

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Accumulators

with type designation(s)
PISTON TYPE ACCUMULATOR (SUBSEA APPLICATION)
MODEL NO. 223A65-12808990 (160 GALLON CAPACITY)

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, Edition July 2015

Application :

See Page 2

This Type Approval Document is 3 pages long and replaces D-4550, as issued on 2012-08-16.

This Certificate is valid until **2021-09-27**.

Issued at **Houston** on **2016-09-28**

DNV GL local station: **Approval CMC – Houston**

for **DNV GL**

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

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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.

Job Id:
Certificate No: **TAD00000G4**

The following design codes/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), 2008 Reaffirmed Edition,
ASME B1.9, Buttress Inch Screw Threads 7°/45° Form with 0.6 Pitch Basic Height of Thread
Engagement, 2007 Reaffirmed Edition

Product description

Piston Type Accumulator (Subsea Application); Model No. 223A65-12808990 (160 Gallon Capacity)

Application/Limitation

Design Parameter	Value	Equiavalent
Max. Internal Working Pressure	6,500 psi	448 bar
Internal Hydrostatic Test Pressure	9,750psi	672 bar
Max External Working Pressure† (Equivalent water depth)	1,002 psi (2,243 ft)	69 Bar (684 m)
Design Temperature	200°F	93°C
Minimum Design Temperature	-20°F	-29°C
Corrosion Allowance	0in	0mm
ASME Code Stamp 'U'	Yes	

†Please note that the accumulator is not rated for external gage pressure. This statement does not, however, prevent subsea applications.

Type Approval documentation

Marking of product

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

1. Part And 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

Periodical assessment

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

Other conditions/comments

- Cylinder Castings are to be processed per ASME BPVC Section VIII, Division 1, Appendix 7 and 8, for a quality factor of 100%.
- DNV GL Ref. Project No. PP155438-05

END OF CERTIFICATE