Tenaris

Coiled Tubes

Material Specification HS-90™

HS-90 CM™
(Continuously milled tubing)

HS-90 W™
(Butt welded tube sections)

PHYSICAL PROPERTIES	Minimum yield strength – 90,000 psi Minimum tensile strength – 97,000 psi Minimum Elongation – 25% Maximum Hardness – 22C Rockwell
CHEMICAL COMPOSITION - %	Carbon 0.10 – 0.15 range Manganese 0660 – 0.90 range Phosphorus 0.25 max Sulfur 0.005 max Silicon 0.25 – 0.40 range Chromium 0.55 – 0.70 range Copper 0.40 – 0.40 max Aluminum 0.040 max Nickel 0.14 – 0.30 range Molybdenum 0.10 – 0.15 range
STEEL ALLOY DESCRIPTION	A-606 type 4 molly

CONTACT INFO
Tenaris Coiled Tubes
8615 E. Sam Houston Pkwy N.
77044 Houston Texas USA
coiledtubesales@tenaris.com
(1) 281 458 2883 tel
(1) 281 458 2886 fax

HS-90™ GRADE*

DIMENSIONS (Inches)						NOMINAL WEIGHT Lbs. / ft.	TUBE LOAD BODY (Lbs.)		INTERNAL PRESSURE (psi)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	O.D. (mm)	WALL SPECIFIED	WALL (mm)	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.	W/ MIN. WALL	INTERNAL MIN	YIELD	ULTIMATE	GALLONS	BARRELS	GALLONS	BARRELS
1.000	25.4	0.095	2.41	0.090	0.810	0.920	24,300	26,200	14,300	15,900	0.257	0.528	466	508	26.77	0.64	40.80	1.000
		0.102	2.59	0.097	0.796	0.981	25,900	27,900	15,300	17,000	0.275	0.510	491	540	25.85	0.62	40.80	1.000
		0.109	2.77	0.104	0.782	1.040	27,500	29,600	16,400	18,200	0.293	0.493	515	570	24.95	0.59	40.80	1.000
1.250	31.8	0.095	2.41	0.090	1.060	1.175	31,000	33,400	11,500	12,800	0.328	0.899	769	825	45.84	1.09	63.75	1.250
		0.102	2.59	0.097	1.046	1.254	33,100	35,700	12,400	13,800	0.351	0.876	814	879	44.64	1.06	63.75	1.250
		0.109	2.77	0.104	1.032	1.332	35,200	37,900	13,200	14,700	0.374	0.853	858	931	43.45	1.03	63.75	1.250
		0.116	2.95	0.111	1.018	1.408	37,200	40,100	14,100	15,700	0.397	0.830	900	982	42.28	1.01	63.75	1.250
		0.125	3.18	0.120	1.000	1.506	39,800	42,900	15,200	16,600	0.420	0.808	941	,032	40.80	0.97	63.75	1.250
		0.134	3.40	0.128	0.982	1.601	42,300	45,600	16,100	17,900	0.451	0.776	996	,100	39.34	0.94	63.75	1.250
