

# ***ERA TorQ***<sup>™</sup>

**ERA Oilfield Service (Thailand) Co Ltd  
Independently witnessed  
Torque Test Report On ERA TorQ  
branded API casing torque rings.**

**9.625" 47ppf L80 ERA ToRQ**



# ERA TorQ™



## *Testing Procedural Outline:*

*3rd party witnessed*

*Use calibrated bucking unit*

*Apply torque in excess of field parameters*

*Apply torque into the safety margin of design*

*Remove rings after torque test*

*NDT testing to identify yield and failures in design after torque test*

*Record all data*

*Record 3rd party independent test results*

## *How do we calculate field torques applied:*

*Calculate the theoretical yield torque point across the nominal ring cross section design*

*Create a safety margin for field applied delta torque*

*Apply rule of maximum field delta torque = 50% of theoretical yield torque point*

*Safety margin for delta torque = 100% maximum field delta torque*

*ERA ToRQ = High torque application = high safety margin*

For more information contact us here at  
ERA Oilfield Service (Thailand) Co Ltd.

ERA Oilfield Service (Thailand) Co Ltd.

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Website: www.eraoilfieldservices.com

# TORQUE TEST DATA FORM

## ERA Oilfield Service (Thailand) Co Ltd



<b>DATE OF TEST</b> 11/10/2023	
3rd party witness: Prompt NDT & Inspection Company Limited	<b>DATE OF TEST</b> 11/10/2023
Registered Address: 31/1 หมู่ 2 Ching Kho, Singhanakhon District, Songkhla 90280, Thailand	<b>TEST LOCATION</b> EEST BASE, SATTAHIP BASE, THAILAND
	<b>3RD PARTY WITNESS</b> KHUN THANAPOL & KHUN CHALONGCHAI
<b>Test Provider:</b> EEST Energy Services (Thailand) Ltd	<b>ERA WITNESS</b> JAMES REID - DIRECTOR
Registered Address: Rasa Tower, Tower 2, 25th Floor Unit No. 2501 - 2502 555 Phaholyothin Road Chatuchak, Bangkok, Thailand 10900	<b>TEST UNIT OPERATOR</b> KHUN POPPY (EEST THAILAND CO LTD)
Co. Reg. No: 0105551031101	<b>ERA PO REFERENCE</b> ERAOS-PO-20231601

Item	Qty	DESCRIPTION OF EQUIPMENT / ACTION / CERTS	REMARKS / TEST RESULTS
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1	<b>TEST SUBJECT NUMBER 2 DETAILS</b>	<b>MODEL REFERENCE:</b> ERAOS-DTA-958BTC47L80N80
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<b>TORQUE RING DETAILS:</b>	
FOR CASING OD SIZE:	9 5/8 INCHES
FOR CASING WEIGHT:	47 PPF
FOR CASING STEEL GRADE:	L80
WEIGHT OF PUP JOINTS USED IN TESTING:	47PPF

2	<b>ERA TORQ PRODUCT NOMINAL DIMENSIONS:</b>
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RING OD NOMINAL:	9.32 INCHES
RING ID NOMINAL:	8.681 INCHES
RING HEIGHT NOMINAL:	0.98 INCHES
RING WALL NOMINAL:	0.3195 INCHES
RING FACE CROSS SECTION NOMINAL:	9.0342 inch square

3	<b>ERA TEST PIECE TORQ RING ACTUAL MEASUREMENTS:</b>
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RING OD ACTUAL	9.282 inches
RING ID ACTUAL	8.731 inches
RING HEIGHT ACTUAL	0.99 inches
RING WALL ACTUAL	0.2755 inches
RING FACE CROSS SECTION ACTUAL	7.7952 inch square

4	<b>RING TORQUE MAKE UP TARGETS AS PER PRODUCT DATA SHEETS</b>
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DATA SHEET TORQUE TO TRIANGLE BASE	9630 FTLBS
DATA SHEET TORQUE MAXIMUM INFIELD WITH NO COMPUTER MONITORING	24090 FTLBS
DATA SHEET TORQUE MAXIMUM WITH COMPUTER MONITORING	30113 FTLBS
DATA SHEET MAXIMUM DELTA TO YIELD TORQUE	60226 FTLBS

