

Manufacturing Record Book



Equipment References

Equipment Description: Diverter Running / Test Tool Assembly

Part Number: 11387810-300

Traceability Number: 3293664-0001-1



Customer References

Customer: Yantai Cimc Raffles Offshore LTD

Rig / Hull: Beacon Pacific /Y14-H1305

Purchase Order Number: YCRO-01-2014-H1301-E001

Customer Document Number: N/A

Customer Tag Number: N/A



National Oilwell Varco References

Sales Order / Project Number: 834387B (291788, 299096)

Document Number: 3293664-0001-1-MRB-001

Revision: 01

Volume: 1 Of 1



REVISION HISTORY

01	11/11/2019	For Information	S. Whitaker	S. Welch	S. Welch
Rev	Date (dd/mm/yyyy)	Reason for Issue	Prepared	Checked	Approved

CHANGE DESCRIPTION

Revision	Change Description
01	Initial Release

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1	1.1	Declaration Of Conformity		
		Diverter Running/Test Tool Assembly PN: 11387810-300 SN: 3293664-0001-1	3293664-0001-1-DOC-001	01



Document No	3293664-0001-1-DOC-001
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Declaration of Conformity

Manufacturer & Address:	National Oilwell Varco LP 12950 West Little York Rd. Houston TX 77041 UNITED STATES
NOV SO No.:	834387B (291788, 299096)
Part No. / Revision:	11387810-300 / G
Part Description:	TOOL ASSY, RNG/TEST, DVRTR, 21-1/4(D QUOTES), MNL OPER,
Part Traceability No.:	3293664-0001-1
Date of Manufacture:	15-Nov-2016
Codes, Directives, Standards or Specifications Applied:	NOV SPECIFICATION, DNV DRILL (N)
Customer PO No.:	YCRO-01-2014-H1301-E001
Rig/Hull Number:	Y14-H1305

The product described herein has been manufactured in accordance with National Oilwell Varco's (NOV) standard practices and in accordance with NOV quality management system. This system is designed to assure that all units and parts shipped from NOV are subject to adequate control of quality to ensure safety, performance, and reliability.

The product listed herein complies with all contract requirements and the specifications listed above and meets all established NOV procedures and specifications in the procurement of material, manufacturing, assembly operations and testing, as applicable. For the avoidance of doubt, this declaration shall serve as NOV's certificate of compliance or certificate of conformance.

Juan C. Castro
Supplier & Field Quality Manager

01-Oct-2019

Date

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		Diverter Running / Test Tool Assembly DNV Design Verification Report	DVR-D34500-J-1694	3

DESIGN VERIFICATION REPORT

DVR-D34500-J-1694
Rev.: 3

Particulars of Design

Manufacturer:	National Oilwell Varco - WLY
Location:	Houston, TX, UNITED STATES
Purchase order no:	617791M-2 / 679578 / 696232
Installation:	< BEACON PACIFIC >, Vessel id. 34500
Id No:	D34500, Yantai CIMC Raffles Offshore Ltd. Hull No. Y14-H1305
Archive no:	PP150342-83 / A0536894 / A0560468-1
Regulatory body:	Petroleum Safety Authority - Norway
Additional Class notation:	DRILL(N)

This is to verify that the design of:

Diverter Running Tool, P/N 20029315

has been reviewed and found to comply with:

[1] DNV GL Offshore Standard DNV-OS-E101 "Drilling Plant", October 2009

and to comply with DNV GL AS' current understanding of implementation and interpretation of:

[2] DNV GL Statutory Interpretations DNVGL-SI-0166 "Verification for compliance with Norwegian shelf regulations"

The verification is based on the following

A. Design codes/standards used as references

- API Spec. 16F, "Specification for Marine Drilling Riser Equipment", 1st Edition August 2004
- NORSOK Standard R-002 "Lifting Equipment" 2017

B. Design limitations

<u>Design Parameter</u>	<u>Value</u>
Minimum Design Temperature	: -20 °C
Vertical Rated Load	: 250,000 lbf
Horizontal Rated Load (applied at stem)	: 7,000 lbf
Maximum Diverter Test Pressure	: 750 psi
Service	: Well control systems / Marine riser, equipment and control equipment

