

Blue[®]

2 3/8" TO 13 5/8"



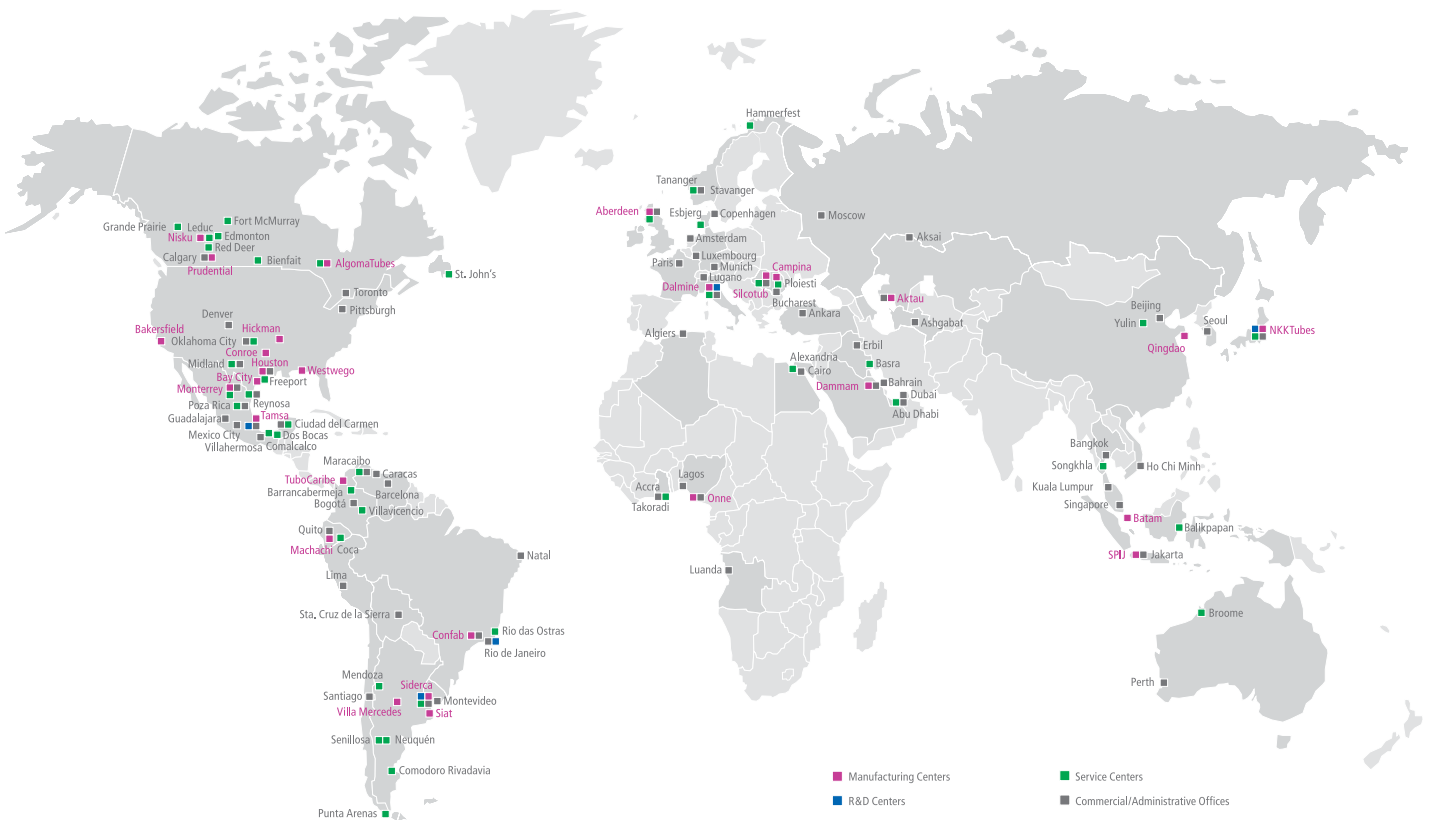
 **TenarisHydril**

TenarisHydril

TenarisHydril offers outstanding premium connection design and technology worldwide. With a comprehensive range of high performance products backed by an extensive global field service network and licensed threading shops, we develop solutions to meet the needs of ever more demanding E&P environments.

TenarisHydril premium connections are supplied and supported by Tenaris, the leading manufacturer and supplier of steel tubes and integrated tubular services to the world's energy industry.

For further information please visit our website at www.tenaris.com.



Main attributes



SIZE AVAILABILITY

2 3/8" TO 13 5/8"

FEATURES

- Designed for high performance and versatility. ISO 13679 CAL IV tested and field proven.
- Parabolic seal contact pressure profile minimizes galling risk while improves sealing performance stability.
- 70 ISO 13679 CAL IV tests
- Installed in 70 countries
- Chosen by 200 operators
- 7 million feet installed with Dopeless® technology

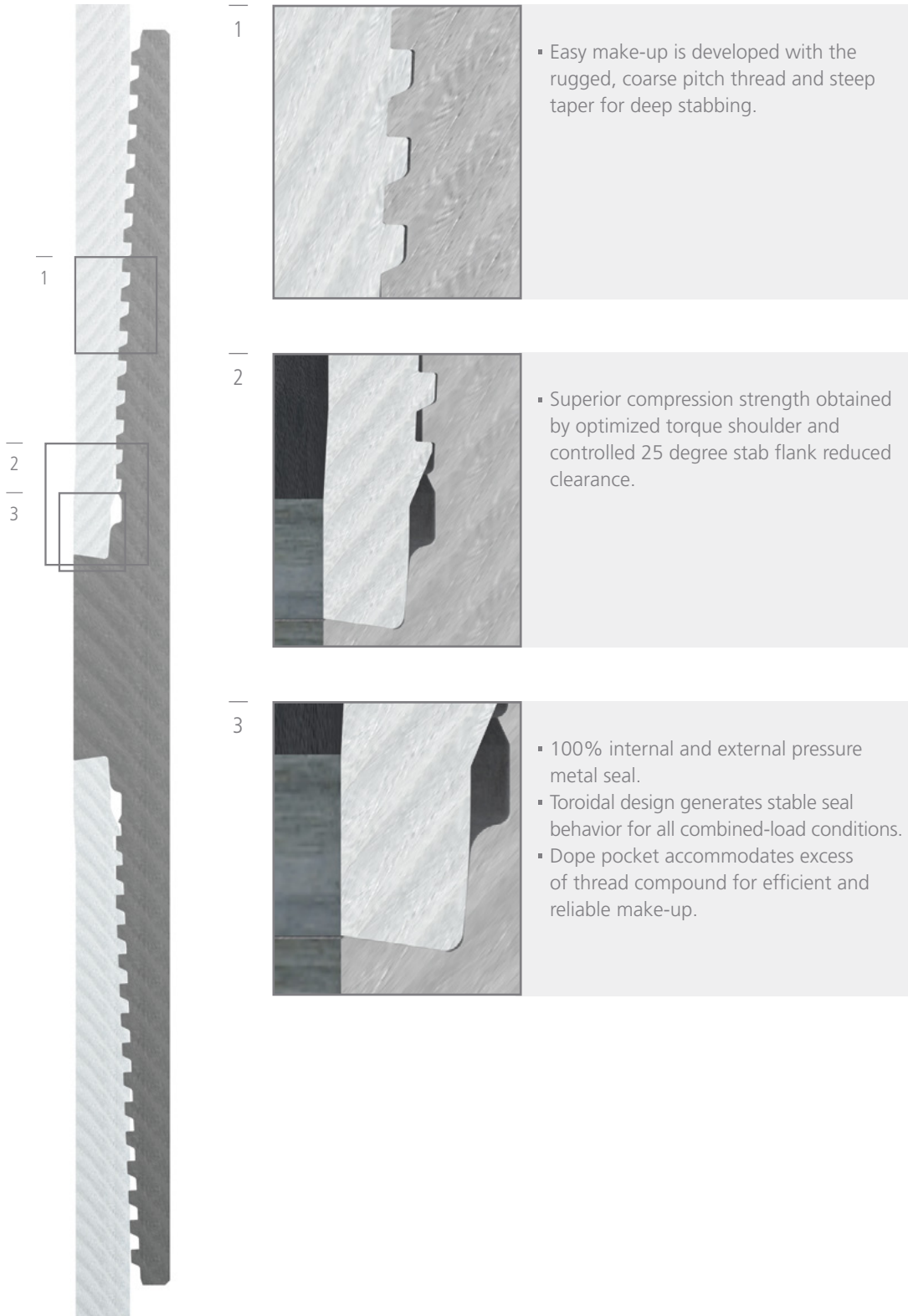
APPLICATIONS

- Deepwater
- HP/HT & Deep wells
- Horizontal & extended reach wells
- Shales
- Casing while drilling
- Thermal Applications
- Geothermal
- Surface & intermediate casing
- Production casing, tie-backs and liners
- Tubing

OPTIONS

- Dopeless® technology
- Matched strength
- Special bevel
- Special clearance

Operational solutions



Seal design

BEHAVIOR UNDER EXTREME COMBINED LOADS

The sphere-to-cone seal geometry (toroidal surface on the pin, tapered surface on the box) achieves the parabolic seal contact pressure profile. This provides lower contact pressure peaks (minimizing galling risks during make-up) but higher average contact pressure in combination with longer seal contact length. When combined, these two characteristics provide a more stable sealing performance even under extreme combined loads. This presents 100% PIPY gas-tightness and 100% API collapse pressure (or 100% PEPY gas-tightness).

As achieved in the thread design, and in combination with taper and pitch parameters, seal configuration was optimized to ensure the best sealing performance while preserving seal integrity.

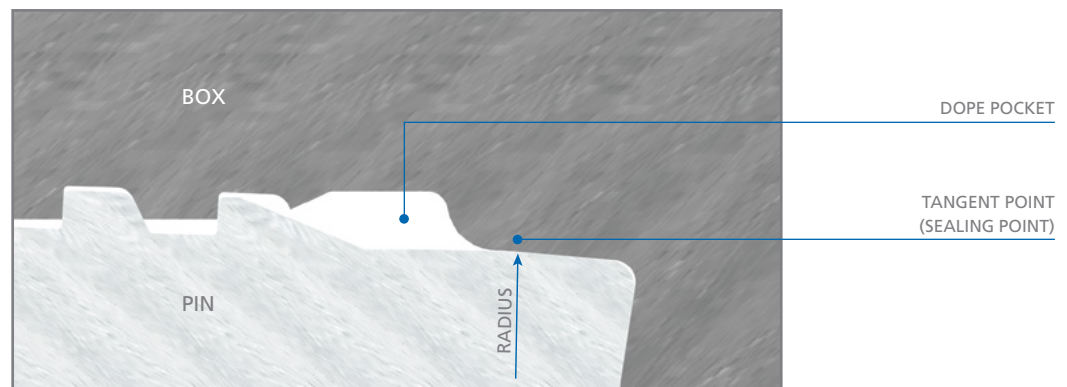
Safer make-up

The main seal contact point set apart from pin end provides seal protection while running and less sensitivity of the sealing capacity to axial displacement that could be reached under extreme loads.

Deep stabbing reduces sliding distance and risk of galling.

Dope pocket

When used with dope, the “Dope pocket” volume accommodates excess of thread compound, thus minimizing both thread integrity (pin) risk and weaker sealing performance due to dope entrapment. The cylindrical crests of the box thread close to the dope pocket allow the surplus dope to flow from the threads to the dope pocket.



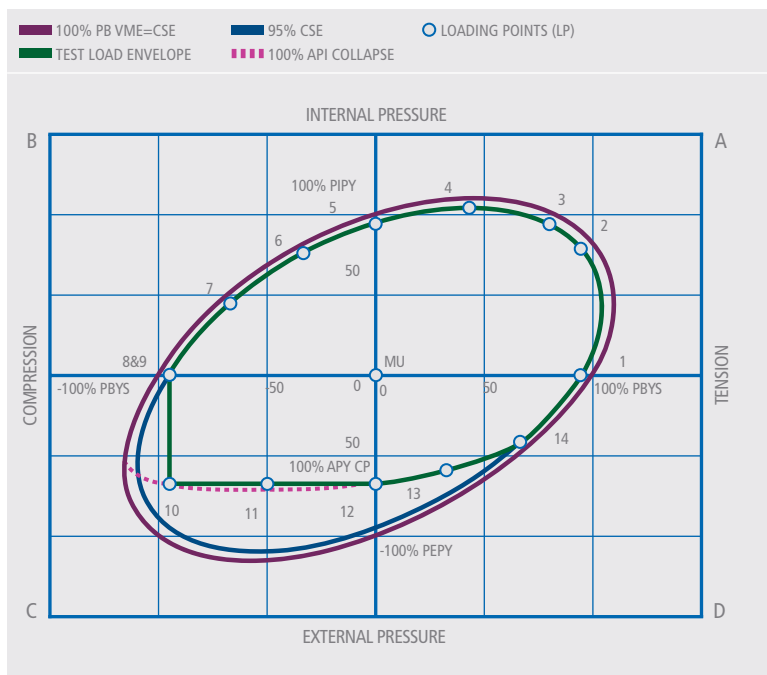
Stable contact pressures for all loading conditions

The TSH Blue® connection's performance matches the pipe body's performance in terms of tension, compression, internal and external pressures. This is clearly seen overlapping the connection service envelope (CSE) to the Von Mises Ellipse of the pipe body.

