

NSMAX™-GRC

Recommended Running Manual

Revision	Date	Reason
0	2026/02/17	Creation

1. Remark

This Manual describes the procedure to be followed for running NSMAX™-GRC.

Prepare [the latest version of “NSMAX_TM-GRC-FIP”](#) for visual inspection of unused PIN & BOX.

2. Preparation

2.1 Use of following Equipment

- (1) Power-tong with torque & turn recording system
- (2) Power-tong with back-up tong is preferable.

2.2 The following tools shall be prepared

- (1) Thread compound (Jet Lube Run N Seal ECF)
- (2) Moustache type brush (to apply compound), Wire brush is prohibited
- (3) Stabbing guide

3. Running

3.1 Running procedure

- (1) Remove the Coupling (hereinafter, “CPLG”) protector
- (2) Inspect BOX according to [the latest version of “NSMAX_TM-GRC-FIP”](#).
- (3) Raise pipe to vertical position
- (4) Remove the PIN protector
- (5) Inspect PIN according to [the latest version of “NSMAX_TM-GRC-FIP”](#).
- (6) Minimize the offset(misalignment) between PIN & BOX
- (7) Install the stabbing guide on the BOX end
- (8) Stab the PIN slowly into the BOX
- (9) Start make-up according to para. “3.6 Recommendation for stabbing and make up rotation speed”

Note1: Protector (for both of PIN& BOX) design of NSMAX™-GRC is same as NSMAX™-GR.

Therefore, the protector of NSMAX™-GR may be connected to NSMAX™-GRC.

Note2: Running compound may already be applied on the connection at mill. If not, the storage compound is cleaned off and dried, and the running compound is applied on both PIN & BOX.

Note3: In case that the storage compound is applied, “Shell OCTG Storage Compound” as storage compound shall be used for BOX.

※Storage compound for PIN is not specified.

Note4: To avoid damage to the threads or coating, the inner surface of the CPLG should not be hooked or grabbed. If it is necessary to do so, make sure to cover the area with a dry, soft cloth or a similar material.

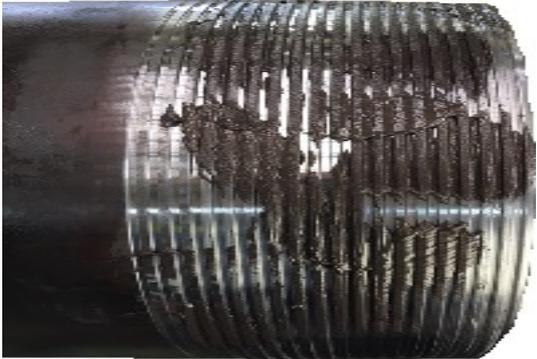
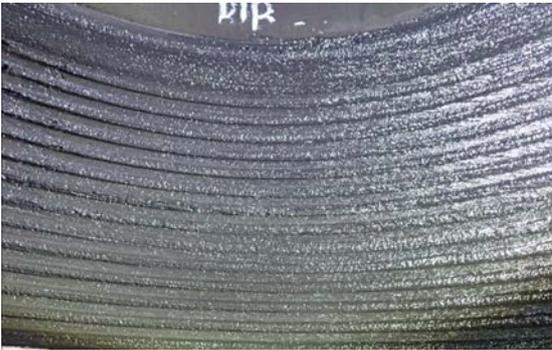
3.2 Thread compound (NSC approved running compound)

