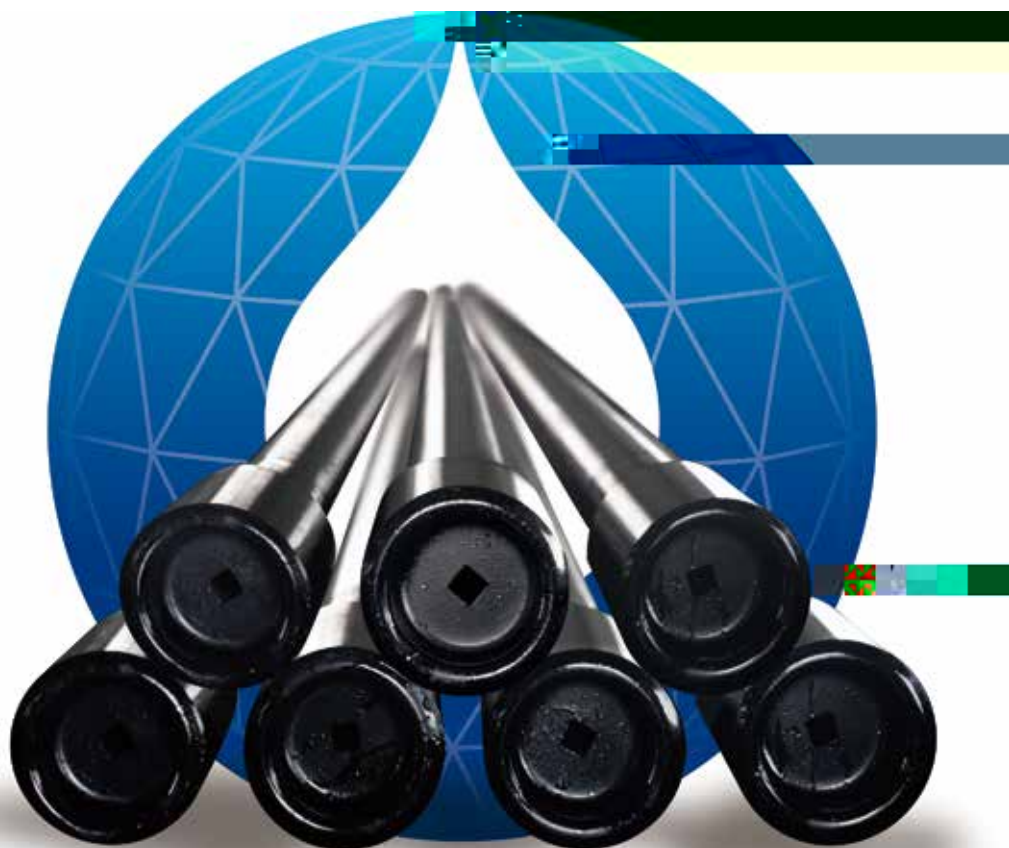


石油钻具

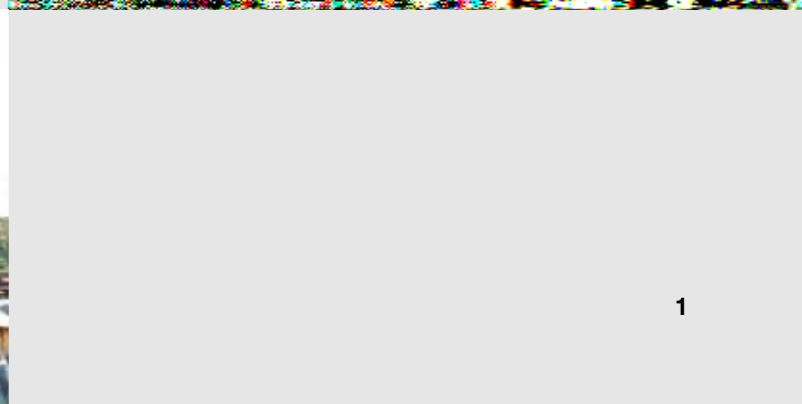
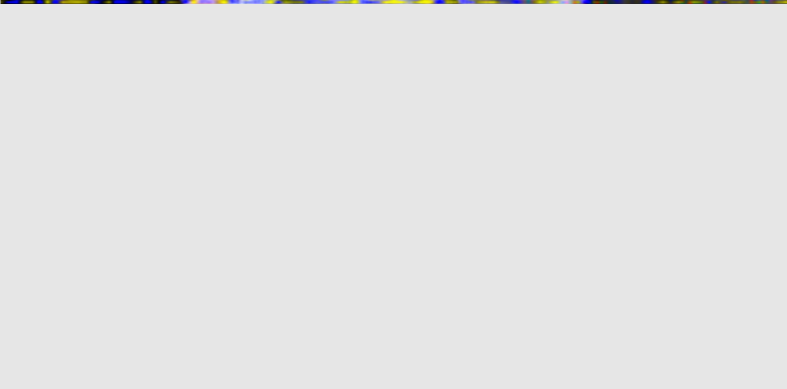
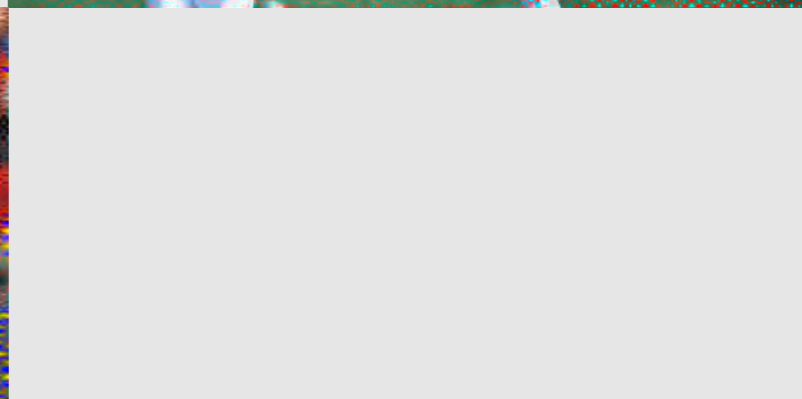
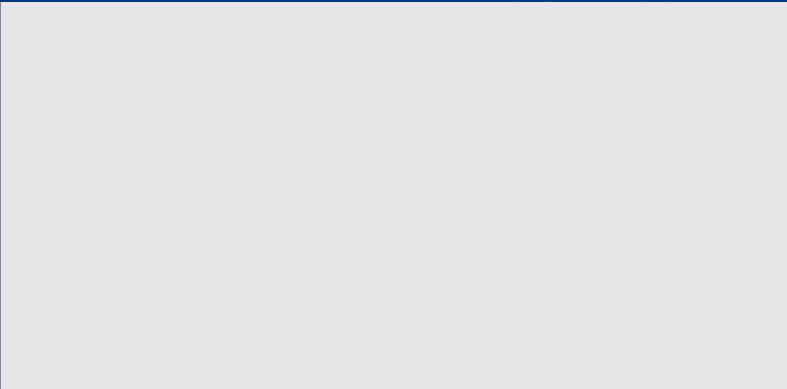
DRILLING TOOLS



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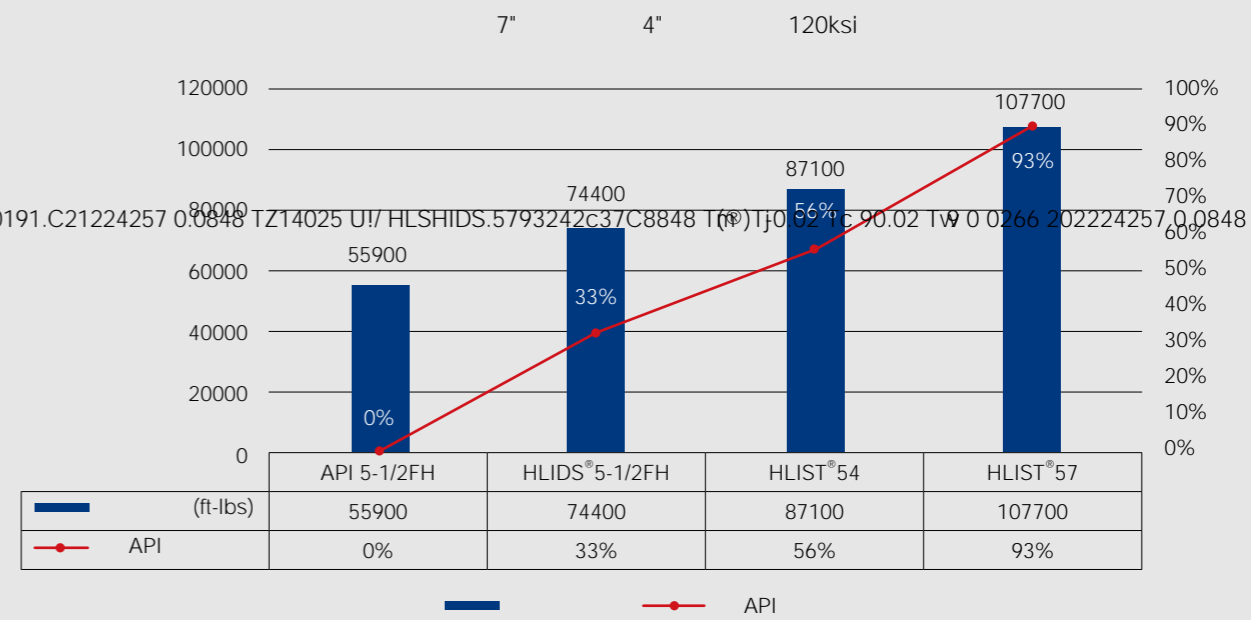
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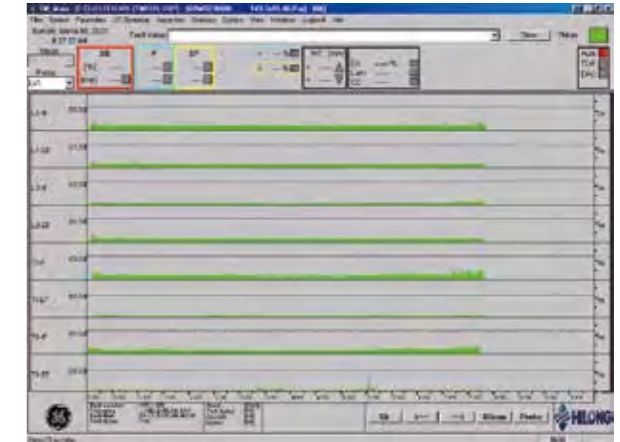
API

CNAS
HLIDS®/HLMT®/HLST®/HLIST®/HLDT-GS®

MTS

• (/ HLSHIDS)Tj Tc 0 Tw 5.247 0 0 5.2487.5593242c37C8848 T(®)Tj 0.02 Tc 0.02 Tw 0 0191.C21224257 0.0848 TZ14025 U// HLSHIDS.5793242C37C8848 T(®)Tj 0.02 Tw 0 0266 202224257 0.0848 TV1C2, (HLSH





FLUT

- 100%FLUT()+100% MPI()
UT) 100%UT+100%MPI 100%UT+100%MPI;

•

2 3/8" 2 7/8" 3 1/2" 4" 4 1/2" 5" 5 1/2" 5 7/8"
6 5/8" 7 5/8" 8 5/8"

A.1 B.1

API Spec 5DP (PSL1/PSL2/PSL3) NS-1 DS-1()
ISO11961

- API Spec 5DP/NS-1/DS-1

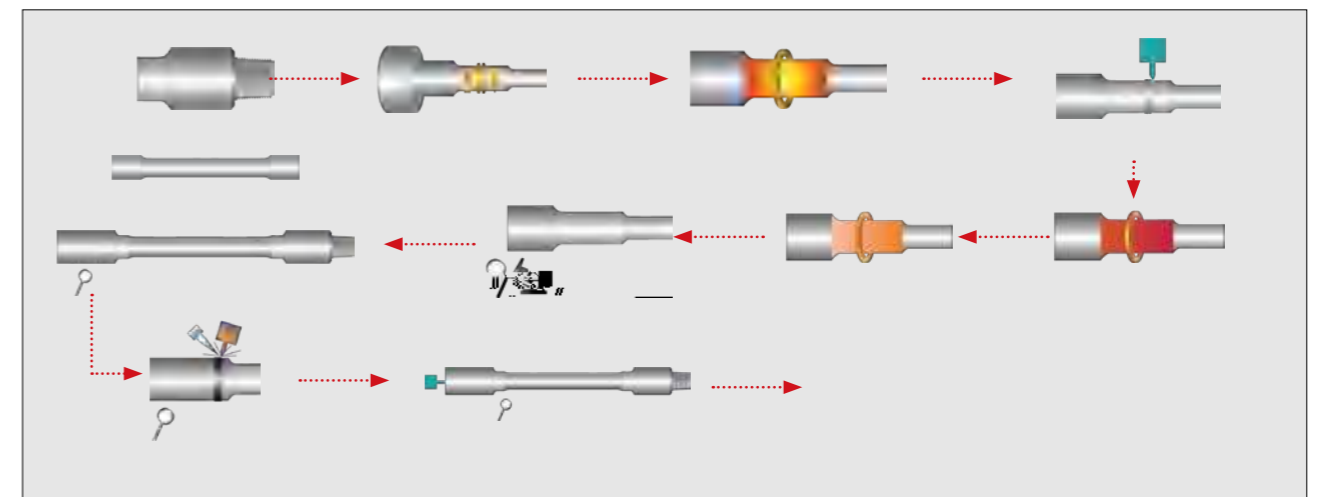
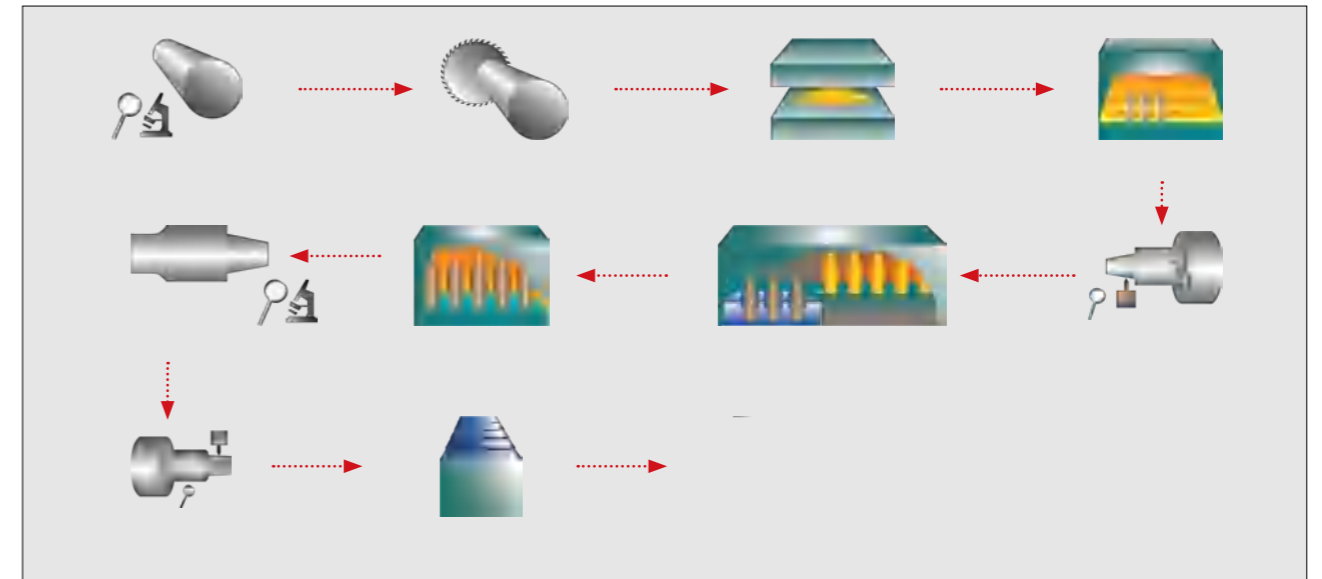
•

