

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Mud and Cementing Equipment**with type designation(s)
HP Pup Joints

Issued to

**Fluid Control Service AS
SOLA, Norway**

is found to comply with

DNVGL-OS-E101 – Drilling plant, Edition July 2015**DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2015****Application :****HP Pup joints for cementing/mud lines.**Issued at **Høvik** on **2017-03-16**This Certificate is valid until **2022-03-15**.DNV GL local station: **Stavanger**for **DNV GL**Approval Engineer: **Nishant Koti**

**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.



Job Id: **262.1-015096-2**
Certificate No: **TAD00000MV**

Reference standards

ASME B31.3 Process Piping Guide, Ed.2010
ASME Sec. VIII Div.2, Boiler and Pressure Vessel Code (BPVC) Ed.2010
API 6A, Specification for Wellhead and Christmas Tree Equipment, 20th Ed.

Product description

HP Pup joints for cementing/mud lines:
2 PJ 1502 M x M, length range 200 - 2000 mm
2 PJ 1502 M x F, length range 200 - 2000 mm

Application/Limitation

<u>Design Parameter</u>	<u>Value</u>	<u>(equivalent)</u>
Working pressure	15000 psi	103.4 MPa
Test pressure	22500 psi	155 MPa
Design temperature	-4°F to 230°F	-20°C to 110°C
Service	Standard	
Fluid	Mud/Cement	

Type Approval documentation

Tests carried out

Test report 10061-J-1666 endorsed by DNV and dated 15-02-2013

Marking of product

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

1. "NV TAD00000MV"
2. Serial Number
3. Manufacturer's name and trademark
4. Working pressure

Other conditions/comments

- This type approval certificate has been issued based on the DVR-10061-J-1667 Rev.0
- External loading like bending, vibrations, hammering effects etc. are not considered in this approval. The rated working pressure of the pup joints may be reduced if such effects occurs. A pipe stress analysis of a complete system is subject for approval.
- Fatigue analysis is not covered in the type approval due to the fact that pup joints are replaceable (temporary use) and subject for annual NDT.

Periodical assessment

For retention of the Type Approval, DNV GL's representative shall carry out biennial Product Audits in accordance with DNVGL-CP-0338, DNV GL type approval scheme.

This certificate replaces previous Type Approval Certificate No. D-4963 dated 2013.02.26.
This certificate is valid until 2022.02.28.

END OF CERTIFICATE