

**JINDAL**  
D.P. JINDAL GROUP

# SEAMLESS

Pipes & Tubes

*Engineered for diverse applications*



**MAHARASHTRA SEAMLESS LIMITED**

An ISO 9001: 2015 Company

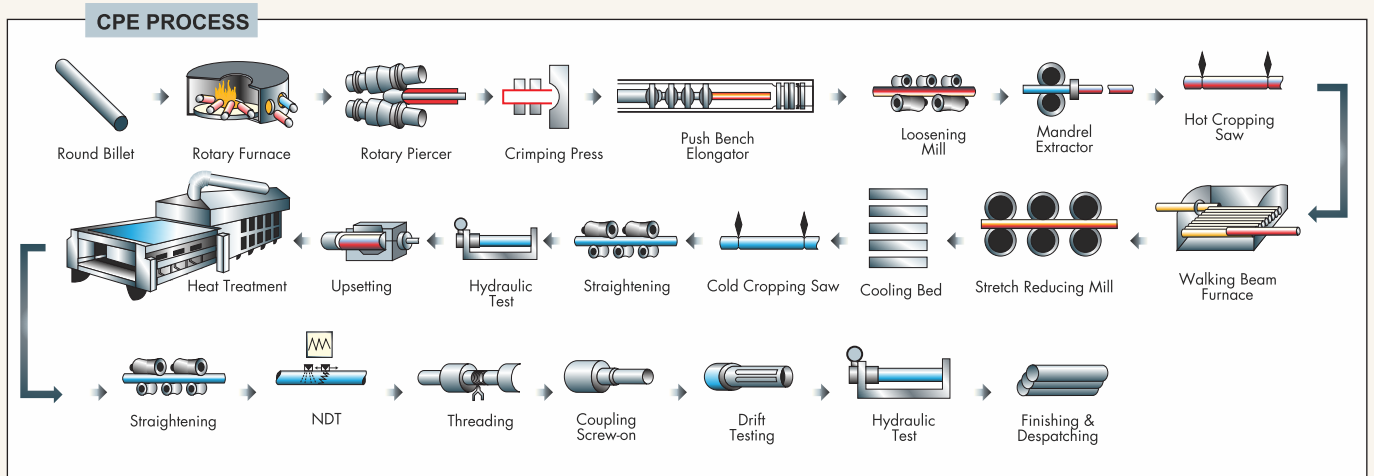
03/MSL/SEAMLESS/FEB 2018

## Company Profile

Maharashtra Seamless Limited, the flagship Company of D.P. Jindal Group, is the largest manufacturer of Seamless Pipes & Tubes in India, with a production capacity of over 5,50,000 metric tonnes per year. The plant is situated at Raigad, Maharashtra, and is equipped with latest plant and machinery capable of producing wide range of Seamless Pipes & Tubes, both in HOT FINISHED and COLD DRAWN/ COLD PILGERED CONDITION. A wide product range covers sizes & specifications catering to diverse application areas like Oil & Gas sector, Hydrocarbon Industry, Boilers & Heat Exchangers, Automotive and General Engineering industries etc.

## World renowned CPE Technology

Our state-of-the-art plant uses world renowned CPE Technology acquired through technical know-how from German giant MANNESMANN DEMAG HUTTENSTECHNIK GmbH. The CPE (Cross Roll Piercing and Elongation) process begins with the piercing of a hot billet on the piercer, followed by crimping and then elongation on the push-bench. Finally, the dimensions are controlled within specified limits on the stretch reducing mill (SRM). This process minimises longitudinal and transverse defects in pipes and tubes. It also ensures better control over wall thickness variation as compared to other manufacturing process.







## Plug Mill Technology

Plug Mill process is a proven process for manufacturing of higher diameter Seamless Pipes by heating round billets up to the plastic stage of steel and piercing in a Cross Roll Piercer. Further elongation is achieved through a Plug Mill in which the thick wall hot hollow will be rolled through a pair of Top and Bottom Rolls with a plug inside to control the ID and achieve better internal surface finish. World Class Reelers are used to improve the wall thickness circumferentially, to achieve close tolerance on the Wall Thickness. As the OD and the ID are controlled by external and internal toolings during hot rolling in Plug Mill and Reeler, the pipe will have closer tolerances, to cater to the requirements of OCTG and other applications.

## Product Range - Seamless

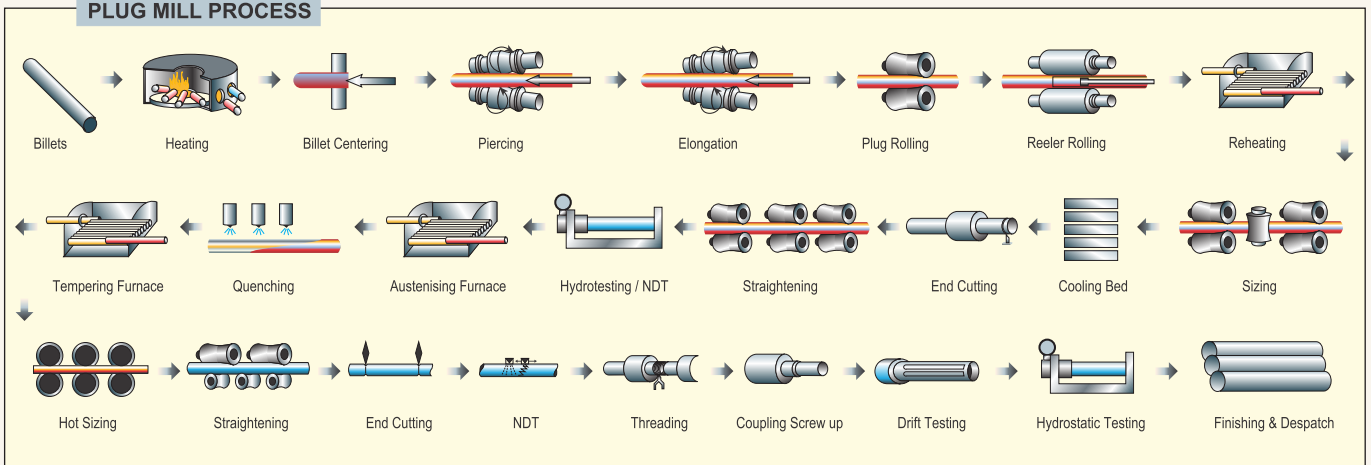
- I) Hot Finished Pipes and Tubes Carbon & Alloy Steel:
  - Outside Diameter (OD) 26mm - 508.0mm
  - Wall Thickness (WT) 2.8mm - 40mm
- II) Cold Pilgered / Cold Drawn Tubes Carbon & Alloy Steel:
  - Outside Diameter (OD) 10mm - 101mm
  - Wall Thickness (WT) 1mm - 10mm
- III) API Line Pipes
  - A) Size Range
    - Line Pipes
      - Plain End Upto 14" (355.6 mm) Outside Diameter
      - Threaded and Coupled with API Line Pipe threads upto 12" (323.9 mm) Outside Diameter
  - B) API Grades
    - Line Pipes (API - 5L) All Grades upto L-555Q or X-80Q
- IV) OIL Country Tubular Goods (OCTG)
  - A) Size Range
    - Casing
      - Upto 137," (339.72 mm) Outside Diameter Plain End / Threaded and Coupled with STC, LC & BC Threads
    - Tubing
      - NUE / EUE upto 4"
      - Outside Diameter Plain End or Threaded & Coupled with API Round Threads
    - Drill Pipes
      - Internal Upset (IU) 3½" to 4½"
      - External Upset (EU) 27/8" to 4½"
      - Internal - External Upset (IEU) 4" to 5"

B) API Grades  
Casing & Tubing (API 5CT)

Yield Strength (ksi)	40	55	65	80	90	95	110	125
Group 1	H 40	J 55 K 55		N 80		R 95		
Group 2			M 65	L 80	C 90	T 95	C 110	
Group 3							P 110	
Group 4								Q 125

- Proprietary Grades
  - High Collapse Casing MAHA HC L80  
MAHA HC P110
- Drill Pipes (API 5DP) Gr. E, X, G, S
- Sour Service NACE (MR - 0175)