C. Design Specifications

<u>Drwg. No.</u>	<u>Rev.</u>	<u>Title</u>
20029315D	G	TOOL ASSY, RNG/TEST, DVRTR, 21-1/4", MNL OPER
20029105D	D	GA;TOOL ASSY,RNG/TEST, DVRTR,21-1/4",MNL OPER
20078289D	F	TOOL ASSY, RUNNING/TEST, MU DVRTR, 21-1/4" MNL
20078291D	A	STEM, RUNNING/TEST TOOL, DVRTR, MNL OPER
20027000PD	-	STEM, RUNNING TOOL, DVRTR, RM/HT
20026096D	K	SLEEVE, RUNNING TOOL, DVRTR, MNL OPER, WEDGE
20026088D	B	DOG, LKG, RNG TOOL, DVRTR WEDGE TYPE
20078290D	A	SLEEVE, ANTI-ROT, RUNNING TOOL, DVRTR W/SPRRT SLOT
20026093D	-	SLEEVE, ANTI-ROT, WA, RG TOOL, DVRTR
20026095D	-	PLT, STOP, ANTI-ROT, RG TOOL
20026091D	-	PLT, LKG, RNG TOOL, DVRTR
20029317D	C	STEM, TEST, RG TOOL, DVRTR, MNL OPER, WEDGE
20078288D	-	STEM, WEDGE, 110K YS, RUNNING TOOL, DVRTR
20029322D	B	STEM, ADPTR, RG TOOL, DVRTR, 6-5/8" PIN, 5- 1/2"BOX

D. Calculations

<u>Doc. No.</u>	<u>Rev.</u>	<u>Title</u>
Design Data Book	December 2015	Beacon Pacific Diverter Running Tool 20029315, SO 833865B
-	-	Diverter Running /Test Tool Analysis (P/N 20029315)
17839096-CAL	01	North Dragon Diverter Running Tool, SO 832165B, Horizontal Loading Calculations

E. Material Specifications

<u>Components</u>	<u>NOV Material</u>	<u>Drawing No.</u>	<u>Minimum Yield Strength</u>	<u>Charpy</u>
Stem	A-X010225	20078291D	130,000 psi	31 ft-lbf @ -4°F
Sleeve	A-X010225	20026096D	130,000 psi	31 ft-lbf @ -4°F
Locking Dog	A-X010187	20026088D	110,000 psi	32 ft-lbf @ -4°F
Stop Plate,	A-X010048	20026095D	38,000 psi	25 ft-lbf @ -4°F (≤ 2")
Locking Plate	A-X010108	20026091D	50,000 psi	25 ft-lbf @ -4°F (≤ 2")
	A-X010171		38,000 psi	25 ft-lbf @ -4°F (≤ 2")
Test Stem	A-X010018	20029317D	75,000 psi	31 ft-lbf @ -26°F
Wedge Stem	A-X010020	20078288d	75,000 psi	32 ft-lbf @ -4°F
Adapter Stem	A-X010225	20029322D	130,000 psi	31 ft-lbf @ -4°F

F. Fabrication Procedures

1. Procedures related to testing, welding, NDT, etc are to be reviewed/approved by DNV GL's local surveyor.
2. Lifting of the assembly with lifting lugs is not included in this report.

G. Comments

- 954 An analysis was performed to simulate a horizontal test load with the appropriate API 8C test load factor and results were satisfactory. As the intent of equipment is for running of diverter only (no stack or riser loading), the requirement for a physical lost test may be waived.

H. Conditions

N/A

I. Revision History

Rev.	Date	Author	Description of Changes
0	2 Nov 2016	MROM	N/A
1	7 Jun 2018	MROM	Changed Dwg. 20029315D to Rev. F from Rev. E.
2	30 July 2018	MROM	Changed Dwg. 20029315D to Rev. G from Rev. F. Horizontal Rated Load added to design limitations. Calculations reflecting horizontal rated load added. Comment added to reflect waiver of horizontal Design Validation Test Load. Added NORSOK R-002 as design code reference. Minor formatting.
3	13 Dec 2018	MROM	Updated stem Dwg. No. to 20078291D from 11316131-DAD. Updated wedge stem Dwg. No. to 20078291D from 11316132-DAD. Updated Dwg. No. 11371723-ASM to 20078289D. Changed wedge stem material spec to A-X010020 from A-X010187.

Houston, 13 December 2018

for DNV GL



Prokopuk, Nick
Team Leader
Drilling & Lifting Equipment



Romero, Marco
Senior Engineer

Distribution:

Orig: **National Oilwell Varco - WLY**, att.: Sukki Tang

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		Diverter Running Tool DNV Product Certificate	N141WR10	01

CERTIFICATE
FOR DIVERTER RUNNING TOOL

Certificate No:
N141WR10
Rev.01

This is to certify

that the product:	Diverter Running Tool
Type designation:	TOOL ASSY, RNG/TEST, DVRTR, 21-1/4, MNL OPER, PN: 20029315 (11387810-300)
Application/context:	Marine Drilling Riser Equipment
Serial/tag no:	3293664-0001-1

Has been found to comply with relevant requirements in:
DNV GL Offshore Standard DNV-OS-E101 "Drilling Plant" TBD

The product is intended for

Yard:	-
Yard No:	-
Name of vessel:	STOCK
DNV GL Id No:	-

The product / material has been marked: Part and Serial Number on: Assembly

Particulars of Vendor and Purchaser

Vendor:	National Oilwell Varco, LP- Rig Technologies Division - WLY
Vendor reference:	825522 - 834387 11387810-300 MRB - TOOL ASSY, RNG/TEST, DVRTR, 21-1/4(D QUOTES), MNL OPER,
Purchaser:	
Purchaser reference:	

Issued at **Certification & Inspection Services** on **2019-11-08**



for **DNV GL**

This document has been digitally signed and will therefore not have handwritten signatures

Anderson, Victor
Surveyor

Certificate No: **N141WR10**
Rev.01

Linked Plan Approvals:

MRAUS474/MROM/D34500-J-1694, National Oilwell Varco - WLY, issued 2016-08-26

Surveyor Supplementary information:

DNV File No. A0768614

Comprehensive material properties and procedures related to testing, welding, NDT, etc. are reviewed and approved by DNVGL's local surveyor.