		0.145	3.68	0.138	0.960	1.715	45,300	48,800	17,400	19,300	0.482	0.745	1,048	,166	37.60	0.90	63.75	1.250
		0.156	3.96	0.148	0.938	1.827	48,300	52,000	18,500	20,600	0.512	0.715	1,097	,229	35.90	0.85	63.75	1.250
		0.175	4.45	0.167	0.900	2.014	53,200	57,300	20,700	23,000	0.568	0.659	1,181	,342	33.05	0.79	63.75	1.250
1.500	38.1	0.095	2.41	0.090	1.310	1.429	37,700	40,700	9,600	10,700	0.399	1.368	1,148	,218	70.02	1.67	91.80	2.19
		0.102	2.59	0.097	1.296	1.527	40,300	43,500	10,400	11,500	0.428	1.340	1,220	,300	68.53	1.63	91.80	2.19
		0.109	2.77	0.104	1.282	1.623	42,900	46,200	11,100	12,300	0.456	1.311	1,289	,380	67.06	1.60	91.80	2.19
		0.116	2.95	0.111	1.268	1.719	45,400	48,900	11,800	13,100	0.484	1.283	1,357	,459	65.60	1.56	91.80	2.19
		0.125	3.18	0.118	1.250	1.840	48,600	52,400	12,500	14,200	0.512	1.255	1,422	,536	63.75	1.52	91.80	2.19
		0.134	3.40	0.128	1.232	1.960	51,800	55,800	13,600	15,100	0.552	1.215	1,511	,643	61.93	1.47	91.80	2.19
		0.145	3.68	0.138	1.210	2.104	55,600	59,900	14,600	16,200	0.590	1.177	1,596	,746	59.74	1.42	91.80	2.19
		0.156	3.96	0.148	1.188	2.245	59,300	63,900	15,600	17,300	0.629	1.139	1,677	,846	57.58	1.37	91.80	2.19
		0.175	4.45	0.167	1.150	2.483	65,600	70,700	18,700	19,400	0.699	1.068	1,821	2,028	53.96	1.28	91.80	2.19
		0.190	4.83	0.180	1.120	2.665	70,400	75,800	20,100	20,800	0.746	1.021	1,911	2,145	51.18	1.22	91.80	2.19
1.750	44.5	0.109	2.77	0.104	1.532	1.915	50,600	54,500	9,500	10,600	0.538	1.867	1,809	1,918	95.76	2.28	124.95	2.97
		0.116	2.95	0.111	1.518	2.029	53,600	57,800	10,200	11,300	0.572	1.834	1,907	2,030	94.02	2.24	124.95	2.97
		0.125	3.18	0.120	1.500	2.175	57,400	61,900	11,000	12,200	0.605	1.800	2,030	2,171	91.80	2.19	124.95	2.97
		0.134	3.40	0.128	1.482	2.318	61,200	66,000	11,700	13,000	0.652	1.753	2,135	2,294	89.61	2.13	124.95	2.97
		0.145	3.68	0.138	1.460	2.492	65,800	70,900	12,600	14,000	0.699	1.706	2,262	2,444	86.97	2.07	124.95	2.97
		0.156	3.96	0.148	1.438	2.662	70,300	75,800	13,500	14,900	0.745	1.660	2,384	2,589	84.37	2.01	124.95	2.97