Jet Lube Run N Seal ECF

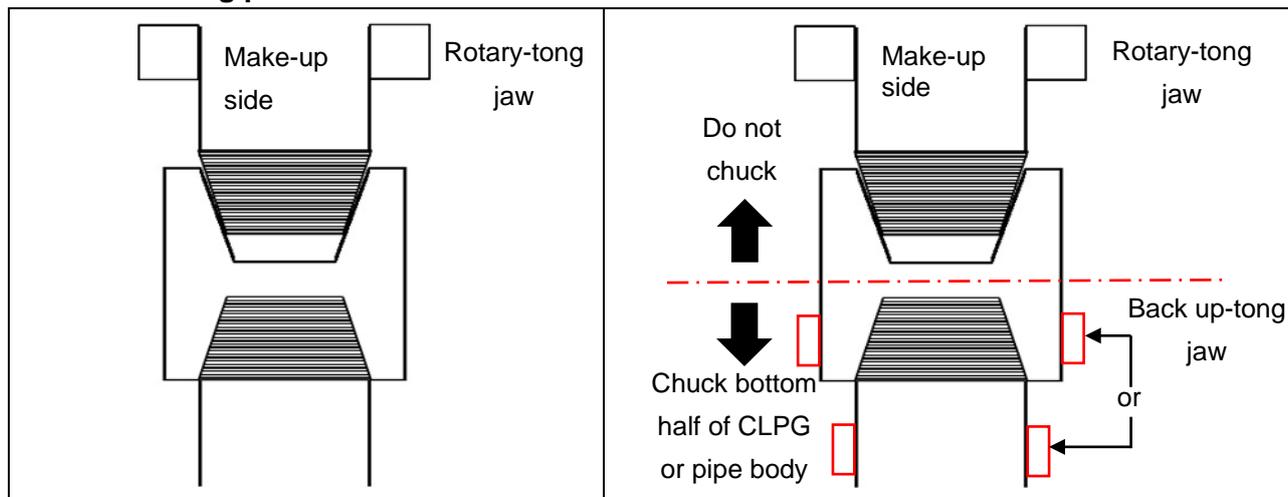
Refer to the appendix for the volume/quantity of thread compound.

Other thread compounds (especially red or yellow thread compounds) may be used. Please contact NSC.

Ratio of total thread compound volume = 40% to 50% on PIN, 50% to 60% on CPLG
Thread compound must be applied uniformly to thread as bellow fig.

	
<p>Too little</p>	<p>Too much</p>
	
<p>Just right PIN</p>	<p>Just right CPLG</p>

3.3 Jaw chucking position



3.4 Max allowable grip mark

Max allowable Grip mark depth	Pipe body	CPLG
	0.6mm	0.6mm

3.5 Make-up torque

Refer to para."3.7 Make-up torque"

3.6 Recommendation for stabbing and make up rotation speed

Overview

To ensure the NSMAX™ self-aligning feature works effectively, proper stabbing and initial spin-in are essential.

This is especially important when working in offshore operations with unstable rig floor movement. Before inserting the PIN into the BOX, ensure proper axial alignment to minimize the risk of cross threading.

The recommended misalignment tolerance is less than 1 degree or 8 inches (20 cm) over a 40-foot length.

※Refer to the illustration on page 5 for visual guidance.

Use a stabbing guide and begin with a gentle counter-rotation at around 1 RPM to allow smooth thread engagement.

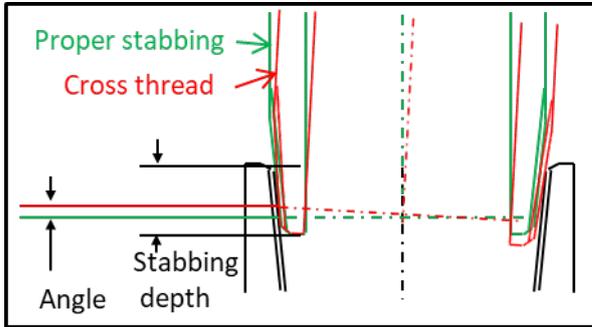
Avoid excessive speed during spin-in and make-up to maintain connection integrity and proper torque control.

Step-by-Step Procedure

Step	Operation Phase	Gear Selection	Recommended RPM	Key Instructions / Notes
1	Stabbing & Initial Spin-In	High Gear	≤ 4 RPM (start at ≤ 1 RPM)	Use a stabbing guide. Begin with gentle counter-rotation to engage threads. Once threads drop in smoothly, switch to clockwise rotation to continue the make-up.
1a	If cross threading occurs	High Gear	≤ 1 RPM	Back off the connection and repeat the spin-in. If cross threading is still observed at 1 RPM, counter-rotate the pipe until threads drop in smoothly.
2	Running-In	High Gear	≤ 8 RPM (Max 15 RPM)	Maintain steady rotation. Monitor torque increase. Do not exceed 15 RPM.
3	Final Turn of Make-Up	Low Gear	≤ 4 RPM	Apply the recommended dump torque as the optimum torque. Ensure final torque is within specified limits. To avoid exceeding the maximum torque, reduce the rotation speed. If the final torque exceeds the maximum limit, break out fully and inspect the threads. (Refer to para. "4. Make-up chart")

«reference»