- 1) 8)
- 2) 9)
- 3) 10)
- 4) 11)
- 5) 12)
- 6) 13)
- 7)



1

	2 3/8"	2 7/8"	3 1/2"	4"	4 1/2"	5"	5 1/2"	5 7/8"	6 5/8"
HLIDS®	HLIDS®23 HLIDS®26	HLIDS®26 HLIDS®31	HLIDS®31 HLIDS®38	HLIDS®38 HLIDS®40	HLIDS®40 HLIDS®46	HLIDS®50	HLIDS®5- 1/2FH	HLIDS®5- 1/2FH	HLIDS®6- 5/8FH
HLMT®	HLMT®2- 3/8PAC	HLMT®2- 7/8PAC	HLMT®38	HLMT®38 HLMT®40	HLMT®46	HLMT®50	HLMT®5- 1/2FH		
HLST®	HLST®26	HLST®26 HLST®31	HLST®31 HLST®36 HLST®39	HLST®31 HLST®36 HLST®39	HLST®40 HLST®46	HLST®46 HLST®52	HLST®52 HLST®54 HLST®57	HLST®57	
HLIST®			HLIST®38 HLIST®39	HLIST®38 HLIST®39	HLIST®46	HLIST®46 HLIST®50	HLIST®54 HLIST®57	HLIST®57	



HLDT-SS®75 HLDT-SS®95 HLDT-SS®105 HLDT-SS®110 HLDT-S®120 HLDT-S®125

A.2 B.2

HLDT-SH®Z140 HLDT-SH®V150 HLDT-SH®U165

HLDT-AS®75 HLDT-AS®95 HLDT-AS®105 HLDT-AS®135

5

			V 21°C	(HRC)	(SSC) (NACE TM0177)			V 21°C	(HRC)	(SSC) (NACE TM0177)
HLHW-SS [®] 75	75 ksi	90 ksi	55 ft-lbf	24	A A	110 ksi	125 ksi	66 ft-lbf 90J	30, 32	A A
	517 Mpa	621 Mpa	75J		85% SMYS	758 Mpa	862 Mpa			65% SMYS
HLHW-SS [®] 90	90 ksi	100 ksi	55 ft-lbf	27	A A	110 ksi	125 ksi	66 ft-lbf 90J	30, 32	A A
	621 Mpa	689 Mpa	75J		85% SMYS	758 Mpa	862 Mpa			65% SMYS

HLIDS[®] & HLMT[®]

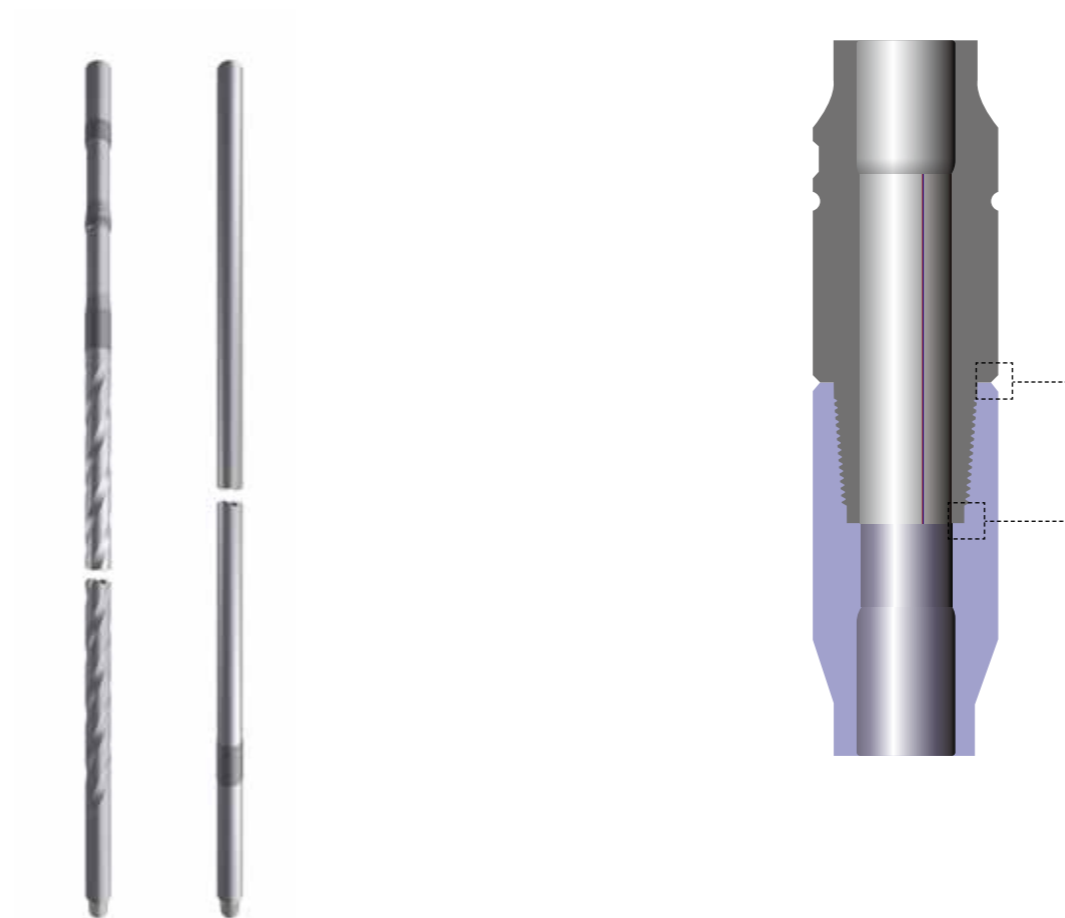
HLIDS[®] API HLMT[®] API

HLIDS[®] HLMT[®]

• API

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API

- 3-1/8" 11"
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- : API Spec 7-1 API Spec 7-2 API RP 7G NS-1 DS-1
-

API A.4 B.4

- API 20%-50%;
- ;
- ;
- ;
- ;

HLIDS[®] HLIDS[®]23 HLIDS[®]26 HLIDS[®]31
 HLIDS[®]38 HLIDS[®]40 HLIDS[®]46 HLIDS[®]50 HLIDS[®]5
 1/2FH HLIDS[®]6 5/8FH 2 3/8"-6 5/8"
 API
 HLIDS[®] A.5 B.5
 HLMT[®] HLMT[®]2-3/8PAC HLMT[®]2-7/8PAC
 HLMT[®]38 HLMT[®]40 HLMT[®]46 HLMT[®]50 HLMT[®]5-
 1/2FH
 HLMT[®] A.6 B.6

■ HLIDS[®] HLMT[®]

HLST® & HLIST®

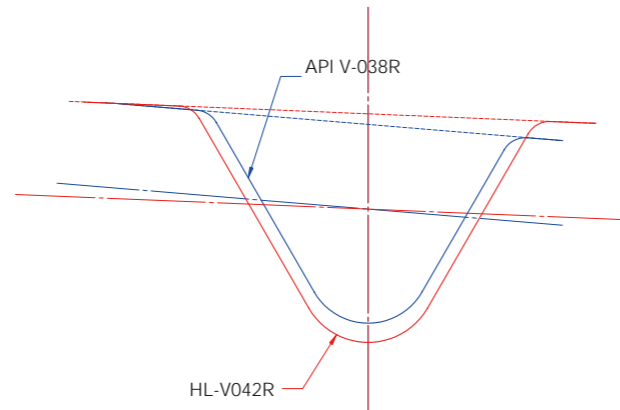
HLST® HLIST® HLIDS® HLST® HLIST®

API HLST® HLIST®

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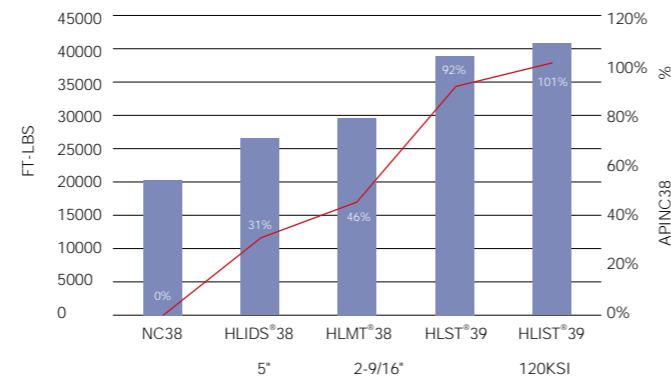
API

70%



HLST® HLST® 24 HLST® 26 HLST® 31
HLST® 36 HLST® 39 HLST® 40 HLST® 46
HLST® 52 HLST® 54 HLST® 57 HLST® 66
HLST® A.7 B.7

HLIST® HLIST® 38 HLIST® 39 HLIST® 46
HLIST® 50 HLIST® 54 HLIST® 57
HLIST® A.8 B.8

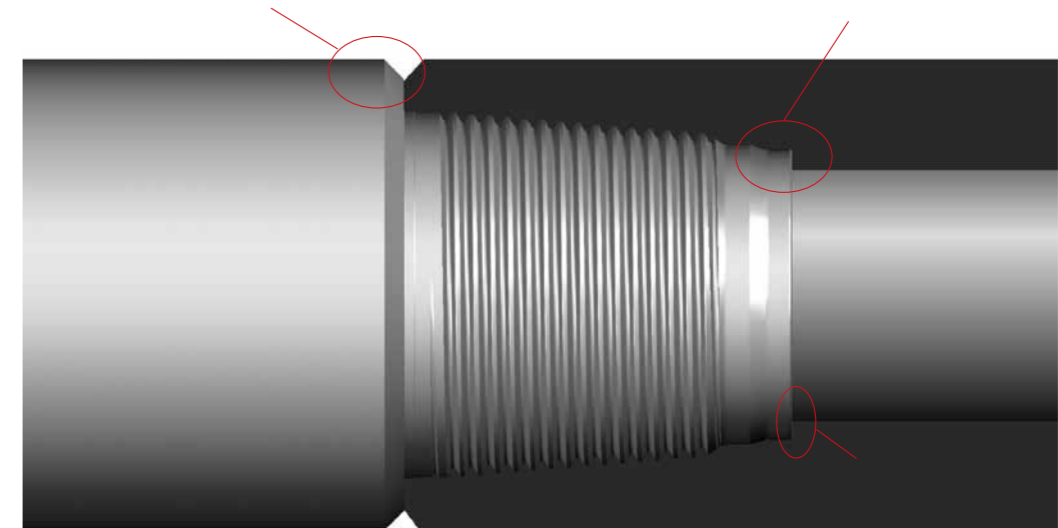


HLDT-GS®

HLDT-GS® DST

API HLDT-GS®

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-



HLDT-GS® 26 HLDT-GS® 31 HLDT-GS® 38 HLDT-GS® 40 HLDT-GS® 46 HLDT-GS® 50 HLDT-GS® 55
HLDT-GS® 65 API Spec 7-2 API

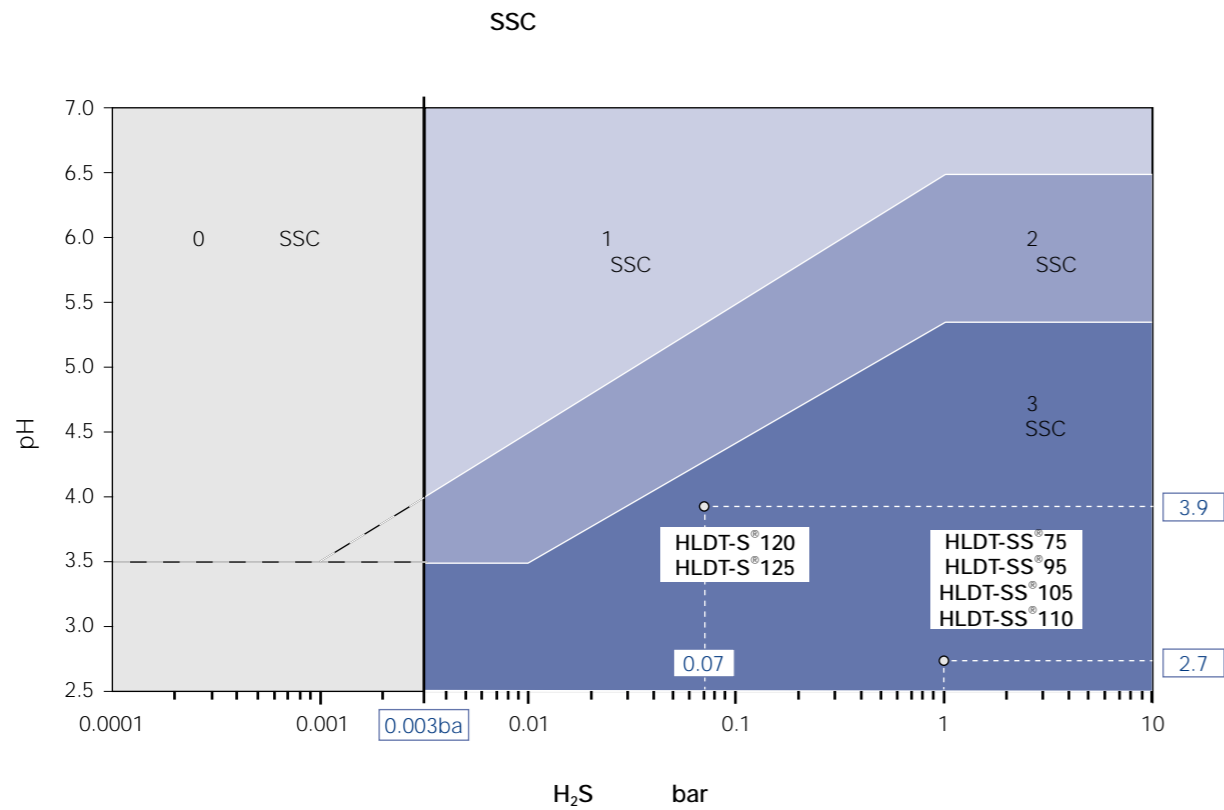
15000Psi 105MPa

H2S (SSC)

HLDLT-S[®]120 HLDLT-S[®]125

- HLDLT-SS[®]75 HLDLT-SS[®]95 HLDLT-SS[®]105 HLDLT-SS[®]110
MS105/HLDLT-S[®]75 HLDLT-S[®]95 HLDLT-S[®]105
TM0177 A A
- HLDLT-S[®]120 HLDLT-S[®]125

HLDLT-MS75 HLDLT-MS95 HLDLT-
IRP1.8 NACE
H₂S



2 3/8" 2 7/8" 3 1/2" 4" 4 1/2" 5" 5 1/2" 5 7/8" 6 5/8"
HLDLT-SS[®]75 HLDLT-SS[®]95 HLDLT-SS[®]105 HLDLT-SS[®]110 HLDLT-S[®]120 HLDLT-S[®]125