Connection performance validation is done according to the ISO 13679 CAL IV specification, over the 14 different loading points that are

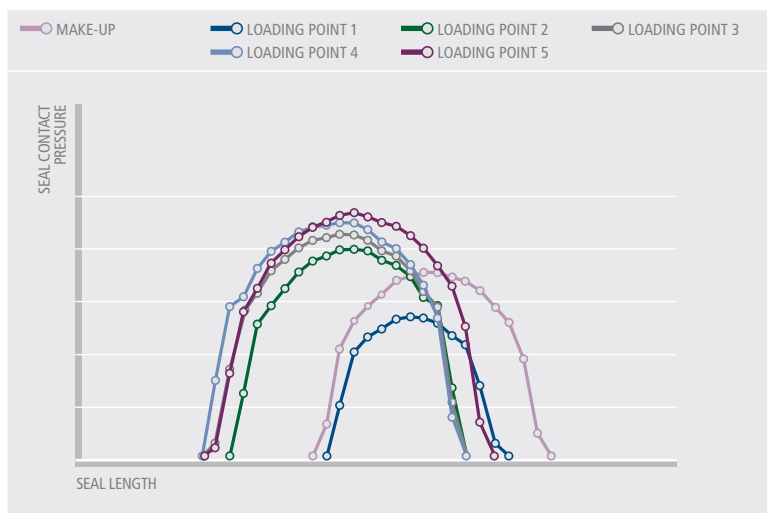
defined on the ellipse (95% of the VME of the pipe body) not only for design verification, but also for customer qualification.

Sealing performance is evaluated in each of the quadrants by plotting the seal contact pressure along the seal length for each of the loading points.



SERVICE ENVELOPE FOR BLUE®

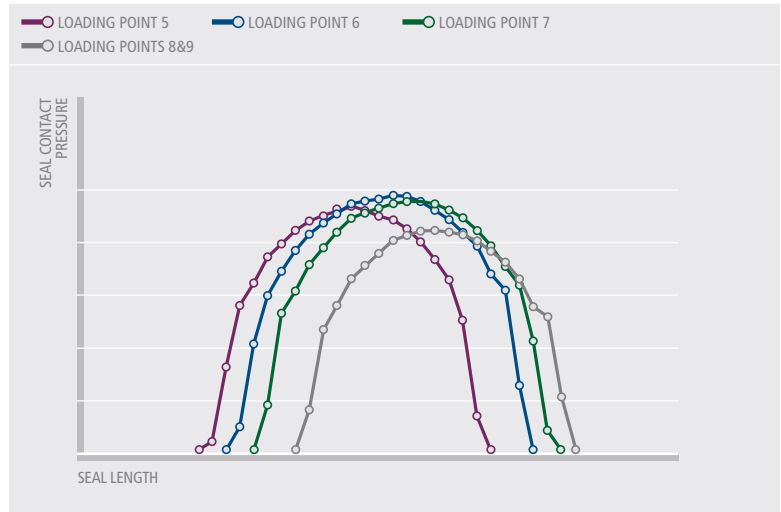
In each of the ISO 13679 CAL IV 14 loading points the integrity and intensity of the contact pressures in the metal-to-metal seal are checked, so as to ensure the sealing capacity of the connection.



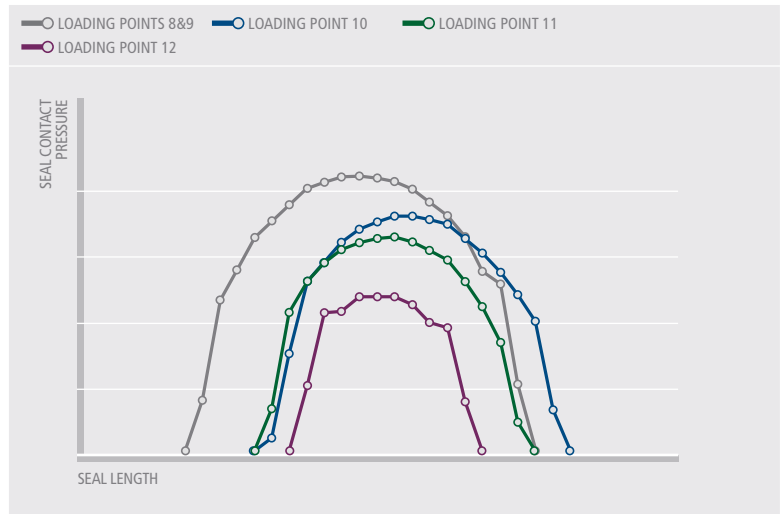
QUADRANT A

Contact pressure under internal pressure and tension.

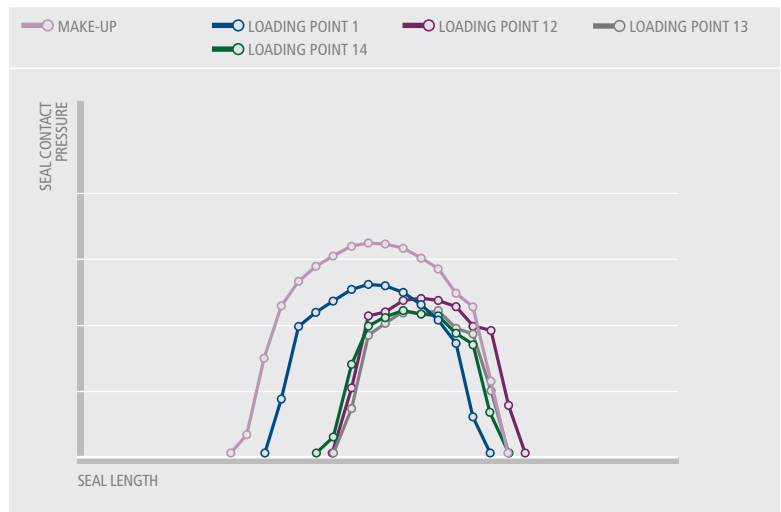
—
QUADRANT B
 Contact pressure under
 internal pressure and
 compression.



—
QUADRANT C
 Contact pressure under
 external pressure and
 compression.



—
QUADRANT D
 Contact pressure under
 external pressure and
 tension.



Thread design

IMPROVED COMPRESSION AND OVER TORQUE CAPACITY

The proper combination of the thread configuration (reduced stabbing flank gaps and optimized stabbing flank angle) and the thicker negative torque shoulder section provides 100% compression ratings as well as high over-torque capacity (normally 250% of maximum torque).

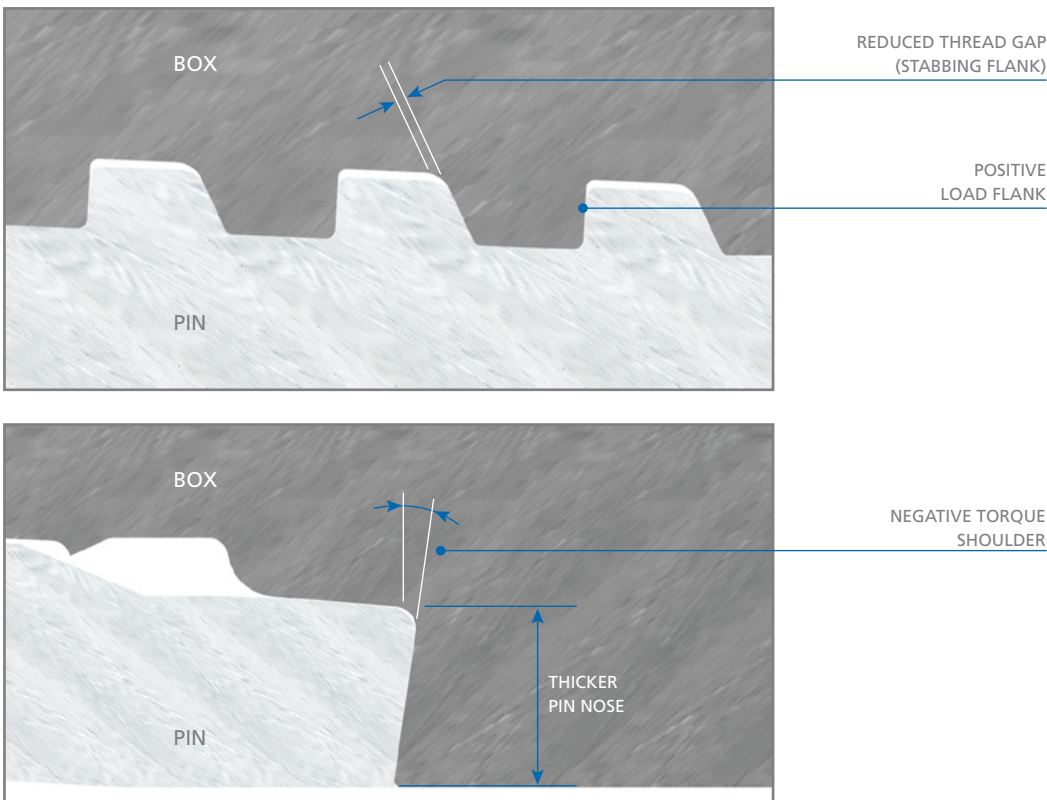
Improved running

Thread parameters such as thread taper and thread pitch were also optimized in order to provide the best running response in terms of simplicity and safety (deep stabbing, low cross-threading risk, reduced turns to make-up

position). This is achieved by using two different tapers and two different thread pitches that allow to cover the whole range (from 2 3/8" to 13 5/8").

Tensile capacity

Optimized positive run-out load flank angle, able to equalize pipe body tensile capacity while providing better manufacturing and repairing conditions (compared to hooked thread profiles).



Technical data table & Torque table for Blue®

Technical data table | 2 3/8" TO 5"