### PLUG MILL PROCESS

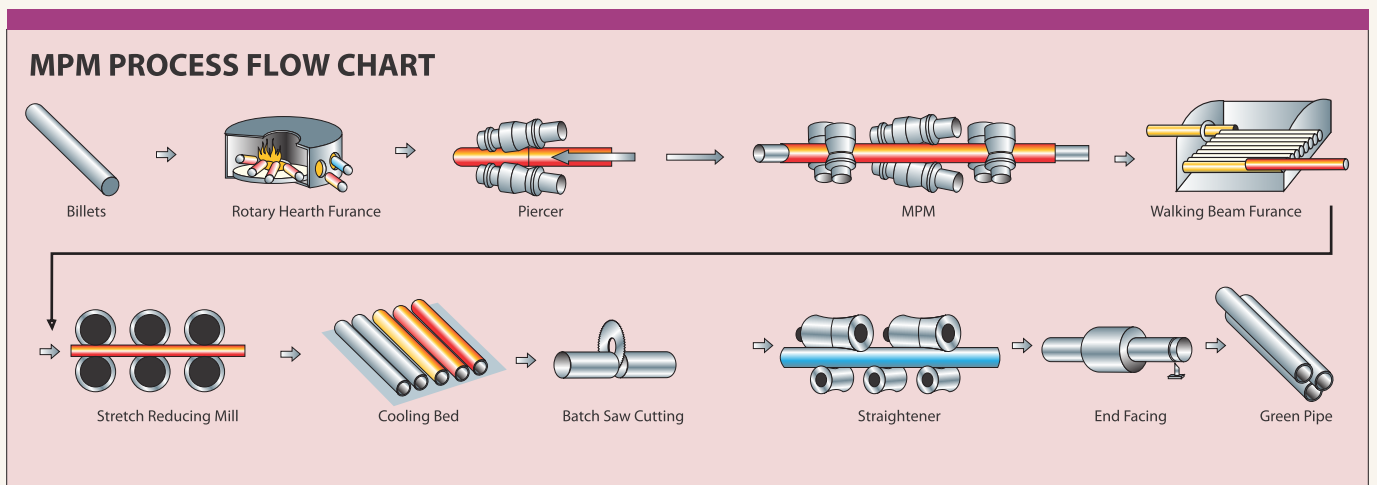


# MPM Technology

facility at Mangaon (Maharashtra)

MPM is the state-of-the-art manufacturing process for high quality Seamless Pipes and Tubes. In this process pierced hollow is further elongated by 6 stand continuous rolling mill, where a high precision mandrel inside the hollow moves along with pipe during rolling, which ensures smooth internal surface finish of the pipe.

Each stand is equipped with Hydraulic gauge control, which ensures uniform thickness throughout the length. The deformation of hot metal is in longitudinal direction, which gives better mechanical properties. No torsional stress is induced during hot rolling, which ensures defect-free product.



## Relentless Pursuit of Quality



Quality is the hallmark of D.P. Jindal Group. Strict adherence to the policy of "No Compromise with Quality" is demonstrated by its stringent control over procurement of raw material, process control, streamlined distribution network and fast delivery of finished products.

We are holding Quality Management System Certification of ISO 9001:2015. Similarly, we are holding Integrated Management System Certification for Environmental Management System ISO 14001:2015 and Occupational Health and Safety Management System OHSAS 18001:2007. We are also certified to use API Monogram for Casing, Tubing and Line Pipes from American Petroleum Institute. Similarly, we are holding Certificate of Approval as Well Known Pipe and Tube Maker from Central Boiler Board. Further, we are holding Certification for PED 97 / 23 / EC, AD 2000 Merkblatt WO and CPR 305/2011 for CE Marking.

Our in-house R&D activities and adherence to the stringent Quality Standards using sophisticated inspection facilities which include Hydrostatic Testing, NDT facilities viz. Electro Magnetic Inspection, Ultrasonic, MPI & Eddy Current Testing and Laboratory Inspection/Testing facilities like Spectrometer, Metallurgical Microscope, UTM,

Impact Testing and Hardness Testers etc. have helped MSL to benchmark itself, amongst the best Pipe Manufacturers in the world.

Our manufacturing / inspection facilities and product quality have approval from all leading International Inspection agencies such as Lloyds, DNV, BVQI, EIL, TUV, PDIL, MECON, SGS and many others, who are regularly inspecting our finished products for their esteemed clients.

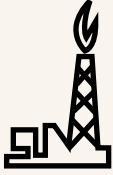
Our products are in use by quality conscious sector of Indian Industry and regular clientele includes customers like ONGC, OIL, IOCL, HPCL, BPCL, GAIL, Reliance, CAIRN, ESSAR, BG Exploration, BHEL, NTPC, L&T, Punj Lloyd, ALSTOM, THERMAX, SAIL, Vedanta, TATA, Aditya Birla, Adani, Mahindra, JSW, JSPL, NALCO, Coal India, Indian Railways and Ordnance factories.

Our products, also, have exposure to major International markets and we enjoy confidence of large number of satisfied customers in MIDDLE EAST, ASIA, FAR EAST and USA, including various Oil Companies Worldwide.



# Applications & Specifications:

## OIL & GAS SECTOR



API 5L  
API 5CT  
API 5DP

## HYDROCARBON PROCESS INDUSTRY



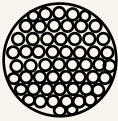
ASTM : A-53, A-333, A-334,  
A-335  
BS : 3602 (Pt-I), 3603  
IS : 6286

## AUTOMOTIVE INDUSTRY



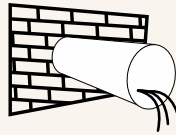
ASTM : A-519  
SAE : 1010, 1012,  
1020, 1040,  
1518, 4130  
DIN : 2391, 1629  
IS : 3601, 3074

## BOILER, HEAT EXCHANGER, SUPER HEATER & CONDENSER



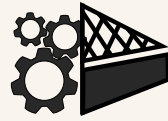
ASTM : A-106, A-178, A-179,  
A-192, A-209, A-210, A-213,  
A-214  
BS : 3059 (Pt-I & Pt-II),  
EN 10216 (Pt-I & Pt-II)  
3602 (Pt-1)  
IS : 11714  
DIN : 17175

## WATER & SEWAGE



IS : 1239 (Pt-I), 3589, IS 4270  
BS : 1387  
DIN : 2440, 2441

## MECHANICAL, STRUCTURAL, & GENERAL ENGINEERING



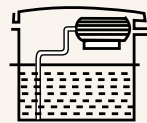
ASTM : A-500, A-501,  
A-519  
DIN : 1629, 1630,  
2391, 17100,  
17200  
BS : EN 10216-1  
EN 10216-2  
EN 10216-3  
EN 10216-4  
EN 10255  
IS : 1161, 3601

## RAILWAYS



IS : 1239  
(Pt-I), 1161  
RDSO : ETI / OHE / 11

## WATER WELL



IS : 4270  
ASTM : A-589

## HYDRAULIC CYLINDER



SAE : 1026, 1518  
IS : 6631  
DIN : 1629

## BEARING INDUSTRY



SAE : 52100  
DIN : 100 Cr6

# ASTM SCHEDULED SIZES

DIMENSION AND WEIGHT															
Nominal Pipe Size mm/inch	OD mm	SCHEDULE WALL THICKNESS (mm) / WEIGHT (kg/m)													
		Sch 5	Sch 10	Sch 20	Sch 30	STD	Sch 40	XS	Sch 60	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XXS
6	10.3	-	1.24	-	1.45	1.73	1.73	2.41	-	2.41	-	-	-	-	-
1/8		-	0.28	-	0.32	0.37	0.37	0.47	-	0.47	-	-	-	-	-
8	13.7	-	1.65	-	1.85	2.24	2.24	3.02	-	3.02	-	-	-	-	-
1/4		-	0.49	-	0.54	0.63	0.63	0.80	-	0.80	-	-	-	-	-
10	17.1	-	1.65	-	1.85	2.31	2.31	3.20	-	3.20	-	-	-	-	-
3/8		-	0.63	-	0.70	0.84	0.84	1.10	-	1.10	-	-	-	-	-
15	21.3	1.65	2.11	-	2.41	2.77	2.77	3.73	-	3.73	-	-	-	4.78	7.47
1/2		0.80	1.00	-	1.12	1.27	1.27	1.62	-	1.62	-	-	-	1.95	2.55
20	26.7	1.65	2.11	-	2.41	2.87	2.87	3.91	-	3.91	-	-	-	5.56	7.82
3/4		1.03	1.28	-	1.44	1.69	1.69	2.20	-	2.20	-	-	-	2.90	3.64
25	33.4	1.65	2.77	-	2.90	3.38	3.38	4.55	-	4.55	-	-	-	6.35	9.09
1		1.29	2.09	-	2.18	2.50	2.50	3.24	-	3.24	-	-	-	4.24	5.45
32	42.2	1.65	2.77	-	2.97	3.56	3.56	4.85	-	4.85	-	-	-	6.35	9.70
1 1/4		1.65	2.69	-	2.87	3.39	3.39	4.47	-	4.47	-	-	-	5.61	7.77
40	48.3	1.65	2.77	-	3.18	3.68	3.68	5.08	-	5.08	-	-	-	7.14	10.15
1 1/2		1.90	3.11	-	3.53	4.05	4.05	5.41	-	5.41	-	-	-	7.25	9.55
50	60.3	1.65	2.77	-	3.18	3.91	3.91	5.54	-	5.54	-	-	-	8.74	11.07
2		2.39	3.93	-	4.48	5.44	5.44	7.48	-	7.48	-	-	-	11.11	13.44
65	73.0	2.11	3.05	-	4.78	5.16	5.16	7.01	-	7.01	-	-	-	9.53	14.02
2 1/2		3.69	5.26	-	8.04	8.63	8.63	11.41	-	11.41	-	-	-	14.92	20.39
80	88.9	2.11	3.05	-	4.78	5.49	5.49	7.62	-	7.62	-	-	-	11.13	15.24
3		4.52	6.46	-	9.92	11.29	11.29	15.27	-	15.27	-	-	-	21.35	27.68
90	101.6	2.11	3.05	-	4.78	5.74	5.74	8.08	-	8.08	-	-	-	-	-
3 1/2		5.18	7.41	-	11.41	13.57	13.57	18.64	-	18.64	-	-	-	-	-
100	114.3			-	4.78	6.02	6.02	8.56	-	8.56	-	11.13	-	13.49	17.12
4				-	12.91	16.08	16.08	22.32	-	22.32	-	28.32	-	33.54	41.03
125	141.3			-		6.55	6.55	9.53	-	9.53	-	12.70	-	15.88	19.05
5				-		21.77	21.77	30.97	-	30.97	-	40.28	-	49.12	57.43
150	168.30			-		7.11	7.11	10.97	-	10.97	-	14.27	-	18.26	21.95
6				-		28.26	28.26	42.56	-	42.56	-	54.21	-	67.57	79.22
200	219.10	-	-	6.35	7.04	8.18	8.18	12.70	10.31	12.70	15.09	18.26	20.62	23.01	22.23
8		-	-	33.32	36.82	42.55	42.55	64.64	53.09	64.64	75.92	90.44	100.93	111.27	107.93
250	273.00			6.35	7.80	9.27	9.27	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40
10				41.76	51.01	60.29	60.29	81.53	81.53	95.98	114.71	133.01	155.10	172.27	155.10
300	323.80	-	-	-	8.38	9.53	10.31	12.70	14.27	17.48	21.44	25.40	28.58	33.32	25.40
12		-	-	-	65.19	73.86	79.71	97.44	108.93	132.05	159.87	186.92	208.08	238.69	186.92
350	355.60	-	-	-	9.53	9.53	11.13	12.70	15.09	19.05	23.83	27.79	31.75	35.71	-
14		-	-	-	81.33	81.33	94.55	107.40	126.72	158.11	194.98	224.66	253.58	281.72	-
400	406.40	-	-	-	9.53	9.53	12.70	12.70	16.66	21.44	-	-	-	-	-
16		-	-	-	93.27	93.27	123.31	123.31	160.12	203.54	-	-	-	-	-
450	457.00	-	-	7.92	11.13	9.53	14.27	12.70	19.05	23.83	-	-	-	-	-
18		-	-	87.71	122.38	105.17	155.81	139.16	205.75	254.57	-	-	-	-	-
500	508.00	-	-	9.53	12.70	9.53	15.09	12.70	20.62	26.19	-	-	-	-	-
20		-	-	117.15	155.13	117.15	183.43	155.13	247.84	311.19	-	-	-	-	-