7

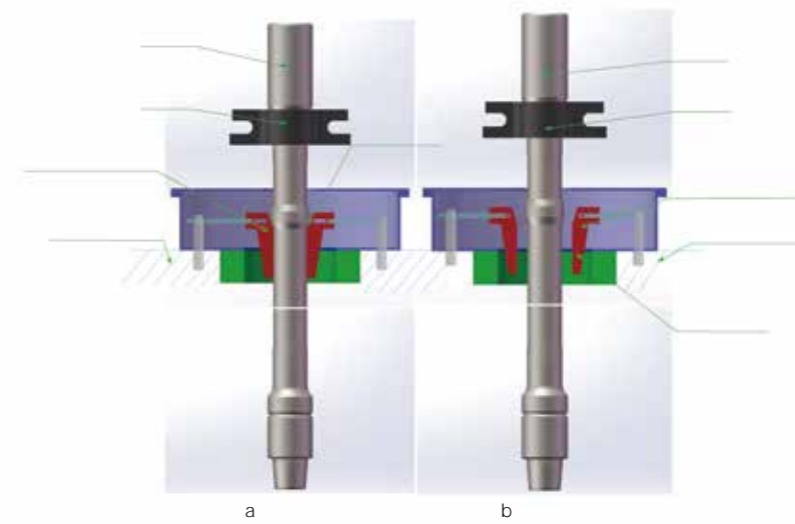
	HLDLT-SS [®] 75	HLDLT-SS [®] 95	HLDLT-SS [®] 105	HLDLT-SS [®] 110	HLDLT-S [®] 120	HLDLT-S [®] 125
	75 ~ 95 ksi	95 ~ 110 ksi	105 ~ 120 ksi	110 ~ 125 ksi	120 ~ 135 ksi	125 ~ 140 ksi
	517 ~ 655 Mpa	655 ~ 758 Mpa	724 ~ 827 Mpa	758 ~ 862 Mpa	827 ~ 931 Mpa	862 ~ 965 Mpa
	95 ~ 115 ksi	105 ~ 130 ksi	115 ~ 140 ksi	120 ~ 145 ksi	≥130 ksi	≥135 ksi
	655 ~ 793 Mpa	724 ~ 896 Mpa	793 ~ 965 Mpa	827 ~ 1000 Mpa	≥896 Mpa	≥931 Mpa
V	≥51 ft-lbf	≥59 ft-lbf	≥59 ft-lbf	≥59 ft-lbf	≥59 ft-lbf	≥59 ft-lbf
3/4, 21°C	≥70J	≥80J	≥80J	≥80J	≥80J	≥80J
	≤24 HRC	18 ~ 27 HRC	21 ~ 29 HRC	21 ~ 32 HRC	≤34 HRC	≤34 HRC
(NACE TM0177)	A	A	85% SMYS 720		A D 720	85% SMYS
	110 ~ 125 ksi				120 ~ 135 ksi	
	758 ~ 862 Mpa				827 ~ 931 Mpa	
	125 ~ 145 ksi				≥130 ksi	
	862 ~ 1000 Mpa				≥896 Mpa	
V	≥66 ft-lbf				≥66 ft-lbf	
, 21°C	≥90J				≥90J	
	≤32 HRC				≤34 HRC	
(NACE TM0177)	A	A	65% SMYS 720		A D 720	65% SMYS

3 1/2" 4" 4 1/2" 5" 5 1/2" 5 7/8" 6 5/8"
HLHW-SS[®]75 HLHW-SS[®]90.

8

		HLHW-SS [®] 75	HLHW-SS [®] 90	
		75 ~ 95 ksi	90 ~ 105 ksi	
		517 ~ 655 Mpa	621 ~ 724 Mpa	
	V _{3/4} , 21°C	95 ~ 115 ksi	100 ~ 120 ksi	
		655 ~ 793 Mpa	689 ~ 827 Mpa	
		≥55 ft-lbf	≥55 ft-lbf	
		≥75J	≥75J	
		≤24 HRC	≤27 HRC	
	(NACE TM0177)	A A	85% SMYS 720	
			110 ~ 125 ksi	
			758 ~ 862 Mpa	
V _{3/4} , 21°C		125 ~ 145 ksi		
		862 ~ 1000 Mpa		
		≥66 ft-lbf		
		≥90J		
		≤32 HRC		
(NACE TM0177)		A A	65% SMYS 720	

API



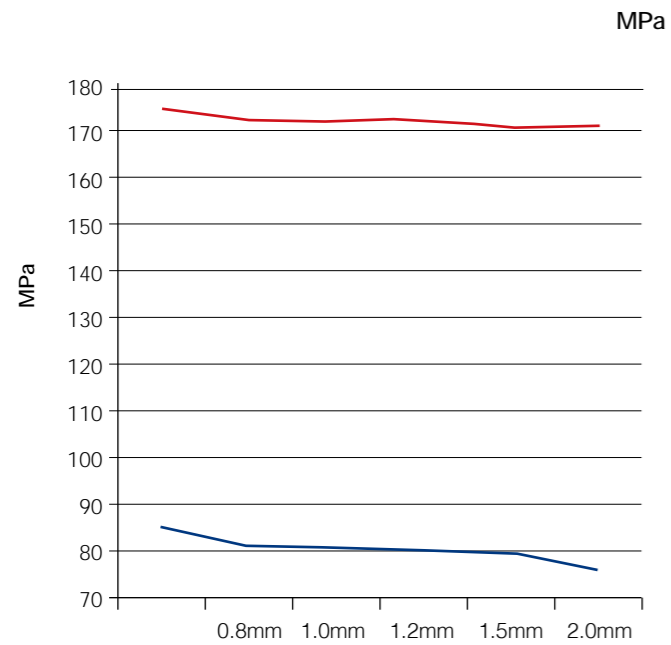
15%

4 4 1/2 5 5 1/2 5 7/8 6 5/8
G105 S135 HLDT-SH[®]V150 HLDT-SH[®]U165

600-900mm

5" 19.50lb/ft 140%
60%
5

4", 4-1/2", 5" 5 1/2" 5 7/8" 6 5/8" 7 5/8"
G105 S135 HLDT-SH®Z140 HLDT-SH®V150



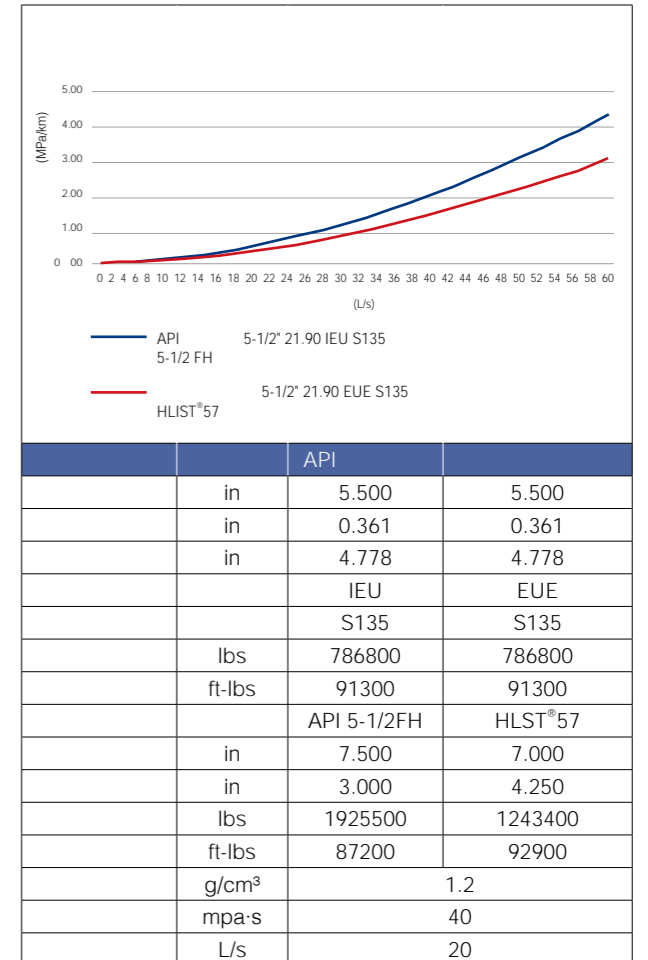
20%-50%

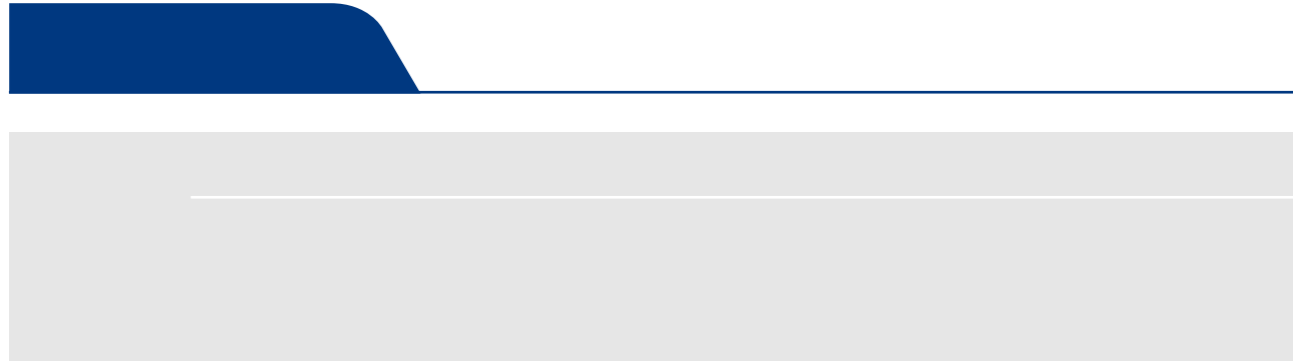
4 1/2" 5" 5 1/2" 5 7/8" 6 5/8"
7 5/8"

9

(in)	(lb/ft)	(in)				(in)	(in)
4	14.00	3.340	EUE	S135	HLST®40	5.250	3.000
4	15.70	3.240	EUE	S135	HLST®42.5	5.250	3.000
4 1/2	16.60	3.826	EUE	S135	HLIST®46	6.000	3.750
4 1/2	16.60	3.826	EUE	S135	HLIDS®50	6.375	3.750
4 1/2	16.60	3.826	EUE	S135	HLIST®50	6.500	3.750
4 1/2	16.60	3.826	EUE	S135	HLST®52	6.500	3.750
5	19.50	4.276	EUE	S135	HLST®54	6.625	4.000
5	19.50	4.276	EUE	S135	HLIST®54	6.625	4.000
5 1/2	21.90	4.778	EUE	S135	HLST®57	7.000	4.250
5 1/2	21.90	4.778	EUE	S135	HLIST®57	7.000	4.250
5 7/8	23.40	5.153	EUE	S135	HLST®59	7.250	4.500
6 5/8	27.70	5.901	EUE	S135	HLST®72	8.500	5.500

5 1/2" 21.9lb/ft S135
API





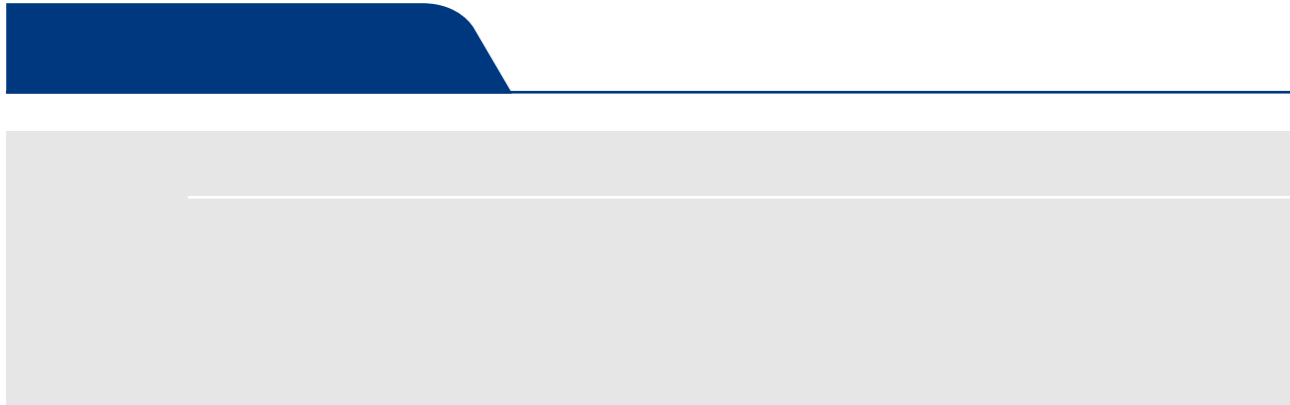
Well Drilling Method
Circulation Centre Discharge

RDM Reel
RCCD Reverse



5/8" 7 5/8" 8 1/2" 9 1/2" 10"
5" 5 1/2" 5 7/8" 6"





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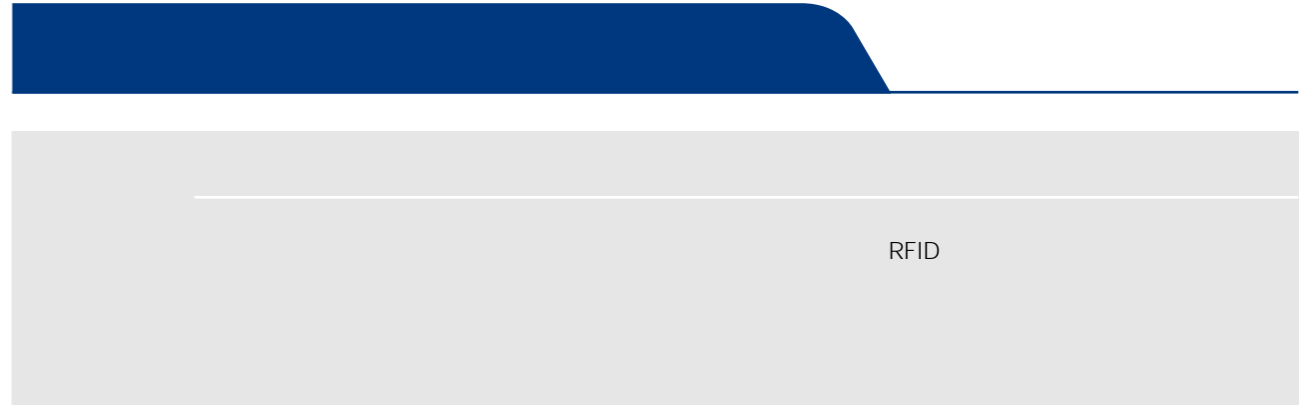
5" 5 1/2" 5 7/8" 6 5/8" 7 5/8"
S135 HLDLT-SH®Z140 HLDLT-SH®V150 HLDLT-SH®U165



11

in	in		lbs		in		ksi		lbs ¹		in		100% lbs ²		(lbs)		
	in	in	lbs	lbs	in	in	ksi	lbs	in	in	ksi	lbs	in	lbs			
5 1/2	5.500	0.750	S135	1510900	1239700	5.688	3.500	135	1749000	HLIST®54	7.250	3.500	120	1508500	5.781	1653500	1508500
			HLDLT-SH®V150	1678800	1377500			150	1943300				130	1634200			1634200
			HLDLT-SH®U165	1846700	1515200			165	2137600				140	1760000			1653500
5 7/8	5.875	0.750	S135	1630200	1318900	6.000	3.875	135	1800100	HLIST®57	7.500	3.500	120	1756500	6.094	1651500	1630200
			HLDLT-SH®V150	1811300	1465500			150	2000100				130	1902900			1651500
			HLDLT-SH®U165	1992500	1547300			165	2200100				140	2049300			1651500
6 5/8	6.625	0.813	S135	2002900	1575600	6.938	4.500	135	2325800	6-5/8FH	8.500	4.500	120	1896100	7.031	1970800	1896100
			HLDLT-SH®V150	2225500	1750600			150	2584300				130	2054100			1970800
			HLDLT-SH®U165	2448000	1925700			165	2842700				140	2212100			1970800

