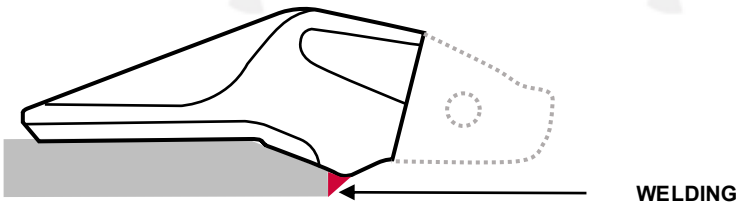


	d1	
SIZE	**[MM]**	**[INCHES]**
≤ 60	10 - 15	3/8 - 9/16
≥ 60	20 - 25	13/16 - 1

5.1.6 Repeat this sequence (steps 4.1.4, 4.1.5 y 4.1.6) three times. Vary the lengths of the beads slightly so that the start/stop positions are not exactly at the same location.

5.1.7 Flip the lip/bucket over.

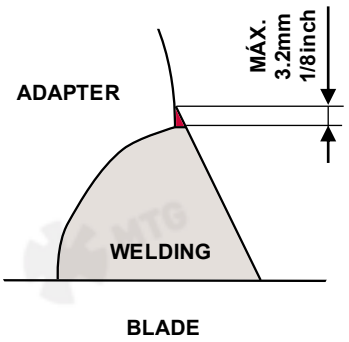
5.1.9 Weld the gap between the blunt and the adapter.



5.1.10 Repeat this sequence (step 4.1.9) three times. Vary the lengths of the beads slightly so that the start/stop positions are not exactly at the same location.

5.1.11 Adapters with bigger dimensions requires additional weld layers, turn the lip over and weld three layers according to the sequence for the top leg (steps 4.1.4, 4.1.5 and 4.1.6).

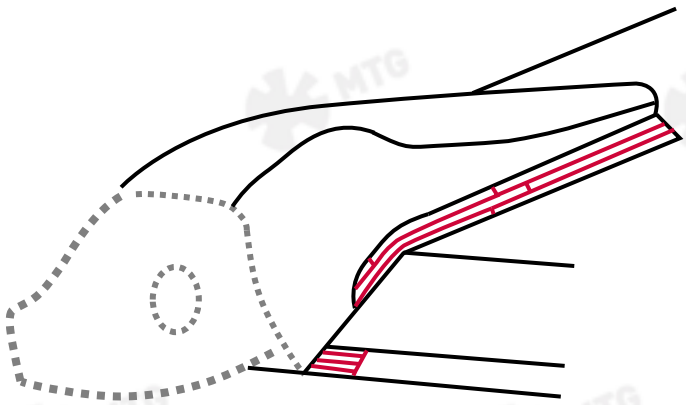
5.1.12 The leg sizes of the fillet must be flush and less than 3.2mm - 1/8 in. above the edge of the cast weld groove. In some adapter patterns, the weld groove height decreases near the leading edge of the lip. With these adapters, the size of the fillet shall decrease correspondingly in the region.



5.1.13 Ensure that the welding technique comply with what is exposed on the document entitled: “General welding recommendations”.

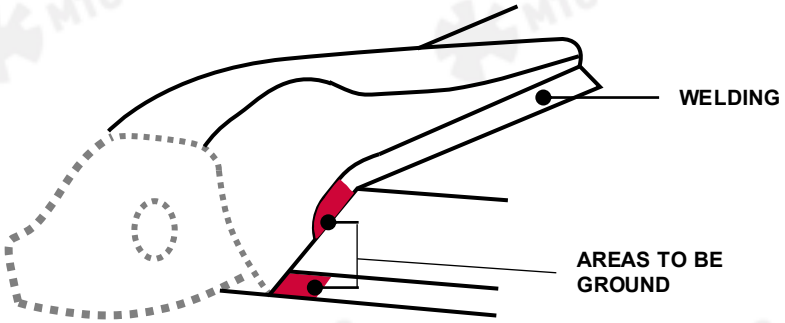
5.2 WELD FINISHING

5.2.1 When welding large adapters, considerable grinding effort can be saved by carefully positioning the starting points of the beads near the leading edge. Start each bead slightly behind those of the preceding layer to produce a "rounded" weld end.