DESIGNATION		PIPE BODY				COUPLING		CONNECTION INSIDE DIAMETER	MAKE-UP LOSS	CRITICAL SECTION AREA
Size	Nominal Weight	Wall Thickness	Inside Diameter	Standard Drift Diameter	Special Drift Diameter	Outside Diameter	Length			
in	lb/ft	in	in	in	in	in	in	in	sq in	
2 3/8	4.60	0.190	1.995	1.901	—	2.776	5.906	1.947	2.655	1.304
	5.10	0.218	1.939	1.845	—	2.776	5.906	1.915	2.655	1.477
	5.80	0.254	1.867	1.773	—	2.827	5.906	1.868	2.655	1.693
	6.30	0.280	1.815	1.721	—	2.846	5.906	1.833	2.655	1.843
	6.60	0.295	1.785	1.691	—	2.862	5.906	1.837	2.655	1.928
	7.35	0.336	1.703	1.609	—	2.913	5.906	1.797	2.655	2.153
2 7/8	6.40	0.217	2.441	2.347	—	3.307	7.205	2.406	3.202	1.812
	7.80	0.276	2.323	2.229	—	3.346	7.205	2.339	3.202	2.254
	8.60	0.308	2.259	2.165	—	3.386	7.205	2.276	3.202	2.483
	9.35	0.340	2.195	2.101	—	3.437	7.205	2.228	3.202	2.708
	9.80	0.362	2.151	2.057	—	3.449	7.205	2.209	3.202	2.858
	10.50	0.392	2.091	1.997	—	3.488	7.205	2.185	3.202	3.058
	10.70	0.405	2.065	1.971	—	3.504	7.205	2.161	3.202	3.143
3 1/2	7.70	0.216	3.068	2.943	—	3.937	8.228	3.016	3.616	2.229
	9.20	0.254	2.992	2.867	—	3.937	8.228	2.969	3.616	2.590
	10.20	0.289	2.922	2.797	—	4.016	8.228	2.906	3.616	2.916
	12.70	0.375	2.750	2.625	—	4.150	8.228	2.799	3.616	3.681
	13.70	0.413	2.674	2.549	—	4.150	8.228	2.772	3.616	4.005
	14.30	0.430	2.640	2.515	—	4.169	8.228	2.736	3.616	4.148
	14.70	0.449	2.602	2.477	—	4.193	8.228	2.720	3.616	4.304
	15.50	0.476	2.548	2.423	—	4.228	8.228	2.720	3.616	4.521
4	8.20	0.190	3.620	3.495	—	4.441	8.780	3.537	3.805	2.274
	9.50	0.226	3.548	3.423	—	4.441	8.780	3.474	3.805	2.680
	10.90	0.262	3.476	3.351	—	4.441	8.780	3.431	3.805	3.077
	13.20	0.330	3.340	3.215	—	4.567	8.780	3.356	3.805	3.805
	14.85	0.380	3.240	3.115	—	4.610	8.780	3.281	3.805	4.321
	16.10	0.415	3.170	3.045	—	4.661	8.780	3.262	3.805	4.673
	16.50	0.430	3.140	3.015	—	4.681	8.780	3.234	3.805	4.822
	18.90	0.500	3.000	2.875	—	4.776	8.780	3.093	3.805	5.498
4 1/2	10.50	0.224	4.052	3.927	—	4.921	9.213	3.996	4.012	3.009
	11.60	0.250	4.000	3.875	—	4.921	9.213	3.957	4.012	3.339
	12.60	0.271	3.958	3.833	—	4.961	9.213	3.917	4.012	3.601
	13.50	0.290	3.920	3.795	—	5.000	9.213	3.878	4.012	3.836
	15.20	0.337	3.826	3.701	3.750	5.047	9.213	3.823	4.012	4.408
	16.60	0.375	3.750	3.625	—	5.106	9.213	3.799	4.012	4.860
	17.00	0.380	3.740	3.615	—	5.114	9.213	3.791	4.012	4.918
	17.70	0.402	3.696	3.571	—	5.146	9.213	3.768	4.012	5.175
	18.90	0.430	3.640	3.515	—	5.189	9.213	3.740	4.012	5.498
21.50	0.500	3.500	3.375	—	5.287	9.213	3.602	4.012	6.284	
5	13.00	0.253	4.494	4.369	—	5.512	10.551	4.421	4.579	3.773
	15.00	0.296	4.408	4.283	—	5.512	10.551	4.350	4.579	4.374
	18.00	0.362	4.276	4.151	—	5.630	10.551	4.264	4.579	5.275
	20.30	0.408	4.184	4.059	—	5.650	10.551	4.209	4.579	5.885
	20.80	0.422	4.156	4.031	—	5.673	10.551	4.193	4.579	6.070
	21.40	0.437	4.126	4.001	—	5.693	10.551	4.185	4.579	6.265
	23.20	0.478	4.044	3.919	—	5.756	10.551	4.134	4.579	6.791
	24.10	0.500	4.000	3.875	—	5.787	10.551	4.091	4.579	7.068
	26.70	0.562	3.876	3.751	—	5.874	10.551	3.969	4.579	7.835

-] Interchangeable where bracketed. Small variations in the connection Internal Diameter will appear. Performance Data and Make-Up Torque for the connection correspond to the lighter weight (for more information consult TenarisHydril Running Manual).
- Compression efficiency for SC and MS options is the same as the standard connection.
- For the MS option, the coupling OD is reduced to the minimum critical area capable of providing the same tensile efficiency as the standard option.

OPTIONS

TENSILE EFFICIENCY	COMPRESSION EFFICIENCY	JOINT YIELD STRENGTH						SPECIAL CLEARANCE COUPLING			MATCHED STRENGTH
		55 ksi	80 ksi	90 ksi	95 ksi	110 ksi	125 ksi	Outside Diameter	Critical Section Area	Tensile Efficiency	Outside Diameter
%	%	x 1000 lb						in	sq in	%	in
100	100	71.7	104.3	117.3	123.8	143.4	162.9	2.646	1.114	85.0	2.705
100	100	81.2	118.2	132.9	140.3	162.5	184.6	2.681	1.263	86.0	2.744
100	100	93.1	135.4	152.3	160.8	186.2	211.6	2.720	1.431	85.0	2.795
100	100	101.4	147.4	165.9	175.1	202.7	230.4	2.752	1.566	85.0	2.831
100	100	106.1	154.3	173.5	183.2	212.1	241.0	2.768	1.634	85.0	2.850
100	100	118.4	172.2	193.8	204.5	236.8	269.1	2.811	1.823	85.0	2.902
100	100	99.7	145.0	163.1	172.1	199.3	226.5	3.161	1.539	85.0	3.228
100	100	124.0	180.3	202.8	214.1	247.9	281.7	3.236	1.914	85.0	3.319
100	100	136.6	198.6	223.5	235.9	273.1	310.4	3.276	2.116	85.0	3.366
100	100	148.9	216.6	243.7	257.2	297.9	338.5	3.311	2.299	85.0	3.409
100	100	157.2	228.7	257.2	271.5	314.4	357.3	3.335	2.423	85.0	3.437
100	100	168.2	244.7	275.2	290.5	336.4	382.3	3.370	2.609	85.0	3.476
100	100	172.9	251.5	282.9	298.6	345.8	392.9	3.382	2.672	85.0	3.492
100	100	122.6	178.3	200.6	211.7	245.2	278.6	3.772	1.894	85.0	3.843
100	100	142.5	207.2	233.1	246.1	284.9	323.8	3.823	2.199	85.0	3.906
100	100	160.4	233.2	262.4	277.0	320.7	364.4	3.870	2.485	85.0	3.961
100	100	202.5	294.5	331.3	349.7	404.9	460.2	3.976	3.140	85.0	4.087
100	100	220.3	320.4	360.5	380.5	440.6	500.7	4.020	3.413	85.0	4.138
100	100	228.1	331.8	373.3	394.0	456.3	518.5	4.035	3.512	85.0	—
100	100	236.7	344.3	387.4	408.9	473.5	538.0	4.059	3.663	85.0	—
100	100	248.7	361.7	406.9	429.5	497.3	565.2	4.087	3.838	85.0	—
100	100	125.1	181.9	204.6	216.0	250.1	284.2	4.276	2.209	97.0	4.299
100	100	147.4	214.4	241.2	254.6	294.8	335.0	4.287	2.288	85.0	4.362
100	100	169.2	246.1	276.9	292.3	338.4	384.6	4.335	2.607	85.0	4.421
100	100	209.3	304.4	342.5	361.5	418.6	475.7	4.425	3.230	85.0	4.528
100	100	237.7	345.7	388.9	410.5	475.4	540.2	4.488	3.672	85.0	—
100	100	257.0	373.9	420.6	444.0	514.1	584.2	4.531	3.979	85.0	—
100	100	265.2	385.8	434.0	458.1	530.4	602.8	4.547	4.090	85.0	—
100	100	302.4	439.8	494.8	522.3	604.8	687.2	4.630	4.687	85.0	—
100	100	165.5	240.7	270.8	285.8	330.9	376.1	4.780	2.562	85.0	4.854
100	100	183.6	267.1	300.5	317.2	367.3	417.3	4.815	2.829	85.0	4.898
100	100	198.0	288.1	324.1	342.1	396.1	450.1	4.846	3.067	85.0	4.933
100	100	211.0	306.9	345.3	364.4	422.0	479.5	4.870	3.247	85.0	4.965
100	100	242.5	352.7	396.7	418.8	484.9	551.0	4.933	3.732	85.0	—
100	100	267.3	388.8	437.4	461.7	534.6	607.5	4.992	4.166	85.0	—
100	100	270.5	393.5	442.6	467.2	541.0	614.8	4.992	4.193	85.0	—
100	100	284.7	414.0	465.8	491.7	569.3	646.9	5.020	4.410	85.0	—
100	100	302.4	439.8	494.8	522.3	604.8	687.2	5.051	4.659	85.0	—
100	100	345.6	502.7	565.5	597.0	691.2	785.5	5.138	5.352	85.0	—
100	100	207.5	301.8	339.5	358.4	415.0	471.6	5.315	3.377	90.0	5.382
100	100	240.6	349.9	393.7	415.5	481.2	546.8	5.354	3.708	85.0	5.453
100	100	290.1	422.0	474.7	501.1	580.2	659.3	5.445	4.475	85.0	5.563
100	100	323.7	470.8	529.7	559.1	647.4	735.7	5.508	5.017	85.0	5.634
100	100	333.8	485.6	546.3	576.6	667.7	758.7	5.524	5.154	85.0	5.657
100	100	344.6	501.2	563.9	595.2	689.2	783.1	5.543	5.324	85.0	5.677
100	100	373.5	543.2	611.2	645.1	747.0	848.8	5.594	5.772	85.0	5.740
100	100	388.7	565.4	636.1	671.5	777.5	883.5	5.622	6.016	85.0	5.772
100	100	430.9	626.8	705.2	744.4	861.9	979.4	5.693	6.645	85.0	5.858

5 1/2" TO 9 5/8"

DESIGNATION		PIPE BODY				COUPLING		CONNECTION INSIDE DIAMETER	MAKE-UP LOSS	CRITICAL SECTION AREA
Size	Nominal Weight	Wall Thickness	Inside Diameter	Standard Drift Diameter	Special Drift Diameter	Outside Diameter	Length			
in	lb/ft	in	in	in	in	in	in	in	sq in	
5 1/2	15.50	0.275	4.950	4.825	—	6.063	10.748	4.911	4.677	4.514
	17.00	0.304	4.892	4.767	—	6.063	10.748	4.860	4.677	4.963
	20.00	0.361	4.778	4.653	—	6.102	10.748	4.789	4.677	5.828
	23.00	0.415	4.670	4.545	—	6.181	10.748	4.695	4.677	6.629
	26.00	0.476	4.548	4.423	4.500	6.307	10.748	4.616	4.677	7.513
	26.80	0.500	4.500	4.375	—	6.307	10.748	4.589	4.677	7.854
	28.40	0.530	4.440	4.315	—	6.350	10.748	4.530	4.677	8.275
	29.70	0.562	4.376	4.251	—	6.382	10.748	4.506	4.677	8.719
	32.60	0.625	4.250	4.125	—	6.469	10.748	4.427	4.677	9.571
6 5/8	20.00	0.288	6.049	5.924	—	7.283	10.551	5.973	4.480	5.733
	23.20	0.330	5.965	5.840	—	7.283	10.551	5.894	4.480	6.526
	24.00	0.352	5.921	5.796	—	7.283	10.551	5.855	4.480	6.936
	28.00	0.417	5.791	5.666	—	7.390	10.551	5.749	4.480	8.133
	32.00	0.475	5.675	5.550	—	7.409	10.551	5.678	4.480	9.178
	35.00	0.525	5.575	5.450	—	7.492	10.551	5.619	4.480	10.061
	36.70	0.562	5.501	5.376	—	7.539	10.551	5.623	4.480	10.704
7	23.00	0.317	6.366	6.241	6.250	7.677	10.551	6.287	4.480	6.656
	24.75	0.343	6.314	6.189	—	7.677	10.551	6.228	4.480	7.173
	26.00	0.362	6.276	6.151	—	7.677	10.551	6.189	4.480	7.549
	29.00	0.408	6.184	6.059	—	7.677	10.551	6.118	4.480	8.449
	32.00	0.453	6.094	5.969	6.000	7.732	10.551	6.063	4.480	9.317
	35.00	0.498	6.004	5.879	—	7.807	10.551	6.012	4.480	10.173
	38.00	0.540	5.920	5.795	5.875	7.870	10.551	5.969	4.480	10.959
	41.00	0.590	5.820	5.695	—	7.949	10.551	5.890	4.480	11.881
7 5/8	29.70	0.375	6.875	6.750	—	8.425	10.669	6.801	4.551	8.541
	33.70	0.430	6.765	6.640	—	8.465	10.669	6.699	4.551	9.720
	35.80	0.465	6.695	6.570	—	8.465	10.669	6.659	4.551	10.459
	39.00	0.500	6.625	6.500	—	8.496	10.669	6.604	4.551	11.193
	42.80	0.562	6.501	6.376	—	8.539	10.669	6.553	4.551	12.470
	45.30	0.595	6.435	6.310	6.375	8.591	10.669	6.561	4.551	13.141
7 3/4	46.10	0.595	6.560	6.435	6.500	8.740	11.496	6.691	4.968	13.375
	47.60	0.625	6.500	6.375	—	8.740	11.496	6.632	4.968	13.990
	48.60	0.640	6.470	6.345	6.375	8.772	11.496	6.600	4.968	14.296
	51.80	0.687	6.376	6.251	—	8.843	11.496	6.506	4.968	15.244
	56.10	0.750	6.250	6.125	—	8.937	11.496	6.380	4.968	16.494
8 5/8	36.00	0.400	7.825	7.700	—	9.488	11.693	7.787	5.065	10.335
	40.00	0.450	7.725	7.600	7.625	9.488	11.693	7.709	5.065	11.557
	44.00	0.500	7.625	7.500	—	9.488	11.693	7.650	5.065	12.763
	49.00	0.557	7.511	7.386	—	9.626	11.693	7.535	5.065	14.117
	52.00	0.595	7.435	7.310	—	9.626	11.693	7.496	5.065	15.010
	54.00	0.625	7.375	7.250	—	9.638	11.693	7.437	5.065	15.708
	58.70	0.687	7.251	7.126	—	9.736	11.693	7.390	5.065	17.132
9 5/8	36.00	0.352	8.921	8.765	—	10.626	11.693	8.829	5.065	10.255
	40.00	0.395	8.835	8.679	—	10.626	11.693	8.781	5.065	11.455
	43.50	0.435	8.755	8.599	8.625	10.626	11.693	8.711	5.065	12.560
	47.00	0.472	8.681	8.525	—	10.626	11.693	8.659	5.065	13.572
	53.50	0.545	8.535	8.379	8.500	10.626	11.693	8.545	5.065	15.547
	58.40	0.595	8.435	8.279	8.375	10.626	11.693	8.494	5.065	16.880
	59.40	0.609	8.407	8.251	—	10.626	11.693	8.553	5.065	17.250
	61.10	0.625	8.375	8.219	—	10.654	11.693	8.514	5.065	17.672
	64.90	0.672	8.281	8.125	—	10.728	11.693	8.435	5.065	18.901
	70.30	0.734	8.157	8.001	—	10.827	11.693	8.356	5.065	20.502

