ERA TorQ™

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

7.00" 23ppf 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

3rd party witness:	Prompt NDT & Inspection Company Limited
Registered Address:	31/1 หมู่ 2 Ching Kho, Singhanakhon District, Songkhla 90280, Thailand

Test Provider:	EEST Energy Services (Thailand) Ltd
Registered Address:	Rasa Tower, Tower 2, 25th Floor Unit No. 2501 - 2502 555 Phaholyothin Road Chatuchak, Bangkok, Thailand 10900
Co. Reg. No:	0105551031101

DATE OF TEST	11/10/2023
TEST LOCATION	EEST BASE, SATTAHIP BASE, THAILAND
3RD PARTY WITNESS	KHUN THANAPOL & KHUN CHALONGCHAI
ERA WITNESS	JAMES REID - DIRECTOR
TEST UNIT OPERATOR	KHUN POPPY (EEST THAILAND CO LTD)
ERA PO REFERENCE	ERAOS-PO-20231601

Item	Qty	DESCRIPTION OF EQUIPMENT / ACTION / CERTS	REMARKS / TEST RESULTS
1		**TEST SUBJECT NUMBER 1 DETAILS**	**MODEL REFERENCE: ERAOS-DTA-700BTC23L80N80**
		TORQUE RING DETAILS:	
		FOR CASING OD SIE: 7.00 INCHES	7.00 INCHES
		FOR CASING WEIGHT: 23 PPF	23 PPF
		FOR CASING STEEL GRADE: L80	L80
		WEIGHT OF PUP JOINTS USED IN TESTING:	29PPF
2		**ERA TORQ PRODUCT NOMINAL DIMENSIONS:**	
		RING OD NOMINAL:	6.730 INCHES
		RING ID NOMINAL:	6.366 INCHES
		RING HEIGHT NOMINAL:	0.99 INCHES
		RING WALL NOMINAL:	0.182 INCHES
		RING FACE CROSS SECTION NOMINAL:	3.74205 SQ INCHES
3		**ERA TEST PIECE TORQ RING ACTUAL MEASUREME**	
		RING OD ACTUAL	6.678 INCHES
		RING ID ACTUAL	6.348 INCHES
		RING HEIGHT ACTUAL	0.995 INCHES
		RING WALL ACTUAL	0.16 INCHES
		RING FACE CROSS SECTION ACTUAL	3.3743853 SQ INCHES
4		**RING TORQUE MAKE UP TARGETS AS PER PRODUCT DATA SHEETS**	
		DATA SHEET TORQUE TO TRIANGLE BASE	7000 FTLBS
		DATA SHEET TORQUE MAXIMUM INFIELD WITH NO COMPUTER MONITORING	9984 FTLBS
		DATA SHEET TORQUE MAXIMUM WITH COMPUTER MONITORING	12480 FTLBS
		DATA SHEET MAXIMUM DELTA TO YIELD TORQUE	24960 FTLBS
5		**ACTUAL TEST RESULTS**	
		TORQUE TO TRIANGLE BASE ACTUAL	8,000 FTLBS
		ACTUAL FINAL DELTA TORQUE APPLIED	27,000 FTLBS
		TOTAL FINAL TORQUE APPLIED	35,000 FTLBS
		THEORETICAL DELTA YIELD TORQUE INTO RING AS PER DATA SHEET	24,960 FTLBS
		% DELTA TORQUE APPLIED VS THEORETICAL NOMINAL YIELD POINT	108%
		RESULTS OF NDT TESTING	NO CRACKS IDENTIFED. NO YIELD.
6		**YIELD POINT CALCULATIONS AND TEST RESULTS**	
		NOMINAL CROSS SECTION	3.74205 SQ INCHES
		ACTUAL CROSS SECTION OF TEST RING	3.3743853 SQ INCHES
		YIELD STRENGTH	80,000 PSI
		NOMINAL YIELD POINT CALCULATION	24960 FTLBS
		ACTUAL TEST RING FACE THEORETICAL CALCULATION	22496 FTLBS
		% DELTA TORQUE APPLIED VS THEORETICAL YIELD POINT POINT BASED UPON TEST RING DIMENSIONS	120%
7		**TEST EQUIPMENT IN USE:**	
		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		**TEST CASING PUPS IN USE:**	
		CASING PUP OD NOMINAL	7.00 INCHES
		CASING PUP ID NOMINAL	6.184 INCHES
		CASING PUP WEIGHT NOMINAL	29 PPF
		CASING PUP STEEL GRADE	L80
		CASING PUPS CERTIFIED API OR CERT NUMBER	BGSAG1708300003700
		CASING PUPS CERTS AVAILABLE	OMS WO-23-330
		CASING PUPS COPY OF CERTS AVAILABLE	OMS WO-23-330
		CASING PUPS SUPPLIER	OMS SATTAHIP UNDER WORK ORDER WO-23-330

