Manufacturers of Stainless Steel Seamless, Welded Pipes & Tubes

SHUBHLAXMI

ISO 9001:2000 CERTIFIED COMPANY

Shubhlaxmi Metals And Tubes Pvt. Ltd.

SHUBHLAXMI

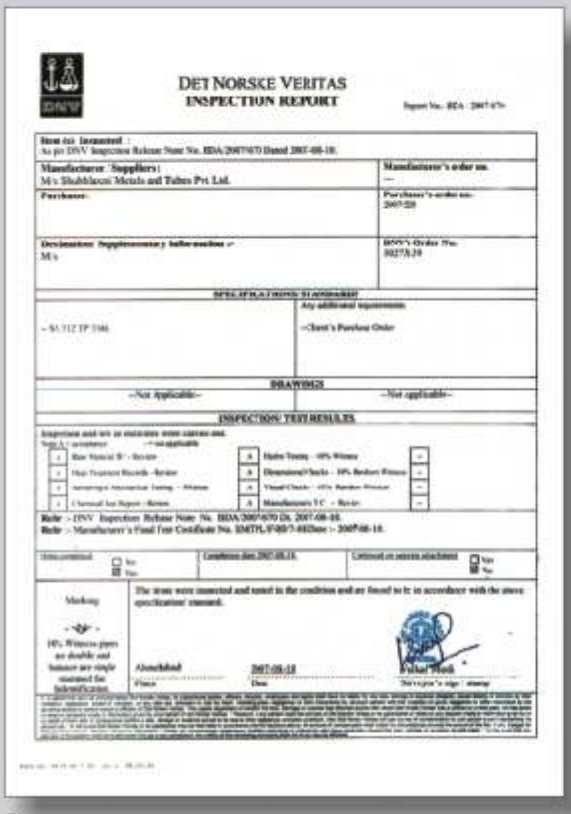
Welcome to Shubhlaxmi

CERTIFICATE

Management system as per
ISO 9001 : 2000

SHUBHLAXMI METALS & TUBES P. LTD.
Reg. Off.: 3/A, R.K.Wadi, 1st Parsiwada Lane,
Mumbai 400 004
Factory Add.: Plot No.9, New G.I.D.C.,
Umbergaon, Gujarat

Manufacture of Welded Stainless Steel Pipes & Tubes



DET NORSKE VERITAS
INSPECTION REPORT

Introduction

In the world of Stainless Steel business **SHUBHLAXMI GROUP** is one of the most acclaimed manufacturer & trader of stainless steel material started at a very small scale with trading activities in flagship company **SHUBHLAXMI STEEL**, a self regulating family owned business founded by Mr. Anraj Shah in Mumbai within a decade the company has widened their horizon from importing and distributing stainless steel raw material like stainless steel sheet coils and seamless & welded pipes & tubes.

The trading activities of Shubhlaxmi steel were further widened by diversifying into manufacturing Stainless Steel Pipe &Tubes both seamless & welded in the name of **"SHUBHLAXMI METALS AND TUBES PVT. LTD."** having setup in Umbergaon (Gujarat) 2 Hours Drives from Mumbai.

In short Span of time we have become a leading manufacturer in domestic & Overseas Market. The company specializes in customizing the Product & Design as per the client requirement, Our strict adherence to quality norms, a detailed checking of the product Quality, Constant tabs on the latest updates in stainless steel technology are some of the features of the company that sets up class apart.

Our vision

We will walk to horizon. And shall continue consolidating our position as the pathfinder of cutting edge technologies and solution, till we become global leader in every chosen filed.
We shall continue to be first in identifying & addressing customer's needs and keep exceeding expectation of our customers.

Our Mission

To be proactive Organization in Manufacturing and Supplying Quality product not only to meet but to exceed our customer requirement and thereby ensuring customers satisfaction. We have futuristic approach in our endevaour, with a name to achieve excellence in every sphere of activity.

We follow Quality, Rest Follow Us.

"Quality First" is not an overrated terms, but Mantra that has brought success to us. Even during tough terrians in company's history it worked as compass to future. We dedicate to our Quality system which we implement & sustain.

Manufacturing Program


Continuous forming mill with Automatic TIG Welding

Product Portfolio

Pipes & Tubes

Shubhlaxmi offers you a diverse range of Product in the form of pipes & tubes in Various Sizes, finishes & Grades

Range

Pipes & Tubes in Various sizes as below

Description	Size	Product Standard
ERW (Tig Welded) Pipes & Tubes	6.00 mm OD to 219.10 mm OD	ASTM A-249, A-269, A-270, A-312
Seamless Pipes & Tubes	6.00 mm OD to 102.00 mm OD	ASTM A-213, A-269, A-312
EFSW Pipes	8" NB to 30" NB	ASTM A-358
Heat Exchanger Tubes	6.00 mm OD to 102.00 mm OD	ASTM A-249, A-269, A-270
Automotive Exhaust Pipes	12.00 mm OD to 102.00 mm OD	ASTM A-269, As per Customer's Requirement
Dairy Tubes	12.00 mm OD to 102.00 mm OD	ASTM A-249
Square, Rectangle & Elliptical Pipes	12.00 mm OD to 50.00 mm OD	As per Customer's Requirement
Half Round Pipe	25.00 mm OD to 102.00 mm OD	As per Customer's Requirement

Condition

As Welded.
Annealed, Pickled & Passivated
Cold Drawn.
Polished tubes & Pipes in Grit 60, 80,120, 180, 240, 320, 400, 600 Grit & Mirror finish.

Length

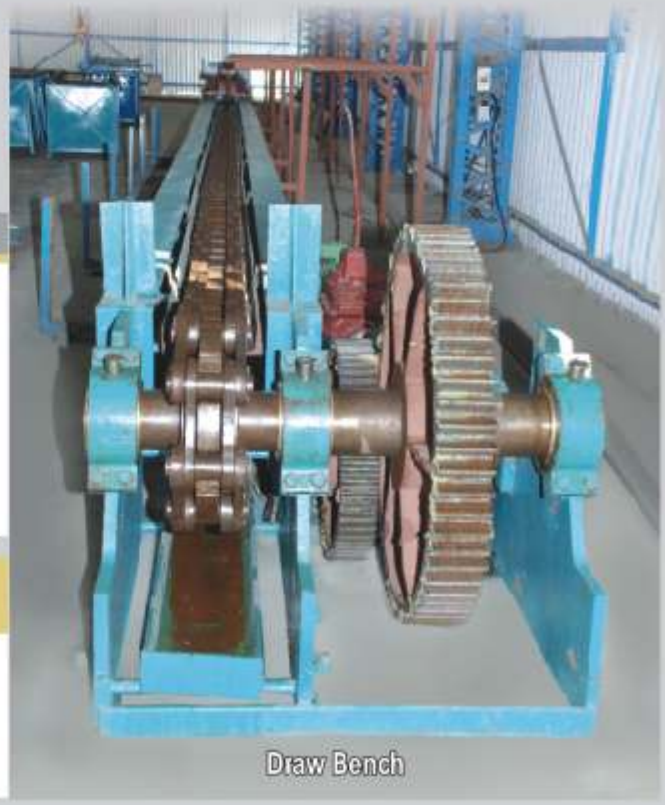
As per Customer requirement maximum up to 22 mtr. long