		0.175	4.45	0.167	1.400	2.951	77,900	84,000	15,100	16,800	0.831	1.575	2,602	2,855	79.97	1.90	124.95	2.97
		0.190	4.83	0.180	1.370	3.173	83,800	90,300	16,200	18,000	0.888	1.517	2,741	3,029	76.58	1.82	124.95	2.97
		0.204	5.18	0.195	1.342	3.377	89,200	96,100	17,500	19,400	0.953	1.453	2,893	3,222	73.48	1.75	124.95	2.97
2.000	50.8	0.109	2.77	0.104	1.782	2.207	58,300	62,800	8,400	9,300	0.619	2.522	2,416	2,544	129.56	3.08	163.20	3.89
		0.116	2.95	0.111	1.768	2.340	61,800	66,600	8,900	9,900	0.659	2.483	2,552	2,696	127.53	3.04	163.20	3.89
		0.125	3.18	0.120	1.750	2.509	66,300	71,400	9,600	10,700	0.709	2.443	2,721	2,887	124.95	2.97	163.20	3.89
		0.134	3.40	0.128	1.732	2.677	70,700	76,200	10,300	1 1,400	0.753	2.389	2,867	3,054	122.39	2.91	163.20	3.89
		0.145	3.68	0.138	1.710	2.880	76,100	82,000	11,000	12,300	0.807	2.334	3,045	3,258	119.30	2.84	163.20	3.89
		0.156	3.96	0.148	1.688	3.080	81,300	87,700	11,800	13,100	0.861	2.280	3,216	3,458	116.25	2.77	163.20	3.89
		0.175	4.45	0.167	1.650	3.419	90,300	97,300	13,300	14,800	0.962	2.180	3,525	3,825	111.08	2.64	163.20	3.89
		0.190	4.83	0.180	1.620	3.682	97,200	104,800	14,300	15,900	1.029	2.112	3,724	4,066	107.08	2.55	163.20	3.89
		0.204	5.18	0.195	1.592	3.923	103,600	111,600	15,400	17,100	1.106	2.036	3,943	4,335	103.41	2.46	163.20	3.89
2.375	60.3	0.125	3.18	0.120	2.125	3.011	79,500	85,700	8,100	9,000	0.850	3.580	3,950	4,152	184.24	4.39	230.14	5.48
		0.134	3.40	0.128	2.107	3.215	84,900	91,500	8,700	9,600	0.904	3.527	4,170	4,398	181.13	4.31	230.14	5.48
		0.145	3.68	0.138	2.085	3.462	91,400	98,500	9,300	10,400	0.970	3.460	4,438	4,700	177.37	4.22	230.14	5.48
		0.156	3.96	0.148	2.063	3.706	97,900	105,500	10,000	11,100	1.035	3.395	4,699	4,997	173.64	4.13	230.14	5.48
		0.175	4.45	0.167	2.025	4.122	108,900	117,300	11,200	12,500	1.158	3.272	5,175	5,545	167.31	3.98	230.14	5.48
		0.190	4.83	0.180	1.995	4.445	1 17,400	126,500	12,100	13,400	1.241	3.189	5,485	5,908	162.38	3.87	230.14	5.48
		0.204	5.18	0.195	1.967	4.742	125,200	135,000	13,100	14,500	1.335	3.095	5,829	6,316	157.86	3.76	230.14	5.48

