

BlueDock[®] connector

18" TO 42"

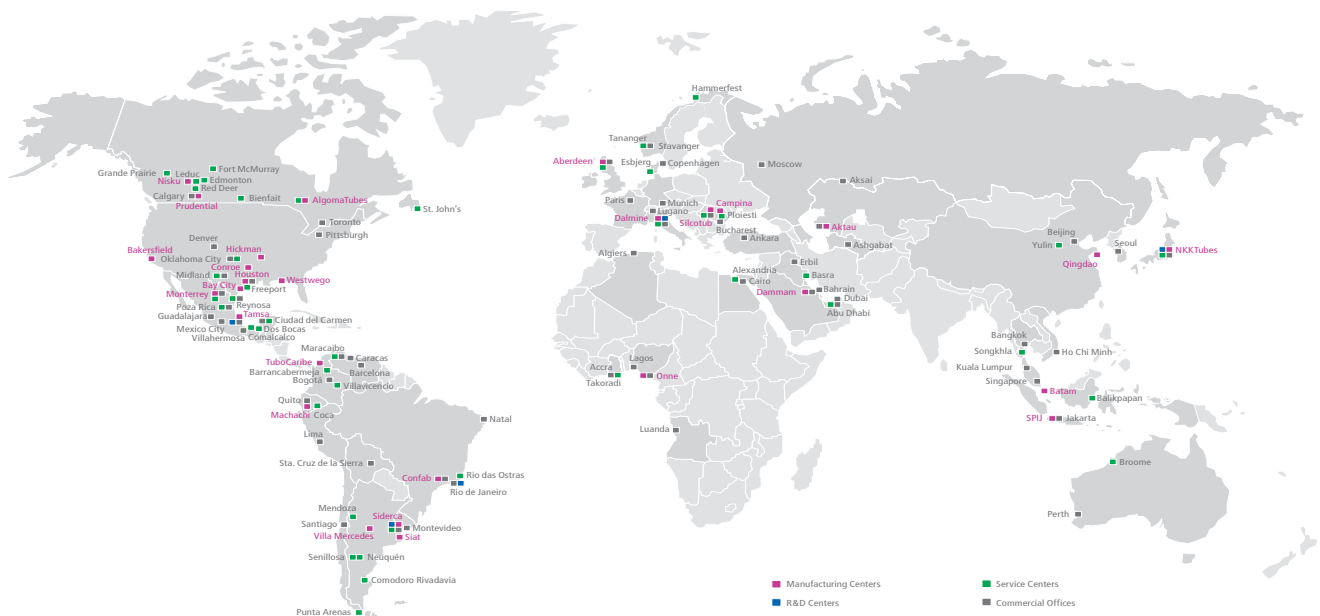


TenarisHydril

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.



Premium efficiency Integrated expertise



The TenarisHydril BlueDock® connector incorporates design concepts from the extensively tested TenarisHydril Blue® Series premium connections and provides reliable performance in the most complex ultra-deepwater operations.

This product has undergone sealability tests based on API RP 5C5 standard, and has been successfully used by major oil and gas operators working in extremely demanding environments.

The TenarisHydril BlueDock® connector is an integrated solution based on Tenaris's experience in pipe manufacturing, premium connection design and welding technology. The company manufactures the pipe and the connector under the same quality management system and can supply it as part of a more extensive casing and tubing package for offshore wells.

This complete solution is backed by Tenaris's global service network providing technical assistance, product testing, pipe management and technical support in the field.

General product description

FEATURES

- Proprietary hooked thread profile design provides fully reliable structural capacity under extreme loads and extra fatigue resistance.
- The multiple start and low TPI thread design with self-alignment guides allows fast, trouble-free make-up, requiring only 3/4 of a turn to final make-up.
- Double shoulder provides more than 100% compression efficiency, high over-torque capacity and enhanced fatigue response.
- Dope pockets to avoid excess dope pressure.
- Primary seal: metal-to-metal or pre-installed elastomeric seal.
- Optional sea water exclusion seal.
- Up to three anti-rotational keys.
- Box lifting shoulder suitable for conventional elevators.
- Make-up visual indicator.
- Internal or external flush configuration.
- Driving installation capacity verified by full scale testing.
- Full Fatigue option, manufactured with state-of-the-art technologies to optimize fatigue service, supported by extensive full-scale testing.

APPLICATIONS

- **HP/HT & Deep Wells**
- **Deepwater**
- **Shallow Water**
- **Conductor and surface casing**

BENEFITS

- Easy and safe stabbing, minimized cross-threading risk.
- High sealability performance – gas and water sealability verified by full-scale testing at 95% pipe body VME according to the forthcoming revision of API RP 5C5 CAL I.
- 100% ratings in tension, compression and bending.
- High fatigue performance under bending and/or tension-compression cycling loads, given by maximized radii and avoidance of stress-risers.
- Minimized risk of dope overpressure.
- Minimized risk of back-off.
- High over-torque capacity.

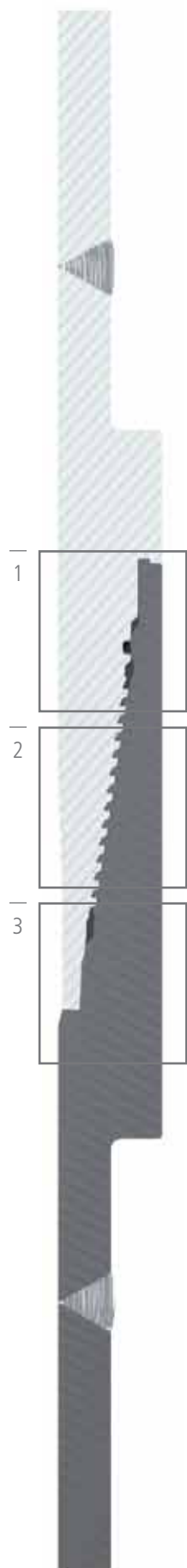
BLUEDOCK® PRODUCT FAMILY SCOPE			
OUTSIDE DIAMETER	PRIMARY SEAL*		OPTIONAL SEA WATER EXCLUSION SEAL (SWS)
	METAL-TO-METAL (MTM)	ELASTOMERIC (ELS)	
18	●	●	●
20	●	●	●
22	●	●	●
24	●	●	●
26		●	●
28		●	●
30		●	●
32		●	●
36		●	●
38		●	●
42		●	●

● AVAILABLE

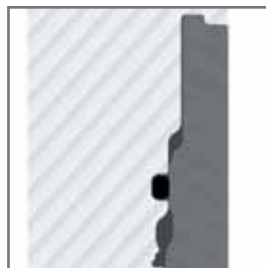
Specific size availability can be found in Technical Data Table on page 16.

