

WellProtek™ NBR 162
11" 5K SBOP Annular Packing
Elements
API-16A Design Validation
Customer Data Package

For more information regarding our
WellProtek™ Annular Packing Elements
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WellProtek™ NBR 162 11" 5K SBOP Annular Packing Elements

API-16A Design Validation

Summary

Freudenberg Oil & Gas Technologies (FO>) performed design validation testing in accordance with "Specification for Drill-through Equipment", API 16A 4th Ed. Sect. 4.5. The required tests of the operational characteristics of the annular packer unit were performed according to section 4.7.2.4 Annular Packing Units Qualification Tests, Table 27—Required Tests and Performance Criteria for Annular Packers to meet performance requirement level PR1.

Design verification testing was performed on OEM or CEM pressure control equipment specified in accordance to the relevant API specification and OEM requirements.

All tests were 3rd party witnessed or verified. Copies of the reports are included at the end of this document; the original certificates are located at our Petroleum Elastomers (PE) facility in Houston, TX as a part of their quality program.

WellProtek™ NBR 162 11" 5K SBOP Annular Packing Elements are manufactured in FO>'s Fallbrook facility in Houston, Texas. Every element is factory acceptance tested (FAT) before shipment and will be stamped with the official API Monogram®. FO> certificates will be sent with each WellProtek™ Annular Packing Element, certifying that it meets FO> quality standards and has been manufactured in compliance with API-Q1 and API-16A requirements.

Testing Requirements

All tests except for temperature testing were conducted using water at an ambient temperature as the wellbore fluid. The system hydraulic pressure was 1,500 psi as recommended by the manufacturer. Table 1 shows all the tests that are required to be in compliance with API-16A design validation.^a

Tests Completed for FO> WellProtek, NBR 162, 11" 5K SBOP Annular Packing Element

Test	PR1 Section	PR2 Section	PR1 Minimum Performance Criteria	PR2 Minimum Performance Criteria
Sealing Characteristics	4.7.3.18		Reportable	
Fatigue	4.7.3.21		Reportable	
Stripping	4.7.3.24		Reportable	
Low Temperature	4.7.3.26		3 pressure cycles	
Extreme High Temperature	4.7.3.29		1 hour hold time	

Table 1

^a Table 1 is excerpted from API 16A 4th Ed. Table 27 and modified to reflect the testing completed to validate the annular packing element to meet performance requirement level PR1.

PR1 Sealing Characteristics Test

This test consists of two separate tests as follows:

Constant Wellbore Pressure Test

This test determines the operator closing pressure required to maintain a wellbore pressure seal on a 5" test mandrel as a function of wellbore pressures up to full rated working pressure of the blowout preventer.

Constant Closing Pressure Test

This test determines the maximum wellbore pressure obtainable, up to the rated working pressure, for a given closing pressure when closing on a 5" test mandrel.

PR1 Fatigue Test

This test determines the ability of an annular packing unit to maintain a low-pressure seal (200 psi to 300 psi), and a rated working pressure (5,000 psi) seal throughout repeated closings and openings. This test simulates closing and opening the blowout preventer once per day and wellbore pressure testing at full rated working pressure once per week comparable to one year of service.

PR1 Stripping Life Test

This test determines the ability of the annular packing unit to maintain control of wellbore pressure while stripping drill pipe and tool joints through the closed packing unit without exceeding a leak rate of 4 liters/min (1 gal/min).

PR1 Low Temperature Test

This test determines the ability of the annular packing unit used as a pressure-controlling part to maintain a wellbore pressure seal after repeated closings and openings at the minimum rated temperature and rated working pressure of the annular packing unit.

PR1 Extreme High-Temperature Test

This test determines the ability of the of the annular packing unit used as a pressure-controlling part to maintain a wellbore pressure seal at the extreme rated temperature and rated working pressure of the annular packing unit.

