ABOUT US

PUSHPAK is in Stainless Steel business since last 2 decades. The group is importers, exporters as well as manufacturers of ERW Stainless Steel Pipes and Tubes are capable of meeting the International Standards, DIN Standards as well as Indian Standards.

Having facilities to produce from 1/4"NB x 1.5mm thickness to 12"NB x 5mm thickness pipes under ASTM A 312 specification and 15.8mm OD x 1mm thickness to 127mm OD x 4.5mm thickness ERW Pipe/Tube in clusters of mills supported by straightening machines, solution annealing roller hearth furnace, facing m/c., hydrostatic test bench and pickling & passivation facilities along with latest quality control equipment's and testing facilities. Besides, the manufacturing unit can also supply 114.3 mm OD to 1000 mm OD pipe under A358 Class III – 1.5 mm thickness to 16 mm thickness under Hydraulic process forming method, commonly known as fabricated pipes with approved and qualified welders and welding procedures as per ASME – section IX where tested filler wire is used as per ASME section IX code. The Weld quality is assured by latest radiography report.
Workmanship quality is well accepted by all our high-profile customers.
ERW / EFW Pipes & Tubes, also in Ferritic Steel & 400 series.

The Manufacturing unit is well supported by highly experienced technical staff, highly skilled workers, Senior Managers & well experienced and knowledgeable quality management consultants along with Vigilant Hawk-eyed inspection team guided by Senior Metallurgist Engineer.

We are having wide network in India. And looking forward to extend our networking in the abroad market too.

SS ERW / WELDED PIPES & TUBES

SS ROUND / SQUARE PIPES & TUBES

- SS RECTANGULAR PIPES & TUBES
- SS HEXAGONAL PIPES & TUBES
- SS TRIANGULAR PIPES & TUBES
- SS DUPLEX PIPES & TUBES
- SS ALLOY STEEL PIPES & TUBES
- SS HASTE ALLOY PIPES & TUBES
- SS TITANIUM PIPES & TUBES
- SS INCONEL PIPES & TUBES

SS EFW / EFSW PIPES & TUBES

SS LARGE DIAMETER PIPES & TUBES

- SS EFW / EFSW PIPES & TUBES
- SS BIG DIAMETER PIPES & TUBES

SS POLISHED PIPES & TUBES

SS SQUARE PIPES & TUBES

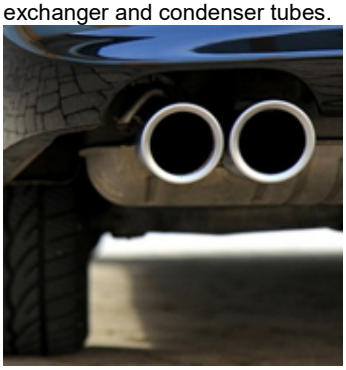
- SS RECTANGULAR PIPES & TUBES
- SS HEXAGONAL PIPES & TUBES
- SS TRIANGULAR PIPES & TUBES

SPECIFICATION		
Grade	**UNS Designation**	**ASTM**
AUSTENITIC STAINLESS		
304	S 30400	A249, A269, A688, A270,A312, A498, A554
304L	S 30403	A249, A269, A688, A270,A312, A498, A554
304H	S 30409	A249, A269, A688, A270,A312, A498, A554
316	S 31600	A249, A269, A688, A270,A312, A498, A554
316L	S 31603	A249, A269, A688, A270,A312, A498, A554
316H	S 31609	A249, A269, A688, A270,A312, A498, A554
321	S 32100	A249, A269, A688, A270,A312, A498, A554
310S	S 31008	A249, A269, A688, A270,A312, A498, A554
347	S 34700	A249, A269, A688, A270,A312, A498, A554
FERRETIC STAINLESS		
409	S 40900	A268, A803, A498
439	S 43035	A268, A803, A498
439I	S 43035	A268, A803, A498
MARTENSITIC STAINLESS		
410S	S 41008	A268
DUPLEX STAINLESS		
2205	S 31803	A789