* Primary seal options: either metal-to-metal or elastomeric.

Key features



1



- Double shoulder provides more than 100% compression efficiency, high over-torque capacity and enhanced fatigue response.
- Optional sea water exclusion seal.

2



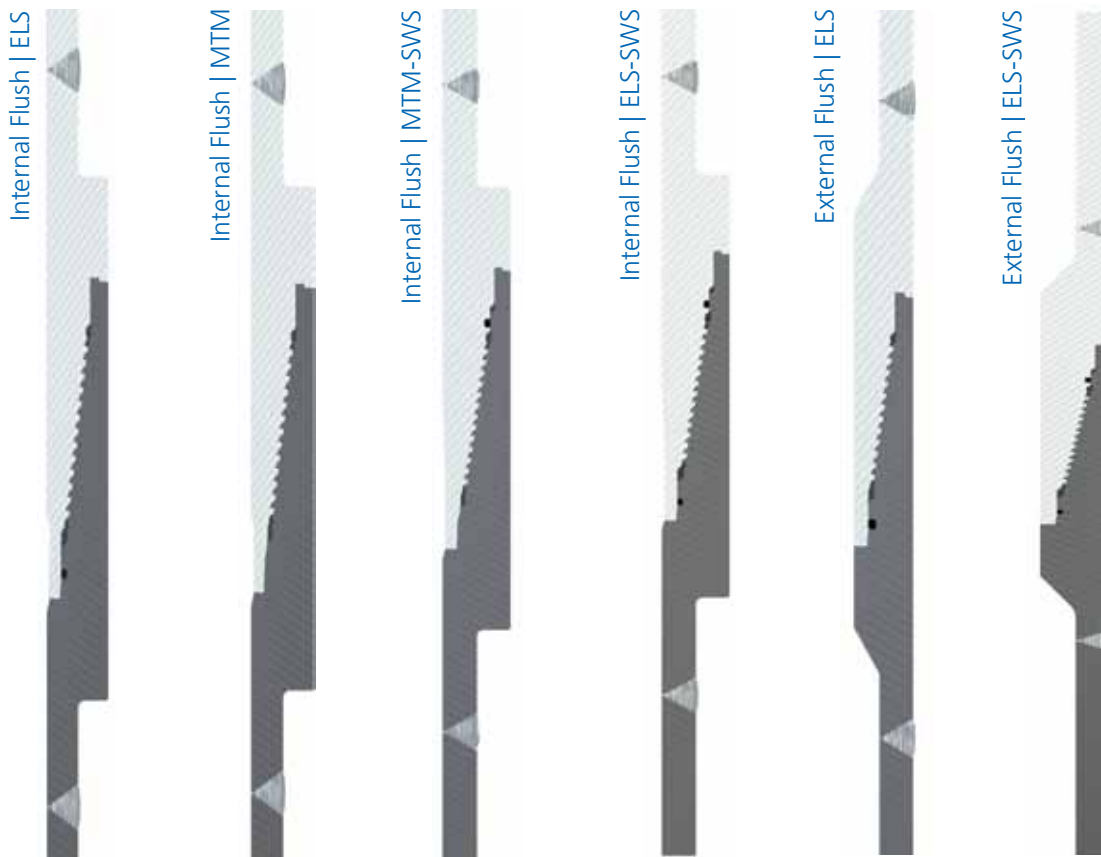
- Proprietary hooked thread profile design provides fully reliable structural capacity under extreme loads and extra fatigue resistance.
- High thread taper makes stabbing deeper and easier.

3

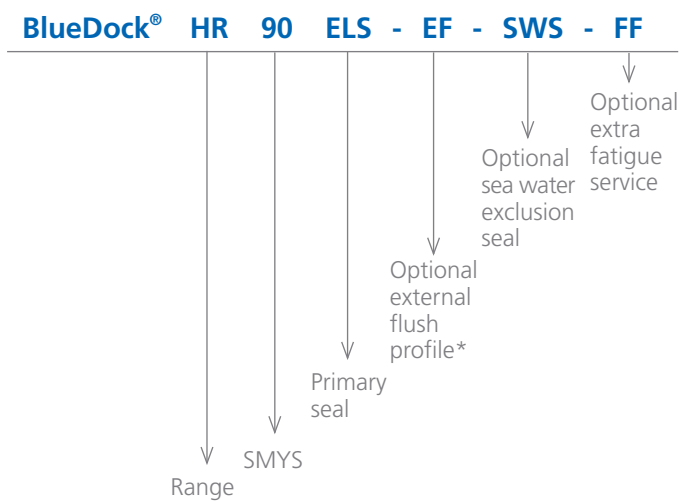


- The multiple start and low TPI thread design with self-alignment guides allows fast, trouble-free make-up, requiring only 3/4 of a turn to final make-up.
- Metal-to-metal seal in sizes up to 24" or pre-installed elastomeric seal in sizes from 18" to 42".

Typical profile options



BlueDock® connector nomenclature



Example of BlueDock® connector naming.

* Standard design presents an internal flush configuration. The external flush option needs to be specified if requested.