-] Interchangeable where bracketed. Small variations in the connection Internal Diameter will appear. Performance Data and Make-Up Torque for the connection correspond to the lighter weight (for more information consult TenarisHydril Running Manual).
- Compression efficiency for SC and MS options is the same as the standard connection.
- For the MS option, the coupling OD is reduced to the minimum critical area capable of providing the same tensile efficiency as the standard option.

OPTIONS

TENSILE EFFICIENCY	COMPRESSION EFFICIENCY	JOINT YIELD STRENGTH						SPECIAL CLEARANCE COUPLING			MATCHED STRENGTH
		55 ksi	80 ksi	90 ksi	95 ksi	110 ksi	125 ksi	Outside Diameter	Critical Section Area	Tensile Efficiency	Outside Diameter
%	%	x 1000 lb						in	sq in	%	in
100	100	248.2	361.1	406.2	428.8	496.5	564.2	5.831	3.836	85.0	5.925
100	100	273.0	397.0	446.7	471.5	545.9	620.4	5.874	4.235	85.0	5.972
100	100	320.5	466.2	524.5	553.7	641.1	728.5	5.953	4.965	85.0	6.067
100	100	364.6	530.3	596.6	629.8	729.2	828.7	6.024	5.631	85.0	6.157
100	100	413.2	601.0	676.2	713.7	826.4	939.1	6.102	6.381	85.0	6.220
100	100	432.0	628.3	706.8	746.1	863.9	981.7	6.134	6.685	85.0	6.287
100	100	455.2	662.0	744.8	786.2	910.3	1034.4	6.169	7.026	85.0	6.331
100	100	479.5	697.5	784.7	828.3	959.1	1089.8	6.209	7.409	85.0	—
100	100	526.4	765.7	861.4	909.3	1052.8	1196.4	6.283	8.144	85.0	—
100	100	315.3	458.7	516.0	544.7	630.7	716.7	7.020	5.397	94.0	7.071
100	100	358.9	522.0	587.3	619.9	717.8	815.7	7.051	5.746	88.0	7.146
100	100	381.5	554.9	624.3	658.9	763.0	867.0	7.063	5.876	85.0	7.181
100	100	447.3	650.6	732.0	772.6	894.6	1016.6	7.157	6.932	85.0	7.291
100	100	504.8	734.2	826.0	871.9	1009.5	1147.2	7.236	7.821	85.0	7.386
100	100	553.4	804.9	905.5	955.8	1106.7	1257.6	7.299	8.541	85.0	7.465
100	100	588.7	856.3	963.4	1016.9	1177.5	1338.0	7.346	9.085	85.0	7.520
100	100	366.1	532.5	599.0	632.3	732.1	832.0	7.409	6.050	91.0	7.484
100	100	394.5	573.9	645.6	681.5	789.1	896.7	7.413	6.095	85.0	7.531
100	100	415.2	603.9	679.4	717.1	830.3	943.6	7.441	6.417	85.0	7.563
100	100	464.7	675.9	760.4	802.7	929.4	1056.1	7.508	7.203	85.0	7.642
100	100	512.4	745.4	838.5	885.1	1024.9	1164.6	7.567	7.902	85.0	—
100	100	559.5	813.8	915.5	966.4	1119.0	1271.6	7.630	8.654	85.0	—
100	100	602.7	876.7	986.3	1041.1	1205.4	1369.8	7.685	9.316	85.0	—
100	100	653.4	950.5	1069.3	1128.7	1306.9	1485.1	7.748	10.080	85.0	—
100	100	469.7	683.2	768.6	811.3	939.5	1067.6	8.075	7.263	85.0	8.201
100	100	534.6	777.6	874.8	923.4	1069.2	1215.0	8.154	8.266	85.0	8.295
100	100	575.3	836.8	941.3	993.6	1150.5	1307.4	8.201	8.874	85.0	8.354
100	100	615.6	895.4	1007.3	1063.3	1231.2	1399.1	8.252	9.534	85.0	8.413
100	100	685.8	997.6	1122.3	1184.6	1371.7	1558.7	8.335	10.611	85.0	8.512
100	100	722.8	1051.3	1182.7	1248.4	1445.5	1642.6	8.378	11.180	85.0	8.563
100	100	735.6	1070.0	1203.7	1270.6	1471.2	1671.9	8.488	11.383	85.0	8.677
100	100	769.5	1119.2	1259.1	1329.1	1538.9	1748.8	8.528	11.909	85.0	8.724
100	100	786.3	1143.7	1286.6	1358.1	1572.5	1787.0	8.547	12.172	85.0	8.744
100	100	838.4	1219.5	1372.0	1448.2	1676.9	1905.5	8.606	12.969	85.0	8.819
100	100	907.1	1319.5	1484.4	1566.9	1814.3	2061.7	8.685	14.037	85.0	8.909
100	100	568.4	826.8	930.2	981.9	1136.9	1291.9	9.126	9.033	87.0	9.244
100	100	635.6	924.5	1040.1	1097.9	1271.3	1444.6	9.181	9.825	85.0	9.331
100	100	701.9	1021.0	1148.6	1212.5	1403.9	1595.3	9.252	10.852	85.0	9.417
100	100	776.5	1129.4	1270.6	1341.2	1552.9	1764.7	9.331	12.000	85.0	9.512
100	100	825.6	1200.8	1350.9	1426.0	1651.1	1876.3	9.382	12.753	85.0	9.575
100	100	863.9	1256.6	1413.7	1492.2	1727.9	1963.5	9.421	13.335	85.0	—
100	100	942.3	1370.6	1541.9	1627.6	1884.5	2141.5	9.504	14.564	85.0	—
100	100	564.0	820.4	922.9	974.2	1128.0	1281.9	10.079	9.309	91.0	10.165
100	100	630.0	916.4	1030.9	1088.2	1260.0	1431.8	10.122	9.998	87.0	10.240
100	100	690.8	1004.8	1130.4	1193.2	1381.6	1570.0	10.165	10.687	85.0	10.311
100	100	746.5	1085.7	1221.5	1289.3	1492.9	1696.5	10.217	11.506	85.0	10.378
100	100	855.1	1243.7	1399.2	1476.9	1710.1	1943.3	10.323	13.222	85.0	10.504
100	100	928.4	1350.4	1519.2	1603.6	1856.7	2109.9	10.394	14.375	85.0	10.587
100	100	948.7	1380.0	1552.5	1638.7	1897.5	2156.2	10.409	14.632	85.0	—
100	100	971.9	1413.7	1590.4	1678.8	1943.9	2208.9	10.433	15.018	85.0	—
100	100	1039.5	1512.1	1701.1	1795.6	2079.1	2362.6	10.496	16.053	85.0	—
100	100	1127.6	1640.2	1845.2	1947.7	2255.2	2562.7	10.579	17.422	85.0	—

9 7/8" TO 13 5/8"

DESIGNATION		PIPE BODY				COUPLING		CONNECTION INSIDE DIAMETER	MAKE-UP LOSS	CRITICAL SECTION AREA
Size	Nominal Weight	Wall Thickness	Inside Diameter	Standard Drift Diameter	Special Drift Diameter	Outside Diameter	Length			
in	lb/ft	in	in	in	in	in	in	in	sq in	
9 7/8	62.80	0.625	8.625	8.469	8.500	10.984	11.693	8.691	5.065	18.163
	66.90	0.668	8.539	8.383	—	10.984	11.693	8.646	5.065	19.322
	68.80	0.700	8.475	8.319	—	10.984	11.693	8.593	5.065	20.176
	70.40	0.707	8.461	8.305	—	10.984	11.693	8.608	5.065	20.362
	72.10	0.725	8.425	8.269	8.375	11.031	11.693	8.573	5.065	20.840
10 3/4	40.50	0.350	10.050	9.894	—	11.575	11.693	9.963	5.065	11.436
	45.50	0.400	9.950	9.794	—	11.575	11.693	9.885	5.065	13.006
	51.00	0.450	9.850	9.694	—	11.654	11.693	9.806	5.065	14.561
	55.50	0.495	9.760	9.604	9.625	11.693	11.693	9.751	5.065	15.948
	60.70	0.545	9.660	9.504	—	11.748	11.693	9.692	5.065	17.473
	65.70	0.595	9.560	9.404	9.504	11.890	11.693	9.633	5.065	18.983
	71.10	0.650	9.450	9.294	—	11.913	11.693	9.570	5.065	20.624
	73.20	0.672	9.406	9.250	—	11.929	11.693	9.558	5.065	21.277
	76.60	0.700	9.350	9.194	—	11.929	11.693	9.503	5.065	22.101
	79.20	0.734	9.282	9.126	—	11.984	11.693	9.452	5.065	23.097
11 3/4	54.00	0.435	10.880	10.724	—	12.752	11.693	10.950	5.065	15.463
	60.00	0.489	10.772	10.616	10.625	12.752	11.693	10.831	5.065	17.300
	65.00	0.534	10.682	10.526	10.625	12.752	11.693	10.753	5.065	18.815
	71.00	0.582	10.586	10.430	—	12.752	11.693	10.670	5.065	20.420
11 7/8	58.80	0.470	10.935	10.779	10.875	12.854	12.283	10.973	5.361	16.841
	71.80	0.582	10.711	10.555	10.625	12.854	12.283	10.879	5.361	20.648
13 3/8	54.50	0.380	12.615	12.459	—	14.173	13.031	12.520	5.719	15.514
	61.00	0.430	12.515	12.359	—	14.173	13.031	12.442	5.719	17.487
	68.00	0.480	12.415	12.259	—	14.252	13.031	12.371	5.719	19.445
	72.00	0.514	12.347	12.191	12.250	14.252	13.031	12.312	5.719	20.767
	77.00	0.550	12.275	12.119	—	14.299	13.031	12.261	5.719	22.160
	80.70	0.580	12.215	12.059	—	14.354	13.031	12.221	5.719	23.314
	85.00	0.608	12.159	12.003	—	14.402	13.031	12.182	5.719	24.386
	86.00	0.625	12.125	11.969	12.000	14.433	13.031	12.174	5.719	25.034
	98.00	0.719	11.937	11.781	—	14.598	13.031	12.150	5.719	28.587
13 1/2	81.40	0.580	12.340	12.153	12.250	14.488	12.992	12.400	5.719	23.541
13 5/8	79.10	0.555	12.515	12.328	—	14.665	12.992	12.478	5.719	22.788
	88.20	0.625	12.375	12.188	12.250	14.665	12.992	12.422	5.719	25.525

-] Interchangeable where bracketed. Small variations in the connection Internal Diameter will appear. Performance Data and Make-Up Torque for the connection correspond to the lighter weight (for more information consult TenarisHydril Running Manual).
- Compression efficiency for SC and MS options is the same as the standard connection.
- For the MS option, the coupling OD is reduced to the minimum critical area capable of providing the same tensile efficiency as the standard option.