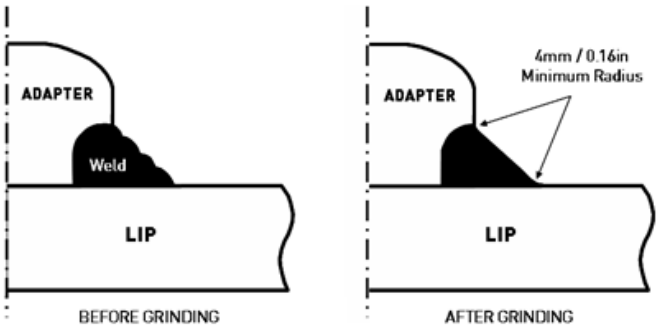


5.2.2 The surfaces of adapter/lip fabrication welds shall be ground smooth 65 to 75mm - 2½ to 3 in. from the front ends as indicated in the figure.

All welds on both the top and bottom of the lip shall be ground.



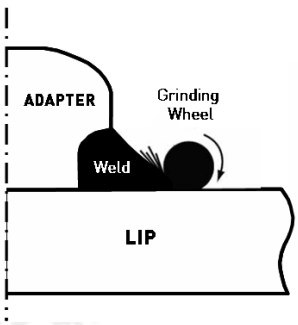
5.2.3 Grinding shall produce a smooth surface free of roughness and unevenness associated with the weld beads. The toes of the welds shall merge smoothly with the lip and the adapter with a minimum radius of 4mm - 5/32 in.



Grinding shall be done using high speed electric or pneumatic grinders with grinding wheels no larger than 50mm - 2 in. in diameter. ANGLE HEAD OR DISK GRINDERS ARE NOT ALLOWED FOR THIS WORK. DE CABEZA ANGULAR O DE DISCO PARA ESTE TRABAJO.

Grinding shall be done with the perimeter of the wheel and not the face. The grinding direction must be perpendicular to the toes of the welds as in the illustration:ilustraciones:

Proper Grinding Directions:



Grinding the radio at the toes of the welds is facilitated using cone-shaped grinding wheels. For final grinding, the abrasive may be no coarser than 24 Grit.

5.2.4 It is recommendable to perform a TIG dressing on adapters' straps. This process involves using a GTAW torch to make an autogenous weld pass along the toe of the weld fillet.

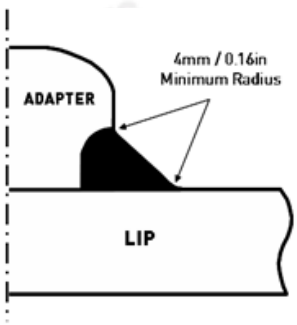
The welding power supply shall have high-frequency start capabilities. "Scratch-starting" is not allowed. It is preferable to employ a remote foot-pedal current control to permit suitable filling of craters at the ends of beads.

GTAW

PROCESS	GTAW	
ELECTRODE TYPE	AWS EWTh-2 (2% THORIATED)	
ELECTRODE DIA.	2.4mm to 4.0 mm / 3/32 to 5/32in.	
SHIELDING GAS	100% ARGON	
GAS CAP SIZE	13mm / 0.50in.	
GAS FLOW RATE	9.4 to 14.2 1/minute / 20 to 30 ftVhour	
CURRENT SIZE	DIRECT	
POLARITY	STRAIGHT (ELECTRODE NEGATIVE)	
CURRENT RANGE	2.4mm / 3/32in.	175 to 250 AMPERES
	3.2mm / 1/8in.	250 to 300 AMPERES
	4.0mm / 5/32in.	400 to 500 AMPERES
ELECTRODE TO WORK DISTANCE	1.6mm to 3.2 mm / 1/16 to 3/32in.	

Any defects along the toes of the welds must be corrected by grinding or repair welding before the GTAW process. The torch shall be positioned over the weld toe and shall be oriented to produce a smooth weld bead without undercut. The welder shall control the travel speed to obtain a bead ranging from 4.8 to 8mm - 3/16 to 5/16 in. wide.

GTAW treatment is recommended to be done along the root of the weld and on the top and bottom legs as shown below.



5.2.5 Repeat the sequence at all the rest of stations.

5.2.6 After completion of welding, all welds shall be subjected to visual and magnetic particle inspection. Any detected welding crack must be cleaned and repaired.

MTG

No limits innovation

Service Instructions

The latest welding recommendations and assembly / disassembly instructions can be found online:
www.mtgcorp.com/manuals

Please contact Technical Services in case of questions:
technical.services@mtgcorp.com

MTG HEADQUARTERS
Carrer d'Àvila, 45
08005 Barcelona (Spain)
(+34) 93 741 70 00
info@mtgcorp.com

MTG NORTH AMERICA
4740 Consulate Plaza Drive
Houston, TX 77032 (USA)
+1 (281) 872 1500
Info.na@mtgcorp.com

MTG AUSTRALIA
16 – 18 Thorpe Close
Welshpool, WA, 6106 (AUS)
+618 62486513
Info.au@mtgcorp.com