CONCEPT	ACRONYM	MEANING
Wall Thickness Range	HR	High Range
	LR	Low Range
Connector SMYS	70	70 ksi Specified Minimum Yield Strength
	90	90 ksi Specified Minimum Yield Strength
Primary Seal	MTM	Metal-to-Metal
	ELS	Elastomeric
Geometry (optional)	EF	External Flush
Sea Water Exclusion Seal (optional)	SWS	Sea Water Exclusion Seal
Extra Fatigue Service (optional)	FF	Full Fatigue

Qualified for complex operations

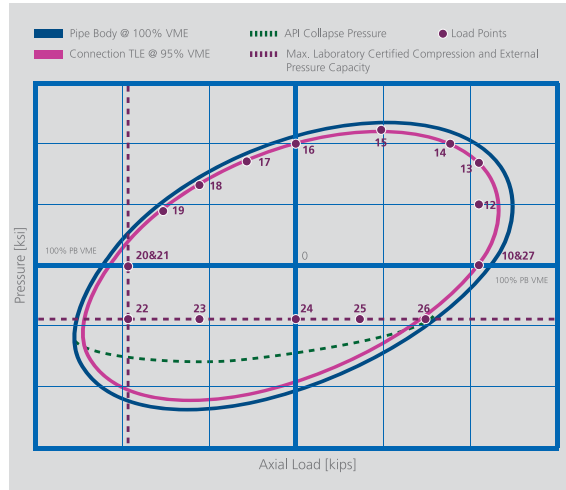
The TenarisHydril BlueDock® connector design is based on state-of-the-art techniques in numerical simulation as well as Tenaris's extensive knowledge in premium connection technology.

Its design relies on the extensively tested TenarisHydril Blue® Series and is fully optimized by finite element analysis (FEA). It is also verified through an extensive full-scale testing program (FST) performed in internal and external laboratories on several sizes of the product family.

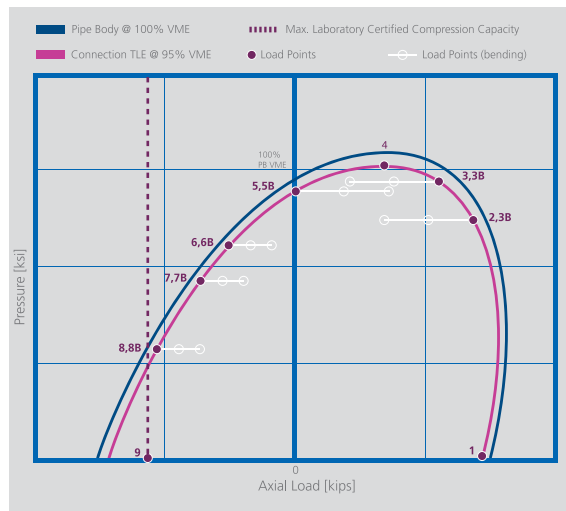
The BlueDock® connector has undergone sealability tests at 95% pipe body VME based on the forthcoming revision of the API RP 5C5 standard. The gas sealability of surface casings is tested according to the forthcoming revision of the API RP 5C5 CAL I protocol. The water sealability and structural capacity of conductor casings are tested according to the Series B of the same standard.

Tenaris assesses carefully the fatigue performance of threaded connectors in order to provide proper data for the design stage of the well. The fatigue resistance of the BlueDock® connector is expressed then, through an S-N curve obtained from full scale resonant fatigue tests at Tenaris own and external labs. The company performs a fatigue testing program for its connectors, in which the product is subjected to different load levels (stress range). Statistical analysis of the obtained data is performed to calculate a stress factor (SF) from the DNV C203 B1 Design curve used as reference. A special option manufactured with state-of-the-art technologies to optimize fatigue service, supported by extensive full-scale testing is also available.

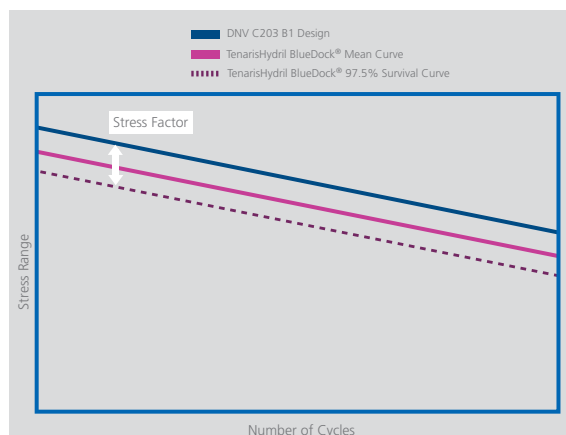
To validate the connector design in the most challenging deepwater environments today, Tenaris also conducted offshore rig tests in partnership with major oil and gas companies. Furthermore, BlueDock® connectors have already been installed offshore by several major oil and gas operators.



EXAMPLE OF TLE FOR SERIES A TEST ON BLUEDOCK® HR 90 MTM 22" X 1.125" WT API 5L X70, AS PART OF THE API RP 5C5 CAL I QUALIFICATION.



EXAMPLE OF TLE FOR SERIES B TEST ON BLUEDOCK® LR 70 ELS 30" X 1.000" WT API 5L X65, IN ACCORDANCE WITH API RP 5C5 STANDARD.



EXAMPLE OF S-N CURVE FOR AN SPECIFIC CONNECTOR SIZE.

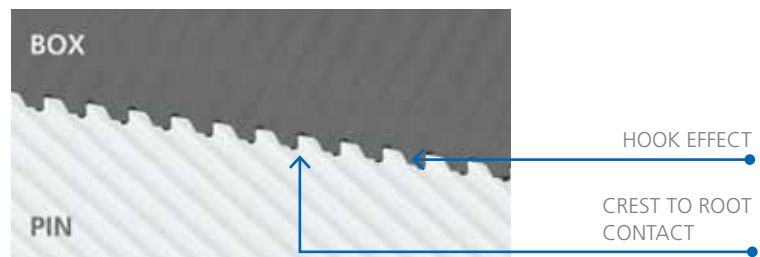
Robust connection design

THREAD PROFILE

The BlueDock® connector has a fully reliable structural capacity given by the crest-to-root hooked thread type. Its fast thread taper and high stabbing flank angle ensure deep and easy stabbing, while its multiple thread start provides fast and reliable make-up.