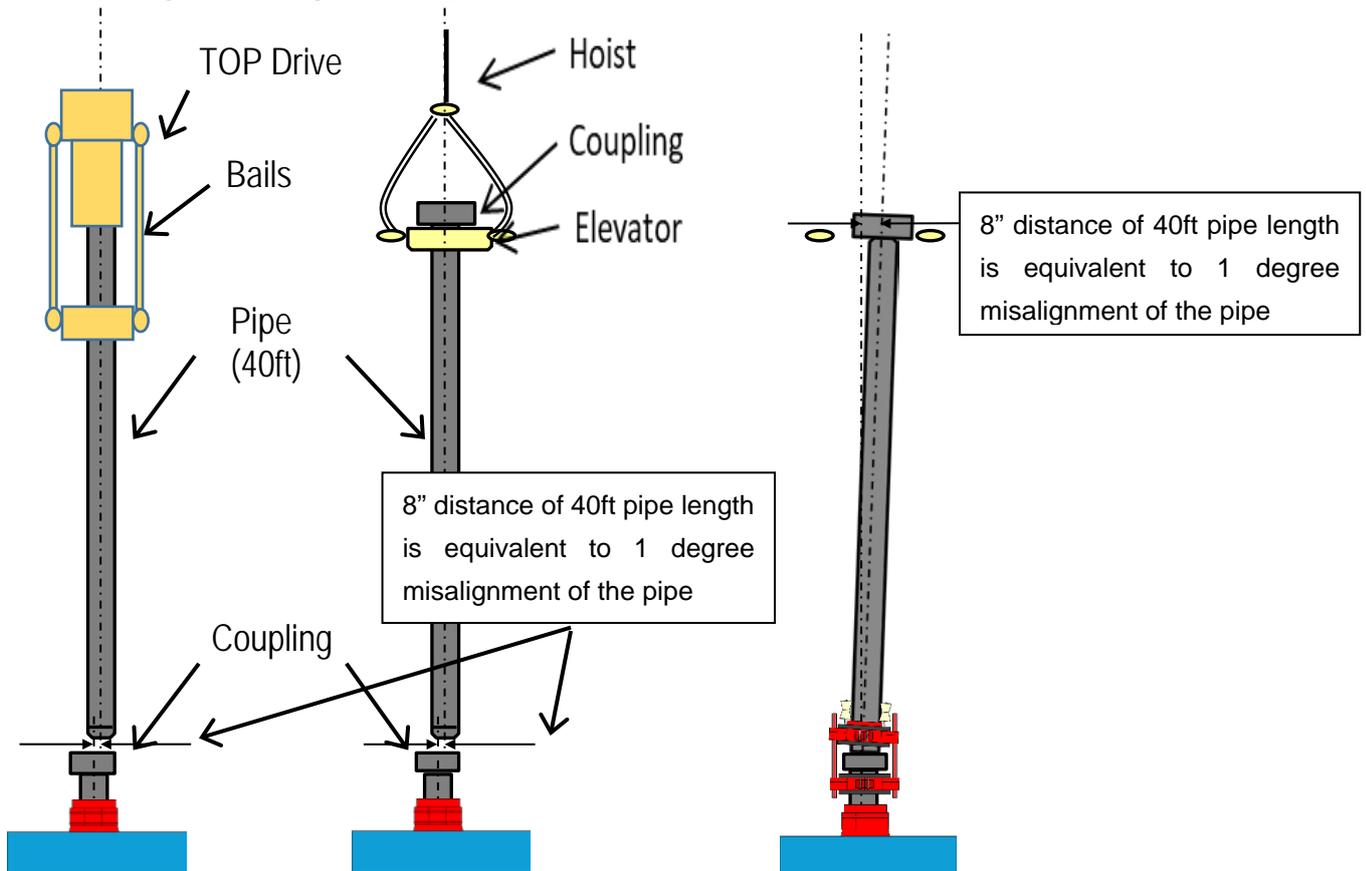
(1) Cross thread angle



	T.P.I.	O.D. (inch)	
		20	18 5/8
Cross thread angle (degree)	3 threads /inch	0.96	1.03
	5 threads /inch	0.57	0.62

Cross thread angle is around 1 degree for 18-5/8" and 20" NSMAX™-GRC

(2) The misalignment angle of the pipe of cross thread



The misalignment angle of the pipe at the stage of stabbing

The misalignment angle of the pipe at the stage of half turn rotation after stabbing (Cross thread)