: 1. 0.08 20" 2.6
2. 110ksi



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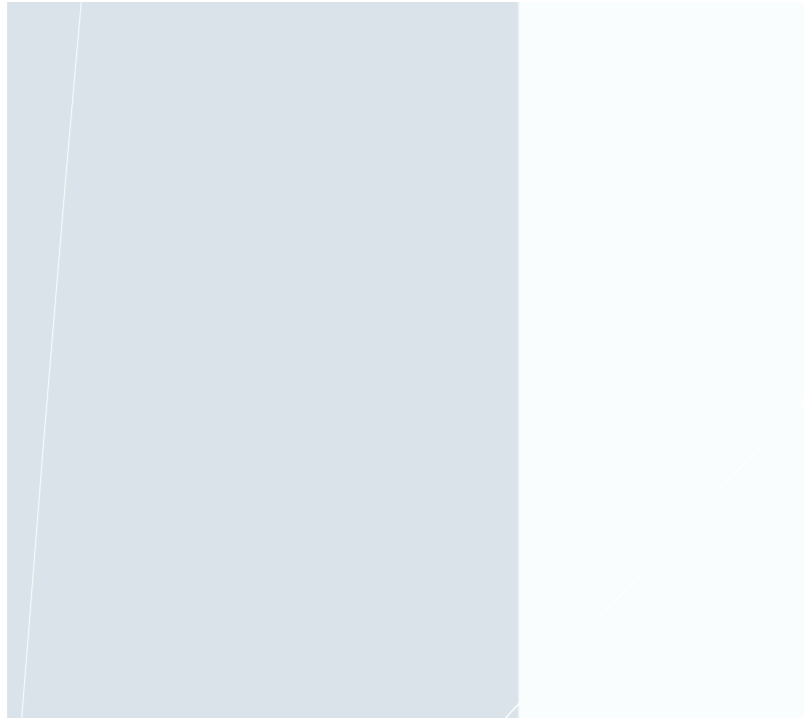
RFID 100%



12

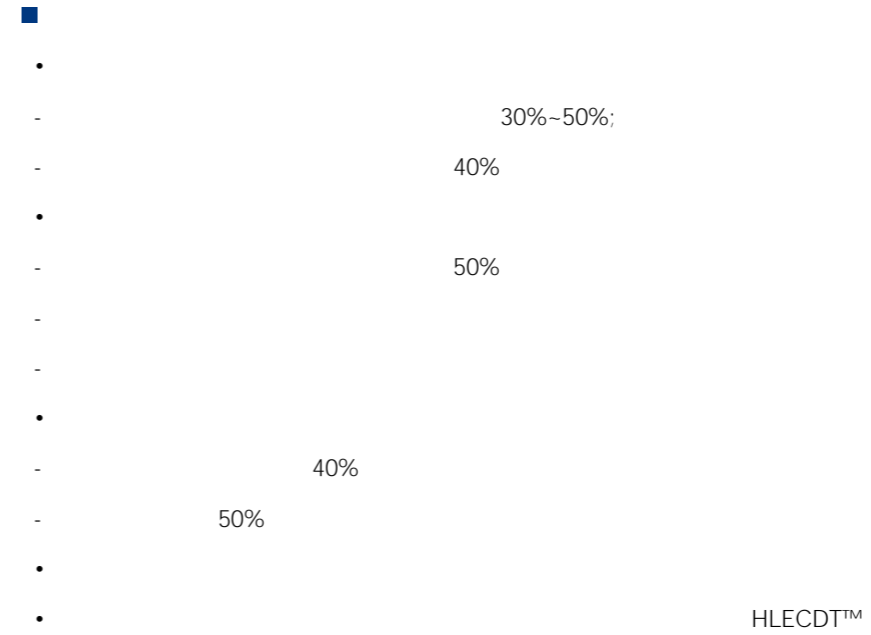
	-60°C 220°C
	105MPa
	860~960MHz
	180° 360°
	0.1-1m 1-2m

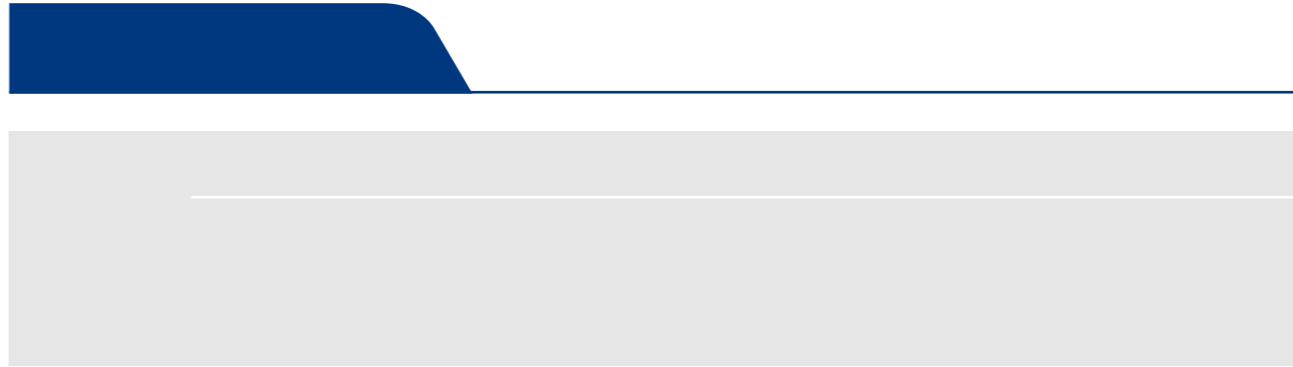
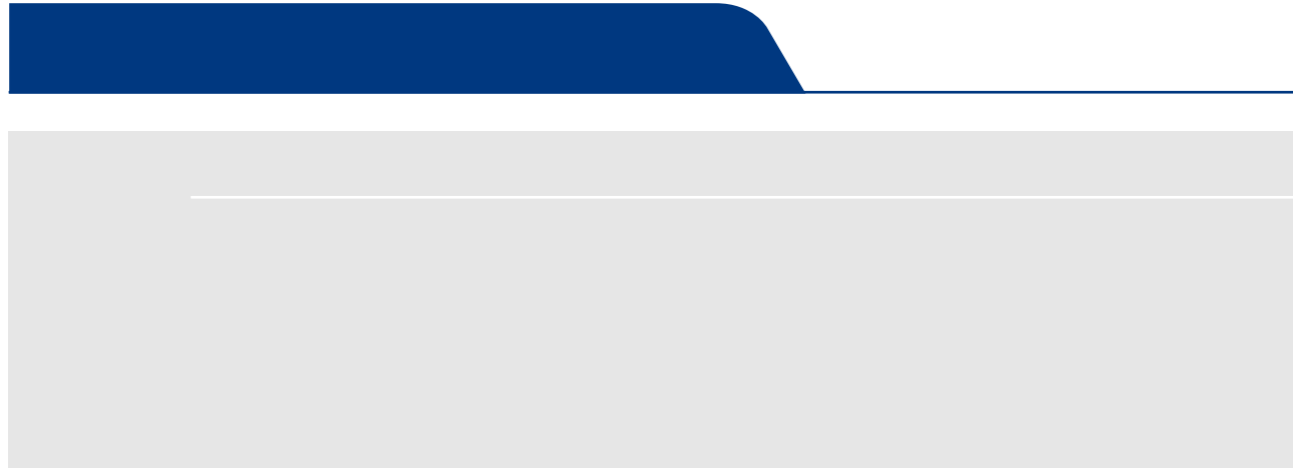
HLECDT™



HLECDT™
(HLECDP™)

(HLECHWDP™)

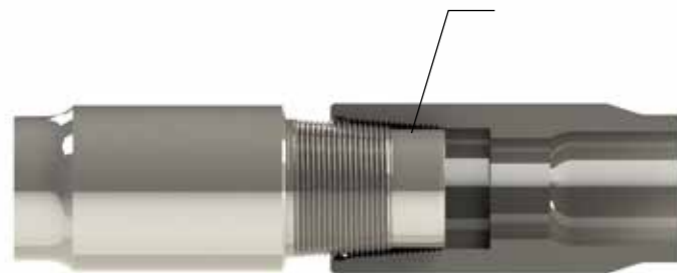




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5 7/8" 6 5/8" 7 5/8" 8 5/8" 10" 10 3/4" 12 3/4" 13 3/8"
G105 S135 HLDT-SH[®]Z140 HLDT-SH[®]V150 HLDT-SH[®]U165



15

(mm)	(mm)			(mm)	(mm)
60.33	7.11	G105	HLSD [®] 21	69.85	34.93
60.33	7.11	G105	HLMT [®] 2-3/8PAC	73.03	34.93
60.33	7.11	G105	HLIDS [®] 23	76.20	34.93
73.03	5.51	G105	HLMT [®] 2-7/8PAC	79.38	38.10
73.03	9.19	G105	HLMT [®] 2-7/8PAC	79.38	38.10
88.90	6.45	G105	HLST [®] 26	88.90	44.45
88.90	9.35	G105	HLST [®] 31	101.60	50.80
88.90	9.35	G105	HLSD [®] 33	104.78	57.15
101.60	6.65	G105	HLST [®] 31	101.60	50.80
101.60	8.38	S135	HLST [®] 36	114.30	61.91
114.30	6.88	G105	HLST [®] 36	114.30	61.93
114.30	8.56	S135	HLST [®] 40	133.35	68.26

16

(in)	(lb/ft)			(in)	(in)
2 3/8	6.65	G105	HLSD [®] 21	2.750	1.375
2 3/8	6.65	G105	HLMT [®] 2-3/8PAC	2.875	1.375
2 3/8	6.65	G105	HLIDS [®] 23	3.000	1.375
2 7/8	6.85	G105	HLMT [®] 2-7/8PAC	3.125	1.500
2 7/8	10.40	G105	HLMT [®] 2-7/8PAC	3.125	1.500
3 1/2	9.50	G105	HLST [®] 26	3.500	1.750
3 1/2	13.30	G105	HLST [®] 31	4.000	2.000
3 1/2	13.30	G105	HLSD [®] 33	4.125	2.250
4	11.85	G105	HLST [®] 31	4.000	2.000
4	14.00	S135	HLST [®] 36	4.500	2.438
4 1/2	13.75	G105	HLST [®] 36	4.500	2.438
4 1/2	16.60	S135	HLST [®] 40	5.250	2.688

A

A.1

(mm)	(mm)					
					(mm)	(mm)
60.33	7.11	EU	E / X / G	NC26	85.73	44.45
60.33	7.11	EU	G / S / Z / V	HLIDS®26	85.73	44.45
60.33	7.11	EU	S / Z / V	HLST®26	85.73	44.45
60.33	7.11	IU	G / S	HLIDS®23	76.20	34.93
60.33	7.11	IU	G / S	HLMT®2-3/8PAC	73.03	34.93
73.03	9.19	EU	E	NC31	104.78	53.98
73.03	9.19	EU	X / G	NC31	104.78	50.80
73.03	9.19	EU	S	NC31	111.13	41.28
73.03	9.19	EU	G / S / Z / V	HLIDS®31	104.78	50.80
73.03	9.19	EU	G / S / Z / V	HLST®31	104.78	50.80
73.03	9.19	IU	E / X / G	HLIDS®26	85.73	44.45
73.03	9.19	IU	E / X / G	HLMT®2-7/8PAC	79.38	38.10
73.03	9.19	IU	E / X / G	HLST®26	85.73	44.45
88.90	9.35	EU	E	NC38	120.65	68.26
88.90	9.35	EU	X	NC38	127.00	65.09
88.90	9.35	EU	G	NC38	127.00	61.91
88.90	9.35	EU	S	NC38	127.00	53.98
88.90	9.35	EU	G	HLIDS®38	127.00	65.09
88.90	9.35	EU	S / Z	HLIDS®38	127.00	61.91
88.90	9.35	EU	V	HLIDS®38	127.00	53.98
88.90	9.35	EU	G	HLMT®38	120.65	68.26
88.90	9.35	EU	S / Z / V	HLMT®38	120.65	65.09
88.90	9.35	EU	G	HLST®36	120.65	61.91
88.90	9.35	EU	S / Z / V	HLST®36	120.65	53.98
88.90	9.35	EU	G	HLST®39	123.83	71.44
88.90	9.35	EU	S	HLST®39	123.83	68.26
88.90	9.35	EU	Z / V	HLST®39	127.00	65.09
88.90	9.35	EU	G	HLIST®38	120.65	68.26
88.90	9.35	EU	S / Z / V	HLIST®38	120.65	65.09
88.90	9.35	EU	G / S / Z / V	HLIST®39	123.83	68.26
88.90	9.35	IU	E / X / G	HLIDS®31	104.78	50.80

(mm)	(mm)					
					(mm)	(mm)
88.90	9.35	IU	S	HLIDS®31	107.95	50.80
88.90	9.35	IU	E	HLST®31	101.60	57.15
88.90	9.35	IU	X / G / S	HLST®31	104.78	50.80
88.90	11.40	EU	E	NC38	127.00	65.09
88.90	11.40	EU	X	NC38	127.00	61.91
88.90	11.40	EU	G	NC38	127.00	53.98
88.90	11.40	EU	S	NC40	139.70	57.15
88.90	11.40	EU	E / X	HLIDS®38	127.00	65.09
88.90	11.40	EU	G	HLIDS®38	127.00	61.91
88.90	11.40	EU	S / Z / V	HLIDS®38	127.00	53.98
88.90	11.40	EU	G	HLMT®38	120.65	65.09
88.90	11.40	EU	S / Z	HLMT®38	123.83	61.91
88.90	11.40	EU	V	HLMT®38	127.00	57.15
88.90	11.40	EU	X	HLST®36	120.65	65.09
88.90	11.40	EU	G	HLST®36	120.65	61.91
88.90	11.40	EU	S / Z / V	HLST®36	120.65	53.98
88.90	11.40	EU	G / S	HLST®39	127.00	65.09
88.90	11.40	EU	Z / V	HLST®39	127.00	61.91
88.90	11.40	EU	G	HLIST®38	120.65	65.09
88.90	11.40	EU	S / Z / V	HLIST®38	120.65	61.91
88.90	11.40	EU	G / S / Z / V	HLIST®39	123.83	65.09
101.60	8.38	IU	E	NC40	133.35	71.44
101.60	8.38	IU	X	NC40	133.35	68.26
101.60	8.38	IU	G	NC40	139.70	61.91
101.60	8.38	IU	S	NC40	139.70	50.80
101.60	8.38	IU	E / X	HLIDS®38	127.00	68.26
101.60	8.38	IU	G	HLIDS®38	127.00	65.09
101.60	8.38	IU	S	HLIDS®38	127.00	61.91
101.60	8.38	IU	E / X	HLIDS®40	133.35	71.44
101.60	8.38	IU	G	HLIDS®40	133.35	68.26
101.60	8.38	IU	S / Z / V	HLIDS®40	133.35	65.09
101.60	8.38	IU	G	HLMT®38	127.00	65.09
101.60	8.38	IU	S	HLMT®38	127.00	61.91
101.60	8.38	IU	G	HLMT®40	133.35	68.26
101.60	8.38	IU	S / Z / V	HLMT®40	133.35	65.09
101.60	8.38	IU	E / X	HLST®36	120.65	65.09