The low TPI design, which offers robust threads, minimizes the cross-threading risk. The final make-up position is achieved with 3/4 of a turn (1/2 to hand-tight + 1/4 power-tight).

The BlueDock® connector offers excellent galling resistance and high fatigue performance, with no stress risers on flank to root transitions.



DOUBLE SHOULDER

The connector's double shoulder configuration ensures more than 100% pipe body compression efficiency and high over-torque capacity, as well as improved fatigue life performance.

The internal shoulder's negative angle contributes to seal energization. Its stress relaxation groove provides improved fatigue performance.

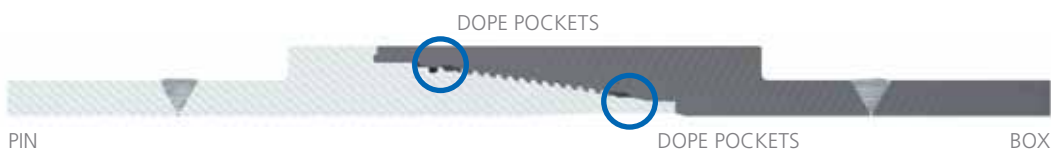
The external shoulder has a visual reference to ensure complete and aligned make-up. It is dimensioned to minimize handling damages.



DOPE POCKETS

The BlueDock® connector comes with double dope pockets specially designed to allocate the excess of thread compounds while maintaining the connector's efficiency and performance.

The dope pockets profiles, based on TenarisHydril Blue® technology, are designed to provide optimized fatigue life.

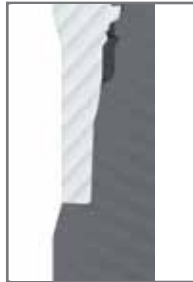


Advanced sealing options

PRIMARY METAL-TO-METAL SEAL | 18" TO 24"

The BlueDock® connector has a primary metal-to-metal seal with a sphere-to-cone geometry based on the Blue® Series technology, that provides a smooth seal sliding and a reliable parabolic contact pressure profile.

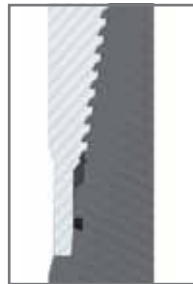
It offers excellent galling resistance and it has an extremely low sensitivity to axial displacement, maintaining the sealability under extreme combined loads.



PRIMARY ELASTOMERIC SEAL | 18" TO 42"

For applications that do not require MTM sealability, the BlueDock® connector has a primary seal option of elastomeric ring that covers the whole product size range.

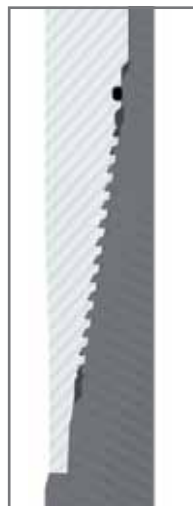
The finite element analysis (FEA) technique was applied to optimize the elastomeric seal groove dimensioning and positioning. The safe O-Ring retention during handling, cleaning and make-and-break operations is ensured by the dovetailed groove profile. The box O-Ring is pre-installed at the mill.



OPTIONAL SEA WATER EXCLUSION SEAL | 18" TO 42"

Tenaris has developed an elastomeric external seal option for offshore applications. The external seal is a barrier that prevents sea water from entering the thread and affecting the connector's fatigue performance.

As in the primary elastomeric seal, finite element analysis (FEA) was used to optimize the seal design. The pin O-Ring is pre-installed at the mill.



Secure installation

SELF-ALIGNMENT GUIDES

The internal and external guides provide self-alignment of the pin and box members during stabbing, avoiding the possibility of cross-threading.

ANTI-ROTATIONAL KEYS

Each BlueDock® connector can come with up to three anti-rotational keys. This safe and easy-to-operate device provides extra assurance against accidental back-offs increasing significantly the break-out torque. This increment was verified by ad-hoc testing, reaching approximately a value of 200% of applied make-up torque for surface casing and 300% for conductor casing sizes in the case of two anti-rotational keys installed.

The anti-rotational keys are pre-installed at Tenaris mills and housed, bolted and retained into a groove, to prevent losing parts. This design of anti-rotational keys shows no sensitivity to axial loads or the typical external shoulder opening under high tensile loads.

This device was designed to operate with multiple activations without the need to use special tools.