Acceptance Criteria

Except for stripping test, the acceptance criterion for all tests that verify pressure integrity was zero visible leakage, as established by FO> standards.

Technical Data Sheet

This technical data sheet meets the requirements set forth in API 16A 4th Ed., April 2017, Section 4.10.

Product	11" – 5,000 PSI SBOP Packing Unit
Part Number	10044894-33
Performance Requirement (PR) Level	PR1
Bore Size	11"
Rated Working Pressure	5,000 PSI
Temperature Rating	FGB
Elastomer Type	Nitrile (NBR)
Qualification Test Results	
• Sealing Characteristics	See Tables 1 & 2
• Full Closure Pressure Test, Open Hole <i>Complete Shut-off (CSO)</i>	2,500 PSI maximum rated working pressure at CSO
• Fatigue	60 cycles @ 1,500 PSI closing pressure
• Stripping	36,300 ft
• Low Temperature	<ul style="list-style-type: none"> 1,500 PSI closing pressure @ low wellbore pressure & 40°F 1,500 PSI closing pressure @ high wellbore pressure & 40°F
• Extreme High Temperature	1,500 PSI closing pressure @ 200°F
Size	27.8" O.D. x 12.7" Height
Weight	450 lb

Table 1 - Constant Wellbore Pressure Test^b

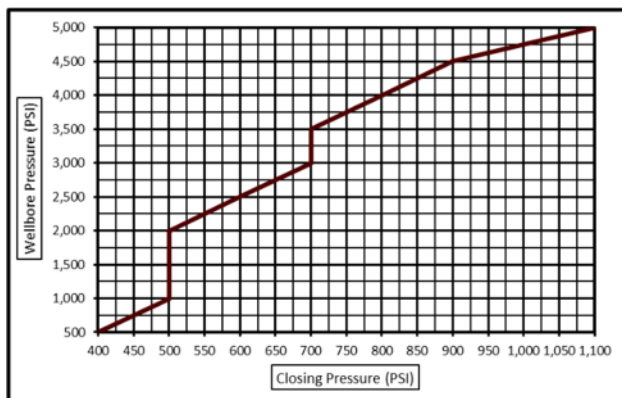
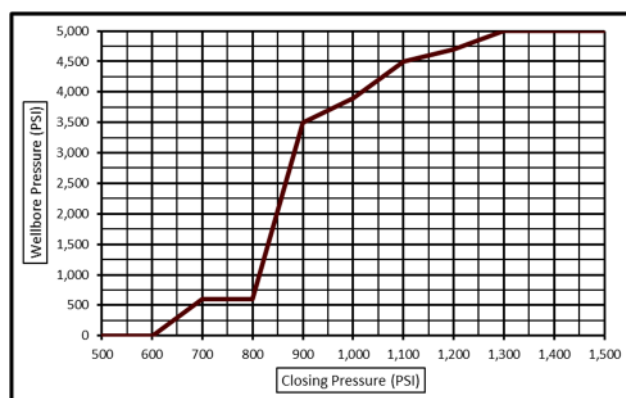


Table 2 - Constant Closing Pressure Test^b



^b Wellbore pressure seal developed on a 5" drill pipe

Material Data Sheet

NBR 162*

Physical properties

Typical Values

Hardness

ASTM D 2240, Shore A, Max Readout

79.0 Shore

Tensile strength

ISO 37 / ASTM D 412, S2

3700 Psi

25.5 MPa

Modulus

ISO 37 / ASTM D 412, S2

50% Modulus

370 Psi

2.6 MPa

100% Modulus

620 Psi

4.3 MPa

200% Modulus

1500 Psi

10.3 MPa

300% Modulus

2300 Psi

15.9 MPa

Elongation at break

ISO 37 / ASTM D 412, S2

520%

Tear strength

ISO 34-1 figure 2 / ASTM D 624-C

329 pound/inch

Compression set

ISO 815-B / ASTM D 395 -1

72h at 80 °C (176°F)

29%

24h at 80 °C (176°F)

