

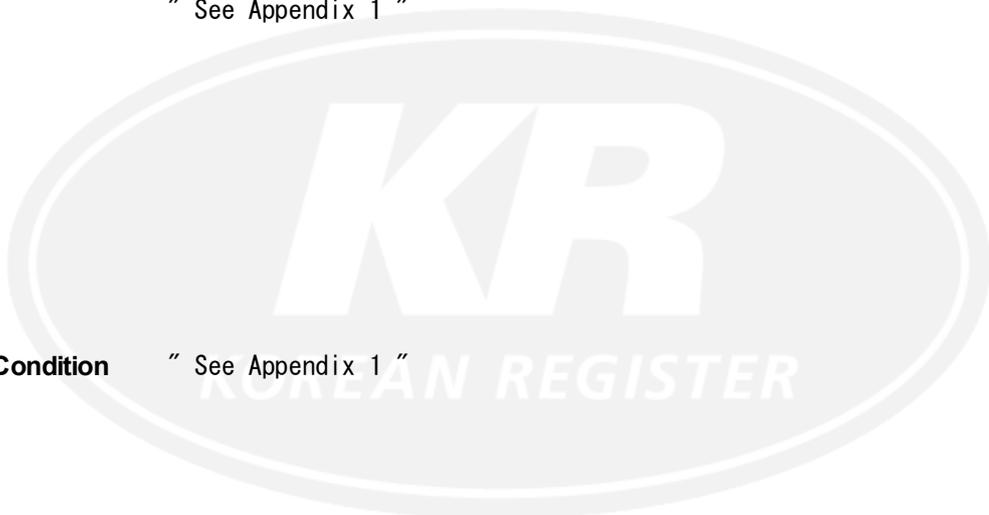


Type Approval Certificate

[Mechanical Joints]

Initial Approval 7 June 2022
Manufacturer Raccorderie Metalliche S.p.A.
Strada Sabbionetana 59, 46010 Campitello di Marcaria (MN) - Italy

Product Description - Model : Marinepres
- Kind : Compression couplings - Press type
" See Appendix 1 "



Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.
Pt. 5, Ch. 6, Sec. 1 of the Rules for Classification of Steel Ships.

This Certificate is valid until 6 June 2027
Issued at Busan, Korea on 7 June 2022



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME22015379711) and certificate No.(MIL46378-PE001).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 7 June 2022

A. Product Description

1. Product Specification

- 1) Kind : Compression couplings – Press type
- 2) Design Pressure : 16 bar (7 bar for flammable fluids and steam)
- 3) Material : Pipe and fitting – CuNi10Fe1.6Mn_DIN86019
Sealing rings – EPDM / NBR-HNBR / FKM / MVQ
- 4) Design Temperature (Dependent on rubber sealings)
 - EPDM (black) : -20 ~ 120 °C
 - NBR-HNBR (yellow) : -20 ~ 70 °C
 - FKM (green) : -20 ~ 220 °C / Fire test applied type
 - MVQ (red) : -55 ~ 180 °C / Fire test applied type
- 5) Size : DN15, DN18, DN22, DN28, DN35, DN42, DN54, DN76.1, DN88.9
DN108

2. Approved Drawings and Documents

- 1) 683015000CN, 683018000CN, 683022000CN, 683028000CN, 683035000CN, 683042000CN, 683054000CN, 683076000CN, 683088000CN, 683108000CN, 11501525VS-PROD, 11501825VS-PROD, 11501825VS-PROD, 11502230VS-PROD, 11502830VS-PROD, 11503530VS-PROD, 11504240VS-PROD, 11505440VS-PROD, 11507770VM, 11509070VM, 11510909VM, Marinepres Product range 2022

3. Test Reports, etc.

- 1) Tightness test : Cetena Test Report 11729 dated on 15 October 2013
- 2) Vibration (fatigue) test : Marinepres Vibration+Pulsation test report 1102526-001
- 3) Pressure pulsation test : Marinepres Vibration+Pulsation test report 1102526-001
- 4) Burst pressure test : Cetena Test Report 11729 dated on 15 October 2013
- 5) Pull-out test : Cetena Test Report 11729 dated on 15 October 2013
- 6) Fire endurance test : Marinepres Fire endurance test (wet and dry)
Test report No. 2020CS01679-1-8
- 7) Vacuum test : Cetena Test Report 11729 dated on 15 October 2013

B. Approval Condition

1. Application & Limitation

- 1) Application
Approved for Class III piping systems in the following systems:

① Flammable fluids (Flash point ≤ 60 °C)

- Cargo oil lines (1)
- Crude oil washing lines (1)
- Vent lines (2)

② Inert gas

- Water seal effluent lines
- Scrubber effluent lines
- Main lines (1)
- Distributions lines (1)

③ Flammable fluids (Flash point > 60 °C)

- Cargo oil lines (1)
- Fuel oil lines (2)
- Lubricating oil lines (2)
- Hydraulic oil/Thermal oil (2)

④ Sea Water

- Bilge lines (3)
- Water filled fire extinguishing systems (e.g. sprinkler systems) (2)
- Non water filled fire extinguishing systems (e.g. foam, drencher systems) (2)
- Fire main (not permanently filled) (2)
- Ballast/Cooling water system (3)
- Tank cleaning services/Non-essential systems

Product Description and/or Approval Condition

Date of Issue : 7 June 2022

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|---|-----|
| ⑤ Fresh water | |
| - Cooling water system | (3) |
| - Condensate return | (3) |
| - Non-essential system | |
| - Water filled fire extinguishing systems (e.g. sprinkler systems) | (2) |
| - Non water filled fire extinguishing systems (e.g. foam, drencher systems) | (2) |
| ⑥ Sanitary/Drains/Scuppers | |
| - Deck drains (internal) | (4) |
| - Sanitary drains and Scuppers & Discharge (overboard) | |
| ⑦ Sounding/Vent | |
| - Water tanks/Dry spaces | |
| - Oil tanks(flash point > 60 °C) | (2) |
| ⑧ Miscellaneous | |
| - Starting / Control air | (3) |
| - Service air (non-essential) | |
| - CO2 system (outside/inside protected space) | |
| - Brine | |
| - Steam | |

※ NOTES

- (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 open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines.
- (3) Fire endurance test shall be applied when mechanical joints are installed inside machinery spaces of category A.
- (4) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

2) Limitation

- These mechanical joints are to be mounted in accordance with the manufacturer's instructions.
- These mechanical joints, which in the event of damage could cause fire or flooding, are not to be used in piping sections directly connected to the sea openings or tanks containing flammable fluids.
- Piping in which these mechanical joints are fitted is to be adequately adjusted, aligned and supported. Supports or hangers are not to be used to force alignment of piping at the point of connection.
- The number of mechanical joints in flammable fluid systems is to be kept to a minimum.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) The mechanical joints are approved for Class III piping systems.
- 2) Individual Product Certification is not required.

3. Marking

- 1) For traceability to this type approval, the couplings are at least to be marked with
 - Manufacturer's name of trade mark
 - Type designation / size

4. Others

- N/A

< End of Certificate >