DNV·GL

Certificate No:
TAD00000X8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Valve

with type designation(s)
4 1/16"-10K Magnum Hydraulic F. E.

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

is found to comply with
DNV-OS-E101 Drilling Plant October 2013
and DNV GL AS' understanding of the implementation and interpretation of:
PSA's "Regulations relating to design and outfitting of the facilities etc. in the petroleum activities" (THE FACILITIES REGULATIONS), Last amended 16 December 2014, Ch.VIII

Application :

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

THIS CERTIFICATE REPLACES D-5812 ISSUED SEPT. 8TH 2014.

Issued at **Houston** on **2018-03-22**
This Certificate is valid until **2018-12-31**.
DNV GL local station: **Houston, Approval CMC**

Approval Engineer: **Xiangwen Maggie Wang**

for **DNV GL**

Meindert van Mierlo
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.

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Job Id: **262.1-017842-3**
Certificate No: **TAD00000X8**

Product description

- 4 1/16" 10,000 psi WP MAGNUM Hydraulic F. E.

Reference standards

- API 6A, 'Specification for Wellhead and Christmas Tree Equipment', 20th Edition
- NACE MR0175/ISO 15156, 'Petroleum and Natural Gas Industries – Material for Use in H_2S – Containing Environments in Oil and Gas Production, 2nd Edition

Application/Limitation

- Max. Working Pressure: 10,000 psi
- Max. Working Pressure (Hyd.): 3,000 psi
- Min. Design Temperature: -20 °F
- Max. Design Temperature: 350 °F (250 °F for WF4-HV)
- Service: H_2S
- API 6A Material Class: DD, EE
- API 6A PSL: 3
- API 6A PR: 1
  Note: DNV GL surveyor to check materials used in each project for Material Class trim.

Type Approval documentation

Note: (1) See material specifications for additional material requirements. (2) Charpy impact testing is not required on materials for gate, seat & seat retainer.

Tests carried out

1. Pressure Test Certificate, WM2300H-4 4 1/16"-10K Magnum Hyd. Valve dated Nov. 12th 2014.

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. Marking shall be in accordance with DNV-OS-E101 Ch. 2 Sec.7 A300 and requirements of API 6A.

Periodical assessment

For retention of the Type Approval, DNV GL's surveyor shall perform a survey every second year in accordance with DNV's Standard of Certification No. 1.2.

Other conditions/comments

1. Procedures related to testing, welding, NDT, and other quality control requirements are to be reviewed/approved by DNV GL's local surveyor.
2. Validation test as required by section 4.7 of API 6A is not included under this design review. Hydrostatic testing in accordance with 6A PSL-3 is acceptable for Design Validation purposes.
3. DNV GL ref.: PP095755-175/A0503712.

END OF CERTIFICATE