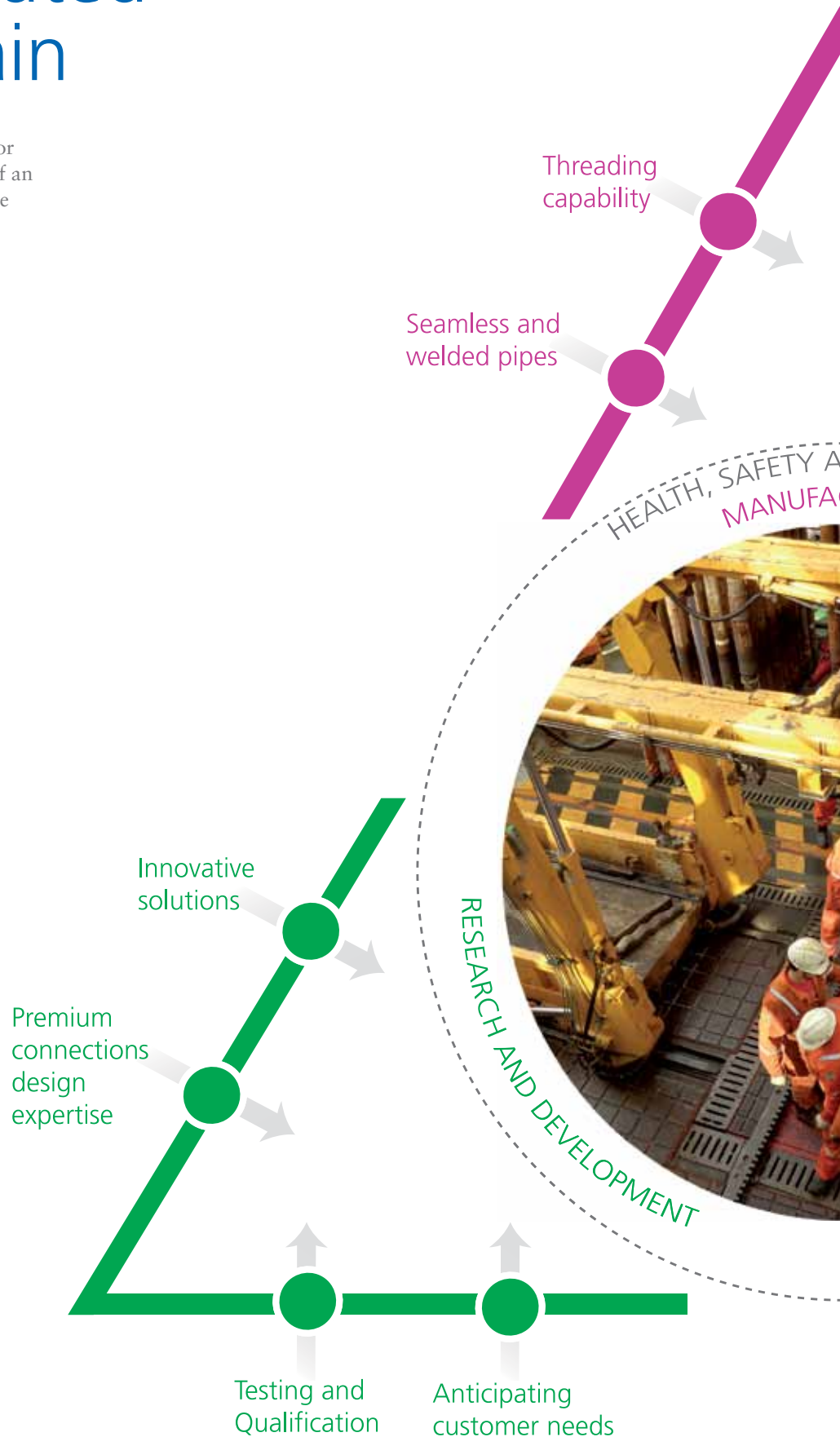


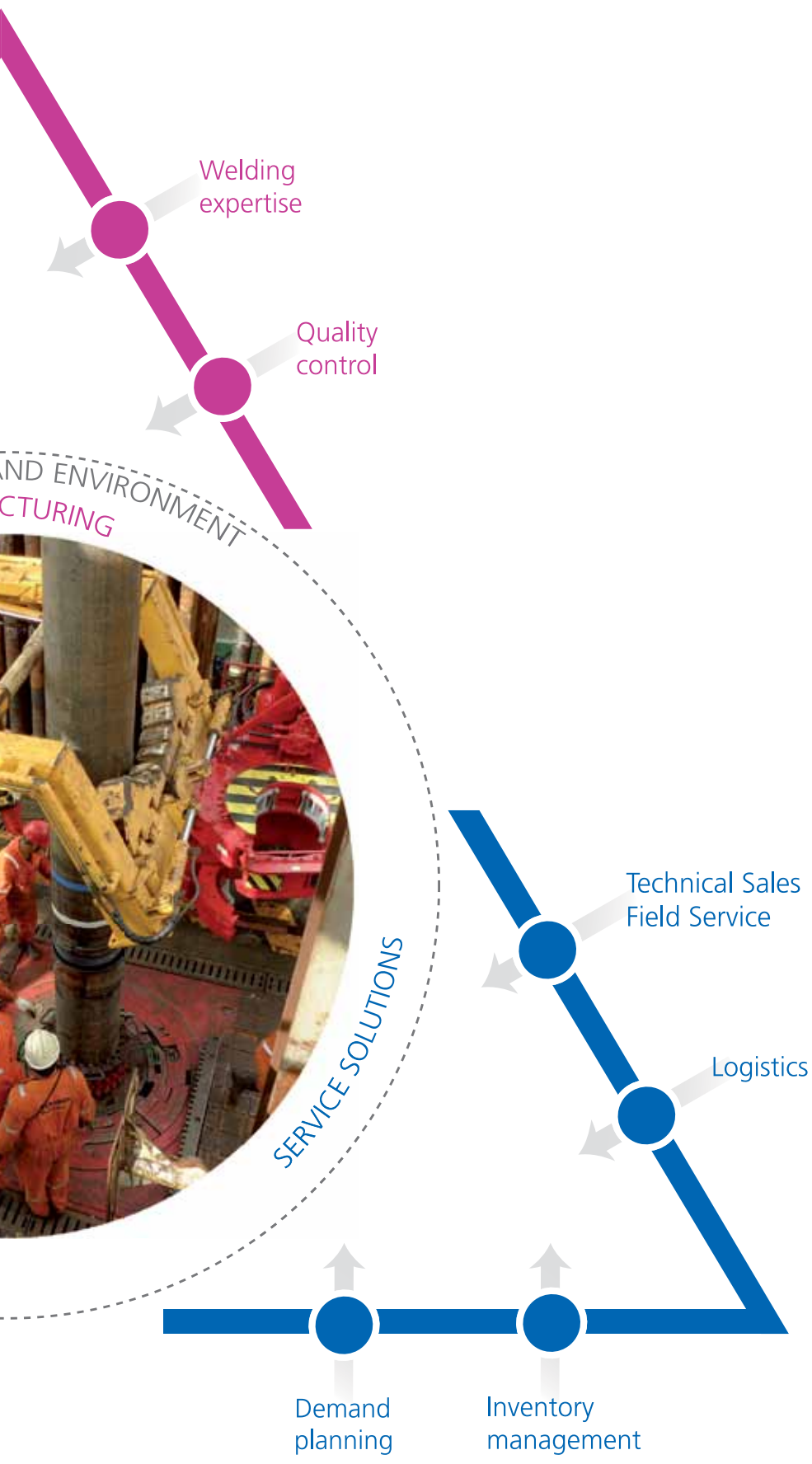
LIFTING – INTERNAL FLUSH

The connector's integral lifting shoulder on the box side is compatible with side-door and single-joint elevators.