3.7 Make-up torque

Make-up torque table of 55 ksi grade

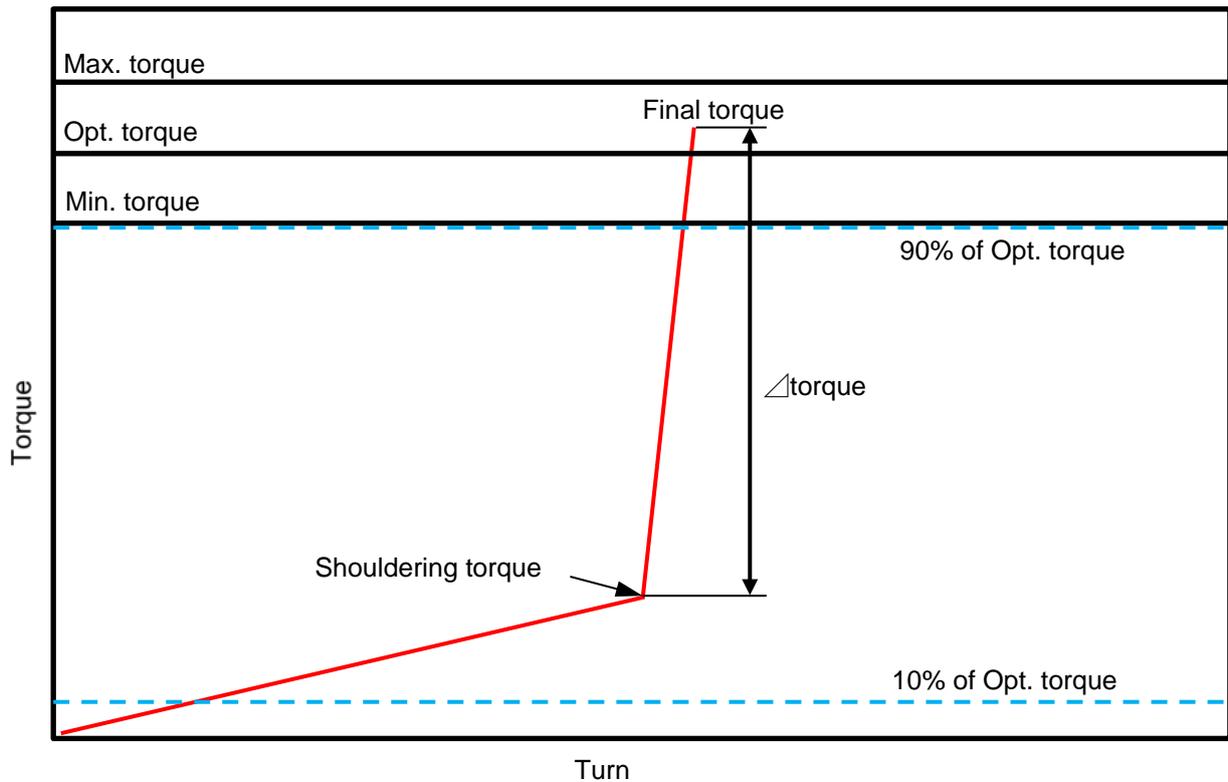
Size			Make-up Torque (ft.lb.)			Make-up Torque (N.m.)		
OD (inch)	Weight (lb/ft)	Wall Thickness	Min.	Opt.	Max.	Min.	Opt.	Max.
18	94	0.500 inch	15,570	17,300	19,030	21,120	23,460	25,810
		12.70 mm						
	105	0.562 inch	17,190	19,100	21,010	23,310	25,900	28,490
		14.27 mm						
	117	0.625 inch	23,850	26,500	29,150	32,340	35,930	39,530
		15.88 mm						
	119	0.640 inch	24,390	27,100	29,810	33,070	36,750	40,420
		16.26 mm						
	128	0.688 inch	25,920	28,800	31,680	35,150	39,050	42,960
		17.48 mm						
18-5/8	87.5	0.435 inch	14,850	16,500	18,150	20,140	22,380	24,610
		11.05 mm						
	94.5	0.468 inch	14,940	16,600	18,260	20,260	22,510	24,760
		11.89 mm						
	96.5	0.486 inch	15,570	17,300	19,030	21,120	23,460	25,810
		12.34 mm						
	101	0.510 inch	16,290	18,100	19,910	22,090	24,550	27,000
		12.95 mm						
	106	0.531 inch	16,920	18,800	20,680	22,950	25,490	28,040
		13.49 mm						
	109.4	0.563 inch	17,730	19,700	21,670	24,040	26,710	29,390
		14.30 mm						
	112	0.579 inch	22,950	25,500	28,050	31,120	34,580	38,040
		14.71 mm						
115	0.594 inch	23,580	26,200	28,820	31,980	35,530	39,080	
	15.09 mm							
122	0.636 inch	25,290	28,100	30,910	34,290	38,100	41,910	
	16.15 mm							
136	0.693 inch	27,360	30,400	33,440	37,100	41,220	45,340	
	17.60 mm							
20	94	0.438 inch	15,750	17,500	19,250	21,360	23,730	26,100
		11.13 mm						
	106.5	0.500 inch	16,650	18,500	20,350	22,580	25,090	27,600
		12.70 mm						
	117	0.563 inch	18,540	20,600	22,660	25,140	27,930	30,730
		14.30 mm						
	133	0.635 inch	26,370	29,300	32,230	35,760	39,730	43,700
		16.13 mm						
	144	0.693 inch	28,440	31,600	34,760	38,560	42,850	47,130
		17.60 mm						

