



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Tube-Mac Piping Technologies Ltd.
Address	853 Arvin Avenue, Stoney Creek, Ontario, L8E 5N8, Canada
Place of Production	Tube-Mac Piping Technologies Ltd. 853 Arvin Avenue, Stoney Creek, Ontario, L8E 5N8, Canada
Type	Flare Flanges
Description	4 Bolt loose slip-on flared flanges
Trade Name	FFC34, FFC64, FFC74
Application	Marine and offshore piping systems in accordance with the limitations and conditions as stated in other conditions. Applications: <ul style="list-style-type: none">• Sanitary systems• Cooling water systems• Fuel oil systems• Lubricating oil systems• Gas systems• Compressed air systems• Hydraulic systems
Specified Standard	ISO 6162-1:2012

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Specialist-Engineering Systems to Lloyd's
Register Canada Limited
A member of the Lloyd's Register group

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ISO 6162-2:2018
ISO 6164:1994
Lloyd's Register Rules and Regulations for Ships, Part.5,Chapter.12

Ratings

see Appendix 1

Other Conditions

When used in Marine / Offshore classed installations the following conditions apply:

1. Maximum conditions for the fittings for which the manufacture's material test certificate is acceptable is when the working temperature is less than 300° Cand DN < 50 mm or working pressure multiplied by the DN is less than 2500.
2. Charpy Impact Testing to be as per Chapter 2 of Lloyd's Register Rules and Regulations- Rules for the Manufacture, Testing and Certification of Materials.
3. The wall thickness and material of tubes to be in accordance with the current Lloyd's Register Rules and Regulations.
4. The approval is only valid when the couplings are assembled with tubing of correct tolerances as recommended by the manufacturer.
5. Fittings, which rely on elastomeric sealing material in systems carrying flammable fluids, are to be fire tested to an approved national standard.
6. Flared flanges are not to be installed in systems subjected to vacuum.
7. Working pressure for flange connections made from Stainless Steel and used at elevated temperatures conforming to ISO 6162-1 & ISO 6162-2, shall be reduced by 4% for temperatures from +50°C up to 100°C and by 11% for temperatures from +100°C up to 200°C.
8. For flammable fluids, flare flanges are not accepted inside machinery spaces

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of Category A or accommodation spaces. They may be acceptable in other machinery spaces provided the joints located in easily visible and accessible positions.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Canada Limited of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 08/60011(E4)

The Design Appraisal Document LR22507243TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22507243TA****Appendix****1. Ratings:**

Model	Diameter (DN)	Max Working Pressure(bar)	Temperature range (°C)
FFC34-050	13	350	-20 to +120
FFC34-075	19	350	
FFC34-100	25	350	
FFC34-125	32	275	
FFC34-150	38	210	
FFC34-200	51	210	
FFC34-250	64	175	
FFC34-300	76	140	
FFC64-050	13	420	
FFC64-075	19	420	
FFC64-100	25	420	
FFC64-125	32	420	
FFC64-150	38	420	
FFC64-200	51	420	
FFC74-250	64	310	
FFC74-300	76	270	