

## Recommended Field Running Procedure for GEOCONN & GEOCONN-AB Connections

### 1. IDENTIFICATION

GEOCONN series is a threaded & coupled connection and has features as below (compared with BTC)

- The thread form of GEOCONN series is identical to **and fully compatible with API Buttress**.
- The GEOCONN series **pin nose has a beveled ID for at least 75% of the pipe circumference**.
  - **GEOCONN-AB will have the pin nose abrasive blasted with the threads mill finished.**
- GEOCONN couplings are 1 to 2 inches shorter than Buttress couplings.
- Couplings are clearly marked with GEOCONN stenciled from the manufacturer. If no stencil is clearly visible, measurements should be taken to ensure accuracy of connection no to be mistaken for API Buttress.
- GEOCONN is designed to allow for pin-to-pin abutment and will shoulder internally once made up correctly. If no shoulder is observed the connection should be backed-out and inspected for any anomalies in the connection.
- GEOCONN-RS has a non-metallic (Teflon) seal ring pre-installed in the grooves on both sides of the coupling (See para. 2 for special care of GEOCONN-RS).

### 2. RUNNING

#### 2.1 RUNNING PREPARATION

- Always use a stabbing guide.
- Use thread compound recommended in Appendix-A, uncontaminated and thoroughly stirred unless customer specifies special thread compound.
- Ensure the tong hangs horizontally level.
- If integral back-ups are not used, ensure snub line is set at 90° for proper torque to be applied at final make-up.
- Check for correct alignment of travelling block and rotary (see 2.3 Stabbing).

#### 2.2 THREAD INSPECTION

Ensure that the connections are thoroughly clean and dry. Visually check that the connections are free from burrs or tears and have a relatively even thread surface. A “mash” on the pin or box is unacceptable.

##### For GEOCONN-RS

It is strongly recommended to check that the seal ring is properly installed, and that no hump or deformation is visible on the entire circumference of the seal ring.

#### 2.3 THREAD COMPOUND (DOPE)

Prior to stabbing a moderate coating of thread compound should be applied to the pin and box connections. The dope should be applied uniformly to all of the threads using a soft brush.

##### For GEOCONN-RS

As in the case of any connection with a seal ring, special precaution shall be paid to avoid over-doping because excess dope may push the ring down during make-up. Dope shall be applied with a brush lightly and uniformly on both the box threads and on the pin threads.

(Note that dope applied on the box is pushed down the inside of the connection and detrimental to “seal ring popped-in”, but pin dope is always extruded towards the outside of the coupling)

## 2.4 STABBING

With the joint hanging freely in the derrick – check the vertical alignment to ensure the pin is directly over the box. True vertical alignment either with a stabber, stabbing arm or with the blocks must be maintained during MU operations. Apply the stabbing guide to the box connection in the rotary. Lower the pipe slowly into the box connection to avoid damaging the threads. After stabbing-in remove the stabbing guide and ensure the pipe remains vertically aligned.

## 2.5 POWER MAKE-UP

Engage the power tong at least 10 cm above the thread run-out area on the pin to ensure that the dies do not contact the coupling face as the make-up loss is absorbed.

If a back-up tong is used it should never be placed directly on the coupling, but always under the coupling. Ensure the tong back-up line is at 90 degrees to the tong and pipe axis (both vertical and horizontal).

Ensure the elevators are not supporting any of the pipe weight.

Using the power tong, make-up the connection at a speed of not more than 25 rpm and ensure that the tong does not slip during the make-up operation and damage the pipe body.

**1 to 2 turns prior to shoulder, the tongs must be shifted into low gear with a maximum of 5 to 7 rpm to engage the shoulder and finalize make-up and better torque control to avoid over torque.**

Make-up the connection to the correct torque & position with the aid of a torque gauge and confirm that the make-up is acceptable in accordance with the criteria in 2.6.

## 2.6 ACCEPTANCE CRITERION FOR MAKE-UP

Recommended torque values are shown in APPENDIX-A for GEOCONN and APPENDIX-B for GEOCONN-AB. When higher-friction-factor thread compound is used for field running instead of the recommended ones written in this procedure, following conversion shall be applied;

