

Pressure PN	Size DN	Outer diameter D	Center distance K	Aperture H	Hole count	Small head N	Plate thickness T	Total height F	Diameter t	Big head M	R	Waterline station A	Waterline height f	Wall thickness S	Internal diameter	RF single weight kg	FF single weight kg
EN 1092 -1/2 PN25 Welding neck	10	90	60	14	4	17.2	16	35	6	28	4	40	2	1.8	13.6	0.67	0.74
	15	95	65	14	4	21.3	16	38	6	32	4	45	2	2	17.3	0.76	0.84
	20	105	75	14	4	26.9	18	40	6	40	4	58	2	2.3	22.3	1.08	1.17
	25	115	85	14	4	33.7	18	40	6	46	4	68	2	2.6	28.5	1.30	1.40
	32	140	100	18	4	42.4	18	42	6	56	6	78	2	2.6	37.2	1.88	2.03
	40	150	110	18	4	48.3	18	45	7	64	6	88	3	2.6	43.1	2.12	2.36
	50	165	125	18	4	60.3	20	48	8	75	6	102	3	2.9	54.5	2.82	3.11
	65	185	145	18	8	76.1	22	52	10	90	6	122	3	2.9	70.3	3.67	3.98
	80	200	160	18	8	88.9	24	58	12	105	8	138	3	3.2	82.5	4.74	5.08
	100	235	190	22	8	114	24	65	12	134	8	162	3	3.6	107.1	6.44	6.90
	125	270	220	26	8	140	26	68	12	162	8	188	3	4	131.7	8.85	9.45
	150	300	250	26	8	168	28	75	12	192	10	218	3	4.5	159.3	11.60	12.28
	200	360	310	26	12	219	30	80	16	244	10	278	3	6.3	206.5	17.16	17.97
	250	425	370	30	12	273	32	88	18	298	12	335	3	7.1	258.8	24.26	25.33
	300	485	430	30	16	324	34	92	18	352	12	395	4	8	307.7	31.78	33.38
	350	555	490	33	16	356	38	100	20	398	12	450	4	8	339.6	49.11	51.29
	400	620	550	36	16	406	40	110	20	452	12	505	4	8.8	388.8	64.04	66.72
450	670	600	36	20	457	46	110	20	500	12	555	4	8.8	439.4	76.59	79.42	
500	730	660	36	20	508	48	125	20	558	12	615	4	10	488.0	98.27	101.45	
600	845	770	39	20	610	58	125	20	660	12	720	5	11	588.0	139.57	144.67	

Pressure PN	Size DN	Outer diameter D	Center distance K	Aperture H	Hole count	Small head N	Plate thickness T	Total height F	Diameter t	Big head M	R	Waterline station A	Waterline height f	Wall thickness S	Internal diameter	RF single weight kg	FF single weight kg
EN 1092 -1/2 PN40 Welding neck	10	90	60	14	4	17.2	16	35	6	28	4	40	2	1.8	13.6	0.67	0.74
	15	95	65	14	4	21.3	16	38	6	32	4	45	2	2	17.3	0.76	0.84
	20	105	75	14	4	26.9	18	40	6	40	4	58	2	2.3	22.3	1.08	1.17
	25	115	85	14	4	33.7	18	40	6	46	4	68	2	2.6	28.5	1.30	1.40
	32	140	100	18	4	42.4	18	42	6	56	6	78	2	2.6	37.2	1.88	2.03
	40	150	110	18	4	48.3	18	45	7	64	6	88	3	2.6	43.1	2.12	2.36
	50	165	125	18	4	60.3	20	48	8	75	6	102	3	2.9	54.5	2.82	3.11
	65	185	145	18	8	76.1	22	52	10	90	6	122	3	2.9	70.3	3.67	3.98
	80	200	160	18	8	88.9	24	58	12	105	8	138	3	3.2	82.5	4.74	5.08
	100	235	190	22	8	114	24	65	12	134	8	162	3	3.6	107.1	6.44	6.90
	125	270	220	26	8	140	26	68	12	162	8	188	3	4	131.7	8.85	9.45
	150	300	250	26	8	168	28	75	12	192	10	218	3	4.5	159.3	11.60	12.28
	200	375	320	30	12	219	34	88	16	244	10	285	3	6.3	206.5	21.05	21.95
	250	450	385	33	12	273	38	105	18	306	12	345	3	7.1	258.8	34.37	35.67
	300	515	450	33	16	324	42	115	18	362	12	410	4	8	307.7	47.96	49.92
	350	580	510	36	16	356	46	125	20	408	12	465	4	8.8	338.0	70.08	72.53
	400	660	585	39	16	406	50	135	20	462	12	535	4	11	384.4	99.58	102.67
450	685	610	39	20	457	57	135	20	500	12	560	4	12.5	432.0	105.98	109.07	
500	755	670	42	20	508	57	140	20	562	12	615	4	14.2	479.6	132.09	135.96	
600	890	795	48	20	610	72	150	20	666	12	735	5	16	578.0	211.76	218.11	