ASTM- STANDARDS	
A 249 / SA 249	Welded austenitic steel boiler, Super Heater, Heat Exchanger and Condenser Tubes
A 268 / SA 268	Welded ferritic and martensiticstainless steel tubing for general service
A 269 / SA 269	Welded austenitic stainless-steel tubing for general service
A 312 / SA 312	Welded austenitic stainlesssteel pipes
A 358 / SA 358	Welded pipe for High temperature service
A 688 / SA 688	For Welded feed water heater ‘U’ Tubes

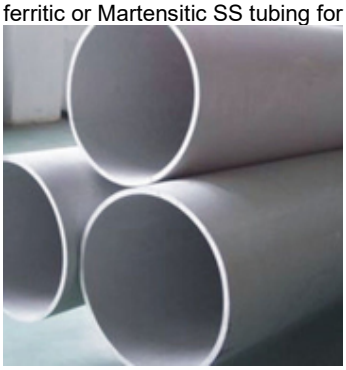
STAINLESS STEEL HEAT EXCHANGER / CONDENSER TUBES TO ASTM A 249

This standard covers the manufacture and supply of welded Austenitic stainless steel, boiler, super heater, heat exchanger and condenser tubes.



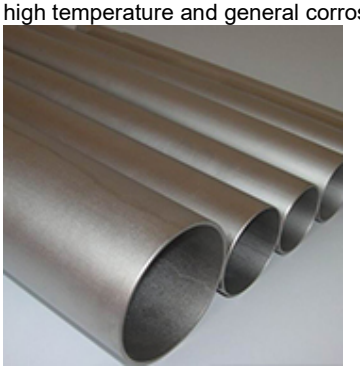
STAINLESS STEEL TUBES FOR AUTOMOTIVE EXHAUST SYSTEMS

PUSHPAK stainless steel Tubes are used in all automotive exhaust systems for lightness and strength, improved mechanical properties, improved corrosion resistance at high temperature and appearance, there is no specification for these tubes but in general, ASTM A-268 may be applicable which covers Seamless or Welded, ferritic or Martensitic SS tubing for general service.



STAINLESS STEEL SCHEDULE PIPING TO ASTM A -312 (WELDED)

This covers straight seam welded (without the addition of filler metal) austenitic stainless-steel pipe intended for high temperature and general corrosive service.



STAINLESS STEEL FUSION WELDED PIPES FROM PLATES AS PER ASTM A 358

This covers electric-fusion welded austenitic Chromium-nickel stainless steel pipe suitable for corrosive or high temperature service, or both. Five classes of pipe are covered under this specification.
Class 1.: Double side welded using filler material and 100% radiographed.
Class 2.: Double side welded using filler material. No radiography required.
Class 3.: Single side welded using filler material and 100% radiographed.
Class 4.: As class 3, except root pass may made without filler.
Class 5.: Double welded using filler material and spot radiographed.

COLD DRAWN SEAMLESS STAINLESS STEEL TUBES ASTM A 213

This cover straight cold drawn seamless ferritic, austenitic alloy steel, boiler, superheater and heat exchanger tubes.

STAINLESS STEEL APPLICATION TUBES PER ASTM A 270

DIMENSIONS & WEIGHT OF WELDED AND SEAMLESS STAINLESS-STEEL PIPE - SI UNITS

NB	NPS	OD	SCHEDULE - 5 S		SCHEDULE - 10 S		SCHEDULE - 40 S		SCHEDULE - 80 S	
MM	INCHES	MM	THK (MM)	KG/MTR	THK (MM)	KG/MTR	THK(MM)	KG/MTR	THK (MM)	KG/ MTR
…	1/8"	10.3	…	…	1.24	0.28	1.73	0.37	2.41	0.47
6	1/4"	13.7	…	…	1.65	0.49	2.24	0.63	3.02	0.8
10	1/8"	17.1	…	…	1.65	0.63	2.31	0.84	3.2	1.1
15	1/2"	21.3	1.65	0.8	2.11	1	2.77	1.27	3.73	1.62
20	3/4"	26.7	1.65	1.03	2.11	1.28	2.87	1.69	3.91	2.2
25	1"	33.4	1.65	1.3	2.77	2.09	3.38	2.5	4.55	3.24
32	1 1/4"	42.2	1.65	1.65	2.77	2.7	3.56	3.39	4.85	4.47
40	1 1/2"	48.3	1.65	1.91	2.77	3.11	3.68	4.05	5.08	5.41
50	2"	60.3	1.65	2.4	2.77	3.93	3.91	5.44	5.54	7.48
65	2 1/2"	73	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.41
80	3"	88.9	2.11	4.51	3.05	6.45	5.49	11.29	7.62	15.27
90	3 1/2"	101.	2.11	5.18	3.05	7.4	5.74	13.57	8.08	18.63