NOTE : Weights are specified for Plain end Pipes.

# API Line Pipes

Dimensions, Weights and Test Pressures for Sizes 0.840" through 20" (SI Units)															
Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (KPa x 100)										
					D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56
0.840	21.3	2.8	1.28	15.7	48	48	48	-	-	-	-	-	-	-	205
0.840	21.3	3.7	1.61	13.9	59	59	59	-	-	-	-	-	-	-	205
1.050	26.7	2.9	1.70	20.9	48	48	48	-	-	-	-	-	-	-	205
1.050	26.7	3.9	2.19	18.9	59	59	59	-	-	-	-	-	-	-	205
1.315	33.4	3.4	2.52	26.6	48	48	48	-	-	-	-	-	-	-	205
1.315	33.4	4.5	3.21	24.4	59	59	59	-	-	-	-	-	-	-	205
1.660	42.2	3.6	3.43	35.0	69	83	90	-	-	-	-	-	-	-	205
1.660	42.2	4.9	4.51	32.4	90	124	131	-	-	-	-	-	-	-	205
1.900	48.3	3.7	4.07	40.9	69	83	90	-	-	-	-	-	-	-	205
1.900	48.3	5.1	5.43	38.1	90	124	131	-	-	-	-	-	-	-	205
2 3/8"	60.3	3.6	5.03	53.1	69	150	170	205	205	205	205	205	205	205	205
	60.3	3.9	5.42	52.5	69	163	170	205	205	205	205	205	205	205	205
	60.3	4.4	6.07	51.5	76	170	170	205	205	205	205	205	205	205	205
	60.3	4.8	6.57	50.7	83	170	170	205	205	205	205	205	205	205	205
	60.3	5.5	7.43	49.3	90	170	170	205	205	205	205	205	205	205	205
2 7/8"	60.3	6.4	8.51	47.5	96	170	170	205	205	205	205	205	205	205	205
	60.3	7.1	9.31	46.1	96	170	170	205	205	205	205	205	205	205	205
	73.0	4.0	6.81	65.0	69	138	161	191	205	205	205	205	205	205	205
	73.0	4.4	7.44	64.2	69	152	170	205	205	205	205	205	205	205	205
	73.0	4.8	8.07	63.4	69	166	170	205	205	205	205	205	205	205	205
3 1/2"	73.0	5.2	8.69	62.6	69	170	170	205	205	205	205	205	205	205	205
	73.0	5.5	9.16	62.0	76	170	170	205	205	205	205	205	205	205	205
	73.0	6.4	10.51	60.2	83	170	170	205	205	205	205	205	205	205	205
	73.0	7.0	11.39	59.0	90	170	170	205	205	205	205	205	205	205	205
	88.9	4.0	8.37	80.9	69	113	132	157	173	194	205	205	205	205	205
4"	88.9	4.4	9.17	80.1	69	125	146	172	190	205	205	205	205	205	205
	88.9	4.8	9.95	79.3	69	136	159	188	205	205	205	205	205	205	205
	88.9	5.5	11.31	77.9	69	156	170	205	205	205	205	205	205	205	205
	88.9	6.4	13.02	76.1	-	170	170	205	205	205	205	205	205	205	205
	88.9	7.1	14.32	74.7	-	170	170	205	205	205	205	205	205	205	205
4 1/2"	88.9	7.6	15.24	73.7	90	170	170	205	205	205	205	205	205	205	205
	101.6	4.0	9.63	93.6	-	99	116	137	151	170	184	196	205	205	205
	101.6	4.4	10.55	92.8	69	109	127	151	166	187	203	205	205	205	205
	101.6	4.8	11.46	92.0	83	119	139	164	181	204	205	205	205	205	205
	101.6	5.7	13.48	90.2	83	141	165	195	205	205	205	205	205	205	205
4 3/4"	101.6	6.4	15.02	88.8	-	159	185	205	205	205	205	205	205	205	205
	101.6	7.1	16.55	87.4	-	176	190	205	205	205	205	205	205	205	205
	101.6	8.1	18.68	85.4	117	190	190	205	205	205	205	205	205	205	205
4 1/2"	114.3	4.0	10.88	106.3	69	88	103	122	134	151	164	174	189	204	205



# API Line Pipes

## Dimensions, Weights and Test Pressures for Sizes 0.840" through 20" (SI Units)

Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (KPa x 100)										
					D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56
	114.3	4.4	11.92	105.5	-	97	113	134	148	166	180	192	205	205	205
	114.3	4.8	12.96	104.7	83	106	123	146	161	181	197	205	205	205	205
	114.3	5.2	13.99	103.9	-	115	134	158	175	197	205	205	205	205	205
	114.3	5.6	15.01	103.1	83	123	144	170	188	205	205	205	205	205	205
	114.3	6.0	16.02	102.3	83	132	154	183	202	205	205	205	205	205	205
	114.3	6.4	17.03	101.5	-	141	165	195	205	205	205	205	205	205	205
	114.3	7.1	18.77	100.1	-	157	183	205	205	205	205	205	205	205	205
	114.3	7.9	20.73	98.5	-	174	190	205	205	205	205	205	205	205	205
	114.3	8.6	22.42	97.1	117	190	190	205	205	205	205	205	205	205	205
	114.3	11.1	28.25	92.1	-	190	190	205	205	205	205	205	205	205	205
	114.3	13.5	33.56	87.3	-	190	190	205	205	205	205	205	205	205	205
	114.3	17.1	40.99	80.1	-	190	190	205	205	205	205	205	205	205	205
5 5/8"	141.3	5.6	18.74	130.1	81	100	117	138	152	171	185	197	205	205	205
	141.3	6.6	21.92	128.1	83	118	137	163	179	202	205	205	205	205	205
	141.3	7.1	23.50	127.1	105	127	148	175	193	205	205	205	205	205	205
	141.3	7.9	25.99	125.5	116	141	164	195	205	205	205	205	205	205	205
	141.3	8.7	28.45	123.9	128	155	181	205	205	205	205	205	205	205	205
	141.3	9.5	30.88	122.3	139	169	190	205	205	205	205	205	205	205	205
	141.3	12.7	40.28	115.9	186	190	190	205	205	205	205	205	205	205	205
	141.3	15.9	49.17	109.5	193	190	190	205	205	205	205	205	205	205	205
6 5/8"	168.3	5.2	20.91	157.9	-	78	91	134	148	167	181	192	205	205	205
	168.3	5.6	22.47	157.1	-	84	98	145	160	180	195	205	205	205	205
	168.3	6.4	25.55	155.5	-	96	112	165	183	205	205	205	205	205	205
	168.3	7.1	28.22	154.1	-	106	124	184	202	205	205	205	205	205	205
	168.3	7.9	31.25	152.5	-	118	138	204	205	205	205	205	205	205	205
	168.3	8.7	34.24	150.9	-	130	152	205	205	205	205	205	205	205	205
	168.3	9.5	37.20	149.3	-	142	166	205	205	205	205	205	205	205	205
	168.3	11.0	42.67	146.3	-	165	190	205	205	205	205	205	205	205	205
	168.3	12.7	48.73	142.9	-	190	190	205	205	205	205	205	205	205	205
	168.3	14.3	54.31	139.7	-	190	190	205	205	205	205	205	205	205	205
	168.3	15.9	59.76	136.5	-	190	190	205	205	205	205	205	205	205	205
	168.3	18.3	67.69	131.7	-	190	190	205	205	205	205	205	205	205	205
	168.3	19.1	70.27	130.1	-	190	190	205	205	205	205	205	205	205	205
8 5/8"	219.1	6.4	33.57	206.3	-	74	86	127	140	158	171	182	197	205	205
	219.1	7.0	36.61	205.1	-	81	94	139	153	173	187	199	205	205	205
	219.1	7.9	41.14	203.3	-	91	106	157	173	195	205	205	205	205	205
	219.1	8.2	42.65	202.7	-	94	110	163	180	202	205	205	205	205	205
	219.1	8.7	45.14	201.7	-	100	117	173	191	205	205	205	205	205	205
	219.1	9.5	49.10	200.1	-	109	127	189	205	205	205	205	205	205	205