An efficient and integrated supply chain

The TenarisHydril BlueDock® connector is manufactured and supplied as part of an integrated supply package using a single quality management system.





Technical Data Table for BlueDock[®] connector

Technical Data Table | 18" TO 30"

DESIGNATION			PIPE BODY Geometry			CONNECTOR Geometry					
SIZE (OD)	WALL THICKNESS	CONNECTOR TYPE	Nominal ID	API Drift	Plain End Weight	Regular OD	Joint ID	Total Length	Make-up Loss	Threads per inch	Weight
[in.]	[in.]		[in.]	[in.]	[ft.lb]	[in.]	[in.]	[in.]	[in.]		[lb.]
18	0.500	LR	17.000	16.813	93.5	20.000	16.750	17.383	7.341	3	370
	0.625		16.750	16.563	116.1	20.000	16.750	17.383	7.341	3	391
	0.688		16.624	16.437	127.3	20.000	16.624	17.383	7.341	3	402
	0.750		16.500	16.313	138.3	20.000	16.500	17.383	7.341	3	412
	0.812		16.376	16.188	149.2	20.000	16.376	17.383	7.341	3	423
	0.875		16.250	16.063	160.2	20.000	16.250	17.383	7.341	3	434
20	0.438	LR	19.124	18.937	91.6	21.618	18.376	16.682	6.625	3	364
	0.468		19.064	18.877	97.7	21.618	18.376	16.682	6.625	3	366
	0.500		19.000	18.813	104.2	21.618	18.376	16.682	6.625	3	367
	0.625		18.750	18.563	129.4	21.618	18.376	16.682	6.625	3	374
	0.688		18.624	18.437	142.0	21.618	18.376	16.682	6.625	3	377
	0.750		18.500	18.313	154.3	21.618	18.376	16.682	6.625	3	380
	0.812	HR	18.376	18.189	166.6	21.618	18.376	16.682	6.625	3	384
	0.750		18.500	18.313	154.3	21.954	18.352	17.861	7.808	3	483
	0.812		18.376	18.189	166.6	21.954	18.228	17.861	7.808	3	497
	1.000		18.000	17.813	203.1	21.954	18.000	17.861	7.808	3	540
	1.125		17.750	17.563	227.0	21.954	17.750	17.861	7.808	3	568
	1.250		17.500	17.313	250.5	21.954	17.500	17.861	7.808	3	596
	1.500		17.000	16.813	296.6	21.954	17.000	17.861	7.808	3	653
	22		0.625	LR	20.750	20.563	142.8	23.824	20.602	16.767	6.540
0.688		20.624	20.437		156.7	23.824	20.602	16.767	6.540	3	449
0.750		20.500	20.313		170.4	23.824	20.352	16.767	6.540	3	468
0.812		20.376	20.189		183.9	23.824	20.228	16.767	6.540	3	488
0.812		20.376	20.189		183.9	23.954	20.228	17.861	7.808	3	552
1.000		20.000	19.813		224.5	23.954	20.000	17.861	7.808	3	595
1.125		HR	19.750	19.563	251.0	23.954	19.750	17.861	7.808	3	623
1.250			19.500	19.313	277.3	23.954	19.500	17.861	7.808	3	651
1.500			19.000	18.813	328.7	23.954	19.000	17.861	7.808	3	708
24			0.500	LR	23.000	22.813	125.6	25.904	22.602	17.007	7.009
	0.625	22.750	22.563		156.2	25.904	22.602	17.007	7.009	3	500
	0.688	22.624	22.437		171.5	25.904	22.550	17.007	7.009	3	514
	0.725	22.550	22.363		180.4	25.904	22.550	17.007	7.009	3	522
	0.750	22.500	22.313		186.4	25.904	22.500	17.007	7.009	3	527
	0.812	22.376	22.189		201.3	25.904	22.376	17.007	7.009	3	540
	1.000	HR	22.000	21.813	245.9	25.904	22.000	17.007	7.009	3	580
	1.000		22.000	21.813	245.9	26.118	21.869	19.050	9.060	3	731
	1.125		21.750	21.563	275.1	26.118	21.750	19.050	9.060	3	765
	1.250		21.500	21.313	304.0	26.118	21.500	19.050	9.060	3	798
	1.500		21.000	20.813	360.8	26.118	21.000	19.050	9.060	3	864
	26		0.625	LR	24.750	24.563	169.5	27.490	24.102	16.762	6.781
0.688		24.624	24.437		186.2	27.490	24.024	16.762	6.781	3	559
0.750		24.500	24.313		202.4	27.490	23.984	16.762	6.781	3	569
0.812		24.376	24.189		218.6	27.490	23.945	16.762	6.781	3	578
1.000		24.000	23.813		267.3	27.490	23.787	16.762	6.781	3	612
28	0.625	LR	26.750	26.563	182.9	29.800	26.352	17.943	7.963	3	663
	0.750		26.500	26.313	218.5	29.800	26.352	17.943	7.963	3	700
	0.812		26.376	26.189	236.0	29.800	26.228	17.943	7.963	3	719
	0.875		26.250	26.063	253.7	29.800	26.102	17.943	7.963	3	738
	1.000		26.000	25.813	288.6	29.800	25.852	17.943	7.963	3	775
30	0.500	LR	29.000	28.813	157.7	32.563	28.208	18.858	9.409	2	901
	0.625		28.750	28.563	196.3	32.563	28.208	18.858	9.409	2	922
	0.750		28.500	28.313	234.5	32.563	28.208	18.858	9.409	2	942
	0.812		28.376	28.189	253.4	32.563	28.208	18.858	9.409	2	952
	1.000		28.000	27.813	310.0	32.563	28.000	18.858	9.409	2	983
	1.125		HR	27.750	27.563	347.3	32.250	26.750	20.396	10.392	2
	1.250	27.500		27.313	384.2	32.250	26.750	20.396	10.392	2	1296
	1.500	27.000		26.813	457.0	32.250	26.750	20.396	10.392	2	1313
	1.750	26.500		26.313	528.5	32.250	26.500	20.396	10.392	2	1367
	2.000	26.000	25.813	598.6	32.250	26.000	20.396	10.392	2	1614	

Performance stated in this table is valid for MTM and ELS versions and SWS option.

