Hindustan Inox Ltd.

Stainless Steel Bright Bars • Wires • Pipes • Tubes • Wire Rods

Stainless Steel Welded & Seamless Pipes & Tubes

An ISO 9001 : 2015, 14001 : 2004, BS OSHAS 18001 : 2007, PED/97/23/EC & AD 2000 Merkblatt W0 Certified Organisation

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Growing with Expertise in the Stainless Steel Industry

A Shining Star in the Stainless Steel Galaxy

Hindustan Inox Ltd. is one of the largest manufacturers of Stainless Steel Round Bars & Wires and have achieved the quality standards to match the needs of customers across the globe in more than 60 countries. With its modern facilities, experienced management and employees, Hindustan has established itself as a business partner to its customers and not just being another manufacturer from India.

Hindustan Group has an experience of 35 years in Stainless Steel Long Products & the group is selling approx. 40,000 MT of Stainless Steel Bars & Wires across the globe.

Quality That Shines Forever

As a result of continuous improvement, with strong emphasis on quality and customer satisfaction, today the company is an ISO 9001 : 2015, 14001 : 2004, BS OSHAS 18001 : 2007, PED/97/23/EC & AD 2000 Merkblatt W0 Certified organisation and has become one of the most reliable source of quality products.

Forging Global Partnerships

As a Global player, Hindustan Inox Ltd. remains committed to maintaining world-class quality, reliable delivery schedules, competitive prices and excellent relationships. Our Company places the customer at the very center of operations.

We strongly believe that by consistently serving the needs of our customers we will emerge from being reliable suppliers to Partners in Progress.

Stainless Steel Welded & Seamless Pipes

Stainless Steel Welded & Seamless Pipes

Outer Diameter
1/4" NB to 8" NB (13.70 mm to 219.08 mm)