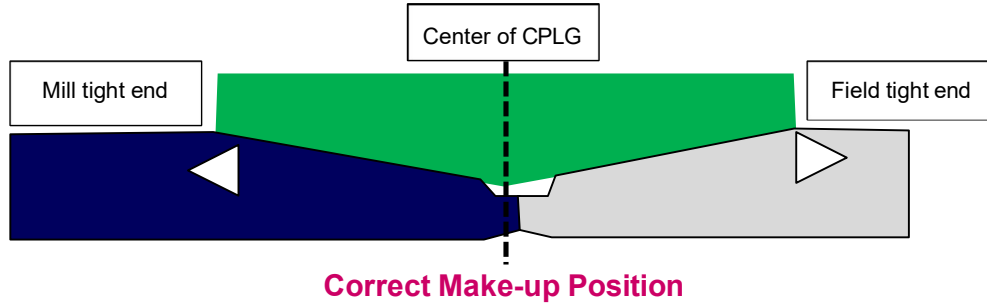
Friction Factor (FF)*	Conversion Coefficient	Conversion of Recommended Torque	
0.8 <= FF <= 1.2	1.0	No conversion is needed.	
1.2 < FF	FF minus 0.2	If FF is 1.5	Converted MUT shall be 1.3 x MO Recommended MUT.
		If FF is 2.0	Converted MUT shall be 1.8 x MO Recommended MUT.
		If FF is 2.5	Converted MUT shall be 2.3 x MO Recommended MUT.

\* Friction Factor is relative to API RP 5A3

Torque should be set at Min. Torque and if no shouldering occurs the torque should be increased accordingly up to Max. Torque.

Connection make-up is considered successful if all of the following criteria are achieved;

- The two pin noses contact which is indicated on the torque dial gauge as a very sudden increase in torque (“spike”)
- The base of the 3/8” triangle stamp on the pipe body is aligned with the coupling face.
- **Once shoulder is engaged, no pipe rotation should be observed other than normal tong camming for applying final torque.**
- **If pipe rotation is observed after shoulder, connection should be backed out and inspected to determine if any damage has occurred and handled accordingly.**
- **Example torque-turn charts are shown in Appendix-C.**



### 3. PULLING

The equipment required for pulling is basically the same as running.

Back-up tong should be placed on the lower half of the coupling. Use of the rig tongs for this operation is not recommended. If back-up tong is not available, then please ensure the CPLG mill-end side does not rotate and a paint line gives a useful indication.

True vertical alignment either with a stabber, stabbing arm or with the blocks must be maintained during break out operation.

Engage the power tong at the same area of the pipe as make-up. Break out the connection using controlled torque - do not "jerk". Rotation speed during break out and spinning out should not exceed 15 rpm. Once the threads have disengaged, the pin will "bump" in the box, rotate 1/3 of a turn before lifting out the pipe.

When lifting out, care should be taken to ensure the threads are fully disengaged to prevent jump out. Use of a stabbing guide will help protect the pin and may assist in the lifting of the pipe out of the box.

### 4. MINOR DAMAGE ON THE THREADS

Light imperfections/corrosion on the threads is acceptable. Minor damage to pin end threads such as burrs can be repaired with a fine file, hone or emery paper.

### 5. INTERCHANGEABILITY WITH API BUTTRESS

GEOCONN series and API-BTC can be interchangeable and the following points should be noted;

#### GEOCONN series PIN & API-BTC BOX

The pin noses will not contact and the make-up criteria should be the same as BTC. (= Not Internally Flush).

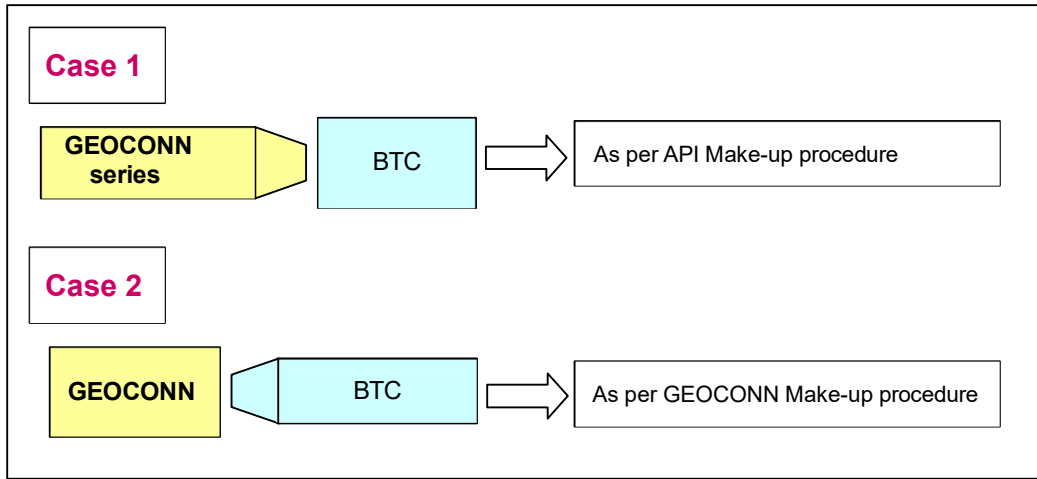
#### GEOCONN BOX & API-BTC PIN

The pin noses will contact and the make-up criteria should be the same as GEOCONN. (= Internally Flush).