18%

Change after aging in IRM 903: 70h at 100°C (212°F), ASTM D 471

ASTM D 2240, Shore A, Max Readout

-4

Tensile strength (ISO 37 / ASTM D 412, S2)

-31%

Elongation at break (ISO 37 / ASTM D 412, S2)

-52%

Volume change (ISO 1817)

11%

Change after aging in IRM 901: 70h at 149°C (300°F), ASTM D 471

ASTM D 2240, Shore A, Max Readout

8

Tensile strength (ISO 37 / ASTM D 412, S2)

-1.1%

Elongation at break (ISO 37 / ASTM D 412, S2)

-48.9%

Volume change (ISO 1817)

-7%

Listed values are nominal values based on testing performed by FO> in accordance with industry testing standards. Actual values may vary.

*The NBR 162 compound was identified as LAB 2012 006-9 and during the API-16A design validation tests was documented as FOG 006-9.

Temperature Ratings

The Freudenberg FO> WellProtek, NBR 162, 11" 5K SBOP Annular Packing Element has been temperature tested per API 16A and meets the requirements for temperature classification per Table 4 in API 16A 4th Ed. at a performance requirement level 1 (PR1).

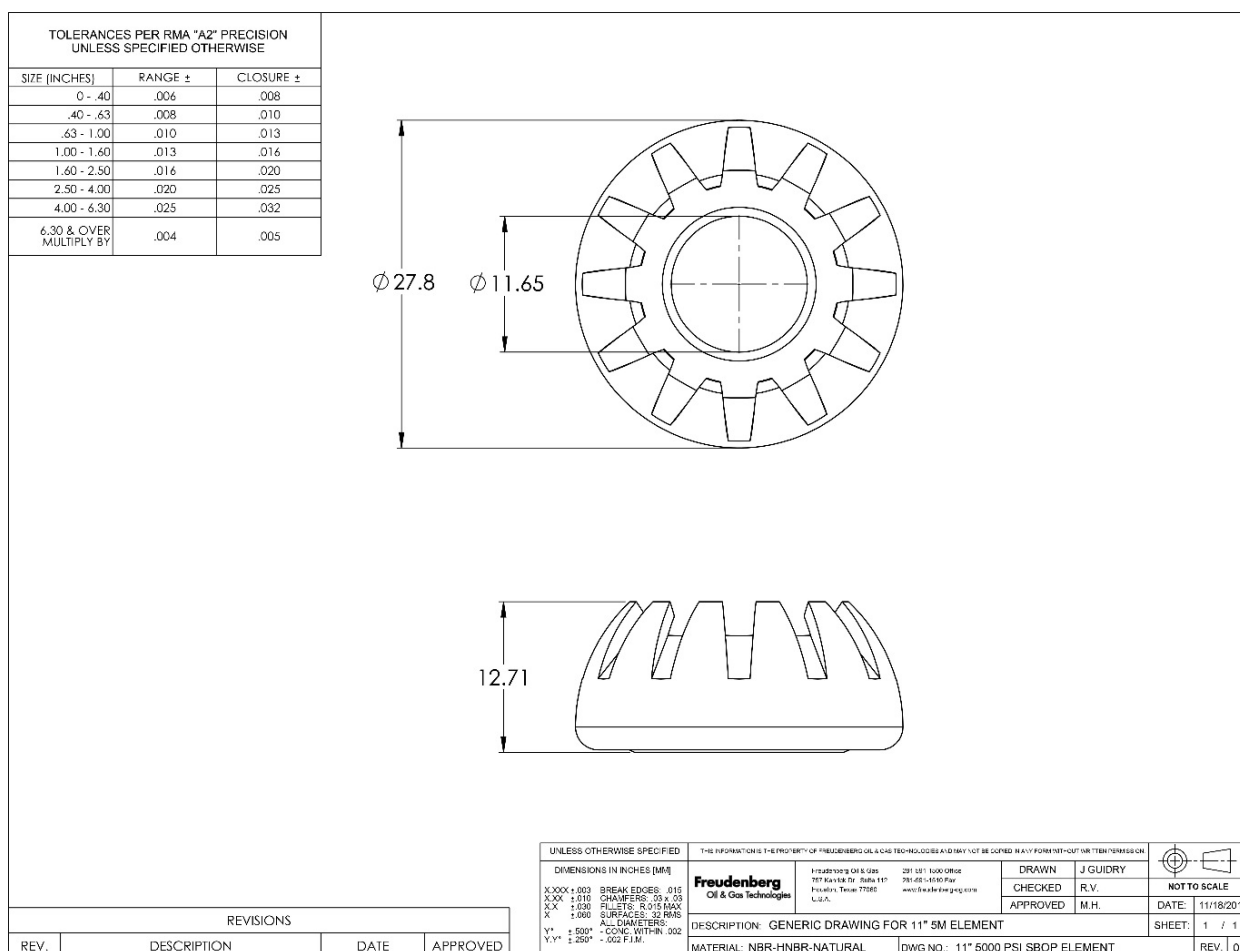
Table 4 - Temperature Ratings for Non-Metallic Sealing Materials								
Low Temperature Limit (first digit)			Continuous Elevated Temperature Limit ^a (second digit)			Extreme Temperature Limit (third digit)		
Code	Temperature		Code	Temperature		Code	Temperature	
	°C	°F		°C	°F		°C	°F
A	-26	-15	A	66	150	A	82	180
B	-18	0	B	82	180	B	93	200
C	-12	10	C	99	210	C	104	220
D	-7	20	D	116	240	D	121	250
E	-1	30	E	132	270	E	149	300
F	4	40	F	149	300	F	177	350
G	Other	Other	G	Other	Other	G	Other	Other
^a not required for PR1 EXAMPLE Material "FDE" has a low temperature rating of 40 °F, a continuous elevated temperature rating of 240 °F, and an extreme temperature limit of 300 °F.								