Wall Thickness
SCH5S, 10S, 40S, 80S, Sch160, Sch XXS

Length
up to 15 mtrs

Specifications
ASTM, ASME, DIN, NF, JIS, EN, ISO

Stainless Steel Welded & Seamless Tubes

Stainless Steel Welded & Seamless Tubes

Outer Diameter
6.00 mm to 114.30 mm

Wall Thickness
0.5 mm to 6.00 mm

Length
up to 30 mtrs

Specifications
ASTM, ASME, DIN, NF, JIS, EN, ISO

Stainless Steel U-Bend Tubes

Stainless Steel U-Bend Tubes

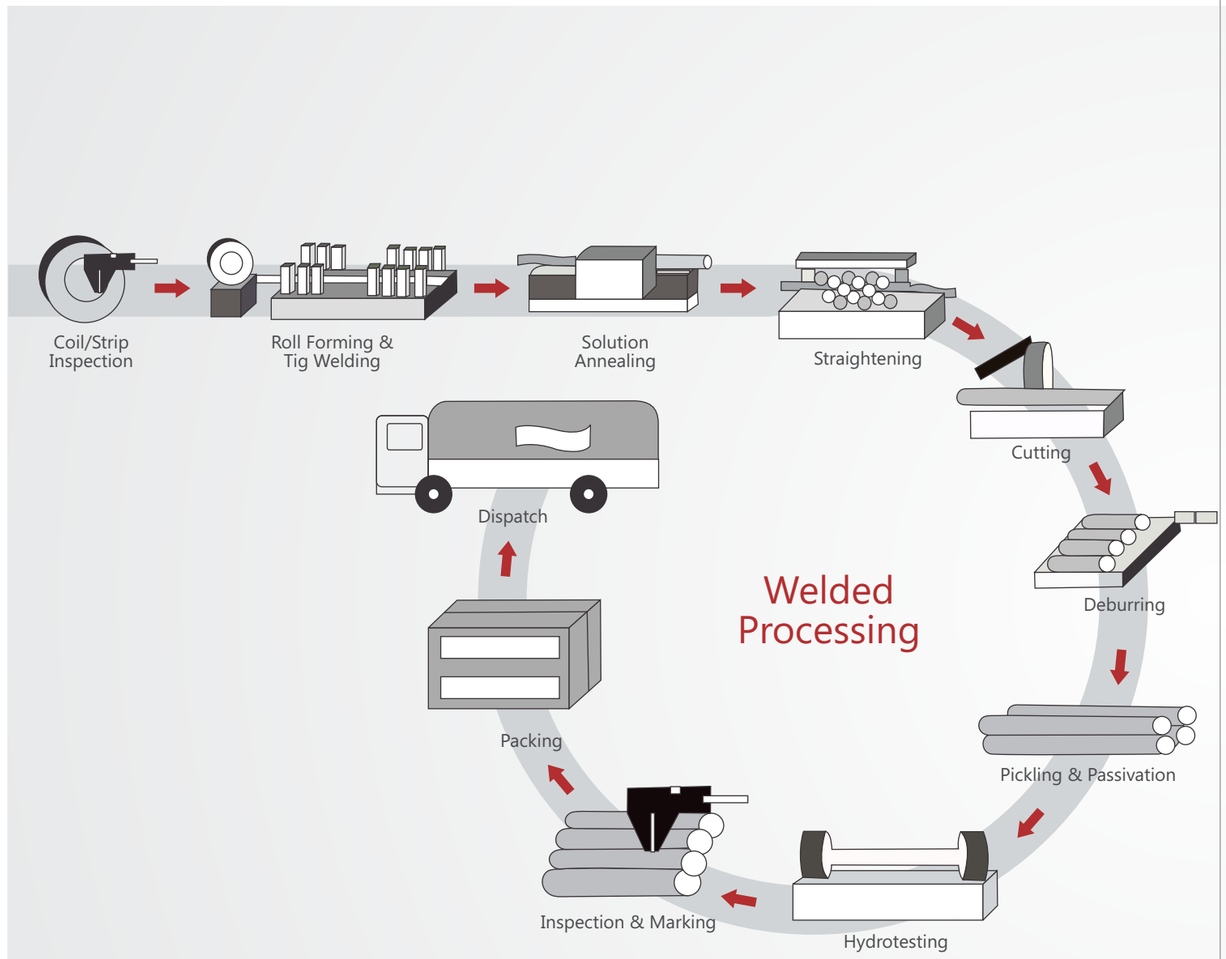
Outer Diameter
6.00 mm to 76.20 mm

Wall Thickness
0.5 mm to 4.00 mm max.