		6								
100	4"	114.3	2.11	5.84	3.05	8.36	6.02	16.07	8.56	22.32
125	5"	141.3	2.77	9.47	3.4	11.57	6.55	21.77	9.53	30.97
150	6"	168.3	2.77	11.32	3.4	13.84	7.11	28.26	10.97	42.56
200	8"	219.1	2.77	14.79	3.76	19.96	8.18	42.55	12.7	64.64
250	10'	273.1	3.4	22.63	4.19	27.78	9.27	60.31	15.1	96.01
300	12"	323.9	3.96	31.25	4.57	36	9.53	73.88	17.48	132.08
350	14"	355.6	3.96	34.36	4.78	41.3	…	…	…	…
400	16"	406.4	4.19	41.56	4.78	47.29	…	…	…	…
450	18"	457	4.19	46.81	4.78	53.26	…	…	…	…
500	20"	508	4.78	59.25	5.54	68.61	…	…	…	…
550	22"	559	4.78	65.24	5.54	75.53	…	…	…	…
600	24"	610	5.54	82.47	6.35	94.45	…	…	…	…
750	30"	762	6.35	118.31	7.92	147.36	…	…	…	…

DIMENSIONS		10Swg	12Swg	14Swg	16Swg	18Swg	20Swg	22Swg
SIZE IN INCHES	OD IN MM	3.25 MM (WT KG/M)	2.64 MM (WT KG/M)	2.03MM (WT KG/M)	1.62MM (WT KG/M)	1.21MM (WT KG/M)	0.91MM (WT KG/M)	0.71MM (WT KG/M)
3/8	9.52	0.549	0.447	0.405	0.341	0.268	0.193	0.165
1/2	12.7	0.768	0.654	0.542	0.451	0.350	0.264	0.213
3/4	19.05	1.285	1.068	0.864	0.710	0.544	0.407	0.320
1	25.4	1.801	1.482	1.187	0.969	0.710	0.549	0.432
1 1/4	31.75	2.318	1.895	1.510	1.228	0.969	0.692	0.543
1 1/2	38.1	2.834	2.309	1.832	1.487	1.228	0.820	0.654
1 3/4	45.00	3.408	2.722	2.191	1.775	1.487	0.834	0.765
2	50.8	3.868	3.136	2.478	2.006	1.775	1.119	0.877
2 1/2	63.5	4.901	3.963	3.123	2.524	2.006	------	------
3	76.2	5.934	4.790	3.453	2.789	2.524	------	------
3 1/2	88.9	6.964	5.617	4.413	3.560	2.789	------	------
4	101.6	8.000	6.444	5.059	4.078	3.560	------	------

