

TPB

# TPP BOILERS PVT. LTD.

An ISO 9001 : 2008 Company



**(I.B.R. APPROVED)**



**USERS:**

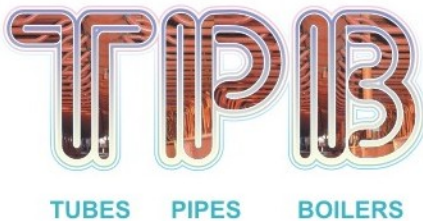
Power Generation,  
 Petrochemicals,  
 Refineries,  
 Fertilizers,  
 Steel Plants,  
 Aluminum/Copper/Zinc Smelters,  
 Sugar Factories,  
 OEM Boiler Manufacturers,  
 Paper Factories,  
 Cement Plants,  
 Chemical Process Industries,  
 Ship-Yards.

Our core competency is **TPB - Tubes, Pipes for Boilers of TPP - Thermal Power Plants** in any **Size, Specification and Shape**. We are not Traders but **IBR Approved Manufacturers** hence we First Technically Evaluate our clients requirement is suitable to their end-use and then we consider giving the right Technical Product meeting their need.

We have in depth knowledge within our Group of the Manufacturing Process of Steel Pipes, Tubes and Fittings and their uses in the Industry. Our Clients are generally wary of us as we ask a lot of Questions Before we make an offer but that does not bother us because at the end of the day our clients are Grateful that we were careful before our commitments rather than regret later. We are associated with all the Tube Mills in India and in many countries Abroad with Techno-Commercial Consultations during their inception stages for the Product Mix, Technical Delivery Conditions, QAP etc. We have information on the monthly Rolling programs of all the mills in the world, their Strengths and their weaknesses which we use to the advantage of our customers to efficiently source with regards to shorter delivery times , price advantages balanced to quality. Our Promoters are pioneers in the Field of Tubes and Pipes in India and were responsible for the Rise of the Largest Stockist and Importers of Pipes and Tubes in India for the last 50 Years and these Promoters and Staff have now turned Entrepreneurs to serve you Better.

**Steel Pipes and Tubes are classified by the following methods:**

1. **Manufacturing-** Method Broadly Classified as Seamless and Welded.
  - a) Seamless method is further classified as Hot Finished and Cold Drawn.
  - b) Welded are classified as ERW, SAW, CDW, SW, MMAW.
2. **Steel Chemistry-** Carbon Steels, Alloy Steel, Stainless Steels.
  - a) Carbon Steels are further classified as Low, Medium, High Carbon, Manganese Steels.
  - b) Alloy Steels are further classified by composition of Chrome and Moly.
  - c) Stainless Steels are classified by their various composition of Nickel, Chrome, Moly etc.
3. **End Use**
  - a) Tubes are used to transfer Heat Load Through its Walls ( Thickness).
  - b) Pipes are used to transfer Heat Loads through its Bore.



**When You Need Answers, Call on the Boiler Tube Experts.**





We supply Steel Pipes, Tubes and Fittings to Various Specifications with **MTC** and **IBR Certificates** In the size Range of 8 mm OD to 1016 mm OD x 1 mm Thk to 76.2 mm Thk used for Steam /Line Piping, Boiler SuperHeaters, Economisers, Water Walls, Headers, Air Pre Heaters, Heat Exchanges, Rifle Bore Tubes etc.

**ASME/ASTM** : A178, A179, A192, A210 Gr. A1/C, SA 209 – T1a, b A 213 – T2, T11, T12, T22, T5, T9, T91, TP 304H, TP 321H, TP 347H, SA 214 A 53 / A106 Gr. A, B, C, A 335 – P1, P11, P12, P5, P9, P91 A312 – TP304L, TP 316L etc. A333 Gr. 1/6. A 423, A333 Gr. 1/6, SA 556, SA 234 WPB, WP6, Wp11.

**DIN 17175** : St 35.8, St45.8, 15Mo3, 13CrMo44, 10CrMo910, X20CuMoV121, DIN 2391/2448.

**BS 3059** : Part I/II – Gr. 320, 360, 440, 243, 620, 622, BS 6323.

**API 5L** : Gr. A/B, X 42, X46, X 60 (PSL ½). **API 5 CT** : H40, J55, L 8, P110, PE, EUE, - T&L. **GB 5310** : 20G, 15CrMoG, 12Cr1MoVG.

