



**NEW & USED
TUBING, CASING, DRILL PIPE
SPECIFICATIONS AND
COLOR CODE SHEETS**

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USED DRILL PIPE INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	12 1/2% Wall Reduction		20% Wall Reduction		30% Wall Reduction	
			(New) (Pipe)	Minimum Wall	(Premium) (Class 1)	Minimum Wall	(Class 2)	Minimum Wall
2 3/8	6.65*	0.280	0.035	0.245	0.056	0.224	0.084	0.196
60.3	9.90	7.11	0.89	6.22	1.42	5.69	2.13	4.98
2 7/8	10.40*	0.362	0.045	0.317	0.072	0.290	0.109	0.253
73	15.48	9.19	1.15	8.05	1.84	7.36	2.76	6.44
3 1/2	13.30*	0.368	0.046	0.322	0.074	0.294	0.110	0.258
88.9	19.79	9.35	1.17	8.18	1.87	7.48	2.80	6.54
	15.50	0.449	0.056	0.393	0.090	0.359	0.135	0.314
	23.07	11.40	1.43	9.98	2.28	9.12	3.42	7.98
4	14.00*	0.33	0.041	0.289	0.066	0.264	0.099	0.231
101.6	20.83	8.38	1.05	7.33	1.68	6.71	2.51	5.87
	15.70	0.38	0.048	0.333	0.076	0.304	0.114	0.266
	23.36	9.65	1.21	8.45	1.93	7.72	2.90	6.76
4 1/2	16.60*	0.337	0.042	0.295	0.067	0.270	0.101	0.236
114.3	24.70	8.56	1.07	7.49	1.71	6.85	2.57	5.99
	20.00	0.430	0.054	0.376	0.086	0.344	0.129	0.301
	29.76	10.92	1.37	9.56	2.18	8.74	3.28	7.65
	22.82	0.500	0.063	0.438	0.100	0.400	0.150	0.350
	33.96	12.70	1.59	11.11	2.54	10.16	3.81	8.89
5	19.50*	0.362	0.045	0.317	0.072	0.290	0.109	0.253
127	29.02	9.19	1.15	8.05	1.84	7.36	2.76	6.44
	25.60	0.500	0.063	0.438	0.100	0.400	0.150	0.350
	38.10	12.70	1.59	11.11	2.54	10.16	3.81	8.89
5 1/2	21.90*	0.361	0.045	0.316	0.072	0.289	0.108	0.253
139.7	32.59	9.17	1.15	8.02	1.83	7.34	2.75	6.42
	24.70	0.415	0.052	0.363	0.083	0.332	0.125	0.291
	36.76	10.54	1.32	9.22	2.11	8.43	3.16	7.38
6 5/8	25.20*	0.330	0.041	0.289	0.066	0.264	0.099	0.231
168.3	37.50	8.38	1.05	7.33	1.68	6.71	2.51	5.87
	27.70	0.362	0.045	0.317	0.072	0.290	0.109	0.253
	41.22	9.19	1.15	8.05	1.84	7.36	2.76	6.44

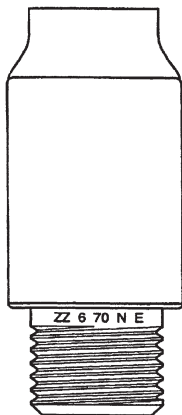
*Designates standard weight for Drill Pipe Size

O.D. GAUGING CHART

<u>O.D.</u>	<u>Nominal Weight</u>	<u>Nominal Wall Thickness</u>	<u>1/32" Equiv. to % of wall</u>	<u>3% of O.D. in 1/32"</u>	<u>4% of O.D. in 1/32"</u>
2 3/8	6.65*	0.280	11.2	2.3	3.0
60.3	9.90	7.11	11.2	2.3	3.0
2 7/8	10.40*	0.362	8.6	2.8	3.7
73	15.48	9.19	8.6	2.8	3.7
3 1/2	13.30*	0.368	8.5	3.4	4.5
88.9	19.79	9.35	8.5	3.4	4.5
	15.50	0.449	7.0	3.4	4.5
	23.07	11.40	7.0	3.4	4.5
4	14.00*	0.330	9.5	3.8	5.1
101.6	20.83	8.38	9.5	3.8	5.1
	15.70	0.380	8.2	3.8	5.1
	23.36	9.65	8.2	3.8	5.1
4 1/2	16.60*	0.337	9.3	4.3	5.8
114.3	24.70	8.56	9.3	4.3	5.8
4 1/2	20.00	0.430	7.3	4.3	5.8
114.3	29.76	10.92	7.3	4.3	5.8
	22.82	0.500	6.3	4.3	5.8
	33.96	12.70	6.3	4.3	5.8
5	19.50*	0.362	8.6	4.8	6.4
127	29.02	9.19	8.6	4.8	6.4
	25.60	0.500	6.3	4.8	6.4
	38.10	12.70	6.3	4.8	6.4
5 1/2	21.90*	0.361	8.7	5.3	7.0
139.7	32.59	9.17	8.7	5.3	7.0
	24.70	0.415	7.5	5.3	7.0
	36.76	10.54	7.5	5.3	7.0
6 5/8	25.20*	0.330	9.5	6.4	8.5
168.3	37.50	8.38	9.5	6.4	8.5
	27.70	0.362	8.6	6.4	8.5
	41.22	9.19	8.6	6.4	8.5

*O.D. Gauging Constant = 1/32" ÷ Nom. Wall Thickness/10

DRILL PIPE & TOOL JOINT IDENTIFICATION INFORMATION



Sample markings at base of pin

1	2	3	4	5
ZZ	6	70	N	E

- 1 Tool Joint Manufacturer's Symbol:
ZZ—Company (fictional for example only)
- 2 Month Welded:
6—June
- 3 Year Welded:
70—1970
- 4 Pipe Manufacturer's Symbol:
N—United States Steel Company
- 5 Drill Pipe Grade:
E—Grade E75 drill pipe

Notes:

Tool joint manufacturer's symbol, month welded, year welded, pipe manufacturer, and drill pipe grade symbol shall be stenciled at the base of the pin as shown above. Pipe manufacturer symbol and drill pipe grade symbol applied shall be as represented by manufacturer. Supplier, owner, or user shall be indicated on documents such as mill certification papers or purchase orders.

TOOL JOINT MANUFACTURER'S SYMBOL

Refer to the eleventh edition 1993 of the IADC Drilling Manual* (Section B-1-9) for a list of Tool Joint Manufacturer's symbols.

*Available from: International Association of Drilling Contractors (IADC) P.O. Box 4287, Houston, TX 77210.

Month and Year Welded

<u>Month</u>	<u>Year</u>
1 through 12	Last two digits of year

Drill Pipe Grade

<u>Grade</u>	<u>Symbol</u>
E75	E
X95	X
G105	G
S135	S

Heavy Wall Drill Pipe

(Double stencil pipe grade symbol.)

The "manufacturer" may be either a pipe mill or processor. See API Specification 5D, *Specification for Drill Pipe*.

These symbols are provided for pipe manufacturer identification and have been assigned at pipe manufacturers' requests. Manufacturers included in this list may not be current API Specification 5D licensed pipe manufacturers. A list of current licensed pipe manufacturers is available in the *Composite List of Manufacturers, (Licensed for Use of the API Monogram)*.

