DNV·GL

Certificate No:
TAD0000092

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hydraulic Cylinders

with type designation(s)
P/N(s) 50777501, 50825201, 50863701, 50867901, 50868001, 50885700, 50890301, 50919800, BB2507070A0, BB260079A0, BB260080A0, BB263203, BB263522, BB263523, BB269069A0, BB271481A0, BB275121A0, BB275415A0, BB275706A0, BB275735A0, BB277274A0, BB277841A0, BB279465A0, BB286933A0, BB287782A0, BB291320A0, BB292298A0, and 50777401

Issued to
Parker Hannifin Corporation
Eugene, Oregon, 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 9 pages long and replaces D-4142, issued 2011-07-26.

This Certificate is valid until **2021-09-05**.

Issued at **Houston** on **2016-09-06**
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 standards were used as a reference:

ASME B1.1-1989 Unified Inch Threads
National Fluid Power Association T3.6.29M, Hydraulic Cylinders
ASME *Boiler and Pressure Vessel Code,* Section VIII, Div. 2, 2015 Edition
DNVGL-CG-0194, *Class Guideline, Hydraulic Cylinders*, 2015 Edition

Product description

Various Hydraulic Cylinders, ranging from 1,500 psi to 3,000 psi in working pressures.

Application/Limitation

Part No.	Max Working Pressure – Head end	Max Working Pressure – Rod end	Minimum Design Temperature
50777401	2500 psi	2500 psi	-4°F (-20 °C)
50777501	2500 psi	2500 psi	-4°F (-20 °C)
50825201	3000 psi	3000 psi	-4°F (-20 °C)
50863701	2500 psi	2500 psi	-4°F (-20 °C)
50867901	2500 psi	2500 psi	-4°F (-20 °C)
50868001	2500 psi	2500 psi	-4°F (-20 °C)
50885700	5000 psi	3200 psi	-4°F (-20 °C)
50890301	5000 psi	3000 psi	-4°F (-20 °C)
50919800	2500 psi	2500 psi	-4°F (-20 °C)
BB250707A0	1500 psi	1500 psi	-4°F (-20 °C)
BB260079A0	3000 psi	3000 psi	-4°F (-20 °C)
BB260080A0	3000 psi	3000 psi	-4°F (-20 °C)
BB263203A0	3000 psi	3000 psi	-4°F (-20 °C)
BB263522	3000 psi	3000 psi	-4°F (-20 °C)
BB263523	3000 psi	3000 psi	-4°F (-20 °C)
BB269069A0	3000 psi	3000 psi	-4°F (-20 °C)
BB271481A0	3000 psi	3000 psi	-4°F (-20 °C)
BB275121A0	3000 psi	3000 psi	-4°F (-20 °C)
BB275415A0	3000 psi	3000 psi	-4°F (-20 °C)
BB275706A0	3000 psi	3000 psi	-4°F (-20 °C)
BB275735A0	3000 psi	3000 psi	-4°F (-20 °C)
BB277274A0	3000 psi	3000 psi	-4°F (-20 °C)
BB277841A0	3000 psi	3000 psi	-4°F (-20 °C)
BB279465A0	3000 psi	3000 psi	-4°F (-20 °C)
BB286933A0	3000 psi	3000 psi	-4°F (-20 °C)
BB287782A0	3000 psi	3000 psi	-4°F (-20 °C)
BB291320A0	3000 psi	3000 psi	-4°F (-20 °C)
BB292298A0	3000 psi	3000 psi	-4°F (-20 °C)
Service:	Hydraulic Fluid		

Note: BB277274A0 has an allowable submerged sea depth of 7800ft. This does not apply to other models.

Type Approval documentation

Tests carried out

Type Testing not required for renewal of Type Approval.

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 ar the manufacturer's discretion

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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 Type Approval Scheme, Class Programme DNVGL-CP-0338.

Other Conditions and Comments

DNV GL Ref. Project No. A0268092

END OF CERTIFICATE