



Certificate No:
TAD00001FA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Blow out Preventer

with type designation(s)

Ram NXT-D, U/T, Ram NXT-D, Ram NXT, U/T, Ram NXT, Ram NXT, UT, CR SVC

Issued to

**National Oilwell Varco, L.P.- Rig Technologies Division - WLY
Houston, TX, USA**

is found to comply with

DNVGL-OS-E101 – Drilling facilities, Edition January 2018

Application :

See page 2

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

Issued at **Houston** on **2021-10-07**

This Certificate is valid until **2026-10-06**.

for **DNV**

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

Approval Engineer: **Marco Romero**

.....
Sowkarthika Seetharaman
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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 4

Product description

- 18 3/4" - 15,000 psi Ram Assemblies

Design Code/Standard used as a reference

- API 16A, "Specification for Drill Through Equipment", Fourth Edition.

Application/Limitation (CR-SVC Rams)

Limitation	: Value
Performance Requirement	: PR2
Maximum Rated Working Pressure	: 15,000 psia
MOPFLPS for 5 in Mandrel at Zero Initial Wellbore Pressure	: 250 psia
MOPFLPS for 10 3/4 in Mandrel at Zero Initial Wellbore Pressure	: 350 psia
Metallic Temperature Rating (T20/350)	: -20 to 350° F
Non-metallic Temperature Rating (EDF)	
- Low Temperature Limit	: 30°F
- Continuous Elevated Temperature Limit	: 240°F
- Extreme Temperature Limit	: 350°F
Rated Stripping Length	: 10,020 ft
Maximum Pull-down Load	: 600,000 lbf
Service (Bore)	: Sour (H2S)
Designation of Systems; Equipment	: Well Control Equipment; Ram blocks

Application/Limitation (U/T Rams)

Limitation	: Value
Performance Requirement	: PR2
Maximum Rated Working Pressure	: 15,000 psi
MOPFLPS for 5 in Mandrel at Zero Initial Wellbore Pressure	: 239 psia
MOPFLPS for 10 3/4 in Mandrel at Zero Initial Wellbore Pressure	: 471 psia
Metallic Temperature Rating (T20/350)	: -20 to 350° F
Non-metallic Temperature Rating (EGF)	
- Low Temperature Limit	: 30°F
- Continuous Elevated Temperature Limit	: 250°F
- Extreme Temperature Limit	: 350°F
Rated Stripping Length	: 7515 ft
Maximum Pull-down Load	: 600,000 lbf
Service (Bore)	: Sour (H2S)
Designation of Systems; Equipment	: Well Control Equipment; Ram blocks

Type designations

Part Number	Oracle ID	Ram
11008539-XXX	11008539-XXX	RAM, 18-15M NXT, 7-5/8", U/T, PIPE RAM
11008541-XXX	11008541-XXX	RAM, 18-15M NXT, 8-5/8", U/T, PIPE RAM
11008545-XXX	11008545-XXX	RAM, 18-15M NXT, 10", U/T, PIPE RAM
11008546-XXX	11008546-XXX	RAM, 18-15M NXT, 11-3/4", U/T, PIPE RAM
11008547-XXX	11008547-XXX	RAM, 18-15M NXT, 11-7/8", U/T, PIPE RAM
11008550-XXX	11008550-XXX	RAM, 18-15M NXT, 13-1/2", U/T, PIPE RAM
11008558-XXX	11008558-XXX	RAM, 18-15M NXT, 16", U/T, PIPE RAM
11008565-XXX	11008565-XXX	RAM, 18-15M NXT, 16-3/4", U/T, PIPE RAM
11010993-XXX	11010993-XXX	RAM, 18-15M NXT, CSO, U/T CR-SVC
11010999-XXX	11010999-XXX	RAM, 18-15M NXT, 2-3/8", U/T CR-SVC
11011004-XXX	11011004-XXX	RAM, 18-15M NXT, 2-7/8", U/T CR-SVC
11011005-XXX	11011005-XXX	RAM, 18-15M NXT, 3-1/2", U/T CR-SVC
11011016-XXX	11011016-XXX	RAM, 18-15M NXT, 4", U/T CR-SVC
11011044-XXX	11011044-XXX	RAM, 18-15M NXT, 4-1/2", U/T CR-SVC
11011060-XXX	11011060-XXX	RAM, 18-15M NXT, 5", U/T CR-SVC
11011065-XXX	11011065-XXX	RAM, 18-15M NXT, 5-1/2", U/T CR-SVC
11011081-XXX	11011081-XXX	RAM, 18-15M NXT, 5-7/8", U/T CR-SVC