SEAMLESS PIPES & TUBES

Shubhlaxmi has a good capacity to manufacture Seamless Pipes & Tubes from Hot Extruded Mother Pipes. The Mother pipes are cold drawn on a draw bench. The Cold Drawing process is adopted to reduce the diameter as well as the wall thickness. The pipes & tubes are annealed in continuous Roller Hearth Gas Fired Furnace.

Seamless Pipes & Tubes are manufactured to cater the following industry.

- Heat Exchanger Tubes
- General Engineering
- Chemical & Pharmaceuticals


Draw Bench

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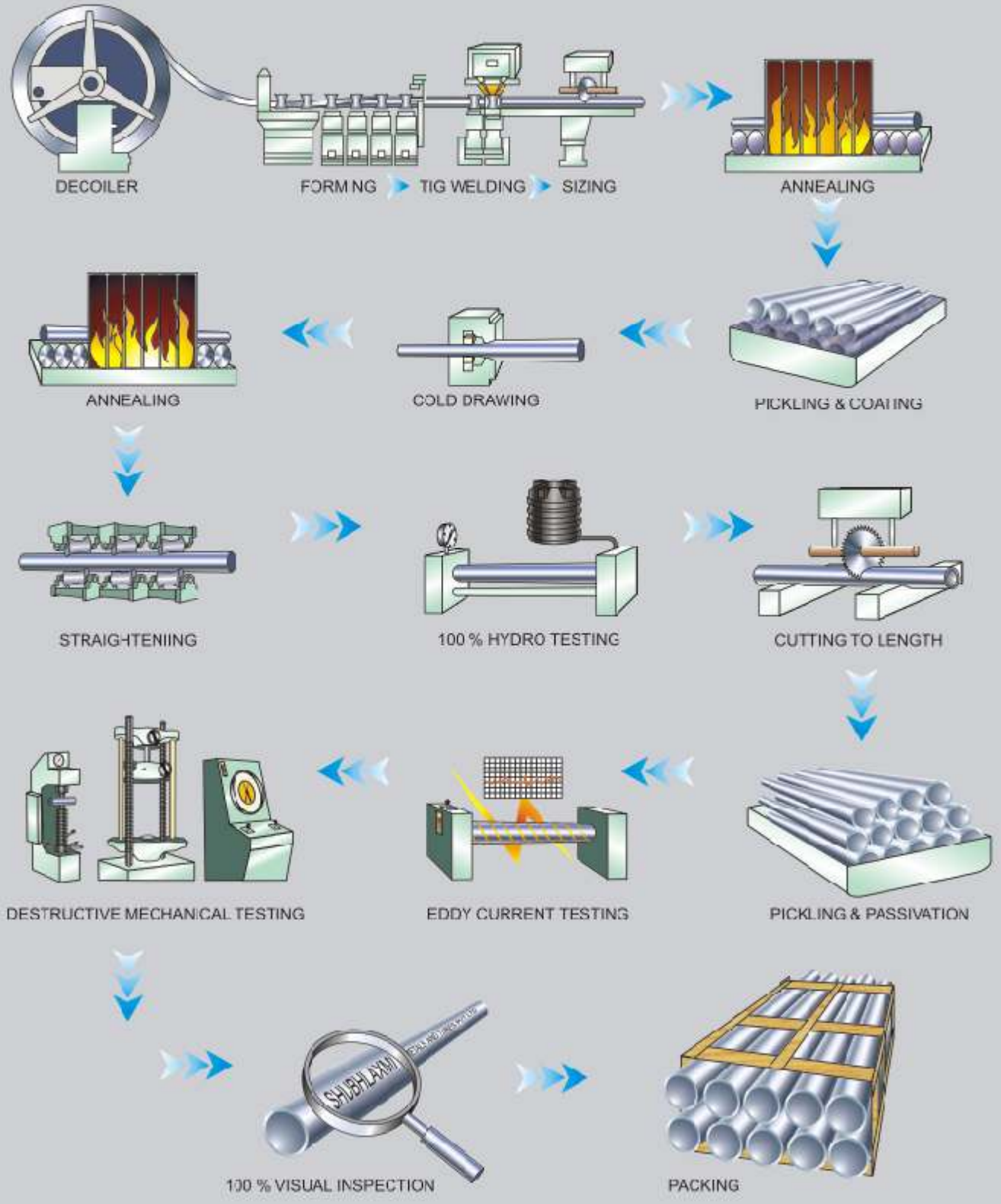
We make Tubes & Pipes keeping you in mind

PROCESS FLOW CHART



This is how we are Involve

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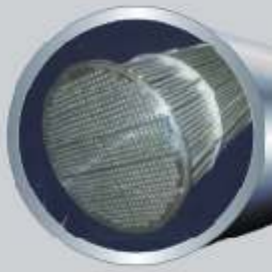
APPLICATION



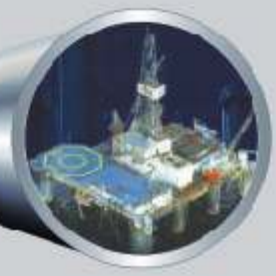
- Heat Exchanger & Condensers
- Chemical Equipment

- Pharmaceuticals
- Sugar Industries
- Furniture

- Fabrication (Vessel)
- Oil & Gas Industries
- Dairy & Food Industries

- Automobile
- Paper & Pulp Industries
- Doors & Handles

- Boilers
- Sanitary & Plumbing
- Instrumentation
- Fertilizer Plants



- Power Plants
- Railway Coaches

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Condensed ASTM Specification for Stainless Steel Tubes & Pipes