Traceable Items:

STEM, RUNNING/TEST TOOL, DVRTR, MNL OPER - Lot No: **SP 504**

SLEEVE, RG TOOL, DVRTR, MNL OPER, WEDGE TYPE - Serial No: **115**

DOG, LKG, RNG TOOL, DVRTR WEDGE TYPE - Lot No: **SL 452**

PLT, LKG, RNG TOOL, DVRTR - Lot No: **SK 344**

PLT, STOP, ANTI-ROT, RG TOOL - Lot No: **SM 204**

STEM, TEST, RG TOOL, DVRTR, MNL OPER, WEDGE - Lot No: **SP 326**

STEM, WEDGE, RUNNING TOOL, DVRTR - Lot No: **SF 043**

STEM, ADPTR, RG TOOL, DVRTR, 6-5/8" PIN, 5-1/2"BOX - Lot No: **SV 199**

Product parameters:

Parameter name	Value	Unit
Minimum Design Temperature	-20 °C	
Vertical Rated Load	250,000 lbf	
Horizontal Rated Load (applied at stem)	7,000 lbf	
Maximum Diverter Test Pressure	750 psi	
Service	Well control systems / Marine riser, equipment and control equipment	

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20078291 (10451071-001)	STEM, RUNNING/TEST TOOL, DVRTR, MNL OPER,	SP 504
20029317 (10781365-001)	STEM, TEST, RG TOOL, DVRTR, MNL OPER, WEDGE +NN	SP 326
20029687	STEM, TEST, RG TOOL, DVRTR, RM/HT	SP 326
20078288 (11127340-001)	STEM, WEDGE, RUNNING TOOL, DVRTR	SF 043
20026088 (10755426-100)	DOG, LKG, RNG TOOL, DVRTR WEDGE TYPE +NN	SL 452
20078290 (11131149-001)	SLEEVE, ANTI-ROT, RUNNING TOOL, DVRTR W/SPRT SLOT	215
20026094	TBG, MECH, 10.75"x01.25"WALL, 4130	SG 150
20026095	PLT, STOP, ANTI-ROT, RG TOOL	SM 204
20026089 (11132998-001)	DETENT, LKG, RNG TOOL, DVRTR +NN	SL 515
20026090 (11133593-001)	HLDR, PLT, LKG, RNG TOOL, DVRTR +NN	ST 306
20026091 (11120871-001)	PLT, LKG, RNG TOOL, DVRTR +NN	SK 344
20029318 (11381794-001)	PLT, RETNR, SEAL, TEST TOOL, DVRTR, 21-1/4" +NN	SJ 830
20088013 (10947295-001)	SLEEVE, RG TOOL, DVRTR, MNL OPER, WEDGE TYPE	115
20086859	SLEEVE, RUNNING TOOL, DVRTR, RM/HT, MNL OPER,	SP 825

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20029317 (10781365-001)	STEM, TEST, RG TOOL, DVRTR, MNL OPER, WEDGE +NN	SP 326
20029687	STEM, TEST, RG TOOL, DVRTR, RM/HT	SP 326
20078288 (11127340-001)	STEM, WEDGE, RUNNING TOOL, DVRTR	SF 043
20026088 (10755426-100)	DOG, LKG, RNG TOOL, DVRTR WEDGE TYPE +NN	SL 452
20078290 (11131149-001)	SLEEVE, ANTI-ROT, RUNNING TOOL, DVRTR W/SPRRT SLOT	215
20026094	TBG, MECH, 10.75"x01.25"WALL, 4130	SG 150
20026095	PLT, STOP, ANTI-ROT, RG TOOL	SM 204
20026089 (11132998-001)	DETENT, LKG, RNG TOOL, DVRTR +NN	SL 515
20026090 (11133593-001)	HLDR, PLT, LKG, RNG TOOL, DVRTR +NN	ST 306
20026091 (11120871-001)	PLT, LKG, RNG TOOL, DVRTR +NN	SK 344
20029318 (11381794-001)	PLT, RETNR, SEAL, TEST TOOL, DVRTR, 21-1/4" +NN	SJ 830
20088013 (10947295-001)	SLEEVE, RG TOOL, DVRTR, MNL OPER, WEDGE TYPE	115
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