Make-up torque table of 95 ksi grade

Size			Make-up Torque (ft.lb.)			Make-up Torque (N.m.)		
OD (inch)	Weight (lb/ft)	Wall Thickness	Min.	Opt.	Max.	Min.	Opt.	Max.
18	94	0.500 inch	25,470	28,300	31,130	34,540	38,370	42,210
		12.70 mm						
	105	0.562 inch	28,170	31,300	34,430	38,200	42,440	46,690
		14.27 mm						
	117	0.625 inch	36,090	40,100	44,110	48,940	54,370	59,810
15.88 mm								
119	0.640 inch	36,900	41,000	45,100	50,030	55,590	61,150	
	16.26 mm							
128	0.688 inch	39,240	43,600	47,960	53,210	59,120	65,030	
	17.48 mm							
18-5/8	87.5	0.435 inch	24,930	27,700	30,470	33,810	37,560	41,320
		11.05 mm						
	94.5	0.468 inch	25,110	27,900	30,690	34,050	37,830	41,620
		11.89 mm						
	96.5	0.486 inch	25,290	28,100	30,910	34,290	38,100	41,910
		12.34 mm						
	101	0.510 inch	26,460	29,400	32,340	35,880	39,870	43,850
		12.95 mm						
	106	0.531 inch	27,450	30,500	33,550	37,220	41,360	45,490
		13.49 mm						
	109.4	0.563 inch	28,890	32,100	35,310	39,170	43,530	47,880
		14.30 mm						
	112	0.579 inch	39,150	43,500	47,850	53,090	58,980	64,880
14.71 mm								
115	0.594 inch	40,140	44,600	49,060	54,430	60,470	66,520	
	15.09 mm							
122	0.636 inch	40,140	44,600	49,060	54,430	60,470	66,520	
	16.15 mm							
136	0.693 inch	40,680	45,200	49,720	55,160	61,290	67,420	
	17.60 mm							
20	94	0.438 inch	27,630	30,700	33,770	37,470	41,630	45,790
		11.13 mm						
	106.5	0.500 inch	27,900	31,000	34,100	37,830	42,040	46,240
		12.70 mm						
	117	0.563 inch	30,960	34,400	37,840	41,980	46,650	51,310
		14.30 mm						
	133	0.635 inch	40,500	45,000	49,500	54,920	61,020	67,120
		16.13 mm						
	144	0.693 inch	40,770	45,300	49,830	55,280	61,420	67,570
		17.60 mm						

4. Make-up chart

4.1 Make-up chart acceptance criteria



When make-up chart meets the following standards, make-up is accepted.

- (1) Final torque must be between Min. torque and Max. torque.
- (2) Shouldering torque must be between 10% of Opt. torque and 90% of Opt. torque.
- (3) $\Delta\text{torque} \geq 5\%$ of Opt. torque

If make-up chart was unacceptable (refer to para. "4.2 Unacceptable make-up chart"), Break-out fully and inspect the thread and the coating. Applied the following procedure depending on damage.

BOX

If the coating loss exceeds 25% of the threaded area, reject the CPLG.

