



## 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.

<b>Manufacturer</b>	<b>Tube-Mac Industries Ltd.</b>
<b>Address</b>	853 Arvin Avenue, Stoney Creek, L8E 5N8, Canada
<b>Place of Production</b>	Tube-Mac Industries Ltd. 853 Arvin Avenue, Stoney Creek, L8E 5N8, Canada
<b>Type</b>	Retain Ring Flanges
<b>Description</b>	4 and 8 bolt loose slip-on retain ring flanges
<b>Trade Name</b>	RFC34, RFC64, RFC74, RFAC48
<b>Application</b>	Marine and offshore piping systems in accordance with the limitations and conditions as stated in other conditions  Applications: <ul style="list-style-type: none"><li>• Sanitary systems</li><li>• Cooling Water systems</li><li>• Fuel oil systems</li><li>• Lubricating systems</li><li>• Gas systems</li><li>• Compressed air systems</li><li>• Hydraulic systems</li></ul>

237 Brownlow Avenue, Suite 200, Dartmouth, NS.  
B3B2C7, Canada

**Praveen Dwarakanath**

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

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**Specified Standard** ISO 6162-1:2012  
ISO 6162-2:2018  
ISO 6164:1994  
Lloyd's Register Rules and Regulations for Ships, July 2022, Part.5, Chapter.12

**Ratings** see Appendix 1

**Other Conditions**

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° C and 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. Retain ring flanges are not to be installed in systems subjected to vacuum.
7. Working pressure for flange connections made from Stainless Steel 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.
5. For Flammable fluids, retain ring flanges are not accepted inside machinery spaces of Category A or accommodation spaces. They may be acceptable in other machinery spaces provided the joints are located in easily visible and

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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:** 08/60012(E4)

The Design Appraisal Document LR22501065TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.



**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22501065TA****Appendix****1. Ratings:**

Model	Diameter (DN)	Max Working Pressure(bar)	Temperature range (°C)
RFC34-050	13	350	-20 to +120
RFC34-075	19	350	
RFC34-100	25	350	
RFC34-125	32	274	
RFC34-150	38	210	
RFC34-200	51	210	
RFC34-250	64	175	
RFC34-300	76	140	
RFC34-400	101	35	
RFC64-050	13	420	
RFC64-075	19	420	
RFC64-100	25	420	
RFC64-125	32	420	
RFC64-150	38	420	
RFC64-200	51	420	
RFC74-250	64	400	
RFC74-300	76	400	
RFC74-400	100	400	

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RFAC48-500	127	274	
RFAC48-600	152	255	
RFAC48-800	203	240	