# API Line Pipes

## Dimensions, Weights and Test Pressures for Sizes 0.840" through 20" (SI Units)

Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (KPa x 100)										
	D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56	Grade X-60	Grade X-65	Grade X-70	Grade X-80
	219.1	11.1	56.94	196.9	-	128	149	205	205	205	205	205	205	205	205
	219.1	12.7	64.64	193.7	-	146	170	205	205	205	205	205	205	205	205
	219.1	14.3	72.22	190.5	-	164	190	205	205	205	205	205	205	205	205
	219.1	15.9	79.67	187.3	-	183	190	205	205	205	205	205	205	205	205
	219.1	18.3	90.62	182.5	-	190	190	205	205	205	205	205	205	205	205
	219.1	19.1	94.20	180.9	-	190	190	205	205	205	205	205	205	205	205
	219.1	20.6	100.84	177.9	-	190	190	205	205	205	205	205	205	205	205
	219.1	22.2	107.79	174.7	-	190	190	205	205	205	205	205	205	205	205
	219.1	25.4	121.33	168.3	-	190	190	205	205	205	205	205	205	205	205
10 3/4"	273.1	7.1	46.57	258.9	-	66	76	128	141	159	172	183	199	205	205
	273.1	7.8	51.03	257.5	-	72	84	141	155	175	189	201	205	205	205
	273.1	8.7	56.72	255.7	-	80	94	157	173	195	205	205	205	205	205
	273.1	9.3	60.50	254.5	-	86	100	168	185	205	205	205	205	205	205
	273.1	11.1	71.72	250.9	-	102	119	200	205	205	205	205	205	205	205
	273.1	12.7	81.55	247.7	-	117	137	205	205	205	205	205	205	205	205
	273.1	14.3	91.26	244.5	-	132	154	205	205	205	205	205	205	205	205
	273.1	15.9	100.85	241.3	-	147	171	205	205	205	205	205	205	205	205
	273.1	18.3	114.99	236.5	-	169	190	205	205	205	205	205	205	205	205
	273.1	20.6	128.27	231.9	-	190	190	205	205	205	205	205	205	205	205
	273.1	22.2	137.36	228.7	-	190	190	205	205	205	205	205	205	205	205
	273.1	23.8	146.32	225.5	-	190	190	205	205	205	205	205	205	205	205
	273.1	25.4	155.15	222.3	-	190	190	205	205	205	205	205	205	205	205
	273.1	31.8	189.22	209.5	-	190	190	205	205	205	205	205	205	205	205
12 3/4"	323.9	7.1	55.47	309.7	-	55	64	108	119	134	145	155	168	181	205
	323.9	7.9	61.56	308.1	-	61	72	120	133	149	162	172	187	201	205
	323.9	8.4	65.35	307.1	-	65	76	128	141	159	172	183	198	205	205
	323.9	8.7	67.62	306.5	-	68	79	132	146	164	178	189	205	205	205
	323.9	9.5	73.65	304.9	-	74	86	145	160	179	194	205	205	205	205
	323.9	10.3	79.65	303.3	-	80	93	157	173	195	205	205	205	205	205
	323.9	11.1	85.62	301.7	-	86	101	169	186	205	205	205	205	205	205
	323.9	12.7	97.46	298.5	-	99	115	193	205	205	205	205	205	205	205
	323.9	14.3	109.18	295.3	-	111	130	205	205	205	205	205	205	205	205
	323.9	15.9	120.76	292.1	-	124	144	205	205	205	205	205	205	205	205
	323.9	17.5	132.23	288.9	-	136	159	205	205	205	205	205	205	205	205
	323.9	19.1	143.56	285.7	-	149	173	205	205	205	205	205	205	205	205
	323.9	20.6	154.08	282.7	-	160	187	205	205	205	205	205	205	205	205
	323.9	22.2	165.17	279.5	-	173	190	205	205	205	205	205	205	205	205
	323.9	23.8	176.13	276.3	-	185	190	205	205	205	205	205	205	205	205
	323.9	25.4	186.97	273.1	-	190	190	205	205	205	205	205	205	205	205

# API Line Pipes

## Dimensions, Weights and Test Pressures for Sizes 0.840" through 20" (SI Units)

Size	Specified Outside Diameter	Specified Wall Thickness	Plain-end Weight per Unit Length	Calculated Inside Diameter	Minimum Test Pressure (KPa x 100)										
					D (mm)	t (mm)	Wpe (Kg/m)	d (mm)	Grade A25	Grade A	Grade B	Grade X-42	Grade X-46	Grade X-52	Grade X-56
	323.9	27.0	197.68	269.9	-	190	190	205	205	205	205	205	205	205	205
	323.9	28.6	208.27	266.7	-	190	190	205	205	205	205	205	205	205	205
	323.9	31.8	229.06	260.3	-	190	190	205	205	205	205	205	205	205	205
14"	355.6	9.5	81.08	336.6	-	67	79	132	145	163	177	188	204	205	205
	355.6	10.3	87.71	335.0	-	73	85	143	158	177	192	204	205	205	205
	355.6	11.1	94.30	333.4	-	79	92	154	170	191	205	205	205	205	205
	355.6	11.9	100.86	331.8	-	84	98	165	182	205	205	205	205	205	205
	355.6	12.7	107.39	330.2	-	90	105	176	194	205	205	205	205	205	205
	355.6	14.3	120.36	327.0	-	101	118	198	205	205	205	205	205	205	205
	355.6	15.9	133.19	323.8	-	113	131	205	205	205	205	205	205	205	205
	355.6	17.5	145.91	320.6	-	124	145	205	205	205	205	205	205	205	205
	355.6	19.1	158.49	317.4	-	135	158	205	205	205	205	205	205	205	205
	355.6	20.6	170.18	314.4	-	146	170	205	205	205	205	205	205	205	205
	355.6	22.2	182.52	311.2	-	157	184	205	205	205	205	205	205	205	205
	355.6	23.8	194.74	308.0	-	169	190	205	205	205	205	205	205	205	205
	355.6	25.4	206.83	304.8	-	180	190	205	205	205	205	205	205	205	205
	355.6	27.0	218.79	301.6	-	190	190	205	205	205	205	205	205	205	205
	355.6	28.6	230.63	298.4	-	190	190	205	205	205	205	205	205	205	205
	355.6	31.8	253.92	292.0	-	190	190	205	205	205	205	205	205	205	205
16"	406.4	9.5	92.98	387.4	-	59	69	115	127	143	155	165	179	193	205
	406.4	12.7	123.30	381.0	-	79	92	154	170	191	205	205	205	205	205
	406.4	21.4	203.17	363.6	-	133	155	205	205	322	205	205	205	205	205
18"	457.0	9.5	104.84	438.0	-	52	61	102	113	127	138	147	159	171	205
	457.0	11.1	122.05	434.8	-	61	71	120	132	149	161	171	186	200	205
	457.0	12.7	139.15	431.6	-	70	82	137	151	170	184	196	205	205	205
	457.0	14.3	156.11	428.4	-	79	92	154	170	192	205	205	205	205	205
	457.0	19.1	206.25	418.8	-	105	123	205	205	205	205	205	205	205	205
	457.0	23.8	254.25	409.4	-	131	153	205	205	205	205	205	205	205	205
20"	508.0	9.5	116.78	489.0	-	47	55	92	102	114	124	132	143	154	205
	508.0	12.7	155.12	482.6	-	63	74	123	136	153	166	176	191	205	205
	508.0	15.1	183.54	477.8	-	75	87	147	162	182	197	205	205	205	205
	508.0	20.6	247.60	466.8	-	102	119	200	205	205	205	205	205	205	205
	508.0	26.2	311.29	455.6	-	130	152	205	205	205	205	205	205	205	205



