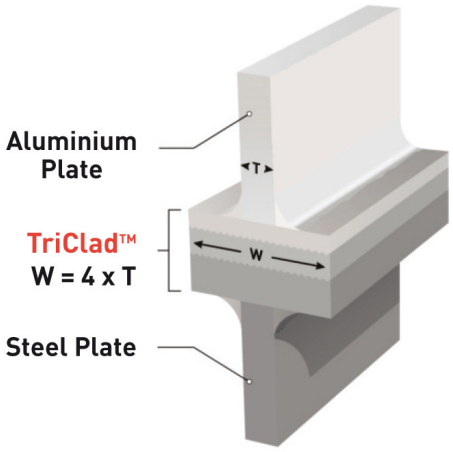
TriClad
DETACOUPLE JOINTS

titanium international

TriClad® Structural Transition Joints

NT 300 | Rev.3 March 2020

TriClad® aluminium-steel transition joints are used to provide an efficient and maintenance free welded connection between aluminium and steel structures on board vessels and offshore constructions.



DESIGN

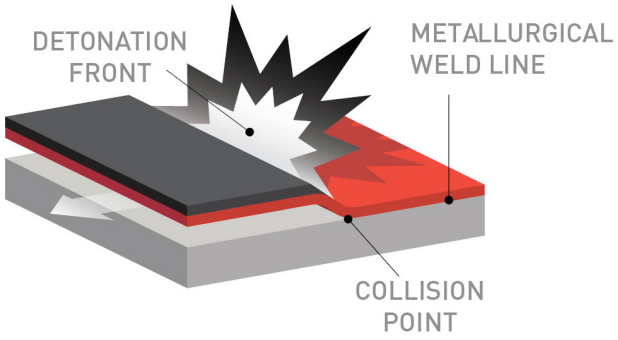
- The width of the TriClad® bar shall be four times (4x) the width of the connecting structural component. **Example:** a webbing of 6 mm in the aluminium superstructure calls for a TriClad® strip 24 mm wide minimum.
- We recommend the connecting structural components be placed in the middle of the TriClad® strip.

QUALIFICATION

- All products are available with approval from Lloyd's, RINA, DNV, BV, ABS, CCS and others on demand.

PRODUCTS

- As a world leader in explosion welding for more than 40 years, NobelClad offers a complete range of structural transition joints dedicated to the shipbuilding industry. Under the name TriClad®; bars, plates or special pieces are the strongest solutions for welding steel to marine aluminium grade.



Product	Steel	Interlayer	Al Alloy	Nom. Thickness (mm)	Bar Length (mm)	Bar Width (mm)
Standard TriClad®	A516 gr.55	Al 1050A	Al 5086	34.5 (19+9.5+6)	3800	On demand
TriClad® 19			Al 5083	19 (10+5+4)		
TriClad® 28	Shipbuilding steel gr. D			28 (15+3+10)		
TriClad® 33				33 (20+3+10)		
Titanium TriClad®	A516 gr.55	Titanium	Al 3003	31.5 (19+1.5+10)	2750	
Stainless TriClad®	316L			31.5 (20+1.5+10)		

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Fabrication

CUTTING

- TriClad® can be sawn, milled, or water-jet cut.
- Flame cut is forbidden as interface shall not be heated above 300°C.

BENDING

TriClad® bars can be bent at room temperature, around a curve surface. The minimum bending radius is:

- R = 300 mm for tension/compression bend.
- R = 10T for a side bend, where T is the width of the strip.

Fabrication drawings should contain the following warnings:

- Never weld across the interface
- Never make sharp bends in the joint
- Never preheat the joint prior to welding
- Never allow the interface to exceed 300°C
- Never flame cut TriClad®

Protection

- Painting is recommended to seal the joint from the environment.
- Paints containing copper, mercury, or lead salts are not ecommended as they may encourage galvanic corrosion.

Welding

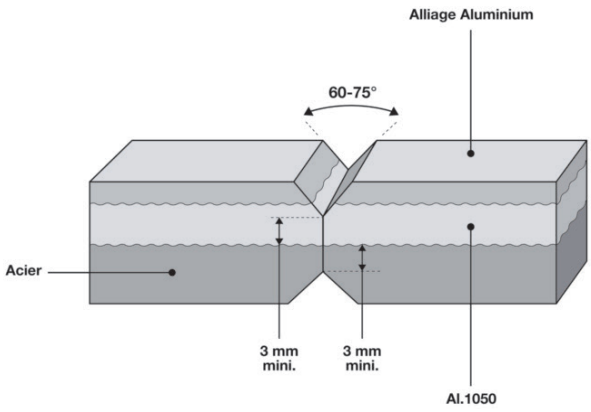
TEMPERATURE LIMITATION

- For metallurgical reasons, TriClad® products can be damaged by excess of heat input.
- The Aluminium/Steel interface must be kept below 300°C.
- Because of this requirement we strongly suggest to draw up WPS/WPQ and have personnel thoroughly trained and qualified.

SEAM WELD MUST NEVER GET CLOSER THAN 3 MM FROM ALUMINIUM/STEEL INTERFACE

EXTRA CARE MUST BE TAKEN WITH BUTT WELDS

- Prepare the joint as indicated in below sketch.
- Ends should be chamfered, butted firmly together and clamped.
- The aluminium weld should be made first, using several straight passes in order to minimize temperature rise of the interface.
- An unwelded area of TriClad® should be hammer peened if water tight joint is required.



Certificates & Testing

- TriClad® products are certified EN 10204 3.2 by Lloyd's Register and MIL-J-24445A for Military applications, are submitted to 100% UT and exhibit min. through thickness tensile strength of 80 MPa and min. shear strength of 60 MPa.

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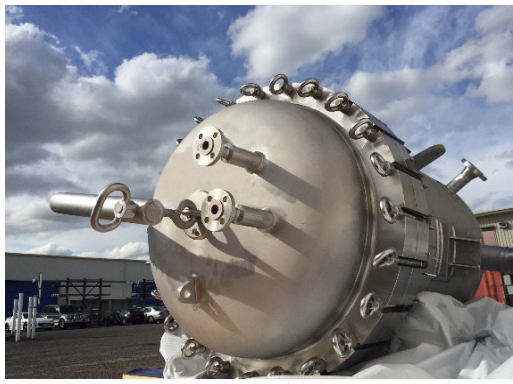
Titanium International is the Australia and NZ representative of Merrem & La Porte of Holland for TriClad®



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