OPTIONS

TENSILE EFFICIENCY	COMPRESSION EFFICIENCY	JOINT YIELD STRENGTH						SPECIAL CLEARANCE COUPLING			MATCHED STRENGTH
		55 ksi	80 ksi	90 ksi	95 ksi	110 ksi	125 ksi	Outside Diameter	Critical Section Area	Tensile Efficiency	Outside Diameter
%	%	x 1000 lb						in	sq in	%	in
100	100	999.0	1453.0	1634.7	1725.5	1997.9	2270.4	10.654	15.410	85.0	10.858
100	100	1062.7	1545.7	1738.9	1835.6	2125.4	2415.2	10.717	16.408	85.0	10.890
100	100	1109.7	1614.1	1815.9	1916.8	2219.4	2522.0	10.756	17.132	85.0	—
100	100	1119.9	1629.0	1832.6	1934.4	2239.9	2545.3	10.768	17.332	85.0	—
100	100	1146.2	1667.2	1875.6	1979.8	2292.4	2605.0	10.791	17.732	85.0	—
100	100	629.0	914.9	1029.2	1086.4	1258.0	1429.5	11.217	10.394	91.0	11.303
100	100	715.3	1040.5	1170.5	1235.6	1430.7	1625.8	11.256	11.089	85.0	11.394
100	100	800.8	1164.9	1310.5	1383.3	1601.7	1820.1	11.327	12.346	85.0	11.484
100	100	877.1	1275.8	1435.3	1515.1	1754.3	1993.5	11.394	13.539	85.0	11.563
100	100	961.0	1397.9	1572.6	1660.0	1922.1	2184.1	11.469	14.883	85.0	11.650
100	100	1044.1	1518.6	1708.5	1803.4	2088.1	2372.9	11.539	16.163	85.0	11.736
100	100	1134.3	1649.9	1856.2	1959.3	2268.7	2578.0	11.614	17.524	85.0	11.827
100	100	1170.2	1702.2	1914.9	2021.3	2340.5	2659.6	11.646	18.099	85.0	11.862
100	100	1215.6	1768.1	1989.1	2099.6	2431.2	2762.7	11.685	18.820	85.0	—
100	100	1270.3	1847.7	2078.7	2194.2	2540.6	2887.1	11.728	19.617	85.0	—
100	100	850.5	1237.0	1391.7	1469.0	1700.9	1932.9	12.319	13.175	85.0	12.469
100	100	951.5	1384.0	1557.0	1643.5	1903.0	2162.4	12.398	14.703	85.0	12.567
100	100	1034.9	1505.2	1693.4	1787.5	2069.7	2351.9	12.465	16.010	85.0	12.646
100	100	1123.1	1633.6	1837.8	1939.9	2246.2	2552.5	12.531	17.324	85.0	12.728
100	100	926.2	1347.3	1515.7	1599.9	1852.5	2105.1	12.472	14.288	85.0	12.638
100	100	1135.6	1651.8	1858.3	1961.5	2271.2	2580.9	12.638	17.549	85.0	12.835
100	100	853.3	1241.1	1396.3	1473.8	1706.5	1939.2	13.858	13.973	90.0	13.957
100	100	961.8	1399.0	1573.8	1661.3	1923.6	2185.9	13.898	14.830	85.0	14.051
100	100	1069.5	1555.6	1750.0	1847.3	2138.9	2430.6	13.976	16.556	85.0	14.142
100	100	1142.2	1661.4	1869.0	1972.9	2284.4	2595.9	14.028	17.681	85.0	14.205
100	100	1218.8	1772.8	1994.4	2105.2	2437.6	2770.0	14.079	18.811	85.0	14.268
100	100	1282.2	1865.1	2098.2	2214.8	2564.5	2914.2	14.122	19.770	85.0	14.323
100	100	1341.2	1950.9	2194.8	2316.7	2682.5	3048.3	14.165	20.731	85.0	14.370
100	100	1376.9	2002.7	2253.1	2378.2	2753.8	3129.3	14.189	21.258	85.0	14.402
100	100	1572.3	2286.9	2572.8	2715.7	3144.5	3573.3	14.323	24.256	85.0	14.563
100	100	1294.8	1883.3	2118.7	2236.4	2589.6	2942.7	14.283	20.003	85.0	14.441
100	100	1253.3	1823.1	2050.9	2164.9	2506.7	2848.5	14.323	19.479	85.0	14.472
100	100	1403.9	2042.0	2297.3	2424.9	2807.8	3190.7	14.421	21.702	85.0	14.634

Torque table | 2 3/8" TO 3 1/2"

Please consider footnotes on page 30 related to torque values

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
2 3/8	4.60	0.190	55	1370	1520	1670	230	1290	2010
			80	1520	1690	1860	250	1440	2310
			90	1580	1750	1930	260	1490	2440
			95	1600	1780	1960	270	1510	2500
			110	1690	1880	2070	280	1600	2680
			125	1780	1980	2180	300	1680	2870
	5.10	0.218	55	1530	1700	1870	260	1450	2270
			80	1720	1910	2100	290	1620	2610
			90	1790	1990	2190	300	1690	2750
			95	1830	2030	2230	300	1730	2820
			110	1940	2150	2370	320	1830	3020
			125	2040	2270	2500	340	1930	3230
	5.80	0.254	55	1800	2000	2200	300	1700	2710
			80	2030	2260	2490	340	1920	3100
			90	2120	2360	2600	350	2010	3260
			95	2170	2410	2650	360	2050	3330
			110	2300	2560	2820	380	2180	3570
			125	2420	2690	2960	400	2290	3800
	6.30	0.280	55	1990	2210	2430	330	1880	3040
			80	2260	2510	2760	380	2130	3460
			90	2370	2630	2890	390	2240	3630
			95	2420	2690	2960	400	2290	3720
			110	2590	2880	3170	430	2450	3970
			125	2690	2990	3290	450	2540	4230
6.60	0.295	55	2040	2270	2500	340	1930	3040	
		80	2300	2560	2820	380	2180	3470	
		90	2410	2680	2950	400	2280	3630	
		95	2470	2740	3010	410	2330	3720	
		110	2630	2920	3210	440	2480	3970	
		125	2750	3050	3360	460	2590	4230	
7.35	0.336	55	2310	2570	2830	390	2180	3470	
		80	2630	2920	3210	440	2480	3930	
		90	2750	3060	3370	460	2600	4110	
		95	2820	3130	3440	470	2660	4200	
		110	3010	3340	3670	500	2840	4480	
		125	3120	3470	3820	520	2950	4760	
2 7/8	6.40	0.217	55	2070	2300	2530	350	1960	2990
			80	2280	2530	2780	380	2150	3470
			90	2370	2630	2890	390	2240	3660
			95	2410	2680	2950	400	2280	3750
			110	2540	2820	3100	420	2400	4040
			125	2650	2940	3230	440	2500	4330
	7.80	0.276	55	2600	2890	3180	430	2460	3800
			80	2900	3220	3540	480	2740	4390
			90	3020	3360	3700	500	2860	4620
			95	3090	3430	3770	510	2920	4740
			110	3270	3630	3990	540	3090	5090
			125	3380	3750	4130	560	3190	5440
	8.60	0.308	55	2990	3320	3650	500	2820	4540
			80	3380	3760	4140	560	3200	5220
			90	3550	3940	4330	590	3350	5500
			95	3630	4030	4430	600	3430	5630
			110	3830	4260	4690	640	3620	6040
			125	3920	4360	4800	650	3710	6450
	9.35	0.340	55	3370	3740	4110	560	3180	5170
			80	3830	4260	4690	640	3620	5930
			90	4020	4470	4920	670	3800	6230
			95	4120	4580	5040	690	3890	6380
			110	4340	4820	5300	720	4100	6830
			125	4430	4920	5410	740	4180	7280
9.80	0.362	55	3560	3950	4350	590	3360	5460	
		80	4060	4510	4960	680	3830	6240	

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
2 7/8	9.80	0.362	90	4270	4740	5210	710	4030	6550
			95	4370	4860	5350	730	4130	6710
			110	4580	5090	5600	760	4330	7170
			125	4680	5200	5720	780	4420	7640
	10.50	0.392	55	3830	4250	4680	640	3610	5840
			80	4370	4860	5350	730	4130	6660
			90	4600	5110	5620	770	4340	6980
			95	4710	5230	5750	780	4450	7140
	10.70	0.405	110	4920	5470	6020	820	4650	7630
			125	5030	5590	6150	840	4750	8120
			55	4000	4440	4880	670	3770	6160
			80	4600	5110	5620	770	4340	7010
		90	4830	5370	5910	810	4560	7350	
		95	4960	5510	6060	830	4680	7520	
		110	5160	5730	6300	860	4870	8030	
		125	5270	5860	6450	880	4980	8540	
3 1/2	7.70	0.216	55	2570	2850	3140	430	2420	3380
			80	3110	3450	3800	520	2930	4070
			90	3220	3580	3940	540	3040	4350
			95	3280	3640	4000	550	3090	4490
			110	3460	3840	4220	580	3260	4910
			125	3540	3930	4320	590	3340	5330
	9.20	0.254	55	3020	3360	3700	500	2860	4000
			80	3400	3780	4160	570	3210	4840
			90	3560	3950	4350	590	3360	5170
			95	3630	4030	4430	600	3430	5340
			110	3790	4210	4630	630	3580	5840
			125	3900	4330	4760	650	3680	6340
	10.20	0.289	55	3560	3950	4350	590	3360	4720
			80	4010	4460	4910	670	3790	5690
			90	4200	4670	5140	700	3970	6080
			95	4290	4770	5250	720	4050	6280
			110	4460	4950	5450	740	4210	6860
			125	4580	5090	5600	760	4330	7440
	12.70	0.375	55	4730	5250	5780	790	4460	6180
			80	5400	6000	6600	900	5100	7400
			90	5670	6300	6930	950	5360	7890
			95	5790	6430	7070	960	5470	8140
			110	5940	6600	7260	990	5610	8870
			125	6090	6770	7450	1020	5750	9600
	13.70	0.413	55	5090	5650	6220	850	4800	6570
			80	5850	6500	7150	980	5530	7850
			90	6150	6830	7510	1020	5810	8360
			95	6240	6930	7620	1040	5890	8620
			110	6410	7120	7830	1070	6050	9390
			125	6590	7320	8050	1100	6220	10160
	14.30	0.430	55	5420	6020	6620	900	5120	7020
			80	6280	6980	7680	1050	5930	8390
			90	6610	7340	8070	1100	6240	8940
			95	6660	7400	8140	1110	6290	9220
			110	6850	7610	8370	1140	6470	10040
			125	7030	7810	8590	1170	6640	10860
14.70	0.449	55	5630	6250	6880	940	5310	7240	
		80	6520	7240	7960	1090	6150	8630	
		90	6850	7610	8370	1140	6470	9190	
		95	6910	7680	8450	1150	6530	9470	
		110	7100	7890	8680	1180	6710	10310	
		125	7280	8090	8900	1210	6880	11150	
15.50	0.476	55	5810	6460	7110	970	5490	7380	
		80	6700	7440	8180	1120	6320	8770	
		90	7050	7830	8610	1170	6660	9330	
		95	7130	7920	8710	1190	6730	9610	

