

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Blow out Preventer

with type designation(s)
NOV PCG Product Family - 18 3/4 inch - 10M STD SBOP

Issued to

**National Oilwell Varco, LP- Rig Technologies Division - WLY
Houston, TX, USA**

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2018

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Houston** on **2020-08-17**

This Certificate is valid until **2025-08-16**.

for **DNV GL**

DNV GL local station: **Certification & Inspection
Services**

Approval Engineer: **Marco Romero**

.....
Mark Miser
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Job Id: **262.1-034350-1**
Certificate No: **TAD00001BK**

Product description

A spherical blow out preventer (SBOP) is a blowout preventer that uses an elastomeric sealing element to seal the space between the tubular and the wellbore or an open hole. A spherical BOP is also known as an annular BOP.

NOV PCG Product Family- 18-3/4"-10M STD SBOP

Design codes/standards used as references

API 16A, "Specification for Drill Through Equipment", 4th Edition.

Application/Limitation

Nominal Size Designation	: 18 ¾ inch
Performance Requirement	: PR1
Wellbore Equipment Rated Working Pressure	: 10,000 psia
Hydraulic Operator Rated Working Pressure	: 1,500 psia
Temperature Rating for Metallic Materials	: T-20/250 (-20°F to 250°F)
Packing Element No. 10984375-DAD	
Temperature Rating for Non-Metallic Sealing Materials	: EGD
- Low Temperature Limit	: 30°F
- Continuous Elevated Operating Limit	: Other (Not Required for PR1)
- Extreme Temperature Limit	: 250°F
Stripping Length Tested	: 12,834 ft
Packing Element No. 17846604-001	
Temperature Rating for Non-Metallic Sealing Materials	: EGB
- Low Temperature Limit	: 30°F
- Continuous Elevated Operating Limit	: 160°F
- Extreme Temperature Limit	: 200°F
Stripping Length Tested	: 15,000 ft
Safe Working Load (Lifteyes)	: 70,000 lbf
Service	: Sour (H2S)
Designation of Systems; Equipment	: Well Control Systems, BOP Equipment; Annular BOP

Type Approval documentation

Fabrication Procedures

Procedures related to testing, welding, NDT, etc are to be reviewed/approved by DNV GL's local surveyor.

Marking of product

For traceability, the markings shall:

1. Provide unique identification (i.e. Serial No.)
2. Be in accordance with API 16A Section 9
3. Be in accordance with manufacturer's specification(s)
4. Be reviewed and approved by the DNV GL local surveyor
5. Identify the Safe Working Load



Job Id: **262.1-034350-1**
Certificate No: **TAD00001BK**

Periodic Assessment

For retention of the Type Approval, DNV GL's surveyor shall perform a survey every second year in accordance with DNV GL Type Approval Scheme DNVGL-CP-0338, September 2018 Edition.