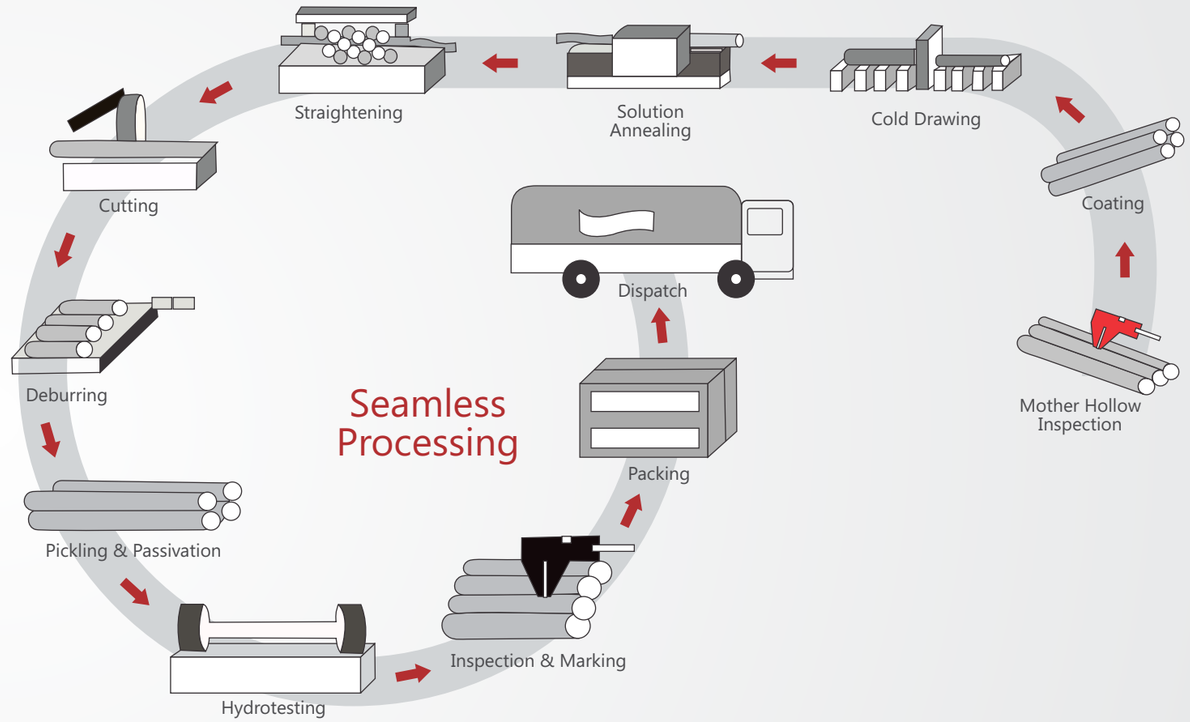
Length
Max Leg Length
up to 10 mtrs

Specifications
ASTM, ASME, DIN, NF, JIS, EN, ISO

Welded Pipes Process Flow



Seamless Tubes Process Flow



A. Incoming Raw Material

Sr. No.	Process Description	Ref. Document Standard	Characteristics to be checked	Samples quorum of size/inspection	Instrument equipment used for testing	Acceptance criteria
1	S.S. Coils/ Seamless (Mother Hollow)	Purchase Order/ Specification	• Dimension • T.C. Verification (Lab Test Report) (if required) • Packing Condition • Weight • Defects if any	Sample / Heat	Vernier, Micrometer, Chemical, Analysis, Tensile Testing Machine (Brinell Rockwell) Hardness Testing Machine	Conform to Specification 100%

B. Stage wise Inspection

2	a) Welded Tube forming & Welding b) Seamless Cold Drawing	As per Work Order / Specification	Dimensions check Diameter (Ovality) x Length x Thickness • Weight • Defects if any	Samples from each Coil 1 Sample from each lot	Universal Testing machine UIN 40 - T Make "UTS" Microscope, Vernier, Micrometer & Measuring Tape	Dimensions acceptance as per order. Conform to sample provided
3	Annealing	Temperature as per ASTM Standard	• Temperature • Hardness • Cooling • Water Quenching	1 Sample per lot/ 1 Sample per heat	Digital Graphic, Temperature Recorder, Digital Temperature Indicator & Temperature Controller, Metallurgical Microscope, Brine Rockwell Hardness Tester	
4	Straightening	Straightening as per Specification	Check Straightening of Pipes & Tubes	First 2 pipes of each size lot	Roller Straightening Machine, Micrometer, Visual Observation	Straightening as per specification standard sample
5	End Facing Squaring & Beveling	Burr Free Squaring / Beveling with Proper V-Shape	100% visual inspection	Abrasive Polishing as per standard sample	Conform to specification/ requirement	Straightening as per specification
6	Hydrostatic Testing	As per ASTM standard	Leakages	100%	Hydraulic Pressure Tester	No Leakage
7	Pickling	As per required ASTM standard	• Scale removing from inner surface • Outside surface area	100%	Visual Observation requirement	Conform to requirement
8	Final inspection Physical / Chemical Testing	As per applicable standard	Visual dimensions Physical & Chemical	100% (or) as per ASTM Standard	Micrometer Vernier, Universal Testing Machine, Molly Detector & Caron sampling at random spectra / wet method	Conform to requirement
9	Marking (as per) customer requirement/ standard marking	As per requirement	• Spell Check • Details Verification	100% Conformation on first two sample & continue production	Inkjet machine/Electro Etching co-relation of heat no size Grade etc. with Test certificate	Conform to requirement
10	Packing & Delivery	As per customer requirement	Packing quality. Tightness of Packing	100% Conformation as per requirement	Wooden Box Crate, Polythene, Hessian cloth	Packing as per customer requirement