3 1/2" TO 5"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
3 1/2	15.50	0.476	110	7320	8130	8940	1220	6910	10450
			125	7510	8340	9170	1250	7090	11280
4	8.20	0.190	55	2530	2810	3090	420	2390	4180
			80	2830	3140	3450	470	2670	5030
			90	2940	3270	3600	490	2780	5370
			95	3000	3330	3660	500	2830	5540
			110	3180	3530	3880	530	3000	6050
	9.50	0.226	125	3270	3630	3990	540	3090	6550
			55	3100	3440	3780	520	2920	5270
			80	3520	3910	4300	590	3320	6330
			90	3690	4100	4510	620	3490	6760
			95	3780	4200	4620	630	3570	6970
	10.90	0.262	110	3970	4410	4850	660	3750	7610
			125	4100	4550	5010	680	3870	8250
			55	3570	3970	4370	600	3370	6070
			80	4120	4580	5040	690	3890	7280
			90	4340	4820	5300	720	4100	7770
13.20	0.330	95	4450	4940	5430	740	4200	8010	
		110	4630	5140	5650	770	4370	8730	
		125	4780	5310	5840	800	4510	9460	
		55	4580	5090	5600	760	4330	7700	
		80	5290	5880	6470	880	5000	9160	
14.85	0.380	90	5570	6190	6810	930	5260	9740	
		95	5720	6350	6990	950	5400	10030	
		110	5900	6560	7220	980	5580	10910	
		125	6080	6760	7440	1010	5750	11780	
		55	5410	6010	6610	900	5110	9200	
16.10	0.415	80	6320	7020	7720	1050	5970	10900	
		90	6690	7430	8170	1110	6320	11570	
		95	6770	7520	8270	1130	6390	11910	
		110	6990	7770	8550	1170	6600	12930	
		125	7210	8010	8810	1200	6810	13940	
16.50	0.430	55	5820	6470	7120	970	5500	9760	
		80	6790	7540	8290	1130	6410	11510	
		90	7170	7970	8770	1200	6770	12210	
		95	7270	8080	8890	1210	6870	12560	
		110	7510	8340	9170	1250	7090	13610	
18.90	0.500	125	7740	8600	9460	1290	7310	14660	
		55	6110	6790	7470	1020	5770	10330	
		80	7160	7960	8760	1190	6770	12160	
		90	7560	8400	9240	1260	7140	12900	
		95	7640	8490	9340	1270	7220	13270	
4 1/2	10.50	0.224	110	7880	8760	9640	1310	7450	14370
			125	8130	9030	9930	1350	7680	15470
			55	7710	8570	9430	1290	7280	13420
			80	9230	10260	11290	1540	8720	15670
			90	9540	10600	11660	1590	9010	16570
4 1/2	11.60	0.250	95	9640	10710	11780	1610	9100	17020
			110	9930	11030	12130	1650	9380	18370
			125	10220	11350	12490	1700	9650	19710
			55	3290	3650	4020	550	3100	5710
			80	3740	4160	4580	620	3540	6940
	11.60	0.250	90	3930	4370	4810	660	3710	7430
			95	4020	4470	4920	670	3800	7670
			110	4260	4730	5200	710	4020	8400
			125	4410	4900	5390	740	4170	9140
			55	3730	4140	4550	620	3520	6550
4 1/2	11.60	0.250	80	4300	4780	5260	720	4060	7950
			90	4530	5030	5530	750	4280	8510
			95	4640	5160	5680	770	4390	8790
			110	4890	5430	5970	810	4620	9630
			125	5070	5630	6190	840	4790	10470

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
4 1/2	12.60	0.271	55	4150	4610	5070	690	3920	7440
			80	4820	5360	5900	800	4560	9010
			90	5090	5660	6230	850	4810	9640
			95	5230	5810	6390	870	4940	9950
			110	5460	6070	6680	910	5160	10890
			125	5660	6290	6920	940	5350	11830
	13.50	0.290	55	4580	5090	5600	760	4330	8340
			80	5350	5940	6530	890	5050	10080
			90	5660	6290	6920	940	5350	10770
			95	5810	6460	7110	970	5490	11120
			110	6030	6700	7370	1010	5700	12160
			125	6260	6950	7650	1040	5910	13210
	15.20	0.337	55	5360	5960	6560	890	5070	9710
			80	6320	7020	7720	1050	5970	11680
			90	6700	7440	8180	1120	6320	12470
			95	6820	7580	8340	1140	6440	12870
			110	7070	7860	8650	1180	6680	14050
			125	7340	8150	8970	1220	6930	15230
	16.60	0.375	55	5890	6540	7190	980	5560	10450
			80	6910	7680	8450	1150	6530	12520
			90	7320	8130	8940	1220	6910	13350
			95	7460	8290	9120	1240	7050	13760
			110	7740	8600	9460	1290	7310	15000
			125	8010	8900	9790	1340	7570	16240
17.00	0.380	55	5990	6660	7330	1000	5660	10650	
		80	7040	7820	8600	1170	6650	12750	
		90	7450	8280	9110	1240	7040	13590	
		95	7590	8430	9270	1260	7170	14010	
		110	7880	8750	9630	1310	7440	15270	
		125	8150	9060	9970	1360	7700	16530	
17.70	0.402	55	6360	7070	7780	1060	6010	11290	
		80	7480	8310	9140	1250	7060	13480	
		90	7920	8800	9680	1320	7480	14360	
		95	8060	8950	9850	1340	7610	14800	
		110	8340	9270	10200	1390	7880	16120	
		125	8640	9600	10560	1440	8160	17440	
18.90	0.430	55	6820	7580	8340	1140	6440	12060	
		80	8030	8920	9810	1340	7580	14370	
		90	8510	9450	10400	1420	8030	15290	
		95	8630	9590	10550	1440	8150	15750	
		110	8940	9930	10920	1490	8440	17140	
		125	9250	10280	11310	1540	8740	18520	
21.50	0.500	55	8570	9520	10470	1430	8090	15630	
		80	10280	11420	12560	1710	9710	18470	
		90	10730	11920	13110	1790	10130	19600	
		95	10850	12060	13270	1810	10250	20170	
		110	11220	12470	13720	1870	10600	21880	
		125	11580	12870	14160	1930	10940	23580	
5	13.00	0.253	55	3600	4000	4400	600	3400	7800
			80	3940	4380	4820	660	3720	9500
			90	4080	4530	4980	680	3850	10180
			95	4150	4610	5070	690	3920	10520
			110	4310	4790	5270	720	4070	11540
			125	4470	4970	5470	750	4220	12560
	15.00	0.296	55	4230	4700	5170	710	4000	9590
			80	4700	5220	5740	780	4440	11650
			90	4890	5430	5970	810	4620	12480
			95	4960	5510	6060	830	4680	12890
			110	5170	5740	6310	860	4880	14130
			125	5370	5970	6570	900	5070	15370
	18.00	0.362	55	5260	5840	6420	880	4960	12110
			80	5840	6490	7140	970	5520	14600

5" TO 6 5/8"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
5	18.00	0.362	90	6070	6740	7410	1010	5730	15600
			95	6150	6830	7510	1020	5810	16100
			110	6400	7110	7820	1070	6040	17600
			125	6640	7380	8120	1110	6270	19100
			55	5870	6520	7170	980	5540	13680
	20.30	0.408	80	6570	7300	8030	1100	6210	16450
			90	6800	7560	8320	1130	6430	17560
			95	6890	7660	8430	1150	6510	18110
			110	7190	7990	8790	1200	6790	19770
			125	7480	8310	9140	1250	7060	21430
	20.80	0.422	55	6080	6750	7430	1010	5740	14180
			80	6800	7560	8320	1130	6430	17020
			90	7040	7820	8600	1170	6650	18160
			95	7140	7930	8720	1190	6740	18730
			110	7430	8260	9090	1240	7020	20430
21.40	0.437	125	7730	8590	9450	1290	7300	22130	
		55	6260	6950	7650	1040	5910	14480	
		80	6990	7770	8550	1170	6600	17360	
		90	7250	8050	8860	1210	6840	18510	
		95	7340	8160	8980	1220	6940	19090	
23.20	0.478	110	7650	8500	9350	1280	7230	20810	
		125	7950	8830	9710	1320	7510	22540	
		55	6870	7630	8390	1140	6490	16080	
		80	7690	8540	9390	1280	7260	19200	
		90	7950	8830	9710	1320	7510	20440	
24.10	0.500	95	8060	8950	9850	1340	7610	21070	
		110	8380	9310	10240	1400	7910	22940	
		125	8710	9680	10650	1450	8230	24810	
		55	7250	8050	8860	1210	6840	17360	
		80	8140	9040	9940	1360	7680	20670	
26.70	0.562	90	8390	9320	10250	1400	7920	22000	
		95	8510	9450	10400	1420	8030	22670	
		110	8850	9830	10810	1470	8360	24660	
		125	9200	10220	11240	1530	8690	26650	
		55	8310	9230	10150	1380	7850	21110	
		80	9370	10410	11450	1560	8850	24970	
		90	9630	10700	11770	1610	9100	26520	
		95	9770	10850	11940	1630	9220	27290	
		110	10150	11280	12410	1690	9590	29600	
		125	10550	11720	12890	1760	9960	31920	
5 1/2	15.50	0.275	55	4260	4730	5200	710	4020	9900
			80	4700	5220	5740	780	4440	12120
			90	4870	5410	5950	810	4600	13000
			95	4960	5510	6060	830	4680	13450
			110	5170	5740	6310	860	4880	14770
	17.00	0.304	125	5360	5950	6550	890	5060	16100
			55	4740	5270	5800	790	4480	11440
			80	5290	5880	6470	880	5000	13990
			90	5510	6120	6730	920	5200	15020
			95	5600	6220	6840	930	5290	15530
	20.00	0.361	110	5830	6480	7130	970	5510	17060
			125	6080	6750	7430	1010	5740	18600
			55	5630	6260	6890	940	5320	13790
			80	6340	7040	7740	1060	5980	16810
			90	6600	7330	8060	1100	6230	18020
23.00	0.415	95	6700	7440	8180	1120	6320	18620	
		110	6990	7770	8550	1170	6600	20430	
		125	7300	8110	8920	1220	6890	22250	
		55	6620	7360	8100	1100	6260	16940	
		80	7510	8340	9170	1250	7090	20560	
			90	7780	8640	9500	1300	7340	22010
			95	7890	8770	9650	1320	7450	22730

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE			
				Minimum	Optimum	Maximum	Minimum	Maximum				
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb			
	23.00	0.415	110	8250	9170	10090	1380	7790	24900			
			125	8600	9560	10520	1430	8130	27080			
			26.00	0.476	55	7720	8580	9440	1290	7290	19900	
					80	8770	9740	10710	1460	8280	24010	
					90	9050	10060	11070	1510	8550	25650	
			95	9190	10210	11230	1530	8680	26470			
			110	9590	10660	11730	1600	9060	28930			
			125	10000	11110	12220	1670	9440	31400			
			26.80	0.500	55	8040	8930	9820	1340	7590	20870	
					80	9140	10150	11170	1520	8630	25150	
90	9410	10460			11510	1570	8890	26860				
95	9560	10620			11680	1590	9030	27710				
110	9980	11090			12200	1660	9430	30270				
			125	10400	11560	12720	1730	9830	32840			
			28.40	0.530	55	8620	9580	10540	1440	8140	22980	
					80	9810	10900	11990	1640	9270	27600	
					90	10120	11240	12360	1690	9550	29450	
					95	10270	11410	12550	1710	9700	30380	
110	10720	11910			13100	1790	10120	33150				
			125	11170	12410	13650	1860	10550	35930			
			29.70	0.562	55	9060	10070	11080	1510	8560	23980	
					80	10310	11460	12610	1720	9740	28740	
					90	10630	11810	12990	1770	10040	30650	
					95	10790	11990	13190	1800	10190	31600	
110	11260	12510			13760	1880	10630	34460				
			125	11740	13040	14340	1960	11080	37320			
			32.60	0.625	55	10120	11240	12360	1690	9550	27110	
					80	11490	12770	14050	1920	10850	32330	
					90	11840	13160	14480	1970	11190	34410	
					95	12020	13350	14690	2000	11350	35460	
110	12540	13930			15320	2090	11840	38590				
			125	13060	14510	15960	2180	12330	41720			
			6 5/8	20.00	0.288	55	5090	5660	6230	850	4810	13100
						80	5710	6340	6970	950	5390	16360
						90	5940	6600	7260	990	5610	17670
						95	6030	6700	7370	1010	5700	18320
110	6310	7010				7710	1050	5960	20280			
			125	6600	7330	8060	1100	6230	22240			
			23.20	0.330	55	5990	6650	7320	1000	5650	16180	
					80	6820	7580	8340	1140	6440	20220	
					90	7080	7870	8660	1180	6690	21840	
					95	7210	8010	8810	1200	6810	22640	
110	7580	8420			9260	1260	7160	25070				
			125	7950	8830	9710	1320	7510	27490			
			24.00	0.352	55	6450	7170	7890	1080	6090	17750	
					80	7400	8220	9040	1230	6990	22170	
					90	7670	8520	9370	1280	7240	23940	
					95	7810	8680	9550	1300	7380	24830	
110	8230	9140			10050	1370	7770	27480				
			125	8650	9610	10570	1440	8170	30130			
			28.00	0.417	55	7850	8720	9590	1310	7410	22350	
					80	9010	10010	11010	1500	8510	27780	
					90	9340	10380	11420	1560	8820	29950	
					95	9510	10570	11630	1590	8980	31040	
110	10030	11140			12250	1670	9470	34290				
			125	10540	11710	12880	1760	9950	37550			
			32.00	0.475	55	8920	9910	10900	1490	8420	25490	
					80	10270	11410	12550	1710	9700	31570	
					90	10670	11860	13050	1780	10080	34000	
					95	10870	12080	13290	1810	10270	35220	
110	11480	12760			14040	1910	10850	38870				
			125	12090	13430	14770	2010	11420	42520			

