

USS-LIBERTY LD™



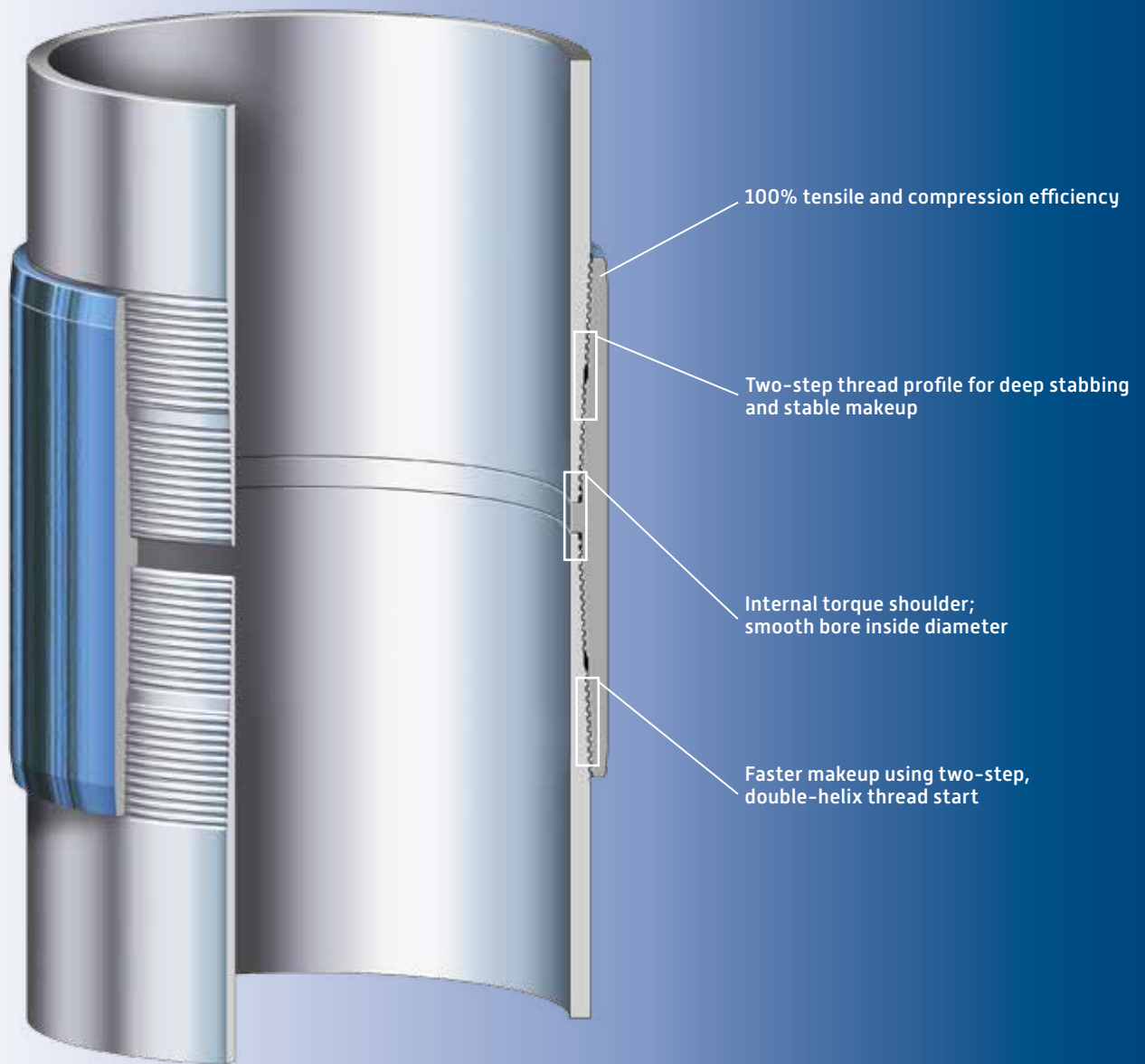
DOUBLE-HELIX THREAD CASING CONNECTION

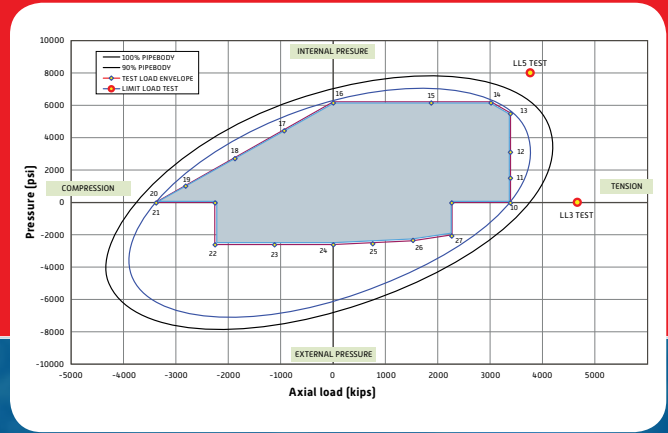


U. S. Steel Tubular Products

USS-LIBERTY LD™

DOUBLE-HELIX THREAD CASING CONNECTION





USS-LIBERTY LD™ Connection is API RP 5C5 CAL I Qualified

The USS-LIBERTY LD™ semi-premium casing connection is designed for surface casing applications and intermediate offshore strings. This rugged connection features a proprietary deep stabbing, two-step double-helix thread profile for trouble free makeup and maximum output, consistently reducing time and costs. Available in outside diameters ranging from 16 to 20 inches, the