



Certificate no.:
TAD00001RE

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Marine Riser Equipment

with type designation(s)
AFG - MRF 3.5

issued to

AFG - INSPECAO E REPARO EM RISERS LTDA.
Macaé, RJ, Brazil

is found to comply with

DNV-OS-E101 – Drilling facilities, Edition July 2024

Application:

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

Issued at **Høvik** on **2025-05-15**

This Certificate is valid until **2030-05-14**.

for **DNV**

DNV local unit: **Station Rio de Janeiro, NB/CMC/Approval**

Approval Engineer: **Thomas Wilhelm Juell**

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

Riser Coupling with designation *AFG - MRF 3.5* constructed according to API 16F with following material of construction:

Component	Material specification
Riser Flange, Flange retainer nut, Seal sub, Choke & Kill pin & Box coupling, Booster pin & box coupling,	ASTM A29 4130
Riser main line	API 5L X80
Choke & Kill line, Booster line	ASTM A519 grade 4130
Hydraulic Pin & Box coupling, Hydraulic Jam nut, Hydraulic Sleeve	ASTM A1049 UNS S31803
Booster Sleeve, Choke & Kill Sleeve, Booster Jam Nut, Choke & Kill Jam Nut	ASTM A29 4140
Hydraulic Line	ASTM A789 UNS S32205

Manufacturing location:

AFG - INSPECAO E REPARO EM RISERS LTDA.
Macaé, RJ, Brazil

Application/Limitation

This Type Approval Certificate covers the riser coupling only.

Design Parameter	Value	Equivalent
Nominal Main Riser Pipe Size	21" O.D. x 0.875" wall	533.4 mm x 22.225 mm
Max. Rated Load	3 500 000 lbf	(15 569 kN)
<i>Maximum pressure rating</i>		
- Choke & kill line (6.5" O.D. x 1" wall)	15 000 psi	(103.4 MPa)
- Mud booster line (5" O.D. x 1/2" wall)	7 500 psi	(51.7 MPa)
- Hydraulic line (2.875" O.D. x 0.276")	5 000 psi	(34.5 MPa)
<i>Min. & max. design temperature:</i>		
- Main tube	+32°F/+180°F	0°C/+82°C
- Choke and kill line	+32°F/+180°F	0°C/+82°C
- Auxiliary line	+32°F/+135°F	0°C/+57°C
Service (Main Tube)	Standard	

Other Conditions:

- Maximum rated load and maximum pressure rating shall not be applied simultaneously. The limitations of the riser system shall be determined on a case-by-case basis according to API RP 16Q.
- Survey and approval of the final riser joint assembly (welding, NDT, testing etc.) shall be carried out by a DNV surveyor.
- Installation lifting is not within the scope of this Type Approval Certificate.
- Riser coupling bolts and nuts shall be delivered in accordance with API 16F [5.5.3] (API 20E/F BSL-3).
- Non-metallic sealing materials shall be delivered in accordance with DNV-OS-E101 Ch.2 Sec.2 [4.4].
- Harsh environments have not been considered.

Type Approval documentation

Fabrication and Testing Procedures

Test Procedures:

- Testing and quality control shall be performed in accordance with API 16F [16].

NDE Procedures:

- NDE/NDT shall be performed in accordance with DNV-OS-E101 Ch.2 Sec.8 [3] Tests.

Welding Procedures:

- Qualification of welding procedures and qualification of welders shall be in accordance with DNV-OS-E101 Ch.2 Sec.8 [2].

Marking of product

Marking shall be carried out in accordance with requirements stated in API 16F [16.9].

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.

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

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