

Welding Instructions Aluminium

WELDING METHOD

Gas metal arc welding (GM AW)
Gas tungsten arc welding (GT AW)

WELDERS' QUALIFICATION

Welders to be qualified according to AWS D1.1
latest edition /EN ISO 9606-2:2004

CONSUMABLE

GMAW SFA /AWS A5.10 ER 5183

GTAW SFA /AWS A5.10 ER 5183

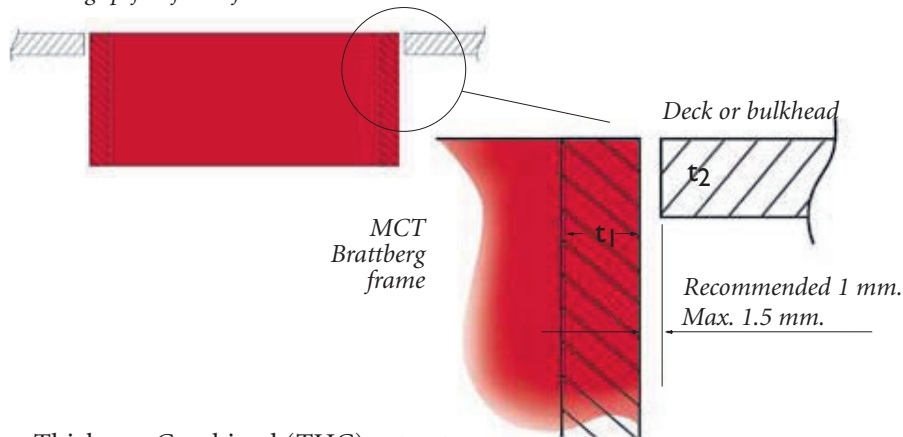
Consumable to be handled and treated according
to manufacturer's recommendation.

PREPARATION AND FIT UP

The prepared joint and surrounding areas shall be
clean and free from moisture, oil, grease, loose or
thick scale, oxides etc., or any protective coating
except weldable primers.

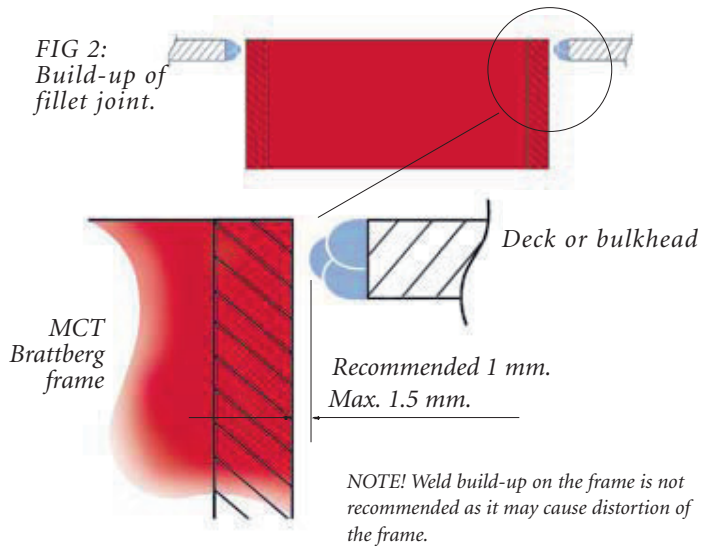
Maximum allowed root gap for fillet welds is
recommended 1 mm, max 1.5 mm (see fig 1).

FIG 1:
maximum allowable
root gap for fillet joint



Thickness Combined (THC) = $t_1 + t_2$
If root gap is too wide the deck plate or
bulkhead may be built-up with weld to
achieve a proper gap.
(see fig. 2)

FIG 2:
Build-up of
fillet joint.



PREHEAT AND INTERPASS TEMPERATURE

Combined thickness

$T_1 + T_2$

$< 25 \text{ mm } 10^\circ\text{C}, 50^\circ\text{F}$

$> 25 \text{ mm } -50 \text{ mm} / 50^\circ\text{C}, 122^\circ\text{F}$

IMPORTANT!

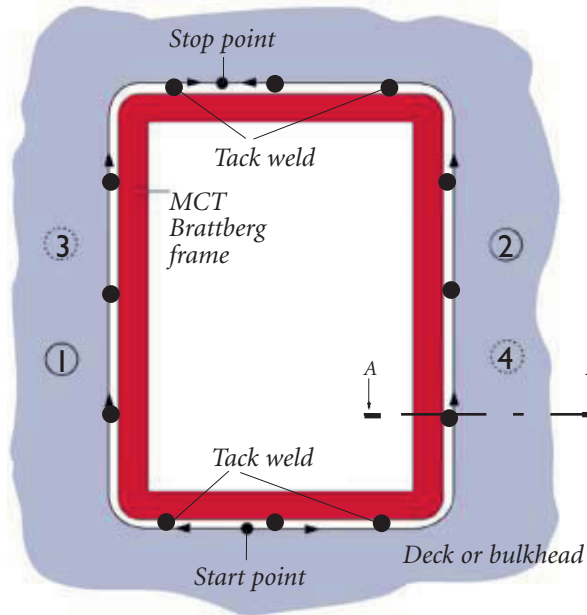
To avoid deformation of the
frame it is recommended to follow
this welding instructions

Putting safety first

WELDING SEQUENCE

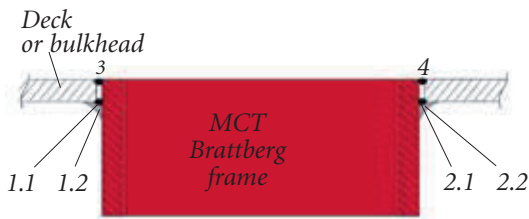
Welding to be performed according to fig 3 and 4.
Weld pass 3 is not to be started until welds 1 and 2 are completed.

FIG 3:
welding sequence
(example shows a two-pass fillet weld)



Tack weld eatch /75 mm for less deformation of the frame

FIG 4:
Welding sequence



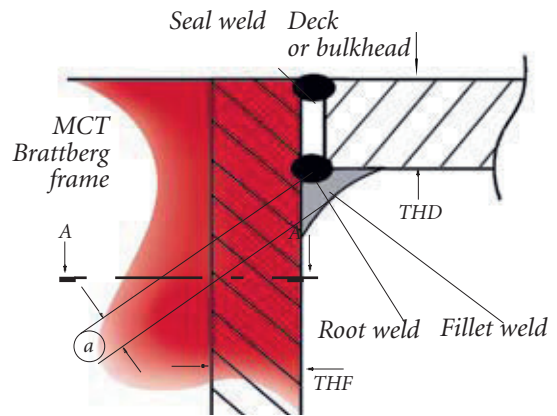
- 1.1 Root weld
- 2.1 Root weld
- 1.2 Fillet weld
- 2.2 Fillet weld
- 3 Seal weld
- 4 Seal weld

WELD SIZE

Fillet weld size (throat thickness) is to be 0.5 x plate thickness of the bulkhead or deck plate (THD). However fillet weld size is not to be greater than 0.7 x frame plate thickness (THF). See fig 5.

$$\text{Thus: } 0.5 \times \text{THD} \leq \textcircled{a} \leq 0.7 \times \text{THF}$$

FIG 5:
Fillet weld size



\textcircled{a} = fillet size (throat thickness).

THD = Thickness Deck plate.

THF = Thickness Frame plate.

NOTE!

Multi-pass welding is required if $\textcircled{a} \geq 5 \text{ mm}$.



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