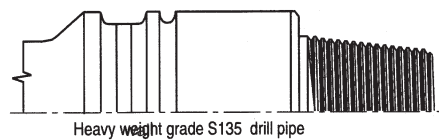
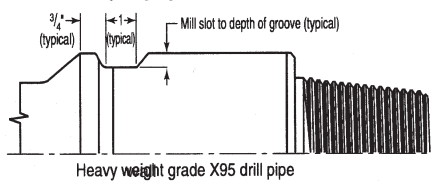
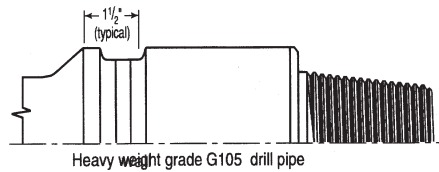
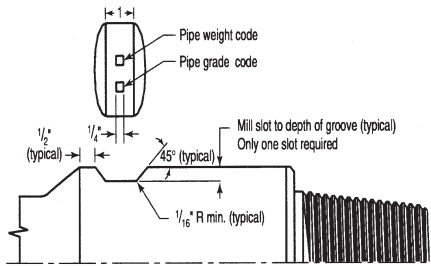
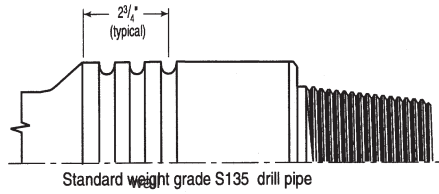
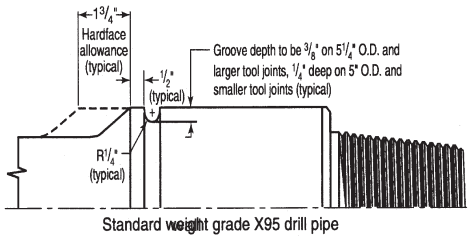
Pipe mills may upset and heat treat their own drill pipe, or they may have this done according to their own specifications. In either case, the mill's assigned symbol should be used on each drill string assembly since they are the pipe manufacturer.

Pipe processors may buy "green" tubes and upset and heat treat these according to their own specifications. In this case, the processor's assigned symbol should be used on each drill string assembly since they are the pipe manufacturer.

**Pipe Manufacturers
(Pipe Mills or Processors)**

Active		Inactive	
Mill	Symbol	Mill	Symbol
Algoma	X	Armco	A
British Steel		American Seamless	AI
Seamless Tubes LTD	B	B&W	W
Dalmine	D	CF&I	C
Kawasaki	H	J&L	J
Nippon	I	Lone Star	L
NKK	K	Ohio	O
Mannesmann	M	Republic	R
Reynolds Aluminum	RA	TI	Z
Sumitomo	S	Tubemuse	TU
Siderca	SD	Voest	VA
Tamsa	T	Wheeling Pittsburgh	P
US Steel	N	Youngstown	Y
Vallourec	V		
Used	U		
Processor	Symbol		
Grant TFW	TFW		
Omsco	OMS		
Prideco	PI		
Grant Prideco (1996+)	GP		

DRILL PIPE & TOOL JOINT IDENTIFICATION INFORMATION (cont...)



Drill Pipe Weight Code

(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Size OD inches	Nominal Weight lb per ft	Wall Thickness inches	Weight Code Number	Size OD inches	Nominal Weight lb per ft	Wall Thickness inches	Weight Code Number
2 7/8	4.85	.190	1	4 1/2	20.00	.430	3
	6.65*	.280	2		22.82	.500	4
2 7/8	6.85	.217	1	5	24.66	.550	5
	10.40*	.362	2		25.50	.575	6
	6.85	.217	1		5 1/2	16.25	.296
10.40*	.362	2	19.50*	.362		2	
15.50	.449	3	25.60	.500		3	
3 1/2	9.50	.254	1	6 5/8	19.20	.304	1
	13.30*	.368	2		21.90*	.361	2
	15.50	.449	3		24.70	.415	3
4	11.85	.262	1	6 5/8	25.20*	.330	2
	14.00*	.330	2		27.70	.362	3
	15.70	.380	3				
4 1/2	13.75	.271	1				
	16.60*	.337	2				

*Designates standard weight for drill pipe size.

**INTERCHANGEABLE ROTARY
SHOULDERED NUMBERED CONNECTIONS**

NC 26	2 3/8" I.F.	2 7/8" S.H.
NC 31	2 7/8" I.F.	3 1/2" S.H.
NC 38	3 1/2" I.F.	
NC 40	4" F.H.	
NC 46	4" I.F.	4 1/2" X.H.
NC 50	4 1/2" I.F.	5" X.H.

TUBULAR WEIGHT CONVERSION

$$X \text{ lbs./ft.} \times 1.488164 = \text{Kg/m}$$

$$X \text{ Kg/m} \div 1.488164 = \text{lbs./ft.}$$



STANDARD HEAVY-WEIGHT SPECIFICATIONS

(SMITH)

ENGLISH
METRIC

TUBE					TOOL JOINT			
NOMINAL O.D.	WEIGHT	I.D.	NOM. WALL	CENTER O.D.	CONNECTION	NEW O.D.	I.D.	BEVEL DIAM.
3 1/16	17.3 LB/FT	2	0.531	3 7/8	2 7/8 SLH90	3 7/8	2	3 23/32
77.8	25.75 kgm	50.8	13.48	98.4		98.4	50.8	94.5
3 1/2	23.2 LB/FT	2 1/4	0.625	4	NC 38	4 3/4	2 3/8	4 37/64
88.9	34.53 kgm	57.2	15.88	101.6	3 1/2 IF	120.7	60.3	116.3
4	29.9 LB/FT	2 9/16	0.719	4 1/2	NC 40	5 1/4	2 11/16	5 1/64
101.6	44.50 kgm	65.2	18.26	114.3	4 FH	133.4	68.3	127.4
4	27.2 LB/FT	2 9/16	0.719	4 1/2	NC 38	5	2 1/2	4 37/64
101.6	40.48 kgm	65.2	18.26	114.3	3 1/2 IF	127	63.5	116.3
4 1/2	41 LB/FT	2 3/4	0.875	5	NC 46	6 1/4	2 7/8	5 23/32
114.3	61.01 kgm	69.9	22.23	127	4 1/2 XH	158.8	73	145.3
5	49.7 LB/FT	3	1	5 1/2	NC 50	6 5/8	3 1/16	6 1/16
127	73.96 kgm	76.2	25.4	139.7	4 1/2 IF	168.3	77.8	154
5 1/2	57 LB/FT	3 3/8	1.063	6	5 1/2 FH	7	3 1/2	6 23/32
139.7	84.83 kgm	85.7	27	152.4		177.8	88.9	170.7
6 5/8	70.8 LB/FT	4 1/2	1.063	7 1/8	6 5/8 FH	8	4 1/2	7 45/64
168.3	105.36 kgm	114.3	27	181		203.2	114.3	195.7

NOTE: THIS TABLE IS A GUIDELINE ONLY- CONTACT CUSTOMER AND / OR MANUFACTURER SPECS. FOR CURRENT INFORMATION INCLUDING MINIMUM WALL THICKNESS AND TOOL JOINT O.D.'S

STANDARD HEAVY-WEIGHT SPECIFICATIONS (GRANT PRIDECO)

ENGLISH
METRIC

TUBE					TOOL JOINT			
NOMINAL O.D.	WEIGHT	I.D.	NOM. WALL	CENTER O.D.	CONNECTION	NEW O.D.	I.D.	BEVEL DIAM.
3 1/2	23.5 LB/FT	2 1/4	0.625	4	NC 38	4 3/4	2 5/16	4 37/64
88.9	34.97 kgm	57.2	15.88	101.6	3 1/2 IF	120.7	58.7	116.3
3 1/2	25.7 LB/FT	2 1/16	0.719	4	NC 38	4 3/4	2 3/16	4 37/64
88.9	38.25 kgm	52.4	18.26	101.6	3 1/2 IF	120.7	55.6	116.3
4	29.9 LB/FT	2 9/16	0.719	4 1/2	NC 40	5 1/4	2 5/8	5 1/64
101.6	44.50 kgm	65.2	18.26	114.3	4 FH	133.4	66.7	127.4
4 1/2	41.5 LB/FT	2 3/4	0.875	5	NC 46	6 1/4	2 7/8	5 23/32
114.3	61.76 KGM	69.9	22.23	127	4 1/2 XH	158.8	73	145.3
5	50.4 LB/FT	3	1	5 1/2	NC 50	6 5/8	3 1/16	6 1/16
127	75.00 kgm	76.2	25.4	139.7	4 1/2 IF	168.3	77.8	154
5 1/2	61.6 LB/FT	3 1/4	1.125	6	5 1/2 FH	7 1/4	3 5/16	6 23/32
139.7	91.67 KGM	82.5	28.58	152.4		184.2	84.1	170.7
6 5/8	71.4 LB/FT	4 1/2	1.063	7 1/4	6 5/8 FH	8	4 1/2	7 45/64
168.3	106.25 kgm	114.3	27	184.2		203.2	114.3	195.7

NOTE: THIS TABLE IS A GUIDELINE ONLY- CONTACT CUSTOMER AND / OR MANUFACTURER SPECS. FOR CURRENT INFORMATION INCLUDING MINIMUM WALL THICKNESS AND TOOL JOINT O.D.'S

