DRIFT, TORQUE & COUPLING DIMENSIONS

01 DRIFT DIMENSIONS

		API Bare Pipe			WFES Thermoplastic Lined Pipe - Drift					
Pipe Size OD		Weight (T&C)	Wall Thickness	Drift Diameter	Polycore™	Modified Polycore™	COTube™	Enertube™	Ultratube™	Extreme-tube™
TUBING (EUE)	1.900	2.90	.145	1.516	1.250	1.184	*Well Specific*	1.184	1.250	1.250
	2 3/8	4.70	.190	1.901	1.600	1.516		1.516	1.600	1.600
	2 7/8	6.50	.217	2.347	2.000	1.901		1.901	2.000	2.000
	3 1/2	9.30	.254	2.867	2.500	2.347		2.347	2.500	2.500
	4 1/2	12.75	.271	3.833	3.400	3.215		3.350	3.400	3.400
CASING	4 1/2	11.60	.250	3.875	3.400	3.215		3.350	3.400	3.400
		13.50	.290	3.795	3.350	3.165		3.300	3.350	3.350
	5	15.00	.296	4.283	3.785	3.540		3.685	3.785	3.785
		18.00	.362	4.151	3.660	3.430		3.560	3.660	3.660
	5 1/2	15.50	.275	4.825	4.300	4.050		4.200	4.300	4.300
		17.00	.304	4.767	4.300	4.050		4.200	4.300	4.300
		20.00	.361	4.653	4.200	3.927		4.050	4.200	4.200
		23.00	.415	4.545	3.950	3.800		3.850	3.950	3.950
	7	23.00	.317	6.241	5.600	5.300		5.500	5.600	5.600
		26.00	.362	6.151	5.500	5.200		5.400	5.500	5.500
		29.00	.408	6.059	5.400	5.100		5.300	5.400	5.400

03 COUPLING OUTSIDE DIAMETER

INCHES · API 5CT

Thread	Pipe Size	Regular		Special Clearance	
		9th Ed.	11th Ed.	9th Ed.	11th Ed.
EUE 10rd	1.900" Tbg	2.500		*NA*	
EUE 8rd	2 3/8" Tbg	3.063		2.910	
	2 7/8" Tbg	3.668		3.460	
	3 1/2" Tbg	4.500		4.180	
	4 1/2" Tbg	5.563		5.094	*NA*
NUE 10rd	1.900" Tbg	2.200		*NA*	
	2 3/8" Tbg	2.875		*NA*	
	2 7/8" Tbg	3.500		*NA*	
	3 1/2" Tbg	4.250		*NA*	
NUE 8rd	4 1/2" Tbg	5.200		*NA*	
LTC	4 1/2" Csg	5.000	5.250	*NA*	
	5" Csg	5.563	5.800	*NA*	
	5 1/2" Csg	6.050	6.300	*NA*	
	7" Csg	7.875		*NA*	
BTC	4 1/2" Csg	5.000	5.250	4.875	
	5" Csg	5.563	5.800	5.375	
	5 1/2" Csg	6.050	6.300	5.875	
	7" Csg	7.875		7.375	

API 5CT does not specify outside diameters for special clearance couplings in sizes marked NA; however, there are industry-accepted custom dimensions used outside of API.

02 API TORQUE

FOOT-POUNDS

Thread	Pipe Size	Weight lb/ft	J-55		L-80		P-110	
			Min	Opt	Min	Opt	Min	Opt
EUE 10rd	1.900" Tbg	2.90	660	880	900	1,190	*NA*	*NA*
EUE 8rd	2 3/8" Tbg	4.70	970	1,290	1,320	1,760	1,785	2,380
	2 7/8" Tbg	6.50	1,240	1,650	1,690	2,250	2,280	3,040
	3 1/2" Tbg	9.30	1,710	2,280	2,270	3,030	3,170	4,230
	4 1/2" Tbg	12.75	2,150	2,860	2,960	3,940	*NA*	*NA*
NUE 10rd	1.900" Tbg	2.75	310	410	420	560	*NA*	*NA*
	2 3/8" Tbg	4.60	550	730	740	990	1,010	1,340
	2 7/8" Tbg	6.40	790	1,050	1,070	1,430	1,460	1,940
	3 1/2" Tbg	9.20	1,110	1,480	1,520	2,030	2,060	2,740
NUE 8rd	4 1/2" Tbg	12.60	1,310	1,740	1,800	2,400	*NA*	*NA*
LTC	4 1/2" Csg	11.60	1,220	1,620	1,670	2,230	2,270	3,020
		13.50	*NA*	*NA*	2,030	2,710	2,750	3,660
	5" Csg	15.00	1,670	2,230	2,310	3,080	3,130	4,170
		18.00	*NA*	*NA*	2,960	3,930	3,980	5,310
	5 1/2" Csg	15.50	1,630	2,170	*NA*	*NA*	*NA*	*NA*
		17.00	1,850	2,470	2,560	3,410	3,470	4,620
		20.00	*NA*	*NA*	3,150	4,200	4,270	5,690
		23.00	*NA*	*NA*	3,700	4,930	5,010	6,680
	7" Csg	23.00	2,350	3,130	3,270	4,350	*NA*	*NA*
		26.00	2,760	3,670	3,840	5,110	5,200	6,930
		29.00	*NA*	*NA*	4,400	5,870	5,980	7,970
BTC	4 1/2" Csg	11.60						
	5" Csg	15.00						
		18.00						
	5 1/2" Csg	15.50						
		17.00						
		20.00						
		23.00						
	7" Csg	23.00						
		26.00						
		29.00						