5	<b>ACTUAL TEST RESULTS</b>
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TORQUE TO TRIANGLE BASE ACTUAL	11000 FTLBS
ACTUAL FINAL DELTA TORQUE APPLIED	49,000 FTLBS
TOTAL FINAL TORQUE APPLIED	60000 FTLBS
THEORETICAL DELTA YIELD TORQUE INTO RING AS PER DATA SHEET	60226 FTLBS
% DELTA TORQUE APPLIED VS THEORETICAL NOMINAL YIELD POINT	81.36%
RESULTS OF NDT TESTING	NO CRACKS IDENTIFIED. NO YIELD.

6	<b>YIELD POINT CALCULATIONS AND TEST RESULTS</b>
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NOMINAL CROSS SECTION	9.0342 SQUARE INCHES
ACTUAL CROSS SECTION OF TEST RING	7.7952 SQUARE INCHES
YIELD STRENGTH	80,000 PSI
NOMINAL YIELD POINT CALCULATION	60,226 FTLBS
ACTUAL TEST RING FACE THEORETICAL CALCULATION	51,968 FTLBS
% DELTA TORQUE APPLIED VS THEORETICAL YIELD POINT BASED UPON TEST RING DIMENSIONS	94.29%

7	<b>TEST EQUIPMENT IN USE:</b>
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MAKE AND BREAK UNIT MODEL	TIANHE HUIFENG 2 7/8 - 15 3/8 OD
MAKE AND BREAK UNIT CALIBRATION CERTS	PO 221208 / PO221209 / PO221210 / PO221211
CALIBRATION CERT ISSUED BY	SYSTRONICS CO LTD, RAYONG, THAILAND
CALIBRATION END DATE	20/10/2023
CALIBRATION OVER TORQUE RANGE	MAKE UP GAUGE 0 - 2320 PSI. ACCURACY WITHIN 1.6%
MAKE AND BREAK UNIT MAXIMUM TORQUE LIMIT	110,600 FTLBS MAXIMUM

8	<b>TEST CASING PUPS IN USE:</b>
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CASING PUP OD NOMINAL	9 5/8 INCHES
CASING PUP ID NOMINAL	8.681 INCHES
CASING PUP WEIGHT NOMINAL	47 PPF
CASING PUP STEEL GRADE	L80
CASING PUPS CERTIFIED API OR CERT NUMBER	OMS COC WO-23-450
CASING PUPS CERTS AVAILABLE	OMS COC WO-23-450
CASING PUPS COPY OF CERTS AVAILABLE	OMS COC WO-23-450
CASING PUPS SUPPLIER	OMS SATTAHIP UNDER WORK ORDER WO-23-450

**TORQUE TEST DATA FORM**  
**ERA Oilfield Service (Thailand) Co Ltd**



**9 RESULTS OF TEST MEASURED AGAINST DATA SHEET SPECIFICATIONS**

HAS THE TEST RING MET THE REQUIRED DATA SHEET DELTA TORQUE MINIMUM ?
HAS THE THE TEST MET THE STATED DELTA TORQUE MAXIMUM FOR NO COMPUTER MONITORING ?
HAS THE TEST MET THE STATED DELTA TORQUE MAXIMUM FOR FIELD USE WITH COMPUTER MONITORING
HAS THE TEST MET THE ABSOLUTE MAXIMUM TO STATED YIELD POINT TORQUE ?
IF YES, WHAT WAS FINAL APPLIED TORQUE ?
DID THE TEST RING YIELD ?
IF NO, WHAT WAS THE ACTUAL YIELD POINT OF THE RING ?
WAS THE RING REMOVED FROM COUPLING AFTER THE TEST ?
WAS THERE THREAD DAMAGE TO THE COUPLING OBSERVED AFTER REMOVAL ?
WAS THERE THREAD DAMAGE TO THE PIN END OBSERVED AFTER REMOVAL ?
WAS THE RING NDT TESTED BY 3RD PARTY ?
WHAT TYPE OF NDT TEST WAS PERFORMED ?
ANY SIGNS OF CRACK OR YIELD ?
WHAT IS THE NDT TEST CERT NUMBER ?
HAS THE TESTED RING PASSED THE NDT TEST ?