6 5/8" TO 7 3/4"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
6 5/8	35.00	0.525	55	9890	10990	12090	1650	9340	28320
			80	11360	12620	13880	1890	10730	34940
			90	11800	13110	14420	1970	11140	37590
			95	12020	13350	14690	2000	11350	38910
			110	12680	14090	15500	2110	11980	42880
			125	13340	14820	16300	2220	12600	46850
	36.70	0.562	55	10310	11460	12610	1720	9740	28510
			80	11830	13140	14450	1970	11170	35090
			90	12280	13640	15000	2050	11590	37720
			95	12500	13890	15280	2080	11810	39030
			110	13190	14650	16120	2200	12450	42980
			125	13860	15400	16940	2310	13090	46930
7	23.00	0.317	55	5900	6550	7210	980	5570	15960
			80	6700	7440	8180	1120	6320	20040
			90	6980	7750	8530	1160	6590	21680
			95	7090	7880	8670	1180	6700	22500
			110	7450	8280	9110	1240	7040	24950
			125	7810	8680	9550	1300	7380	27400
	24.75	0.343	55	6550	7280	8010	1090	6190	18460
			80	7540	8380	9220	1260	7120	23200
			90	7830	8700	9570	1310	7400	25090
			95	7970	8860	9750	1330	7530	26040
			110	8400	9330	10260	1400	7930	28880
			125	8830	9810	10790	1470	8340	31720
	26.00	0.362	55	7020	7800	8580	1170	6630	20170
			80	8110	9010	9910	1350	7660	25330
			90	8420	9360	10300	1400	7960	27390
			95	8590	9540	10490	1430	8110	28420
			110	9060	10070	11080	1510	8560	31520
			125	9540	10600	11660	1590	9010	34620
	29.00	0.408	55	8030	8920	9810	1340	7580	23370
			80	9320	10350	11390	1550	8800	29290
			90	9700	10780	11860	1620	9160	31650
			95	9900	11000	12100	1650	9350	32830
			110	10480	11640	12800	1750	9890	36380
			125	11060	12290	13520	1840	10450	39930
	32.00	0.453	55	8960	9960	10960	1490	8470	26090
			80	10390	11540	12690	1730	9810	32580
			90	10830	12030	13230	1800	10230	35180
			95	11040	12270	13500	1840	10430	36480
			110	11700	13000	14300	1950	11050	40370
			125	12350	13720	15090	2060	11660	44260
	35.00	0.498	55	9880	10980	12080	1650	9330	28740
			80	11440	12710	13980	1910	10800	35750
			90	11920	13240	14560	1990	11250	38560
			95	12150	13500	14850	2030	11480	39960
			110	12850	14280	15710	2140	12140	44170
			125	13560	15070	16580	2260	12810	48380
38.00	0.540	55	10710	11900	13090	1790	10120	31030	
		80	12380	13750	15130	2060	11690	38490	
		90	12880	14310	15740	2150	12160	41470	
		95	13130	14590	16050	2190	12400	42960	
		110	13890	15430	16970	2310	13120	47440	
		125	14630	16260	17890	2440	13820	51910	
41.00	0.590	55	11880	13200	14520	1980	11220	35020	
		80	13710	15230	16750	2280	12950	43270	
		90	14260	15840	17420	2380	13460	46570	
		95	14540	16150	17770	2420	13730	48210	
		110	15360	17070	18780	2560	14510	53160	
		125	16190	17990	19790	2700	15290	58110	
7 5/8	29.70	0.375	55	8110	9010	9910	1350	7660	23680
			80	9340	10380	11420	1560	8820	29790

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
7 5/8	29.70	0.375	90	9710	10790	11870	1620	9170	32240
			95	9880	10980	12080	1650	9330	33460
			110	10410	11570	12730	1740	9830	37130
			125	10940	12150	13370	1820	10330	40800
	33.70	0.430	55	9630	10700	11770	1610	9100	29130
			80	11180	12420	13660	1860	10560	36550
			90	11620	12910	14200	1940	10970	39520
			95	11840	13150	14470	1970	11180	41010
	35.80	0.465	110	12500	13890	15280	2080	11810	45460
			125	13170	14630	16090	2190	12440	49920
			55	10420	11580	12740	1740	9840	31350
			80	12120	13470	14820	2020	11450	39270
39.00	0.500	90	12620	14020	15420	2100	11920	42440	
		95	12870	14300	15730	2150	12160	44020	
		110	13620	15130	16640	2270	12860	48770	
		125	14360	15950	17550	2390	13560	53520	
42.80	0.562	55	11350	12610	13870	1890	10720	34450	
		80	13200	14670	16140	2200	12470	43050	
		90	13750	15280	16810	2290	12990	46490	
		95	14020	15580	17140	2340	13240	48210	
45.30	0.595	110	14840	16490	18140	2470	14020	53370	
		125	15670	17410	19150	2610	14800	58530	
		55	12630	14030	15430	2100	11930	37620	
		80	14690	16320	17950	2450	13870	46850	
48.60	0.640	90	15310	17010	18710	2550	14460	50540	
		95	15620	17360	19100	2600	14760	52380	
		110	16550	18390	20230	2760	15630	57920	
		125	17490	19430	21370	2910	16520	63450	
51.80	0.687	55	13040	14490	15940	2170	12320	37590	
		80	15150	16830	18510	2520	14310	46720	
		90	15780	17530	19280	2630	14900	50380	
		95	16090	17880	19670	2680	15200	52200	
56.10	0.750	110	17030	18920	20810	2840	16080	57680	
		125	17970	19970	21970	3000	16970	63160	
		55	13460	14960	16460	2240	12720	37460	
		80	15500	17220	18940	2580	14640	46510	
7 3/4	46.10	0.595	90	16110	17900	19690	2690	15220	50130
			95	16410	18230	20050	2730	15500	51930
			110	17320	19240	21160	2890	16350	57360
			125	18220	20240	22260	3040	17200	62790
47.60	0.625	55	14370	15970	17570	2400	13570	40790	
		80	16580	18420	20260	2760	15660	50570	
		90	17240	19160	21080	2870	16290	54490	
		95	17580	19530	21480	2930	16600	56440	
48.60	0.640	110	18570	20630	22690	3090	17540	62310	
		125	19570	21740	23910	3260	18480	68180	
		55	14850	16500	18150	2480	14030	42570	
		80	17140	19040	20940	2860	16180	52750	
51.80	0.687	90	17830	19810	21790	2970	16840	56820	
		95	18180	20200	22220	3030	17170	58850	
		110	19220	21360	23500	3200	18160	64960	
		125	20270	22520	24770	3380	19140	71060	
56.10	0.750	55	16370	18190	20010	2730	15460	48260	
		80	18860	20950	23050	3140	17810	59590	
		90	19620	21800	23980	3270	18530	64120	
		95	20000	22220	24440	3330	18890	66380	
7 3/4	56.10	0.750	110	21140	23490	25840	3520	19970	73180
			125	22280	24760	27240	3710	21050	79970
			55	18490	20540	22590	3080	17460	56130
			80	21200	23560	25920	3530	20030	68950
7 3/4	56.10	0.750	90	22050	24500	26950	3680	20830	74080
			95	22470	24970	27470	3750	21220	76640

7 3/4" TO 9 7/8"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
7 3/4	56.10	0.750	110	23740	26380	29020	3960	22420	84330
			125	25010	27790	30570	4170	23620	92020
8 5/8	36.00	0.400	55	10540	11710	12880	1760	9950	30250
			80	12100	13440	14780	2020	11420	38180
			90	12560	13960	15360	2090	11870	41360
			95	12790	14210	15630	2130	12080	42940
			110	13490	14990	16490	2250	12740	47710
	40.00	0.450	125	14180	15760	17340	2360	13400	52470
			55	11050	12280	13510	1840	10440	34940
			80	12460	13840	15220	2080	11760	44190
			90	12830	14260	15690	2140	12120	47900
			95	13030	14480	15930	2170	12310	49750
	44.00	0.500	110	13600	15110	16620	2270	12840	55300
			125	14180	15750	17330	2360	13390	60850
			55	13550	15050	16560	2260	12790	38550
			80	15710	17450	19200	2620	14830	48780
			90	16390	18210	20030	2730	15480	52870
49.00	0.557	95	16720	18580	20440	2790	15790	54920	
		110	17750	19720	21690	2960	16760	61050	
		125	18770	20850	22940	3130	17720	67190	
		55	15670	17410	19150	2610	14800	46290	
		80	18130	20140	22150	3020	17120	58360	
52.00	0.595	90	18890	20990	23090	3150	17840	63200	
		95	19280	21420	23560	3210	18210	65610	
		110	20420	22690	24960	3400	19290	72860	
		125	21570	23970	26370	3600	20370	80110	
		55	16710	18570	20430	2790	15780	48830	
54.00	0.625	80	19350	21500	23650	3230	18280	61530	
		90	20200	22440	24680	3370	19070	66620	
		95	20610	22900	25190	3440	19470	69160	
		110	21870	24300	26730	3650	20660	76780	
		125	23130	25700	28270	3860	21850	84400	
58.70	0.687	55	17820	19800	21780	2970	16830	52720	
		80	20640	22930	25220	3440	19490	66350	
		90	21560	23950	26350	3590	20360	71810	
		95	22010	24450	26900	3670	20780	74540	
		110	23370	25970	28570	3900	22070	82720	
9 5/8	36.00	0.352	125	24740	27490	30240	4120	23370	90900
			55	19400	21560	23720	3230	18330	56310
			80	22430	24920	27410	3740	21180	70680
			90	23400	26000	28600	3900	22100	76430
			95	23890	26540	29190	3980	22560	79310
40.00	0.395	110	25340	28160	30980	4220	23940	87930	
		125	26800	29780	32760	4470	25310	96550	
		55	11010	12230	13450	1830	10400	33700	
		80	12470	13860	15250	2080	11780	42890	
		90	12910	14340	15770	2150	12190	46560	
43.50	0.435	95	13130	14590	16050	2190	12400	48400	
		110	13780	15310	16840	2300	13010	53910	
		125	14440	16040	17640	2410	13630	59420	
		55	12510	13900	15290	2090	11820	37760	
		80	14260	15840	17420	2380	13460	47960	
44.00	0.450	90	14790	16430	18070	2460	13970	52040	
		95	15060	16730	18400	2510	14220	54080	
		110	15860	17620	19380	2640	14980	60200	
		125	16660	18510	20360	2780	15730	66330	
		55	14110	15680	17250	2350	13330	43450	
49.00	0.557	80	16170	17970	19770	2700	15270	55160	
		90	16820	18690	20560	2800	15890	59850	
		95	17150	19050	20960	2860	16190	62190	
		110	18110	20120	22130	3020	17100	69220	
		125	19080	21200	23320	3180	18020	76240	

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE
				Minimum	Optimum	Maximum	Minimum	Maximum	
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb
9 5/8	47.00	0.472	55	15450	17170	18890	2580	14590	47710
			80	17780	19760	21740	2960	16800	60500
			90	18520	20580	22640	3090	17490	65610
			95	18890	20990	23090	3150	17840	68170
			110	20010	22230	24450	3330	18900	75840
	53.50	0.545	125	21110	23460	25810	3520	19940	83520
			55	18240	20270	22300	3040	17230	57160
			80	21110	23450	25800	3520	19930	72310
			90	22050	24500	26950	3680	20830	78370
			95	22530	25030	27530	3750	21280	81400
	58.40	0.595	110	23950	26610	29270	3990	22620	90490
			125	25370	28190	31010	4230	23960	99580
			55	19880	22090	24300	3310	18780	61630
			80	23040	25600	28160	3840	21760	77830
			90	24110	26790	29470	4020	22770	84300
59.40	0.609	95	24650	27390	30130	4110	23280	87540	
		110	26260	29180	32100	4380	24800	97260	
		125	27870	30970	34070	4650	26320	106970	
		55	19510	21680	23850	3250	18430	57280	
		80	22620	25130	27640	3770	21360	72270	
61.10	0.625	90	23660	26290	28920	3940	22350	78270	
		95	24180	26870	29560	4030	22840	81260	
		110	25760	28620	31480	4290	24330	90260	
		125	27320	30360	33400	4550	25810	99250	
		55	20300	22560	24820	3380	19180	60560	
64.90	0.672	80	23530	26140	28750	3920	22220	76360	
		90	24620	27350	30090	4100	23250	82670	
		95	25160	27960	30760	4190	23770	85830	
		110	26800	29780	32760	4470	25310	95310	
		125	28430	31590	34750	4740	26850	104780	
70.30	0.734	55	22190	24660	27130	3700	20960	67460	
		80	25680	28530	31380	4280	24250	84840	
		90	26870	29850	32840	4480	25370	91800	
		95	27460	30510	33560	4580	25930	95270	
		110	29240	32490	35740	4870	27620	105700	
9 7/8	62.80	0.625	125	31020	34470	37920	5170	29300	116130
			55	24430	27140	29850	4070	23070	74740
			80	28200	31330	34460	4700	26630	93690
			90	29480	32760	36040	4910	27850	101270
			95	30130	33480	36830	5020	28460	105060
	66.90	0.668	110	32070	35630	39190	5340	30290	116430
			125	34000	37780	41560	5670	32110	127800
			55	21770	24190	26610	3630	20560	67740
			80	25090	27880	30670	4180	23700	85690
			90	26230	29140	32050	4370	24770	92880
	68.80	0.700	95	26800	29780	32760	4470	25310	96470
			110	28500	31670	34840	4750	26920	107240
			125	30210	33570	36930	5040	28530	118010
			55	22980	25530	28080	3830	21700	71820
			80	26430	29370	32310	4410	24960	90710
70.40	0.707	90	27640	30710	33780	4610	26100	98270	
		95	28240	31380	34520	4710	26670	102050	
		110	30040	33380	36720	5010	28370	113390	
		125	31850	35390	38930	5310	30080	124720	
		55	24610	27340	30070	4100	23240	76570	
		80	28400	31560	34720	4730	26830	96590	
		90	29750	33060	36370	4960	28100	104600	
		95	30440	33820	37200	5070	28750	108600	
		110	32460	36070	39680	5410	30660	120610	
		125	34500	38330	42160	5750	32580	132630	
		55	24560	27290	30020	4090	23200	75350	
		80	28370	31520	34670	4730	26790	95050	

