DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000017J
Revision No:
1

This is to certify:

That the Tube Fittings

with type designation(s)
INOXPRES, STEELPRES

Issued to
RACCORDERIE METALLICHE S.P.A.
Marcaria, MN, Italy

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
INOXPRES	**-55 to 200ºC (dependent on the sealing)**	**16 bar**	**15,18,22,28,35,42,54,76,89 & 108 mm**
STEELPRES	**-20 to 200ºC (dependent on the sealing)**	**10 bar**	**15,18,22,28,35,42,54,76,89 & 108 mm**

Issued at **Høvik** on **2019-04-23**

This Certificate is valid until **2022-12-31**.
DNV GL local station: **Milan**

Approval Engineer: **Iselinn Vindstad**

for **DNV GL**

Digitally Signed By: Marveng, Marianne Spæren

Location: DNV GL Høvik, Norway

Marianne Spæren Marveng
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.

Job Id: **262.1-007797-6**
Certificate No: **TAP000017J**
Revision No: **1**

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): UNI X5CrNiMo1712 [AISI316L] 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 ≤ 60°C)
  - Cargo oil lines (2)
  - Crude oil washing lines (2)
  - Vent lines
- Inert gas
  - Water seal effluent lines
  - Scrubber effluent lines
  - Main Lines (1) (2)
  - Distribution lines (2)
- Flammable fluids (flash point > 60°C)
  - Cargo Oil lines (2)
  - Fuel oil lines (1)
  - Lubricating oil lines (1)
  - Hydraulic oil (1)
  - Thermal oil (1)
- Fresh water
  - Cooling water system
  - Condensate return
  - Non-essential system
- Sanitary/drains/scuppers
  - Deck drains (internal) (3)
  - Sanitary drains
  - Scuppers and discharge (overboard)
- Sounding/vent
  - Water tanks/Dry spaces
  - Oil tanks (f.p. > 60°C) (1)
- Miscellaneous
  - Starting/Control air
  - Service air (non-essential)
  - Brine
  - CO2 system
  - Steam
  - Sprinkler system with medium fresh water

1) Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions.
2) Only in pump rooms and open decks
3) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

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).

The temperature rating for elastomer sealing ring:

Type of Elastomer	Temperature range
EPDM	-20 to +110 ºC
NBR/H-NBR	-10 to +70 ºC
FPM – Viton	+30 to +200 ºC
Silicone	-55 to +180 ºC

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

Manufacturer's catalogue (INOXPRESS part – pages 14 to 57) & (Steelpres part pages 78 to 100)
Vibration/pressure pulsation Test report no PRTP/20100301/AT_REV.01 from PROTOTIPO (2010-11-30)
CETENA pull out test report number 10906 Rev.0 dated 2010-11-17
RINA fire test report number 2010CS012987/1 dated 2010-10-11
LAPI Fire test report no 1424.2IS0182/13 dated 2013-10-24
Witnessed renewal burst test report dated 2013-12-09
Renewal burst pressure test report number RP 052-17 dated 2017-11-20

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 GL 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 DNVGL-CP-0338.