#### MAKE-UP PROCEDURE

GEOCONN series Pin & BTC Box → Case 1

GEOCONN Box & BTC Pin → Case 2



**Make-up procedure for GEOCONN series with BTC**

## APPENDIX-A GEOCONN RECOMMENDED TORQUE AT FIELD END FOR REGULAR COUPLING (W)

### 1. RECOMMENDED TORQUE (ft-lb)

OD	Weight	WT	J/K55			N/L80			P110		
inch	lbs/ft	inch	Min	Max	Operational. MAX	Min	Max	Operational. MAX	Min	Max	Operational. MAX
4-1/2"	10.5	0.224	3,800	4,600	4,600	4,000	4,900	5,200	4,800	5,900	7,400
	11.6	0.250	5,000	6,000	6,000	5,300	6,400	6,400	6,300	7,700	8,700
	12.6	0.271	5,200	6,700	6,700	5,800	7,600	7,600	7,600	9,300	9,900
	13.5	0.290	5,800	7,400	7,400	7,100	8,600	8,600	8,500	10,400	10,800
	15.1	0.337	6,300	7,700	7,800	7,200	8,800	8,900	9,000	11,000	13,000
5"	15.0	0.296	6,600	8,100	8,100	7,600	9,300	9,300	9,100	11,100	13,500
	18.0	0.362	9,500	11,600	11,600	11,100	13,500	13,600	13,600	16,700	17,400
5-1/2"	15.5	0.275	6,000	7,400	9,600	7,800	9,500	9,800	9,300	11,400	14,300
	17.0	0.304	7,400	9,000	9,800	9,500	11,600	12,200	11,400	13,900	16,400
	20.0	0.361	11,600	14,100	14,900	13,200	16,000	16,300	15,400	18,700	20,500
	23.0	0.415	13,600	16,600	17,500	15,300	18,700	19,000	18,400	22,500	23,800
	26.0	0.476	14,800	19,500	20,500	17,600	21,500	23,200	21,300	26,000	27,500
	26.8	0.500	16,600	20,500	21,500	18,600	22,500	23,200	22,400	27,500	29,000
	29.7	0.562	18,600	22,700	24,000	21,200	26,000	26,500	25,100	30,800	32,500
6"	18.8	0.304	9,000	10,900	11,700	10,700	13,100	14,000	15,100	18,500	19,800
6-5/8"	20.0	0.288	8,600	10,500	12,300	10,000	12,000	14,500	11,900	14,500	20,600
7"	23.0	0.317	10,500	12,800	15,600	12,500	15,200	17,700	15,100	18,500	26,000
	26.0	0.362	14,500	17,500	18,700	16,500	20,100	21,200	20,000	24,400	31,200
	29.0	0.408	16,500	20,000	21,900	18,000	22,000	24,800	22,700	27,700	36,400
	32.0	0.453	17,800	21,800	24,800	20,250	24,750	28,100	24,300	29,700	41,400
	35.0	0.498	19,800	24,200	27,700	22,400	27,400	31,400	26,900	32,900	46,200
	38.0	0.540	21,500	26,300	30,300	24,400	29,800	34,300	29,250	35,750	50,500
7-5/8"	26.4	0.328	14,500	17,500	19,000	16,000	20,000	22,000	18,600	22,700	31,000
	29.7	0.375	16,000	20,000	22,500	18,000	22,000	26,000	21,600	26,400	37,000
	33.7	0.43	17,000	20,500	27,000	19,000	23,000	30,000	22,700	27,700	45,000
	39.0	0.50	19,600	24,000	32,400	22,250	27,150	36,800	26,700	32,600	54,000
8-5/8"	24.0	0.264	9,600	11,700	14,400	-	-	-	-	-	-
	28.0	0.304	11,700	14,300	17,500	-	-	-	-	-	-
	32.0	0.352	16,000	19,000	26,000	17,500	21,500	29,000	21,400	26,150	42,000
	36.0	0.400	17,500	20,500	31,000	19,000	23,000	35,000	22,150	27,050	50,000
9-5/8"	36.0	0.352	17,000	20,000	31,000	18,500	22,500	36,000	21,400	26,150	50,000
	40.0	0.395	17,500	21,000	37,000	19,000	23,000	42,000	22,050	26,950	60,000
	43.5	0.435	18,000	22,000	42,000	19,000	23,000	50,000	22,600	27,600	68,000
	47.0	0.472	18,000	22,000	47,000	20,000	25,000	53,000	24,300	29,700	76,000
	53.5	0.545	19,700	24,100	56,000	22,300	27,300	63,000	26,800	32,750	90,000