ASTM Specification for Stainless Steel Tubes & Pipes

Specifications	Allowable outside Diameter Variations in mm			Allowable Wall Variations in %		Exact Length Tolerances in mm		Testing
	Diameter	Over	Under	Over	Under	Over	Under	
ASTM A 213 Seamless Ferritic & Austenitic Steel Boiler / Superheater / Heat Exchanger Tubes	Under 25.4 25.4 - 38.1 incl. 38.1 - 50.8 excl. 50.8 - 63.5 excl. 63.5 - 76.2 excl. 76.2 - 101.6 excl.	0.1 0.15 0.2 0.25 0.3 0.38	0.11 0.15 0.2 0.25 0.3 0.38	20 20 22 22 22 22	0 0 0 0 0 0	Under 50.8, OD ---3 mm, Over 50.8 OD ---5 mm		• Tension Test • Flattening Test • Flare Test • Hardness Test • 100% Hydrostatic or Eddy Current OR Ultrasonic
ASTM A 249 Welded Ferritic & Austenitic Steel Boiler/ Superheater / Heat Exchanger Tubes	Under 25.4 25.4 to 38.1 incl. 38.1 to 50.8 excl. 50.8 to 63.5 excl. 63.5 to 76.2 excl. 76.2 to 101.6 incl.	0.1016 0.1524 0.2032 0.254 0.3048 0.381	0.1016 0.1524 0.2032 0.254 0.3048 0.381	10 10 10 10 10 10	10 10 10 10 10 10	Under 50.8, OD ---3 mm, Over 50.8 OD ---5 mm		• Tension Test • Flattening Test • Flanging Test • Hardness Test • 100% Hydrostatic or Eddy Current or Ultrasonic Reverse Bend Test
ASTM A 268 Seamless / Welded Ferritic / Martensitic Tubes for Generel Purpose	Upto 12.7 Excl. 12.7 to 38.1 excl. 38.1 to 88.9 excl. 88.9 to 139.7 excl.	0.13 0.13 0.25 0.38	0.13 0.13 0.25 0.38	15 10 10 10	15 10 10 10	3 3 5 5	0 0 0 0	• Tension Test • Flaring Test (Smls) / Flaring Test, Reverse Flattening test (Welded) Hardness Test • 100 % Hydrostatic Test/ Eddy Current / Ultra Sonic Test
ASTM A 269 Seamless / Welded Austenitic Tubes for General Purpose	Upto 12.7 Excl. 12.7 to 38.1 Excl. 38.1 to 88.9 excl. 88.9 to 138.7 excl.	0.13 0.13 0.25 0.38	0.13 0.13 0.25 0.38	15 10 10 10	15 10 10 10	3.2 3.2 4.8 4.8	0 0 0 0	• Flaring Test (Smls) • Hardness Test • 100% Hydrostatic test • Flanging Test, Reverse Flattening Test (Welded)
ASTM A 270 Seamless / Welded Saitary Tubing	Under 25.4 25.4 to 50.8 excl. 50.8 to 76.2 excl. 76.2 to 101.6 excl.	0.13 0.2 0.25 0.38	0.13 0.2 0.25 0.38	12.5 12.5 12.5 12.5	12.5 12.5 12.5 12.5	3.2 3.2 3.2 3.2	0 0 0 0	• Reverse Flattening Test • 100% Hydrostatic test / Eddy Current / Ultrasonic Test
ASTM A 312 Seamless / Welded Heavily Worked Austinitic Pipes	1/8" NB To 1.5" NB incl. 1.5" NB to 4" NB incl. 4" NB to 8" NB incl. 8" NB to 18" NB incl.	0.4 0.8 1.6 2.4	0.8 0.8 0.8 0.8	20 22.5 15 17.5	12.5 12.5 12.5 12.5	For R/L -15 ft. To 24 Ft & For for Fix Lenght -0/+6 mm		• Tension Test • Flattening Test • 100% Hydrostatic /Eddy Current / Ultrasonic Test.
ASME SA 789 Seamless / Welded Duplex & Super Duplex	Upto 12.7 mm Excl. 12.7 To 38.1 mm Excl. 38.1 to 88.9 mm excl. 88.9 to 139.7 mm Excl.	0.13 0.13 0.25 0.38	0.13 0.13 0.25 0.38	15 10 10 10	15 10 10 10	3 3 5 5	0 0 0 0	• Flaring Test (Seamless) • Flanging Test (Welded) • Hardness Test • Reverse Flattening Test (Welded) • 100 % Hydrostatic / Eddy Current / Ultrasonic Test.