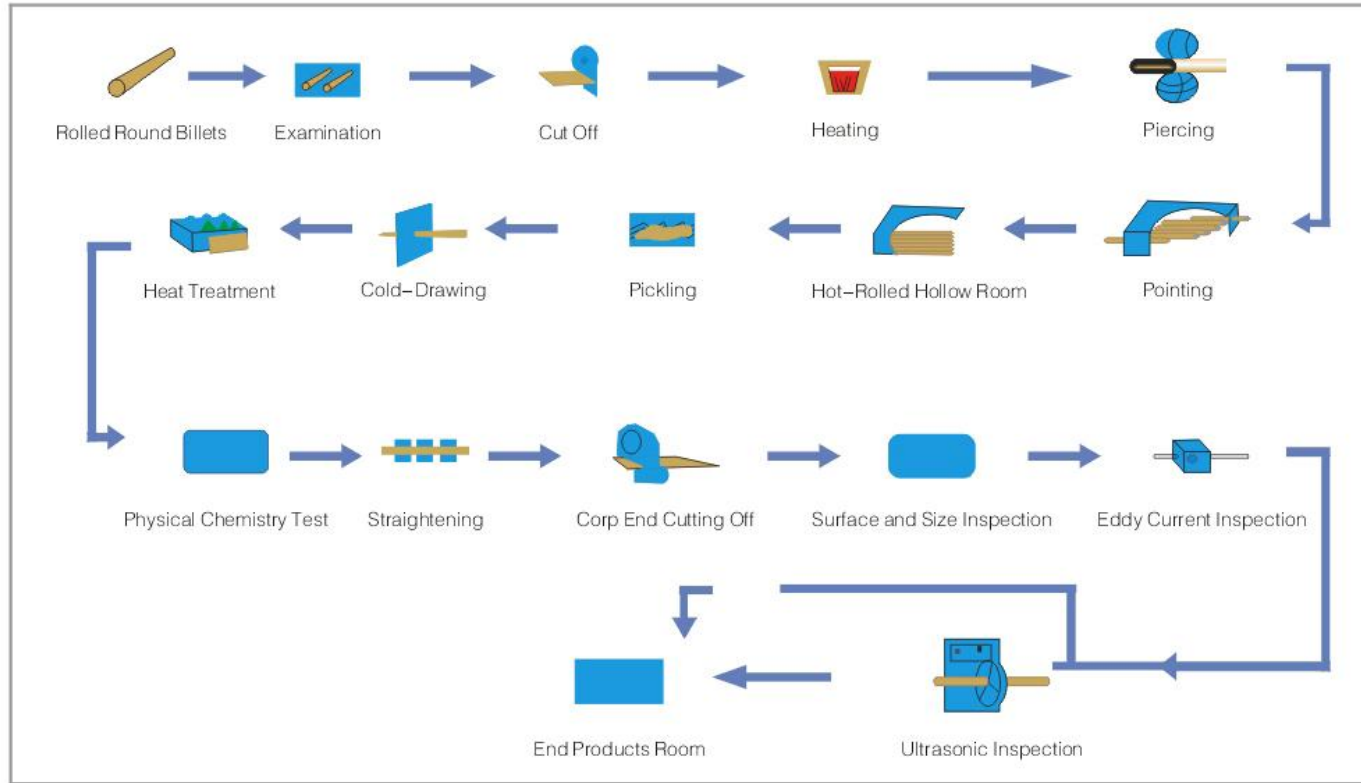
Pressure PN	Size DN	Outer diameter D	Center distance K	Aperture H	Hole count	Small head N	Plate thickness T	Total height F	Diameter t	Big head M	R	Waterline station A	Waterline height f	Wall thickness S	Internal diameter	RF single weight kg	FF single weight kg
EN 1092 -1/2 PN63 Welding neck	10	100	70	14	4	17.2	20	45	6	32	4	40	2	1.8	13.6	1.09	1.18
	15	105	75	14	4	21.3	20	45	6	34	4	45	2	2	17.3	1.2	1.3
	20	130	90	18	4	26.9	22	48	8	42	4	58	2	2.6	21.7	2.02	2.17
	25	140	100	18	4	33.7	24	58	8	52	4	68	2	2.6	28.5	2.64	2.8
	32	155	110	22	4	42.4	24	60	8	62	6	78	2	2.9	36.6	3.18	3.38
	40	170	125	22	4	48.3	26	62	10	70	6	88	3	2.9	42.5	4.06	4.41
	50	180	135	22	4	60.3	26	62	10	82	6	102	3	2.9	54.5	4.5	4.88
	65	205	160	22	8	76.1	26	68	12	98	6	122	3	3.2	69.7	5.62	6.05
	80	215	170	22	8	88.9	28	72	12	112	8	138	3	3.6	81.7	6.66	7.09
	100	250	200	26	8	114	30	78	12	138	8	162	3	4	106.3	9.27	9.84
	125	295	240	30	8	140	34	88	12	168	8	188	3	4.5	130.7	14.53	15.36
	150	345	280	33	8	168	36	95	12	202	10	218	3	5.6	157.1	21.35	22.52
	200	415	345	36	12	219	42	110	16	256	10	285	3	7.1	204.9	34.38	35.78
	250	470	400	36	12	273	46	125	18	316	12	345	3	8.8	255.4	48.65	50.25
	300	530	460	36	16	324	52	140	18	372	12	410	4	11	301.9	68.2	70.48
	350	600	525	39	16	356	56	150	20	420	12	465	4	12.5	330.6	99.1	102
	400	670	585	42	16	406	60	160	20	475	12	535	4	14.2	378	131.19	134.51