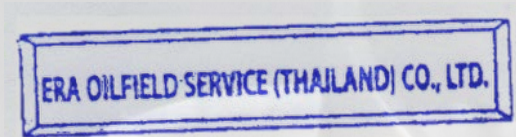
YES	NO
YES	
YES	
YES	
	NO
60,000 FTLBS FINAL APPLIED TORQUE WITH 49,000 FTLBS OF DELTA TORQUE INTO THE TEST RING	
	NO
NOT DETERMINED	
YES	
	NO
	NO
YES	
SEE ATTACHED REPORT	
	NO
MO2023-006(2)	
YES	

SIGNED ON BEHALF OF ERA OILFIELD SERVICE (THAILAND) CO LTD., AS A TRUE AND OFFICIAL DOCUMENT

Date of Test: 11/10/2023  
 Date of Sign: 19/10/2023

**James Reid - Director**  
**ERA Oilfield Service (Thailand) Co Ltd**

ERA Oilfield Service (Thailand) company stamp



<b>Customer</b>	<u>EEST Energy Services</u>	<b>Date of Service</b>	<u>11 October 2023</u>
<b>Work Location</b>	<u>EEST Sattahip Yard</u>	<b>Order By</b>	<u>Khun Jintana P.</u>
<b>Customer P.O. No.</b>	<u>MR-Cert-23-359 (J-MISC-PROJ-CUST-ERA0)</u>	<b>Mission order No.</b>	<u>MO2023-006</u>
<b>Description of Material</b>	<u>9-5/8"BTC 47ppf L80 ERA Torq ring OD.9.320" ID.8.681"</u>	<b>Report No.</b>	<u>2 of 2</u>

**Type of Services**

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Thread Box & Pin Visual Inspection | <input checked="" type="checkbox"/> Dimensional 3 Inspection         | <input checked="" type="checkbox"/> DC Coil 13 " S/N : RC3-092120151 |
| <input type="checkbox"/> Internal Tube Visual Inspection               | <input checked="" type="checkbox"/> Blacklight Connection Inspection | <input checked="" type="checkbox"/> Guass Meter 50 S/N : 03401       |
| <input type="checkbox"/> External Tube Visual Inspection               | <input checked="" type="checkbox"/> MPI Critical Area If Necessary   | <input checked="" type="checkbox"/> Nex cal Due : 4-May-2024         |
|  |  | <input checked="" type="checkbox"/> Demagnitization > 3 Guass        |

**Procedure**  **ASTM E 1444 : 2016,ASME Section V,Art 7**  **AWS D 1.1/D1.1M:2020**

• **Tools Name :** 9-5/8"BTC 47ppf L80 ERA Torq ring OD.9.320" ID.8.681"      **Serial No :** 9-5/8" NA-001      • **Tools Length (FL) :** -      **ong Space :** -

BOX CONNECTION	OD	C'Bore Depth	C'Bore Diameter	Seal Width	Shoulder Width	Bevel Diameter	B'Back Diameter	B'Back Length	Other If Necessary	Inspection Result	Comment
9-5/8"BTC	-	-	-	-	-	-	-	-	-	<b>ACC</b>	Condition after test
PIN CONNECTION	OD	ID	Pin Length	Pin Neck Length	Pin Nose Length	Bevel Diameter	SRG. Length	SRG. Diameter	Other If Necessary	Inspection Result	Comment
9-5/8"BTC	-	-	-	-	-	-	-	-	-	<b>ACC</b>	Condition after test