Equivalent EN Specifications

EN 10216 - 5	Seamless Stainless Steel Tubes for Pressure Purpose
EN 10297 - 2	Seamless Stainless Steel for Mechanical & General Engineering Purpose
EN 10246 - 2	Non - Destructive Testing of Steel Tubes
EN ISO 1127	Dimensions & Tolerances of Stainless Steel Tubes

Tolerances on OD	Permissible Deviation on OD (Whichever is greater)	Tolerances on THK	Permissible Deviation on THK (Whichever is greater)
D1	± 1.5 % or ± 0.75 mm	T1	± 15 % or ± 0.6 mm
D2	± 1 % or ± 0.5 mm	T2	± 12.5 % or ± 0.4 mm
D3	± 0.75 % or ± 0.3 mm	T3	± 10 % or ± 0.2 mm
D4	± 0.5 % or ± 0.1 mm	T4	± 7.5 % or ± 0.15 mm

Perfectly calibrated towards quality

Quality can never be achieved by accident. It is always a result of hard work, intelligent planning and careful execution. **Hindustan Inox** is committed to Quality and the Procedures for Quality Control are properly identified and implemented.

Raw Material Inspection

Raw material is inspected for Chemical and Mechanical Properties and surface defects (if any) before production.

In-Process Inspection

Our team of trained supervisors and quality control inspectors ensure the quality of products manufactured, as per customer requirement. Tolerance, Lobing, Length, Straightness, Surface Finish is checked at different production stages during the production cycle. Our production team is at the core of the Quality Assurance System.

Finished Goods Inspection

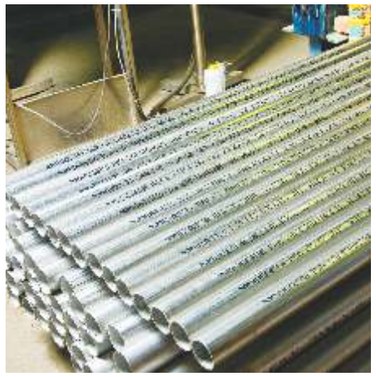
Our Finished goods are inspected from customer's perspective. In this stage surface finish, packing, colour coding, marking, mechanical tests, mercury contamination, macro and micro properties, inter-granular and corrosion properties are looked after. Test certifications comply with the specification and requirements of the customers.

For Guaranteeing quality at every step, we ensure that:

Perfectly documented work-procedures endorsed by 3rd party accreditations, certifications and approvals ensure utmost correctness in Hindustan Inox's everyday operations.

