Certificate No:
TAD00001EE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Work over Equipment

with type designation(s)
3-1/16"-15K Choke Manifold

Issued to
Worldwide Oilfield Machine, Inc.
Houston, TX, USA

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2018

Application :

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

Issued at **Houston** on **2021-07-01**
This Certificate is valid until **2026-06-30**.
DNV local station: **Houston, Approval CMC**

Approval Engineer: **Xiangwen Maggie Wang**

for **DNV**

Mark Miser
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.

Product description

- 3-1/16"-10K Choke Manifold Assembly

Reference standards

- API 6A, Specification for Wellhead and Tree Equipment, 21st Edition
- NACE MR0175/ISO 15156, 'Petroleum and Natural Gas Industries – Materials for Use in H_2S – Containing Environments in Oil and Gas Production', 3rd Edition

Application/Limitation

- Max. Working Pressure: 15,000 psi
- Test Pressure: 22,500 psi
- Design Temperature: -20 °F to 350 °F
- Service: H_2S
- Material Class: DD (see notes for details)
- Product Specification Level: 3
- Performance Requirement: PR2F (valves)

Type Approval documentation

Tests carried out

Pressure test certificate for 3 1/16"-15K (4-valve) Choke Manifold, P/N: M3198-CE

Marking of product

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

1. Serial No.
2. Manufacturer's name or trademark.
3. Additional Marking at manufacturer's discretion.

Periodical assessment

For retention of the Type Approval, DNV's surveyor shall perform periodical assessment after 2.5 years in accordance with DNV's Class Programme DNVGL-CP-0338.

Other conditions/comments

1. Procedures related to testing, welding, NDT, and other quality control requirements are to be reviewed/approved by DNV's local surveyor.
2. Non-metallic materials shall be suitable for the intended service and shall be capable of sustaining the design pressures and temperatures. Non-metallic materials in wetted components shall be tested in order to ensure compatibility with all fluids that they will be exposed to during service, as specified.
3. The Valve WM1900(PH)-6NL is certified on TAC No. TAD00000AD; the adjustable choke C2DOOOOHM13-M is certified on TAC No. TAD00000F0; the positive choke C1DOOOOHX13-M is certified on TAC No. TAD000000H5.
4. The skid M7877-S is to be certified separately.
5. DNV ref.: A1039162.

END OF CERTIFICATE