*Selected coiled tubing data
(90 Kpsi Min. Yield Strength; 97 Kpsi Min. Tensile Strength; 25 % Min. Elongation; Loads calculated using nom. wall)

Test pressure value equals 90% of internal yield pressure rating. Maximum working pressure is a function of tube condition and is determined by user. All data is for new tubing at minimum strength. * Available as continuously milled tubing (CM™) or conventional butt-welded tubing sections (W™). See individual size sheets for additional wall thicknesses. 2-5/8", 2-7/8", and other sizes not shown are also available.

HS-90™ GRADE* METRIC VALUES

DIMENSIONS (mm)						NOMINAL WEIGHT Kg/m	TUBE LOAD BODY (Newtons)		INTERNAL PRESSURE (kPa)		TUBING AREA (sq. cm)		TORSIONAL YIELD (N-m)		INTERNAL CAPACITY	EXTERNAL DISPLACEMENT
O.D. SPECIFIED	O.D. (inches)	WALL SPECIFIED	WALL (inches)	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.	W/ MIN. WALL	INTERNAL MIN	YIELD	ULTIMATE	LITERS / METER	LITERS / METER
25.4	1.000	2.41	0.095	2.29	20.6	1.37	96,100	105,900	87,600	97,200	1.66	3.41	560	610	0.33	0.51
		2.59	0.102	2.46	20.2	1.46	102,300	112,500	93,800	104,800	1.78	3.29	590	650	0.32	0.51
		2.77	0.109	2.64	19.9	1.55	108,500	119,200	100,700	111,700	1.89	3.18	620	690	0.31	0.51
31.8	1.250	2.21	0.087	2.11	27.3	1.61	113,000	124,500	65,500	72,400	1.96	5.95	870	930	0.59	0.79
		2.41	0.095	2.29	26.9	1.75	122,800	134,800	70,300	78,600	2.12	5.80	930	990	0.57	0.79
		2.59	0.102	2.46	26.6	1.86	130,800	144,100	75,800	84,100	2.27	5.65	980	1,060	0.55	0.79
		2.77	0.109	2.64	26.2	1.98	139,200	153,000	81,400	90,300	2.42	5.50	1,030	1,120	0.54	0.79
		2.95	0.116	2.82	25.9	2.09	147,200	161,900	86,200	95,800	2.56	5.35	1,090	1,180	0.53	0.79
		3.18	0.125	3.00	25.4	2.24	157,000	173,000	91,700	102,000	2.71	5.21	1,130	1,240	0.51	0.79
		3.40	0.134	3.25	24.9	2.38	167,200	183,700	99,300	110,300	2.91	5.01	1,200	1,330	0.49	0.79
		3.68	0.145	3.51	24.4	2.55	179,300	197,000	106,200	117,900	3.11	4.81	1,260	1,410	0.47	0.79
		3.96	0.156	3.76	23.8	2.72	190,800	209,900	113,800	126,200	3.31	4.61	1,320	1,480	0.45	0.79
		4.45	0.175	4.24	22.9	2.99	210,400	231,300	120,700	140,700	3.67	4.25	1,420	1,620	0.41	0.79
38.1	1.500	2.41	0.095	2.29	33.3	2.12	149,000	164,100	59,300	65,500	2.57	8.83	1,380	1,470	0.87	1.14
		2.59	0.102	2.46	32.9	2.27	159,200	175,300	63,400	70,300	2.76	8.64	1,470	1,570	0.85	1.14
		2.77	0.109	2.64	32.6	2.41	169,500	186,400	68,300	75,800	2.94	8.46	1,550	1,660	0.83	1.14
		2.95	0.116	2.82	32.2	2.55	179,300	197,500	72,400	80,700	3.12	8.28	1,640	1,760	0.81	1.14
		3.18	0.125	3.00	31.8	2.73	192,200	211,300	77,200	85,500	3.31	8.10	1,710	1,850	0.79	1.14
		3.40	0.134	3.25	31.3	2.91	204,600	225,100	83,400	92,400	3.56	7.84	1,820	1,980	0.77	1.14