The ultra-modern facilities used at Hindustan Inox ensure highest quality steel demanded by our customers. These facilities are supported by precise input data and work schedules along with ongoing quality checks of all features relevant to the particular order, tailored to meet individual customer's specification.

- EN 10204 3.1B (Test certificate issued along with all supply)
- EN 10204 3.1 AC (Test certificate issued by an external inspection agency like RMTUV, LLOYDS, Bureau Veritas, DNV, SGS, ITS, etc.)



We have a 100% in-house testing facility to conduct the below test which insure defect free material

Air Under Water Test	Eddy Current Test	Corrosion Test
This test is conducted at 150 PSI as specified in ASTM specification. It is conducted over and above the Hydro test to eliminate any error that can occur due to human visual observation.	It is conducted as per ASTM specification and ASTM E 426 on entire length of tube. This test detects as well as controls surface and subsurface defects in thin walls.	It is conducted as per ASTM A262, Practice A, B, C and E. The test ensures that the tube / pipe has adequate corrosion resistance.
Weld Decay Test	**Ultrasonic Test**	**Chemical Analysis**
As specified is ASTM A249 or ASME SA249, Clause S7, the test gives information of the weld and its rate to dissolution. The amount of As-Cst structure of the weld broken down by Bead Hammering and / or Rolling is evaluated.	It is conducted as per ASTM specifications on the entire length of the tube to detect cracks	We have an in-house chemical testing laboratory to perform analysis on the product.
Hydro Test	**Marking**	**Packing**
Hydro Test is conducted as per ASTM A450, A530 or as customer's specification on 100% pipes and tubes. It ensures that fluid flowing in the pipe and tube is not contaminated with externally flowing fluid.	Apart from requirements specified by the customer, we mention the following on the final product : Material Condition, Manufacturing, Grade, Size, Specification & Heat No.	Material is packed in Hessain Cloth, Jute Cloth, Plastic Wrapping or Wooden Boxes. Packing can also be done as per customer requirement.
Third Party Inspection	**Microstructure**	
We accept 3rd party inspection like EIL, PDIL, Bureau Veritas, H&G, UHDE INDIA, SGS, TOYO ENGG, TUV, LLOYD Register, LINDE Process and many others.	We certify Microstructure Grain Size (as per ASTM E112). This test ensures that the carbides are dissolved and the corrosion resistance is at its maximum value. The grain size confirms uniformity of property.	

Destructive Testing

- ✓ Tensile Test
- ✓ Hardness Test
- ✓ Flattening Test
- ✓ Flare Test
- ✓ Flunge Test
- ✓ Reverse - Bend Test