Specification	Allowable Outside Diameter Variations in mm			Allowable Wall Thickness Variations		Exact Length Tolerances in mm		Testing
	Nominal Diameter	Over	Under	Over %	Under %	Over	Under	
ASTM A-213 Seamless Boiler, Superheater and Heat Exchanger Tubes	Under 25.4	0.10	0.10	+20	-0	3.17	0	Tension Test
	25.4-38.1 Incl.	0.15	0.15	+20	-0	3.17	0	Flattening Test
	38.1-50.8 excl.	0.20	0.20	+22	-0	3.17	0	Flare Test
	50.8-63.5 excl.	0.25	0.25	+22	-0	3.76	0	Hardness Test
	63.5-76.2 excl.	0.30	0.30	+22	-0	4.76	0	100% Hydrostatic Test
	76.2-101.6 incl.	0.38	0.38	+22	-0	4.76	0	Refer to ASTM A-450
ASTM A-249 Welded Boiler Superheater, Heat Exchanger and Condenser Tubes	Diameter	Over	Under	Over%	Under%	Over%	Under	Tension Test
	Under 25.4	0.10	0.10	+10	-10	3.17	0	Flattening Test
	25.4-38.1 Incl.	0.15	0.15	+10	-10	3.17	0	Flare Test/Flange Test
	38.1-50.8 excel.	0.20	0.20	+10	-10	3.17	0	*Reverse Bend Test
	50.8-63.5 excel.	0.25	0.25	+10	-10	4.76	0	Hardness Test
	63.5-76.2 excel.	0.30	0.30	+10	-10	4.76	0	100% Hydrostatic Test
	76.2-101.6 incl.	0.36	0.36	+10	-10	4.76	0	* Reverse Flattening Test
				Minimum Wal+80% available or request				Refer to ASTM A-450
								*Wherever Applicable
ASTM A-269 Seamless & Welded Tubing for General Service	Uptc 12.7	0.13	0.13	+15	-15	3.2	0	Flare Test
	12.7- 38.1 excl.	0.13	0.13	+10	-10	3.2	0	Flange Test (Welded Only)
	38.1-88.9 excl.	0.25	0.25	+10	-10	4.8	0	Hardness Test
	88.9-139.7 excl.	0.38	0.38	+10	-10	4.8	0	Flattening Test
	139.7-203.2 excl.	0.76	0.76	+10	-10	4.8	0	100% Hydrostatic
ASTM A-312 Seamless & Welded Pipe	13.7)-48.3 incl.	0.40	0.79	Minimum Wall 12.5%		6.4	0	Tension Test
	48.3-114.3 incl.	0.79	0.79	under nomina wall		6.4	0	Flattening Test
	114.3-220 incl.	1.60	0.79	Specified		6.4	0	100% Hydrostatic Test
						(Normaly Random Lengths ordered)		Refer to ASTM A-530
ASTM -358 Welded Pipe for High Temperature Service.	For all size 5" N3 & Above	+0.5%	-0.5%	*	0.3 mm	Customers Specification		Transvers Tension test Transverse guided bend test. Hydrostatic test, radographic penetrnt (optional.)
ASTM A-554 Mechanical Steel Tubing	Uptc 5" 127 mm	0.1 to 0.5	0.1 to 0.5	+10	-10%	4.6 to 4.88	0	As per Customer Requirement
ASTM A-688 For WeldedFeed Water heater 'U' Tubes	Under 25.4	0.1016	0.1016	+20	-0 (For min. Wall thk.)	3 to13	0	Tension, Hardness, Corrosion, Reverseberd, Flange, Flattening, Hydrostatic Test, Pneumatic Test, Non Destructive Test
				+10	-10 (For Avg. Wall thk.)			

Permissible Deviations of Outside Diameter and wall thickness

Scope		Outside diameter		Wall thickness	
Tube Manufacturing Process	Outside diameter d_o mm	ISO tolerance class	Permissible deviation	ISC tolerance class	Permissible ceviation
cold-fabricated	$d_o \leq 219.1$	D 2	± 1.0 % min. ± 0.5 mm	T 3	- 10 % min. - 0.2 mm
		D 3	In special cases : ± 0.75 % min. ± 0.3 mm	T 4	In special cases : - 7.5 % min. ± 0.15 mm
		D 4	± 0.5 % min. ± 0.1 mm		
hot-fabricated	$44.5 \leq d_o \leq 219.1$	D 1	± 1.5 % min. ± 0.75 mm	T 1	- 15 % min. - 0.6 mm
		D 2	In special cases : ± 1.0 % min. ± 0.5 mm	T 2	In special cases : - 12.5 % min. ± 0.4 mm
	$219.1 \leq d_o \leq 610$	D 1	± 1.5 % min. ± 0.75 mm[3])		- 22.5 % - 15 % 2)
				T 1	- 15 % min. - 0.6 mm[3])
				T 2	- 12.5 % min. ± 0.15 mm[4])

1) Applies to tubes with wall thickness $\leq 0.05 d_o$ 2) Applies to tube with thickness $\leq 0.05 d_o < s \leq 0.09 d_o$ 3) Applies to tubes with thickness $> 0.09 d_o$

4) The tubes can be ordered with sized ends. In this case a permissible deviation of the outside diameter of ± 0.6 % applies to the tube ends over a length of approx. 100 mm.

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CHEMICAL COMPOSITIONS (%)

Type	C	Mn	P	S	Si	Cr	Ni	Others
201	0.15	5.50 -7.5	0.060	0.030	1.00	16.0 - 18.0	3.5 - 5.5	N 0.25
202	0.15	7.5 - 10.0	0.060	0.030	1.00	17.0 - 19.0	4.0 - 6.0	N 0.25
301	0.15	2.00	0.045	0.030	1.00	16.0 - 18.0	6.0 - 8.0	N 0.25
302	0.15	2.00	0.045	0.030	0.75	17.0 - 19.0	8.0 - 10.0	N-0.10
304	0.08	2.00	0.045	0.030	0.75	18.0 - 20.0	8.0 - 10.5	N 0.25
304L	0.03	2.00	0.045	0.030	0.75	18.0 - 20.0	8.0 - 12.0	N 0.25
305	0.12	2.00	0.045	0.030	0.75			
309S	0.08	2.00	0.045	0.030	0.75	22.0 -24.0	12.0 - 15.0	
310S	0.08	2.00	0.045	0.030	1.50	24.0 - 26.0	19.0 - 22.0	
316	0.08	2.00	0.045	0.030	0.75	16.0 - 18.0	10.0 - 14.0	Mo 2.0-3.0, N 0.10
316L	0.03	2.00	0.045	0.030	0.75	16.0 - 18.0	10. 0- 14.0	Mo 2.0-3.0,-0.10
316Ti	0.08	2.00	0.045	0.030	0.75	16.0 - 18.0	10.0 - 14.0	N 0.10 Ti 5 (C+N) Min, 0.70 Max
317	0.08	2.00	0.045	0.030	0.75	18.00 - 20.00	11.0 - 15.0	Mo 3.0-4.0, N 0.10
317L	0.03	2.00	0.045	0.030	0.75	18.00 - 20.00	11.0 - 15.0	Mo 3.0-4.0, N 0.10
321	0.08	2.00	0.045	0.030	0.75	17.00 - 19.00	9.0 - 12.0	Ti 5 (C+N(Min, 0.70 Max
347	0.08	2.00	0.045	0.030	0.75	17.00 - 19.00	9.0 - 13.0	Cb 10 x C Min, 1.0 Max
904L	0.02	2.00	0.030	0.045	1.00	19.00 - 23.00	23.0 - 28.0	Mo 4.0-5.0, Cu 1.0-2.0
409L	0.03	1.00	0.030	0.040	1.00	10.50 - 11.75		Ti 6 (c) Min - 0.75 Max
410	0.15	1.00	0.030	0.030	1.00	11.50 - 13.50	0.75	
410S	0.08	1.00	0.030	0.040	1.00	11.50 - 1350	0.60	
420	0.16 (Min)	1.00	0.030	0.040	1.00	12.00 14.00		
430	0.12	1.00	0.030	0.040	1.00	16.00 - 18.00	0.75	