		3.68	0.145	3.51	30.7	3.13	219,700	241,500	89,600	99,300	3.81	7.59	1,920	2,100	0.74	1.14
		3.96	0.156	3.76	30.2	3.34	234,400	258,000	95,800	106,200	4.06	7.35	2,020	2,230	0.72	1.14
		4.45	0.175	4.24	29.2	3.69	259,300	285,100	106,900	119,300	4.51	6.89	2,190	2,440	0.67	1.14
		4.83	0.190	4.57	28.4	3.96	278,400	306,000	115,100	127,600	4.82	6.59	2,300	2,590	0.64	1.14
44.5	1.750	2.77	0.109	2.64	38.9	2.85	200,200	220,200	58,600	64,800	3.47	12.05	2,180	2,310	1.19	1.55
		2.95	0.116	2.82	38.6	3.02	211,700	233,100	62,100	69,000	3.69	11.83	2,300	2,450	1.17	1.55
		3.18	0.125	3.00	38.1	3.23	227,300	250,000	66,200	73,800	3.90	11.61	2,410	2,580	1.14	1.55
		3.40	0.134	3.25	37.6	3.45	242,000	266,400	71,700	79,300	4.21	11.31	2,570	2,760	1.11	1.55
		3.68	0.145	3.51	37.1	3.70	260,200	286,000	77,200	85,500	4.51	11.01	2,730	2,950	1.08	1.55
		3.96	0.156	3.76	36.5	3.96	278,000	305,600	82,700	91,700	4.81	10.71	2,870	3,120	1.05	1.55
		4.45	0.175	4.24	35.6	4.39	308,200	338,900	92,400	102,700	5.36	10.16	3,140	3,440	0.99	1.55
		4.83	0.190	4.57	34.8	4.72	331,400	364,300	99,300	110,300	5.73	9.79	3,300	3,650	0.95	1.55
		5.18	0.204	4.95	34.1	5.02	352,700	387,900	106,900	119,300	6.15	9.37	3,490	3,880	0.91	1.55
50.8	2.000	2.77	0.109	2.64	45.3	3.28	230,400	253,500	51,000	57,200	4.00	16.27	2,910	3,070	1.61	2.03
		2.95	0.116	2.82	44.9	3.48	244,200	268,700	54,500	60,700	4.25	16.02	3,080	3,250	1.58	2.03
		3.18	0.125	3.00	44.5	3.73	262,000	288,200	57,900	64,800	4.50	15.77	3,240	3,430	1.55	2.03
		3.40	0.134	3.25	44.0	3.98	279,300	307,400	62,700	69,600	4.86	15.41	3,460	3,680	1.52	2.03
		3.68	0.145	3.51	43.4	4.28	300,700	330,900	67,600	75,200	5.21	15.06	3,670	3,930	1.48	2.03
		3.96	0.156	3.76	42.9	4.58	321,600	353,600	72,400	80,700	5.56	14.71	3,880	4,170	1.44	2.03
		4.45	0.175	4.24	41.9	5.08	357,200	392,800	81,400	90,300	6.20	14.06	4,250	4,610	1.38	2.03
		4.83	0.190	4.57	41.1	5.47	384,300	423,000	87,600	97,200	6.64	13.63	4,490	4,900	1.33	2.03
		5.18	0.204	4.95	40.4	5.83	409,700	450,600	94,500	104,800	7.13	13.13	4,750	5,230	1.28	2.03
60.3	2.375	3.18	0.125	3.00	54.0	4.47	314,500	346,100	49,000	54,500	5.40	23.18	4,690	4,930	2.29	2.86
		3.40	0.134	3.25	53.5	4.78	335,800	369,200	53,100	59,300	5.83	22.75	5,030	5,300	2.25	2.86
		3.68	0.145	3.51	53.0	5.14	361,600	397,700	57,200	63,400	6.26	22.32	5,350	5,670	2.20	2.86
		3.96	0.156	3.76	52.4	5.51	387,000	425,700	61,400	68,300	6.68	21.90	5,660	6,020	2.16	2.86
		4.45	0.175	4.24	51.4	6.13	430,600	473,300	69,000	76,500	7.47	21.11	6,240	6,680	2.08	2.86
		4.83	0.190	4.57	50.7	6.61	463,900	510,600	74,500	82,700	8.01	20.57	6,610	7,120	2.02	2.86
		5.18	0.204	4.95	50.0	7.05	495,100	544,400	80,000	88,900	8.62	19.97	7,030	7,610	1.96	2.86