Per API 16A marking requirements, a middle code letter "G" is used for products temperature tested to PR1.

Product Description

FO> Part #	Element Type	Element Description			Element Style
		Element size	Rated Working Pressure	Type	
10044894-33	WellProtek™ NBR 162	11"	5,000 psi	Spherical	Shaffer Style

Dimensional Details



Elastomer Storage Guideline for FO> Pressure Control Products

The following guideline describes how ram blow-out preventer (BOP) packers, annular BOP packing elements, and all other related BOP elastomeric seals should be properly stored to achieve the stated shelf life for each elastomer type as noted in Table 2.

Most polymeric items, including vulcanized rubber and other elastomers, tend to change their properties during storage. Without the proper handling, parts could become defective due to hardening, softening, cracking, crating or other degradation as the result of oxygen, ozone, light, heat and/or humidity.

The aging process is predominantly dependent on the following factors:

- Temperature
- Humidity
- Light
- Oxygen and Ozone
- Deformation

As such, the following storage recommendations are suggested to better preserve both elastomer properties and composite items:

Temperature

Storage temperatures should not exceed 75°F. Low temperatures are not directly correlated to permanent damage if elastomeric items are carefully handled and not distorted. When items are taken out of low temperature storage of 60°F or less, then they should be warmed up to approximately 85°F prior to installation.

Humidity

Optimum humidity should be approximately 65% in a draft-free atmosphere.

Light

It is highly important to protect elastomeric items from direct sunlight and/or strong artificial light with a high ultraviolet content. Unless items are packed in opaque containers, it is advisable to cover storage windows with red or orange screens or coatings.

Oxygen and Ozone

Elastomeric items should be protected from circulating air while in storage by remaining wrapped or bagged. Items should be stored in rooms apart from equipment that creates electric sparks or discharges as the ozone released is particularly harmful to rubber.

