



Certificate No:
TAD00001BA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Marine Riser Equipment

with type designation(s)
QTR 4000LS - Telescopic joint; PN 10273678

Issued to

MHWirth AS
Kristiansand S, Norway

is found to comply with
DNV-OS-E101 – Drilling facilities, Edition July 2021

Application :

Telescopic joint compensates for rig heave and connects the marine riser to the rig.
This Type Approval Certificate (TAC) does not cover non-metallic seals in choke and kill connection. For deliveries towards DNV classed vessels, the equipment shall be delivered with non-metallic seals in choke and kill connection compliant to API 16C.

Issued at **Høvik** on **2022-09-07**

This Certificate is valid until **2027-09-06**.

DNV local station: **Oslo Drilling Systems**

Approval Engineer: **Nishant Koti**

for **DNV**

Per Esvall
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.



Form code: TA 251

Revision: 2021-03

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Reference standards

API Spec. 16F "Specification for Marine Drilling Riser Equipment", 2nd Edition, 2017
API Spec. 16C "Choke and Kill Equipment", 3rd Edition, 2021
NACE, MR0175-2003/ISO 15156, Standard Material Requirements, Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment

Product description

Telescopic joint compensates for rig heave and connects the marine riser to the rig. The telescopic joint accommodates integrated Auxiliary/C&K lines and a hands-free goose neck terminal for quick connection of flexible hoses.

Application/Limitation

<u>Design Parameter</u>	<u>Value</u>
Rated tensile load (RTJ open)	4000 kips
Rated tensile load (RTJ closed)	3500 kips
Rated tensile load, hanging on Inner Barrel	1250 kips

<u>Main pipe</u>	
Rated working pressure	500 psi / 34,5 bar
Minimum design temperature	-20°C / -4°F
Maximum design temperature	177°C / 351°F
Corrosion/erosion allowance	0,05" / 1,27 mm
Drift capability	19,25"
SAF	<3*
Coupling	QTR4000LS Male Connector / QTR4000LS Female Connector
System, Equipment, Service	Well control system, Marine drilling riser equipment, Non-sour

P-Lines

<u>Choke and Kill</u>	
Rated working pressure	15 000 psi / 1034 bar
Minimum design temperature	-20°C / -4°F
Maximum design temperature	177°C / 351°F
Corrosion/erosion allowance	1,27 mm
OD/ID (straight pipe)	6" / 4"
Service	Sour

<u>Booster</u>	
Rated working pressure	5000 psi / 345 bar
Minimum design temperature	-20°C / -4°F
Maximum design temperature	82°C / 180°F
Corrosion/erosion allowance	1,27 mm
OD/ID (straight pipe)	5" / 4"
Service	Non-sour

<u>Hydraulic</u>	
Rated working pressure	5000 psi / 345 bar
Minimum design temperature	-20°C / -4°F
Maximum design temperature	82°C / 180°F
Corrosion/erosion allowance	0 mm
OD/ID (straight pipe)	3.0" / 2.5"
Service	Non-sour

* see 10003284414 rev.01, table 25 for detailed SAF values for different locations and loads.

Type Approval documentation

Material specification

Tests carried out

Prototype testing according to API 16F, 11.3.1:
DNV report BGN-R2307346 rev. 01 "Proof Loading of Telescopic Joint"

Packer testing according to API 16F, 11.3.2:
Sintef report 102006943 rev. 02 "Riser telescopic joint Packer qualification per API 16F"

Tests to be carried out

Test procedures:

1. Each product is to be tested according to DNV's Offshore Standard DNV-OS-E101 "Drilling facilities" Ch.2, Sec.8, §3.3.
2. Charpy impact testing shall be performed in accordance with DNV-OS-E101 "Drilling facilities" Ch.2, Sec.2, §2 and MHWirth material specifications.

NDE Procedures:

3. NDE/NDT procedures shall be performed in accordance with DNV-OS-E101 "Drilling facilities", Ch.2, Sec.8, §3.

Welding Procedures:

4. Qualification of welders, welding- and heat treatment procedures shall be in accordance with DNV-OS-E101 "Drilling facilities" Ch.2, Sec.8, §2.3 to §2.6 and §3.

Marking of product

For traceability and compliance with API 16F, each unit should as a minimum be marked with:

- Name of manufacturer
- Part number as referenced in the type approval certificate
- Unique serial number
- API 16F

Comments

- QTR4000LS Male Connector with QTR4000LS Lock Ring and QTR 4000LS Female Connector, P-line Pins and Receptacles are covered by the revision of TAD0000044 in force at the time of manufacturing.
- Documentation for non-metallic seals that confirms compliance of Non-metallic seals to API 16C for choke and kill lines shall be provided to attending DNV surveyor for verification.
- Hands free goose neck terminal (ref item 50 on drawing 10003281865) is not included in this approval and is to be delivered with DNV Product Certificate.
- Transportation of the component is not included in the approval.
- The following bolt connections are identified as API 20E BSL-3 according to API Spec 16F and the bolts shall be documented accordingly:
 - P-line to gooseneck system
 - Packer system to outer barrel (M45)
 - Inner barrel to latch system (M36).

Periodical assessment

For retention of the type Approval, DNV Surveyor shall perform a survey – every second year and before the expiry date of this certificate. This is in order to verify that the conditions for the type approval are complied with, ref. DNV-CP-0338, DNV Type approval scheme.

END OF CERTIFICATE