DNV·GL

Certificate No:
TAD00000JS

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Accumulators

with type designation(s)
Stainless Steel Piston Type Accumulator, 2.5 Gallon capacity
Drawing No. 072A70-20-A412, Rev. 01

Issued to
Tobul Accumulator
Bamberg SC, 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 - Ch.2 Sec.7 DRILL(N), July 2015

Application :

See Page 2.

This Type Approval Certificate replaces D-4578, as issued on 2012-06-07.

This Certificate is valid until **2021-12-04**.

Issued at **Houston** on **2016-12-05**
DNV GL local station: **Approval CMC – Houston** for **DNV GL**

Approval Engineer: **M. Kevin Mandeville Jr.**

Christian Nilsen
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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The following codes and standards were used as references:

ASME *Boiler and Pressure Vessel Code*, Section VIII, Division 1, 2015 Edition
ASME B1.1, *Unified Inch Screw Threads (UN and UNR Thread Form)*, 2003 Edition
ASME B1.9, *Buttress Inch Screw Threads 7°/45° Form with 0.6 Pitch Basic Height of Thread Engagement*, 1985 Edition

Product description

Piston type accumulator (subsea application)
Model no. 072A70-20-A412 (2 1/2 gallon capacity)

Application/Limitation

Design Parameter	Value	Equivalent
Max Allowable Working Pressure	7,000psi	482.5 bar
Max Allwable External Working Pressure	4,271psi	294 bar
Design Temperature	200°F	93°C
Minimum Design Metal Temperature	-20°F	-29°C
Corrosion Allowance	0 in	0 mm
ASME Code Stamp "U"	Yes	

Note: The accumulator is not rated for external gage pressure. This statement does not, however, prevent subsea applications.

Type Approval documentation

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Tests carried out

Tobul Testing Procedure #08 Piston Accumulator Hydrostatic Test Work Instruction, Revision 3, 10/26/11
Tested on 2016-12-06 on SN: 345887, 345889 and witnessed by R. Steinocher.

Marking of product

For traceability to this Type Approval Certificate, the products are, at a minimum, to be marked as follows:

1. Serial Number
2. Manufacturer's name and trademark
3. Additional marking at manufacturer's option
4. As required in Paragraph UG-116 of ASME Section VIII Division 1, 2015 Edition

Certificate retention survey

For retention of the Type Approval Certificate, a DNV GL surveyor shall perform a retention survey every second year in accordance with the DNV GL Class Programme For Type Approval, DNVGL-CP-0338.

Other Comments and Conditions

1. Cylinder castings are to be processed per ASME BPVC Section VIII, Division 1, Appendix 7 and 8 for a quality factor of 90%.
2. DNV GL Ref. Project PP155438-08.

END OF CERTIFICATE