STAINLESS STEEL - COMPARISON OF GRADE SPECIFICATIONS

Grade	UNS	Old British				Swedish SS	JIS
		BS	En	W. Nu	Name		
201	S20100	301S21	-	1.4310	X10CrNi18-8	2331	SUS 201
202							SUS 202
301	S30100	301S21	-	1.4310	X10CrNi18-8	2331	SUS 301
302	S30200	302S25	58A	1.4319	-	-	SUS 302
304	S30400	304S31	58E	1.4301	X5CrNi 8-10	2332	SUS 304
304L	S30403	304S11	-	1.4306	X2CrNi18-11	2352	SUS 304L
305	S30500	305S19	-	1.4312	-	-	SUS 305
309S	S30908	309S24	-	1.4833	X12CrNi23-13	-	SUS 309S
310S	S31008	310S16	-	1.4845	X3CrNi25-21	2361	SUS 310S
316	S31600	316S31	58H,58J	1.4401	X5CrMo17-12-2	2347	SUS 316
316L	S31603	316S11	-	1.4404	X2CrNiMo17-12-2	2348	SUS 316L
316Ti	S31635	320S31	-	1.4571	X10CrNiMoTi18-10	2350	SUS 316Ti
317		316S16					
317L	S31703	317S12	-	1.4438	X2CrNiMo18-16	2367	SUS 317L
321	S32100	321S31	58B,58C	1.4541	X6CrNiTi18-10	2337	SUS 321
347	S34700	347S31	58G	1.4550	X6CrNiNb18-10	2338	SUS 347
904L	N08904	904S13	-	1.4539	X1NiCrMoCuN25-20-5	2562	
409L				1.4512	X2CrTi12		
410	S41000	410S21	56A	1.4006	X12C 13	2302	SUS 410
410S				1.4000	X6Cr13		
420	S42000	420S37	56C	1.4021	X20C 13	2303	SUS 420J1
430	S43000	430S17	60	1.4016	X8Cr17	2320	SUS 430

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Stainless Steel Tube: Dimension and Weights

Tube size Outside Diameter mm	Thickness in mm												
	0.8	1	1.2	1.5	1.6	2	2.3	2.5	2.6	3	3.2	3.6	4
6	0.104	0.125	-	-	-	-	-	-	-	-	-	-	-
8	0.144	0.175	-	-	-	-	-	-	-	-	-	-	-
10	0.184	0.225	0.264	0.319	-	-	-	-	-	-	-	-	-
12	0.224	0.275	0.325	0.394	-	-	-	-	-	-	-	-	-
13	0.244	0.300	0.355	0.432	-	-	-	-	-	-	-	-	-
14	0.264	0.326	0.385	0.470	-	-	-	-	-	-	-	-	-
15	0.284	0.351	0.415	0.507	-	-	-	-	-	-	-	-	-
16	0.304	0.376	0.445	0.545	0.577	0.701	-	-	-	-	-	-	-
17	0.325	0.401	0.475	0.582	0.617	0.751	-	-	-	-	-	-	-
18	0.345	0.426	0.505	0.620	0.657	0.801	-	-	-	-	-	-	-
19	0.365	0.451	0.535	0.657	0.697	0.851	-	-	-	-	-	-	-
19.05	0.366	0.452	0.536	0.659	0.699	0.854	-	-	-	-	-	-	-
21.3	0.411	0.508	0.604	0.744	0.789	0.967	1.094	1.177	1.217	-	-	-	-
22	0.425	0.526	0.625	0.770	0.817	1.002	-	-	-	-	-	-	-
23	0.445	0.551	0.655	0.808	0.857	1.052	-	-	-	-	-	-	-
25	0.485	0.601	0.715	0.883	0.937	1.152	1.307	1.409	1.458	-	-	-	-
25.4	0.493	0.611	0.727	0.898	0.954	1.172	1.330	1.434	1.484	-	-	-	-
26.9	0.523	0.649	0.772	0.954	1.014	1.247	1.417	1.527	1.582	1.795	-	-	-
28	0.545	0.676	0.805	0.995	1.058	1.302	1.480	1.596	1.654	-	-	-	-
30	0.585	0.726	0.865	1.070	1.138	1.402	1.595	1.722	1.784	2.028	-	-	-
31.8	0.621	0.771	0.919	1.138	1.210	1.492	1.699	1.834	1.901	2.163	-	-	-
32	0.625	0.776	0.925	1.146	1.218	1.502	1.710	1.847	1.914	2.178	-	-	-
33	0.645	0.801	0.956	1.183	1.258	1.552	1.768	1.909	1.979	2.254	2.338	-	-
33.7	0.659	0.819	0.977	1.209	1.286	1.588	1.808	1.953	2.025	2.306	2.414	-	-
34	0.665	0.826	0.986	1.221	1.298	1.603	1.826	1.972	2.044	2.329	2.468	-	-
35	0.685	0.851	1.016	1.258	1.338	1.653	1.883	2.035	2.109	2.404	2.548	-	-
38	0.745	0.926	1.106	1.371	1.458	1.803	2.056	2.222	2.305	2.629	2.788	-	-
40	0.785	0.977	1.166	1.446	1.538	1.903	2.171	2.348	2.435	2.779	2.949	-	-
41	0.805	1.002	1.196	1.484	1.579	1.953	2.229	2.410	2.500	2.855	3.029	-	-
42	0.825	1.027	1.226	1.521	1.619	2.003	2.286	2.473	2.565	2.930	3.109	-	-
44.5	0.875	1.089	1.301	1.615	1.719	2.128	2.430	2.629	2.728	3.117	3.309	3.687	-
45	0.885	1.102	1.316	1.634	1.739	2.153	2.459	2.661	2.760	3.155	3.349	3.732	-
48.3	0.952	1.184	1.415	1.758	1.871	2.319	2.649	2.867	2.975	3.403	3.614	4.029	-
50	0.986	1.227	1.466	1.822	1.939	2.404	2.747	2.974	3.086	3.531	3.750	4.183	-
50.8	1.002	1.247	1.490	1.852	1.971	2.444	2.793	3.024	3.138	3.591	3.814	4.255	-
54	-	1.327	1.587	1.972	2.099	2.604	2.978	3.224	3.346	3.831	4.071	4.543	-
57	-	1.402	1.677	2.085	2.220	2.754	3.150	3.412	3.542	4.056	4.311	4.814	-
60.3	-	1.485	1.776	2.209	2.352	2.920	3.340	3.618	3.757	4.304	4.575	5.111	-
63.5	-	-	1.872	2.329	2.480	3.080	3.525	3.819	3.965	4.545	4.832	5.400	-
70	-	-	2.067	2.573	2.740	3.405	3.899	4.226	4.388	5.033	5.353	5.986	-
73	-	-	2.157	2.686	2.861	3.556	4.072	4.413	4.583	5.258	5.593	6.256	-
76.1	-	-	2.251	2.802	2.985	3.711	4.250	4.607	4.785	5.491	5.841	6.535	7.222
85	-	-	2.518	3.136	3.341	4.157	4.763	5.165	5.365	6.160	6.554	7.338	8.113
88.9	-	-	2.635	3.283	3.498	4.352	4.987	5.409	5.618	6.453	6.867	7.689	8.504
101.6	-	-	3.016	3.760	4.006	4.988	5.719	6.204	6.445	7.407	7.885	8.834	9.776
	0.8	1	1.2	1.5	1.6	2	2.3	2.5	2.6	3	3.2	3.6	4