## Seamless Steel Tube

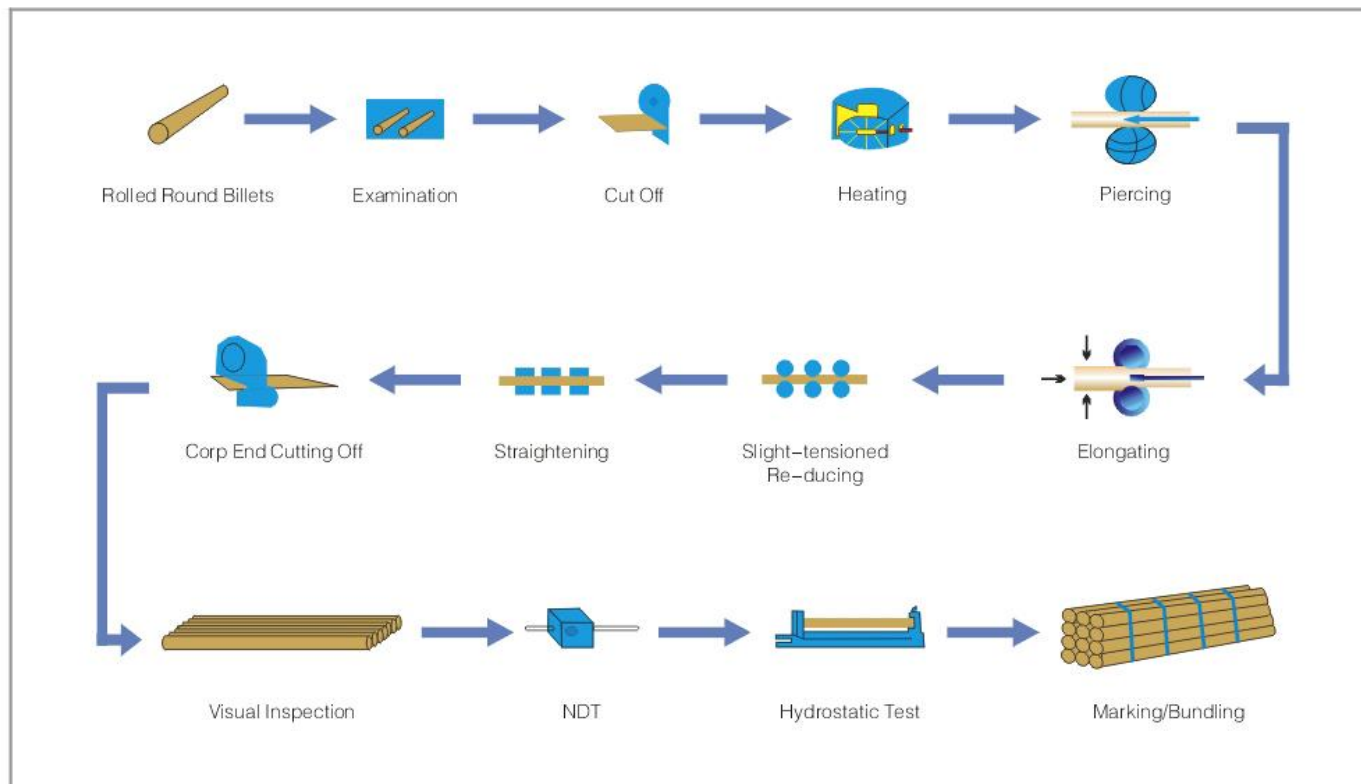




Cold-Drawing Seamless Steel Pipe Process Flow Chart



Hot-Rolling Seamless Steel Pipe Process Flow Chart



Single-or dual-feeding available, fueled by lpg, automated furnace-temperature. Furnace-pressure and furnace flow, domestical-topping controlling performance.



### Piercing Mill



The punching machine can be adjusted automatically and locked hydraulically. This unit features in stable punching process, uniform hair canal wall thickness etc. This machine is advanced at home.

### Accu-Rolling Mill



Conical roller, big disk, flexible adjustment, hydraulic-controlled lock system and balance system, easy and reliable operation.

### Seamless Steel Tube





Slight-tensioned reducing mill  
 Straightener  
 Cooling bed  
 Pipe cutter



1	
2	3

Pipe expander  
 Hydrostatic test equipments  
 Ultrasonic crack detector





- 1 Leakage magnetic flow detector
- 2 Cold-draw Workshop



Complete inspection instruments and perfect inspection process flow is powerful guarantee for high quality production.