Deformation

Where possible, rubber items should be stored in a relaxed position, free from tension or compression. Laying the item flat, avoiding suspension or crushing, will keep it free from strain and will minimize deformation.

Stock Rotation

Elastomers should be stored for as short a period as possible, and strict stock rotation should be followed.

Cleaning

Organic solvents such as trichloroethylene, carbon tetrachloride and petroleum are the most harmful agents and should be avoided. Soap and water and methylated spirits are the least harmful. All parts should be dried at room temperature before use.

Shelf Life

The table below shows the storage life of seal components made from common elastomer materials stored under the conditions covered by these guidelines. Improper storage will reduce the shelf life.

If the shelf life or expiration dates marked on the part or packaging is different than the period listed in Table 2, the part or packaging dates shall be followed.

Elastomer	Maximum Storage Period (years)
Nitrile (NBR)	7

Table 2

Test Certificates

The following API-16A tests, as defined in its 4th edition, for performing PR1 testing of annular BOP components were 3rd party witnessed or verified as part of the FO> design validation process^c. All tests meet or exceed API-16A standards. The list of tests performed, and their corresponding certificates are as follows:

WellProtek™ NBR 162^d 11" 5K Annular Packing Elements – API-16A 4th Edition, PR1

Test	Report or Certificate ID
Sealing Characteristics Test	DNV Report ID 2013-09-22-A
Fatigue Test	C-00068
Stripping Test	Tejas Report ID 12020 41720142 A1
High Temperature Test	C-00065
Low Temperature Test	Tejas Report ID 11042013-2

^c The design validation tests performed in accordance with API 16A 3rd Edition and their respective requirements are equivalent to the validation tests and requirements outlined in API 16A 4th Edition to meet performance requirement level 1 (PR1) for the annular packing element.

^d The NBR 162 compound was identified as LAB 2012 006-9 and during the API-16A design validation tests was documented as FOG 006-9.

Sealing Characteristics Test



Station I.D.: TAMUS467
Project No.: PP072883
Surveyor I.D.: MMATI
Report I.D.: 2013-09-22-A

DET NORSKE VERITAS

SURVEY REPORT

P.O. Number:	LAB1236	Date:	22 SEP 2013
Main Vendor:	Freudenberg Oil & Gas	Location:	HOUSTON, TX
End User:	N/A	Vendor Contact:	Juan Galan
Vendor Ref:	N/A	Vendor Phone:	281-233-1410
WO No:	2013-306	Quantity:	1
Part No:	R2013-0530	Serial No.:	N/A

Equipment Description

Sealing Characteristics Test 11" 5K Spherical BOP
NBR FOG 006-9

Purpose of Survey: Witnessing Sealing Characteristics test on 11" – 5K Spherical BOP NBR FOG 006-9 for Design Validation Testing of annular packer unit

Acceptance Criteria: - API 16A "Specification for Drill-through Equipment" 3rd Ed.
Reference Documents: - API 16A "Specification for Drill-through Equipment" 3rd Ed.
- Freudenberg Procedure No: BOP 9-18-13



Digitally Signed By: Koehne, Craig A.
Location: DNV Houston, USA
Signing Date: 2013-09-30

Surveyor / date: Mehdi Matinfar / 2013-09-22

Distribution:		Attn:	E-Mail Address:
Original to Client:	Freudenberg Oil & Gas	Juan Galan	Juan.Galan@fogt.com
Copy to:	NA		
Copy to File:	PP072883		