# OCTG

## API Tubing

Dimensions, Weights and End Finish															
Outside Diameter		Nominal Weights				Wall Thickness		Coupling OD		Thread Type		Type of End Finish			
		Non Upset T&C		External Upset T&C						API Round		Grade			
		In.	mm.	lb/ft.	Kg/mtr			lb/ft.	Kg/mtr	In.	mm.				
1.900	48.26	2.40	3.57	-	-	0.125	3.18	-	-	-	-	P	-	-	-
1.900	48.26	2.75	4.09	2.90	4.32	0.145	3.68	55.88	63.50	10	10	PNU	PNU	PNU	-
1.900	48.26	3.65	5.43	3.73	5.55	0.200	5.08	-	63.50	-	10	PU	PU	PU	PU
1.900	48.26	4.42	6.58	-	-	0.250	6.35	-	-	-	-	-	-	P	-
1.900	48.26	5.15	7.66	-	-	0.300	7.62	-	-	-	-	-	-	P	-
2.063	52.40	3.24	4.82	-	-	0.156	3.96	-	-	-	-	P	P	P	-
2.063	52.40	4.50	6.70	-	-	0.225	5.72	-	-	-	-	P	P	P	P
2 3/8	60.32	4.00	5.95	-	-	0.167	4.24	73.02	-	10	-	PN	PN	PN	-
2 3/8	60.32	4.60	6.85	4.70	6.99	0.190	4.83	73.02	77.80	10	8	PNU	PNU	PNU	PNU
2 3/8	60.32	5.80	8.63	5.95	8.85	0.254	6.45	73.02	77.80	10	8	-	PNU	PNU	PNU
2 3/8	60.32	6.60	9.82	-	-	0.295	7.49	-	-	-	-	-	-	P	-
2 3/8	60.32	7.35	10.94	7.45	11.09	0.336	8.53	-	77.80	-	8	-	-	PU	-
2 7/8	73.02	6.40	9.52	6.50	9.67	0.217	5.51	88.90	93.17	10	8	PNU	PNU	PNU	PNU
2 7/8	73.02	7.80	11.61	7.90	11.76	0.276	7.01	88.90	93.17	10	8	-	PNU	PNU	PNU
2 7/8	73.02	8.60	12.80	8.70	12.95	0.308	7.82	88.90	93.17	10	8	-	PNU	PNU	PNU
2 7/8	73.02	9.35	13.91	9.45	14.06	0.340	8.64	-	93.17	-	8	-	-	PU	-
2 7/8	73.02	10.50	15.63	-	-	0.392	9.96	-	-	-	-	-	-	P	-
2 7/8	73.02	11.50	17.11	-	-	0.440	11.18	-	-	-	-	-	-	P	-
3 1/2	88.90	7.70	11.46	-	-	0.216	5.49	107.95	-	10	-	PN	PN	PN	-
3 1/2	88.90	9.20	13.69	9.30	13.84	0.254	6.45	107.95	114.30	10	8	PNU	PNU	PNU	PNU
3 1/2	88.90	10.20	15.18	-	-	0.289	7.34	107.95	-	10	-	PN	PN	PN	-
3 1/2	88.90	12.70	18.90	12.95	19.27	0.375	9.52	107.95	114.30	10	8	-	PNU	PNU	PNU
3 1/2	88.90	14.30	21.28	-	-	0.430	10.92	-	-	-	-	-	-	P	-
3 1/2	88.90	15.50	23.07	-	-	0.476	12.09	-	-	-	-	-	-	P	-
3 1/2	88.90	17.00	25.30	-	-	0.530	13.46	-	-	-	-	-	-	P	-
4	101.60	9.50	14.14	-	-	0.226	5.74	120.65	-	-	8	-	PN	PN	PN
4	101.60	10.70	15.92	11.00	16.37	0.262	6.65	-	127.00	-	8	PU	PU	PU	
4	101.60	13.20	19.64	-	-	0.330	8.38	-	-	-	-	-	-	P	
4	101.60	16.10	23.96	-	-	0.415	10.54	-	-	-	-	-	-	P	
4	101.60	18.90	28.13	-	-	0.500	12.70	-	-	-	-	-	-	P	
4	101.60	22.20	33.04	-	-	0.610	15.49	-	-	-	-	-	-	P	
4 1/2	114.30	12.60	18.75	12.75	18.97	0.271	6.88	132.08	141.30	8	8	PNU	PNU	PNU	-
4 1/2	114.30	15.20	22.62	-	-	0.337	8.56	-	-	-	-	-	-	P	-
4 1/2	114.30	17.00	25.30	-	-	0.380	9.65	-	-	-	-	-	-	P	-
4 1/2	114.30	18.90	28.13	-	-	0.430	10.92	-	-	-	-	-	-	P	-
4 1/2	114.30	21.50	32.00	-	-	0.500	12.70	-	-	-	-	-	-	P	-
4 1/2	114.30	23.70	35.27	-	-	0.560	14.22	-	-	-	-	-	-	P	-
4 1/2	114.30	26.10	38.84	-	-	0.630	16.00	-	-	-	-	-	-	P	-