Interchangeable when bracketed. Small variations in the connection Internal diameter will appear.

Sea Water Exclusion Seal (SWS) is an optional for all the family and some dimensions and weights may vary in some products.

Special products are also available (such as certain external flush OD's) or can be offered upon customer request.

Tension/ Compression Efficiency	Bending Efficiency	External/ Internal/ Pressure Efficiency	Joint Yield Strength					Max. Allowable Bending				
			70 ksi			90 ksi		70 ksi			90 ksi	
			X52	X56	X65	X70	X80	X52	X56	X65	X70	X80
			x 1000 lb					kip-ft				
%	%	%										
100	100	100	1435	1556	1795	1932	2213	509	552	637	686	785
100	100	100	1781	1931	2228	2398	2746	623	676	779	839	961
100	100	100	1953	2118	2443	2630	3012	679	736	849	914	1047
100	100	100	2122	2300	2654	2857	3272	732	794	916	986	1129
100	100	100	2289	2482	2863	3082	3530	784	850	981	1056	1210
100	100	100	2457	2664	3074	3309	3790	836	907	1046	1126	1290
100	100	100	1405	1524	1758	1892	2167	560	608	701	755	864
100	100	100	1499	1625	1875	2019	2312	596	646	746	803	919
100	100	100	1599	1734	2000	2153	2466	634	687	793	853	977
100	100	100	1986	2153	2484	2674	3062	777	843	972	1047	1199
100	100	100	2179	2363	2726	2934	3360	848	919	1060	1141	1307
100	100	100	2368	2567	2962	3189	-	915	992	1145	1233	-
100	100	100	2555	2770	-	-	-	982	1064	-	-	-
100	100	100	-	-	-	-	3651	-	-	-	-	1412
100	100	100	-	-	3196	3441	3940	-	-	1228	1322	1514
100	100	100	3116	3378	3898	4196	4805	1175	1274	1470	1582	1812
100	100	100	3482	3776	4356	4690	5370	1297	1406	1622	1747	2000
100	100	100	3844	4168	4808	5176	-	1414	1533	1769	1904	-
100	100	100	4551	4934	-	-	-	1633	1771	-	-	-
100	100	100	2191	2375	2741	2950	3379	949	1029	1187	1278	1463
100	100	100	2405	2607	3008	3238	3708	1035	1123	1295	1394	1597
100	100	100	2614	2834	3270	3520	4031	1119	1213	1400	1507	1726
100	100	100	2821	3059	3529	3800	-	1201	1302	1503	1618	-
100	100	100	-	-	-	-	4351	-	-	-	-	1852
100	100	100	3444	3734	4308	4638	5311	1441	1563	1803	1941	2223
100	100	100	3851	4176	4818	5187	5939	1594	1728	1994	2147	2458
100	100	100	4254	4612	5321	5728	6560	1741	1887	2177	2344	2684
100	100	100	5043	5468	6308	-	-	2018	2188	2524	-	-
100	100	100	1927	2089	2410	2595	2972	924	1002	1156	1245	1425
100	100	100	2396	2598	2997	3227	3695	1137	1233	1423	1531	1754
100	100	100	2630	2852	3290	3542	4056	1242	1347	1554	1672	1915
100	100	100	2767	3001	3462	3727	4267	1303	1412	1629	1754	2009
100	100	100	2860	3101	3577	3851	4410	1343	1456	1680	1809	2071
100	100	100	3088	3348	3863	4158	4762	1443	1565	1805	1943	2225
100	100	100	3772	4090	4718	5080	-	1735	1882	2171	2337	-
100	100	100	-	-	-	-	5817	-	-	-	-	2676
100	100	100	4220	4576	5279	5684	6508	1922	2084	2404	2588	2963
100	100	100	4663	5057	5834	6281	7192	2102	2279	2629	2830	3241
100	100	100	5535	6001	6924	7454	-	2443	2649	3056	3290	-
100	100	100	2601	2820	3253	3503	4011	1343	1456	1680	1808	2071
100	100	100	2856	3097	3573	3846	4404	1467	1591	1835	1976	2263
100	100	100	3106	3367	3885	4182	4789	1588	1722	1986	2139	2449
100	100	100	3354	3637	4196	4517	5172	1707	1851	2135	2299	2632
100	100	100	4100	4445	5129	5521	-	2056	2230	2573	2770	-
100	100	100	2806	3042	3510	3779	4327	1565	1697	1958	2108	2414
100	100	100	3352	3634	4193	4514	5169	1853	2009	2318	2496	2858
100	100	100	3620	3926	4529	4876	5583	1993	2161	2493	2684	3073
100	100	100	3892	4220	4869	5242	6002	2133	2313	2668	2873	3289
100	100	100	4428	4801	5539	5963	-	2405	2608	3009	3239	-
100	100	100	2419	2623	3026	3258	3730	1462	1585	1829	1969	2255
100	100	100	3011	3265	3766	4055	4643	1805	1957	2258	2431	2784
100	100	100	3598	3901	4500	4845	5548	2139	2319	2676	2880	3298
100	100	100	3887	4214	4862	5234	5994	2301	2495	2879	3099	3549
100	100	100	4756	5157	5949	6405	7334	2781	3015	3479	3745	4288
100	100	100	5327	5776	6664	7174	8215	3089	3350	3864	4160	4764
100	100	100	5893	6390	7372	7937	9089	3389	3675	4240	4564	5227
100	100	100	7011	7602	8770	9442	10811	3965	4300	4961	5340	6115
100	100	100	8107	8791	10142	-	-	4510	4891	5642	-	-
100	100	100	9148	9852	11435	-	-	5006	5391	6258	-	-