BOX/ PIN

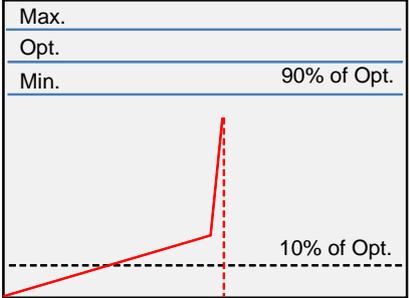
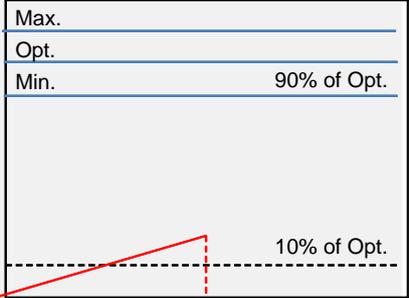
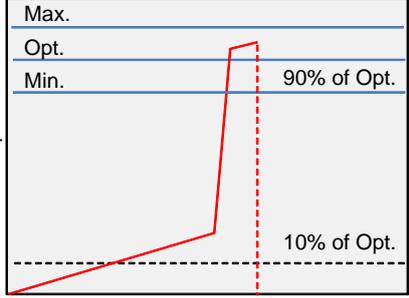
For this thread-seal type connection, field repair on full threads should generally be avoided.

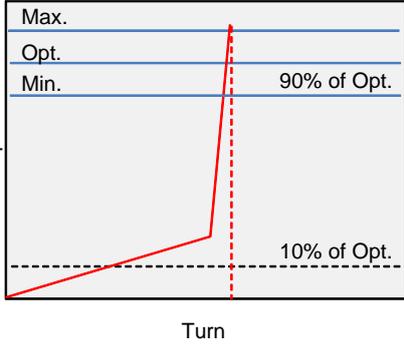
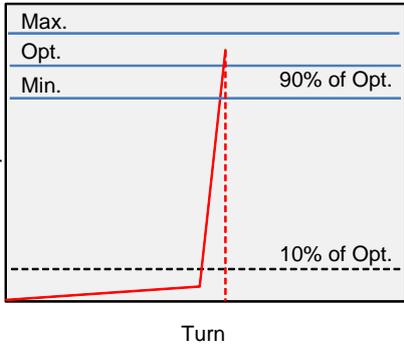
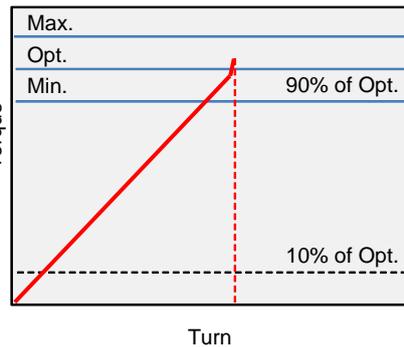
To prevent operational interruptions on the rig floor, repair on PIN front three threads (25.4mm), which are outside the thread-seal area, is acceptable.

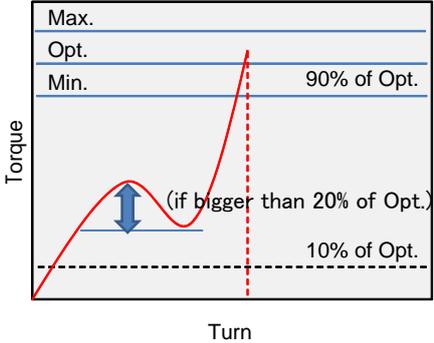
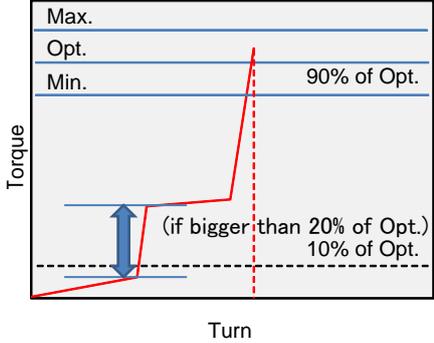
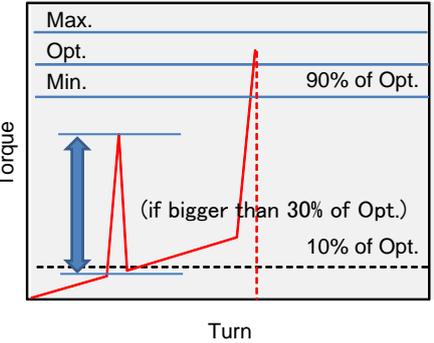
Repairs on other thread areas are not recommended; however, very minor dressing may be permitted at the inspector's discretion, limited to light damage (e.g., minor or partial galling, scratches, indentations, knocks), completed within about five minutes per joint, and without altering the original profile.



