

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP000017J
Revision No:
4

This is to certify:
that the Tube Fittings

with type designation(s)
INOXPRES, STEELPRES

issued to
RACCORDERIE METALLICHE S.p.A.
Campitello di Marcaria, MN, Italy

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application:

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
INOXPRES	-55 to 220°C (dependent on the sealing)	16 bar	15,18,22,28,35,42,54,76,89 & 108 mm
STEELPRES	-20 to 220°C (dependent on the sealing)	10 bar	15,18,22,28,35,42,54,76,89 & 108 mm

Issued at **Høvik** on **2024-11-13**

This Certificate is valid until **2027-12-31**.

DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Tobias Berntsen**

for **DNV**



Digitally Signed By:
Bosman van der Merwe
Location: **DNV Høvik, Norway**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Tube fittings of Compression coupling (press type) with internal elastomer sealing rings.

Materials:

Carbon steel (Steelpres): E195NBK EN 10305-3 (1.0034)
Stainless steel (INOXPres): 1.4404 EN 10217-7

Couplings designations:

(Steelpres): 381/450, 381/451, 381/900, 381/901, 385, 398, 397, 382, 392/A, 392, 389, 383/000, 383/001, 383/002, 383/003, 387, 390, 391, 393/000, 322

(INOX Press): 181/150, 181/151, 181/300, 181/301, 181/450, 181/451, 181/600, 181/601, 181/900, 181/901, 197, 198, 186, 182, 189, 189/M, 192, 183/000, 183/001, 183/002, 183/003, 185/000, 185/001, 185/002, 185/003, 187, 190, 187/R, 184/000, 184/001, 184/002, 184/003, 184/002 INOX, 184/003 INOX, 191, 193/002, 193/000, 193/006, 193/001, 195/000

Application/Limitation

Couplings covered by this certificate are approved to be used in class III piping systems in below applications:

Systems	Classification of Piping system	With O-ring/not fire tested (NBR and HNBR)	With O-ring/wet fire tested (FKM and MVQ)	With O-ring/wet & dry fire tested (EPDM)
Flammable fluids (flash point ≤ 60 °C)				
1. Cargo oil lines	dry	+1)	+1)	+6)
2. Crude oil washing lines	dry	+1)	+1)	+6)
3. Vent lines	dry	+2)	+2)	+6)
Inert gas				
4. Water seal effluent lines	wet	NP	+	+
5. Scrubber effluent lines	wet	NP	+	+
6. Main lines	dry	+1)	+1)	+6)
7. Distribution lines	dry	+1)	+1)	+6)
Flammable fluids (flash point > 60 °C)				
8. Cargo oil lines	dry	+1)	+1)	+6)
9. Fuel oil lines	wet	NP 2)	+	+
10. Lubricating oil lines	wet	+2)	+	+
11. Hydraulic oil	wet	+2)	+	+
12. Thermal oil	wet	+2)	+	+
Sea water 5)				
13. Bilge lines	dry/wet	+3)	+3)	+6)
14. Water filled fire extinguishing systems, e.g. sprinkler systems	wet	+2)	+	+
15. Non water filled fire extinguishing systems, e.g. foam, drencher systems	dry/wet	+2)	+2)	+6)
16. Fire main (not permanently filled)	dry/wet	+2)	+2)	+6)
17. Ballast system	wet	+3)	+	+
18. Cooling water system	wet	+3)	+	+
19. Tank cleaning services	dry	+	+	+6)
20. Non-essential systems	dry, dry/wet, wet	+	+	+
Fresh water				
21. Cooling water system	wet	+3)	+	+
22. Condensate return	wet	+3)	+	+
23. Non-essential systems	dry, dry/wet, wet	+	+	+
Sanitary/drains/scuppers				
24. Deck drains (internal)	dry	+4)	+4)	+4)
25. Sanitary drains	dry	+	+	+

Systems	Classification of Piping system	With O-ring/not fire tested (NBR and HNBR)	With O-ring/wet fire tested (FKM and MVQ)	With O-ring/wet & dry fire tested (EPDM)
26. Scuppers and discharge (overboard)	dry	+	+	+
Sounding/vent				
27. Water tanks/dry spaces	dry/wet	+	+	+
28. Oil tanks (f.p > 60 °C)	dry	+2)	+2)	+
Miscellaneous				
29. Starting/control air	dry	+3)	+3)	+6)
30. Service air (non essential)	dry	+	+	+
31. Brine	wet	+	+	+
32. CO ₂ system (outside protected space)	dry	NP	NP	+6)
33. CO ₂ system (inside protected space)	dry	NP	NP	NP
34. Steam	wet	+	+	+
Abbreviations + Application permitted NP Application not permitted Footnotes 1) Not permitted in pump rooms and open decks. 2) Not permitted except in cases where such mechanical joints are installed on exposed open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines. 3) Not permitted in machinery spaces of category A. 4) Permitted only above bulkhead deck of passenger ships and freeboard deck of cargo ships. 5) Pipe couplings made of austenitic stainless steel material grades covered by this certificate are not permitted to use in sea-water applications. 6) INOXPres with O-rings made of EPDM is suitable where dry and wet fire test are required.				

Threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads shall comply with the restrictions listed in DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [5.2.6].

Non-metallic parts made from EPDM, FKM and MVQ are fire tested.

The temperature rating for elastomer sealing ring:

Type of Elastomer	Temperature range
EPDM Black	-20 to +120 °C
NBR/HNBR yellow	-20 to +70 °C
FKM green	-20 to +220 °C
MVQ red	-55 to +180 °C

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

Temp.	-55 °C	-20 °C	20 °C	50 °C	100 °C	150 °C	200 °C
Carbon Steel	-	1	1	1	1	0.89	0.81
Stainless Steel	1	1	1	0.95	0.85	0.77	0.71

Couplings made of carbon steel (thickness greater than 6 mm) are not to be used at temperatures below 0°C unless supplied with material Charpy V-notch impact tested at 5 degrees below minimum design temperature or -20°C, whichever is smaller - Minimum average energy 27 J.

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

Document no. Title
 - Manufacturer's catalogue – Page 14-57 and 78-100
 PRTP/20100301/AT Vibration/pressure pulsation test from PROTOTIPO

Rev. Date
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 01 2010-11-30

10906	Cetena pull-out test report	00	2010-11-17
2010CS012987/1	RINA Fire test report	-	2010-10-11
1424.2IS0182/13	LAPI Fire test report	-	2013-10-24
-	Renewal burst pressure test report, witnessed by DNV	-	2013-12-09
RP 052-17	Renewal burst pressure test report, witnessed by DNV	-	2017-11-20
2019CS014165/1-9	RINA Fire test reports for EPDM Nero O-ring	-	2019-12-19
RP 028-22	Renewal burst test report, witnessed by DNV	-	2022-07-18
2084.2SI0182/17	LAPI Fire test report	-	2017-07-28
2085.2IS0182/17	LAPI Fire test report	-	2017-07-28
2086.2IS0182/17	LAPI Fire test report	-	2017-07-28

Tests carried out

Leakage test, vibration & pressure pulsation, burst pressure, pull-out, vacuum and fire test.

Marking of product

Each coupling shall be at least permanently marked as follows:

- Type
- Size
- Test pressure
- Manufacturer identification number

Additional marking may be performed at the manufacturer's option, Information on how the marking is applied on the products and the design of the marking shall be submitted together with the application for type approval.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>