

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Mud and Cementing Equipment**

with type designation(s)

**Mission Magnum I Centrifugal Pumps**

Issued to

**National Oilwell  
McAlester OK, United States**

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 :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL when accompanied with a DNV GL Product Certificate (PC).**Issued at **Houston** on **2018-01-15**This Certificate is valid until **2023-01-14**.for **DNV GL**DNV GL local station: **Certification & Inspection  
Services**Approval Engineer: **Mark Miser**

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**Per Jørgen Tviberg  
Team Lead**

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: **262.1-015394-2**  
Certificate No: **TAD00000V2**

## Product description

Centrifugal pumps for mixing/transfer of drilling and mud or cement slurry. This Type Approval does not include the driving members.

Mission Magnum I Pump Models:

3x2x13, 4x3x13, 5x4x14, 6x5x11, 6x5x14, 8x6x11, 8x6x14 and 10x8x14

One stage open vane impeller with concentric casing.

## Application/Limitation

| <u>Design Parameter</u>    | <u>Value</u> | <u>(Equivalent)</u> |
|----------------------------|--------------|---------------------|
| Maximum Design Temperature | :121 °C      | (250 °F)            |
| Minimum Design Temperature | :-18 °C      | (0 °F)              |

NOTE: Maximum discharge head, capacity and RPM are provided in Catalog No. 0001-0567-90, Rev G.

## Type Approval documentation

### Marking of product

Marking shall:

1. Be reviewed and approved by the DNV GL local surveyor.
2. Identify & differentiate each production unite (e.g., serial number).
3. Establish traceability to product design and fabrication documentation.
4. Additional marking at the manufacturer's option is acceptable.

### Periodical assessment

For retention of the Type Approval, DNV GL's surveyor shall perform a retention survey every second year in accordance with DNV GL Type Approval Scheme DNVGL-CP-0338, October 2015 Edition.

### Other conditions/comments

- Fabrication records are to be maintained in accordance with DNVGL-OS-E101 Ch.3 Sec. 3.
- When DNV GL Product Certification is required, each product is to be surveyed during fabrication in accordance with the requirements for Category I equipment as defined in DNV GL's Offshore Standard DNVGL-OS-E101.

### End of Certificate