Fatigue Test

 FREUDENBERG INNOVATING TOGETHER		OIL & GAS TECHNOLOGIES	
Certificate of Test			
Freudenberg Oil & Gas Technologies' 11" x 5,000 psi NBR 162 annular packing unit was successfully tested with 60 high and low-pressure tests and 420 close/open cycles for fatigue design validation in accordance with API 16A, Fourth Edition, section 4.7.3.21 PR1 procedures and acceptance criterion.			
Product Details: FOGT 11" x 5,000 psi Annular Packing Unit NBR 162			
Manufacturer:	Freudenberg Oil & Gas Technologies		
Part Number:	10044894-33		
Batch Number:	8279-8304		
Compound Description:	NBR 162 Elastomer		
Test Parameters			
Validation Test Standard:	API 16A Fourth Edition PR1, Fatigue Test		
BOP Type:	Annular, 11" x 5,000 psi		
BOP Model:	NOV 11-5M, SXF, SST, T-20, API Monogrammed		
BOP Serial Number:	20025100-494/KP11020		
Wellbore Low Pressure, minimum:	14.7 bar	213	psi
Wellbore High Pressure, minimum:	345 bar	5000	psi
Closing Pressure, maximum:	114 bar	1652	psi
Test Medium:	Water		
Hold Duration:	3 minutes		
FOGT Work Order:	2020 005		
Test Details			
Test Performed by	Freudenberg Oil & Gas Technologies		
Test Location	Materials Development & Product Testing Lab 4535 Brittmoore Rd. Houston, TX 77041		
Internal Test Procedures	SOP-00125/1, in accordance with API 16A Fourth Edition, PR1		
Test Completion Date	January 20, 2020		
Test Results	No visible leakage during the hold periods		
Authorized by:			
Michael LoGiudice			
			
Manager, HOU LAB Facility			

C-00068/2

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Stripping Test



Testing Project Documentation Number : 12020
Tejas Documentation Number: 41720142 A1
Test Summary Number: 12020 41720142 A1

Test Summary Report

IDENTIFICATION			
1. Originator Name:	Ryan Kapp	5. Date:	4/17/2014
2. Customer:	Freudenberg Oil & Gas	6. Number:	12020 41720142 A1
3. Part Description:	11" 5k Annular BOP Element	7. Quantity:	1
4. Part ID:	SN 05679748-5	8. DWG Number:	N/A

9. Objectives Completed:

<input checked="" type="checkbox"/> RECEIVING <input checked="" type="checkbox"/> SHIPPING <input checked="" type="checkbox"/> SETUP <input checked="" type="checkbox"/> RIG DOWN <input checked="" type="checkbox"/> TESTING	<input type="checkbox"/> OTHER:
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------

10. Description of Test Required

Program steps 1-8 of Freudenberg Test Procedure WI-022 were completed by Tejas **. The test consisted of stripping a test mandrel with a simulated tool joint through the pressurized sealing element of the annular BOP controlling a wellbore pressure, while maintaining a leakage rate less than 1 gallon per minute past the annular BOP sealing element. The testing data files that are included with the Test Summary Report include all data for wellbore pressure, wellbore temperature, test mandrel position, number of tool joints stripped, leak rate past the sealing element, element pressure, and test mandrel speed.

The wellbore pressure window median target during the test was 1000 psi. Temperature was maintained between 57°F and 97°F. The average stripping speed overall was .4 ft/s. The Stroke length was 55.82". The number of tool joints stripped totals 7906, with an equivalent length of pipe of 36,300 ft. The closing pressure at the end of the test was 705 psi.

**Program step 1- Durometer hardness check was not witnessed by TejasR.E.

11. Action(s)/Change Order(s) Required During Test:

No changes were made during testing.

DISPOSITION

12	<input checked="" type="checkbox"/> PASS TO SPEC <input checked="" type="checkbox"/> RETURN TO CLIENT <input type="checkbox"/> STOP IMMEDIATELY <input type="checkbox"/> REJECT <input type="checkbox"/> REDRESS AND RESTART		Responsible Manager	
			Name:	Sebastian Nienhuis
			Date:	4/17/2014
			Initials:	SON

Revisions

A1 - Test Summary box 10 was reworded to maintain the same presentation template as previous tests.

