

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP000017J**  
Revision No:  
**3**

## 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 **2023-01-12**

for **DNV**

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

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

Approval Engineer: **Andreas Hansen**

**Bosman van der Merwe**  
**Head of Section**

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 300,000 USD.



## 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:

- Flammable fluids (flash point  $\leq 60^{\circ}\text{C}$ )<sup>(7)</sup>
  - Cargo oil lines <sup>(1)</sup>
  - Crude oil washing lines <sup>(1)</sup>
  - Vent lines <sup>(2)</sup>
- Inert gas
  - Water seal effluent lines
  - Scrubber effluent lines
  - Main lines <sup>(1)(7)</sup>
  - Distribution lines <sup>(1)(7)</sup>
- Flammable fluids (flash point  $> 60^{\circ}\text{C}$ )
  - Cargo Oil lines <sup>(1)(7)</sup>
  - Fuel oil lines <sup>(2)</sup>
  - Lubricating oil lines <sup>(2)</sup>
  - Hydraulic oil <sup>(2)</sup>
  - Thermal oil <sup>(2)</sup>
- Miscellaneous
  - Starting/Control air <sup>(3)(7)</sup>
  - Service air (non-essential)
  - Brine
  - CO<sub>2</sub> system (outside protected space)<sup>(4)(7)</sup>
  - Steam
- Sea water
  - Bilge lines <sup>(3)(7)</sup>
  - Non-water filled fire extinguishing systems <sup>(7)</sup>
  - Fire main (not permanently filled) <sup>(2)(7)</sup>
  - Water filled fire extinguishing systems <sup>(2)</sup>
  - Ballast system <sup>(5)</sup>
  - Cooling water system <sup>(5)</sup>
  - Tank cleaning services
  - Non-essential systems
- Fresh water
  - Cooling water system <sup>(5)</sup>
  - Condensate return <sup>(5)</sup>
  - Non-essential system
- Sanitary/drains/scuppers
  - Deck drains (internal) <sup>(6)</sup>
  - Sanitary drains
  - Scuppers and discharge (overboard)
- Sounding/vent
  - Water tanks/Dry spaces
  - Oil tanks (f.p.  $> 60^{\circ}\text{C}$ )

- 1) Fire endurance test shall be applied when mechanical joints are installed in pump rooms and open decks.
- 2) Approved fire resistant types 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) Mechanical joints shall not be installed in machinery spaces of category A.
- 4) Mechanical joints shall be constructed of materials with melting point  $>925^{\circ}\text{C}$ .
- 5) Fire endurance test shall be applied when mechanical joints are installed in machinery spaces of category A.
- 6) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.
- 7) 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 not be used for: (piping systems conveying toxic or flammable media) or (services where fatigue, severe erosion or crevice corrosion is expected to occur) or (when the outside diameter is greater than 60.3 mm).

Non-metallic parts made from EPDM 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	Rev.	Date
-	Manufacturer's catalogue – Page 14-57 and 78-100	-	-
P RTP/20100301/AT	Vibration/pressure pulsation test from PROTOTIPO	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

### Tests carried out

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

### Marking of product

For traceability to this type approval the products are to be marked with:

- Manufacturer's name or trade mark
- Type designation and dimension

### Periodical assessment

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.