(mm)	(mm)					
					(mm)	(mm)
127.00	12.70	IEU	G	HLST®46	158.75	76.20
127.00	12.70	IEU	S	HLST®46	158.75	69.85
127.00	12.70	IEU	E / X / G	HLST®52	168.28	95.25
127.00	12.70	IEU	S / Z / V	HLST®52	168.28	82.55
127.00	12.70	IEU	G	HLIST®50	168.28	95.25
127.00	12.70	IEU	S / Z / V	HLIST®50	168.28	82.55
139.70	9.17	IEU	E	5-1/2FH	177.80	101.60
139.70	9.17	IEU	X	5-1/2FH	177.80	95.25
139.70	9.17	IEU	G	5-1/2FH	184.15	88.90
139.70	9.17	IEU	S	5-1/2FH	190.50	76.20
139.70	9.17	IEU	E / X / G / S / Z / V / U	HLIDS®5-1/2FH	177.80	101.60
139.70	9.17	IEU	G / S / Z / V / U	HLMT®5-1/2FH	177.80	101.60
139.70	9.17	IEU	E / X / G	HLST®52	165.10	101.60
139.70	9.17	IEU	S	HLST®52	168.28	95.25
139.70	9.17	IEU	E / X / G	HLST®54	168.28	107.95
139.70	9.17	IEU	S	HLST®54	171.45	101.60
139.70	9.17	IEU	Z / V	HLST®54	174.63	98.43
139.70	9.17	IEU	G / S / Z / V / U	HLST®57	177.80	107.95
139.70	9.17	IEU	G	HLIST®54	168.28	107.95
139.70	9.17	IEU	S / Z / V	HLIST®54	171.45	101.60
139.70	9.17	IEU	G / S / Z / V / U	HLIST®57	177.80	107.95
139.70	10.54	IEU	E	5-1/2FH	177.80	101.60
139.70	10.54	IEU	X / G	5-1/2FH	184.15	88.90
139.70	10.54	IEU	S	5-1/2FH	190.50	76.20
139.70	10.54	IEU	E / X / G	HLIDS®5-1/2FH	177.80	101.60
139.70	10.54	IEU	S / Z / V / U	HLIDS®5-1/2FH	184.15	95.25
139.70	10.54	IEU	G / S	HLMT®5-1/2FH	177.80	101.60
139.70	10.54	IEU	Z / V / U	HLMT®5-1/2FH	184.15	95.25
139.70	10.54	IEU	G	HLST®54	171.45	101.60
139.70	10.54	IEU	S / Z / V	HLST®54	174.63	95.25
139.70	10.54	IEU	G / S / Z / V / U	HLST®57	180.98	101.60
139.70	10.54	IEU	G	HLIST®54	171.45	101.60
139.70	10.54	IEU	S / Z / V	HLIST®54	174.63	95.25
139.70	10.54	IEU	G / S / Z / V / U	HLIST®57	180.98	101.60
149.23	9.17	IEU	S / Z / V / U	HLIDS®5-1/2FH	184.15	101.60
149.23	9.17	IEU	S / Z / V / U	HLMT®5-1/2FH	184.15	101.60

(mm)	(mm)					
					(mm)	(mm)
149.23	9.17	IEU	S / Z / V / U	HLST®57	177.80	104.78
149.23	9.17	IEU	S / Z / V / U	HLIST®57	177.80	104.78
149.23	10.54	IEU	S / Z / V / U	HLIDS®5-1/2FH	184.15	98.43
149.23	10.54	IEU	S / Z / V / U	HLMT®5-1/2FH	184.15	98.43
149.23	10.54	IEU	S / Z / V / U	HLST®57	184.15	101.60
149.23	10.54	IEU	S / Z / V / U	HLIST®57	184.15	101.60
168.28	8.38	IEU	E / X	6-5/8FH	203.20	127.00
168.28	8.38	IEU	G	6-5/8FH	209.55	120.65
168.28	8.38	IEU	S	6-5/8FH	209.55	107.95
168.28	8.38	IEU	E / X / G / S / Z / V / U	HLIDS®6-5/8FH	203.20	127.00
168.28	9.19	IEU	E	6-5/8FH	203.20	127.00
168.28	9.19	IEU	X / G	6-5/8FH	209.55	120.65
168.28	9.19	IEU	S	6-5/8FH	215.90	107.95
168.28	9.19	IEU	E / X / G	HLIDS®6-5/8FH	203.20	127.00
168.28	9.19	IEU	S / Z / V / U	HLIDS®6-5/8FH	209.55	120.65

E - E75; X - X95; G - G105; S - S135; Z - HLDT-SH®Z140; V - HLDT-SH®V150; U - HLDT-SH®U165;

A.2

(mm)	(mm)					
					(mm)	(mm)
60.33	7.11	EU	SS75 / SS95 / SS105 / HL110SS	NC26	85.73	44.45
60.33	7.11	EU	SS75 / SS95 / SS105 / HL110SS / HL120S	HLIDS [®] 26	85.73	44.45
60.33	7.11	EU	SS105 / HL110SS / HL120S	HLST [®] 26	85.73	44.45
60.33	7.11	IU	SS105 / HL110SS / HL120S	HLIDS [®] 23	76.20	34.93
60.33	7.11	IU	SS105 / HL110SS / HL120S	HLMT [®] 2-3/8PAC	73.03	34.93
73.03	9.19	EU	SS75	NC31	104.78	53.98
73.03	9.19	EU	SS95 / SS105 / HL110SS	NC31	104.78	50.80
73.03	9.19	EU	SS105 / HL110SS / HL120S	HLIDS [®] 31	104.78	50.80
73.03	9.19	EU	SS105 / HL110SS / HL120S	HLST [®] 31	104.78	50.80
73.03	9.19	IU	SS75 / SS95 / SS105 / HL110SS	HLIDS [®] 26	85.73	44.45
73.03	9.19	IU	SS75 / SS95 / SS105 / HL110SS	HLMT [®] 2-7/8PAC	79.38	38.10
73.03	9.19	IU	SS75 / SS95 / SS105 / HL110SS	HLST [®] 26	85.73	44.45
88.90	9.35	EU	SS75	NC38	120.65	68.26
88.90	9.35	EU	SS95	NC38	127.00	65.09
88.90	9.35	EU	SS105 / HL110SS	NC38	127.00	61.91
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLIDS [®] 38	127.00	65.09
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLMT [®] 38	123.83	65.09
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLST [®] 36	120.65	57.15
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLST [®] 39	123.83	68.26
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLIST [®] 38	120.65	65.09
88.90	9.35	EU	SS105 / HL110SS / HL120S	HLIST [®] 39	123.83	68.26
88.90	9.35	IU	SS75 / SS95 / SS105 / HL110SS	HLIDS [®] 31	104.78	50.80
88.90	9.35	IU	SS75 / SS95 / SS105 / HL110SS	HLST [®] 31	104.78	50.80
88.90	11.40	EU	SS75	NC38	127.00	65.09
88.90	11.40	EU	SS95	NC38	127.00	61.91
88.90	11.40	EU	SS105 / HL110SS	NC38	127.00	53.98
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLIDS [®] 38	127.00	61.91
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLMT [®] 38	123.83	61.91
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLST [®] 36	120.65	53.98
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLST [®] 39	127.00	65.09
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLIST [®] 38	120.65	61.91
88.90	11.40	EU	SS105 / HL110SS / HL120S	HLIST [®] 39	123.83	65.09
101.60	8.38	IU	SS75	NC40	133.35	71.44
101.60	8.38	IU	SS95	NC40	133.35	68.26

(mm)	(mm)					
					(mm)	(mm)
101.60	8.38	IU	SS105 / HL110SS	NC40	139.70	61.91
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 38	127.00	65.09
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 40	133.35	68.26
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 38	127.00	65.09
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 40	133.35	68.26
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 36	120.65	53.98
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 39	123.83	65.09
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 38	120.65	61.91
101.60	8.38	IU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 39	123.83	65.09
101.60	9.65	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 40	133.35	65.09
101.60	9.65	IU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 40	133.35	65.09
101.60	9.65	IU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 39	123.83	65.09
101.60	9.65	IU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 40	133.35	68.26
101.60	9.65	IU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 39	123.83	65.09
114.30	8.56	IEU	SS75	NC46	158.75	82.55
114.30	8.56	IEU	SS95 / SS105 / HL110SS	NC46	158.75	76.20
114.30	8.56	IEU	HL120S / HL125S	NC46	158.75	69.85
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 46	152.40	82.55
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 46	152.40	82.55
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 46	152.40	82.55
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 46	152.40	82.55
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 40	133.35	65.09
114.30	8.56	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 40	133.45	68.26
114.30	10.92	IEU	SS75	NC46	158.75	76.20
114.30	10.92	IEU	SS95	NC46	158.75	69.85
114.30	10.92	IEU	SS105 / HL110SS	NC46	158.75	63.50
114.30	10.92	IEU	HL120S / HL125S	NC46	158.75	57.15
114.30	10.92	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 46	152.40	76.20
114.30	10.92	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 46	152.40	76.20
114.30	10.92	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 46	152.40	76.20
114.30	10.92	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 46	152.40	76.20
127.00	9.19	IEU	SS75	NC50	168.28	95.25
127.00	9.19	IEU	SS95	NC50	168.28	88.90
127.00	9.19	IEU	SS105 / HL110SS	NC50	168.28	82.55
127.00	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 50	168.28	88.90
127.00	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 50	168.28	88.90

(mm)	(mm)					
					(mm)	(mm)
127.00	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 46	152.40	82.55
127.00	9.19	IEU	SS75 / SS95 / SS105 / HL110SS	HLST [®] 52	165.10	101.60
127.00	9.19	IEU	HL120S / HL125S	HLST [®] 52	165.10	95.25
127.00	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 46	152.40	88.90
127.00	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 50	165.10	95.25
127.00	12.70	IEU	SS75	NC50	168.28	88.90
127.00	12.70	IEU	SS95	NC50	168.28	76.20
127.00	12.70	IEU	SS105 / HL110SS	NC50	168.28	69.85
127.00	12.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 50	168.28	76.20
127.00	12.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 50	168.28	76.20
127.00	12.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 46	158.75	69.85
127.00	12.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 52	168.28	85.73
127.00	12.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 50	168.28	88.90
139.70	9.17	IEU	SS75	5-1/2FH	177.80	101.60
139.70	9.17	IEU	SS95	5-1/2FH	177.80	95.25
139.70	9.17	IEU	SS105 / HL110SS	5-1/2FH	184.15	88.90
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 5-1/2FH	177.80	101.60
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 5-1/2FH	177.80	101.60
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 52	165.10	95.25
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 54	171.45	101.60
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 57	177.80	104.78
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 54	168.28	101.60
139.70	9.17	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 57	177.80	104.78
139.70	10.54	IEU	SS75	5-1/2FH	177.80	101.60
139.70	10.54	IEU	SS95 / SS105 / HL110SS	5-1/2FH	184.15	88.90
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 5-1/2FH	177.80	101.60
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT [®] 5-1/2FH	177.80	101.60
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 54	174.63	98.43
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLST [®] 57	177.80	101.60
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 54	171.45	98.43
139.70	10.54	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST [®] 57	177.80	101.60
149.23	9.17	IEU	SS75	5-1/2FH	177.80	101.60
149.23	9.17	IEU	SS95 / SS105 / HL110SS	5-1/2FH	184.15	88.90
149.23	9.17	IEU	HL120S / HL125S	HLIDS [®] 5-1/2FH	177.80	101.60
149.23	9.17	IEU	HL120S / HL125S	HLMT [®] 5-1/2FH	177.80	101.60
149.23	9.17	IEU	HL120S / HL125S	HLST [®] 57	177.80	107.95

(mm)	(mm)					
					(mm)	(mm)
149.23	9.17	IEU	HL120S / HL125S	HLIST [®] 57	177.80	107.95
149.23	10.54	IEU	SS75	5-1/2FH	177.80	82.55
149.23	10.54	IEU	SS95 / SS105 / HL110SS	5-1/2FH	184.15	88.90
149.23	10.54	IEU	HL120S / HL125S	HLIDS [®] 5-1/2FH	184.15	98.43
149.23	10.54	IEU	HL120S / HL125S	HLMT [®] 5-1/2FH	184.15	98.43
149.23	10.54	IEU	HL120S / HL125S	HLST [®] 57	184.15	101.60
149.23	10.54	IEU	HL120S / HL125S	HLIST [®] 57	184.15	101.60
168.28	8.38	IEU	SS75 / SS95	6-5/8FH	203.20	127.00
168.28	8.38	IEU	SS105 / HL110SS	6-5/8FH	209.55	120.65
168.28	8.38	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 6-5/8FH	203.20	127.00
168.28	9.19	IEU	SS75	6-5/8FH	203.20	127.00
168.28	9.19	IEU	SS95 / SS105 / HL110SS	6-5/8FH	209.55	120.65
168.28	9.19	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS [®] 6-5/8FH	203.20	127.00

SS75 - HLDT-SS[®]75; SS95 - HLDT-SS[®]95; SS105 - HLDT-SS[®]105; HL110SS - HLDT-SS[®]110; HL120S - HLDT-S[®]120;
HL125S - HLDT-S[®]125

A. 3

	OD	ID	Dc	Dte		Df	D	d	
mm	mm	mm	mm	mm		mm	mm	mm	mm
88.9	88.9	57.15	101.6	98.4	NC38	116.3	120.7	57.15	50.80
88.9	88.9	52.39	101.6	98.4	NC38	116.3	127.0	52.39	46.04
88.9	88.9	50.80	101.6	92.4	HLIDS®31	100.4	104.8	50.80	44.45
88.9	88.9	52.39	101.6	92.4	HLST®31	99.2	104.8	52.39	46.04
88.9	88.9	57.15	101.6	98.4	HLIDS®38	116.3	120.7	57.15	50.80
88.9	88.9	57.15	101.6	98.4	HLMT®38	116.3	120.7	57.15	50.80
101.6	101.6	65.09	114.3	106.4	NC40	127.4	133.4	65.09	58.74
101.6	101.6	65.09	114.3	106.4	HLIDS®40	127.4	133.4	65.09	58.74
101.6	101.6	65.09	114.3	106.4	HLMT®40	123.8	133.4	65.09	58.74
101.6	101.6	65.09	114.3	106.4	HLST®39	121.2	123.8	65.09	58.74
101.6	101.6	65.09	114.3	106.4	HLIST®39	121.6	123.8	65.09	58.74
114.3	114.3	68.26	127.0	119.1	NC46	145.3	158.8	68.26	61.91
114.3	114.3	68.26	127.0	119.1	HLIDS®40	127.4	133.4	68.26	61.91
114.3	114.3	68.26	127.0	119.1	HLST®40	128.6	133.4	68.26	61.91
127.0	127.0	76.20	139.7	130.2	NC50	154.0	168.3	76.20	69.85
127.0	127.0	76.20	139.7	130.2	HLIDS®50	154.0	168.3	76.20	69.85
139.7	139.7	101.60	152.4	144.5	5-1/2FH	170.7	177.8	101.60	95.25
139.7	139.7	82.55	152.4	144.5	5-1/2FH	170.7	177.8	82.55	76.20
139.7	139.7	82.55	152.4	144.5	HLIST®50	160.5	165.1	82.55	76.20
139.7	139.7	82.55	152.4	144.5	HLIDS®5-1/2FH	170.7	177.8	82.55	76.20
139.7	139.7	101.60	152.4	144.5	HLST®54	164.4	171.5	101.60	95.25
139.7	139.7	101.60	152.4	144.5	HLIST®54	164.3	168.3	101.60	95.25
149.2	149.2	101.60	161.9	152.4	HLIDS®5-1/2FH	170.7	184.2	101.60	95.25
149.2	149.2	104.78	161.9	152.4	HLST®57	171.8	177.8	104.78	98.43
149.2	149.2	107.95	161.9	152.4	HLIST®57	170.7	177.8	107.95	101.60
168.3	168.3	114.30	181.0	176.2	6-5/8FH	195.7	209.6	114.30	107.95
168.3	168.3	127.00	181.0	176.2	6-5/8FH	195.7	203.2	127.00	120.65
168.3	168.3	127.00	181.0	176.2	HLIDS®6-5/8	195.7	203.2	127.00	120.65