Size and Weight of Seamless Roll Steel Pipe

ASME B36.10M-1996

Nominal Diameter		Outside Diameter		(STD) (XS) (XXS)	Sch. no	Wall Thickness		Nominal Weight	
NPS	DN	in	mm			in	mm	lb/ft	kg/m
1/8	...	0.405	10.3	STD	40	0.068	1.73	0.24	0.37
				XS	80	0.095	2.41	0.31	0.47
1/4	...	0.540	13.7	STD	40	0.088	2.24	0.42	0.63
				XS	80	0.119	3.02	0.54	0.80
3/8	10	0.675	17.1	STD	40	0.091	2.31	0.57	0.84
				XS	80	0.126	3.20	0.74	1.10
1/2	15	0.840	21.3	STD	40	0.109	2.77	0.85	1.27
				XS	80	0.147	3.73	1.09	1.62
				...	160	0.188	4.78	1.31	1.95
3/4	20	1.050	26.7	STD	40	0.113	2.87	1.13	1.69
				XS	80	0.154	3.91	1.47	2.20
				...	160	0.219	5.56	1.94	2.90
1	25	1.315	33.4	STD	40	0.133	3.38	1.68	2.50
				XS	80	0.179	4.55	2.17	3.24
				...	160	0.250	6.35	2.84	4.24
1 1/4	32	1.660	42.2	STD	40	0.140	3.56	2.27	3.39
				XS	80	0.191	4.85	3.00	4.47
				...	160	0.250	6.35	3.76	5.61
1 1/2	40	1.900	48.3	STD	40	0.145	3.68	2.72	4.05
				XS	80	0.200	5.08	3.63	5.41
				...	160	0.281	7.14	4.86	7.25
2	50	2.375	60.3	STD	40	0.154	3.91	3.65	5.44
				XS	80	0.218	5.54	5.02	7.48
				...	160	0.344	8.74	7.46	11.11
2 1/2	65	2.875	73.0	STD	40	0.203	5.16	5.79	8.63
				XS	80	0.276	7.01	7.66	11.41
				...	160	0.375	9.35	10.01	14.92
3	80	3.500	88.9	STD	40	0.216	5.49	7.58	11.29
				XS	80	0.300	7.62	10.25	15.27
				...	160	0.438	11.13	14.32	21.35
3 1/2	...	4.00	101.6	STD	40	0.226	5.74	9.11	13.57
				XS	80	0.318	8.08	12.50	18.63
				...	160	0.438	11.13	14.32	21.35
4	100	4.500	114.3	STD	40	0.237	6.02	10.79	16.07
				XS	80	0.337	8.56	14.98	22.32
				...	120	0.438	11.13	19.00	28.32
5	125	5.563	141.3	...	160	0.531	13.49	22.51	33.54
				STD	40	0.258	6.55	14.62	21.77
				XS	80	0.375	9.53	20.78	30.97
6	150	6.625	168.3	...	120	0.500	12.70	27.04	40.28
				...	160	0.625	15.88	32.96	49.11
				STD	40	0.280	7.11	18.97	28.26
8	200	8.625	219.1	XS	80	0.432	10.97	28.57	42.56
				...	120	0.562	14.27	36.39	54.20
				...	160	0.719	18.26	45.35	67.56
10	250	10.750	273.0	STD	40	0.322	8.18	28.55	42.55
				XS	80	0.500	12.70	43.39	64.64
				...	120	0.719	18.26	60.71	90.44
12	300	12.750	323.8	...	160	0.906	23.01	74.69	111.27
				...	20	0.250	6.35	28.04	41.77
				STD	40	0.365	9.27	40.48	60.31
12	300	12.750	323.8	...	80	0.594	15.09	64.43	96.01
				...	120	0.844	21.44	89.29	133.06
				...	160	1.125	28.58	115.64	172.33
12	300	12.750	323.8	...	20	0.250	6.35	33.38	49.73
				...	40	0.406	10.31	53.52	79.73
				...	80	0.688	17.48	88.63	132.08
12	300	12.750	323.8	XXS	120	1.000	25.40	125.49	186.97
				...	160	1.312	33.32	160.27	238.76