**Referene Figures / Defective Record**



2 ERA TORO PRODUCT NOMINAL DIMENSIONS:  
 RING OD NOMINAL: 9.32 INCHES  
 RING ID NOMINAL: 8.681 INCHES  
 RING HEIGHT NOMINAL: 0.98 INCHES  
 RING WALL NOMINAL: 0.3195 INCHES  
 RING FACE CROSS SECTION NOMINAL: 9.0342 inch square

3 ERA TEST PIECE TORO RING ACTUAL MEASUREM  
 RING OD ACTUAL: 9.282 inches  
 RING ID ACTUAL: 8.731 inches  
 RING HEIGHT ACTUAL: 0.99 inches  
 RING WALL ACTUAL: 0.2755 inches  
 RING FACE CROSS SECTION ACTUAL: 7.7962 inch square

5 ACTUAL TEST RESULTS  
 TORQUE TO TRIANGLE BASE ACTUAL: 11000 FTLBS  
 ACTUAL FINAL DELTA TORQUE APPLIED: 49,000 FTLBS  
 TOTAL FINAL TORQUE APPLIED: 60000 FTLBS  
 THEORETICAL DELTA YIELD TORQUE INTO RING AS PER DATA SHEET: 60226 FTLBS  
 % DELTA TORQUE APPLIED VS THEORETICAL NOMINAL YIELD POINT: 81.36%

RESULTS OF NDT TESTING  
 NO CRACKS IDENTIFIED. NO YIELD.

**ABBREVIATIONS:** TD : Damaged , SP : Seal Pitting , SD : Seal Damage      BTM : Body tong mark , BPT : Body Pitting  
 ACC : Acceptable      REP : Repairable      SCR : Scrap      Other :

**SUMMARY :**

Total Inspected	1	Joint (2 Conn.)
Good Condition	-	Joint
Shop Repairable	-	Joint
• Pin Connection	-	Joint
• Box Connection	-	Joint
• Box & Pin Connection	-	Joint
Other	-	Joint
Scrapped ( Junk )	-	Joint




**Chalongchai T.**  
 Inspector ASNT Level II  
 Inspection Date : 11 October 2023



ERADS-DTA-9588TC47L80N80
REV2.0
DATE: 25/09/23

# ERA TorQ™

## 9 5/8 BTC 47ppf L80 / N80

### Pipe

Plain End Weight	Wall Thickness	Inside Diameter	Drift Diameter	Pipe grade	Body Yield Strength	Internal Yield Plain End	Collapse Pressure
Lbs/Ft	Inches	Inches	Inches		Lbs	PSI	PSI
47.00	0.472	8.681	8.525	L80 / N80	1,086,000	6,870	4,760

### Connection Dimensions with ring

Coupling Outside Diameter	Connection Yield Strength	REGULAR Coupling Length	REGULAR Make-up Loss	ERA TorQ ring height	ERA TorQ ring OD	ERA TorQ ring ID
Inches	Lbs	Inches	Inches	Inches	Inches	Inches
10.625	1,122,000 L80 / 1,161,000 N80	10.625	4.813	0.98%	9.320	8.681

### Torque

FT LBS APPLIED	Min Make up	MAX NO TORQUE TURN	MAX WITH TORQUE TURN
PIN / RING CONTACT	9,630	9,630	9,630
DELTA TORQUE	12045	24,090	30,113
Total	21,675	33,720	39,743

Note 1: For maximum field efficiency ensure that TT computer monitoring is used if maximum torque figure is required. Note 2: Delta torque yield point of torque ring is 60226 ftlbs. This means that the torque ring will collapse if you apply 60226 ftlbs of Delta torque into the torque ring itself, excluding your pin / ring contact torque with triangle down.

For further information on field application parameters please contact:  
 ERA Oilfield Service (Thailand) Co Ltd., 66/69 Moo 4, Soi 17, Phayun, Ban Chang, Rayong, Thailand 21130.  
 Tel: +66 8 4345 8730 Email: jim.reid@eraoilfieldservices.com