

Tube-Mac Piping Technologies Ltd
853 Arvin Ave.
STONEY CREEK ON L8E 5N8
Canada

DNV GL AS
Offshore Class Approval
Pressure Equipment
P.O. Box 300
1322 Høvik
Norway
Tel: +47 67 57 99 00

Date:

2017-01-24

Our reference:

MOANO378/SADEL/
262.1-014271-J-17

Your reference:

Job ID:

262.1-014271-3

**TUBE-MAC PIPING TECHNOLOGIES LTD; TA CERTIFICATE P-14304, P-14305, P-14996
RENEWAL, Id. No. 262.1-014271**

Extension Letter

To whom it may concern,

DNV GL and Tube-MAC are currently working together in order to renew type approval certificates P-14304, P-14305 & P-14996. Until such a time that a new certificate is issued, this letter may be used to confirm that the validity of these certificates extended until 15th of March 2017.

Sincerely

for DNV GL AS

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Head of Section

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DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14304**

This is to certify that the
Pipe Couplings, Bite and Compression Type

with type designation(s)
PYPLOK Connector

Manufactured by
Tube-Mac Industries Ltd.
STONEY CREEK, Canada

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

Application

Temperature range: see certificate
Max. working press.: see certificate
Sizes: 1/4" - 2" / 6 mm - 66 mm, see certificate

Høvik, 2013-01-03
for Det Norske Veritas AS


Giorgio Saia
Head of Section



DNV local office:
Montreal

This Certificate is valid until
2016-12-31


Tom Berg-Nielsen
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: P-14304
 File No.: 792.21
 Job Id.: 262.1-014271-1

Product description

Compression press type coupling with 2 O-ring seals each end. Tested fire resistant type.
 Materials: carbon steel, SS316 stainless steel or 70/30 CuNi.

Tube /pipe Dimensions):	NPS Carbon steel	1/4" - 2"
	NPS SS316	1/4" - 2"
	NPS Cu/Ni	1/4" - 2"
	Imperial OD Carbon steel	1/4" - 2"
	Imperial OD SS316	1/4" - 2"
	Imperial OD Cu/Ni	1/4" - 2"
	Metric Carbon steel	6 mm- 66 mm
	Metric SS316	6 mm- 66 mm
	Metric Cu/Ni	6 mm- 66 mm

Application/Limitation

Approved for the pipe systems as listed in the table for Class I, II and III with this limitations: Class I and II max diameter 60,3 mm.

The couplings may be used in the following systems

<u>Flammable fluids (flash point ≤ 60°C)</u>	<u>Fresh water:</u>
1 Cargo oil lines	21 Cooling water systems
2 Crude oil washing lines	22. Condensate return
3 Vent lines	23. Non-essential systems
<u>Inert gas</u>	<u>Sanitary drain/Scupper</u>
4 Water seal effluent lines	24 Deck drains (internal)
5 Scrubber effluent lines	25. Sanitary drains
6 Main lines	26. Scuppers and discharge
7 Distributions lines	
	<u>Sounding/Vent</u>
<u>Flammable fluids (flash point > 60°C)</u>	27 Water tanks/dry spaces
8 Cargo oil lines	28 Oil tanks (f.p. > 60°C)
9 Fuel oil lines	
10 Lubricating oil lines	<u>Miscellaneous</u>
11 Hydraulic oil	29 Starting Control Air
12 Thermal oil	30 Service Air (non-essentila)
	31 Brine
<u>Sea water</u>	32 CO2 system (not inside accomodation spaces)
13 Bilge lines	33 Steam
14 Fire main and water spray	
15 Foam system	
16 Sprinkler system	
17 Ballast system	
18 Cooling water system	
19 Tank cleaning services	
20 Non-essential systems	

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Approved for operating temp. limited by the non-metallic seals:

Min./max operating temperature:

Perbunan: -20°C- 180°C

Viton: -20°C- 200°C

Approved for working pressure:

NPS Carbon steel 340 bar at size 1/4" – 275 bar at size 2"

NPS SS316 410 bar at size 1/4" – 330 bar at size 2"

NPS Cu/Ni 270 bar at size 1/4" – 210 bar at size 2"

Imperial OD Carbon steel 390 bar at size 1/4" – 320 bar at size 1 1/2"

Imperial OD SS316 480 bar at size 1/4" – 390 bar at size 1 1/2"

Imperial OD Cu/Ni 310 bar at size 1/4" – 250 bar at size 1 1/2"

Metric Carbon steel 370 bar at size 6mm – 230 bar at size 66 mm

Metric SS316 450 bar at size 6mm – 280 bar at size 66 mm

Metric Cu/Ni 290 bar at size 6mm – 180 bar at size 66 mm

Max. working pressure for intermediate sizes see manufacturers specification

For couplings at elevated operating temperatures, the maximum working pressure has to be reduced with the following factors:

Temp.	20 °C	50 °C	100 °C	150 °C	200 °C				
Carbon Steel	1	1	1	0,89	0,81				
Stainless Steel	1	0,95	0,85	0,77	0,71				
Cu/Ni 70/30	1	0,97	0,96	0,92	0,87				

Couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalised.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the coupling manufacturer.

Type Approval documentation

Tube-Mac product description manual: Tube-Mac Pyplok Connctors, Type Approval Requirements and Type Test Proposal. Test reports.

Tests carried out

Hydraulic proof test, gas leakage test, burst pressure test, impulse test, vibration test, fire test to ISO15540/2001.

Marking of product

Marking according manufacturers specification, minimum:

- Name
- Type
- Dimension
- Pressure rating.

Certificate Retention Survey

For retention of the Type Approval, a DNV surveyor shall perform a survey- before the expiry date of this certificate- to verify that the conditions for the type approval are complied with.

END OF CERTIFICATE