POSITION MAKE-UP

As per API 5C1: "makeup torque values should be determined by carefully noting the torque required to make up each of several connections to the base of the triangle; then using the torque value thus established, make up the balance of the pipe of that particular weight and grade in the string."

API Minimum Torque Recommended; Do Not Exceed Optimum Torque

04 SUCKER ROD BOX OD

Rod Size	Regular	Slimhole
5/8"	1.500	1.250
3/4"	1.625	1.500
7/8"	1.8125	1.625
1"	2.1875	2.000
1 1/8"	2.375	2.250

05 INSERT PUMP

Insert Bore	Barrel OD (Thin Wall)	Hold Down No-Go Seat
1 1/4"	1.500	1.562
1 1/2"	1.750	1.875
2"	2.250	2.344

INSTALLATION PROCEDURES

WESTERN FALCON ENERGY SERVICES
WFES.COM · INFO@WFES.COM · 1-877-933-7870

Detailed procedures can be found at **wfes.com** or call your local sales representative.

CARE & HANDLING →

01 WFES THERMOPLASTIC LINERS — WARM WEATHER HANDLING

ABOVE 41°F (5°C)

- Minimum API Torque
- Pin protectors must stay on pipe until ready to stab
- Use of stabbing guides is recommended for all liner materials. Stabbing guides are required when installing Enertube™, Ultratube™, and Extremetube™
- No rod guides, stabilizers, scrapers used in any portion of the string that has thermoplastic liners
- Make sure all intrusive tools and/or equipment are free of sharp edges
- Please keep in mind that the liner is a plastic and can be cut and/or shaved resulting in mechanical damage
- Trucking: strip and strap every layer with 3 boards vertically aligned and straps located at boards

02 COLD WEATHER HANDLING FOR ENERTUBE™ AND ULTRATUBE™ — IN ADDITION TO THE ABOVE

BELOW 41°F (5°C)

- Special care to prevent shock or impact loads against other pipe, rigs, racks, forks, etc.
- Do not drop pipe or allow to free fall
- Pin protectors must stay on pipe until ready to stab
- Use of a stabbing guide is required
- Trucking: strip and strap every layer with 7 boards vertically aligned and straps located at boards
- Do not drag pipe across racks or pipe
- When available, recommend using a pipe wrangler

03 PULLING AND RE-RUN PROCEDURES

- Pulling pipe: install pin protectors before standing back on rig floor
- Re-install following above procedures

04 MISCELLANEOUS ITEMS

- Reach out to a WFES representative to discuss best practices for hot oiling or hot watering for your specific service
- Exceeding the temperature limitations for a given environment of the thermoplastic liner can cause permanent damage to the liner
- Call your representative before hydrostatic testing and/or swabbing to help mitigate damages

05 THERMOPLASTIC LINER MAXIMUM TEMPERATURE LIMITS*

POLYCORE™	MODIFIED POLYCORE™	COTUBE™	ENERTUBE™	ULTRATUBE™	EXTREMETUBE™
160°F 71°C	160°F 71°C	165°F 74°C	210°F 99°C	350°F 177°C	500°F 260°C
OIL	OIL	IN ALL SERVICES	IN ALL SERVICES	IN ALL SERVICES	IN ALL SERVICES
180°F 82°C	180°F 82°C				
AQUEOUS	AQUEOUS				

*Temperature limitations are dependent on well environment conditions and variables. Please contact WFES for more information.