→ connector
→ pipe

Technical Data Table | 32" TO 42"

DESIGNATION			PIPE BODY Geometry			CONNECTOR Geometry						
SIZE (OD)	WALL THICKNESS	CONNECTOR TYPE	Nominal ID	API Drift	Plain End Weight	Regular OD	Joint ID	Total Length	Make-up Loss	Threads per inch	Weight	
[in.]	[in.]		[in.]	[in.]	[ft.lb]	[in.]	[in.]	[in.]	[in.]		[lb.]	
32	0.500	LR	31.000	30.813	168.4	34.562	30.352	18.246	8.762	2	876	
	0.625		30.750	30.563	209.6	34.562	30.352	18.246	8.762	2	904	
	0.750		30.500	30.313	250.5	34.562	30.352	18.246	8.762	2	932	
	0.812		30.376	30.189	270.7	34.562	30.352	18.246	8.762	2	946	
	0.877		30.246	30.059	291.8	34.562	30.246	18.246	8.762	2	961	
	0.983		30.034	29.847	325.9	34.562	30.034	18.246	8.762	2	985	
	1.000		30.000	29.813	331.4	34.562	30.000	18.246	8.762	2	989	
36	0.625	LR	34.750	34.563	236.3	37.250	32.191	20.717	9.756	2	1268	
	0.812		34.376	34.189	305.4	37.250	32.191	20.717	9.756	2	1299	
	1.000		34.000	33.813	374.2	37.250	32.191	20.717	9.756	2	1331	
	1.125		33.750	33.563	419.4	37.250	32.191	20.717	9.756	2	1352	
	1.250		33.500	33.313	464.3	37.250	32.191	20.717	9.756	2	1373	
	1.500		33.000	32.813	553.2	37.250	32.191	20.717	9.756	2	1414	
	1.500		HR	33.000	32.813	553.2	37.250	30.708	24.408	13.033	2	2094
	1.750		HR	32.500	32.313	640.7	37.250	30.708	24.408	13.033	2	2135
2.000	HR	32.000	31.813	726.9	37.250	30.708	24.408	13.033	2	2177		
38	1.500	HR	35.000	34.813	585.3	39.901	33.500	25.431	13.033	2	2244	
	1.750		34.500	34.313	678.1	39.901	33.500	25.431	13.033	2	2278	
	2.000		34.000	33.813	769.7	39.901	33.500	25.431	13.033	2	2312	
42	0.500	LR	41.000	40.813	221.8	43.630	39.500	19.482	7.447	2	1191	
	0.625		40.750	40.563	276.4	43.630	39.500	19.482	7.447	2	1204	
	0.812		40.376	40.189	357.5	43.630	39.500	19.482	7.447	2	1222	
	1.000		40.000	39.813	438.3	43.630	39.500	19.482	7.447	2	1241	
	1.125		39.750	39.563	491.6	43.630	39.500	19.482	7.447	2	1253	
	1.250		39.500	39.313	544.5	43.630	39.500	19.482	7.447	2	1265	

Performance stated in this table is valid for MTM and ELS versions and SWS option.

Interchangeable when bracketed. Small variations in the connection Internal diameter will appear.

Sea Water Exclusion Seal (SWS) is an optional for all the family and some dimensions and weights may vary in some products.

Special products are also available (such as certain external flush OD's) or can be offered upon customer request.

Tension/ Compression Efficiency	Bending Efficiency	External/ Internal Pressure Efficiency	Joint Yield Strength					Max. Allowable Bending				
			70 ksi			90 ksi		70 ksi			90 ksi	
			X52	X56	X65	X70	X80	X52	X56	X65	X70	X80
			x 1000 lb					kip-ft				
100	100	100	2583	2801	3231	3478	3983	1669	1810	2088	2248	2574
100	100	100	3216	3487	4023	4331	4959	2062	2236	2579	2777	3179
100	100	100	3844	4168	4808	5176	5927	2445	2651	3059	3293	3771
100	100	100	4153	4503	5195	5593	6405	2632	2854	3292	3544	4059
100	100	100	4476	4853	5599	6028	6903	2825	3063	3534	3805	4357
100	100	100	5000	5422	6255	6734	7711	3135	3399	3922	4222	4834
100	100	100	5084	5512	6360	6846	-	3184	3452	3983	4288	-
100	100	100	3626	3931	4536	4883	5591	2627	2848	3286	3537	4050
100	100	100	4686	5081	5862	6310	7226	3359	3642	4202	4524	5181
100	100	100	5740	6223	7180	7730	8851	4072	4416	5094	5484	6280
100	100	100	6434	6976	8049	8665	9922	4533	4916	5671	6105	6991
100	100	100	7123	7724	8911	9593	10985	4984	5405	6235	6713	7687
100	100	100	8487	9202	-	11429	-	5857	6350	-	7887	-
100	100	100	-	-	10616	-	13087	-	-	7326	-	9032
100	100	100	9829	10658	12296	13237	15158	6690	7254	8369	9010	10317
100	100	100	11151	12091	13950	15018	17197	7486	8117	9365	10082	11544
100	100	100	8979	9735	11232	12092	13846	6569	7123	8218	8847	10130
100	100	100	10403	11280	13014	14010	16043	7512	8145	9397	10117	11585
100	100	100	11807	12803	14771	15901	18209	8415	9125	10527	11333	12978
100	100	100	3390	3651	4237	4563	5215	2896	3119	3620	3899	4456
100	100	100	4224	4549	5281	5687	6499	3588	3864	4485	4830	5520
100	100	100	5464	5884	6830	7355	8406	4599	4953	5749	6191	7076
100	100	100	6698	7213	8372	9016	-	5588	6018	6985	7523	-
100	100	100	7512	8090	9390	-	-	6230	6710	7788	-	-
100	100	100	8321	8961	-	-	-	6861	7388	-	-	-

→ connector
→ pipe

TenarisHydril

For further information, please visit our website:
www.tenaris.com/BlueDock

For technical assistance, please contact:
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