USS-LIBERTY LD™ connection has been tested to exceed API 5C5 CAL I guidelines, including internal and external pressure testing combined with tension and compression load.

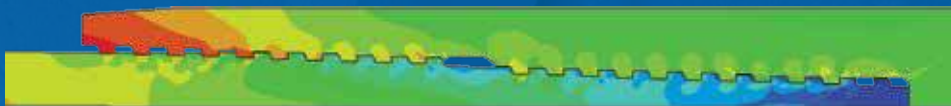
Two-step, double-helix threads permit quick makeup (3-1/2 to 4-1/2 turns for final makeup)

100% efficient in tension and compression

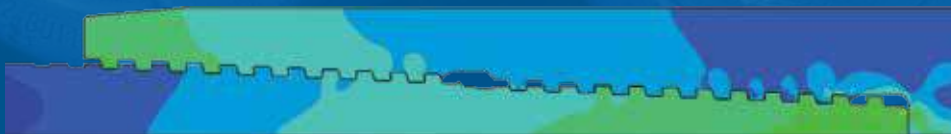
Hook thread design provides improved load carrying ability

Rated to pipe body in burst and collapse pressure

Tested to exceed API 5C5 guidelines



USS-LIBERTY LD™ Capped End FEA



USS-LIBERTY LD™ Make-Up FEA

PERFORMANCE PROPERTIES

(INTERCHANGEABLE CONNECTIONS GROUPED TOGETHER)

