



Certificate No:
TAD00001K5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Fitting

with type designation(s)

Hydraulic Hose Swivel size 2 1/16" and Mud Booster Swivel 4 1/16"

Issued to

Sivilingeniør E.J.Wiig AS
Oslo, Norway

is found to comply with

DNV-OS-E101 – Drilling facilities, Edition July 2021

DNV statutory interpretations DNV-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2021

Application :

See page 2.

Issued at **Høvik** on **2023-08-14**

This Certificate is valid until **2028-08-13**.

DNV local unit: **West Norway FiS**

for **DNV**

Approval Engineer: **Ole Osuldsen**

.....
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: 2022-12

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Reference Standards

- API 16C Choke and Kill Systems
- API 6A Specification for Wellhead and Christmas Tree Equipment
- API 16A Specification for Drill through Equipment
- ASME B31-3 Process Piping
- ASME II Boiler and Pressure Vessel Code, Part D
- ASME VIII Boiler and Pressure Vessel Code, Division 2
- ASME VIII Boiler and Pressure Vessel Code, Division 3
- NACE MR0175 / ISO 15156

Product description

- Hydraulic Hose Swivel, Size 2" 1/16 with 5K working pressure and 5K API Spec 16A BX Hubs
- Mud Booster Hose Swivel, Size 4" 1/16 with 5K working pressure and 5K API Spec 16A BX Hubs

Application/Limitation

The approval is valid for the fields of application and operational limitations as follows:

Product & Size	Hydraulic Hose Swivel 2 1/16" w/ 5K API Spec 16A BX Hubs	Mud Booster Swivel 4 1/16" w/ 5K API Spec 16A BX Hubs
Pressure class	5000 psi /345 bar	5.000 psi /345 bar
Test Pressure	7.500 psi /517 bar	7.500 psi /345 bar
Design Temperature	-20°C to +100°C (API rating B)	-20°C to +100°C (API rating B)
Max axial tension	20 kN @ 5.000 psi	200 kN @ 7.500 psi
Max bending moment	2 kNm	20 kNm
Rotation speed	10 rpm	20 rpm
Rotational friction torque	40 Nm @ 100 bar 100 Nm @ 200 bar 200 Nm @ 345 bar	100 Nm @ 100 bar 200 Nm @ 200 bar 300 Nm @ 345 bar
Rotation limitation	Unlimited, normally within +/- 5°	Unlimited, normally within +/- 5°
Service	Hydraulic oil	Mud booster fluid
Environment	Offshore, submerged to 30 m water depth	Offshore, submerged to 30 m water depth

Type Approval documentation

Tests carried out on the final prototypes with serial no. 1326, 1332 and 1334

The following test reports describe tests carried out on the prototype swivels. All test reports have been witnessed and signed by a DNV Surveyor:

All prototypes, SN1326, SN1332 and SN1334, passed the pressure tests at low-and high temperatures as required by API 16A/16C. All final prototypes also passed the API 16C Fire tests. All tests were performed at the satisfaction of the DNV Surveyor.

Other Conditions and comments

- Each product is to be surveyed during fabrication in accordance with the requirements for equipment of Category I as defined in DNV's Offshore Standard DNV-OS-E101 Drilling Facilities, Ch.3, Sec.3, followed by

issuance of a Product Certificate. Fabrication records are to be maintained in accordance with DNV-OS-E101, Ch.3, sec. 3 [2]. If the intended installation is DNV classed, then this shall be a DNV product certificate.

- Charpy impact testing to be performed at or below design temperature according to DNV-OS-E101, Ch. 2, Sec.2 [2.6].
- This type approval is based on TAD000005C.

Marking of product

For traceability the following minimum amount of marking is to be carried out on each product:

- Manufacturer's name and trademark
- "NV TAD00001K5"
- Serial Number
- Swivel size
- Pressure rating
- Temperature rating

Documentation to be accompanied with each product/delivery

- DNV Product Certificate if delivered to a vessel with DNV DRILL or DRILL(N) notation
- Maintenance/ User Manual

Certificate Retention Survey

For retention of this Type Approval, DNV AS' representative may carry out product audits biennially.

END OF CERTIFICATE