Non - Destructive Testing

- ✓ Hydrostatic Testing
- ✓ Eddy Current Testing
- ✓ Air under Water Testing

Material Grades

Grade	Chemical Composition - Percent								
AISI	C (Max)	Mn (Max)	P (Max)	S (Max)	Si (Max)	Cr	Ni	Mo	Other Element
304	0.08	2.00	0.045	0.030	0.75	18.00-20.00	8.00-11.00	-	-
304L	0.035	2.00	0.045	0.030	0.75	18.00-20.00	8.00-13.00	-	-
304H	0.04-0.10	2.00	0.045	0.030	0.75	18.00-20.00	8.00-11.00	-	-
310	0.25	2.00	0.045	0.030	1.50	24.00-26.00	19.00-22.00	-	-
310S	0.08	2.00	0.045	0.030	1.50	24.00-26.00	19.00-22.00	-	-
316	0.08	2.00	0.045	0.030	0.75	16.00-18.00	11.00-14.00	2.00-3.00	-
316L	0.035	2.00	0.045	0.030	0.75	16.00-18.00	10.00-15.00	2.00-3.00	-
316H	0.04-0.10	2.00	0.045	0.030	0.75	16.00-18.00	11.00-14.00	2.00-3.00	-
316TI	0.08	2.00	0.045	0.030	1.00	16.00-18.00	10.00-14.00	2.00-2.50	Ti5'C.min
317	0.08	2.00	0.045	0.030	0.75	18.00-20.00	11.00-14.00	3.00-4.00	-
317L	0.035	2.00	0.045	0.030	0.75	18.00-20.00	11.00-15.00	3.00-4.00	-
321	0.08	2.00	0.045	0.030	0.75	17.00-19.00	9.00-13.00	-	Ti5xC%
321H	0.04-0.10	2.00	0.045	0.030	0.75	17.00-19.00	9.00-13.00	-	Ti5xC%
347	0.08	2.00	0.045	0.030	0.75	17.00-19.00	9.00-13.00	-	Na+Ta10xC%
347H	0.04-0.10	2.00	0.045	0.030	0.75	17.00-19.00	9.00-13.00	-	Na+Ta10xC%
409L	0.03	1.00	0.040	0.030	1.00	10.50-11.70	0.050	-	Ti6x(C=N).min
410	0.15	1.00	0.040	0.030	1.00	11.50-13.50	0 .75	-	-
430	0.12	1.00	0.040	0.030	1.00	16.00-18.00	0.75	-	-
439	0.03	1.00	0.040	0.030	1.00	17.00-19.00	0.50	-	Ti[(0.20+4 (C+N)] Min. 1.10 max ALO.15
S31803	0.025	1.00	0.040	0.030	1.00	21.0-23.0	4.5-6.5	2.5-3.5	-
S32700	0.030	1.20	0.350	0.020	1.00	24.0-26.0	6.0-8.0	9.0-5.0	-
904L	0.20	2.00	0.30	0.30	0.70	19.0-23.0	23.0-28.0	4.0-5.0	Ni-0.10 Max

Equivalent Standards

Material	UNS	AISI	DIN (EN)	AFNOR (NF)	JIS
Austenitic	S30400	304	1.4301	Z 6 CN 18.09	SUS 304
	S30403	304L	1.4306	Z 2 CN 18.10	SUS 304L
	S31600	316	1.4401	Z 6 CND 17.11	SUS 316
	S31603	316L	1.4404	Z 2 CND 17.12	SUS 316L
	S31635	316TI	1.4571	Z 2 CND 17.12	
	S32100	321	1.4541	Z 6 CNT 18.10	SUS 321
	S34700	347	1.4550	Z 6 CNNb 18.10	SUS 347
	S30409	304H	1.494	Z 2 CN 19.10	SUS 304H
	S31609	316H	1.4919	Z 10 CND 18.10	SUS 316H
	S32109	321H	1.4941	Z 10 CND 18.10	SUS 321H
Ferritic	S40500	405	1.4002	Z 6 CAL 13	SUS 405
	S41000	410	1.4002	Z 12 C 13	SUS 410
	S43000	430	1.4016	Z 10 C 17	SUS 430
Duplex	S31803		1.4462	Z 2 CND 22.06	

ASTM	American Society for Testing of Materials	ASME	American Society for Mechanical Engineers	SAE	Society of Automotive Engineers
DIN	Deutsches Institute for Normung	JIS	Japan Industrial Standards	UNS	Unified Numbering System
GOST	Gosudarstvenil Standart	TEMA	Tubular Exchanger Manufacturers Association	PED	Pressure Equipment Directive

Pipe Dimensions

Pipe Dimensions (In mm & kg / mtr.)