Size and Weight of Seamless Roll Steel Pipe

ASME B36.10M-1996

Nominal Diameter		Outside Diameter		(STD) (XS) (XXS)	Sch. no	Wall Thickness		Nominal Weight	
NPS	DN	in	mm			in	mm	lb/ft	kg/m
14	350	14.000	355.6	...	10	0.250	6.35	36.71	54.69
				...	20	0.312	7.92	45.61	67.90
				STD	30	0.375	9.53	54.57	81.33
				...	40	0.438	11.13	63.44	94.55
				...	60	0.594	15.09	85.05	126.71
				...	80	0.750	19.05	106.13	158.10
				...	120	1.094	27.79	150.79	224.65
16	400	16.000	406.4	...	20	0.312	7.92	52.27	77.83
				STD	30	0.375	9.53	62.58	93.27
				XS	40	0.500	12.70	82.77	123.30
				...	60	0.656	16.66	107.50	160.12
				...	80	0.844	21.44	136.61	203.53
				...	20	0.312	7.92	58.94	87.71
				...	30	0.438	11.13	82.15	122.38
18	450	18.000	457	...	40	0.562	14.27	104.67	155.80
				...	60	0.750	19.05	138.17	205.74
				...	80	0.938	23.83	170.92	254.55
				...	100	1.156	29.36	207.96	309.62
				STD	20	0.375	9.53	78.60	117.15
				XS	30	0.500	12.70	104.13	155.12
				...	40	0.594	15.09	123.11	183.42
20	500	20.000	508	...	60	0.812	20.62	166.40	247.83
				...	80	1.031	26.19	208.87	311.17
				STD	20	0.375	9.53	86.61	129.13
				XS	30	0.500	12.70	114.81	171.09
				...	60	0.875	22.23	197.41	294.25
				...	80	1.125	28.58	250.81	373.83
				...	100	1.375	34.93	302.88	451.42
22	550	22.000	559	STD	20	0.375	9.53	94.62	141.12
				...	30	0.562	14.27	140.68	209.64
				...	40	0.688	17.48	171.29	255.41
				...	60	0.969	24.61	238.35	355.26
				...	80	1.219	30.96	296.58	442.08
				STD	...	0.375	9.53	102.63	152.87
				...	...	0.406	10.31	110.98	165.18
24	600	24.000	610	XS	20	0.500	12.70	136.17	202.72
				...	...	0.562	14.27	152.68	227.23
				STD	...	0.375	9.53	110.64	164.85
				...	...	0.406	10.31	119.65	178.15
				XS	20	0.500	12.70	146.85	218.69
				...	...	0.562	14.27	164.69	245.18
				...	30	0.625	15.88	182.73	271.21
26	650	26.000	660	STD	...	0.375	9.53	118.65	176.84
				...	...	0.406	10.31	128.32	191.11
				XS	20	0.500	12.70	157.53	234.67
				...	...	0.562	14.27	176.69	263.12
				...	30	0.625	15.88	196.08	292.18
				...	10	0.311	7.92	105.66	157.28
				...	20	0.5	12.70	168.32	250.55
28	700	28.000	711	...	30	0.311	15.88	209.57	311.95
				STD	...	0.375	9.53	126.74	188.66
				...	40	0.688	17.48	230.23	342.70

Steel Tube Outer Diameter and Wall Thickness

Seamless Steel Tube

ASME, JIS, DIN Steel Pipe Outside Diameter and Wall Thickness

Unit: mm

Nominal Pipe Size		Outside Diameter			Nominal Wall Thickness														
A	B	ASME	JIS	DIN	JIS(1)	DIN(2)	SCH10	SCH20	SCH30	STD	SC-40	SC-160	XS	SC-180	SC-1100	SC-1120	SC-1140	SC-1160	XXS
15	1/2"	21.3	21.7	21.3	2.8	2.0	2.11	-	2.41	2.77	2.77	-	3.73	3.73	-	-	-	4.78	7.47
20	3/4"	26.7	27.2	26.9	2.8	2.3	2.11	-	2.41	2.87	2.87	-	3.91	3.91	-	-	-	5.56	7.82
25	1"	33.4	34.0	33.7	3.2	2.6	2.77	-	2.90	3.38	3.38	-	4.55	4.55	-	-	-	6.35	9.09
32	1 1/4"	42.2	42.7	42.4	3.5	2.6	2.77	-	2.97	3.56	3.56	-	4.85	4.85	-	-	-	6.35	9.70
40	1 1/2"	48.3	48.6	48.3	3.5	2.6	2.77	-	3.18	3.68	3.68	-	5.08	5.08	-	-	-	7.14	10.15
50	2"	60.3	60.5	60.3	3.8	2.9	2.77	-	3.18	3.91	3.91	-	5.54	5.54	-	-	-	8.74	11.07
65	2 1/2"	73.0	76.3	76.1	4.2	2.9	3.05	-	4.78	5.16	5.16	-	7.01	7.01	-	-	-	9.53	14.02
80	3"	88.9	89.1	88.9	4.2	3.2	3.05	-	4.78	5.49	5.49	-	7.62	7.62	-	-	-	11.13	15.24
90	3 1/2"	101.6	101.6	-	4.2	-	3.05	-	4.78	5.74	5.74	-	8.08	8.08	-	-	-	-	-
100	4"	114.3	114.3	114.3	4.5	3.6	3.05	-	4.78	6.02	6.02	-	8.56	8.56	-	11.13	-	13.49	17.12
125	5"	141.3	139.8	139.7	4.5	4.0	3.40	-	-	6.55	6.55	-	9.53	9.53	-	12.70	-	15.88	19.05
150	6"	168.3	165.2	168.3	5.0	4.5	3.40	4.5	-	7.11	7.11	-	10.97	10.97	-	14.27	-	18.26	21.95
200	8"	219.1	216.3	219.1	5.8	6.3	3.76	6.35	7.04	8.18	8.18	10.31	12.70	12.70	15.09	18.26	20.62	23.01	22.23
250	10"	273.0	267.4	273.0	6.6	6.3	4.19	6.35	7.80	9.27	9.27	12.70	12.70	15.0g	18.26	21.44	25.40	28.58	25.40
300	12"	323.8	318.5	323.9	6.9	7.1	4.57	6.35	8.38	9.53	10.31	14.27	12.70	17.48	21.44	25.40	28.58	33.32	25.40
350	14"	355.6	355.6	355.6	7.9	8.0	6.35	7.92	9.53	9.53	11.13	15.09	12.70	19.05	23.83	27.79	31.75	35.71	-
400	16"	406.4	406.4	406.4	7.9	8.8	6.35	7.92	9.53	9.53	12.70	16.66	12.70	21.44	26.19	30.96	36.53	40.49	-
450	18"	457.2	457.2	457.0	7.9	10.0	6.35	7.92	11.13	9.53	14.27	19.05	12.70	23.83	29.36	34.93	39.67	45.24	-
500	20"	508.0	508.0	508.0	7.9	11.0	6.35	9.53	12.70	9.53	15.09	20.62	12.70	26.19	32.54	38.10	44.45	50.01	-
550	22"	558.8	558.8	-	-	-	6.35	9.53	12.70	9.53	-	22.23	12.70	28.58	34.93	41.28	47.63	53.98	-
600	24"	609.6	609.6	610.0	-	12.5	6.35	9.53	14.27	9.53	17.48	24.61	12.70	30.96	38.89	46.02	52.37	59.54	-
650	26"	660.4	660.4	-	-	-	7.92	12.70	-	9.53	-	-	12.70	-	-	-	-	-	-
700	28"	711.2	711.2	711.0	-	12.5	7.92	12.70	15.88	9.53	-	-	12.70	-	-	-	-	-	-
750	30"	762.0	762.0	-	-	-	7.92	12.70	15.88	9.53	-	-	12.70	-	-	-	-	-	-
800	32"	812.8	812.8	813.0	-	12.5	7.92	12.70	15.88	9.53	17.48	-	12.70	-	-	-	-	-	-
850	34"	863.6	863.6	-	-	-	7.92	12.70	15.88	9.53	17.48	-	12.70	-	JIS G3452	ASME B36.10M	-	-	-
900	36"	914.4	914.4	914.0	-	12.5	7.92	12.70	15.88	9.53	19.05	-	12.70	-	JIS G3454	DIN 2448	-	-	-
950	38"	965.2	965.2	-	-	-	-	-	-	9.53	-	-	12.70	-	JIS G3455	DIN 2458	-	-	-
1000	40"	1016.0	1016.0	1016.0	-	12.5	-	-	-	9.53	-	-	12.70	-	JIS G3457	-	-	-	-
1050	42"	1066.8	1066.8	-	-	-	-	-	-	9.53	-	-	12.70	-	-	-	-	-	-
1100	44"	1117.6	1117.6	-	-	-	-	-	-	9.53	-	-	12.70	-	-	-	-	-	-
1150	46"	1168.4	1168.4	-	-	-	-	-	-	9.53	-	-	12.70	-	-	-	-	-	-
1200	48"	1219.2	1219.2	1220.0	-	-	-	-	-	9.53	-	-	12.70	-	-	-	-	-	-

