

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Accumulators**

with type designation(s)

Piston Type Accumulator, Subsea and Non-Subsea Applications

Model No. A14L25410X013K, 110 Gallon Capacity

Model No. A14L18480X012K, 80 Gallon Capacity

Issued to

Parker Hannifin Corp.

Machesney Park IL, 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 Certificate is 3 pages long, and replaces D-4827, as issued on 2012-12-13.

This Certificate is valid until **2021-10-26**.

Issued at **Houston** on **2016-10-27**

for **DNV GL**

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

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: **TAD00000HW**

Product description

PISTON TYPE ACCUMULATOR (SUBSEA & NON SUBSEA APPLICATION)
Model No. A14L25410X013K (110 Gallon Capacity)
Model No. A14L18480X012K (80 Gallon Capacity)

The following design codes/standards were used as references:

ASME *Boiler & Pressure Vessel Code*, Section VIII, Division 1, 2015 Edition
ASME B1.1 *Unified Inch Screw Threads (UN and UNR Thread Form)*, 1989 Edition
ASME BPVC Section VIII, Division 1, Code Case #2223-3 "Use of SA-705-Type 630 Condition H1150 (UNS-S17400) Forging & SA-693 Type 630 Condition H1150 (UNS-S17400) Plate," June 20th, 2002
ASME BPVC Section VIII, Division 1, Code Case #2155 December 6th, 1993 "Use of SA-564-Type 630 Condition H1150 (UNS-17400) Bar Stock"

Application/Limitation

Design Limitation	Value
Max. Allowable Working Pressure	7,500 psi
Max. Allowable External Working Pressure*	1,235 psi (equivalent water depth of 2,745 ft)
Hydrostatic Test Pressure	11,250 psi
Design Temperature	165°F
Minimum Design Temperature	-4°F
Corrosion Allowance (internal & external)	0in
ASME Code Stamp 'U'	Yes

Note: *For reference only. The accumulator is not designed to seal external gauge pressure. For operation in subsea applications, it is the End User's responsibility to ensure the external pressure does not exceed the internal pressure.

Type Approval documentation

- Drawings



Job Id:
Certificate No: **TAD00000HW**

Marking of product

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

1. Part or Serial Number
2. Manufacturer's name and trademark
3. Additional marking at manufacturer's discretion
4. As required in Paragraph UG-116 of ASME BPVC 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 as applicable for a quality factor (QF) of 90%.
- DNV GL Ref. Project PP153290-03

END OF CERTIFICATE