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Nominal Pipe Size		Outside Diameter		SCH - 5		SCH - 10S		SCH - 10		SCH - 20		SCH - 30		SCH - 40S		SCH - 80	
				(Wt/	Thick	(Wt/	Thick	(Wt/	Thick	(Wt/	Thick	(Wt/	Thick	(Wt/	Thick	(Wt/	Thick
(mm)	(inch)	(inch)	(mm)	mtr.)	(mm)	mtr.)	(mm)	mtr.)	(mm)	mtr.)	(mm)	mtr.)	(mm)	mtr.)	(mm)	mtr.)	(mm)
15	½	0.840	21.34	0.80	1.65	1.00	2.11			-	-	-	-	1.27	2.77	1.67	3.73
20	3/4	1.050	26.67	1.02	1.65	1.28	2.11			-	-	-	-	1.68	2.87	2.20	3.91
25	1	1.315	33.40	1.30	1.65	2.09	2.77			-	-	-	-	2.50	3.38	3.27	4.55
32	1 1/4	1.660	42.16	1.65	1.65	2.69	2.77			-	-	-	-	3.38	3.56	4.46	4.85
40	1 1/2	1.900	48.26	1.90	1.65	3.10	2.77			-	-	-	-	4.04	3.68	5.41	5.08
50	2	2.375	60.33	2.39	1.65	3.92	2.77			-	-	-	-	5.44	3.91	7.48	5.54
65	2 1/2	2.875	73.03	3.71	2.11	5.27	3.05			-	-	-	-	8.65	5.16	11.40	7.01
80	3	3.500	88.90	4.51	2.11	6.45	3.05			-	-	-	-	11.27	5.49	15.30	7.62
90	3 1/2	4.000	101.60	5.25	2.11	7.40	3.05			-	-	-	-	13.55	5.74	18.60	8.08
100	4	4.500	114.30	5.92	2.11	8.35	3.05			-	-	-	-	16.06	6.02	22.30	8.56
125	5	5.563	141.30	9.60	2.77	11.56	3.40			-	-	-	-	21.75	6.55	31.00	9.53
150	6	6.625	168.28	11.47	2.77	14.04	3.40			-	-	-	-	28.23	7.11	42.50	10.97
200	8	8.625	219.08	14.99	2.77	20.26	3.76			33.81	-	36.87	-	42.48	8.18	64.60	12.70
250	10	10.750	273.05	22.97	3.40	28.20	4.19			42.38	6.35	51.10	7.80	61.20	9.27	96.10	15.06
300	12	12.750	323.85	33.53	4.20	36.53	4.57			50.45	6.35	65.29	8.38	74.92	9.53	132.10	17.45
350	14	14.000	355.63	-	-	41.41	4.78	54.77	6.35	68.01	7.92	81.46	9.53	81.46	9.53	154.50	19.05
400	16	16.000	406.40	-	-	47.41	4.78	62.74	6.35	77.95	7.92	93.41	9.53	93.41	9.53	203.53	21.41
450	18	18.000	457.20	-	-	53.41	4.78	70.71	6.35	87.88	7.92	122.62	11.13	105.37	9.53	-	-
500	20	20.000	508.00	-	-	68.75	5.54	78.68	6.35	117.33	9.53	155.37	12.70	117.33	9.53	-	-
550	22	22.000	558.80	-	-	-	-	86.64	6.35	129.29	9.53	171.30	12.70	129.29	9.53	-	-
600	24	24.000	609.60	-	-	-	-	94.61	6.35	141.25	9.53	209.83	14.27	141.25	9.53	-	-

Identical to SCH 10S

Rectangular tube dimensions Theoretical weight in kg/mtr

Dimensions		1.0 mm	1.2 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm	3.5 mm	4.0 mm
mm	mm	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter
20	10	0.453	0.539	0.661	-	-	-	-	-
25	15	0.610	0.724	0.890	-	-	-	-	-
30	10	0.610	0.724	0.890	-	-	-	-	-
30	20	0.771	0.917	1.129	1.475	-	-	-	-
40	20	0.931	1.108	1.371	1.795	-	-	-	-
50	20	1.081	1.302	1.612	2.115	-	-	-	-
50	25	1.170	1.398	1.734	2.275	-	-	-	-
50	30	-	1.494	1.852	2.434	3.003	3.502	-	-
60	30	-	1.687	2.090	2.756	3.405	4.040	-	-
60	40	-	1.878	2.332	3.078	3.806	4.533	-	-
80	40	-	-	2.815	3.724	4.612	5.494	6.359	7.267