GRADES – CHEMICAL COMPOSITION AND EQUIVALENT STANDARDS

AISI ASTM	EN DIN	C % Max	Mn % Max	Si % Max	S % Max	P % Max	Cr % Max	Ni % Max	Mo % Max	Others %
201	-	0.15	8min	1.00	0.030	0.070	12min	0.50min	-	Cu 1-1.5
202	-	0.15	7.5-10	1.00	0.030	0.060	17.00-19.00	4.00-6.00	-	-
302	1.4310	0.15	2.00	1.00	0.030	0.045	17.00-1900	8.00-10.00	-	-
302HQ	1.4567	0.03	2.00	1.00	0.030	0.045	17.00-19.00	9.00-10.00	-	Cu : 3.00-4.00
303	1.4305	0.15	2.00	1.00	0.15 Min	0.20	17.00-1900	8.00-10.00	-	Cu : 1% max
303EHS	-	0.15	2.00	1.00	0.30-0.33	0.20	17.00-19.00	8.00-10.00	-	Cu : 1% max
304	1.4301	0.08	2.00	1.00	0.030	0.045	18.00-20.00	8.00-11.00	-	-
304HC	-	0.05	2.00	1.00	0.030	0.045	18.00-20.00	8.50-9.50	-	Cu : 2.00-2.50
304L	1.4307	0.03	2.00	1.00	0.030	0.045	18.00-20.00	8.00-12.00	-	-
308LER	1.4331	0.02	1.5-2.0	0.50	0.020	0.025	19.00-21.00	9.50-11.00	-	-
309LER	1.4332	0.03	1.5-2.0	0.50	0.015	0.020	23.00-25.00	12.00-14.00	-	-
310	1.4841	0.25	2.00	1.50	0.030	0.045	24.00-26.00	19.00-22.00	-	-
310S	1.4842	0.08	2.00	1.50	0.030	0.045	24.00-26.00	19.00-22.00	-	-
316	1.4401	0.08	2.00	1.00	0.030	0.045	16.00-18.00	10.00-14.00	2.00-3.00	-
316L	1.4404	0.03	2.00	1.00	0.030	0.045	16.00-18.00	10.00-14.00	2.00-3.00	-
316LER	1.4430	0.02	1.5-2.0	0.50	0.020	0.020	18.00-20..00	12.00-14.00	2.00-2.75	-
316Ti	1.4571	0.08	2.00	1.00	0.030	0.045	16.00-18.00	10.00-14.00	2.00-3.00	Ti : Min (5xC%)
317LN	1.4438	0.03	2.00	1.00	0.030	0.045	18.00-20.00	11.00-15.00	3.00-4.00	N : 0.10-0.22
321	1.4541	0.08	2.00	1.00	0.030	0.045	17.00-19.00	9.00-12.00	-	Ti : Min (5xC%)
410	1.4006	0.15	1.00	1.00	0.030	0.040	11.50-13.50	-	-	-
416	1.4005	0.15	1.25	1.00	0.15 Min	0.060	12.00-14.00	-	-	-
416XM	-	0.15	1.25	1.00	030-0.33	0.060	12.00-14.00	-	-	-
420	1.4021	0.15 Min	1.00	1.00	0.030	0.040	12.00-14.00	-	-	-
430	1.4016	0.12	1.00	1.00	0.030	0.040	16.00-18.00	-	-	-
430L	-	0.03	1.00	1.00	0.030	0.040	16.00-18.00	-	-	-
430F	1.4104	0.12	1.25	1.00	0.15 Min	0.060	16.00-18.00	-	-	-
431	1.4057	0.20	1.00	1.00	0.030	0.040	15.00-17.00	1.25-2.50	-	-

