DNV·GL

Certificate No:
TAD0000086

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Accumulators

with type designation(s)
5000 psi & 6000 psi WP Bladder Type Accumulator
6500 psi WP Bladder Type Accumulator

Issued to
Parker Hannifin Accumulator & Cooler Division
Santa Fe Springs, CA, United States

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 :

See Page 2

This Type Approval Certificate is 5 pages long and replaces D-5608, issued 2014-05-28.

This Certificate is valid until **2018-06-30**.

Issued at **Houston** on **2016-01-06**

for **DNV GL**

DNV GL local station: **Houston - Systems & Components**

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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Job Id: **262.1-015326-2**
Certificate No: **TAD0000086**

The following design codes/standards were used as references:

ASME *Boiler & Pressure Vessel Code*, Section VIII, Division 1, 2013 Edition
ASME B1.1 1989 Edition, *Unified Inch Screw Threads (UN and UNR Thread Form)*

Product description

Accumulator, 5000psi working pressure, 2.5-15 gallon capacity, forged body construction
Accumulator, 6000psi working pressure, 2.5-15 gallon capacity, forged body construction
Accumulator, 6500psi working pressure, 15 gallon capacity, forged body construction

Application/Limitation

Design Parameter	**Value**
Maximum Allowable Working Pressure	
AB5K042, Rev. B	5,000 psi
AB5K043, Rev. B	5,000 psi
AB6K0004, Rev. F	6,000 psi
AB6K0014, Rev. C	6,000 psi
T15-6.5-100-HYD-AD, Rev. F	6,500 psi
T15-6.5-100-HL-SD, Rev. A	6,500 psi
Internal Hydrostatic Test Pressure	
AB5K042, Rev. B	7,500 psi
AB5K043, Rev. B	7,500 psi
AB6K0004, Rev. F	9,000 psi
AB6K0014, Rev. C	9,000 psi
T15-6.5-100-HYD-AD, Rev. F	9,750 psi
T15-6.5-100-HL-SD, Rev. A	9,750 psi
Minimum Design Metal Temperature	-40°F
Maximum Design Temperature	200°F
Corrosion Allowance	0 (Internal and External)

Type Approval documentation

Tests carried out

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. Additional marking at the manufacturer's discretion

Certificate Retention Survey

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

Other conditions/comments

1. Hydrostatic test requirements can be waived for the end fittings when these are manufactured under surveillance through an appropriate quality control system and full traceability is imposed on the critical pressure components as per DNV GL fax, reference number OFF-0028-97, dated 1997-10-20. This waiver only applies to the accumulators when they are used per the scope of DNV-OS-E101 and will be part of a system with subsequent commissioning and/or operation testing.
2. For 6000psi and 6500psi accumulators:
    a. Manufacture and Examination of integrally forged cylinder to be in accordance with the requirements of ASME 2013 BPVC Sec. VIII Div.1, Mandatory Appendix 22

b. Data report must include "Constructed in Conformance with Mandatory Appendix 22, Integrally Forged Vessels"

3. DNV GL Ref. Project No. PP147797-01

END OF CERTIFICATE