11011108-XXX	11011108-XXX	RAM, 18-15M NXT, 6-5/8", U/T CR-SVC
11011130-XXX	11011130-XXX	RAM, 18-15M NXT, 7", U/T CR-SVC
11011196-XXX	11011196-XXX	RAM, 18-15M NXT, 8-5/8", U/T CR-SVC
11011398-XXX	11011398-XXX	RAM, 18-15M NXT, 9-5/8", U/T CR-SVC
11011413-XXX	11011413-XXX	RAM, 18-15M NXT, 9-7/8", U/T CR-SVC
11011457-XXX	11011457-XXX	RAM, 18-15M NXT, 10", U/T CR-SVC
11011703-XXX	11011703-XXX	RAM, 18-15M NXT, 10-3/4", U/T CR-SVC
11011704-XXX	11011704-XXX	RAM, 18-15M NXT, 11-3/4", U/T CR-SVC
11011715-XXX	11011715-XXX	RAM, 18-15M NXT, 13-3/8", U/T CR-SVC
11011731-XXX	11011731-XXX	RAM, 18-15M NXT, 13-1/2", U/T CR-SVC
11011742-XXX	11011742-XXX	RAM, 18-15M NXT, 14", U/T CR-SVC
11011760-XXX	11011760-XXX	RAM, 18-15M NXT, 16", U/T CR-SVC
11011769-XXX	11011769-XXX	RAM, 18-15M NXT, 16-3/4", U/T CR-SVC
11011775-XXX	11011775-XXX	RAM, 18-15M NXT, 11-7/8", U/T CR-SVC
11320545-XXX	11320545-XXX	RAM, 18-15M NXT, 7-5/8", U/T CR-SVC
20011960-XXX	11008595-XXX	RAM, NXT-U/T, 18-15M, CSO
20011968-XXX	11008646-XXX	RAM, NXT-D-U/T, 18-15M, 3-1/2"
20011973-XXX	11008678-XXX	RAM, NXT-D-U/T, 18-15M, 4" H2S
20011977-XXX	11008700-XXX	RAM, NXT-D-U/T, 18-15M, 4-1/2" H2S
20011981-XXX	11008723-XXX	RAM, NXT-D-U/T, 18-15M, 5" H2S
20011985-XXX	11008753-XXX	RAM, NXT-D-U/T, 18-15M, 5-1/2" H2S
20011989-XXX	11008765-XXX	RAM, NXT-D-U/T, 18-15M, 6-5/8" H2S
20011991-XXX	11008791-XXX	RAM, NXT-U/T, 18-15M, 7" H2S
20011995-XXX	11008829-XXX	RAM, NXT-U/T, 18-15M, 9-5/8" H2S
20016070-XXX	11008850-XXX	RAM, NXT-U/T, 18-15M, 10-3/4", H2S
20016071-XXX	11008891-XXX	RAM, NXT-U/T, 18-15M, 13-3/8", H2S
20017783-XXX	11008913-XXX	RAM, 18-5/10/15M, 13-5/8", NXT, U/T, SL
20017928-XXX	11008955-XXX	RAM, 18-5/10/15M, 7-3/4", NXT/SL, U/T
20018599-XXX	16560784-XXX	RAM, 18-15M, NXT-D, 5-7/8" U/T, H2S
20073405-XXX	11008979-XXX	RAM, NXT-U/T, 18-15M, 9-7/8", H2S
20077527-XXX	11010362-XXX	RAM, 18-15M, 7.750", NXT, U/T CR-SVC
20077528-XXX	11010481-XXX	RAM, 18-15M, 13.625", NXT, U/T CR-SVC
20091186-XXX	11008997-XXX	RAM, 18-15M, NXT, 2-7/8" U/T
20091926-XXX	11009004-XXX	RAM, 18-10/15M, NXT, 2-3/8" U/T
16992472-XXX	16992472-XXX	RAM, 18-10/15M, NXT, 14" U/T

PN-XXX XXX=300, 400
PN-300 RAM, 18-15M NXT, DIM.", U/T CR-SVC, DNV GL
PN-400 RAM, 18-15M NXT, DIM.", U/T CR-SVC, DNV GL + ABS

*Part numbers subfixed as -300 and -400 shall be identical in design. New number is assigned depending on which certification process was implanted. The certification is for DNV GL approval only.

Type Approval documentation

<u>Drawing No.</u>	<u>Rev.</u>	<u>Description</u>	
20005881D	AR	BLK, 18-15M NXT/NXTD, (SIZE PER TABLE) ONE PIECE	
16710619-DAD	04	UPPER PLATE, TABULATED, PIPE RAM, 18-15M	
16710621-DAD	04	LOWER PLATE, TABULATED, PIPE RAM, 18-15M	
16710623-DAD	04	FACE SEAL, TABULATED, PIPE RAM, U/T AND CR-SVC, 18-15M	
<u>Report No.</u>	<u>Rev</u>	<u>Title</u>	
-	July 2019	DESIGN DATA BOOK, 18 3/4" 15,000 PSI NXT RAM ASSEMBLIES	
ER01032	-	18-15M CSO RAM BLOCK & 5" RAM BLOCK ANALYSIS	
<u>Components</u>	<u>NOV Material</u>	<u>Minimum Yield Strength</u>	<u>Charpy</u>
Ram block	AX010309	75,000 psi	31 ft-lb _f @ -20°F

Tests carried out

<u>Report No.</u>	<u>Rev</u>	<u>Title</u>
ER01418	E	18-5/10/15M SL/SLX/NXT, CR-SVC, 5", Pipe Ram, Qualification Summary
ER01926	B	18-5/10/15M SL/SLX/NXT, U/T, 5", Pipe Ram, Qualification Summary

Marking of product

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

1. "TAD00001FA"
2. Serial Number
3. Manufacturer's name and trademark
4. Marking as specified in API 16A 4th Edition
5. Additional marking at manufacturer's option

Certificate Retention Survey

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.

Other conditions / Comments

- Procedures related to Testing, Welding, NDE and other quality control requirements are to be reviewed/ approved by DNV GL's local surveyor.

End of Certificate