*Selected coiled tubing data
(621 N/mm2 Min. Yield Strength; 669 N/mm2 Min. Tensile Strength; 25 % Min. Elongation; Loads calculated using nom. wall

Test pressure value equals 90% of internal yield pressure rating. Maximum working pressure is a function of tube condition and is determined by user. All data is for new tubing at minimum strength. * Available as continuously milled tubing (CM™) or conventional butt-welded tubing sections (W™). 66.7mm and 73.0mm, and other sizes not shown are also available.

Coiled Tubing Data 1" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
1.000	0.095	0.090	0.810	0.920	24,300	26,200	14,300	15,900
	0.102	0.097	0.796	0.981	25,900	27,900	15,300	17,000
	0.109	0.104	0.782	1.040	27,500	29,600	16,400	18,200

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
1.000	0.090	0.257	0.528	466	508	26.77	0.64	40.80	0.97
	0.097	0.275	0.510	491	540	25.85	0.62	40.80	0.97
	0.104	0.293	0.493	515	570	24.95	0.59	40.80	0.97

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 1.25" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
1.250	0.095	0.090	1.060	1.175	31,000	33,400	11,500	12,800
	0.102	0.097	1.046	1.254	33,100	35,700	12,400	13,800
	0.109	0.104	1.032	1.332	35,200	37,900	13,200	14,700
	0.116	0.111	1.018	1.408	37,200	40,100	14,100	15,700
	0.125	0.120	1.000	1.506	39,800	42,900	15,200	16,900
	0134	0.128	0.982	1.601	42,300	45,600	16,200	17,900
	0.145	0.138	0.960	1.715	45,300	48,800	17,300	19,300
	0.156	0.148	0.938	1.827	48,300	52,000	18,500	20,600
	0.175	0.167	0.900	2.014	53,200	57,300	20,700	23,000

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
1.250	0.090	0.324	0.899	769	825	45.84	1.09	63.75	1.52
	0.097	0.351	0.876	814	879	44.64	1.06	63.75	1.52
	0.104	0.374	0.853	858	931	43.45	1.03	63.75	1.52
	0.111	0.397	0.830	900	982	42.28	1.01	63.75	1.52
	0.120	0.420	0.808	952	1,046	40.80	0.97	63.75	1.52
	0.128	0.451	0.776	996	1,100	39.34	.094	63.75	1.52
	0.138	0.482	0.745	1,048	1,166	37.60	.090	63.75	1.52
	0.148	0.512	0.715	1,097	1,229	35.90	0.85	63.75	1.52
	0.167	0.568	0.659	1,181	1,342	33.05	0.79	63.75	1.52

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 1.50" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
1.500	0.095	0.090	1.310	1.459	37,700	40,700	9,600	10,700
	0.102	0.097	1.296	1.527	40,300	43,500	10,400	11,500
	0.109	0.104	1.282	1.623	42,900	46,200	11,100	12,300
	0.116	0.111	1.268	1.719	45,400	48,900	11,800	13,100
	0.125	0.120	1.250	1.840	48,600	52,400	12,800	14,200
	0.134	0.128	1.232	1.960	51,800	55,800	13,600	15,100
	0.145	0.138	1.210	2.104	55,600	59,900	14,600	16,200
	0.156	0.148	1.188	2.245	59,300	63,900	15,600	17,300
	0.175	0.167	1.150	2.483	65,600	70,700	17,500	19,400
	0.190	0.167	1.120	2.665	70,400	75,800	18,700	20,800

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
1.500	0.090	0.399	1.368	1,148	1,218	70.02	1.67	91.80	2.19
	0.097	0.428	1.340	1,220	1,300	68053	1.63	91.80	2.19
	0.104	0.456	1.311	1,289	1,380	67.06	1.60	91.80	2.19
	0.111	0.484	1.283	1,357	1,459	65.60	1.56	91.80	2.19
	0.120	0.512	1.255	1,440	1,557	63.75	1.52	91.80	2.19
	0.128	0.552	1.215	1,511	1,643	61.93	1.47	91.80	2.19
	0.138	0.590	1.177	1,596	1,746	59.74	1.42	91.80	2.19
	0.148	0.629	1.139	1,677	1,846	57.58	1.37	91.80	2.19
	0.167	0.699	1.068	1,821	2,028	53.96	1.28	91.80	2.19
	0.180	0.746	1.021	1,911	2,145	51.18	1.22	91.80	2.19

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 1.75" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
1.500	0.109	0.104	1.532	1.915	50,600	54,500	9,500	10,600
	0.116	0.111	1.518	2.029	53,600	57,800	10,200	11,300
	0.125	0.120	1.500	2.175	57,400	61,900	11,000	12,200
	0.134	0.128	1.482	2.318	61,200	66,000	11,700	13,000
	0.145	0.138	1.460	2.492	65,800	70,900	12,600	14,000
	0.156	0.148	1.438	2.662	70,300	75,800	13,500	14,900
	0.175	0.167	1.400	2.951	77,900	84,000	15,100	16,800
	0.190	0.180	1.370	3.173	83,800	90,300	16,200	18,000
	0.204	0.195	1.342	3.377	89,200	96,100	17,500	19,400