STANDARD HEAVY-WEIGHT SPECIFICATIONS

(OMSCO)

ENGLISH
METRIC

TUBE					TOOL JOINT			
NOMINAL O.D.	WEIGHT	I.D.	NOM. WALL	CENTER O.D.	CONNECTION	NEW O.D.	I.D.	BEVEL DIAM.
3 1/16	14.9 LB/FT	2 1/8	0.469	3 3/8	2 7/8 SLH90	3 3/4	2 1/8	3 23/32
77.8	22.17 kgm	54	13.48	85.7		95.3	54	94.5
3 1/8	15.8 LB/FT	2 1/8	0.50	3 3/8	2 7/8 SLH90	3 3/4	2 1/8	3 23/32
79.4	23.51 kgm	54	14.3	85.7		95.3	54	94.5
3 1/2	23.7 LB/FT	2 1/4	0.625	4	NC 38	4 3/4	2 1/4	4 37/64
88.9	35.27 kgm	57.2	15.88	101.6	3 1/2 IF	120.7	57.2	116.3
4	29.9 LB/FT	2 9/16	0.719	4 1/2	NC 40	5 1/4	2 9/16	5 1/64
101.6	44.49 kgm	65.2	18.26	114.3	4 FH	133.4	65.2	127.4
4 1/2	40.8 LB/FT	2 13/16	0.844	5	NC 46	6 1/4	2 13/16	5 23/32
114.3	60.72 kgm	71.4	21.43	127	4 1/2 XH	158.8	71.4	145.3
5	50.0 LB/FT	3	1	5 1/2	NC 50	6 1/2	3	6 1/16
127	74.41 kgm	76.2	25.4	139.7	4 1/2 IF	165.1	76.2	154
5 1/2	46.7 LB/FT	4	0.75	6	5 1/2 FH	7 1/4	4	6 23/32
139.7	69.5 kgm	101.6	19.05	152.4		184.15	101.6	170.7
6 5/8	83.4 LB/FT	4	1.313	7 1/8	6 5/8 FH	8	4	7 45/64
168.3	124.11 kgm	101.6	33.35	181		203.2	101.6	195.7

NOTE: THIS TABLE IS A GUIDELINE ONLY- CONTACT CUSTOMER AND / OR MANUFACTURER SPECS. FOR CURRENT INFORMATION INCLUDING MINIMUM WALL THICKNESS AND TOOL JOINT O.D.'S

STANDARD HEAVY-WEIGHT SPECIFICATIONS

DP Master / JSH

ENGLISH
METRIC

TUBE					TOOL JOINT			
NOMINAL O.D.	WEIGHT	I.D.	NOM. WALL	CENTER O.D.	CONNECTION	NEW O.D.	I.D.	BEVEL DIAM.
3 1/2	25.70 LB/FT	2 7/16	0.531	4	NC 38	5	2 7/16	4 37/64
88.9	38.3 kgm	61.9	13.5	101.6	3 1/2 IF	127	61.9	116.3
4	29.90 LB/FT	2 9/16	0.719	4 1/2	NC 40	5 1/4	2 9/16	5 1/64
101.6	44.60 kgm	65.1	18.3	114.3	4" FH	133.4	65.1	127.4
4 1/2	40.80 LB/FT	2 13/16	0.844	5	NC 46	6 3/8	2 13/16	5 23/32
114.3	60.80 kgm	71.4	21.4	127	4 1/2" XH	161.9	71.4	145.3
5	50.40 LB/FT	3	1.000	5.5	NC 50	6 5/8	3	6 1/16
127	75.2 KGM	76.2	25.4	139.7	4 1/2 IF	168.3	76.2	154
5 1/2	61.60 LB/FT	3 1/4	1.125	6	5 1/2" FH	7 1/4	3 1/4	6 23/32
139.7	91.90 kgm	82.6	28.6	152.4		184.2	82.6	170.7
5 7/8	57.00 LB/FT	4	0.938	6 3/8	5 1/2" FH	7 1/4	4	6 23/32
149.2	85.00 KGM	101.6	23.8	161.93		184.2	101.6	170.7
6 5/8	84.50 LB/FT	4 1/2	1.063	7 1/8	6 5/8" FH	8 1/2	4 1/2	7 45/64
168.3	126.00 kgm	114.3	27	180.98		215.9	114.3	195.7

NOTE: THIS TABLE IS A GUIDELINE ONLY- CONTACT CUSTOMER AND / OR MANUFACTURER SPECS. FOR CURRENT INFORMATION INCLUDING MINIMUM WALL THICKNESS AND TOOL JOINT O.D.'S

DP Master - Inertia Welded Tool Joints

JSH - Integral Tube and Tool Joints

SPIRAL-WATE SPECIFICATIONS

ENGLISH
METRIC

NOM. SIZE	TOOLJOINT CONNECTION								TUBE					
	CONN. TYPE	CONN. I.D.	TOOLJOINT			BEVEL DIAMETER			SPIRAL		TUBE			
			NEW O.D. (D)	MIN. O.D. (D)	MIN. LENGTH	NOMINAL	MAX. +2 mm (+5/64")	MIN. -2 mm (-5/64")	NEW O.D. (B)	MIN. O.D. (B)	SLIP & ELEVATOR TUBE O.D. (A)	TUBE I.D.	UPSET SECTION (C)	WEIGHT
2 3/8"	2 3/8 SLH90	1.975"	3 1/8"	3 1/16"	12"	3 1/16"	3 9/64"	2 63/64"	2 7/8"	2 5/8"	2 9/16"	1.975"	NONE	10.1 lb/ft
60.3mm		50.2mm	79.4mm	77.8mm	305.0mm	77.8mm	79.8mm	75.8mm	73.0mm	66.7mm	65.1mm	50.2mm	NONE	15.1 Kg/m
2 3/8"	2 3/8 SLH90 HT	1.975"	3 1/8"	3"	12"	3"	3 5/64"	2 59/64"	2 7/8"	2 5/8"	2 9/16"	1.975"	NONE	10.1 lb/ft
60.3mm		50.2mm	79.4mm	76.2mm	305.0mm	76.2mm	78.2mm	74.2mm	73.0mm	66.7mm	65.1mm	50.2mm	NONE	15.1 Kg/m
2 7/8"	2 7/8 SLH90	2 1/8"	3 3/4"	3 5/8"	12"	3 5/8"	3 45/64"	3 35/64"	3 5/16"	3 1/16"	2 9/16"	2 1/8"	NONE	15.8 lb/ft
73.0mm		54.0mm	95.3mm	92.0mm	305.0mm	92.0mm	94.0mm	90.0mm	84.0mm	77.8mm	65.1mm	54.0mm	NONE	23.5 Kg/m
3 1/2" (oldstyle)	3 1/2IF	2 1/4"	4 3/4"	4 37/64"	12"	4 37/64"	4 21/32"	4 1/2"	4"	3 3/4"	3 3/16"	2 1/8"	NONE	27.4 lb/ft
88.9mm	NC-38	57.2mm	121.0mm	116.3mm	305.0mm	116.3mm	118.3mm	114.3mm	102.0mm	95.3mm	81.0mm	54.0mm	NONE	40.8 Kg/m
3 1/2" (newstyle)	3 1/2IF	2 5/16"	4 3/4"	4 37/64"	12"	4 37/64"	4 37/64"	4 1/2"	4"	3 3/4"	3 1/2"	2 1/4"	NONE	26.7 lb/ft
88.9mm	NC-38	58.7mm	121.0mm	116.3mm	305.0mm	116.3mm	116.3mm	114.3mm	102.0mm	95.3mm	88.9mm	57.2mm	NONE	39.7 Kg/m