# OCTG API Casing

DIMENSIONS, WEIGHTS AND END FINISH																					
Outside Diameter		Nominal Weight T&C		Nominal Weight Plain-end		Wall Thickness		TYPE OF END FINISH									COUPLING OD		THREAD TYPES TPI		TYPE
In.	mm	lb/ft.	Kg/mtr	lb/ft.	Kg/mtr	Inch	mm	GRADE									mm	STC LTC	BTC	S / E	
								H-40	J-55 K-55	M 65	L-80 R-95	N-80 Type1,Q	C-90 T-95	C-110	P-110	Q-125					
4½	114.30	9.50	14.14	9.41	14.02	0.205	5.21	PS	PS	PS	-	-	-	-	-	-	127.00	8	-	S	
4½	114.30	10.50	15.63	10.24	15.24	0.224	5.69	-	PSB	PSB	-	-	-	-	-	-	127.00	8	5	S	
4½	114.30	11.60	17.26	11.36	16.91	0.250	6.35	-	PSLB	PLB	PLB	PLB	PLB	P	PLB	-	127.00	8	5	S	
4½	114.30	13.50	20.09	13.06	19.44	0.290	7.37	-	-	PLB	PLB	PLB	PLB	P	PLB	-	127.00	8	5	S	
4½	114.30	15.10	22.47	15.00	22.32	0.337	8.56	-	-	-	-	-	-	-	PLB	PLB	127.00	8	5	S	
5	127.00	11.50	17.11	11.24	16.74	0.220	5.59	-	PS	PS	-	-	-	-	-	-	141.30	8	-	S	
5	127.00	13.00	19.35	12.84	19.12	0.253	6.43	-	PSLB	PSLB	-	-	-	-	-	-	141.30	8	5	S	
5	127.00	15.00	22.32	14.88	22.16	0.296	7.52	-	PSLB	PLB	PLB	PLB	PLB	P	PLB	-	141.30	8	5	S	
5	127.00	18.00	26.79	17.95	26.70	0.362	9.19	-	-	PLB	PLB	PLB	PLB	P	PLB	PLB	141.30	8	5	S	
5	127.00	21.40	31.85	21.32	31.73	0.437	11.10	-	-	PLB	PLB	PLB	PLB	P	PLB	PLB	141.30	8	5	S	
5	127.00	23.20	34.53	23.11	34.39	0.478	12.14	-	-	-	PLB	PLB	PLB	P	PLB	PLB	141.30	8	5	S	
5	127.00	24.10	35.86	24.05	35.80	0.500	12.70	-	-	-	PLB	PLB	PLB	P	PLB	PLB	141.30	8	5	S	
5½	139.70	14.00	20.83	13.71	20.41	0.244	6.20	PS	PS	PS	-	-	-	-	-	-	153.67	8	-	S	
5½	139.70	15.50	23.07	15.36	22.85	0.275	6.98	-	PSLB	PSLB	-	-	-	-	-	-	153.67	8	5	S	
5½	139.70	17.00	25.30	16.89	25.13	0.304	7.72	-	PSLB	PLB	PLB	PLB	PLB	P	PLB	-	153.67	8	5	S	
5½	139.70	20.00	29.76	19.83	29.52	0.361	9.17	-	-	PLB	PLB	PLB	PLB	P	PLB	-	153.67	8	5	S	
5½	139.70	23.00	34.23	22.56	33.57	0.415	10.54	-	-	PLB	PLB	PLB	PLB	P	PLB	PLB	153.67	8	5	S	
5½	139.70	26.80	39.88	26.72	39.78	0.500	12.70	-	-	-	-	-	P	P	-	-	-	-	-	S	
5½	139.70	29.70	44.20	29.67	44.14	0.562	14.27	-	-	-	-	-	P	P	-	-	-	-	-	S	
5½	139.70	32.60	48.51	32.57	48.49	0.625	15.88	-	-	-	-	-	P	P	-	-	-	-	-	S	
6⅝	168.28	20.00	29.76	19.51	29.06	0.288	7.32	PS	PSLB	PSLB	-	-	-	-	-	-	187.71	8	5	S/E*	
6⅝	168.28	24.00	35.72	23.60	35.13	0.352	8.94	-	PSLB	PLB	PLB	PLB	PLB	P	PLB	-	187.71	8	5	S/E*	
6⅝	168.28	28.00	41.67	27.67	41.18	0.417	10.59	-	-	PLB	PLB	PLB	PLB	P	PLB	-	187.71	8	5	S/E*	
6⅝	168.28	32.00	47.62	31.23	46.46	0.475	12.06	-	-	-	PLB	PLB	PLB	P	PLB	PLB	187.71	8	5	S/E*	
7	177.80	20.00	29.76	19.56	29.12	0.272	6.91	PS	PS	PS	-	-	-	-	-	-	200.03	8	-	S/E*	
7	177.80	23.00	34.23	22.65	33.70	0.317	8.05	-	PSLB	PLB	PLB	PLB	PLB	P	-	-	200.03	8	5	S/E*	
7	177.80	26.00	38.69	25.69	38.21	0.362	9.19	-	PSLB	PLB	PLB	PLB	PLB	P	PLB	-	200.03	8	5	S/E*	
7	177.80	29.00	43.16	28.75	42.78	0.408	10.36	-	-	PLB	PLB	PLB	PLB	P	PLB	-	200.03	8	5	S/E*	
7	177.80	32.00	47.62	31.70	47.20	0.453	11.51	-	-	PLB	PLB	PLB	PLB	P	PLB	-	200.03	8	5	S/E*	
7	177.80	35.00	52.09	34.61	51.52	0.498	12.65	-	-	-	PLB	PLB	PLB	P	PLB	PLB	200.03	8	5	S/E*	
7	177.80	38.00	56.55	37.29	55.52	0.540	13.72	-	-	-	PLB	PLB	PLB	P	PLB	PLB	200.03	8	5	S	
7⅝	193.68	24.00	35.72	23.49	34.96	0.300	7.62	PS	-	-	-	-	-	-	-	-	215.90	8	-	S	
7⅝	193.68	26.40	39.29	25.59	38.08	0.328	8.33	-	PSLB	PSLB	PLB	PLB	PLB	P	-	-	215.90	8	5	S	
7⅝	193.68	29.70	44.20	29.05	43.24	0.375	9.52	-	-	PLB	PLB	PLB	PLB	P	PLB	-	215.90	8	5	S	
7⅝	193.68	33.70	50.15	33.07	49.22	0.430	10.92	-	-	PLB	PLB	PLB	PLB	P	PLB	-	215.90	8	5	S	
7⅝	193.68	39.00	58.04	38.08	56.68	0.500	12.70	-	-	-	PLB	PLB	PLB	P	PLB	PLB	215.90	8	5	S	
7⅝	193.68	42.80	63.69	42.43	63.14	0.562	14.27	-	-	-	PLB	PLB	PLB	P	PLB	PLB	215.90	8	5	S	
7⅝	193.68	45.30	67.41	44.71	66.54	0.595	15.11	-	-	-	PLB	PLB	PLB	P	PLB	PLB	215.90	8	5	S	
7⅝	193.68	47.10	70.09	46.77	69.63	0.625	15.88	-	-	-	PLB	PLB	PLB	P	PLB	PLB	215.90	8	5	S	
7¾	196.85	46.10	68.60	45.51	67.72	0.595	15.11	-	-	-	P	P	P	P	P	p	-	-	-	S	
8⅝	219.08	24.00	35.72	23.60	35.14	0.264	6.71	-	PS	PS	-	-	-	-	-	-	244.48	8	-	S/E*	
8⅝	219.08	28.00	41.67	27.04	40.24	0.304	7.72	PS	-	PS	-	-	-	-	-	-	244.48	8	-	S/E*	
8⅝	219.08	32.00	47.62	31.13	46.33	0.352	8.94	PS	PSLB	PSLB	-	-	-	-	-	-	244.48	8	5	S/E*	

# OCTG API Casing

## Dimensions, Weights and End Finish

Outside Diameter		Nominal Weight T&C		Nominal Weight Plain -end		Wall Thickness		TYPE OF FINISH GRADE									COUPLING OD	THREAD TYPES TPI		TYPE
In.	mm	lb/ft.	Kg/mtr	lb/ft.	Kg/mtr	Inch	mm	H-40	J-55 K-55	M 65	L-80 R-95	N-80 Type-1,Q	C-90 T-95	C-110	P-110	Q-125	mm	STC LTC	BTC	S / E
8 <sup>5</sup> / <sub>8</sub>	219.08	36.00	53.57	35.17	52.35	0.400	10.16	-	PSLB	PSLB	PLB	PLB	PLB	P	-	-	244.48	8	5	S/E*
8 <sup>5</sup> / <sub>8</sub>	219.08	40.00	59.53	39.33	58.53	0.450	11.43	-	-	PLB	PLB	PLB	PLB	P	PLB	-	244.48	8	5	S/E*
8 <sup>5</sup> / <sub>8</sub>	219.08	44.00	65.48	43.43	64.64	0.500	12.70	-	-	-	PLB	PLB	PLB	P	PLB	-	244.48	8	5	S/E*
8 <sup>5</sup> / <sub>8</sub>	219.08	49.00	72.92	48.04	71.51	0.557	14.15	-	-	-	PLB	PLB	PLB	P	PLB	PLB	244.48	8	5	S
9 <sup>5</sup> / <sub>8</sub>	244.48	32.30	48.07	31.06	46.20	0.312	7.92	PS	-	-	-	-	-	-	-	-	269.88	8	-	S/E*
9 <sup>5</sup> / <sub>8</sub>	244.48	36.00	53.57	34.89	51.93	0.352	8.94	PS	PSLB	PSLB	-	-	-	-	-	-	269.88	8	5	S/E*
9 <sup>5</sup> / <sub>8</sub>	244.48	40.00	59.53	38.97	57.99	0.395	10.03	-	PSLB	PSLB	PLB	PLB	PLB	P	-	-	269.88	8	5	S/E*
9 <sup>5</sup> / <sub>8</sub>	244.48	43.50	64.73	42.73	63.61	0.435	11.05	-	-	PLB	PLB	PLB	PLB	P	PLB	-	269.88	8	5	S/E*
9 <sup>5</sup> / <sub>8</sub>	244.48	47.00	69.94	46.18	68.75	0.472	11.99	-	-	PLB	PLB	PLB	PLB	P	PLB	PLB	269.88	8	5	S/E*
9 <sup>5</sup> / <sub>8</sub>	244.48	53.50	79.62	52.90	78.72	0.545	13.84	-	-	-	PLB	PLB	PLB	P	PLB	PLB	269.88	8	5	S
9 <sup>5</sup> / <sub>8</sub>	244.48	58.40	86.91	57.44	85.47	0.595	15.11	-	-	-	PLB	PLB	PLB	P	PLB	PLB	269.88	8	5	S
10 <sup>3</sup> / <sub>4</sub>	273.05	32.75	48.74	31.23	46.50	0.279	7.09	PS	-	-	-	-	-	-	-	-	298.45	8	-	S/E *
10 <sup>3</sup> / <sub>4</sub>	273.05	40.50	60.27	38.91	57.91	0.350	8.89	PS	PSB	PSB	-	-	-	-	-	-	298.45	8	5	S/E*
10 <sup>3</sup> / <sub>4</sub>	273.05	45.50	67.71	44.26	65.87	0.400	10.16	-	PSB	PSB	-	-	-	-	-	-	298.45	8	5	S/E*
10 <sup>3</sup> / <sub>4</sub>	273.05	51.00	75.90	49.55	73.75	0.450	11.43	-	PSB	PSB	PSB	PSB	PSB	P	PSB	-	298.45	8	5	S/E*
10 <sup>3</sup> / <sub>4</sub>	273.05	55.50	82.59	54.26	80.75	0.495	12.57	-	-	PSB	PSB	PSB	PSB	P	PSB	-	298.45	8	5	S/E*
10 <sup>3</sup> / <sub>4</sub>	273.05	60.70	90.33	59.45	88.47	0.545	13.84	-	-	-	-	-	PSB	P	PSB	PSB	298.45	8	5	S
10 <sup>3</sup> / <sub>4</sub>	273.05	65.70	97.77	64.59	96.12	0.595	15.11	-	-	-	-	-	PSB	P	PSB	PSB	298.45	8	5	S
11 <sup>3</sup> / <sub>4</sub>	298.45	42.00	62.50	40.64	62.56	0.333	8.46	PS	-	-	-	-	-	-	-	-	323.85	8	-	S
11 <sup>3</sup> / <sub>4</sub>	298.45	47.00	69.94	45.60	67.83	0.375	9.53	-	PSB	PSB	-	-	-	-	-	-	323.85	8	5	S
11 <sup>3</sup> / <sub>4</sub>	298.45	54.00	80.36	52.62	78.32	0.435	11.05	-	PSB	PSB	-	-	-	-	-	-	323.85	8	5	S
11 <sup>3</sup> / <sub>4</sub>	298.45	60.00	89.29	58.87	87.61	0.489	12.42	-	PSB	PSB	PSB	PSB	PSB	P	PSB	PSB	323.85	8	5	S
11 <sup>3</sup> / <sub>4</sub>	298.45	65.00	96.73	64.03	95.27	0.534	13.56	-	-	-	P	P	P	P	P	P	-	-	-	S
11 <sup>3</sup> / <sub>4</sub>	298.45	71.00	105.66	69.48	103.40	0.582	14.78	-	-	-	P	P	P	P	P	P	-	-	-	S
13 <sup>3</sup> / <sub>8</sub>	339.72	48.00	71.43	46.02	68.48	0.330	8.38	PS	-	-	-	-	-	-	-	-	365.12	8	-	S/E*
13 <sup>3</sup> / <sub>8</sub>	339.72	54.50	81.10	52.79	78.55	0.380	9.65	-	PSB	PSB	-	-	-	-	-	-	365.12	8	5	S/E*
13 <sup>3</sup> / <sub>8</sub>	339.72	61.00	90.78	59.50	88.55	0.430	10.92	-	PSB	PSB	-	-	-	-	-	-	365.12	8	5	S/E*
13 <sup>3</sup> / <sub>8</sub>	339.72	68.00	101.19	66.17	98.46	0.480	12.19	-	PSB	PSB	PSB	PSB	PSB	P	PSB	-	365.12	8	5	S/E*
13 <sup>3</sup> / <sub>8</sub>	339.72	72.00	107.15	70.67	105.21	0.514	13.06	-	-	-	PSB	PSB	PSB	P	PSB	PSB	365.12	8	5	S