OD	Weight	WT	J/K55			N/L80			P110		
Inch	lbs/ft	inch	Min	Max	Operational. Max.	Min	Max	Operational. Max.	Min	Max	Operational. Max.
9-7/8"	62.8	0.625	23,700	29,000	67,400	26,900	32,900	75,900	32,200	39,400	10,8300
10-3/4"	40.5	0.350	14,500	17,700	32,900	16,700	20,400	39,400	18,900	23,100	52,600
	45.5	0.400	17,600	21,500	39,600	20,300	24,800	47,520	23,200	28,400	63,760
	51.0	0.450	18,000	22,000	46,400	21,100	25,700	55,840	24,000	29,400	75,200
	55.5	0.495	18,500	22,700	52,560	21,600	26,400	63,120	24,600	30,000	85,440
	60.7	0.540	21,000	25,600	59,700	24,500	30,000	71,700	27,900	34,100	97,000
	71.1	0.650	25,600	31,300	73,000	30,000	36,700	87,700	34,400	42,100	119,500
11-3/4"	47.0	0.375	15,400	18,900	42,900	18,400	22,500	51,100	24,600	30,100	68,300
	54.0	0.435	19,100	23,300	53,000	22,600	27,600	62,700	30,500	37,200	84,600
	60.0	0.489	22,200	27,200	61,800	26,500	32,300	73,500	35,800	43,800	99,500
13-3/8"	54.5	0.380	19,350	23,650	65,000	24,050	29,350	72,000	24,050	29,350	100,000
	61.0	0.430	21,250	25,950	77,000	26,550	32,450	86,000	26,550	32,450	122,000
	68.0	0.480	22,950	28,050	90,000	28,800	35,200	100,000	28,800	35,200	140,000
	72.0	0.514	24,100	29,500	98,000	30,400	37,200	110,000	30,400	37,200	150,000
16"	65.0	0.375	23,850	29,150	70,000	-	-	-	-	-	-
	75.0	0.438	24,750	30,250	95,000	-	-	-	-	-	-
	84.0	0.495	25,550	31,250	115,000	27,000	33,000	124,000	-	-	-
	94.5	0.562	32,000	39,200	142,400	38,000	46,400	168,900	52,000	63,500	231,000
18-5/8"	87.5	0.435	26,100	31,900	119,000	-	-	-	-	-	-
	94.5	0.468	27,000	33,000	121,000	-	-	-	-	-	-
	114.0	0.579	28,400	34,700	166,000	-	-	-	-	-	-
20	94.0	0.438	24,850	30,350	140,000	-	-	-	-	-	-
	106.5	0.500	25,650	31,350	170,000	-	-	-	-	-	-
	133.0	0.635	27,200	33,200	240,000	-	-	-	-	-	-

Note 1: Operational Max. Torque can be applied for following cases.

- 1) If actual MUT exceeds Max. Torque in the Torque table, MU is acceptable as long as torque is lower than Ope. MAX.
- 2) If higher torque is required than Max. Torque, MUT may be increased within Operational Max. Torque.

Note 2: The following simple calculation is required to the material grade not stipulated in the table above.

MATERIAL GRADE	ACTION
85 ksi	Same as N/L80 grade
90 ksi	Torque for N/J80 times 1.1
95 ksi	Same as P110 grade
125 ksi	Torque for P110 times 1.1

Note 3: Recommended torque values for special clearance coupling (Wsc1 or Wsc2) are specified in each connection data sheet (CDS), which can be obtained from the Metal One Connection Web Site. ([www.mtlo.co.jp/mo-con/datasheet/index.html](http://www.mtlo.co.jp/mo-con/datasheet/index.html))

## 2. THREAD COMPOUND (DOPE) RECOMMENDED

- 1) API Modified
- 2) Bestolife 2000 series
- 3) Topco TK-II for thermal application

## APPENDIX-B GEOCONN-AB RECOMMENDED TORQUE AT FIELD END FOR REGULAR COUPLING (W)

### 1. RECOMMENDED TORQUE (ft-lb)

OD	Weight	WT	J/K55			N/L80			P110		
inch	lbs/ft	inch	Min	Max	Operational. MAX	Min	Max	Operational. MAX	Min	Max	Operational. MAX
5-1/2"	23.0	0.415	-	-	-	-	-	-	20,500	22,500	23,800

Note 1: Operational Max. Torque can be applied for following cases.

- 1) If actual MUT exceeds Max. Torque in the Torque table, MU is acceptable as long as torque is lower than Ope. MAX.
- 2) If higher torque is required than Max. Torque, MUT may be increased within Operational Max. Torque.

### 2. THREAD COMPOUND (DOPE) RECOMMENDED

- 1) API Modified
- 2) Bestolife 2000 series
- 3) Topco TK-II for thermal application

## APPENDIX C – EXAMPLES OF TORQUE TURN GRAPHS