High Temperature Test

 FREUDENBERG INNOVATING TOGETHER		OIL & GAS TECHNOLOGIES	
Certificate of Test			
Freudenberg Oil & Gas Technologies' 11" x 5,000 psi NBR 162 annular packing unit was successfully tested for extreme high temperature design validation at or above 200°F in accordance with API 16A, Fourth Edition, section 4.7.3.29 PR2 procedures and acceptance criterion.			
Product Details: FOGT 11" x 5,000 psi NBR 162 Annular Packing Unit			
Manufacturer:	Freudenberg Oil & Gas Technologies		
Part Number:	10044894-33		
Batch Number:	7896-7900		
Compound Description:	NBR 162 Elastomer		
Test Parameters			
Validation Test Standard:	API 16A Fourth Edition PR2, Extreme High Temperature Test		
BOP Type:	Annular, 11" x 5,000 psi		
BOP Model:	NOV 11-5M, SXF, SST, T-20, API Monogrammed		
BOP Serial Number:	20025100-494/KP11020		
Wellbore Temperature, minimum:	102.8 °C	217.1 °F	
Temperature Class:	B	200 °F	
Wellbore Pressure, minimum:	345 bar	5007 psi	
Closing Pressure, maximum:	110 bar	1589 psi	
Test Medium:	Cosmolubric® B-230		
Hold Duration:	60 minutes		
FOGT Work Order:	2020 165		
Test Details			
Test Performed by	Freudenberg Oil & Gas Technologies		
Test Location	Materials Development & Product Testing Lab 4535 Brittmoore Rd. Houston, TX 77041		
Internal Test Procedures	SOP-00130/1, in accordance with API 16A Fourth Edition, PR2		
Test Completion Date	September 15, 2020		
Test Results	No leakage during the hold period		
Authorized by:			
Michael LoGiudice			
			
Manager, HOU LAB Facility			

C-00065/1

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Cosmolubric is a registered trademark of Houghton Technical Corp.

Low Temperature



Testing Project Documentation Number : 9351
Tejas Documentation Number: 11042013-2
Test Summary Number: 9351 11042013-2

Test Summary Report

IDENTIFICATION									
1. Originator Name: Ben East	5. Date: 1/20/2014								
2. Customer: Freudenberg Oil and Gas Technology	6. Number: 9351 11042013-2								
3. Part Description: Annular BOP Low Temperature Test	7. Quantity: 2								
4. Part ID: 006-9#5	8. DWG Number: n/a								
9. Objectives Completed:									
<input checked="" type="checkbox"/> RECEIVING <input checked="" type="checkbox"/> SHIPPING <input checked="" type="checkbox"/> SETUP <input checked="" type="checkbox"/> RIG DOWN <input checked="" type="checkbox"/> TESTING	<input checked="" type="checkbox"/> OTHER: Witness calibrated measurement devices for Freudenberg to complete the elastomer records detailed in WI-023.								
10. Description of Test Required									
<p>Testing was initiated 10/24/13. The Freudenberg Annular BOP Element was installed and testing in a third party BOP housing. The low temperature test was completed per Freudenberg document WI-023. All cycles and holds were completed in accordance with WI-023 and under the supervision of onsite Freudenberg Personnel. The Elastomer records detailed in Procedure WI-023 were completed by Freudenberg. The temperature in the wellbore below the element remained between 20°F-30°F during the pressure holds. Temperature raised above 30°F upon wellbore pressurization, and the hold periods started when temperature fell back into the 20°F-30°F window. Three pressure cycles at 5000 psi were completed for this low temperature test.</p>									
11. Action(s)/Change Order(s) Required During Test:									
<div style="border: 1px solid black; height: 50px;"></div>									
DISPOSITION									
12	<div> <input type="checkbox"/> PASS TO SPEC <input checked="" type="checkbox"/> RETURN TO CLIENT </div> <div> <input type="checkbox"/> STOP IMMEDIATELY <input type="checkbox"/> REJECT </div> <div> <input type="checkbox"/> REDRESS AND RESTART </div>								
<table border="1"> <thead> <tr> <th colspan="2">Responsible Manager</th> </tr> </thead> <tbody> <tr> <td>Name:</td> <td>Sebastian Nienhuis</td> </tr> <tr> <td>Date:</td> <td>11/8/2013</td> </tr> <tr> <td>Initials:</td> <td>SON</td> </tr> </tbody> </table>		Responsible Manager		Name:	Sebastian Nienhuis	Date:	11/8/2013	Initials:	SON
Responsible Manager									
Name:	Sebastian Nienhuis								
Date:	11/8/2013								
Initials:	SON								