Square tube dimensions Theoretical weight in kg/mtr

Dimensions		1.0 mm	1.2 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm	3.5 mm	4.0 mm	4.0 mm
mm	mm	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter	Kg / meter
10	10	0.294	-	-	-	-	-	-	-	-
15	15	0.453	0.538	0.661	-	-	-	-	-	-
20	20	0.610	0.724	0.890	1.159	-	-	-	-	-
25	25	0.772	0.917	1.129	1.475	-	-	-	-	-
30	30	0.932	1.108	1.371	1.795	2.203	2.643	-	-	-
35	35	1.081	1.302	1.612	2.115	2.604	3.124	-	-	-
40	40	1.251	1.495	1.852	2.434	3.003	3.562	-	-	-
50	50	-	1.882	2.332	3.078	3.806	4.533	5.248	5.997	-
60	60	-	-	2.815	3.724	4.612	5.494	6.359	7.267	-
80	80	-	-	3.798	5.040	6.268	7.484	-	-	-
100	100	-	-	-	6.400	7.969	9.525	11.069	12.600	15.524
120	120	-	-	-	7.660	9.554	11.415	13.274	15.120	18.774

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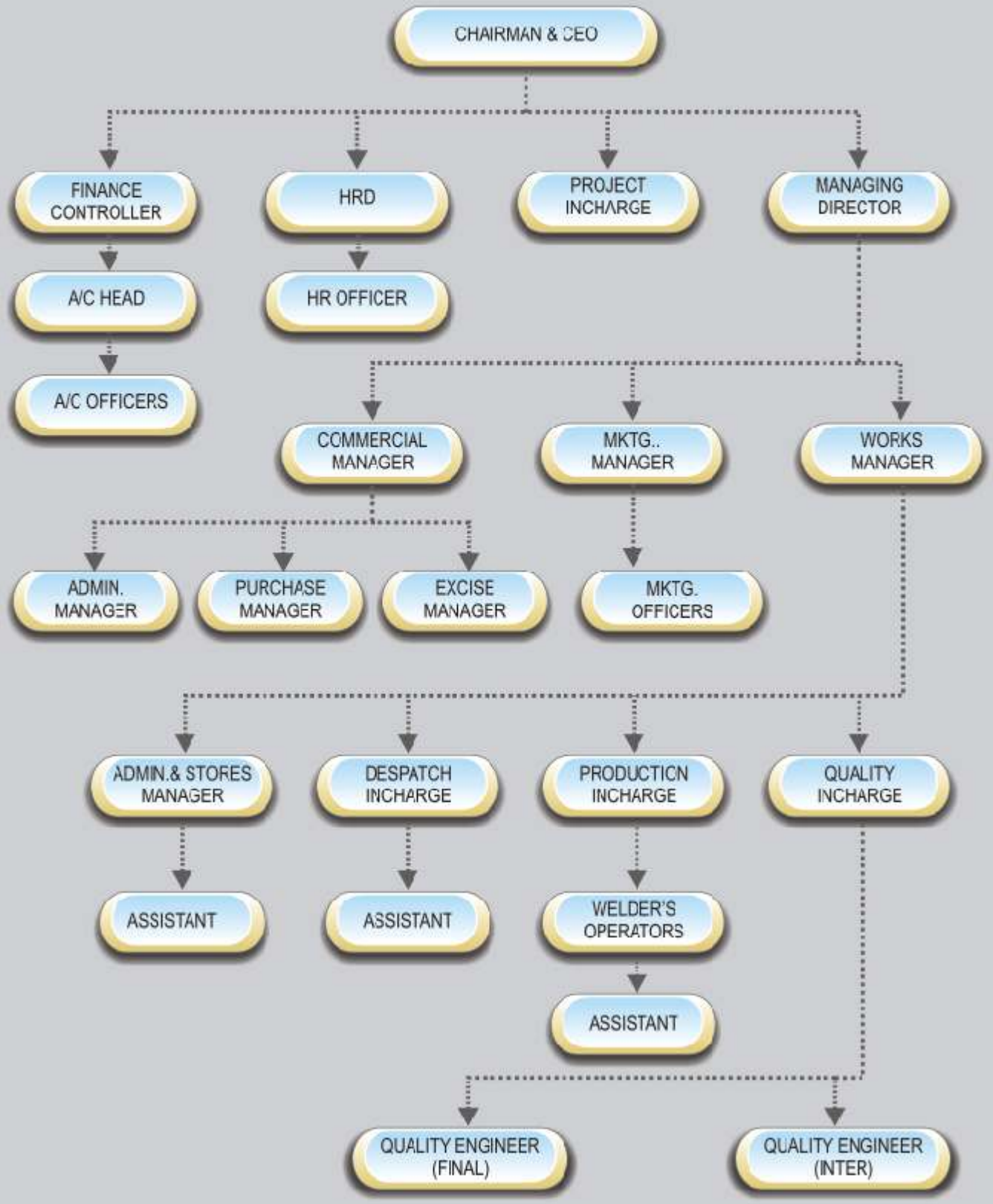
ORGANISATION CHART



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QUALITY ASSURANCE PLAN

A) Incoming Raw Materials :

SR. No.	PROCESS DESCRIPTION	REF DOCUMENTS / STANDARDS	CHARACTERISTICS TO BE CHECKED	SAMPLE SIZE / QUORUM OF INSPECTION	INSTRUMENT & EQUIPMENT USED FOR TESTING	ACCEPTANCE CRITERIA
1.	S.S.Coils / Pipes	Purchase Order / Specifications	*Dimensions *T.C. Verification / Labtest Report (if required) *Packing Condition *Weight *Defects if any	1 Sample / Heat	Vernier, Micrometer volumetric & Gravimetric, UIN 40-T Testing Machine Brinnels / Rockwell Tester Make "saroj"	Confirm to specifications-100%

B) Stagewise Inspection :