**GOST** : 20, 12XIMF, 15XM, 15X1MIF. **IS** : 1978, 1299, 3589, Gr. 330/410/450

**JIS** : STBA22, STBA23, STBA24, STBA26.



PIPE DIMENSION																	Standard Pipe Dimensions - ANSI B16.9										Wall Thickness in millimeter, Kg/Mtr = Weight in Kg. per Mtr.			
Nominal Pipe Size	Outside Diameter		Sch 10		Sch 20		Sch 30		Sch Std		Extra Strong		Sch 60		Sch 80		Sch 100		Sch 120		Sch 140		Sch 160		XX Strong					
Inch	mm	mm	WL	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr	mm	kg-mtr		
1/4	8	13.7	1.65						2.24	0.63	2.24	0.63	3.02	0.80																
3/8	10	17.1	1.65						2.31	0.85	2.31	0.85	3.20	1.10																
1/2	15	21.3	2.11						2.77	1.27	2.77	1.27	3.73	1.62											4.78	1.95	7.47	2.55		
3/4	20	26.7	2.11						2.87	1.68	2.87	1.68	3.91	2.16											5.56	2.89	7.82	3.63		
1	25	33.4	2.77						3.38	2.50	3.38	2.50	4.55	3.23											6.35	4.23	9.00	5.45		
1 1/4	32	42.2	2.77						3.56	3.38	3.56	3.38	4.85	4.47											6.35	5.60	9.70	7.76		
1 1/2	40	48.3	2.77						3.68	4.05	3.68	4.05	5.08	5.41											7.14	7.24	10.15	9.55		
2	50	60.3	2.77						3.91	5.44	3.91	5.44	5.54	7.48											8.74	11.11	11.07	13.45		
2 1/2	65	73.0	3.05						5.16	8.62	5.16	8.62	7.01	11.41											9.59	14.91	14.02	20.39		
3	80	88.9	3.05						5.49	11.29	5.49	11.29	7.62	15.27											11.13	21.33	15.24	27.67		
3 1/2	90	101.6	3.05						5.74	13.57	5.74	13.57	8.08	18.62																
4	100	114.3	3.05						6.02	16.07	6.02	16.07	8.56	22.31					11.13	28.30					13.48	33.53	17.12	41.02		
5	125	141.3	3.40						6.55	21.78	6.55	21.78	9.53	30.95					12.70	40.28					15.88	49.09	19.05	57.42		
6	150	168.3	3.40						7.11	28.26	7.11	28.26	10.97	42.56					14.27	54.20					18.26	67.55	21.95	79.18		
8	200	219.1	3.76	6.35	33.31	7.04	36.79	8.18	42.53	8.18	42.53	12.70	64.63	10.31	53.09	12.70	64.63	15.09	75.89	18.26	90.43	20.62	100.93	23.01	111.25	22.23	107.87			
10	250	273.0	4.19	6.35	41.77	7.80	51.00	9.27	60.29	9.27	60.29	12.70	81.54	12.70	81.54	15.09	95.94	18.25	114.74	21.44	133.00	25.40	155.10	28.58	172.25	25.40	155.10			
12	300	323.8	4.57	6.35	49.72	8.38	65.20	9.53	73.82	10.31	79.72	12.70	97.44	14.27	108.96	17.48	132.01	21.44	159.85	25.40	186.92	28.58	208.04	33.32	238.72	25.40	186.92			
14	350	355.8	6.35	54.68	7.92	67.94	9.53	81.28	9.53	81.28	11.13	94.49	12.70	107.38	15.09	126.68	19.05	158.08	23.83	194.92	27.79	224.60	31.75	253.53	35.71	281.68				
16	400	406.4	6.35	62.63	7.92	77.86	9.53	93.21	9.53	93.21	12.70	123.29	12.70	123.29	16.66	160.12	21.44	203.48	26.19	245.50	30.96	286.62	36.53	333.11	40.49	365.30				
18	450	457.2	6.35	70.59	7.92	87.79	11.13	122.36	9.53	105.14	14.27	155.91	12.70	139.19	19.05	205.80	23.83	254.59	29.36	309.76	34.83	363.65	39.67	408.45	45.24	459.51				
20	500	500.0	6.35	78.59	9.53	117.07	12.70	155.10	9.53	117.07	15.08	183.37	12.70	155.10	20.62	247.85	26.19	311.17	32.54	381.53	38.10	441.49	44.45	508.11	50.01	564.81				
22	550	559.0	6.35	86.50	9.53	129.01	12.70	171.01	9.53	129.01			12.70	171.01	22.23	294.25	28.58	373.83	34.93	451.52	41.28	527.02	47.36	600.63	53.88	672.26				
24	600	610.0	6.35	94.45	9.53	140.94	14.27	209.54	9.53	140.94	17.48	255.14	12.70	186.92	24.61	355.02	30.94	442.08	38.89	547.71	46.02	640.03	52.37	720.15	59.54	808.22				

Pipe Weight = (OD - thk) x thk x 0.02466. Kg/Mtr. (OD, thk / in mm.)