A. 4

	D	d		L	Df	BSR	
in	mm	mm		m	mm		mm
3 1/8	79.4	31.8	NC23	9.14	76.2	2.57	35.0
3 1/2	88.9	38.1	NC26	9.14	82.9	2.42	41.3
4 1/8	104.8	50.8	NC31	9.14 9.45	100.4	2.43	54.0
4 3/4	120.6	50.8	NC35	9.14 9.45	114.7	2.58	54.0
5	127.0	57.2	NC38	9.14 9.45	121.0	2.38	60.4
6	152.4	57.2	NC44	9.14 9.45	144.5	2.49	60.4
6	152.4	71.4	NC44	9.14 9.45	144.5	2.84	74.6
6 1/4	158.8	57.2	NC44	9.14 9.45	149.2	2.91	60.4
6 1/4	158.8	71.4	NC46	9.14 9.45	150.0	2.63	74.6
6 1/2	165.1	57.2	NC46	9.14 9.45	154.8	2.76	60.4
6 1/2	165.1	71.4	NC46	9.14 9.45	154.8	3.05	74.6
6 3/4	171.4	57.2	NC46	9.14 9.45	159.5	3.18	60.4
7	177.8	57.2	NC50	9.14 9.45	164.7	2.54	60.4
7	177.8	71.4	NC50	9.14 9.45	164.7	2.73	74.6
7 1/4	184.2	71.4	NC50	9.14 9.45	169.5	3.12	74.6
7 3/4	196.8	71.4	NC56	9.14 9.45	185.3	2.70	74.6
8	203.2	71.4	NC56	9.14 9.45	190.1	3.02	74.6
8 1/4	209.6	71.4	6-5/8REG	9.14 9.45	195.6	2.93	74.6
9	228.6	71.4	NC61	9.14 9.45	212.7	3.17	74.6
9 1/2	241.3	76.2	7-5/8REG	9.14 9.45	223.8	2.81	79.4
9 3/4	247.6	76.2	NC70	9.14 9.45	232.6	2.57	79.4
10	254.0	76.2	NC70	9.14 9.45	237.3	2.81	79.4
11	279.4	76.2	8-5/8REG	9.14 9.45	266.7	2.84	79.4

A. 5 HLIDS®

	(mm)	(mm)	(N·m)	(kN)	(N·m)
HLIDS®23	76.20	34.93	8800	1300	5300
HLIDS®26	85.73	44.45	12100	1400	7300
HLIDS®31	111.13	41.28	32600	2800	19500
	104.78	53.98	20700	2000	12400
	104.78	50.80	23900	2200	14400
HLIDS®38	127.00	65.09	36100	2900	21600
	127.00	61.91	40600	3200	24400
	127.00	53.98	50900	3800	30500
	120.65	68.26	30900	2600	18500
	120.65	65.09	34500	2900	20700
HLIDS®40	139.70	50.80	70300	4800	42200
	133.35	71.44	40000	3200	24000
	133.35	68.26	45300	3500	27200
	133.35	65.09	50400	3700	30200
	133.35	61.91	54600	4000	32800
HLIDS®46	152.40	82.55	59700	4000	35800
	152.40	76.20	73300	4700	44000
	152.40	69.85	85700	5300	51400
HLIDS®50	168.28	95.25	66200	4200	39700
	168.28	88.90	83500	4900	50100
	168.28	82.55	99500	5700	59700
	168.28	76.20	114000	6300	68400
	168.28	69.85	127300	6900	76400
	165.10	95.25	65900	4200	39600
HLIDS®5-1/2FH	190.50	82.55	158700	7900	95200
	190.50	76.20	174400	8600	104700
	184.15	95.25	121800	6500	73100
	184.15	92.08	131300	6800	78800
	184.15	88.90	140500	7200	84300
	177.80	101.60	100900	5600	60500
	177.80	98.43	111100	6100	66700
HLIDS®6-5/8FH	209.55	120.65	162300	7500	97400
	209.55	117.48	176500	8000	105900
	203.20	127.00	131800	6500	79100
	203.20	123.83	146800	7000	88100

827MPa

1.0

A. 6 HLMT®

	(mm)	(mm)	(N·m)	(kN)	(N·m)
HLMT®2-3/8PAC	73.03	34.93	9500	1100	5700
HLMT®2-7/8PAC	79.38	38.10	11600	1200	7000
HLMT®38	127.00	65.09	40100	2900	24100
	127.00	61.91	44700	3200	26800
	127.00	57.15	51100	3500	30700
	123.83	61.91	44500	3200	26700
	120.65	68.26	34900	2600	20900
	120.65	65.09	38500	2900	23100
HLMT®40	139.70	61.91	59400	4000	35700
	133.35	68.26	49000	3500	29400
	133.35	65.09	54100	3700	32500
HLMT®46	133.35	61.91	58400	4000	35000
	152.40	82.55	64000	4000	38400
	152.40	76.20	77700	4700	46600
HLMT®50	168.28	88.90	89700	4900	53800
	168.28	82.55	105700	5700	63400
	168.28	76.20	120400	6300	72200
	165.10	88.90	89400	4900	53600
HLMT®5-1/2FH	177.80	101.60	104700	5600	62800
HLMT®5-1/2FH	177.80	98.43	115000	6100	69000

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1.0

A. 7 HLST®

	(mm)	(mm)	(N·m)	(kN)	(N·m)
HLST®26	85.73	44.45	15000	1300	9000
HLST®31	104.78	53.98	25800	1900	15500
	104.78	50.80	29100	2100	17500
HLST®36	101.60	57.15	22100	1700	13300
	120.65	65.09	33100	2200	19900
	120.65	61.91	37700	2500	22600
	120.65	57.15	44000	2900	26400
HLST®39	120.65	53.98	47900	3100	28700
	127.00	65.09	52700	3200	31600
	127.00	61.91	56800	3500	34100
	123.83	71.44	42100	2700	25300
HLST®40	123.83	68.26	47000	2900	28200
	123.83	65.09	49200	3200	29500
	136.53	65.09	67600	3900	40500
HLST®46	133.35	68.26	62100	3600	37200
	133.35	65.09	66400	3900	39800
	158.75	76.20	95000	4900	57000
HLST®52	158.75	69.85	107900	5500	64700
	152.40	88.90	64800	3500	38900
	152.40	82.55	80200	4200	48100
	152.40	76.20	94400	4900	56600
HLST®54	168.28	101.60	84500	4100	50700
	168.28	95.25	104200	4900	62500
	168.28	88.90	122400	5700	73400
	165.10	104.78	73900	3700	44300
	165.10	101.60	84200	4100	50500
HLST®57	174.63	95.25	134000	5900	80400
	171.45	104.78	102600	4700	61600
	171.45	101.60	113300	5100	68000
	168.28	107.95	91200	4300	54700
HLST®57	180.98	101.60	148900	6400	89300
	177.80	107.95	125900	5500	75500
	177.80	101.60	139700	6400	83800

827MPa

1.0

A. 8 HLIST®

	(mm)	(mm)	(N·m)	(kN)	(N·m)
HLIST®38	123.83	61.91	47300	2900	28400
	120.65	68.26	37600	2400	22500
	120.65	65.09	42500	2700	25500
	120.65	61.91	47100	2900	28300
HLIST®39	127.00	65.09	55300	3200	33200
	123.83	68.26	48700	3000	29200
	123.83	65.09	51000	3200	30600
HLIST®46	158.75	82.55	95200	4800	57100
	152.40	88.90	78800	4100	47300
	152.40	82.55	89100	4800	53500
HLIST®50	168.28	88.90	123300	5600	74000
	168.28	85.73	131800	6000	79100
	165.10	95.25	104800	4800	62900
	165.10	92.08	114000	5200	68400
HLIST®54	171.45	101.60	117400	5100	70500
	171.45	98.43	127800	5600	76700
	168.28	107.95	95200	4300	57100
	168.28	101.60	114300	5100	68600
HLIST®57	177.80	107.95	128300	5400	77000
	177.80	101.60	146100	6200	87600

827MPa

1.0

B

B.1

(in)	(lb/ft)					
					(in)	(in)
2 3/8	6.65	EU	E / X / G	NC26	3 3/8	1 3/4
2 3/8	6.65	EU	G / S / Z / V	HLIDS®26	3 3/8	1 3/4
2 3/8	6.65	EU	S / Z / V	HLST®26	3 3/8	1 3/4
2 3/8	6.65	IU	G / S	HLIDS®23	3	1 3/8
2 3/8	6.65	IU	G / S	HLMT®2-3/8PAC	2 7/8	1 3/8
2 7/8	10.40	EU	E	NC31	4 1/8	2 1/8
2 7/8	10.40	EU	X / G	NC31	4 1/8	2
2 7/8	10.40	EU	S	NC31	4 3/8	1 5/8
2 7/8	10.40	EU	G / S / Z / V	HLIDS®31	4 1/8	2
2 7/8	10.40	EU	G / S / Z / V	HLST®31	4 1/8	2
2 7/8	10.40	IU	E / X / G	HLIDS®26	3 3/8	1 3/4
2 7/8	10.40	IU	E / X / G	HLMT®2-7/8PAC	3 1/8	1 1/2
2 7/8	10.40	IU	E / X / G	HLST®26	3 3/8	1 3/4
3 1/2	13.30	EU	E	NC38	4 3/4	2 11/16
3 1/2	13.30	EU	X	NC38	5	2 9/16
3 1/2	13.30	EU	G	NC38	5	2 7/16
3 1/2	13.30	EU	S	NC38	5	2 1/8
3 1/2	13.30	EU	G	HLIDS®38	5	2 9/16
3 1/2	13.30	EU	S / Z	HLIDS®38	5	2 7/16
3 1/2	13.30	EU	V	HLIDS®38	5	2 1/8
3 1/2	13.30	EU	G	HLMT®38	4 3/4	2 11/16
3 1/2	13.30	EU	S / Z / V	HLMT®38	4 3/4	2 9/16
3 1/2	13.30	EU	G	HLST®36	4 3/4	2 7/16
3 1/2	13.30	EU	S / Z / V	HLST®36	4 3/4	2 1/8
3 1/2	13.30	EU	G	HLST®39	4 7/8	2 13/16
3 1/2	13.30	EU	S	HLST®39	4 7/8	2 11/16
3 1/2	13.30	EU	Z / V	HLST®39	5	2 9/16
3 1/2	13.30	EU	G	HLIST®38	4 3/4	2 11/16
3 1/2	13.30	EU	S / Z / V	HLIST®38	4 3/4	2 9/16
3 1/2	13.30	EU	G / S / Z / V	HLIST®39	4 7/8	2 11/16
3 1/2	13.30	IU	E / X / G	HLIDS®31	4 1/8	2

(in)	(lb/ft)					
					(in)	(in)
3 1/2	13.30	IU	S	HLIDS®31	4 1/4	2
3 1/2	13.30	IU	E	HLST®31	4	2 1/4
3 1/2	13.30	IU	X / G / S	HLST®31	4 1/8	2
3 1/2	15.50	EU	E	NC38	5	2 9/16
3 1/2	15.50	EU	X	NC38	5	2 7/16
3 1/2	15.50	EU	G	NC38	5	2 1/8
3 1/2	15.50	EU	S	NC40	5 1/2	2 1/4
3 1/2	15.50	EU	E / X	HLIDS®38	5	2 9/16
3 1/2	15.50	EU	G	HLIDS®38	5	2 7/16
3 1/2	15.50	EU	S / Z / V	HLIDS®38	5	2 1/8
3 1/2	15.50	EU	G	HLMT®38	4 3/4	2 9/16
3 1/2	15.50	EU	S / Z	HLMT®38	4 7/8	2 7/16
3 1/2	15.50	EU	V	HLMT®38	5	2 1/4
3 1/2	15.50	EU	X	HLST®36	4 3/4	2 9/16
3 1/2	15.50	EU	G	HLST®36	4 3/4	2 7/16
3 1/2	15.50	EU	S / Z / V	HLST®36	4 3/4	2 1/8
3 1/2	15.50	EU	G / S	HLST®39	5	2 9/16
3 1/2	15.50	EU	Z / V	HLST®39	5	2 7/16
3 1/2	15.50	EU	G	HLIST®38	4 3/4	2 9/16
3 1/2	15.50	EU	S / Z / V	HLIST®38	4 3/4	2 7/16
3 1/2	15.50	EU	G / S / Z / V	HLIST®39	4 7/8	2 9/16
4	14.00	IU	E	NC40	5 1/4	2 13/16
4	14.00	IU	X	NC40	5 1/4	2 11/16
4	14.00	IU	G	NC40	5 1/2	2 7/16
4	14.00	IU	S	NC40	5 1/2	2
4	14.00	IU	E / X	HLIDS®38	5	2 11/16
4	14.00	IU	G	HLIDS®38	5	2 9/16
4	14.00	IU	S	HLIDS®38	5	2 7/16
4	14.00	IU	E / X	HLIDS®40	5 1/4	2 13/16
4	14.00	IU	G	HLIDS®40	5 1/4	2 11/16
4	14.00	IU	S / Z / V	HLIDS®40	5 1/4	2 9/16
4	14.00	IU	G	HLMT®38	5	2 9/16
4	14.00	IU	S	HLMT®38	5	2 7/16
4	14.00	IU	G	HLMT®40	5 1/4	2 11/16
4	14.00	IU	S / Z / V	HLMT®40	5 1/4	2 9/16
4	14.00	IU	E / X	HLST®36	4 3/4	2 9/16