\* Available only in J - 55 & K- 55

S:Seamless   S/E  

E:ERW



# BOILER AND HEAT EXCHANGER TUBES

		Wall Thickness																	
Outside Diameter		16 swg	15swg	14 swg	13 swg	12 swg	11 swg	10 swg	9 swg	8 swg	7 swg	6 swg	5 swg	4 swg	1/4	5/16	3/8	1/2	
		1.63 mm	1.83 mm	2.03 mm	2.34 mm	2.64 mm	2.45 mm	3.25 mm	3.66 mm	4.06 mm	4.47 mm	4.88 mm	5.39 mm	5.89 mm	6.35 mm	7.94 mm	9.53 mm	12.7 mm	
In	mm	Weight with nominal th k (Kg/mtr)																	
		Weight with minimum th k (Kg/mtr)																	
0.75	19.05	0.70	0.78	0.85	0.96	1.07	1.17	1.27											
		0.74	0.82	0.89	1.01	1.12	1.23	1.33											
1.00	25.40	0.96	1.06	1.17	1.33	1.48	1.63	1.78											
		1.00	1.12	1.23	1.40	1.56	1.71	1.86											
1.25	31.75				1.70	1.90	2.10	2.28	2.54	2.77									
					1.78	1.99	2.20	2.40	2.66	2.91									
1.50	38.10							2.79	3.11	3.41	3.71	4.00	4.35	4.68	4.97				
								3.07	3.42	3.75	4.08	4.40	4.57	4.91	5.22				
1.75	44.45							3.30	3.68	4.04	4.41	4.76	5.19	5.60	5.97				
								3.63	4.05	4.45	4.85	5.24	5.71	5.88	6.26				
2.00	50.80							3.81	4.25	4.68	5.11	5.53	6.04	6.52	6.96				
								4.19	4.68	5.15	5.62	6.08	6.64	7.18	7.66				
2.25	57.15							4.32	4.83	5.32	5.81	6.29	6.88	7.45	7.96	9.64			
								4.75	5.31	5.85	6.39	6.92	7.57	8.19	8.75	10.60			
2.50	63.50							4.83	5.40	5.95	6.51	7.05	7.72	8.37	8.95	10.88	12.68		
								5.31	5.94	6.55	7.16	7.76	8.50	9.21	9.84	11.97	13.95		
2.75	69.85							5.34	5.97	6.59	7.21	7.82	8.57	9.29	9.94	12.12	14.18		
								5.87	6.57	7.25	7.93	8.60	9.43	10.22	10.94	13.34	15.59		
3.00	76.20							5.85	6.55	7.22	7.91	8.58	9.41	10.21	10.94	13.37	15.67		
								6.43	7.20	7.95	8.70	9.44	10.35	11.23	12.03	14.70	17.24		
3.25	82.55							6.36	7.12	7.86	8.61	9.35	10.26	11.14	11.93	14.61	17.16		
								6.99	7.83	8.64	9.47	10.28	11.28	12.25	13.13	16.07	18.88		
3.50	88.90							6.86	7.69	8.49	9.31	10.11	11.10	12.06	12.93	15.85	18.65		
								7.55	8.46	9.34	10.24	11.12	12.21	13.26	14.22	17.44	20.52		
3.75	95.25									9.13	10.01	10.88	11.94	12.98	13.92	17.10	20.15		
										10.04	11.01	11.96	13.14	14.28	15.31	18.81	22.16		
4.00	101.60									9.77	10.71	11.64	12.79	13.90	14.92	18.34	21.64		
										10.74	11.78	12.80	14.07	15.29	16.41	20.17	23.80		
4.25	107.95									10.40	11.41	12.40	13.63	14.82	15.91	19.58	23.13	29.83	
										11.44	12.55	13.64	15.00	16.31	17.50	21.54	25.44	32.82	
4.50	114.30									11.04	12.11	13.17	14.48	15.75	16.91	20.83	24.62	31.82	
										12.14	13.32	14.49	15.92	17.32	18.60	22.91	27.09	35.00	
4.75	120.65									11.67	12.81	13.93	15.32	16.67	17.90	22.07	26.12	33.81	
										12.84	14.09	15.33	16.85	18.34	19.69	24.28	28.73	37.19	
5.00	127.00									12.31	13.51	14.70	16.17	17.59	18.89	23.31	27.61	35.80	
										13.54	14.86	16.17	17.78	19.35	20.78	25.64	30.37	39.38	
5.25	133.35									12.95	14.21	15.46	17.01	18.51	19.89	24.56	29.10	37.79	
										14.24	15.63	17.01	18.71	20.37	21.88	27.01	32.01	41.57	
5.50	139.70												17.85	19.44	20.88	25.80	30.59	39.78	
													19.64	21.38	22.97	28.38	33.65	43.75	
6.00	152.40												19.54	21.28	22.87	28.29	33.58	43.75	
													21.50	23.41	25.16	31.12	36.94	48.13	
6.50	165.10												21.23	23.13	24.86	30.77	36.56	47.73	
													23.35	25.44	27.35	33.85	40.22	52.51	