Note: (1) The wall thickness specified is grade is grade fsgp of JIS B2311: 1997  
(2) The wall thickness specified is for series 3 of DIN 2605 (part 1): 02.91



#### API 5L Chemical Components and Mechanical Property PSL 1:

Class and Sort	Chemical Components				Mechanical Property			
	C(Max)	Mn(Max)	P(Max)	S(Max)	Tensile Strength (Min)		Yield Strength (Min)	
					psi	MPa	psi	MPa
A25	0.21	0.60	0.030	0.030	45000	310	25400	175
A25P	0.21	0.60	0.045~0.080	0.030				
A	0.22	0.90	0.030	0.030	48600	335	30500	210
B	0.28	1.20	0.030	0.030	60200	415	35500	245
X42	0.28	1.30	0.030	0.030	60200	415	42100	290
X46	0.28	1.40	0.030	0.030	63100	435	46400	320
X52	0.28	1.40	0.030	0.030	66700	460	52200	360
X56	0.28	1.40	0.030	0.030	71100	490	56600	390
X60	0.28	1.40	0.030	0.030	75400	520	60200	415
X65	0.28	1.40	0.030	0.030	77600	535	65300	450
X70	0.28	1.40	0.030	0.030	82700	570	70300	485

#### API 5L Chemical Components and Mechanical Property PSL 2:

Class and Sort	Chemical Components				Mechanical Property							
	Max	Max	Max	Max	Tensile Strength (Min)		Tensile Strength (Max)		Yield Strength (Min)		Yield Strength (Max)	
					psi	MPa	psi	MPa	psi	MPa	psi	MPa
BN	0.24	1.20	0.025	0.015	60200	415	95000	655	35500	245	65300	450
X42N	0.24	1.20	0.025	0.015	60200	415	95000	655	42100	290	71800	495
X46N	0.24	1.40	0.025	0.015	63100	435	95000	655	46400	320	76100	525
X52N	0.24	1.40	0.025	0.015	66700	460	110200	760	52200	360	76900	530
X56N	0.24	1.40	0.025	0.015	71100	490	110200	760	56600	390	79000	545
X60N	0.24	1.40	0.025	0.015	75400	520	110200	760	60200	415	81900	565
X65Q	0.18	1.70	0.025	0.015	77600	535	110200	760	65300	450	87000	600
X70Q	0.18	1.80	0.025	0.015	82700	570	110200	760	70300	485	92100	635
X80Q	0.18	1.90	0.025	0.015	90600	625	119700	825	80500	555	102300	705

The common materials: 20# and Q345. Technical Standard: API 5L B, ASTM A106 GR.B, ASTM A53 GR.B; High-pressure boiler pipe GB5310-2009, Special pipe for fertilizer making GB6479-2013, pipe for petroleum cracking GB9948-2013, low-and medium-pressure boiler pipe GB3087-2008, fluid pipe GB/T8163-2008, structural pipe GB/T8162-2008 and hydraulic support pipe GB/T17396-2009.

