DNV·GL

Certificate No:
TAD00000A8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Blow out Preventer

with type designation(s)
18-15M Casing Shear Ram

Issued to
National Oilwell Varco
Houston TX, United States

is found to comply with
DNVGL-OS-E101 – Drilling plant, Edition July 2015

Application :

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

This Certificate is valid until **2021-02-11**.

Issued at **Houston** on **2016-02-12**

for **DNV GL**

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

Approval Engineer: **Marco Romero**

Mark Miser
Team Leader

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: **262.1-021729-1**
Certificate No: **TAD00000A8**

Product description

18-15M Casing Shearmax, P/N 10571971-001
18-15M LFS Casing Shear Ram, P/N 11025334-002/11025334-300/11025334-400

Application/Limitation

Nominal Size Designation	: 18 ¾ in.
Equipment Rated Working Pressure	: 15,000 psi
Maximum Test Pressure	: 22,500 psi
Maximum Operator Pressure	: 3,000 psi
Temperature Rating for Metallic Materials	: T-20 (-20 to 250 °F)

Type Approval documentation

Drwg. No.	Rev.	Title
10571971-001		**RBA, CSG, SHEARMAX, 18-15M NXT**
10571971-DAD	04	RBA, CSG, SHEARMAX, 18-15M NXT
20091082D	M	BLK, CSG, SHR, 18-15M, LFS, NXT
20083311D	A	RAM RETNR ASSY, 18-15M NXT, LFS
20083310D	A	LFS RAM RETAINER HANDLE FOR 18-15M NXT
20083309D	C	ROD, RAM RETNR, 18-15M, NXT, LFS
10642318-DAD	02	CENTERING ASSY, CSG, SHEARMAX, 18-15M, NXT
10630463-DAD	05	LK, DOG, LH, BLD, SHEARMAX, 18-15M
10630466-DAD	05	LKG DOG, RH, BLD, SHEARMAX, 18-15M
10630473-DAD	02	TRIGGER STOP, BLIND, SHEARMAX, 18-15M
10632795-DAD	02	CENTERING ASSY STOP, BLIND, SHEARMAX, 18-15M, NXT
10728734-DAD	04	TIP, LFCS, SHEARMAX, 18-15M, NXT

11025334-002 RBA, CSG, SHEARMAX, 18-15M NXT
11025334-300 RBA, CSG, SHEARMAX, 18-15M NXT
11025334-400 RBA, CSG, SHEARMAX, 18-15M NXT

10571971-DAD	05	SHR RAM ASSY, CSG, LFS, 18-15M NXT
20091082D	M	BLADE, FM, CSG, LFS, 18-15M NXT, DNV
20083311D	A	RAM RETNR ASSY, 18-15M NXT, LFS
20083310D	A	LFS RAM RETAINER HANDLE FOR 18-15M NXT
20083309D	C	ROD, RAM RETNR, 18-15M, NXT, LFS
10642318-DAD	02	CENTERING ASSY, CSG, SHEARMAX, 18-15M, NXT
10630463-DAD	05	LK, DOG, LH, BLD, SHEARMAX, 18-15M
16111073-DAD	02	LOCK DOG, LEFT, LFS-3, 18-15M NXT/SLX
10630466-DAD	05	LKG DOG, RH, BLD, SHEARMAX, 18-15M
16111074-DAD	02	LOCK DOG, RIGHT, LFS-3, 18-15M NXT/SLX
10630473-DAD	02	TRIGGER STOP, BLIND, SHEARMAX, 18-15M
16111075-DAD	02	STOP, TRIGGER PLATE, LFS-3, 18-15M NXT/SLX
10632795-DAD	02	CENTERING ASSY STOP, BLIND, SHEARMAX, 18-15M, NXT
16111083-DAD	02	STOP, CENTERING ASSY, LFS-3, 18-15M NXT/SLX
10728734-DAD	04	TIP, LFCS, SHEARMAX, 18-15M, NXT

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Material Specifications:

Components	NOV Material	Drawing No.	Minimum Yield Strength	Charpy
Block	A-X010119	20091082D	180,000 psi	15 ft.-lbs. at -4°F (-20°C)
Ram Retainer Rod	A-X010110	20083309D	120,000 psi	50 ft.-lbs. at -75°F (-60°C) : < 3"
Locking Dog	A-X010119	10630463-DAD 10630466-DAD 16111073-DAD 16111074-DAD	180,000 psi	15 ft.-lbs. at -4°F (-20°C)
Trigger Stop	A-X010106	10630473-DAD	100,000 psi	31 ft.-lb at -4°F (-20°C)
	A-X010183	16111075-DAD	130,000 psi	31 ft.-lb at -4°F (-20°C)
Centering Assy	A-X010106	10632795-DAD	100,000 psi	31 ft.-lb at -4°F (-20°C)
Stop	A-X010183	16111083-DAD	130,000 psi	31 ft.-lb at -4°F (-20°C)
Tip	A-X010261 A-X010266	10728734-DAD	This product is specified by hardness 52 HRC	N/A

Tests carried out

Doc. No.	Rev.	Title
ER 1209	A	Qualification Report: 18-15M LFS Casing, NXT/SLX

Fabrication Procedures

Procedures related to testing, welding, NDT, etc. are to be reviewed/approved by DNV GL's local surveyor in accordance with DNVGL-OS-E101 and API 16A as applicable.

Marking of product

Marking shall:

1. Be reviewed and approved by the DNV GL local surveyor
2. Identify and differentiate each production unit <i.e. serial number>
3. Establish traceability to product design and fabrication documentation
4. Be in accordance with API 16A

Periodical 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, October 2015 Edition.

END OF CERTIFICATE