SPIRAL-WATE SPECIFICATIONS

ENGLISH
METRIC

NOM. SIZE	TOOLJOINT CONNECTION								TUBE					
	TOOLJOINT				BEVEL DIAMETER				SPIRAL					
	CONN. TYPE	CONN. I.D.	NEW O.D. (D)	MIN. O.D. (D)	MIN. LENGTH	NOMINAL	MAX. +2 mm (+5/64")	MIN. -2 mm (-5/64")	NEW O.D. (B)	MIN. O.D. (B)	SLIP & ELEVATOR TUBE O.D. (A)	TUBE I.D.	UPSET SECTION (C)	WEIGHT
4"	4FH	2 11/16"	5 1/4"	5 1/64"	12"	5 1/64"	5 3/32"	4 15/16"	4 1/2"	4 1/4"	4"	2 9/16"	4 1/8"	32.7 lb/ft
102.0mm	NC-40	68.3mm	133.4mm	127.4mm	305.0mm	127.4mm	129.4mm	125.4mm	114.0mm	108.0mm	102.0mm	65.0mm	104.8mm	48.7 Kg/m
4 1/2"	41/2XH	2 7/8"	6 1/4"	5 29/32"	12"	5 29/32"	5 63/64"	5 53/64"	5"	4 3/4"	4 1/2"	2 3/4"	4 5/8"	42.6 lb/ft
114.0mm	NC-46	73.0mm	158.8mm	150.0mm	305.0mm	150.0mm	152.0mm	148.0mm	127.0mm	121.0mm	114.0mm	69.9mm	117.5mm	63.5 Kg/m
5"	41/2IF	3 1/8"	6 1/2"	6 7/64"	12"	6 7/64"	6 3/16"	6 1/32"	5 1/2"	5 1/4"	5"	3"	5 1/8"	53.6 lb/ft
127.0mm	NC-50	79.4mm	165.1mm	155.2mm	305.0mm	157.2mm	157.2mm	153.2mm	139.7mm	133.0mm	127.0mm	76.2mm	130.2mm	79.9 Kg/m
5 1/2"	51/2FH	4"	7 1/4"	6 29/32"	12"	6 63/64"	6 63/64"	6 53/64"	6"	5 3/4"	5 1/2"	4"	5 5/8"	50.7lb/ft
139.7mm		101.6mm	184.2mm	175.4mm	305.0mm	177.4mm	177.4mm	173.4mm	152.4mm	146.1mm	139.7mm	101.6mm	142.9mm	75.5 Kg/m
6 5/8"	65/8FH	5"	8"	7 45/64"	12"	7 25/32"	7 25/32"	7 5/8"	7 7/8"	7 5/8"	6 5/8"	5"	6 3/4"	57.0 lb/ft
168.3mm		127.0mm	203.2mm	195.7mm	305.0mm	197.7mm	197.7mm	193.7mm	200.0mm	193.7mm	168.3mm	127.0mm	171.5mm	84.9 Kg/m

DRILL COLLAR WEIGHTS (LB/FT)

Drill Collar O.D. (in.)	Bore of Drill Collar (in.)										
	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 13/16	3	3 1/4
3	21	21									
3 1/8	23	23	22	21							
3 1/4	26	25	24	22							
3 3/8			26	24	22						
3 1/2			29	27	25						
3 3/4			33	32	29						
3 7/8			36	34	32	30	27				
4				37	35	32	29				
4 1/8				39	37	35	32				
4 1/4				42	40	38	35				
4 1/2				48	46	43	41				
4 3/4				54	52	50	47	44			
5				61	59	56	53	50			
5 1/4				68	65	63	60	57	53		
5 1/2				75	73	70	67	64	60	57	
5 3/4				83	80	78	75	72	67	64	
6				90	88	85	83	79	75	72	68
6 1/4				98	96	94	91	88	83	80	76
6 1/2				107	105	102	99	96	92	88	85
6 3/4				116	114	111	108	105	101	98	94
7				125	123	120	117	114	110	107	103
7 1/4				134	132	130	127	124	119	116	112
7 1/2				144	142	140	137	134	129	126	122
7 3/4				154	152	150	147	144	139	136	132
8				165	163	160	157	154	150	147	143
8 1/4				176	174	171	168	165	161	158	154
8 1/2				187	185	182	179	176	172	169	165
8 3/4				198	196	194	191	188	183	180	176
9					208	206	203	200	195	192	188
9 1/4					220	218	215	212	207	204	200
9 1/2					233	230	228	224	220	217	213
9 3/4					246	243	240	237	233	230	226
10						256	254	250	246	243	239
10 1/4						270	267	264	259	257	252
10 1/2						284	281	278	273	270	266
10 3/4						298	295	292	287	285	280
11								306	302	299	295
11 1/4								321	317	314	310
11 1/2								336	332	329	325
11 3/4								352	348	345	340
12								368	363	361	356

PREMIUM CLASS - 1 PUNCH MARK
STANDARD WEIGHT E-75

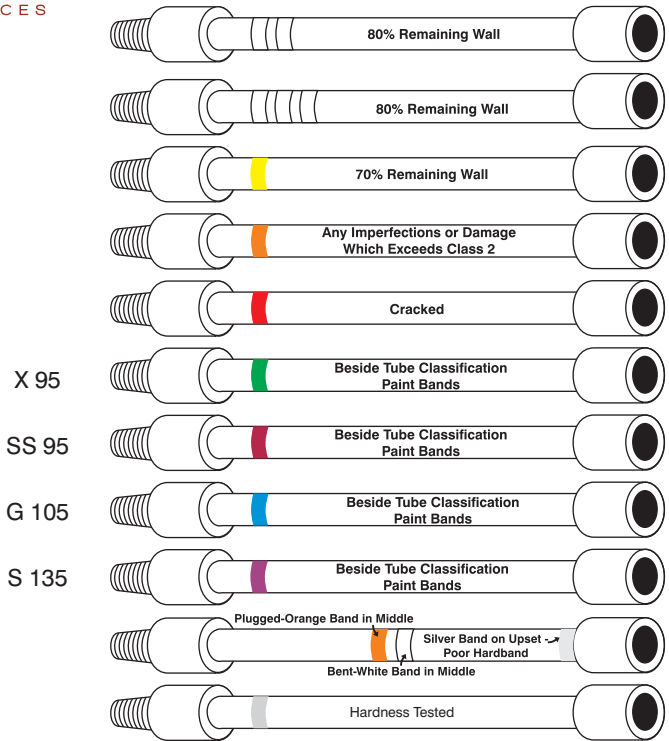
PREMIUM CLASS
HEAVY WALL E-75

CLASS 2 - 2 PUNCH MARKS

CLASS 3 - 3 PUNCH MARKS

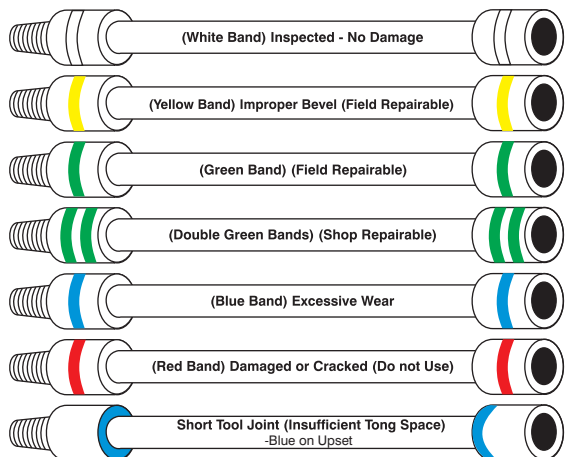
CLASS 4 - 4 PUNCH MARKS

DRILL PIPE CLASSIFICATION



NOTE: HEAVY WALL DRILL PIPE IDENTIFIED WITH AN ADDITIONAL PAINT BAND OF THE SAME GRADE

TOOL JOINT & DRILL COLLAR CLASSIFICATION



Box Bore Back and Pin Stress Relief Connections on Hevi-wate and Drill Collars identified with an additional White Paint Band approximately ten inches (10") from End Area Classification Paint Bands.