#### A53 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components									Mechanical Property			
		C	Si	Mn	P	S	Cu	Ni	Mo	Cr	V	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A53	A	≤0.25	/	≤0.95	≤0.05	≤0.045	≤0.40	≤0.40	≤0.15	≤0.40	≤0.08	≥330	≥205	≥29.5
	B	≤0.30	/	≤1.2	≤0.05	≤0.045	≤0.40	≤0.40	≤0.15	≤0.40	≤0.08	≥415	≥240	≥29.5

#### A106 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components									Mechanical Property		
		C	Si	Mn	P, S	Cu	Ni	Mo	Cr	V	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A106	B	≤0.30	≤0.10	0.29~1.06	≤0.035	≤0.40	≤0.40	≤0.15	≤0.40	≤0.08	≥415	≥240	≥30
	C	≤0.35	≤0.10	0.29~1.06	≤0.035	≤0.40	≤0.40	≤0.15	≤0.40	≤0.08	≥485	≥275	≥30

#### A179 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components									Mechanical Property		
		C	Si	Mn	P, S	Cu	Ni	Mo	Cr	V	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A179	A179	0.06~0.18	/	0.27~0.63	≤0.035	/	/	/	/	/	≥325	≥180	35

#### A192 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components							Mechanical Property		
		C	Si	Mn	P, S	Cu	Ni	Mo	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A192	A192	0.06~0.18	≤0.25	0.27~0.63	≤0.035	/	/	/	≥325	≥180	≥35

#### 370 Chemical Components and Mechanical Property

Trade Mark	Chemical Components					Mechanical Property		
	C	Si	Mn	P	S	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
STPG 370	≤0.25	≤0.35	0.30~0.90	≤0.040	≤0.040	≥370	≥216	30
STS 370	≤0.25	0.10~0.35	0.30~1.10	≤0.035	≤0.035	≥370	≥215	30
STPT 370	≤0.25	0.10~0.35	0.30~0.90	≤0.035	≤0.035	≥370	≥215	30



A213 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components									Mechanical Property		
		C	Si	Mn	P,S	Cu	Ni	Mo	Cr	V	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A213	A213T11	0.05-0.15	0.50-1.00	0.30-0.60	≤0.025	/	/	0.44-0.65	1.0-1.5	/	≥415	≥170	≥30
	A213T12	0.05-0.15	≤0.50	0.30-0.61	≤0.025	/	/	0.44-0.65	0.80-1.25	/	≥415	≥220	≥30
	A213T22	0.05-0.15	≤0.50	0.30-0.60	≤0.025	/	/	0.87-1.13	1.90-2.60	/	≥415	≥205	≥30

A210 Chemical Components and Mechanical Property

Standard	Trade Mark	Chemical Components									Mechanical Property		
		C	Si	Mn	P,S	Cu	Ni	Mo	Cr	V	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)
ASTM A210	A210A1	≤0.27	≥0.10	≤0.93	≤0.35	/	/	/	/	/	≥415	≥255	≥30
	A210C	≤0.35	≥0.10	0.29-1.06	≤0.35	/	/	/	/	/	≥485	≥275	≥30

GB9948-2006 Outdiameter and Wall Thickness Tolerance

Classification	Production Technology	Nominal Pipe Size	Tolerance		
			Usual	High Class	
WH	Hot rolling (extruded) steel pipe	≤50	±0.50	±0.30	
		Outer Diameter(D)			
		> 50-159	±1%D	±0.75%D	
		> 159	±1%D	±0.9%D	
	Hot Expansion	Wall Thickness (S)	≤20	+15%S -10%S	±10%S
			> 20	+12.5%S -10%S	±10%S
		Outer Diameter(D)	All	±1%D	
		Wall Thickness (S)	All	±15%S	
WC	Cold Drawing steel pipe	14-30	±0.20	±0.15	
		Outer Diameter(D)			
		> 30-50	±0.30	±0.25	
		> 50	±0.75%D	±0.6%D	
		Wall Thickness (S)	≤3.0	+12.5%S -10%S	±10%S
			> 3.0	±10%S	±7.5%S

All Kinds of Standards of Seamless Steel Pipe Chemical Composition and Mechanical Properties