TORQUE TEST DATA FORM

ERA Oilfield Service (Thailand) Co Ltd

9	RESULTS OF TEST MEASURED AGAINST DATA SHEET SPECIFICATIONS		
		YES	NO
	HAS THE TEST RING MET THE REQUIRED DATA SHEET DELTA TORQE MINIMUM ?	YES	
	HAS THE THE TEST MET THE STATED DELTA TORQUE MAXIMUM FOR NO COMPUTER MONITORING ?	YES	
	HAS THE TEST MET THE STATED DELTA TORQUE MAXIMUM FOR FIELD USE WITH COMPUTER MONITORING	YES	
	HAS THE TEST MET THE ABSOLUTE MAXIMUM TO STATED YIELD POINT TORQUE ?	YES. MAXIMUM EXCEEDED.	
	IF YES, WHAT WAS FINAL APPLIED TORQUE ?	35,000 FTLBS TOTAL WITH 27,000 FTLBS OF DELTA TORQUE INTO THE TEST RING	
	DID THE TEST RING YIELD ?		NO
	IF NO, WHAT WAS THE ACTUAL YIELD POINT OF THE RING ?	NOT DETERMINED	
	WAS THE RING REMOVED FROM COUPLING AFTER THE TEST ?	YES	
	WAS THERE THREAD DAMAGE OBSERVED TO THE COUPLING AFTER REMOVAL ?		NO
	WAS THERE THREAD DAMAGE OBSERVED TO THE PIN END AFTER REMOVAL ?		NO
	WAS THE RING NDT TESTED BY 3RD PARTY ?	YES	
	WHAT TYPE OF NDT TEST WAS PERFORMED ?	SEE ATTACHED REPORT	
	ANY SIGNS OF CRACK OR YIELD ?		NO
	WHAT IS THE NDT TEST CERT NUMBER ?	MO2023-006 (1)	
	HAS THE TESTED RING PASSED THE NDT TEST ?	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

ERA OILFIELD SERVICE (THAILAND) CO., LTD.

PROMPT NDT & Inspection

SUB & DRILLING SPECIALTY TOOLS REPORT

Customer	EEST Energy Services	*Date of Service*	11 October 2023
Work Location	EEST Sattahip Yard	*Order By*	Khun Jintana P.
Customer P.O. No.	MR-Cert-23-359 (J-MISC-PROJ-CUST-ERAO)	*Mission order No.*	MO2023-006
Description of Material	7"BTC 23ppf L80 ERA Torq ring OD.6.730" ID.6.366"	*Report No.*	1 of 2

Type of Services

- ☑ *Thread Box & Pin Visual Inspection*
- ☐ *Internal Tube Visual Inspection*
- ☐ *External Tube Visual Inspection*
- ☑ *Dimensional 3 Inspection*
- ☑ *Blacklight Connection Inspection*
- ☑ *MPI Critical Area If Necessary*
- ☑ DC Coil 13 " S/N : RC3-092120151
- ☑ *Guass Meter 50 S/N : 03401*
  Nex cal Due : 4-May-2024
- ☑ *Demagntization > 3 Guass*

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

- **Tools Name :** 7"BTC 23ppf L80 ERA Torq ring OD.6.730" ID.6.366"
- **Serial No :** 7" NA-001
- **Tools Length (FL) :** -
- **Tong Space :** -

BOX CONNECTION	OD	C'Bore Depth	C'Bore Diameter	Seal Width	Shouder Width	Bevel Diameter	B'Back Diameter	B'Back Length	Other If Necessary	*Inspection Result*	**Comment**
7"BTC	-	-	-	-	-	-	-	-	-	**ACC**	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**
7"BTC	-	-	-	-	-	-	-	-	-	**ACC**	Condition after test

Referene Figures / Defective Record

2 **ERA TORQ PRODUCT NOMINAL DIMENSIONS:**

RING OD NOMINAL:	6.730 INCHES
RING ID NOMINAL:	6.366 INCHES
RING HEIGHT NOMINAL:	0.99 INCHES
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5 **ACTUAL TEST RESULTS**

TORQUE TO TRIANGLE BASE ACTUAL	8,000 FTLBS
ACTUAL FINAL DELTA TORQUE APPLIED	27,000 FTLBS
TOTAL FINAL TORQUE APPLIED	35,000 FTLBS
THEORETICAL DELTA YIELD TORQUE INTO RING AS PER DATA SHEET	24,960 FTLBS
% DELTA TORQUE APPLIED VS THEORETICAL NOMINAL YIELD POINT	108%
RESULTS OF NDT TESTING	NO CRACKS IDENTIFED. NO YIELD.

ABBREVIATIONS: *TD : Damaged , SP : Seal Pitting , SD : Seal Damge* *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	

PROMPT NDT & Inspection

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

ERA0S-DTA-700BTC23L80N80
REV2.0
DATE: 26/09/23

ERA TorQ™

7.00 BTC 23ppf L80 / N80

Pipe

Plain End Weight	Wall Thickness	Inside Diameter	Drift Diameter	Pipe grade	Body Yield Strength	Internal Yield	Collapse Pressure
Lbs/Ft	Inches	Inches	Inches		Lbs	PSI	PSI
23.00	0.317	6.366	6.241	L80 / N80	532,000	6,340	3,830

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
7.656	565000 L80 / 588000 N80	10.000	4.500	0.921	6.730	6.366

Torque

FT LBS APPLIED	Min Make up	MAX NO TORQUE TURN	MAX WITH TORQUE TURN
PIN / RING CONTACT	7,000	7,000	7,000
DELTA TORQUE	4992	9,984	12,480
Total	11,992	16,984	19,480

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 24,960 ftlbs. This means that the torque ring will collapse if you apply 24,960 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.
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