2.	Tube forming & welding	As per W.O / Specification	Dimensions Check: Diameter (Ovality) X Length X Thickness *Welding quality *Weld defects:	3 Samples / each Coil	Universal testing machine UIN 40-T Make "Saroj" Microscope & Visual. Vernier, Micrometer & Measure Tape.	*Dimensions acceptance as pe order and other: *Confirm to standard samples or as per
3.	Annealing	Temperature as per ASTM Standard	*Temperature *Hardness *Cooling *Water Quenching	1 Sample per lot / sample per heat	Digital graphic, Temperature Scanner Recorder, Digital Temperature Indicator & Control Metallurgical / Microscope Rockwell / Brinell Hardness Tester	Confirm to ASTM / work instructions at furnace
4.	Straightening	Straightening as per specification	Check straightening of Pipe / Tube	First 2 pipes of each size lot	Roller Straitening Machine Straightness edge / Keep on table, Micrometer, Visual Observation.	Straightening as per specificatons / standard sample
5.	End Facing / Squaring	As per requirement Squaring / Bevelling	*Burr free *Squaring / Bevelling with proper Vee shape	100% Visual inspection	Abrasive cut -of Machine, Measure Tape.	Confirm to requirement
6.	Hydrostatic Testing	As per ASTM Standard	*Leakages	100%	Hydraulic Pressure Tester	NO LEAKAGE
7.	Pickling	As per requirement	*Scale removing Inside / outside Surface area	100%	Visual Observation	Confirm to requirements
8.	Final Inspection Physical / Chemical Testing:	As per applicable standard	Visual, Dimension, Physical and Chemical	100% [or] as per ASTM	Condensor, Chemicals, Hot plate, Micrometer / Vernier. Universal testing Machine UIN 40T Molly detector & carbon sampling at random spectro / wet method.	Confirm to requirements
9.	Marking [as per customer requirement / Standard Marking]	As per requirement	*Spell check, *Details verification	100% Confirm on first two samples and continue	Inkjet Machine / Electro ETCH Co-relation of Heat No. Size Grade etc. wit Test Certificate.	Confirm to requirements
10	Packing & Delivery	As per customer requirements	Packing quality / Tightness of packing	100% confirm to requirement and release for delivery	Box Crate, Polythene, Hessian	Packing confirm to customer requirements

SHUBHLAXMI

QUALITY CONTROL & PRODUCT RELIABILITY

Shubhlaxmi's real strength lies in the quality assurance. It has an exhaustive quality assurance facility to test each & every product that leaves the factory. The company has the latest manufacturing & testing equipment of world class standards & equally Qualified & experienced personnel to manage the inspection at various levels. All the products are 100% hydro tested, visually inspected & both destructive & non- destructive testing is carried out using various testing facilities as described below:


HYDRO TEST

Hydro Test:

100% hydro testing on a hydraulic test bench is carried out using a high-pressure pump on all pipes & tubes, as per the ASTM A 450 & 530.

Air Under Water Test/Pneumatic Test:

Even though this is a supplementary requirement, the company has made a point to test all the tubes coming out of a factory to be tested under compressed air to determine any leakage ensuring ultimately that there is no incomplete weld penetrations.


AIR UNDER WATER TEST

Visual inspection:

For surface finish, dimensions, checks on edges & the length are carriec out on 100% tubes Test ensures the straightness of the tubes as per the ASTM Standard.

Mechanical Testing:

Tensile testing, Hardness, Flaring, Flanging, Flattening, Reverse bend test, according to the ASTM Standard are regularly carried out.

Chemical Testing:

As per the ASTM requirement chemical analysis is carried out. In NABL approved laboratory.


MECHANICAL TESTING

Radiography Testing:

The company can provide radiography testing facilities with an X- Ray unit within 10 km Vicinity of plant.

Eddy-Current Testing:

It is conducted to detect any sub surface defect etc. This test is carried cut by using Techno four flaw marking detective system on the entire length of the tubes as per the E426 with hole or notch standard.

Corrosion Testing:

To find out the susceptibility of the material to intergranular corrosion attack or to measure rate of corrosion, IGS test as per A-262 practice A B C or E is carried in the NABL Accredited laboratory or at the third party laboratory.


EDDY - CURRENT TESTING

Ultrasonic Testing:

Shubhlaxmi can arrange an off-line ultrasonic Testing facility having four-probe water emulsion system with a microprocessor unit to detect special process flow. In addition to above, the system can mark the detect by spraying. The company can arrange facility to measure the ferrite content. Microstructure examination for grain size determination to satisfy the customer for their various needs as per the specification of the users.

SHUBHLAXMI

POLISHING MACHINE


SURFACE FINISH FACILITY

Surface Finishes Tubing is supplied with mechanicaly polished with various grit like 80, 120, 240, 320, 400 & maximum upto 600 mm grit as per the customer requirement .Surface roughness measured per ASME & ANSI standard. Shubhlaxmi polishing techniques result in surface finishes that lead the industry. Tubes are printed with size gauge, alloy, ASTM and ASME specifications, heat number and Shubhlaxmi mill operator initials for full traceability. Tubing Sizes 1/2" (12.7 mm) to 6" (152.4 mm) OD Other finishes are available upon request. Packaging As a final step in mairtaining Finish pipes & tubes, Shubhlaxmi tubing is protected with plastic caps and sealed in 2-mil poly sleeves to prevent contamination. Tubing is packed in sturdy triple-wall cardboard boxes with wood end.

SPECIALIZATION

BEAD REMOVED TUBES

- Cold working is done on weldline to bring in level with base metal.

Advantage

- Improves corrosion Resistant
- Improves easy expansion in tube sheet & orbital welding
- Easy flow & easier cleaning & less scale deposit.

GAS Fired Roller hearth furnace

- Roller hearth furnace fired using LPG Gas

Advantage

- Improves corrosion resistant thereby enhances life of tube
- Clean & environment friendly fuel
- Less scale deposit during annealing process
- Avoid forming Nickel Sulphide as in the case of LDO fired furnaces which forms pit mark's during Pickling


ROLLER HEARTH FURNACE

PICKLING & PASSIVATION

When optimum corrosion resistance is required, pickling / passivation should be considered. It is a key component for Stainless Steel requiring water quench. This process removes iron-contamination, oxide scale, and other foreign material which may affect the appearance and / or corrosion resistance of the tubing.


PICKLING & PASSIVATION

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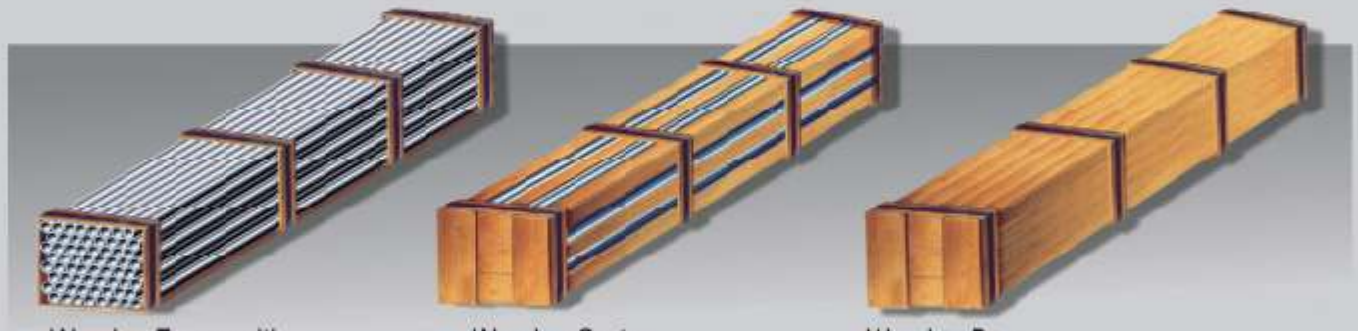
PACKING

Our products have to arrive safely, cuickly and without damages at the r destination in any part of the World. Adequate packing is also an essential part of quality assurance. In case of contaminations or damages the best material selection and fabrication are useless, if goods are not properly protected.
Within the scope of extensive quality assurance, Shubhlaxmi has developed customized packing methods to suit the size of the products and the transport conditions.