(in)	(lb/ft)					
					(in)	(in)
4	14.00	IU	G	HLST [®] 36	4 3/4	2 7/16
4	14.00	IU	S	HLST [®] 36	4 3/4	2 1/8
4	14.00	IU	E / X	HLST [®] 39	4 7/8	2 13/16
4	14.00	IU	G	HLST [®] 39	4 7/8	2 11/16
4	14.00	IU	S	HLST [®] 39	4 7/8	2 9/16
4	14.00	IU	Z / V	HLST [®] 39	5	2 9/16
4	14.00	IU	G	HLIST [®] 38	4 3/4	2 9/16
4	14.00	IU	S	HLIST [®] 38	4 3/4	2 7/16
4	14.00	IU	G	HLIST [®] 39	4 7/8	2 11/16
4	14.00	IU	S / Z / V	HLIST [®] 39	4 7/8	2 9/16
4	15.70	IU	E / X	HLIDS [®] 40	5 1/4	2 13/16
4	15.70	IU	G	HLIDS [®] 40	5 1/4	2 11/16
4	15.70	IU	S	HLIDS [®] 40	5 1/4	2 9/16
4	15.70	IU	Z / V	HLIDS [®] 40	5 1/2	2 7/16
4	15.70	IU	G	HLMT [®] 40	5 1/4	2 11/16
4	15.70	IU	S / Z	HLMT [®] 40	5 1/4	2 9/16
4	15.70	IU	V	HLMT [®] 40	5 1/4	2 7/16
4	15.70	IU	G	HLST [®] 39	4 7/8	2 9/16
4	15.70	IU	S / Z / V	HLST [®] 39	5	2 7/16
4	15.70	IU	G / S	HLST [®] 40	5 1/4	2 11/16
4	15.70	IU	Z / V	HLST [®] 40	5 3/8	2 9/16
4	15.70	IU	G	HLIST [®] 39	4 7/8	2 9/16
4	15.70	IU	S / Z / V	HLIST [®] 39	5	2 7/16
4 1/2	16.60	IEU	E	NC46	6 1/4	3 1/4
4 1/2	16.60	IEU	X / G	NC46	6 1/4	3
4 1/2	16.60	IEU	S	NC46	6 1/4	2 3/4
4 1/2	16.60	IEU	E / X / G	HLIDS [®] 46	6	3 1/4
4 1/2	16.60	IEU	S / Z / V	HLIDS [®] 46	6	3
4 1/2	16.60	IEU	G / S / Z / V	HLMT [®] 46	6	3 1/4
4 1/2	16.60	IEU	G / S / Z / V	HLST [®] 46	6	3 1/4
4 1/2	16.60	IEU	G / S / Z / V	HLIST [®] 46	6	3 1/4
4 1/2	16.60	IEU	G	HLIDS [®] 40	5 1/4	2 11/16
4 1/2	16.60	IEU	S	HLIDS [®] 40	5 1/4	2 9/16
4 1/2	16.60	IEU	G / S	HLST [®] 40	5 1/4	2 11/16
4 1/2	20.00	IEU	E	NC46	6 1/4	3
4 1/2	20.00	IEU	X	NC46	6 1/4	2 3/4

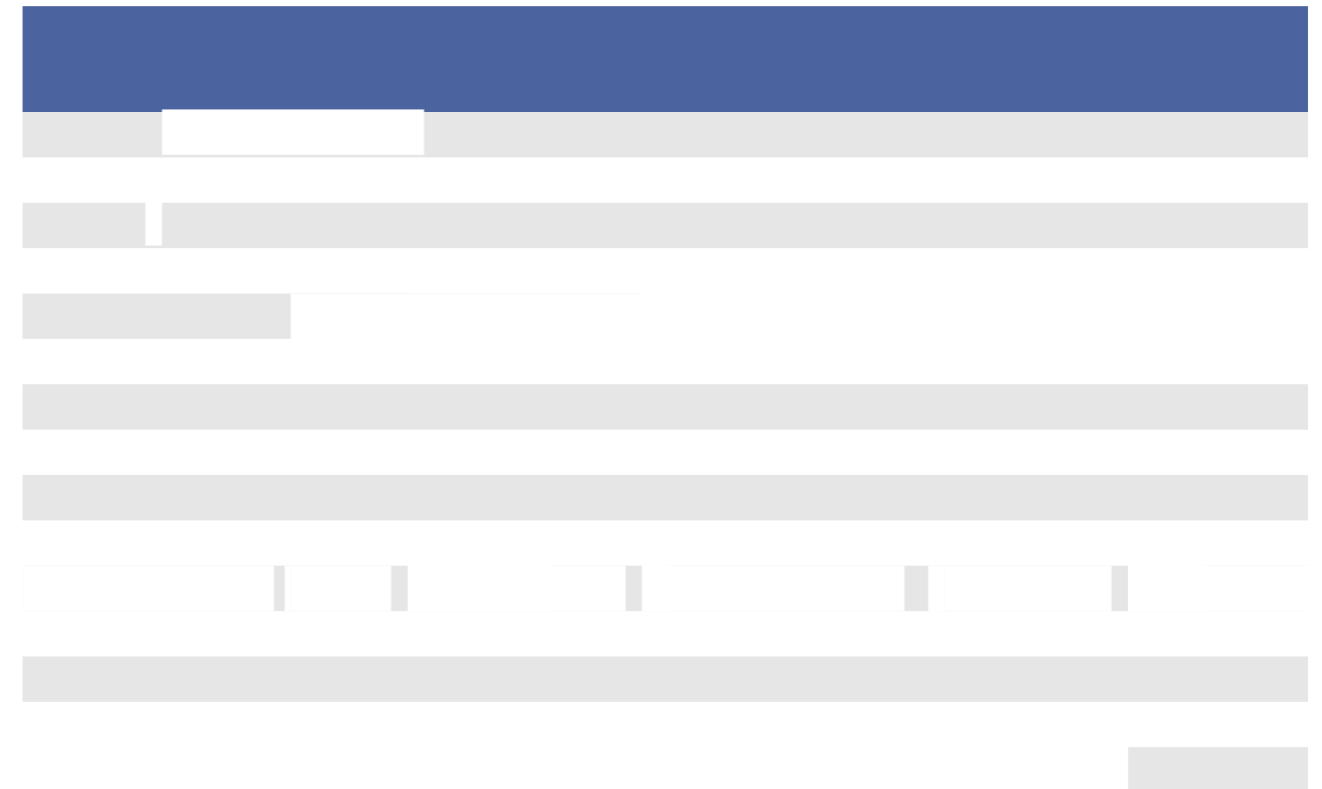
(in)	(lb/ft)					
					(in)	(in)
4 1/2	20.00	IEU	G	NC46	6 1/4	2 1/2
4 1/2	20.00	IEU	S	NC46	6 1/4	2 1/4
4 1/2	20.00	IEU	E / X / G	HLIDS [®] 46	6	3
4 1/2	20.00	IEU	S / Z / V	HLIDS [®] 46	6	2 3/4
4 1/2	20.00	IEU	G / S / Z / V	HLMT [®] 46	6	3
4 1/2	20.00	IEU	G / S / Z / V	HLST [®] 46	6	3
4 1/2	20.00	IEU	G / S / Z / V	HLIST [®] 46	6	3
5	19.50	IEU	E	NC50	6 5/8	3 3/4
5	19.50	IEU	X	NC50	6 5/8	3 1/2
5	19.50	IEU	G	NC50	6 5/8	3 1/4
5	19.50	IEU	S	NC50	6 5/8	2 3/4
5	19.50	IEU	E	HLIDS [®] 50	6 1/2	3 3/4
5	19.50	IEU	X	HLIDS [®] 50	6 5/8	3 3/4
5	19.50	IEU	G	HLIDS [®] 50	6 5/8	3 1/2
5	19.50	IEU	S / Z / V	HLIDS [®] 50	6 5/8	3 1/4
5	19.50	IEU	G / S / Z / V	HLMT [®] 50	6 5/8	3 1/2
5	19.50	IEU	E / X	HLST [®] 46	6	3 1/2
5	19.50	IEU	G	HLST [®] 46	6	3 1/4
5	19.50	IEU	S / Z / V	HLST [®] 46	6	3
5	19.50	IEU	E / X / G	HLST [®] 52	6 1/2	4
5	19.50	IEU	S / Z / V	HLST [®] 52	6 1/2	3 3/4
5	19.50	IEU	G / S / Z	HLIST [®] 46	6	3 1/2
5	19.50	IEU	S / Z / V	HLIST [®] 46	6 1/4	3 1/4
5	19.50	IEU	G	HLIST [®] 50	6 1/2	4
5	19.50	IEU	S / Z / V	HLIST [®] 50	6 1/2	3 3/4
5	25.60	IEU	E	NC50	6 5/8	3 1/2
5	25.60	IEU	X	NC50	6 5/8	3
5	25.60	IEU	G	NC50	6 5/8	2 3/4
5	25.60	IEU	S	5-1/2FH	7 1/4	3 1/4
5	25.60	IEU	E	HLIDS [®] 50	6 1/2	3 3/4
5	25.60	IEU	X / G	HLIDS [®] 50	6 5/8	3 1/2
5	25.60	IEU	S / Z / V	HLIDS [®] 50	6 5/8	3
5	25.60	IEU	G	HLMT [®] 50	6 5/8	3 1/2
5	25.60	IEU	S / Z / V	HLMT [®] 50	6 5/8	3
5	25.60	IEU	E	HLST [®] 46	6	3 1/2
5	25.60	IEU	X	HLST [®] 46	6	3 1/4

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5	25.60	IEU	G	HLST®46	6 1/4	3
5	25.60	IEU	S	HLST®46	6 1/4	2 3/4

5	25.60	IEU	S / Z / V	HLST®52	6 5/8	3 1/4
5	25.60	IEU	G	HLIST®50	6 5/8	3 3/4
5	25.60	IEU	S / Z / V	HLIST®50	6 5/8	3 1/4
5 1/2	21.90	IEU	E	5-1/2FH	7	4
5 1/2	21.90	IEU	X	5-1/2FH	7	3 3/4
5 1/2	21.90	IEU	G	5-1/2FH	7 1/4	3 1/2
5 1/2	21.90	IEU	S	5-1/2FH	7 1/2	3
5 1/2	21.90	IEU	E / X / G / S / Z / V / U	HLIDS®5-1/2FH	7	4
5 1/2	21.90	IEU	G / S / Z / V / U	HLMT®5-1/2FH	7	4
5 1/2	21.90	IEU	E / X / G	HLST®52	6 1/2	4
5 1/2	21.90	IEU	S	HLST®52	6 5/8	3 3/4

5 1/2	21.90	IEU	S	HLST®54	6 3/4	4
5 1/2	21.90	IEU	Z / V	HLST®54	6 7/8	3 7/8
5 1/2	21.90	IEU	G / S / Z / V / U	HLST®57	7	4 1/4
5 1/2	21.90	IEU	G	HLIST®54	6 5/8	4 1/4
5 1/2	21.90	IEU	S / Z / V	HLIST®54	6 3/4	4
5 1/2	21.90	IEU	G / S / Z / V / U	HLIST®57	7	4 1/4
5 1/2	24.70	IEU	E	5-1/2FH	7	4
5 1/2	24.70	IEU	X / G	5-1/2FH	7 1/4	3 1/2
5 1/2	24.70	IEU	S	5-1/2FH	7 1/2	3
5 1/2	24.70	IEU	E / X / G	HLIDS®5-1/2FH	7	4
5 1/2	24.70	IEU	S / Z / V / U	HLIDS®5-1/2FH	7 1/4	3 3/4
5 1/2	24.70	IEU	G / S	HLMT®5-1/2FH	7	4
5 1/2	24.70	IEU	Z / V / U	HLMT®5-1/2FH	7 1/4	3 3/4
5 1/2	24.70	IEU	G	HLST®54	6 3/4	4
5 1/2	24.70	IEU	S / Z / V	HLST®54	6 7/8	3 3/4
5 1/2	24.70	IEU	G / S / Z / V / U	HLST®57	7 1/8	4
5 1/2	24.70	IEU	G	HLIST®54	6 3/4	4
5 1/2	24.70	IEU	S / Z / V	HLIST®54	6 7/8	3 3/4
5 1/2	24.70	IEU	G / S / Z / V / U	HLIST®57	7 1/8	4
5 7/8	23.40	IEU	S / Z / V / U	HLIDS®5-1/2FH	7 1/4	4
5 7/8	23.40	IEU	S / Z / V / U	HLMT®5-1/2FH	7 1/4	4



B.2

(in)	(lb/ft)					
					(in)	(in)
2 3/8	6.65	EU	SS75 / SS95 / SS105 / HL110SS	NC26	3 3/8	1 3/4
2 3/8	6.65	EU	SS75 / SS95 / SS105 / HL110SS / HL120S	HLIDS®26	3 3/8	1 3/4
2 3/8	6.65	EU	SS105 / HL110SS / HL120S	HLST®26	3 3/8	1 3/4
2 3/8	6.65	IU	SS105 / HL110SS / HL120S	HLIDS®23	3	1 3/8
2 3/8	6.65	IU	SS105 / HL110SS / HL120S	HLMT®2-3/8PAC	2 7/8	1 3/8
2 7/8	10.40	EU	SS75	NC31	4 1/8	2 1/8
2 7/8	10.40	EU	SS95 / SS105 / HL110SS	NC31	4 1/8	2
2 7/8	10.40	EU	SS105 / HL110SS / HL120S	HLIDS®31	4 1/8	2
2 7/8	10.40	EU	SS105 / HL110SS / HL120S	HLST®31	4 1/8	2
2 7/8	10.40	IU	SS75 / SS95 / SS105 / HL110SS	HLIDS®26	3 3/8	1 3/4
2 7/8	10.40	IU	SS75 / SS95 / SS105 / HL110SS	HLMT®2-7/8PAC	3 1/8	1 1/2
2 7/8	10.40	IU	SS75 / SS95 / SS105 / HL110SS	HLST®26	3 3/8	1 3/4
3 1/2	13.30	EU	SS75	NC38	4 3/4	2 11/16
3 1/2	13.30	EU	SS95	NC38	5	2 9/16
3 1/2	13.30	EU	SS105 / HL110SS	NC38	5	2 7/16
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLIDS®38	5	2 9/16
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLMT®38	4 7/8	2 9/16
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLST®36	4 3/4	2 1/4
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLST®39	4 7/8	2 11/16
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLIST®38	4 3/4	2 9/16
3 1/2	13.30	EU	SS105 / HL110SS / HL120S	HLIST®39	4 7/8	2 11/16
3 1/2	13.30	IU	SS75 / SS95 / SS105 / HL110SS	HLIDS®31	4 1/8	2
3 1/2	13.30	IU	SS75 / SS95 / SS105 / HL110SS	HLST®31	4 1/8	2
3 1/2	15.50	EU	SS75	NC38	5	2 9/16
3 1/2	15.50	EU	SS95	NC38	5	2 7/16
3 1/2	15.50	EU	SS105 / HL110SS	NC38	5	2 1/8
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLIDS®38	5	2 7/16
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLMT®38	4 7/8	2 7/16
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLST®36	4 3/4	2 1/8
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLST®39	5	2 9/16
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLIST®38	4 3/4	2 7/16
3 1/2	15.50	EU	SS105 / HL110SS / HL120S	HLIST®39	4 7/8	2 9/16
4	14.00	IU	SS75	NC40	5 1/4	2 13/16
4	14.00	IU	SS95	NC40	5 1/4	2 11/16