CHEMICAL COMPOSITION

Jindal Designation/code	%C (min~max)	%Mn (min~max)	%P (min~max)	%S (min~max)	%Si (min~max)	%Cr (mim~max)	%Ni (min~max)	%Mo (min~max)	N PPM (max)	%Others
Austenitic Cr-Mn*										
J-201	0.150	5.5-7.5	0.060	0.030	1.000	16.00-18.00	3.50-5.50	-	2500	-
J-201L	0.030	5.5-7.5	0.045	0.030	0.750	16.00 -18.00	3.50-5.50	-	2500	
J-201LN	0.030	6.4-7.5	0.045	0.015	0.750	16.00-17.50	4.00-5.00	-	1000-2500	Cu = 1.0 Max.
J-202	0.150	7.5-10.0	0.060	0.030	1.000	17.00-19.00	4.00-6.00	-	2500	-
J-204 Cu	0.100	6.5-9.0	0.060	0.010	0.750	16.00-17.50	1.50-3.50		1000-2000	Cu - 2.0-4.0
JSL AUS	0.080	6.0-8.0	0.070	0.010	0.750	16.00-18.00	4.00-6.00	-	1000	Cu - 1.5-2.0
JSL T	0.100	9.0-10.0	0.100	0.010	0.750	14.5-16.5	0.25-0.35		2000	
J4	0.100	8.50-10.0	0.080	0.010	0.750	15.00-16.00	1.00-2.00		2000	Cu = 1.5-2.0
JSLU(DD)	0.15(max)	9.7 to 10.7	0.10(max)	0.03(max)	0.75(max)	15.1 to 16.0	0.45 to 0.60		2000	Cu = 1.90 to 2.20
JSL U(SD)	0.15(max)	9.7 to 10.30	0.10(max)	0.03(max)	0.75(max)	13.25 to 14.25	0.40 to 0.50		1000 to 2000	Cu = 1.25 to 1.75
Austenitic Cr-Ni*										
J-301	0.150	2.000	0.045	0.030	1.000	16.00-18.00	6.00-8.00	-	1000	
J-301L	0.030	2.000	0.045	0.030	1.000	16.00-18.00	6.00-8.00	-	2000	
J-301LN	0.030	2.000	0.045	0.030	1.000	16.00-18.00	6.00-8.00		700-2000	-
J-304	0.070	2.000	0.045	0.030	0.750	17.50-19.50	8.00-10.50		1000	
J-304M	0.04-0.10	2.000	0.045	0.030	0.750	18.00-20.00	8.00-10.50	-		
J-304L	0.030	2.000	0.045	0.030	0.750	17.50-19.50	8.00-12.00		1000	-
J-304LN	0.030	2.000	0.045	0.030	0.750	18.00-20.00	8.00-12.00		1000-1600	
J-309	0.200	2.000	0.045	0.030	0.750	22.00-24.00	12.00-15.00	-	-	
J-309S	0.080	2.000	0.045	0.030	0.750	22.00-24.00	12.00-15.00			
J-310	0.250	2.000	0.045	0.030	1.500	24.00-26.00	19.00-22.00			
J-310S	0.080	2.000	0.045	0.030	1.500	24.00-26.00	19.00-22.00		-	
J-316	0.080	2.000	0.045	0.030	0.750	16.00-18.00	10.00-14.00	2.00-3.00	1000	
J-316L	0.030	2.000	0.045	0.030	0.750	16.00-18.00	10.00-14.00	2.00-3.00	1000	
J-316LN	0.030	2.000	0.045	0.030	0.750	16.00-18.00	10.00-14.00	2.00-3.00	1000-1600	
J-316Ti	0.080	2.000	0.045	0.030	0.750	16.00-18.00	10.00-14.00	2.00-3.00	1000	Ti-5X(C+N) Min., 0.70 Max.
J-317	0.080	2.000	0.045	0.030	0.750	18.00-20.00	11.00-15.00	3.00-4.00	1000	-
J-317L	0.030	2.000	0.045	0.030	0.750	18.00-20.00	11.00-15.00	3.00-4.00	1000	-
J-317LN	0.030	2.000	0.045	0.030	0.750	18.00-20.00	11.00-15.00	3.00-4.00	1000-2200	
J-31727	0.030	1.000	0.030	0.030	1.000	17.50-19.00	14.50-16.50	3.80-4.50	1500-2100	Cu- 2.8-4.0
J-321	0.080	2.000	0.045	0.030	0.750	17.00-19.00	9.00-12.00	-	1000	Ti=5X(C+N) Min., 0.70 Max.