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
1.500	0.104	0.538	1.867	1,809	1,918	95.76	2.28	124.95	2.97
	0.111	0.572	1.834	1,907	2,030	94.02	2.24	124.95	2.97
	0.120	0.605	1.800	2,003	2,140	91.80	2.19	124.95	2.97
	0.128	0.652	1.753	2,135	2,294	89.61	2.13	124.95	2.97
	0.138	0.699	1.706	2,262	2,444	86.97	2.07	124.95	2.97
	0.148	0.745	1.660	2,384	2,589	84.37	2.01	124.95	2.97
	0.167	0.831	1.575	2,602	2,855	79.97	1.90	124.95	2.97
	0.180	0.888	1.517	2,741	3,029	76.58	1.82	124.95	2.97
	0.195	0.953	1.453	2,893	3,222	73.48	1.75	124.95	2.97

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 2.00" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
2.000	0.109	0.104	1.782	2.207	58,300	62,800	8,400	9,300
	0.116	0.111	1.768	2.340	61,800	66,600	8,900	9,900
	0.125	0.118	1.750	2.509	66,300	71,400	9,500	10,500
	0.134	0.128	1.732	2.677	70,700	76,200	10,300	11,400
	0.145	0.138	1.710	2.880	76,100	82,000	11,000	12,300
	0.156	0.148	1.688	3.080	81,300	87,700	11,800	13,100
	0.175	0.167	1.650	3.419	90,300	97,300	13,300	14,800
	0.190	0.180	1.620	3.682	97,200	104,800	14,300	15,900
	0.204	0.195	1.592	3.923	103,600	111,600	15,400	17,100

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
2.000	0.104	0.619	2.522	2,416	2,544	129.56	3.08	163.20	3.89
	0.111	0.659	2.483	2,552	2,696	127.53	3.04	163.20	3.89
	0.118	0.698	2.444	2,684	2,845	124.95	2.97	163.20	3.89
	0.128	0.753	2.389	2,867	3,054	122.39	2.91	163.20	3.89
	0.138	0.807	2.334	3,045	3,258	119.30	2.84	163.20	3.89
	0.148	0.861	2.280	3,216	3,458	116.25	2.77	163.20	3.89
	0.167	0.962	2.180	3,525	3,825	111.08	2.64	163.20	3.89
	0.180	1.029	2.112	3,724	4,066	107.08	2.55	163.20	3.89
	0.195	1.106	2.036	3,943	4,335	103.41	2.46	163.20	3.89

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 2.375" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
2.375	0.125	0.118	2.125	3.011	79500	85700	8000	8900
	0.134	0.128	2.107	3.215	84900	91500	8700	9600
	0.145	0.138	2.085	3.462	91400	98500	9300	10400
	0.156	0.148	2.063	3.706	97900	105500	10000	11100
	0.175	0.167	2.025	4.122	108900	117300	11200	12500
	0.190	0.180	1.995	4.445	117400	126500	12100	13400
	0.204	0.195	1.967	4.742	125200	135000	13100	14500

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
2.375	0.118	0.837	3.593	3894	4090	184.24	4.39	230.14	5.48
	0.128	0.904	3.527	4170	4398	181.13	4.31	230.14	5.48
	0.138	0.970	3.460	4438	4700	177.37	4.22	230.14	5.48
	0.148	1.035	3.395	4699	4997	173.64	4.13	230.14	5.48
	0.167	1.158	3.272	5175	5545	167.31	3.98	230.14	5.48
	0.180	1.241	3.189	5485	5908	162.38	3.87	230.14	5.48
	0.195	1.335	3.095	5829	6316	157.86	3.76	230.14	5.48