NEW AND USED TUBING INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	Inside Dia.	New A.P.I. Pipe Specs.				Drift Dia.	Used Pipe Specs.			
				5% Red.	Min. Wall	12.50% Red.	Min. Wall		15% Red.	Min. Wall	30% Red.	Min. Wall
1.050	1.2	0.113	0.824	0.006	0.107	0.014	0.099	0.730	0.017	0.096	0.034	0.079
26.67	1.79	2.87	20.9	0.14	2.73	0.36	2.51	18.54	0.43	2.44	0.86	2.01
1.315	1.8	0.133	1.049	0.007	0.126	0.017	0.116	0.955	0.02	0.113	0.040	0.093
33.40	2.68	3.38	26.6	0.17	3.21	0.42	2.96	24.26	0.51	2.87	1.01	2.36
	2.24	0.179	0.957	0.009	0.170	0.022	0.157	0.863	0.027	0.152	0.054	0.125
	3.33	4.55	24.3	0.23	4.32	0.57	3.98	21.92	0.68	3.86	1.36	3.18
1.660	2.4	0.14	1.38	0.007	0.133	0.018	0.123	1.286	0.021	0.119	0.042	0.098
42.16	3.57	3.56	35.1	0.18	3.38	0.44	3.11	32.66	0.53	3.02	1.07	2.49
	3.07	0.191	1.278	0.010	0.181	0.024	0.167	1.184	0.029	0.162	0.057	0.134
	4.57	4.85	32.5	0.24	4.61	0.61	4.24	30.07	0.73	4.12	1.46	3.40
1.900	2.9	0.145	1.61	0.007	0.138	0.018	0.127	1.516	0.022	0.123	0.044	0.102
48.26	4.32	3.68	40.9	0.18	3.50	0.46	3.22	38.51	0.55	3.13	1.10	2.58
	3.73	0.2	1.5	0.010	0.190	0.025	0.175	1.406	0.030	0.170	0.060	0.140
	5.55	5.08	38.1	0.25	4.83	0.64	4.45	35.71	0.76	4.32	1.52	3.56
2 1/16	3.25	0.156	1.751	0.008	0.148	0.020	0.137	1.657	0.023	0.133	0.047	0.109
52.39	4.84	3.96	44.5	0.20	3.76	0.50	3.47	42.09	0.59	3.37	1.19	2.77
2 3/8	4.7	0.19	1.995	0.010	0.181	0.024	0.166	1.901	0.029	0.162	0.057	0.133
60.33	6.99	4.83	50.7	0.24	4.58	0.60	4.22	48.29	0.72	4.10	1.45	3.38
	5.95	0.254	1.867	0.013	0.241	0.032	0.222	1.773	0.038	0.216	0.076	0.178
	8.85	6.45	47.4	0.32	6.13	0.81	5.65	45.03	0.97	5.48	1.94	4.52
2 7/8	6.5	0.217	2.441	0.011	0.206	0.027	0.190	2.347	0.033	0.184	0.065	0.152
73.03	9.67	5.51	62.0	0.28	5.24	0.69	4.82	59.61	0.83	4.69	1.65	3.86
	7.9	0.276	2.323	0.014	0.262	0.035	0.242	2.229	0.041	0.235	0.083	0.193
	11.76	7.01	59.0	0.35	6.66	0.88	6.13	56.62	1.05	5.96	2.10	4.91
	8.7	0.308	2.259	0.015	0.293	0.039	0.270	2.165	0.046	0.262	0.092	0.216
	12.95	7.82	57.4	0.39	7.43	0.98	6.85	54.99	1.17	6.65	2.35	5.48
3 1/2	9.3	0.254	2.992	0.013	0.241	0.032	0.222	2.867	0.038	0.216	0.076	0.178
88.90	13.84	6.45	76.0	0.32	6.13	0.81	5.65	72.82	0.97	5.48	1.94	4.52
	10.2	0.289	2.922	0.014	0.275	0.036	0.253	2.797	0.043	0.246	0.087	0.202
	15.18	7.34	74.2	0.37	6.97	0.92	6.42	71.04	1.10	6.24	2.20	5.14
	12.95	0.375	2.75	0.019	0.356	0.047	0.328	2.625	0.056	0.319	0.113	0.263
	19.27	9.53	69.9	0.48	9.05	1.19	8.33	66.68	1.43	8.10	2.86	6.67
	15.5	0.476	2.548	0.024	0.452	0.060	0.417	2.423	0.071	0.405	0.143	0.333
	23.07	12.09	64.7	0.60	11.49	1.51	10.58	61.54	1.81	10.28	3.63	8.46
4	9.5	0.226	3.548	0.011	0.215	0.028	0.198	3.423	0.034	0.192	0.068	0.158
101.60	14.14	5.74	90.1	0.29	5.45	0.72	5.02	86.94	0.86	4.88	1.72	4.02
	11	0.262	3.476	0.013	0.249	0.033	0.229	3.351	0.039	0.223	0.079	0.183
	16.37	6.65	88.3	0.33	6.32	0.83	5.82	85.12	1.00	5.66	2.00	4.66
4 1/2	12.75	0.271	3.958	0.014	0.257	0.034	0.237	3.833	0.041	0.230	0.081	0.190
114.30	18.97	6.88	100.5	0.34	6.54	0.86	6.02	97.36	1.03	5.85	2.07	4.82
	15.5	0.337	3.826	0.017	0.320	0.042	0.295	3.701	0.051	0.286	0.101	0.236
	23.07	8.56	97.2	0.43	8.13	1.07	7.49	94.01	1.28	7.28	2.57	5.99

NEW AND USED CASING INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	Inside Dia.	New A.P.I. Pipe Specs.				Drift Dia.	Used Pipe Specs.			
				5% Red.	Min. Wall	12.50% Red.	Min. Wall		15% Red.	Min. Wall	30% Red.	Min. Wall
4 1/2	9.50	0.205	4.090	0.010	0.195	0.026	0.179	3.965	0.031	0.174	0.062	0.144
114.3	14.14	5.21	103.9	0.26	4.95	0.65	4.56	100.71	0.78	4.43	1.56	3.64
	10.50	0.224	4.052	0.011	0.213	0.028	0.196	3.927	0.034	0.190	0.067	0.157
	15.63	5.69	102.9	0.28	5.41	0.71	4.98	99.75	0.85	4.84	1.71	3.98
	11.60	0.250	4.000	0.013	0.238	0.031	0.219	3.875	0.038	0.213	0.075	0.175
	17.26	6.35	101.6	0.32	6.03	0.79	5.56	98.43	0.95	5.40	1.91	4.45
	13.50	0.290	3.920	0.015	0.276	0.036	0.254	3.795	0.0435	0.247	0.087	0.203
	20.09	7.37	99.6	0.37	7.00	0.92	6.45	96.39	1.10	6.26	2.21	5.16
	15.10	0.337	3.826	0.017	0.320	0.042	0.295	3.701	0.051	0.286	0.101	0.236
	22.47	8.56	97.2	0.43	8.13	1.07	7.49	94.01	1.28	7.28	2.57	5.99
5	11.50	0.22	4.560	0.011	0.209	0.028	0.193	4.435	0.033	0.187	0.066	0.154
127.00	17.11	5.59	115.8	0.28	5.31	0.70	4.89	112.65	0.84	4.75	1.68	3.91
	13.00	0.253	4.494	0.013	0.240	0.032	0.221	4.369	0.038	0.215	0.076	0.177
	19.35	6.43	114.1	0.32	6.10	0.80	5.62	110.97	0.96	5.46	1.93	4.50
	15.00	0.296	4.408	0.015	0.281	0.037	0.259	4.283	0.044	0.252	0.089	0.207
	22.32	7.52	112.0	0.38	7.14	0.94	6.58	108.79	1.13	6.39	2.26	5.26
	18.00	0.362	4.276	0.018	0.344	0.045	0.317	4.151	0.054	0.308	0.109	0.253
	26.79	9.19	108.6	0.46	8.74	1.15	8.05	105.44	1.38	7.82	2.76	6.44
5 1/2	14.00	0.244	5.012	0.012	0.232	0.031	0.214	4.887	0.037	0.207	0.073	0.171
139.70	20.83	6.20	127.3	0.31	5.89	0.77	5.42	124.13	0.93	5.27	1.86	4.34
	15.50	0.275	4.950	0.014	0.261	0.034	0.241	4.825	0.041	0.234	0.083	0.193
	23.07	6.99	125.7	0.35	6.64	0.87	6.11	122.56	1.05	5.94	2.10	4.89
	17.00	0.304	4.892	0.015	0.289	0.038	0.266	4.767	0.046	0.258	0.091	0.213
	25.30	7.72	124.3	0.39	7.34	0.97	6.76	121.08	1.16	6.56	2.32	5.41
	20.00	0.361	4.778	0.018	0.343	0.045	0.316	4.653	0.054	0.307	0.108	0.253
	29.76	9.17	121.4	0.46	8.71	1.15	8.02	118.19	1.38	7.79	2.75	6.42
	23.00	0.415	4.670	0.021	0.394	0.052	0.363	4.545	0.062	0.353	0.125	0.291
	34.23	10.54	118.6	0.53	10.01	1.32	9.22	115.44	1.58	8.96	3.16	7.38
6 5/8	20.00	0.288	6.049	0.014	0.274	0.036	0.252	5.924	0.043	0.245	0.086	0.202
168.28	29.76	7.32	153.6	0.37	6.95	0.91	6.40	150.47	1.10	6.22	2.19	5.12
	24.00	0.352	5.921	0.018	0.334	0.044	0.308	5.796	0.053	0.299	0.106	0.246
	35.72	8.94	150.4	0.45	8.49	1.12	7.82	147.22	1.34	7.60	2.68	6.26
	28.00	0.417	5.791	0.021	0.396	0.052	0.365	5.666	0.063	0.354	0.125	0.292
	41.67	10.59	147.1	0.53	10.06	1.32	9.27	143.92	1.59	9.00	3.18	7.41
	32.00	0.475	5.675	0.024	0.451	0.059	0.416	5.550	0.071	0.404	0.143	0.333
	47.62	12.07	144.1	0.60	11.46	1.51	10.56	140.97	1.81	10.26	3.62	8.45