Size OD	Nominal Weight	Wall Thickness	Nominal ID	API Drift Diameter	Nominal Pipe Body Area	Coupling Turned OD	Connection Bored ID	Makeup Loss	Coupling Length	SMYS = 55,000 psi				Tensile Joint Strength
										Minimum Makeup Torque	Maximum Makeup Torque	Yield Torque	Tensile Joint Strength	
in.	lb/ft	in.	in.	in.	in. ²	in.	in.	in.	In.	1000 lbs	ft-lb	ft-lb	ft-lb	1000 lbs
16	84.00	0.495	15.010	14.823	24.112	16.750	15.010	6.67	14.375	1326	32700	38700	42610	1929
16	94.50	0.562	14.876	14.689	27.257	16.750	14.876	6.67	14.375	1499	37000	43000	63610	2181
16	97.00	0.575	14.850	14.663	27.864	16.750	14.850	7.33	15.750	1533	40300	46300	60270	2229
16	104.00	0.625	14.750	14.563	30.189	16.750	14.750	8.67	18.375	1660	46600	52600	60370	2415
16	109.00	0.656	14.688	14.501	31.622	16.750	14.688	8.67	18.375	1739	48800	54800	69910	2530
16	118.00	0.715	14.570	14.383	34.334	16.750	14.570	8.67	18.375	1888	52800	58800	87770	2747
16	128.00	0.781	14.438	14.251	37.341	16.750	14.438	8.67	18.375	2054	56800	62800	107290	2987
16	140.50	0.852	14.296	14.109	40.546	16.750	14.296	9.33	19.750	2230	61400	67400	119880	3244
16	147.00	0.906	14.188	14.001	42.962	16.750	14.188	10.00	21.000	2363	69000	75000	128830	3437
18.625	94.50	0.468	17.689	17.502	26.696	19.750	17.689	6.00	13.000	1468	44200	50200	91370	2136
18.625	96.50	0.485	17.655	17.468	27.639	19.750	17.655	6.00	13.000	1520	45800	51800	98870	2211
18.625	99.00	0.500	17.625	17.438	28.471	19.750	17.625	6.67	14.375	1566	43700	49700	61430	2278
18.625	105.00	0.531	17.563	17.376	30.184	19.750	17.563	6.67	14.375	1660	46800	52800	75060	2415
18.625	109.35	0.563	17.499	17.312	31.947	19.750	17.499	6.67	14.375	1757	49800	55800	89010	2556
18.625	112.00	0.579	17.467	17.280	32.825	19.750	17.467	8.00	17.000	1805	54000	60000	74190	2626
18.625	117.50	0.593	17.439	17.252	33.593	19.750	17.439	8.00	17.000	1848	55500	61500	80290	2687
18.625	126.00	0.636	17.353	17.166	35.943	19.750	17.353	8.00	17.000	1977	59900	65900	98860	2875
18.625	135.50	0.693	17.239	17.052	39.040	19.750	17.239	8.00	17.000	2147	65300	71300	123100	3123
18.625	140.50	0.720	17.185	16.998	40.500	19.750	17.185	8.00	17.000	2228	67800	73800	134430	3240
20	106.50	0.500	19.000	18.813	30.631	20.750	19.000	6.67	14.375	1685	40500	46500	67840	2450
20	118.50	0.563	18.874	18.687	34.379	20.750	18.874	6.67	14.375	1891	45700	51700	99180	2750
20	131.00	0.625	18.750	18.563	38.043	20.750	18.750	7.33	15.750	2092	53800	59800	117570	3043
20	133.00	0.635	18.730	18.543	38.631	20.750	18.730	7.33	15.750	2125	54600	60600	122440	3091
20	147.00	0.709	18.582	18.395	42.969	20.750	18.582	8.67	18.375	2363	64700	70700	133500	3437
20	157.00	0.750	18.500	18.313	45.357	20.750	18.500	8.67	18.375	2495	68000	74000	153100	3629
20	169.00	0.812	18.376	18.189	48.948	21.000	18.376	10.00	21.000	2692	87400	93400	162100	3916
20	187.50	0.906	18.188	18.001	54.347	21.000	18.188	10.00	21.000	2989	96500	102500	206430	4348
20	209.00	1.000	18.000	17.813	59.690	21.000	18.000	10.67	22.375	3283	105500	111500	236970	4775

NOTES

1. USS-LIBERTY LD™ tensile joint strength calculations are based on nominal pipe body area and specified minimum yield strength.
2. Connection yield torque is based on material minimum yield strength.
3. USS-LIBERTY LD™ connections are interchangeable between certain weights within a given pipe OD. Interchangeable connections are grouped together.
4. Contact U. S. Steel Tubular Products to receive information for grades not listed.