**Recommended Metal Temperatures for Boiler Tube Grades. Typical Steel Grades of Tubes Fabricated by us.**

Max. Service temp.	475°C 885°F			500°C 930°F	550°C 1020°F	560°C 1040°F	575°C 1065°F	600°C 1110°F			625°C 1155°F	650°C 1200°F	
ASTM													
A 106	Gr. A	Gr. B	Gr. C										
A 192	A192												
A 209-A 210		Gr. A-1	Gr. C		T1								
A213-A335					P1	T2/P2	T12/P12		T11/P11	T22/P22	T9/P9	T91/P91	
BS													
3059-3602-3604	360	410	440-460	490 Nb	243		620		621	622	660	762	
DIN													
17175	St35.8	St45.8	17Mn4	19Mn5	15Mo3		13CrMo44		10CrMo9 10	14MoV63		X20CrMoV121	
	1.0305	1.0405	1.0461	1.0482	1.5415	16Mo5	15NiCuMoNb5	1.7335	1.7380	1.7715		1.7386	1.4922
GOST													
TY 143-460-75		20					15XM	12X1MF			15X1M1F		
JIS													
G 3456 G3458	STPT38	STPT42	STPT49			STPA12	STPA20	STPA22	STPA23	STPA24		STPA26	
G3461 G3462	STB35	STB42				STBA12	STBA20	STBA22	STPA23	STBA24		STBA26	
NF A49-213	TU37-C	TU42-C	TU48-C	TU52-C	TU15D3		TU15CD2.05	TU13CD4.04	TU10CD5.05	TU10CD9.10		TU210CD9	TU210CDNbV9.2



## Tube Dimension & Weight Table

WEIGHT FOR STEEL TUBES ( KGS PER MTR )															
THICKNESS/ OUTSIDE DIAMETER	S.W.G	1	2	3	4	5	6	7	8	9	10	11	12	13	14
IN.	MM THK ->	7.62	7.01	6.40	5.89	5.38	4.88	4.47	4.06	3.66	3.25	2.94	2.64	2.33	2.03
1/2	12.7	-	-	-	-	-	-	-	-	0.82	0.76	0.71	0.65	0.60	0.53
3/4	19.05	-	-	-	-	-	-	-	-	1.39	1.27	1.17	1.06	0.96	0.85
1	25.40	-	-	-	-	-	-	-	-	1.96	1.77	1.63	1.48	1.33	1.17
1 1/4	31.75	-	-	-	-	-	3.23	3.00	2.78	2.53	2.28	2.09	1.90	1.69	1.49
1 1/2	38.10	-	5.37	5.03	4.68	4.34	4.00	3.71	3.41	3.11	2.80	2.60	2.30	2.05	1.81
1 3/4	44.45	6.92	6.47	6.07	5.60	5.18	4.77	4.41	4.04	3.68	3.30	3.01	2.72	2.43	2.14
2	50.80	8.12	7.57	7.08	6.52	6.03	5.52	5.11	4.69	4.25	3.81	3.50	3.13	2.79	2.44
2 1/4	57.15	9.31	8.67	8.01	7.45	6.87	6.29	5.80	5.32	4.83	4.32	3.94	3.55	3.16	2.75
2 3/8	60.33	9.91	9.22	8.51	7.91	7.30	6.67	6.15	5.64	5.11	4.57	4.17	3.76	3.34	2.91
2 1/2	63.50	10.50	9.77	9.01	8.37	7.72	7.05	6.50	5.96	5.40	4.83	4.34	3.97	3.53	3.08
2 3/4	69.85	11.70	10.86	10.16	9.29	8.60	7.81	7.21	6.60	5.97	5.34	4.86	4.38	3.89	3.40
2 7/8	73.03	12.29	11.41	10.51	9.76	8.98	8.19	7.60	6.90	6.30	5.59	5.10	4.60	4.07	3.55
3	76.20	12.89	11.96	11.02	10.22	9.41	8.60	7.91	7.23	6.55	5.85	5.32	4.80	4.26	3.71
3 1/4	82.55	14.08	13.06	12.02	11.14	10.25	9.34	8.61	7.87	7.12	6.40	5.78	5.21	4.63	4.03
3 1/2	88.90	15.28	14.16	13.02	12.64	11.09	10.10	9.31	8.50	7.69	6.87	6.24	5.62	4.99	4.35