NEW AND USED CASING INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	Inside Dia.	New A.P.I. Pipe Specs.				Drift Dia.	Used Pipe Specs.			
				5% Red.	Min. Wall	12.50% Red.	Min. Wall		15% Red.	Min. Wall	30% Red.	Min. Wall
7	17.00	0.231	6.538	0.012	0.219	0.029	0.202	6.413	0.035	0.196	0.069	0.162
177.8	25.30	5.87	166.1	0.29	5.57	0.73	5.13	162.89	0.88	4.99	1.76	4.11
	20.00	0.272	6.456	0.014	0.258	0.034	0.238	6.331	0.041	0.231	0.082	0.190
	29.76	6.91	164.0	0.35	6.56	0.86	6.05	160.81	1.04	5.87	2.07	4.84
	23.00	0.317	6.366	0.016	0.301	0.040	0.277	6.241	0.048	0.269	0.095	0.222
	34.23	8.05	161.7	0.40	7.65	1.01	7.05	158.52	1.21	6.84	2.42	5.64
	26.00	0.362	6.276	0.018	0.344	0.045	0.317	6.151	0.0543	0.308	0.109	0.253
	38.69	9.19	159.4	0.46	8.74	1.15	8.05	156.24	1.38	7.82	2.76	6.44
	29.00	0.408	6.184	0.020	0.388	0.051	0.357	6.059	0.061	0.347	0.122	0.286
	43.16	10.36	157.1	0.52	9.85	1.30	9.07	153.90	1.55	8.81	3.11	7.25
	32.00	0.453	6.094	0.023	0.430	0.057	0.396	5.969	0.068	0.385	0.136	0.317
	47.62	11.51	154.8	0.58	10.93	1.44	10.07	151.61	1.73	9.78	3.45	8.05
	35.00	0.498	6.104	0.025	0.473	0.062	0.436	5.879	0.075	0.423	0.149	0.349
	52.09	12.65	155.0	0.63	12.02	1.58	11.07	149.33	1.90	10.75	3.79	8.85
	38.00	0.540	5.920	0.027	0.513	0.068	0.473	5.795	0.081	0.459	0.162	0.378
	56.55	13.72	150.4	0.69	13.03	1.71	12.00	147.19	2.06	11.66	4.11	9.60
7 5/8	24.00	0.3	7.025	0.015	0.285	0.038	0.263	6.900	0.045	0.255	0.090	0.210
193.7	35.72	7.62	178.4	0.38	7.24	0.95	6.67	175.26	1.14	6.48	2.29	5.33
	26.40	0.328	6.969	0.016	0.312	0.041	0.287	6.844	0.049	0.279	0.098	0.230
	39.29	8.33	177.0	0.42	7.91	1.04	7.29	173.84	1.25	7.08	2.50	5.83
	29.70	0.375	6.875	0.019	0.356	0.047	0.328	6.750	0.056	0.319	0.113	0.263
	44.20	9.53	174.6	0.48	9.05	1.19	8.33	171.45	1.43	8.10	2.86	6.67
	33.70	0.430	6.765	0.022	0.409	0.054	0.376	6.640	0.065	0.366	0.129	0.301
	50.15	10.92	171.8	0.55	10.38	1.37	9.56	168.66	1.64	9.28	3.28	7.65
	39.00	0.500	6.625	0.025	0.475	0.063	0.438	6.500	0.075	0.425	0.150	0.350
	58.04	12.70	168.3	0.64	12.07	1.59	11.11	165.10	1.91	10.80	3.81	8.89
8 5/8	24.00	0.264	8.097	0.013	0.251	0.033	0.231	7.972	0.040	0.224	0.079	0.185
219.1	35.72	6.71	205.7	0.34	6.37	0.84	5.87	202.49	1.01	5.70	2.01	4.69
	28.00	0.304	8.017	0.015	0.289	0.038	0.266	7.892	0.046	0.258	0.091	0.213
	41.67	7.72	203.6	0.39	7.34	0.97	6.76	200.46	1.16	6.56	2.32	5.41
	32.00	0.352	7.921	0.018	0.334	0.044	0.308	7.796	0.053	0.299	0.106	0.246
	47.62	8.94	201.2	0.45	8.49	1.12	7.82	198.02	1.34	7.60	2.68	6.26
	36.00	0.400	7.825	0.020	0.380	0.050	0.350	7.700	0.060	0.340	0.120	0.280
	53.57	10.16	198.8	0.51	9.65	1.27	8.89	195.58	1.52	8.64	3.05	7.11
	40.00	0.450	7.725	0.023	0.428	0.056	0.394	7.600	0.068	0.383	0.135	0.315
	59.53	11.43	196.2	0.57	10.86	1.43	10.00	193.04	1.71	9.72	3.43	8.00
	44.00	0.500	7.625	0.025	0.475	0.063	0.438	7.500	0.075	0.425	0.150	0.350
	65.48	12.70	193.7	0.64	12.07	1.59	11.11	190.50	1.91	10.80	3.81	8.89
	49.00	0.557	7.511	0.028	0.529	0.070	0.487	7.386	0.084	0.473	0.167	0.390
	72.92	14.15	190.8	0.71	13.44	1.77	12.38	187.60	2.12	12.03	4.24	9.90

