

Aluminium – Triplate[®] Transition Joint

Triplate[®] is widely used for the on-site welding of aluminium to steel, for example ships hulls to decks and oil rig superstructures to steel supports.

It consists of a steel base material and a corrosion resistant marine-grade aluminium alloy top layer with an intermediate layer of pure Aluminium to promote bonding.

The three Triplate[®] layers are homogeneously bonded together by vacuum-explosion welding.

Chemical Composition

Base Material:	Steel LRS Ship-Plate Grade A or St 52-/3N
Interlayer:	99.5% Pure Aluminium – Alloy 1050A
Superlayer:	Aluminium Alloy 5083 (AlMg4.5Mn)

Size

Width:	25mm
Thickness:	34/35mm
Lengths:	3800mm

Mechanical Properties

Shear Strength – Basemetal/Intelayer	> 55N/mm ²
Tensile Strength (through thickness)	> 75N/mm ²

Specification / Approvals

Meets MIL-J-24445A and approved by Lloyd's Register of Shipping.

Using Triplate[®]

During processing the temperature of the material MUST NOT be allowed to exceed 315°C.

DO NOT pre-heat the transition joint before welding.

Welding methods to be used are similar to those for the parent metals.

Ideally the aluminium weld should be made first after removal of the aluminium oxide film by wire-brushing, followed by de-greasing. Argon shielding gas is recommended. Small diameter wires are recommended (1.2mm). Welding methods include GTAW, GMAW, TIG, MIG and Synergic pulse MIG.

The steel weld is made using a coated electrode and GMAW, SMAW or FCAW. Small diameter electrodes are recommended (2.5mm).

When bending ensure that the minimum bend radius is at least ten times the strip width or thickness.

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All Data is indicative only and must not be seen as a substitute for the full specification from which it is drawn. In particular, the mechanical property requirements vary widely with temper, product form and product dimensions. For more complete details please refer to the relevant specification – The BS EN Specifications for aluminium are listed on a separate Datasheet.