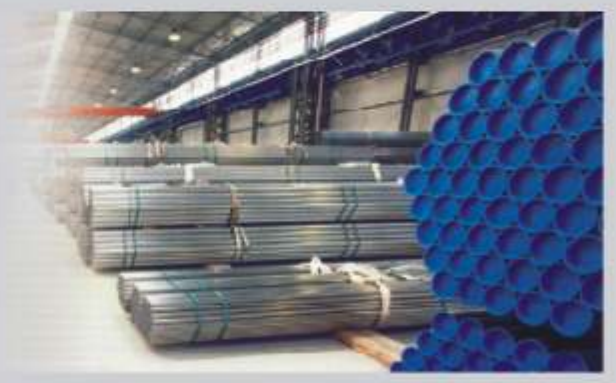
Hexagonal Strap Packing | Rectangular Strap Packing | Rectangular Wooden Frame



Wooden Frame with Wooden Pallet | Wooden Crate | Wooden Box

READY FOR DISPATCH

Availability a comprehensive range of product & quick service are perquisite of well kept stock. Shubhlaxmi offers wide range of stock with different material Grace thus it is possible for us to guarantee quick delivery of any of the size available.



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GLOSSARY

ASME (American Society of Mechanical Engineers) An organization of engineers dedicated to the preparation of design code requirements, and material and testing standards. Adopts, sometimes with minor changes, specifications prepared by ASTM. The adopted specifications are those approved for use under the ASME Boiler and Pressure Code and are published by ASME in Section II of the ASME Code. The ASME specifications have the letter "S" preceding the "A" or the "B", of the ASTM specifications.

ASTM (American Society for Testing and Materials) A body of industry professionals involved in writing universally accepted steel material and test specifications and standards. The "A" series of material specifications are for iron base materials, while the "B" series are for other materials such as nickel base, copper, etc.

Austenitic Stainless Steel (300 Series plus some 200) These grades of stainless have chromium (roughly 18% to 30%) and nickel (roughly 6% to 20%) as their major alloying additions. They have excellent ductility and formability, at all temperatures, excellent corrosion resistance and good weldability. Some have the ability to be hardened by cold rolling as a final step. These grades are usually nonmagnetic and are used for applications requiring good general corrosion resistance such as food processing, chemical processing, kitchen utensils, pots and pans, brewery tanks, sinks, wheel covers and hypodermic needles.

Bend Test A test for determining relative soundness and ductility of a metal to be formed. The specimen is bent over a specified diameter through a specified angle. In welded tubing the weld is of primary interest.

Deburring Removal of a small ridge of metal formed by upset during a machining or cutting operation.

Duplex Stainless Steels Stainless Steels exhibiting both austenitic and ferritic, phases and characteristics.

Eddy Current Testing A nondestructive electric test procedure that utilizes fluctuations in magnetic field strength to detect flaws in electrically conductive materials. It is performed on tubular products during fabrication and in final inspection. Product is checked against a known calibration standard for possible defects such as holes, cracks, gouges, etc. on both inside and outside surfaces of the tube.

Ferritic Stainless Steel A magnetic grade of stainless steel having a microstructure consisting of ferrite, including some of the 200 and 400 series stainless steels. Hardness can be increased slightly by cold work, but not by heat treatment. At lower temperatures ductility and formability is significantly less than that of austenitic grades. As the only major alloying element is chromium (10 to 30 per cent depending on specific grade) these steels are relatively inexpensive to produce and are common in automotive exhaust and ornamental applications.

Hardness Resistance to deformation or indentation. Materials with little resistance are called soft; and those with high resistance are called hard. Finer grained structures are harder than larger grained structures. Measured in steel by scientific instruments as follows: Brinell machine for sizes over 1/2" in diameter or thickness. Based on measurement of the diameter of the indentation of a standard size ball under a standard applied load.
Rockwell machine for sizes under 1/2" in diameter or thickness. Based on a measurement of the depth of penetration of a standard indentor under a standard applied load.

Hydrostatic Testing A non-destructive test procedure that checks for holes, cracks or porosity. Tubing is pressurized internally with water to a high pressure, but does not exceed material yield strength.

Passivation Modification of a chemically active surface of a metal to a much less reactive state, resulting in improved corrosion resistance. Achieved by naturally occurring oxidation, coating, plating, or painting.

P.S.I. (Pounds per square inch) A unit of pressure measurement.

Tensile Strength A short form of "ultimate tensile strength". The maximum tensile stress which a material is capable of sustaining. Tensile strength is calculated from the maximum load during the tension test carried to rupture and the original cross section area of the specimen.

Tensile Testing A procedure used to determine the load at which a material will begin to plastically deform (the tensile yield strength) and ultimately at which it will break (the ultimate tensile strength). Resulting test values are a ratio of applied load (pounds) to cross-sectional area of the test sample (square inches) and are expressed in units of pounds per square inch (psi) or in metric units of mega Pascals (MPa).

TIG (Tungsten Inert Gas) A welding process that uses a non-consumable tungsten electrode to provide an electric arc to melt a work piece. Inert gases are used to shield the arc and the weld puddle to prevent oxidation during cooling. Used for heat exchanger, condenser and sanitary tubing.

Tubing Dimensions
O.D.- outside diameter. I.D.- inside diameter. Wall thickness or gauge.
All tube dimensions are specific; pipe dimensions are nominal.
Specific - actual measurements in inches.
Nominal - theoretical or stated value of a dimension.

Ultimate Tensile Strength The stress in pounds per square inch (psi) that causes the material to fracture.

Yield Strength The calculated stress value at which a tensile test specimen experiences a plastic change in length with an increase in applied load. The yield strength of a material must be exceeded to achieve a permanent change in shape (i.e. forming or bending). Applied loads of less than the yield strength result in spring back, or the tendency for a material to return to its original shape when the load is removed.