J-347	0.080	2.000	0.045	0.030	0.750	17.00-19.00	9.00-13.00	-		Nb- 10XC Min., 1.00 Max.
Martensitic										
J-410	0.08-0.15	1.00	0.04	0.03	1.00	11.50-13.50	0.75 max	-	-	-
J-415	0.05	0.50-1.00	0.030	0.030	0.600	11.50-14.00	3.50-5.50	0.50-1.00	-	-
J-420	0.15 min	1.00	0.040	0.030	1.000	12.00-14.00	0.75 max	0.50 max	-	-
J-431	0.200	1.00	0.040	0.030	1.000	15.00-17.00	1.25-2.50	-	-	-
JBS	0.60-0.70	1.00	0.030	0.015	0.750	12.50-13.50	-	-	-	
Ferritic										
J-405	0.080	1.000	0.040	0.030	1.000	11.50-14.50	0.6	-	-	AI - 0.10-0.30
J-409	0.030	1.000	0.040	0.020	1.000	10.50-11.70	0.50 max			Ti -6X (C+N) Min., 0.5 Max.
J-409L	0.030	1.000	0.040	0.030	1.000	10.50-11.70	0.50 max	-	300	Ti =6X (C+N) Min., 0.75 Max.
J-410S	0.080	1.000	0.040	0.030	1.000	11.50-13.50	0.60 max		-	
J-430	0.120	1.000	0.040	0.030	1.00	16.00-18.00	0.75 max	-		
J-43OTi	0.030	1.000	0.040	0.030	1.00	16.00-19.00	-	-		Ti - 0.10-1.00
J-436	0.120	1.000	0.040	0.030	1.00	16.00-18.00		0.75-1.25		Nb= 5XC Min., 0.70 Max.
J-436L	0.025	1.000	0.040	0.030	1.00	16.00-19.00	-	0.75-1.25	250	**% Nb or & Ti or °/0 combination= 8X (C+N) Min., 0.80 Max.**
J-439	0.030	1.000	0.040	0.030	1.00	17.00-19.00	0.50 max	-	300	Ti-0.20+4X (C+N) Min.,1.10 Max. AJ= 0.15 Max.
J-441	0.030	1.000	0.040	0.015	1.00	17.50-18.50		-		Nb= 3X% C+0.3 Min.I % Max., TI = 0.1-0.6%
Ferritic + Martensitic										
J-409M	0.030	0.8-1.5	0.030	0.030	1.000	10.80-12.50	1.50 max	-	300	Ti = 0.75 Max.
Duplex (Austenitic+Ferritic)										
J-2205	0.030	2.000	0.030	0.020	1.000	22.00-23.00	4.50-6.50	3.0-3.50	1400-2000	-
J-2304	0.030	2.500	0.040	0.030	1.000	21.50-24.50	3.00-5.50	0.05-0.60	500-2000	Cu 0.05 Min.-0.60 Max.
J-31803	0.030	2.000	0.030	0.020	1.000	21.00-23.00	4.50-6.50	2.50-3.50	800-2000	-

MECHANICAL PROPERTIES

Jindal Designation/code	Tensile Strength (MPA)min.	%Yield Strength(MPA)min.	%Elongation(min.)	Hardness (HRB)max.
J-201	655	310	40	100
J-202	620	310	40	100
J-204 Cu	620	310	40	100
JSL AUS(J1)	550	206	40	96
JSL T	650	325	40	100
J4	650	325	40	100
JSL U	650	325	40	100
JSLU(DD)	650	325	40	100
JSLU UT	650	325	40	100
JSL U(SD)	650	325	40	100
Austenitic Cr-Mn*				
J-301	615	205	40	96
J-301L	550	220	45	100
J-304	515	205	40	92
J-304M	515	205	40	92
J-304L	485	170	40	92
J-304LN	515	205	40	92
J-309	515	205	40	95
J-309S	515	205	40	95
J-310	515	205	40	95
J-310S	515	205	40	95
J-316	515	205	40	95
J-316L	485	170	40	95
J-316LN	515	205	40	95
J-316Ti	515	205	40	95
J-317	515	205	35	95
J-317L	515	205	40	95
J-317LN	550	240	40	95
J-31727				
J-321	515	205	40	95
J-347	515	205	40	95
Martensitic				
J-410	450	205	20	96
J-415	795	620	15	32 (HRC)
J-420	690	*	15	96
Martensitic				
J-405	415	170	20	86
J-409	380	170	20	88
J-409L	380	170	20	88
J-410S	415	205	22	89
J-430	450	205	22	89
J-43OTi	360	175	22	90

J-436	360	175	22	90
J-436L	360	175	22	90
J-439	415	205	22	89
J-409M	415	205	22	89
J-2205	655	450	25	31 (HRC)
J-2304	600	450	25	32 (HRC)

PUSHPAK
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