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 2.625" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
2.625	0.156	0.148	2.313	4.124	108,900	117,400	9,100	10100
	0.175	0.167	2.275	4.590	121,200	130,700	10,200	11300
	0.190	0.180	2.245	4.953	130,800	141,000	11,000	12200
	0.204	0.195	2.217	5.288	139,600	150,500	11,900	13200

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
2.625	0.148	1.152	4.260	5,845	6,180	218.28	5.20	281.14	6.69
	0.167	1.290	4.122	6,452	6,869	211.17	5.03	281.14	6.69
	0.180	1.383	4.029	6,850	7,328	205.63	4.90	281.14	6.69
	0.195	1.489	3.923	7,292	7,844	200.54	4.77	281.14	6.69

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 2.875" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
2.875	0.156	0.148	2.563	4.541	119,900	129,300	8,300	9,200
	0.175	0.167	2.525	5.059	133,600	144,000	9,300	10,400
	0.190	0.180	2.495	5.462	144,200	155,500	10,000	11,200
	0.204	0.195	2.467	5.834	154,100	166,000	10,900	12,100

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
2.875	0.148	1.268	5.224	7,117	7,489	268.01	6.38	337.24	8.03
	0.167	1.421	5.071	7,871	8,335	260.12	6.19	337.24	8.03
	0.180	1.524	4.968	8,368	8,900	253.98	6.05	337.24	8.03
	0.195	1.642	4.850	8,922	9,537	248.31	5.91	337.24	8.03

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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Coiled Tubing Data 3.5" O.D.

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)				NOMINAL WEIGHT (lbs / ft)	TUBE BODY LOAD (Lbs.)		INTERNAL PRESSURE (psi)	
O.D. SPECIFIED	WALL SPECIFIED	WALL MINIMUM	I.D. CALCULATED		YIELD MINIMUM	TENSILE MINIMUM	HYDRO TEST 90%	INTERNAL YIELD MIN.
3.500	0.175	0.167	3.150	6.230	164,500	177,300	7,700	8,500
	0.190	0.180	3.120	6.733	177,800	191,600	8,300	9,200
	0.204	0.195	3.092	7.199	190,100	204,900	9,000	9,900

HS-90 CM™* or HS-90 W™**

DIMENSIONS (Inches)		TUBING AREA (sq. in.)		TORSIONAL YIELD (ft. / Lbs.)		INTERNAL CAPACITY per 1000 ft.		EXTERNAL DISPLACEMENT per 1000 ft.	
O.D. SPECIFIED	WALL MINIMUM	W / WALL MIN.	INTERNAL MIN.	YIELD	ULTIMATE	GALLON	BARRELS	GALLONS	BARRELS
3.500	0.167	1.749	7.872	12,039	12,621	404.84	9.64	499.80	11.90
	0.180	1.877	7.744	12,831	13,500	397.16	9.46	499.80	11.90
	0.195	2.025	7.596	13,720	14,496	390.07	9.26	499.80	11.90

* Continuously milled tubing.
** Butt-welded tube sections.

HS-90 CM™ or HS-90 W™

- Tube Body Load: Yield & Tensile Minimums calculated on Specified Wall.
- Hydrostatic Test Pressure: All completed coiled tubing strings shall be hydrostatic pressure tested prior to shipping. The hydrostatic test pressure shall be lesser of 90% of the theoretical burst yield strength or 17,500 psi or 120,700 kPa (unless specifically agreed between purchaser and manufacturer).
- Internal Yield: Internal Pressure to cause yielding using Minimum Yield Strength and Minimum Wall Thickness.
- Maximum Working Pressure is a function of tube condition and is determined by the user.
- Torque Values Calculated Using Minimum Wall Thickness and Minimum Yield Strength.
- Other sizes/wall thickness available on request.
- Above data is for new tubing at specified minimum strengths.

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