SMYS = 80,000 psi			SMYS = 95,000 psi				SMYS = 110,000 psi				SMYS = 125,000 psi			
Minimum Makeup Torque	Maximum Makeup Torque	Yield Torque	Tensile Joint Strength	Minimum Makeup Torque	Maximum Makeup Torque	Yield Torque	Tensile Joint Strength	Minimum Makeup Torque	Maximum Makeup Torque	Yield Torque	Tensile Joint Strength	Minimum Makeup Torque	Maximum Makeup Torque	Yield Torque
ft-lb	ft-lb	ft-lb	1000 lbs	ft-lb	ft-lb	ft-lb	1000 lbs	ft-lb	ft-lb	ft-lb	1000 lbs	ft-lb	ft-lb	ft-lb
32700	38700	57200	2291	32700	38700	65950	2652	32700	38700	74700	3014	32700	38700	83450
37000	43000	87010	2589	37000	43000	101050	2998	37000	43000	115080	3407	37000	43000	129120
40300	46300	81580	2647	40300	46300	94370	3065	40300	46300	107150	3483	40300	46300	119940
46600	52600	80660	2868	46600	52600	92830	3321	46600	52600	105000	3774	46600	52600	117170
48800	54800	94150	3004	48800	54800	108690	3478	48800	54800	123240	3953	48800	54800	137780
52800	58800	119440	3262	52800	58800	138450	3777	52800	58800	157450	4292	52800	58800	176460
56800	62800	147140	3547	56800	62800	171050	4108	56800	62800	194960	4668	56800	62800	218870
61400	67400	164660	3852	61400	67400	191530	4460	61400	67400	218400	5068	61400	67400	245270
69000	75000	176400	4081	69000	75000	204930	4726	69000	75000	233470	5370	69000	75000	262010
44200	50200	125890	2536	44200	50200	146600	2937	44200	50200	167310	3337	44200	50200	188020
45800	51800	136520	2626	45800	51800	159110	3040	45800	51800	181690	3455	45800	51800	204280
43700	49700	82430	2705	43700	49700	95040	3132	43700	49700	107640	3559	43700	49700	120240
46800	52800	101720	2867	46800	52800	117720	3320	46800	52800	133710	3773	46800	52800	149710
49800	55800	121460	3035	49800	55800	140930	3514	49800	55800	160400	3993	49800	55800	179870
54000	60000	99160	3118	54000	60000	114140	3611	54000	60000	129120	4103	54000	60000	144100
55500	61500	107770	3191	55500	61500	124260	3695	55500	61500	140740	4199	55500	61500	157230
59900	65900	134000	3415	59900	65900	155090	3954	59900	65900	176180	4493	59900	65900	197260
65300	71300	168290	3709	65300	71300	195400	4294	65300	71300	222510	4880	65300	71300	249620
67800	73800	184330	3848	67800	73800	214270	4455	67800	73800	244200	5063	67800	73800	274140
40500	46500	92230	2910	40500	46500	106870	3369	40500	46500	121500	3829	40500	46500	136130
45700	51700	136880	3266	45700	51700	159490	3782	45700	51700	182110	4297	45700	51700	204730
53800	59800	162160	3614	53800	59800	188910	4185	53800	59800	215660	4755	53800	59800	242420
54600	60600	169100	3670	54600	60600	197090	4249	54600	60600	225090	4829	54600	60600	253080
64700	70700	183370	4082	64700	70700	213290	4727	64700	70700	243220	5371	64700	70700	273140
68000	74000	211270	4309	68000	74000	246180	4989	68000	74000	281080	5670	68000	74000	315980
87400	93400	220870	4650	87400	93400	256130	5384	87400	93400	291390	6119	87400	93400	326650
96500	102500	283690	5163	96500	102500	330050	5978	96500	102500	376410	6793	96500	102500	422770
105500	111500	326500	5671	105500	111500	380220	6566	105500	111500	433940	7461	105500	111500	487650



RIG SITE SERVICES

U. S. Steel Oilwell Services recognizes the value of quality rig site services, particularly when running semi-premium connections such as USS-LIBERTY LD™ connections.

Trained, experienced U. S. Steel employees are available to assist in running casing and tubing connections worldwide, both onshore and offshore. Rig site personnel will inspect U. S. Steel connections in the storage yard or at the rig site, and are trained to perform minor field repairs. Rig site services and benefits include:

- 24/7/365 service, onshore or offshore
- Assurance that correct running procedures are followed
- Visual inspection of connections
- Tools and training required to perform field repair
- Knowledge of full technical specifications and product performance data
- Ongoing training and direct access to engineering and technical staff
- Direct contact with licensed repair facilities



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