Structural Pipe

Trade Mark	Chemical Composition(Smelt analysis) %							
	C	Si	Mn	P	S	Cr	Ni	Cu
	Mpa Min.							
10	0.07-0.13	0.17-0.37	0.35-0.65	0.035	0.035	0.15	0.30	0.25
20	0.17-0.23	0.17-0.37	0.35-0.65	0.035	0.035	0.25	0.30	0.25
35	0.32-0.39	0.17-0.37	0.50-0.80	0.035	0.035	0.25	0.30	0.25
45	0.42-0.50	0.17-0.37	0.50-0.80	0.035	0.035	0.25	0.30	0.25

Mechanical Properties

Trade Mark	Tensile Strength	Yield Point MPa Min.			Percentage Elongation (Lo=6do) % Min	Distance Between Plates For Flattening Tests (H)mm	Standards Adopted
		Wall Thickness (mm)					
		≤16mm	> 16-30mm	> 30mm			
10	≥335	205	195	185	24	2/3D	GB8162
20	≥410	245	235	225	20	2/3D	
35	≥510	305	295	285	17	-	
45	≥590	335	325	315	14	-	



All Kinds of Standards of Seamless Steel Pipe Chemical Composition and Mechanical Properties Boiler Tube

Trade Mark	Steel Tube Classification	Chemical Composition (Smelt analysis) %							
		C	Si	Mn	P	S	Cr	Mo	V
					MPa Min.				
10	Medium-Low Pressure Boiler Tube	0.07-0.13	0.07-0.37	0.35-0.65	0.035	0.035	0.15	-	-
20		0.17-0.23	0.17-0.37	0.35-0.65	0.035	0.035	0.25	-	-
20G	High Pressure Boiler Tube	0.17-0.23	0.17-0.37	0.35-0.65	0.025	0.015	-	-	-

Fluid Transferring Pipe

Trade Mark	Chemical Composition (Smelt analysis) %							
	C	Si	Mn	P	S	Cr	Ni	Cu
				MPa Min.				
20	0.17-0.23	0.17-0.37	0.35-0.65	0.035	0.035	0.25	0.30	0.25

Trade Mark	Mechanical Properties					Standards Adopted
	Tensile Strength MPa	Yield Point MPa Min.		Percentage Elongation (Lo=6do) % Min		
		Wall Thickness (mm)				
		≤ 16	> 16			
20	410-530	245	235	20	GB8163	

Outer Diameter Wall Thickness Tolerance Table

Seamless Steel Tube

API 5L Tolerances for Diameter and Wall Thickness API 5L

Tolerance* (Percent of Specified Wall Thickness)			
Size	Type of Pipe	Grade B or Lower	Grade X42 or Higher
≤ 27/8	All	+20.0, -12.5	+15.0, -12.5
> 27/8 and < 20	All	+15.0, -12.5	+15.0, -12.5
≥ 20	Welded	+17.5, -12.5	+19.5, -8.0
≥ 20	Seamless	+15.0, -12.5	+17.5, -10.0

\*Where negative tolerances smaller than those listed are specified by the purchaser, the positive tolerance shall be increased to the applicable total tolerance range in percent less the wall thickness negative tolerance.

Tolerance for Diameter AT Pipe Ends

Out - of - Roundness					
Size	Minus Tolerance	Plus Tolerance	End-to-End Tolerance	Diameter, Axis Tolerance (Percent of Specified OD)*	Maximum Differential Between Minimum and Maximum Diameters (Applies only to Pipe with D/ts≤75)
≤ 10 <sup>3</sup> / <sub>4</sub>	1/64(0.4mm)	1/16(1.6mm)	-	-	-
> 10 <sup>3</sup> / <sub>4</sub> and ≤ 20	1/32(0.8mm)	3/32(2.4mm)	-	-	-
> 20 and ≤ 42	1/32(0.8mm)	3/32(2.4mm)	b	± 1%	≤ 0.500in.(12.7mm)
> 20	1/32(0.8mm)	3/32(2.4mm)	b	± 1%	≤ 0.625in.(15.9mm)

\*Out-of-roundness tolerances apply to maximum and minimum diameters as measured with a bar gage, caliper, or device measuring actual maximum and minimum diameters.

\*The average diameter(as measured with a diameter tape) of one end of pipe shall not differ by more than 3/32in. (2.4mm) from that of the other end.

ASTM A106 Outdiameter & Wall Thickness Tolerance ASTM A106

NPS(DN) Designator	Permissible Variations in Outside Diameter
1/8" - 1 1/2" (6-40)	± 1/64in (± 0.4mm)
1 1/2" < NPS ≤ 4" (40-100)	± 1/32in (0.8mm)
4" < NPS ≤ 8" (100-200)	-1/32in ~ +1/16in (-0.8mm ~ +1.6mm)
8" < NPS ≤ 18" (200-450)	-1/32in ~ +3/32in (-0.8mm ~ +2.4mm)
18" < NPS ≤ 26" (450-650)	-1/32in ~ +1/8in (-0.8mm ~ +3.2mm)
26" < NPS ≤ 34" (650-850)	-1/32in ~ +5/32in (-0.8mm ~ +4mm)
34" < NPS ≤ 48" (850-1200)	-1/32in ~ +3/16in (-0.8mm ~ +4.8mm)
Wall thickness tolerance	All plants should be ≥ -12.5% the specified wall thickness