NEW AND USED CASING INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	Inside Dia.	New A.P.I. Pipe Specs.				Drift Dia.	Used Pipe Specs.			
				5% Red.	Min. Wall	12.50% Red.	Min. Wall		15% Red.	Min. Wall	30% Red.	Min. Wall
9 5/8	32.30	0.312	9.001	0.016	0.296	0.039	0.273	8.845	0.047	0.265	0.094	0.218
244.5	48.07	7.92	228.6	0.40	7.53	0.99	6.93	224.66	1.19	6.74	2.38	5.55
	36.00	0.352	8.921	0.018	0.334	0.044	0.308	8.765	0.053	0.299	0.106	0.246
	53.57	8.94	226.6	0.45	8.49	1.12	7.82	222.63	1.34	7.60	2.68	6.26
	40.00	0.395	8.835	0.020	0.375	0.049	0.346	8.679	0.059	0.336	0.119	0.277
	59.53	10.03	224.4	0.50	9.53	1.25	8.78	220.45	1.50	8.53	3.01	7.02
	43.50	0.435	8.755	0.022	0.413	0.054	0.381	8.599	0.0653	0.370	0.131	0.305
	64.74	11.05	222.4	0.55	10.50	1.38	9.67	218.41	1.66	9.39	3.31	7.73
	47.00	0.472	8.681	0.024	0.448	0.059	0.413	8.525	0.071	0.401	0.142	0.330
	69.94	11.99	220.5	0.60	11.39	1.50	10.49	216.54	1.80	10.19	3.60	8.39
	53.50	0.545	8.535	0.027	0.518	0.068	0.477	8.379	0.082	0.463	0.164	0.382
	79.62	13.84	216.8	0.69	13.15	1.73	12.11	212.83	2.08	11.77	4.15	9.69
10 3/4	32.75	0.279	10.192	0.014	0.265	0.035	0.244	10.036	0.042	0.237	0.084	0.195
273.1	48.74	7.09	258.9	0.35	6.73	0.89	6.20	254.91	1.06	6.02	2.13	4.96
	40.50	0.350	10.050	0.018	0.333	0.044	0.306	9.894	0.053	0.298	0.105	0.245
	60.27	8.89	255.3	0.44	8.45	1.11	7.78	251.31	1.33	7.56	2.67	6.22
	45.50	0.400	9.950	0.020	0.380	0.050	0.350	9.794	0.060	0.340	0.120	0.280
	67.71	10.16	252.7	0.51	9.65	1.27	8.89	248.77	1.52	8.64	3.05	7.11
	51.00	0.450	9.850	0.023	0.428	0.056	0.394	9.694	0.068	0.383	0.135	0.315
	75.90	11.43	250.2	0.57	10.86	1.43	10.00	246.23	1.71	9.72	3.43	8.00
	55.50	0.495	9.760	0.025	0.470	0.062	0.433	9.604	0.074	0.421	0.149	0.347
	82.59	12.57	247.9	0.63	11.94	1.57	11.00	243.94	1.89	10.69	3.77	8.80
11 3/4	42.00	0.333	11.084	0.017	0.316	0.042	0.291	10.928	0.050	0.283	0.100	0.233
298.5	62.50	8.46	281.5	0.42	8.04	1.06	7.40	277.57	1.27	7.19	2.54	5.92
	47.00	0.375	11.000	0.019	0.356	0.047	0.328	10.844	0.056	0.319	0.113	0.263
	69.94	9.53	279.4	0.48	9.05	1.19	8.33	275.44	1.43	8.10	2.86	6.67
	54.00	0.435	10.880	0.022	0.413	0.054	0.381	10.724	0.065	0.370	0.131	0.305
	80.36	11.05	276.4	0.55	10.50	1.38	9.67	272.39	1.66	9.39	3.31	7.73
	60.00	0.489	10.772	0.024	0.465	0.061	0.428	10.616	0.073	0.416	0.147	0.342
	89.29	12.42	273.6	0.62	11.80	1.55	10.87	269.65	1.86	10.56	3.73	8.69
13 3/8	48.00	0.330	12.715	0.017	0.314	0.041	0.289	12.559	0.050	0.281	0.099	0.231
339.7	71.43	8.38	323.0	0.42	7.96	1.05	7.33	319.00	1.26	7.12	2.51	5.87
	54.50	0.380	12.615	0.019	0.361	0.048	0.333	12.459	0.057	0.323	0.114	0.266
	81.10	9.65	320.4	0.48	9.17	1.21	8.45	316.46	1.45	8.20	2.90	6.76
	61.00	0.430	12.515	0.022	0.409	0.054	0.376	12.359	0.065	0.366	0.129	0.301
	90.78	10.92	317.9	0.55	10.38	1.37	9.56	313.92	1.64	9.28	3.28	7.65
	68.00	0.480	12.415	0.024	0.456	0.060	0.420	12.259	0.072	0.408	0.144	0.336
	101.20	12.19	315.3	0.61	11.58	1.52	10.67	311.38	1.83	10.36	3.66	8.53
	72.00	0.514	12.347	0.026	0.488	0.064	0.450	12.191	0.077	0.437	0.154	0.360
	107.15	13.06	313.6	0.65	12.40	1.63	11.42	309.65	1.96	11.10	3.92	9.14

NEW AND USED CASING INSPECTION SPECIFICATIONS

O.D.	Nominal Weight	Nominal Wall Thickness	Inside Dia.	New A.P.I. Pipe Specs.				Drift Dia.	Used Pipe Specs.			
				5% Red.	Min. Wall	12.50% Red.	Min. Wall		15% Red.	Min. Wall	30% Red.	Min. Wall
16	65.00	0.375	15.250	0.019	0.356	0.047	0.328	15.062	0.056	0.319	0.113	0.263
406.4	96.73	9.53	387.4	0.48	9.05	1.19	8.33	382.57	1.43	8.10	2.86	6.67
	75.00	0.438	15.124	0.022	0.416	0.055	0.383	14.936	0.066	0.372	0.131	0.307
	111.61	11.13	384.1	0.56	10.57	1.39	9.73	379.37	1.67	9.46	3.34	7.79
	84.00	0.495	15.010	0.025	0.470	0.062	0.433	14.822	0.074	0.421	0.149	0.347
	125.01	12.57	381.3	0.63	11.94	1.57	11.00	376.48	1.89	10.69	3.77	8.80
	109.00	0.656	14.688	0.033	0.623	0.082	0.574	14.500	0.0984	0.558	0.197	0.459
	162.21	16.66	373.1	0.83	15.83	2.08	14.58	368.30	2.50	14.16	5.00	11.66
18 5/8	87.50	0.435	17.755	0.022	0.413	0.054	0.381	17.567	0.065	0.370	0.131	0.305
473.1	130.21	11.05	451.0	0.55	10.50	1.38	9.67	446.20	1.66	9.39	3.31	7.73
20	94.00	0.438	19.124	0.022	0.416	0.055	0.383	18.936	0.066	0.372	0.131	0.307
508.0	139.89	11.13	485.7	0.56	10.57	1.39	9.73	480.97	1.67	9.46	3.34	7.79
	106.50	0.500	19.000	0.025	0.475	0.063	0.438	18.812	0.075	0.425	0.150	0.350
	158.49	12.70	482.6	0.64	12.07	1.59	11.11	477.82	1.91	10.80	3.81	8.89
	133.00	0.635	18.730	0.032	0.603	0.079	0.556	18.542	0.095	0.540	0.191	0.445
	197.93	16.13	475.7	0.81	15.32	2.02	14.11	470.97	2.42	13.71	4.84	11.29