(in)	(lb/ft)					
					(in)	(in)
4	14.00	IU	SS105 / HL110SS	NC40	5 1/2	2 7/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS®38	5	2 9/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS®40	5 1/4	2 11/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLMT®38	5	2 9/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLMT®40	5 1/4	2 11/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLST®36	4 3/4	2 1/8
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLST®39	4 7/8	2 9/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLIST®38	4 3/4	2 7/16
4	14.00	IU	SS105 / HL110SS / HL120S / HL125S	HLIST®39	4 7/8	2 9/16
4	15.70	IU	SS105 / HL110SS / HL120S / HL125S	HLIDS®40	5 1/4	2 9/16
4	15.70	IU	SS105 / HL110SS / HL120S / HL125S	HLMT®40	5 1/4	2 9/16
4	15.70	IU	SS105 / HL110SS / HL120S / HL125S	HLST®39	4 7/8	2 9/16
4	15.70	IU	SS105 / HL110SS / HL120S / HL125S	HLST®40	5 1/4	2 11/16
4	15.70	IU	SS105 / HL110SS / HL120S / HL125S	HLIST®39	4 7/8	2 9/16
4 1/2	16.60	IEU	SS75	NC46	6 1/4	3 1/4
4 1/2	16.60	IEU	SS95 / SS105 / HL110SS	NC46	6 1/4	3
4 1/2	16.60	IEU	HL120S / HL125S	NC46	6 1/4	2 3/4
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®46	6	3 1/4
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®46	6	3 1/4
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®46	6	3 1/4
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®46	6	3 1/4
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®40	5 1/4	2 9/16
4 1/2	16.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®40	5 1/4	2 11/16
4 1/2	20.00	IEU	SS75	NC46	6 1/4	3
4 1/2	20.00	IEU	SS95	NC46	6 1/4	2 3/4
4 1/2	20.00	IEU	SS105 / HL110SS	NC46	6 1/4	2 1/2
4 1/2	20.00	IEU	HL120S / HL125S	NC46	6 1/4	2 1/4
4 1/2	20.00	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®46	6	3
4 1/2	20.00	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®46	6	3
4 1/2	20.00	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®46	6	3
4 1/2	20.00	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®46	6	3
5	19.50	IEU	SS75	NC50	6 5/8	3 3/4
5	19.50	IEU	SS95	NC50	6 5/8	3 1/2
5	19.50	IEU	SS105 / HL110SS	NC50	6 5/8	3 1/4
5	19.50	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®50	6 5/8	3 1/2
5	19.50	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®50	6 5/8	3 1/2

(in)	(lb/ft)					
					(in)	(in)
5	19.50	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®46	6	3 1/4
5	19.50	IEU	SS75 / SS95 / SS105 / HL110SS	HLST®52	6 1/2	4
5	19.50	IEU	HL120S / HL125S	HLST®52	6 1/2	3 3/4
5	19.50	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®46	6	3 1/2
5	19.50	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®50	6 1/2	3 3/4
5	25.60	IEU	SS75	NC50	6 5/8	3 1/2
5	25.60	IEU	SS95	NC50	6 5/8	3
5	25.60	IEU	SS105 / HL110SS	NC50	6 5/8	2 3/4
5	25.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®50	6 5/8	3
5	25.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®50	6 5/8	3
5	25.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®46	6 1/4	2 3/4
5	25.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®52	6 5/8	3 3/8
5	25.60	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®50	6 5/8	3 1/2
5 1/2	21.90	IEU	SS75	5-1/2FH	7	4
5 1/2	21.90	IEU	SS95	5-1/2FH	7	3 3/4
5 1/2	21.90	IEU	SS105 / HL110SS	5-1/2FH	7 1/4	3 1/2
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®5-1/2FH	7	4
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®5-1/2FH	7	4
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®52	6 1/2	3 3/4
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®54	6 3/4	4
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®57	7	4 1/8
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®54	6 5/8	4
5 1/2	21.90	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®57	7	4 1/8
5 1/2	24.70	IEU	SS75	5-1/2FH	7	4
5 1/2	24.70	IEU	SS95 / SS105 / HL110SS	5-1/2FH	7 1/4	3 1/2
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLIDS®5-1/2FH	7	4
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLMT®5-1/2FH	7	4
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®54	6 7/8	3 7/8
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLST®57	7	4
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®54	6 3/4	3 7/8
5 1/2	24.70	IEU	SS105 / HL110SS / HL120S / HL125S	HLIST®57	7	4
5 7/8	23.40	IEU	SS75	5-1/2FH	7	4
5 7/8	23.40	IEU	SS95 / SS105 / HL110SS	5-1/2FH	7 1/4	3 1/2
5 7/8	23.40	IEU	HL120S / HL125S	HLIDS®5-1/2FH	7	4
5 7/8	23.40	IEU	HL120S / HL125S	HLMT®5-1/2FH	7	4
5 7/8	23.40	IEU	HL120S / HL125S	HLST®57	7	4 1/4

SS75 - HLDT-SS®75; SS95 - HLDT-SS®95; SS105 - HLDT-SS®105; HL110SS - HLDT-SS®110; HL120S - HLDT-S®120;
HL125S - HLDT-S®125

B. 3

	OD	ID	Dc	Dte		Df	D	d	
in	in	in	in	in		in	in	in	in
3 1/2	3 1/2	2 1/4	4.000	3.875	NC38	4.578	4 3/4	2 1/4	2.000
3 1/2	3 1/2	2 1/16	4.000	3.875	NC38	4.578	5	2 1/16	1.813
3 1/2	3 1/2	2	4.000	3.638	HLIDS®31	3.953	4 1/8	2	1.750
3 1/2	3 1/2	2 1/16	4.000	3.638	HLST®31	3.906	4 1/8	2 1/16	1.813
3 1/2	3 1/2	2 1/4	4.000	3.875	HLIDS®38	4.578	4 3/4	2 1/4	2.000
3 1/2	3 1/2	2 1/4	4.000	3.875	HLMT®38	4.578	4 3/4	2 1/4	2.000
4	4	2 9/16	4.500	4.188	NC40	5.016	5 1/4	2 9/16	2.313
4	4	2 9/16	4.500	4.188	HLIDS®40	5.016	5 1/4	2 9/16	2.313
4	4	2 9/16	4.500	4.188	HLMT®40	4.875	5 1/4	2 9/16	2.313
4	4	2 9/16	4.500	4.188	HLST®39	4.772	4 7/8	2 9/16	2.313
4	4	2 9/16	4.500	4.188	HLIST®39	4.786	4 7/8	2 9/16	2.313
4 1/2	4 1/2	2 11/16	5.000	4.688	NC46	5.719	6 1/4	2 11/16	2.438
4 1/2	4 1/2	2 11/16	5.000	4.688	HLIDS®40	5.016	5 1/4	2 11/16	2.438
4 1/2	4 1/2	2 11/16	5.000	4.688	HLST®40	5.063	5 1/4	2 11/16	2.438
5	5	3	5.500	5.125	NC50	6.063	6 5/8	3	2.750
5	5	3	5.500	5.125	HLIDS®50	6.063	6 5/8	3	2.750
5 1/2	5 1/2	4	6.000	5.688	5-1/2FH	6.719	7	4	3.750
5 1/2	5 1/2	3 1/4	6.000	5.688	5-1/2FH	6.719	7	3 1/4	3.000
5 1/2	5 1/2	3 1/4	6.000	5.688	HLIST®50	6.318	6 1/2	3 1/4	3.000
5 1/2	5 1/2	3 1/4	6.000	5.688	HLIDS®5-1/2FH	6.719	7	3 1/4	3.000
5 1/2	5 1/2	4	6.000	5.688	HLST®54	6.472	6 3/4	4	3.750
5 1/2	5 1/2	4	6.000	5.688	HLIST®54	6.469	6 5/8	4	3.750
5 7/8	5 7/8	4	6.375	6.000	HLIDS®5-1/2FH	6.719	7 1/4	4	3.750
5 7/8	5 7/8	4 1/8	6.375	6.000	HLST®57	6.764	7	4 1/8	3.875
5 7/8	5 7/8	4 1/4	6.375	6.000	HLIST®57	6.721	7	4 1/4	4.000
6 5/8	6 5/8	4 1/2	7.125	6.938	6-5/8FH	7.703	8 1/4	4 1/2	4.250
6 5/8	6 5/8	5	7.125	6.938	6-5/8FH	7.703	8	5	4.750
6 5/8	6 5/8	5	7.125	6.937	HLIDS®6-5/8	7.703	8	5	4.750

B. 4

	D	d		L	Df	BSR	
in	in	in		FT	in		in
3 1/8	3 1/8	1 1/4	NC23	30	3.000	2.57	1.375
3 1/2	3 1/2	1 1/2	NC26	30	3.266	2.42	1.625
4 1/8	4 1/8	2	NC31	30 31	3.953	2.43	2.125
4 3/4	4 3/4	2	NC35	30 31	4.516	2.58	2.125
5	5	2 1/4	NC38	30 31	4.766	2.38	2.375
6	6	2 1/4	NC44	30 31	5.688	2.49	2.375
6	6	2 13/16	NC44	30 31	5.688	2.84	2.938
6 1/4	6 1/4	2 1/4	NC44	30 31	5.875	2.91	2.375
6 1/4	6 1/4	2 13/16	NC46	30 31	5.906	2.63	2.938
6 1/2	6 1/2	2 1/4	NC46	30 31	6.094	2.76	2.375
6 1/2	6 1/2	2 13/16	NC46	30 31	6.094	3.05	2.938
6 3/4	6 3/4	2 1/4	NC46	30 31	6.281	3.18	2.375
7	7	2 1/4	NC50	30 31	6.484	2.54	2.375
7	7	2 13/16	NC50	30 31	6.484	2.73	2.938
7 1/4	7 1/4	2 13/16	NC50	30 31	6.672	3.12	2.938
7 3/4	7 3/4	2 13/16	NC56	30 31	7.297	2.70	2.938
8	8	2 13/16	NC56	30 31	7.484	3.02	2.938
8 1/4	8 1/4	2 13/16	6-5/8REG	30 31	7.703	2.93	2.938
9	9	2 13/16	NC61	30 31	8.375	3.17	2.938
9 1/2	9 1/2	3	7-5/8REG	30 31	8.813	2.81	3.125
9 3/4	9 3/4	3	NC70	30 31	9.156	2.57	3.125
10	10	3	NC70	30 31	9.344	2.81	3.125
11	11	3	8-5/8REG	30 31	10.500	2.84	3.125

B. 5 HLIDS®

	(in)	(in)	(ft-lb)	(lb)	(ft-lb)
HLIDS®23	3.000	1.375	6500	284200	3900
HLIDS®26	3.375	1.750	8900	313700	5300
HLIDS®31	4.375	1.625	24000	623800	14400
	4.125	2.125	15300	447100	9200
	4.125	2.000	17700	495700	10600
HLIDS®38	5.000	2.563	26600	649200	16000
	5.000	2.438	30000	708100	18000
	5.000	2.125	37500	842400	22500
	4.750	2.688	22800	587300	13700
	4.750	2.563	25400	649200	15300
HLIDS®40	5.500	2.000	51800	1080100	31100
	5.250	2.813	29500	711600	17700
	5.250	2.688	33400	776400	20100
	5.250	2.563	37200	838300	22300
	5.250	2.438	40300	897200	24200
HLIDS®46	6.000	3.250	44000	901200	26400
	6.000	3.000	54100	1048400	32500
	6.000	2.750	63200	1183900	37900
HLIDS®50	6.625	3.750	48800	939100	29300
	6.625	3.500	61600	1109900	37000
	6.625	3.250	73400	1269000	44000
	6.625	3.000	84100	1416200	50500
	6.625	2.750	93900	1551700	56300
	6.500	3.750	48600	939100	29200
HLIDS®5-1/2FH	7.500	3.250	117000	1778300	70200
	7.500	3.000	128700	1925500	77200
	7.250	3.750	89800	1448400	53900
	7.250	3.625	96900	1535300	58100
	7.250	3.500	103600	1619200	62200
	7.000	4.000	74400	1265800	44700
HLIDS®6-5/8FH	7.000	3.875	82000	1358600	49200
	8.250	4.750	119700	1678100	71800
	8.250	4.625	130200	1788600	78100
	8.000	5.000	97200	1448400	58300
	8.000	4.875	108300	1564800	65000

120ksi

1.0

B.6 HLMT®

	(in)	(in)	(ft-lb)	(lb)	(ft-lb)
HLMT®2-3/8PAC	2.875	1.375	7000	238500	4200
HLMT®2-7/8PAC	3.125	1.500	8500	273000	5100
HLMT®38	5.000	2.563	29600	649200	17700
	5.000	2.438	33000	708100	19800
	5.000	2.250	37700	790900	22600
	4.875	2.438	32800	708100	19700
	4.750	2.688	25700	587300	15400
	4.750	2.563	28400	649200	17000
HLMT®40	5.500	2.438	43800	897200	26300
	5.250	2.688	36100	776400	21700
	5.250	2.563	39900	838300	23900
HLMT®46	5.250	2.438	43100	897200	25800
	6.000	3.250	47200	901200	28300
HLMT®50	6.000	3.000	57300	1048400	34400
	6.625	3.500	66200	1109900	39700
	6.625	3.250	78000	1269000	46800
	6.625	3.000	88800	1416200	53300
	6.500	3.500	65900	1109900	39600
HLMT®5-1/2FH	7.000	4.000	77200	1265800	46300
HLMT®5-1/2FH	7.000	3.875	84800	1358600	50900

120ksi

1.0

B. 7 HLST®

	(in)	(in)	(ft-lb)	(lb)	(ft-lb)
HLST®26	3.375	1.750	11100	296500	6600
HLST®31	4.125	2.125	19000	433900	11400
	4.125	2.000	21500	482500	12900
HLST®36	4.000	2.250	16300	382300	9800
	4.750	2.563	24400	502700	14700
	4.750	2.438	27800	561600	16700
	4.750	2.250	32400	644500	19500
HLST®39	4.750	2.125	35300	696000	21200
	5.000	2.563	38900	723300	23300
	5.000	2.438	41900	782200	25100
	4.875	2.813	31100	596700	18600
HLST®40	4.875	2.688	34600	661500	20800
	4.875	2.563	36300	723300	21800
	5.375	2.563	49800	869300	29900
HLST®46	5.250	2.688	45800	807500	27500
	5.250	2.563	49000	869300	29400
	6.250	3.000	70100	1090700	42000
HLST®52	6.250	2.750	79600	1226200	47700
	6.000	3.500	47800	784400	28700
	6.000	3.250	59200	943400	35500
	6.000	3.000	69600	1090700	41800
HLST®54	6.625	4.000	62300	917500	37400
	6.625	3.750	76800	1100100	46100
	6.625	3.500	90300	1270900	54200
	6.500	4.125	54500	821700	32700
	6.500	4.000	62100	917500	37300
HLST®57	6.875	3.750	98800	1333800	59300
	6.750	4.125	75700	1055400	45400
	6.750	4.000	83600	1151200	50100
	6.625	4.250	67300	956800	40400
HLST®57	7.125	4.000	109800	1437800	65900
	7.000	4.250	92900	1243400	55700
	7.000	4.000	103000	1437800	61800

120ksi

1.0

B. 8 HLIST®

	(in)	(in)	(ft-lb)	(lb)	(ft-lb)
HLIST®38	4.875	2.438	34900	658500	20900
	4.750	2.688	27700	537800	16600
	4.750	2.563	31300	599600	18800
HLIST®39	4.750	2.438	34800	658500	20900
	5.000	2.563	40800	729700	24500
	4.875	2.688	35900	667800	21600
HLIST®46	4.875	2.563	37600	729700	22600
	6.250	3.250	70200	1069300	42100
	6.000	3.500	58100	910300	34900
HLIST®50	6.000	3.250	65700	1069300	39400
	6.625	3.500	90900	1256300	54600
	6.625	3.375	97200	1337300	58300
	6.500	3.750	77300	1085500	46400
HLIST®54	6.500	3.625	84100	1172400	50500
	6.750	4.000	86600	1155100	52000
	6.750	3.875	94300	1247900	56600
	6.625	4.250	70200	960700	42100
HLIST®57	6.625	4.000	84300	1155100	50600
	7.000	4.250	94600	1208700	56800
	7.000	4.000	107700	1403100	64600

120ksi

1.0





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