9 7/8" TO 13 3/8"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE			
				Minimum	Optimum	Maximum	Minimum	Maximum				
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb			
9 7/8	70.40	0.707	90	29720	33020	36320	4950	28070	102920			
			95	30390	33770	37150	5070	28700	106860			
			110	32430	36030	39630	5400	30630	118680			
			125	34450	38280	42110	5740	32540	130500			
	72.10	0.725	55	25410	28230	31050	4230	24000	78670			
			80	29300	32550	35810	4880	27670	99100			
			90	30680	34090	37500	5110	28980	107280			
			95	31370	34850	38340	5230	29620	111360			
			110	33440	37160	40880	5570	31590	123620			
			125	35510	39460	43410	5920	33540	135880			
			10 3/4	40.50	0.350	55	14160	15730	17300	2360	13370	40320
						80	14810	16450	18100	2470	13980	51820
90	14810	16450				18100	2470	13980	56420			
95	14810	16450				18100	2470	13980	58720			
110	14810	16450				18100	2470	13980	65610			
125	14810	16450				18100	2470	13980	72510			
45.50	0.400	55		16130	17920	19710	2690	15230	48010			
		80		16830	18700	20570	2810	15900	61660			
		90		16830	18700	20570	2810	15900	67120			
		95		16830	18700	20570	2810	15900	69850			
		110		16830	18700	20570	2810	15900	78040			
		125		16830	18700	20570	2810	15900	86220			
51.00	0.450	55	18490	20540	22590	3080	17460	56060				
		80	19270	21410	23550	3210	18200	71830				
		90	19270	21410	23550	3210	18200	78140				
		95	19270	21410	23550	3210	18200	81290				
		110	19270	21410	23550	3210	18200	90750				
		125	19270	21410	23550	3210	18200	100210				
55.50	0.495	55	20300	22560	24820	3380	19180	61850				
		80	21120	23470	25820	3520	19950	79080				
		90	21120	23470	25820	3520	19950	85980				
		95	21120	23470	25820	3520	19950	89430				
		110	21120	23470	25820	3520	19950	99770				
		125	21120	23470	25820	3520	19950	110110				
60.70	0.545	55	22370	24860	27350	3730	21130	68180				
		80	23230	25810	28390	3870	21940	86970				
		90	23230	25810	28390	3870	21940	94490				
		95	23230	25810	28390	3870	21940	98250				
		110	23230	25810	28390	3870	21940	109520				
		125	23230	25810	28390	3870	21940	120800				
65.70	0.595	55	23670	26300	28930	3950	22360	63970				
		80	24650	27390	30130	4110	23280	81200				
		90	24650	27390	30130	4110	23280	88100				
		95	24650	27390	30130	4110	23280	91550				
		110	24650	27390	30130	4110	23280	101890				
		125	24650	27390	30130	4110	23280	112230				
71.10	0.650	55	26970	29970	32970	4500	25470	82020				
		80	27920	31020	34120	4650	26370	104100				
		90	27920	31020	34120	4650	26370	112930				
		95	27920	31020	34120	4650	26370	117350				
		110	27920	31020	34120	4650	26370	130590				
		125	27920	31020	34120	4650	26370	143840				
73.20	0.672	55	28800	32000	35200	4800	27200	83600				
		80	28800	32000	35200	4800	27200	105980				
		90	28800	32000	35200	4800	27200	114930				
		95	28800	32000	35200	4800	27200	119410				
		110	28800	32000	35200	4800	27200	132830				
		125	28800	32000	35200	4800	27200	146260				
76.60	0.700	55	29060	32290	35520	4840	27450	88830				
		80	29990	33320	36650	5000	28320	112510				
		90	29990	33320	36650	5000	28320	121980				
		95	29990	33320	36650	5000	28320	126710				

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE		
				Minimum	Optimum	Maximum	Minimum	Maximum			
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb		
10 3/4	76.60	0.700	110	29990	33320	36650	5000	28320	140920		
			125	29990	33320	36650	5000	28320	155120		
			79.20	0.734	55	30820	34240	37660	5140	29100	94490
			80		31750	35280	38810	5290	29990	119460	
			90		31750	35280	38810	5290	29990	129450	
	95	31750	35280	38810	5290	29990	134440				
	110	31750	35280	38810	5290	29990	149420				
	125	31750	35280	38810	5290	29990	164410				
	11 3/4	54.00	0.435	55	19700	21890	24080	3280	18610	52070	
				80	20400	22670	24940	3400	19270	66660	
90				20400	22670	24940	3400	19270	72490		
95				20400	22670	24940	3400	19270	75410		
110				20400	22670	24940	3400	19270	84160		
125		20400	22670	24940	3400	19270	92920				
60.00		0.489	55	22250	24720	27190	3710	21010	65280		
			80	23040	25600	28160	3840	21760	83740		
			90	23040	25600	28160	3840	21760	91120		
			95	23040	25600	28160	3840	21760	94810		
			110	23040	25600	28160	3840	21760	105890		
125		23040	25600	28160	3840	21760	116970				
65.00		0.534	55	24210	26900	29590	4040	22870	74380		
			80	25000	27780	30560	4170	23610	95380		
			90	25000	27780	30560	4170	23610	103780		
			95	25000	27780	30560	4170	23610	107980		
			110	25000	27780	30560	4170	23610	120590		
125		25000	27780	30560	4170	23610	133190				
71.00		0.582	55	26330	29250	32180	4390	24860	84040		
			80	27060	30070	33080	4510	25560	107690		
	90		27060	30070	33080	4510	25560	117150			
	95		27060	30070	33080	4510	25560	121880			
	110		27060	30070	33080	4510	25560	136060			
125	27060	30070	33080	4510	25560	150250					
11 7/8	58.80	0.470	55	22010	24450	26900	3670	20780	62530		
			80	22760	25290	27820	3790	21500	80250		
			90	22760	25290	27820	3790	21500	87340		
			95	22760	25290	27820	3790	21500	90890		
			110	22760	25290	27820	3790	21500	101520		
	125	22760	25290	27820	3790	21500	112150				
	71.80	0.582	55	25890	28770	31650	4320	24450	74470		
			80	26650	29610	32570	4440	25170	95320		
			90	26650	29610	32570	4440	25170	103660		
			95	26650	29610	32570	4440	25170	107830		
110			26650	29610	32570	4440	25170	120340			
125	26650	29610	32570	4440	25170	132860					
13 3/8	54.50	0.380	55	21870	24300	26730	3650	20660	66840		
			80	22510	25010	27510	3750	21260	86430		
			90	22510	25010	27510	3750	21260	94270		
			95	22510	25010	27510	3750	21260	98190		
			110	22510	25010	27510	3750	21260	109940		
	125	22510	25010	27510	3750	21260	121700				
	61.00	0.430	55	24590	27320	30050	4100	23220	78490		
			80	25250	28050	30860	4210	23840	101470		
			90	25250	28050	30860	4210	23840	110660		
			95	25250	28050	30860	4210	23840	115250		
			110	25250	28050	30860	4210	23840	129040		
	125	25250	28050	30860	4210	23840	142830				
	68.00	0.480	55	27840	30930	34020	4640	26290	89620		
			80	28540	31710	34880	4760	26950	115610		
			90	28540	31710	34880	4760	26950	126010		
95			28540	31710	34880	4760	26950	131210			
110			28540	31710	34880	4760	26950	146810			
125	28540	31710	34880	4760	26950	162410					

13 3/8" TO 13 5/8"

SIZE (OD)	NOMINAL WEIGHT	WALL THICKNESS	SMYS OF STEEL GRADE	MAKE UP TORQUE			SHOULDER TORQUE		YIELD TORQUE	
				Minimum	Optimum	Maximum	Minimum	Maximum		
in	lb/ft	in	ksi	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	ft.lb	
13 3/8	72.00	0.514	55	29720	33020	36320	4950	28070	98400	
			80	30370	33740	37110	5060	28680	126890	
			90	30370	33740	37110	5060	28680	138280	
			95	30370	33740	37110	5060	28680	143980	
			110	30370	33740	37110	5060	28680	161070	
	77.00	0.550	55	32000	35550	39110	5330	30220	106510	
			80	32640	36270	39900	5440	30830	137140	
			90	32640	36270	39900	5440	30830	149390	
			95	32640	36270	39900	5440	30830	155520	
			110	32640	36270	39900	5440	30830	173900	
	80.70	0.580	55	34020	37800	41580	5670	32130	112970	
			80	34680	38530	42380	5780	32750	145240	
			90	34680	38530	42380	5780	32750	158150	
			95	34680	38530	42380	5780	32750	164600	
			110	34680	38530	42380	5780	32750	183960	
85.00	0.608	55	35920	39910	43900	5990	33920	119370		
		80	36590	40650	44720	6100	34550	153270		
		90	36590	40650	44720	6100	34550	166830		
		95	36590	40650	44720	6100	34550	173610		
		110	36590	40650	44720	6100	34550	193950		
86.00	0.625	55	36870	40970	45070	6150	34820	121040		
		80	37580	41750	45930	6260	35490	155270		
		90	37580	41750	45930	6260	35490	168960		
		95	37580	41750	45930	6260	35490	175810		
		110	37580	41750	45930	6260	35490	196340		
98.00	0.719	55	41720	46350	50990	6950	39400	127400		
		80	42620	47360	52100	7100	40260	162610		
		90	42620	47360	52100	7100	40260	176690		
		95	42620	47360	52100	7100	40260	183740		
		110	42620	47360	52100	7100	40260	204860		
13 1/2	81.40	0.580	55	33450	37170	40890	5580	31590	106510	
			80	34120	37910	41700	5690	32220	136320	
			90	34120	37910	41700	5690	32220	148250	
			95	34120	37910	41700	5690	32220	154210	
			110	34120	37910	41700	5690	32220	172110	
13 5/8	79.10	0.555	55	30150	33500	36850	5030	28480	110810	
			80	31740	35270	38800	5290	29980	143070	
			90	31740	35270	38800	5290	29980	155980	
			95	31740	35270	38800	5290	29980	162430	
			110	31740	35270	38800	5290	29980	181780	
	88.20	0.625	55	33040	36710	40380	5510	31200	120300	
			80	34590	38430	42270	5760	32670	154980	
			90	34590	38430	42270	5760	32670	168850	
			95	34590	38430	42270	5760	32670	175790	
			110	34590	38430	42270	5760	32670	196600	
				125	34590	38430	42270	5760	32670	217410

- SMYS: Specified Minimum Yield Strength.
- An appropriate safety factor should be applied to these yield torque values.
- Latest version of the specific Product Data Sheet can be obtained from Tenaris's website.
- These torque values apply for Carbon and Low Alloy Steel Grades and shall be considered for reference purposes only. Torques may vary for other types of materials. Please contact your local Technical Sales representative for further support.

TenarisHydril

For further information on our connections, please visit our website and find:

- Running Manual (general guidelines on handling and care of connections and well installation recommendations)
- Premium Connections Performance Data (connections performance, torque values, geometries and pipe body data)
- Blanking Dimensions
- Threading & Repair Shops locations

For technical assistance, please contact premiumconnections@tenaris.com