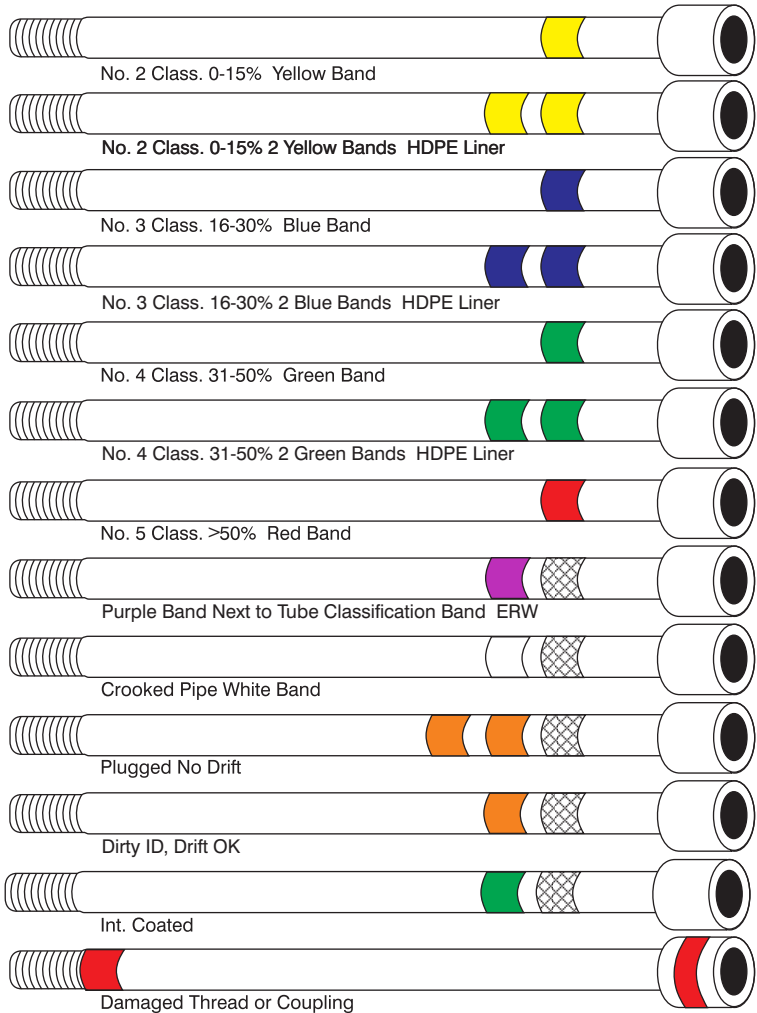
CASING & TUBING COUPLING SPECIFICATIONS

REFER TO CURRENT API 5CT SPECIFICATION
OR MANUFACTURERS SPECIFICATION

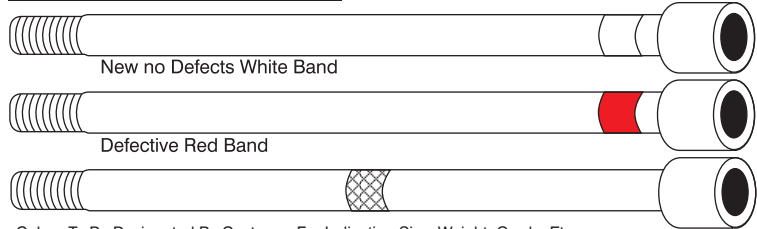
CASING, TUBING & DRILL PIPE LENGTHS

	Range 1	Range 2	Range 3
CASING	16 - 25	25 - 34	34 - 48
	4.88 - 7.62	7.62 - 10.36	10.36 - 14.63
TUBING & CASING USED AS TUBING	20 - 24	28 - 32	38 - 42
	6.10 - 7.32	8.53 - 9.75	11.58 - 12.80
DRILL PIPE	18 - 22	27 - 30	38 - 45
	5.49 - 6.71	8.23 - 9.14	11.58 - 13.72

USED TUBING AND CASING CLASSIFICATION



NEW TUBING AND CASING



Colour To Be Designated By Customer For Indicating Size, Weight, Grade, Etc.



ROCKWELL HARDNESS TEST TABLES

Grade	IRP or MFG. Of Special Grade	Expected Range or Maximum Hardness	
		HRC (1)	
DRILL PIPE			
E	IRP	MAX 27	
SS - 75	IRP	MAX 22	
X-95	IRP	MAX 30	
SS - 95	IRP	MAX 25	
G-105	IRP	MAX 32	
SS - 105	IRP	MAX 27	
S-135		32 - 39	

DRILL PIPE TOOL JOINTS			
E, X, G STANDARD	IRP	MAX 38	
Sour Service (SS) (4)	IRP	MAX 30	
(TSS) (5)	IRP	MAX 38	
HEAVY WEIGHT			
Tube	Smith (Drilco)	21 - 24	
Tool Joints	Smith (Drilco)	29 - 37	
Tube	Grant Prideco	30 - 37	
Tool Joints	Grant Prideco	30 - 37	

DRILL COLLARS			
Connection and Body	Smith (Drilco)	29 - 37	
Connection and Body	Grant Prideco	30 - 37	

Rockwell C	Tnsile Strgth (1000) (psi)		Tnsile Strgth (1000) (psi)		Tnsile Strgth (1000) (psi)		Tnsile Strgth (1000) (psi)			
	C	B	C	B	C	B	C	B		
68	368	38	110	171	16	95	98	74	66	
67	360	37	110	165	15	94	96	73	65	
65	354	36	109	159	14	93	95	72	64	
63	341	35	108	154	12	92	93	71	63	
62	329	34	108	148	12	91	91	70	62	
60	317	32	107	143	11	90	89	69	61	
58	305	31	106	139	10	89	87	68	60	
56	295	30	105	135	9	88	85	67	59	
55	120	284	29	104	131	8	87	84	66	58
53	119	273	28	104	127	7	86	82	65	56
52	119	263	27	104	124	6	85	81	64	55
50	117	253	26	103	121	5	84	79	62	54
48	116	242	25	102	117	4	83	78	61	53
47	116	233	24	102	115	3	82	76	60	52
46	115	221	23	100	112	2	81	75	59	51
44	114	211	22	99	109	1	80	74	57	50

Grade	API or MFG. Of Special Grade	Expected Range or Maximum Hardness	
		HRB	HRC
TUBING AND CASING			
H-40		66-87	
J-55		81-95	0-15
K-55		93-102	14-25
C-75		93-98	14-26
M65	API		MAX 22 (2)
L-80	API		MAX 23 (2)
MN-80	Algoma		14-22 (3)
N-80	API	95-102	16-25
S-80	LSS	93-99 (3)	14-23
SM-80L	Sumitomo		17-29
SM-80S	Sumitomo		17-22 (3)
RY-85	B&W		17-23 (3)
SM-90S	Sumitomo		18-24 (3)
S0090	Algoma		19.5-25.4 (3)
AR-95	Armco	99	22
CYS-95	LSS		22-28 (3)
S-95	LSS		22-31 (3)
SM-95G	Sumitomo		22-31
SM-95L	Sumitomo		20-30
SM-95S	Sumitomo		20-25 (3)
SM-95T	Sumitomo		22-28
S0095	Algoma		22-30
Spec. S-95	LSS		14-23 (3)
P-105			25-32
S-105	LSS		20-31 (3)
C90	API		MAX 25.4 (2)
T95	API		MAX 25.4 (2)
SM-105L	Sumitomo		26-34
P-110			27-35
SM-110L	Sumitomo		27-35
S00-125	Algoma		30-38
SM-125G	Sumitomo		31-38
S00-140	Algoma		34-39
SM-150G	Sumitomo		36-42
S00-155	Algoma		37-43

(1) The Rockwell numbers for the range listings are not specified by the manufacturer or by API except as indicated by IRP or footnotes (2) and (3).
The range values are given only as a guide for expected hardness of grades listed.

(2) API Specification
(3) Manufacturers Specification
(4) Manufactured after January 1 2002
(5) Manufactured before January 1 2002

NOTE A : 1 Test is an average of 3 Readings

NOTE B: HARDNESS TESTING CAN NOT BE USED TO DETERMINE OR VERIFY GRADE OF MATERIAL.

NOTE C: API DOES NOT APPLY ANY HARDNESS VALUES FOR DRILL PIPE TUBES OR TOOL JOINTS.



FRACTION - DECIMAL MILLIMETER CONVERSION CHART

FRACTION	DECIMAL	mm	FRACTION	DECIMAL	mm
1/64	0.0156	0.3969	33/64	0.5156	13.0969
1/32	0.0312	0.7938	17/32	0.5312	13.4938
3/64	0.0469	1.1906	35/64	0.5469	13.8906
1/16	0.0625	1.5875	9/16	0.5625	14.2875
5/64	0.0781	1.9844	37/64	0.5781	14.6844
3/32	0.0938	2.3812	19/32	0.5938	15.0812
7/64	0.0094	2.7781	39/64	0.6094	15.4781
1/8	0.1250	3.1750	5/8	0.6250	15.8750
9/64	0.1406	3.5719	41/64	0.6406	16.2719
5/32	0.1562	3.9688	21/32	0.6562	16.6688
11/64	0.1719	4.3656	43/64	0.6719	17.0656
3/16	0.1875	4.7625	11/16	0.6875	17.4625
13/64	0.2031	5.1594	45/64	0.7031	17.8594
7/32	0.2188	5.5562	23/32	0.7188	18.2562
15/64	0.2344	5.9531	47/64	0.7344	18.6531
1/4	0.2500	6.3500	3/4	0.7500	19.0500
17/64	0.2656	6.7469	49/64	0.7656	19.4469
9/32	0.2812	7.1438	25/32	0.7812	19.8438
19/64	0.2969	7.5406	51/64	0.7969	20.2406
5/16	0.3125	7.9375	13/16	0.8125	20.6375
21/64	0.3281	8.3344	53/64	0.8281	21.0344
11/32	0.3438	8.7312	27/32	0.8438	21.4312
23/64	0.3594	9.1281	55/64	0.8594	21.8281
3/8	0.3750	9.5250	7/8	0.8750	22.2250
25/64	0.3906	9.9219	57/64	0.8906	22.6219
13/32	0.4062	10.3188	29/32	0.9062	23.0188
27/64	0.4219	10.7156	59/64	0.9219	23.4156
7/16	0.4375	11.1125	15/16	0.9375	23.8125
29/64	0.4531	11.5094	61/64	0.9531	24.2094
15/32	0.4688	11.9062	31/32	0.9688	24.6062
31/64	0.4844	12.3031	63/63	0.9844	25.0031
1/2	0.5000	12.700	1	1.0000	25.4000

TO CONVERT mm TO INCHES: ? mm DIVIDED BY 25.4 = INCHES
 TO CONVERT INCHES TO mm: ? INCHES MULTIPLIED BY 25.4 = mm