4.2 Unacceptable make-up chart

Unacceptable make-up graph	Possible Causes	Consequences	Remedial Actions
<p>Low Final Torque with shoulder contact</p> 	<ol style="list-style-type: none"> 1. Wrong dump valve setting 2. Unable to select low gear 3. Operator stopped make-up 	<ol style="list-style-type: none"> 1. Risk of back out 2. Risk of leak 	<ol style="list-style-type: none"> 1. Breakout fully 2. Clean and inspect threads 3. If OK, remake
<p>Low final torque with no shoulder contact</p> 	<ol style="list-style-type: none"> 1. Wrong dump valve setting 2. Unable to select low gear 3. Operator stopped make-up 	<ol style="list-style-type: none"> 1. Risk of back out 2. Risk of leak 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean and inspect threads 3. If OK, remake
<p>Yielding / Plastic deformation</p> 	<ol style="list-style-type: none"> 1. Bad load cell calibration 2. Wrong torque values entered 3. Mixing interchangeable connection with big difference in weight or grade 4. Wrong connection types 	<ol style="list-style-type: none"> 1. Risk of jump in 2. Risk of coupling parting 3. Risk of leak 4. No drift –damage to pin and box shoulder area 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean threads 3. Visual inspect counter bore for deformation 4. If OK, remake

<p>High final torque</p> 	<ol style="list-style-type: none"> 1. Bad load cell calibration 2. Wrong dump valve setting 	<ol style="list-style-type: none"> 1. Risk of coupling parting 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean threads 3. Visual inspect counter bore for deformation 4. If OK, remake to correct torque
<p>Low shoulder torque or no shoulder torque</p> 	<ol style="list-style-type: none"> 1. Friction factor <1.0 2. Wrong type of thread compound 3. Compound not stirred 4. Compound too hot 5. Compound contaminated 6. Wrong torque values 7. Wrong connection types 	<ol style="list-style-type: none"> 1. Risk of back out 2. Risk of leak 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean and inspect threads 3. If OK, remake
<p>High shoulder torque or no shoulderling</p> 	<ol style="list-style-type: none"> 1. Wrong type of thread compound 2. Not enough thread compound 3. Compound too cold 4. Compound not stirred 5. Friction factor >1.0 6. Grit/dirt in thread compound 7. Bad load cell calibration 8. Wrong torque values 9. Wrong tong arm setting 10. Misalignment between pin and box 11. Threads not clean 12. Threads galled 13. Threads damaged 14. Wrong connections 	<ol style="list-style-type: none"> 1. Risk of leak 2. Risk of threads galling 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean and inspect threads 3. If OK, remake

<p>Humping (if bigger than 20% of Opt.)</p> 	<ol style="list-style-type: none"> 1. Too much thread compound 2. Slight misalignment 3. Bad stabbing 	<ol style="list-style-type: none"> 1. Risk of threads galling 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean and inspect threads 3. If OK, remake
<p>Step in graph (if bigger than 20% of Opt.)</p> 	<ol style="list-style-type: none"> 1. Turns counter sticking 	<ol style="list-style-type: none"> 1. No immediate consequence but what happened during make up when turns were not recorded? 	<ol style="list-style-type: none"> 1. Partial break out 2. Acceptable but correct problem
<p>Spike in graph (if bigger than 30% of Opt.)</p> 	<ol style="list-style-type: none"> 1. Late gear change 2. Radio interference (mobile phone or lightning) 3. Electrical interference caused 	<ol style="list-style-type: none"> 1. No consequence for connection 	<ol style="list-style-type: none"> 1. Break out fully 2. Clean and inspect threads 3. If OK, remake

5. Thread locking compound

Thread locking compound shall not be used for NSMAX™-GRC.

This is because it has not yet been verified whether the thread lock can exhibit sufficient adhesive strength on the coating.

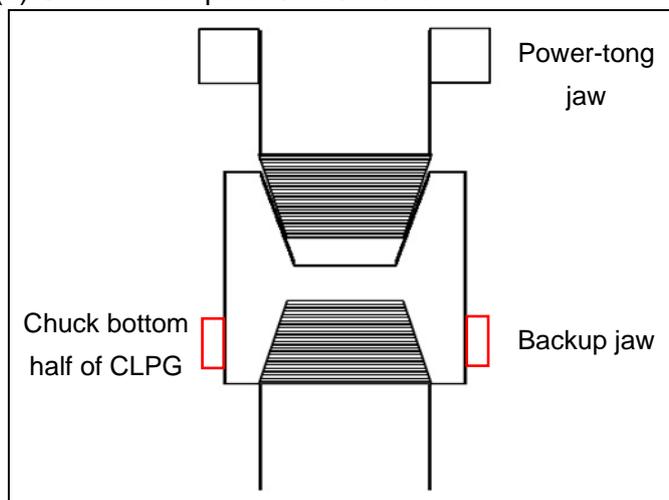
For parts that do not require gas-tight performance, connect the NSMAX™-GR CPLG only if the use of thread locking compound is necessary.