Revisions -1 : Initial Document


-2 : 1/20/14 BE, Date in Line 5 was incorrect. Updated Line 10 to include a broad test summary.

Certificate of Quality

Per API-16A, every WellProtek™ NBR 162 11" 5K Annular Packing Element will be shipped with the required documentation including a FO> Certificate of Quality and a Certificate of Conformance.

		FREUDENBERG OIL & GAS TECHNOLOGIES	
<h1>Certificate of Quality</h1>			
<p>Freudenberg Oil & Gas Technologies (FO&GT) - Petroleum Elastomers (PE) certifies that the WellProtek™ Annular Packing Element listed herein has been manufactured and inspected in accordance with API Q1 and API-16A standards.</p>			
<p>FO&GT - PE certifies this WellProtek™ Annular Packing Element has passed the Factory Acceptance Test (FAT) and meets FO&GT design acceptance criteria.</p>			
Part Number:		
Serial Number:		
Description:		
Compound:		
Date Manufactured:		
Expiration Date:		
			
.....		
Quality Assurance		Quality Inspector	
.....		Date	
<p>For service, call: +1 281 591-1500 (M - F from 8 a.m. - 5 p.m.) After hours, call: +1 713 397-0009</p>			
<p>www.fogt.com</p>			
<p> Keep this document for reference!</p>			
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Certificate of Conformance

		<i>CERTIFICATE OF CONFORMANCE</i>	
<p>Freudenberg Oil & Gas Technologies-Petroleum Elastomers certify that the product listed herein have been manufactured and inspected in accordance with API 16A and Freudenberg Oil & Gas Technologies specification requirements.</p>			
Certificate No.:		Date:	
Customer:		Customer PO Number:	
FOGT Sales Order:		Product Specification License No.:	
Date of Manufacture:		Serial Number:	

A. Assurance:

This is to confirm that the drill through "Annular Packing Unit" manufactured per the above purchase order and as listed below have been manufactured, inspected and maintained in accordance with the following:

- API Q1, Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry, Latest edition including all addendums and errata.
- API 16A, Specification for Drill-through Equipment, Latest edition including all addendums and errata.

B. The certification is related to the following testing requirements:

Sealing Characteristics	High Temperature
Fatigue	Low Temperature
Test for Stripping Life	Continuous Operating Temperature
Factory Acceptance Test	

C. Ratings

Rated Working Pressure:	
Non-metallic Temperature Rating:	

Page 2 of 2

F-00107 Rev.4
Date: 05-18-2020



CERTIFICATE OF CONFORMANCE

D. List of inspected annular packing unit:

Item#	SAP Part No.	Description	Serial Number	Expiration Date

E. Comments:

- All documentation in support of the above listed products is retained on file by Freudenberg Oil & Gas Technologies – Petroleum Elastomers for a minimum of 10 years from the date of manufacture and can be made available to the purchaser upon request.

F. Freudenberg Oil & Gas Technologies disclaimer

- "These commodities, technology, or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited."

G. Certificate of Conformance Approval

- All documents and inspection reports to support this certificate of conformance have been verified to the best of my knowledge to be true and correct.

Name:		Signature:	
Title:			
Phone:			
Fax:			
Email:			

Notice: This certificate is subject to terms and conditions as set forth in the original purchase order and contract documents. Any significant change in design or construction may render this Certificate invalid.