# Drill Pipes

Pipe Size in	PPF lb/ft	Pipe OD		Wall thickness		Grade	Upset type	RSC Type	Tool Joint OD		Tool Joint ID	
		in	mm	in	mm				in	mm	in	mm
2 3/8	6.65	2.375	60.3	0.280	7.11	E	EU	NC26 (2 3/8 IF)	3.375	85.700	1.750	44.500
						X		NC26	3.375	85.700	1.750	44.500
						G		NC26	3.375	85.700	1.750	44.500
						S		-	-	-	-	-
2 7/8	10.40	2.875	73.0	0.362	9.19	E	EU	NC31	4.125	104.800	2.125	54.000
						X		NC31 (2-7/8 IF)	4.125	104.800	2.000	50.800
						G		NC31	4.125	104.800	2.000	50.800
						S		NC31	4.375	111.100	1.625	41.300
3 1/2	13.30	3.500	88.9	0.368	9.35	E	EU	NC38	4.750	120.700	2.688	68.300
						X		NC38(3 1/2 IF)	5.000	127.000	2.562	65.100
						G		NC38	5.000	127.000	2.438	61.900
						S		NC38	5.000	127.000	2.125	54.000
3 1/2	15.50	3.500	88.9	0.449	11.40	E	EU	NC38	5.000	127.000	2.563	65.100
						X		NC38(3 1/2 IF)	5.000	127.000	2.438	61.900
						G		NC38	5.000	127.000	2.125	54.000
						S		NC38	5.500	139.700	2.250	57.200
4	14.00	4.000	101.6	0.330	8.38	E	EU	NC46	6.000	152.400	3.250	82.600
						X		NC46 (4 FH)	6.000	152.400	3.250	82.600
						G		NC46	6.000	152.400	3.250	82.600
						S		NC46	6.000	152.400	3.000	76.200
4	14.00	4.000	101.6	0.330	8.38	E	IU	NC40	5.250	133.400	2.812	71.400
						X		NC40	5.250	133.400	2.688	68.300
						G		NC40	5.500	139.700	2.438	61.900
						S		NC40	5.500	139.700	2.000	50.800
4 1/2	13.75	4.500	114.3	0.271	6.88	E	EU	NC50	6.625	168.300	3.750	95.300
4 1/2	13.75	4.500	114.3	0.271	6.88	E	IU	NC46	6.000	152.400	3.375	85.700
4 1/2	16.60	4.500	114.3	0.337	8.56	E	EU	NC50	6.625	168.300	3.750	95.300
						X		NC50	6.625	168.300	3.750	95.300
						G		NC50	6.625	168.300	3.750	95.300
						S		NC50	6.625	168.300	3.500	88.900
4 1/2	16.60	4.500	114.3	0.337	8.56	E	IEU	NC46	6.250	158.800	3.250	82.600
						X		NC46	6.250	158.800	3.000	76.200
						G		NC46	6.250	158.800	3.000	76.200
						S		NC46	6.250	158.800	2.750	69.900
4 1/2	20.00	4.500	114.3	0.430	10.92	E	EU	NC50	6.625	168.300	3.625	92.100
						X		NC50	6.625	168.300	3.500	88.900
						G		NC50	6.625	168.300	3.500	88.900
						S		NC50	6.625	168.300	3.000	76.200
4 1/2	20.00	4.500	114.3	0.430	10.92	E	IEU	NC46	6.250	158.800	3.000	76.200
						X		NC46	6.250	158.800	2.750	69.900
						G		NC46	6.250	158.800	2.500	63.500
						S		NC46	6.250	158.800	2.250	57.200
5	19.50	5.000	127.0	0.362	9.19	E	IEU	NC50	6.625	168.300	3.750	95.300
						X		NC50	6.625	168.300	3.500	88.900
						G		NC50	6.625	168.300	3.250	82.600
						S		NC50	6.625	168.300	2.750	69.900
5	19.50	5.000	127.0	0.362	9.19	E	IEU	NC50	7.000	177.800	3.750	95.250
						X		NC50	7.000	177.800	4.750	120.650
						G		NC50	7.000	177.800	5.750	146.050
						S		NC50	7.250	184.150	3.500	88.900
5	25.60	5.000	127.0	0.500	12.70	E	IEU	NC50	6.625	168.300	3.500	88.900
						X		NC50	6.625	168.300	3.000	76.200
						G		NC50	6.625	168.300	2.750	69.900
5	25.60	5.000	127.0	0.500	12.70	E	IEU	5 1/2 FH	7.000	177.800	3.500	88.900
						X		5 1/2 FH	7.000	177.800	3.500	88.900
						G		5 1/2 FH	7.250	184.200	3.500	88.900
						S		5 1/2 FH	7.250	184.200	3.250	82.600
5 1/2	21.90	5.500	139.7	0.361	9.17	E	IEU	5 1/2 FH	7.000	177.800	4.000	101.600
						X		5 1/2 FH	7.000	177.800	3.750	95.300
						G		5 1/2 FH	7.250	184.200	3.500	88.900
						S		5 1/2 FH	7.500	190.500	3.000	76.200
5 1/2	24.70	5.500	139.7	0.415	10.54	E	IEU	5 1/2 FH	7.000	177.800	4.000	101.600
						X		5 1/2 FH	7.250	184.200	3.500	88.900
						G		5 1/2 FH	7.250	184.200	3.500	88.900
						S		5 1/2 FH	7.500	190.500	3.000	76.200

## Conversion Tables & Formulas

### Conversion Tables

<b>Pressure</b>		<b>Energy</b>	
1 Atmosphere	= 14.7 PSI	1 Foot - Pound (Ft-Lb)	= 1.3558 Joules for Impact Energy
1 Atmosphere	= 1.033 kg/cm <sup>2</sup>	1 Joules	= 0.736 foot - pound
1 Bar	= 100000 N/mtr <sup>2</sup> or 100 KPa	1 Foot - Pound	= 4.448222 Newton
1 Bar	= 0.1 N/mm <sup>2</sup>	1 Foot - Pound	= 0.1383 kg - mtr
1 Bar	= 1.02 kg/cm <sup>2</sup>	1 Foot - Pound	= 1.3558 Newton Meter (for Torque)
1 Bar	= 14.504 PSI	1 Horse Power	= 746 watt
1 kg/cm <sup>2</sup>	= 0.9804 Bar	1 Watt	= 0.00134 Horse Power
1 kg/cm <sup>2</sup>	= 14.22 PSI	<b>Length</b>	
1 Kg/mm <sup>2</sup>	= 9.81 MPa	1 Kilometer	= 1000 meter
1 PSI	= 0.0703 kg/cm <sup>2</sup>	1 Meter	= 100 centimeter
1 PSI	= 0.0689 Bar	1 Meter	= 1000 mm
1 PSI	= 6.895 KPa	1 Meter	= 3.28 foot
1 PSI	= 0.006895 MPa	1 Foot	= 0.3048 meter
1 MPa	= 145.032 PSI	1 Foot	= 304.8 mm
1 MPa	= 10.1992 kg/cm <sup>2</sup>	1 Foot	= 12 inch
1 MPa	= 9.9992 Bar	1 Inch	= 25.4 mm
1 MPa	= 1000 KPa	1 mm	= 0.0394 inch
1 MPa	= 1 N/mm <sup>2</sup>	1 Thou	= 0.001 inch
1 MPa	= 0.102 kg/mm <sup>2</sup>	1 Micron	= 0.001 mm
1 KPa	= 0.145032 PSI	1 Yard	= 0.9144 meter
1 KPa	= 0.001 MPA	1 Meter	= 1.0936 yard
1 KPa	= 0.01 Bar	1 Yard	= 3 feet
1 N/mm <sup>2</sup>	= 10 Bar	1 Mile	= 5280 feet
1 N/mm <sup>2</sup>	= 10.2 kg/cm <sup>2</sup>	1 Mile	= 1760 yard
1 N/mm <sup>2</sup>	= 145.032 PSI	<b>Area</b>	
1 N/mm <sup>2</sup>	= 1 MPa	1 Square Yard	= 0.8361274 Square meter
1 N/mm <sup>2</sup>	= 0.102 kg/mm <sup>2</sup>	1 Square Yard	= 9 Square feet
1 Ton/inch <sup>2</sup>	= 1.575 kg/mm <sup>2</sup>	1 Square inch	= 645.16 Square millimeter
<b>Weight</b>		1 Square Feet	= 0.0929 Square meter
1 kg.	= 2.205 pounds (Lb)	1 acre	= 4840 Square yards
1 Pound	= 0.45359 kg.	1 Square mile	= 640 acres
1 Pound	= 16 ounces	<b>Temperature</b>	
1 Pound/foot	= 1.48822 kg/mtr	i) C	= 5 (F-32) / 9
1 kg/mtr	= 0.6714 pound/foot	ii) F	= 32 + 9 C / 5
1 kg	= 9.81 Newton	iii) C / 5	= (F - 32) / 9
1 Newton	= 0.102 kg	C = Temperature in deg. Celsius	
		F = Temperature in deg. Fahrenheit	



# Formulas

## 1 Test Pressure (Ref. API 5C3)

- a) Hydrostatic Test Pressure  
Hydrostatic test pressure for plain - end pipe, extreme - line casing and integral - joint tubing are calculated by using the following formula

$$P = \frac{2St}{D}$$

- b) Internal Yield (Burst) Pressure  
 $P_i = 0.875 (2 \times Y_p \times t / D)$   
 Where;  
 P = Hydrostatic test pressure in PSI  
 P<sub>i</sub> = Min. Internal Yield Pressure in PSI  
 S = Fiber stress corresponding to the percent of specified yield strength  
 t = Specified wall thickness in inches  
 D = Specified outside diameter in inches  
 Y<sub>p</sub> = Specified Min. Yield Strength in PSI

## 2 Weight for Plain End Pipes (Ref. API 5L/ASTM)

The plain end linear mass in SI Units is calculated by using the following formula  
 $W_{pe} = 0.02466 (D - t) t$   
 Where;  
 W<sub>pe</sub> is the plain end linear mass, expressed in Kg/Mtr and rounded to nearest 0.01 Kg/Mtr  
 D is the specified outside diameter, expressed in millimetres  
 t is the specified wall thickness, expressed in millimetres

## 3 Weight for Full Length Pipe

$WL = (W_{pe} \times L) + e_w$   
 Where;  
 WL = Calculated weight of full length pipe (kg.)  
 W<sub>pe</sub> is the plain end linear mass, expressed in Kg/Mtr and rounded to nearest 0.01 Kg/Mtr  
 L = Length of Pipe (mtr)  
 e<sub>w</sub> = Weight gain or loss due to end finish (Kg)  
 Note : For Plain End Pipe e<sub>w</sub> = 0

## 4 Weight of Billet

Weight of Billet (Kg/Mtr) :  $0.0061654 \times (\text{Dia. mm})^2$

## 5 Standard Drift Size (Ref. API 5CT)

Product	Drift Mandrel Size(Min.)	
	Length (mm)	Diameter (mm)
<b>Casing</b> < 9 5/8 ≥ 9 5/8 to ≤ 13 3/8 > 13 3/8	152	d - 3.18
	305	d - 3.97
	305	d - 4.76
<b>Tubing</b> ≤ 2 7/8 > 2 7/8	1067	d - 2.38
	1067	d - 3.18

Where; d - is inside diameter expressed in millimetres.

# Authorized Dealer



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