※Refer to the latest version of “NSMAX_TM-GR-RRM01” for details.

6. Break-out

(1) Minimize the offset(misalignment) between a rotary table hole & a casing elevator

(2) Chuck the Pipe & CPLG as below



(3) Start break-out 4turns in Low Gear

(4) Rotate PIN at 1RPM in High Gear until threads drop in

(5) Install the stabbing guide on the BOX end

(6) Pull the PIN slowly out BOX

7. Compatibility

NSMAX™-GRC is compatible with NSMAX™-GR as long as both have the same OD and WT.

		PIN (Field end)		
		GR	GRC	GR-PS
BOX (Field end)	GR	OK	OK(*1)	NG (*2)
	GRC	OK	OK	NG (*2)
	GR-PS	NG (*2)	NG (*2)	OK

Note *1: If NSMAX™-GRC PIN is connected to NSMAX™-GR BOX, the sealability of the combination is same with NSMAX™-GR.

Note *2: NSMAX™-GR-PS cannot be connected directly to others (GR or GRC).

Use a **X-over coupling** when connecting the two.

A rejected NSMAX™-GRC BOX due to coating loss can still be used as an NSMAX™-GR BOX.

8. Other documents for NSMAX™

If you need to check the other documents for NSMAX™, they are available for download at:

<https://www.tubular.nipponsteel.com/octg-connections/connection-list/nsmax-gr>

or by scanning the QR code on the right. →



///End of documents///

• Thread compound quantity

Volume of thread compound

Size			Thread compound (ml)		
OD(″)	Nominal Weight (lb/ft)	Wall Thickness		minimum	Maximum
18	94	0.500	inch	120	180
		12.70	mm		
	105	0.562	inch	120	180
		14.27	mm		
	117	0.625	inch	150	230
		15.88	mm		
	119	0.640	inch	150	230
		16.26	mm		
	128	0.688	inch	150	230
		17.48	mm		
18-5/8	87.5	0.435	inch	130	200
		11.05	mm		
	94.5	0.468	inch	130	200
		11.89	mm		
	96.5	0.486	inch	130	200
		12.34	mm		
	101	0.510	inch	130	200
		12.95	mm		
	106	0.531	inch	130	200
		13.49	mm		
	109.4	0.563	inch	130	200
		14.30	mm		
	112	0.579	inch	150	230
		14.71	mm		
	115	0.594	inch	150	230
		15.09	mm		
	122	0.636	inch	150	230
		16.15	mm		
	136	0.693	inch	150	230
		17.60	mm		
20	94	0.438	inch	150	220
		11.13	mm		
	106.5	0.500	inch	150	220
		12.70	mm		
	117	0.563	inch	150	220
		14.30	mm		
	133	0.635	inch	170	250
		16.13	mm		
	144	0.693	inch	170	250
		17.60	mm		

The weight of thread compound to apply on a connection depends on the specific gravity of the used thread compound.

Weight of Jet Lube Run N Seal ECF (density=1.32g/cm³)

Size				Thread compound (g)	
OD(″)	Nominal Weight (lb/ft)	Wall Thickness		minimum	Maximum
18	94	0.500	inch	158	238
		12.70	mm		
	105	0.562	inch	158	238
		14.27	mm		
	117	0.625	inch	198	304
		15.88	mm		
	119	0.640	inch	198	304
		16.26	mm		
	128	0.688	inch	198	304
		17.48	mm		
18-5/8	87.5	0.435	inch	172	264
		11.05	mm		
	94.5	0.468	inch	172	264
		11.89	mm		
	96.5	0.486	inch	172	264
		12.34	mm		
	101	0.510	inch	172	264
		12.95	mm		
	106	0.531	inch	172	264
		13.49	mm		
	109.4	0.563	inch	172	264
		14.30	mm		
	112	0.579	inch	198	304
		14.71	mm		
	115	0.594	inch	198	304
		15.09	mm		
	122	0.636	inch	198	304
		16.15	mm		
	136	0.693	inch	198	304
		17.60	mm		
20	94	0.438	inch	198	290
		11.13	mm		
	106.5	0.500	inch	198	290
		12.70	mm		
	117	0.563	inch	198	290
		14.30	mm		
	133	0.635	inch	224	330
		16.13	mm		
	144	0.693	inch	224	330
		17.60	mm		