STRESS			
Pa	Mpa(N/mm <sup>2</sup> )	kgf/mm <sup>2</sup>	lbf/in <sup>2</sup>
1	1x10 <sup>6</sup>	1.01972x10 <sup>7</sup>	1.45038x10 <sup>4</sup>
1x10 <sup>6</sup>	1	1.01972x10 <sup>1</sup>	1.45038x10 <sup>2</sup>
9.80665x10 <sup>6</sup>	9.80665	1	1.42233x10 <sup>3</sup>
6.89478x10 <sup>10</sup>	6.89476x10 <sup>3</sup>	7.03070x10 <sup>4</sup>	1

LENGTH				
m	inch	feet	yard	mile
1	3.937x10	3.281	1.094	6.214x10 <sup>4</sup>
2.540x10 <sup>2</sup>	1	8.333x10 <sup>2</sup>	2.778x10 <sup>2</sup>	1.578x10 <sup>5</sup>
3.048x10 <sup>1</sup>	12	1	3.333x10 <sup>1</sup>	1.894x10 <sup>4</sup>
9.144x10 <sup>1</sup>	36	3	1	5.682x10 <sup>4</sup>
1.609x10 <sup>3</sup>	6.336x10 <sup>4</sup>	5.280x10 <sup>3</sup>	1.760x10 <sup>3</sup>	1