Nominal Pipe	Nominal	Outside Diameter	Wall Thickness & Weight											
Size			Sch.5S		Sch.10S		Sch.20S		Sch.40S		Sch.80S		Sch.160S	
NB	Inch	mm	WT (mm)	Weight Kg/mtr.	WT (mm)	Weight Kg/mtr.	WT (mm)	Weight Kg/mtr.	WT (mm)	Weight Kg/mtr.	WT (mm)	Weight Kg/mtr.	WT (mm)	Weight Kg/mtr.
6	1/8	10.3	1.00	0.23	1.24	0.28	1.50	0.33	1.73	0.37	2.41	0.47	-	-
8	1/4	13.7	1.20	0.37	1.65	0.49	2.00	0.58	2.24	0.64	3.02	0.82	-	-
10	3/8	17.2	1.20	0.47	1.65	0.63	2.00	0.74	2.31	0.81	3.20	1.12	-	-
15	1/2	21.3	1.65	0.81	2.11	1.02	2.3	1.07	2.77	1.29	3.73	1.62	4.75	1.97
20	3/4	26.7	1.65	1.05	2.11	1.30	2.50	1.52	2.87	1.71	3.91	2.93	5.56	2.93
25	1	33.4	1.65	1.03	2.77	2.13	2.50	2.00	3.58	2.54	4.55	3.29	6.35	4.30
32	1.¼	42.2	1.65	1.65	2.77	2.73	3.00	2.90	3.56	3.44	4.85	4.56	6.56	5.69
40	1.½	48.3	1.65	1.95	2.77	3.11	3.00	3.35	3.68	4.11	5.08	5.49	7.14	7.35
50	2	60.3	1.65	2.4	2.77	3.99	3.50	4.25	3.91	5.52	5.54	7.60	8.74	11.26
65	2.½	73.0	2.11	3.7	3.05	5.26	4.00	6.81	5.16	8.77	7.01	11.59	9.53	14.91
80	3	88.9	2.11	4.51	3.05	6.45	4.00	8.37	5.49	11.47	7.62	15.51	11.13	21.3
100	4	114.3	2.11	5.85	3.05	8.36	4.50	12.18	6.02	16.07	8.56	22.66	13.49	33.54
125	5	141.30	2.77	9.5	3.40	11.6	5.00	16.80	6.55	21.08	9.53	31.00	15.88	49.11
150	6	168.3	2.77	11.35	3.40	13.82	6.35	25.36	7.11	28.26	10.93	42.56	18.24	67.53
200	8	219.1	2.77	14.8	3.76	20.00	6.35	33.31	8.18	42.55	12.70	64.64	23.01	111.27
250	10	273.1	3.40	22.61	4.19	27.8	6.35	41.77	9.27	60.31	12.70	81.55	28.58	172.33
300	12	323.80	3.96	31.25	4.57	36.00	6.35	49.70	9.53	73.85	12.70	97.43	33.32	238.68
350	14	355.6	3.96	34.35	4.78	41.3	7.92	67.90	11.13	98.54	-	-	-	-
400	16	406.4	4.19	41.6	4.78	47.34	7.92	77.82	12.07	123.3	-	-	-	-
450	18	457.2	4.19	46.85	4.78	53.32	7.92	87.74	14.27	155.86	-	-	-	-
500	20	508.0	4.78	59.31	5.54	68.64	9.53	117.14	15.09	183.42	-	-	-	-
600	24	610	5.54	82.57	4.78	6.35	9.53	141.11	17.48	255.41	-	-	-	-

Manufacturing Facility at Khopoli, near Mumbai

Approvals

Our excellent quality has gained us third party inspection and approvals from several companies, approval authorities and quality agencies who have accepted our quality

& many more...

Certifications

Our Quality Systems are certified in accordance with

- ISO 9001 : 2015
  (Quality Management System)
- ISO 14001 : 2004
  (Environmental Management System)
- OHSAS 18001 : 2007
  (Occupational Health and Safety Management System)
- We deliver according to PED 97/23/EC
  and have a quality system for the manufacturing
  of pressure equipment components.
- We are certified according to
  AD2000-Maerkblatt WO approved by TUV Nord
- We are a registered
  2 star export house recog. by Govt. of India
- We are approved by most of the common notified bodies.

Awarded the Star Performer by EEPC 8 times in a row

in the Category of Stainless Steel from Engineering Export Promotion Council