## MATERIAL SPECIFICATIONS

STEEL GRADE	CHEMICAL COMPOSITIONS (%)										COMPARISON STANDARDS					
	C	SI	MN	P	S	NI	CR.	MO	OTHERS	ASTM	BS	NOS.	DIN CODE	AISI	JIS	GB
LOW CARBON STEEL	0.08-0.18	0.10-0.35	0.30-0.60	≤0.035	≤0.035	--	--	--	Cu <sub>5</sub> 0.20	A53-Gr.A, 106Gr.AA161, A179,A192	3601/320, 3602/360, 3059	1.0308, 1.0309, 1.0305	st15, st35.4, st35.8	1015	STPG38, STS35, STS38, STPT38, STB30, STB33, STB35	St10G
LOW CARBON STEEL	0.17-0.25	0.10-0.35	0.30-0.80	≤0.035	≤0.035	--	--	--	Cu <sub>5</sub> 0.20	A53-Gr.B, 106Gr.B, A210 GR.A1	3601/3602/410	1.0408, 1.0418, 1.0405, 1.0611	st45, st45.4, st45.8 C22	1020	STPG42, STS42, STPT42, STB42	St20 G
MEDIUM CARBON STEEL	0.25-0.30	0.10-0.35	0.30-1.00	≤0.035	≤0.035	--	--	--	Cu <sub>5</sub> 0.20	106Gr.C, 210GRA1				1025		
MEDIUM CARBON STEEL	0.30-0.35	0.10-0.35	0.30-1.00	≤0.035	≤0.035	--	--	--	Cu <sub>5</sub> 0.20		3602/Steel35, 3059/243	1.0507, 1.0509, 1.5415	st55, st55.4, 15Mo3	1030		15CrMoG
0.3 Mo STEEL	0.10-0.20	0.10-0.35	0.50-0.80	≤0.030	≤0.030	--	--	0.25-0.35	Cu <sub>5</sub> 0.20							
0.5 Mo STEEL	0.10-0.20	0.10-0.35	0.30-0.60	≤0.030	≤0.030	--	--	0.45-0.65	Cu <sub>5</sub> 0.20	P1,T1					STPA12, STBA12	
0.5Cr-0.5Mo Steel	0.10-0.20	0.10-0.30	0.30-0.60	≤0.030	≤0.030	--	--	0.50-0.81	Cu <sub>5</sub> 0.20	P2,T2					STPA20, STBA20	
1Cr-0.5Mo Steel	≤0.15	0.10-0.50	0.30-0.60	≤0.030	≤0.030	--	--	0.80-1.25	Cu <sub>5</sub> 0.20	P12,T12					STPA22, STBA22	
1Cr-0.5Mo Steel	≤0.15	0.10-0.35	0.40-0.60	≤0.030	≤0.030	--	--	0.70-1.10	Cu <sub>5</sub> 0.20		3059/620, 3604/620-440	1.7335	13CrMo44			
1.25Cr-0.5Mo-0.75Si Steel	≤0.15	0.50-1.00	0.30-0.60	≤0.030	≤0.030	--	--	1.00-1.50	Cu <sub>5</sub> 0.20	P11,T11					STPA23, STBA23	
2.25Cr-1Mo Steel	≤0.15	0.10-0.50	0.30-0.60	≤0.030	≤0.030	--	--	1.90-2.60	Cu <sub>5</sub> 0.20	P22,T22			10CrMo910		STPA24, STBA24	
5Cr-0.5Mo Steel	≤0.15	0.10-0.50	0.30-0.60	≤0.030	≤0.030	--	--	4.00-6.00	Cu <sub>5</sub> 0.20	P5,T5		1.738	12CrMo195		STPA25, STBA25	
9Cr-1Mo Steel	≤0.15	0.25-1.00	0.30-0.60	≤0.030	≤0.030	--	--	8.00-10.0	Cu <sub>5</sub> 0.20	P9,T9		1.7386	X12CrMo91		STPA26, STBA26	
9Cr-1Mo-Nb-V Steel	0.08-0.12	0.20-0.50	0.30-0.60	≤0.020	≤0.010	≤0.40	--	8.00-9.50	0.85-1.05	V:0.18-0.25, Nb:0.06-0.10, Sol-Ala0.04, N:0.03-0.07	A213-T-91, A335-P91					
0.5Cr-0.5Mo-0.25 V Steel	0.10-0.15	0.10-0.35	0.40-0.70	≤0.030	≤0.030	--	--	0.25-0.50	0.50-0.70	v:0.22-0.28		1.7715	14MoV63			12Cr1MoVG
Al- KILLED STEEL	≤0.12	≤0.35	≤1.35	≤0.035	≤0.035	--	--	--	--	Sol.Al 0.010-0.60	A333-1,A334-1					
Cr-Mo Steel	0.33-0.39	0.15-0.30	0.40-0.70	≤0.030	≤0.030	≤0.30	0.80-1.10	0.15-0.25	--	Cu <sub>5</sub> 0.20		1.722				
Al- KILLED STEEL	≤0.14	≤0.35	≤1.00	≤0.035	≤0.035	--	--	--	--	Sol.Al 0.010-0.60	A333-1,A334-1				STPL39, STBL39, STS38	
3.5Ni Steel	≤0.18	0.10-0.35	0.30-0.60	≤0.030	≤0.030	3.20-3.80	--	--	--	A333Gr.3, A334-Gr.3	3603/503	1.5637	10Ni14		STPL46, STBL46	
22Cr-Cu Steel	≤0.20	≤0.75	≤1.00	≤0.040	≤0.030	≤0.50	18.00-23.00	--	--	Cu:090-1.25	TP443					
12Cr-1Mo-0.3V Steel	0.17-0.23	0.10-0.50	0.30-0.80	≤0.035	≤0.030	0.30-0.80	11.10-12.50	0.80-1.20	--	v:0.25-0.35		1.4922	X20CrMoV121			
12Cr-1Mo-0.3V-0.5W Steel	0.17-0.23	0.10-0.50	0.30-0.80	≤0.035	≤0.030	0.30-0.80	11.10-12.50	0.80-1.20	--	V:0.20-0.35, W:0.40-0.60			x20CrMoWV121			
18Cr-8 Ni-Steel	0.04-0.10	≤0.75	≤2.00	≤0.030	≤0.030	8.00-11.00	18.00-20.00	--	--	--	TP304H	1.4935, 1.4301, 1.4300	x5CrNi189, x12CrNi189	321	sus304H	
18Cr-8Ni-TiSteel	0.04-0.10	≤0.75	≤2.00	≤0.030	≤0.030	9.00-13.00	17.00-20.00	--	--	Ti:4Xc%-60	TP321H	1.4541	X10CrNiTi189	321	sus321H	
18Cr-8Ni-NbSteel	0.04-0.10	≤0.75	≤2.00	≤0.030	≤0.030	9.00-13.00	17.00-20.00	--	--	Nb:28xc%	TP347H	1.455	X10CrNiNb189	347, 348	sus347H	



# TPB

## TPP BOILERS PVT. LTD.

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Fabricator of Replacement Boiler Pressure Parts

Sales Office: 69 / 70, Ashok Chambers, 4th Floor,  
Devaji Ratanji Marg (Bharuch Street), Masjid Bunder (E), Mumbai – 400 009.

Ph: +91-22-23484046, Fax: +91-22-23480384, Mob : +91 98210 22114  
Works: Plot No 703-716, GIDC Waghodia, Tal - Vadodara,  
Gujarat- 391760. Tel: 02668 - 292095

Email: info@tp boilers.com

