

Perfect blend of  
**quality** and  
**integrity**

Stainless Steel  
Carbon Steel  
Alloy Steel



**HEAVY METAL & TUBES (INDIA) PVT. LTD.**

# About Us

**Heavy Metal & Tubes (India) Pvt. Ltd.** is one of the leading manufacturers of Stainless Steel, Carbon Steel and Alloy Steel tubes and pipes in India. We own 3 manufacturing plants in the state of Gujarat in western India. All 3 units are equipped with latest manufacturing and testing facilities and are manned by highly qualified and experienced personnel.

We've been in this biz for over 4 decades now, catering to various industries and applications domestic as well as exports. Products are manufactured to comply with stringent international and national standards as well as client specific specs. Our products and manufacturing facilities have been approved by leading EPCs, PMCs, Consultants, Inspection agencies, OEMs and end users in refinery and petrochemicals, fertilizers, power generation, pharmaceuticals, automobiles and locomotives, etc...

We are uniquely positioned as one of the few mills globally to offer stainless, carbon and alloy steel tubular products with complete backward integration beginning from raw materials in rounds/billet form up to the final tubular product. More details about capabilities, facilities, capacities, specialties, etc... read inside pages.

We are conscious about our responsibility towards mother Earth and are committed to do our bit to mitigate the effects of global warming. We own 3 wind mills that meet nearly 50% of our power requirement.

**Total Quality Management (TQM)** is the key to our success. All the stages of manufacturing are thoroughly planned, closely monitored and professionally executed.

We strive to improve and improvise on a continual basis, we endeavor to surpass customer expectations each time, we aim to be the epitome and a perfect blend of Quality and Integrity in this competitive world. We give immense importance to high ethical values in business and believe in healthy long term business relationship with all our stakeholders - **Workers, Vendors and Customers.**

**Cold Drawn Stainless Steel Plant**



**Cold Drawn Carbon & Alloy Steel Plant**



**Hot & Cold Carbon, Alloy & Stainless Steel Plant**



**Line Pipes**

**Boiler Tubes**

**Heat Exchanger Tubes**

**Hydraulic & Pneumatic Tubes**

**Mechanical Tubes**

**Structural Tubes**



## Achievements



### ARBOR COILS

**Grade:** ASTM A335 P9

**Bend Dia:** 3000mm (Radius 1500mm) with Bevel ends

**Tests & Inspection:** 100% UT, Hydro, DP, Plane Testing, Ball Pass Test, PWHT

**Size:** 101.4 mm OD x 5.74 mm WT

**Size:** 114.3 mm OD x 6.02 mm WT

## What differentiates HMT from others

Carbon Steel, Alloy Steel & Stainless Steel from same mfr.

Capability to mfr. st. length tubes upto 34 Mtrs.

U-Tubes with max. hydro test pressure @700 Kg/CM<sup>2</sup>

Special grades with quick delivery

SA334 Gr. 3, SA213 T5/T9/T91

Duplex & Super Duplex, TP310/TP321H/TP347H/TP405/TP410

# Achievements



## Bhel-Hyderabad HP Heater tube job

Supplied 18,000 U-Tubes. Project 2x660 MW Tenge dco Ennor  
Supplied 22,000 U-Tubes. Project 1x800 MW GSECL Wanakbori,  
1x800 MW TSGENCO Kothagundem.  
Received Certificate for Best Vendor 2017 & Letter of Appreciation.

## L & T - NTPC, Khargone HP Heater tube job

Supplied 3,900 U-Tubes.

## Toshiba-Darlipalli HP Heater tube job

Supplied 22,000 U-Tubes.



## Special shape critical U-tubes of T11 grade

88.9 mm x 4 mm WT x 15 Mtr length.



## 27.5 mtrs long straight tubes exported to european customer

## Other milestone projects/jobs:

- Executed DSS Tubes Order in S32205 grade 12.7 x 0.9mm - 25000 mtrs qty. for EU client.
- Executed Super Duplex Tubes - 15 mtr long with Short delivery to Atlas Copco, Germany.
- Executed HE St. & 'U' Tubes - 2000 MT for Dangote Project in Nigeria.
- Executed Single Order of 800 MT - Airfin Cooler Tubes for IOCL, Ennore LNG Project.
- 20 M ton of CS boiler tubes produced from round bars to finished tubes in 4 days' time for HMEL.
- Executed alloy steel tubes order @ 75 M ton for Heat Exchanger for PEMEX Refinery.
- Executed @ 500 M ton of SS tubes order required for 56 nos heat exchangers for PEMEX Refinery.
- Executed @ 135 M ton of CS St. & "U" Tubes for 53 nos heat exchangers for Qatar Petroleum Project.
- Executed @ 75 M ton of CS boiler tubes to OEM in Columbia in 21 days.



**Heavy Metal & Tubes were able to supply T-9/91** grade alloy steel tubes & pipes in recent past. Several orders were executed to domestic & overseas customers/projects, a few of them are listed below.

- BHEL, Trichy - 1300 MT grade T-91 Boiler Tube Order.
- 25 M ton supplied tubes to Nayara Energy. Repeat order also received.
- 50 M ton supplied to HE Fabricator in UAE for Emirates Steel, Dubai project.
- 10 M ton supplied to sugar mill in India in 2 weeks' time.
- 26 M ton supplied to Petrobras, Brazil through local supplier.



## Unit-1



# Cold Drawn Stainless Steel Plant

HMT has a dedicated plant of 30,600 sq. mtr. of covered area for manufacturing cold drawn of Stainless Steel Seamless & Welded Tubes/pipes with Hot Piercer, 31 pilger mills, 2 bright annealing furnace, 5 Draw benches, 3 tube mills etc.

Cold finished Tubes / Pipes are produced out of quality seamless hollows which are manufactured in house or procured from reputed mills. Seamless hollows are either cold pilgered over pilger mills or cold drawn over draw benches using precision tooling (dies & plugs) to achieve perfect dimensions and smooth surfaces.

Pilgered / Drawn tubes are subjected to heat treatment, straightening and surface treatment. Finished tubes / pipes undergo various testing as per the specification /customer's requirements followed by marking and packing.

### PRODUCTS

- Stainless Steel Seamless Tubes and Pipes
- Stainless Steel Welded Tubes and Pipes
- "U" Tubes and Special Shapes
- Bright Annealed Tubes

### MANUFACTURING RANGE

**OD :** 4 mm to 220 mm  
**THK :** 0.5 mm to 25 mm  
**Length :** Upto 34 Meters depending up on size

### GRADE & SPECIFICATIONS

ASTM /ASME 2 13, 249, 268, 269, 270, 312, 688, 376, 789, 790  
TP 304, 304H, 304L, 304LN, 310, 316, 316L, 316H, 316Ti,  
316LN, 317, 317L, 321/H, 347/H, 405, 4 10,  
UNS 32205, UNS 32750, UNS 31803, UNS 32760  
DIN 1.4006, 1.4301, 1.4306, 1.4401, 14404, 1.4541, 1.4550,  
1.4571, 1.4449, 1.4307, 1.4878, 1.4961, 1.4462, EN 10216-5

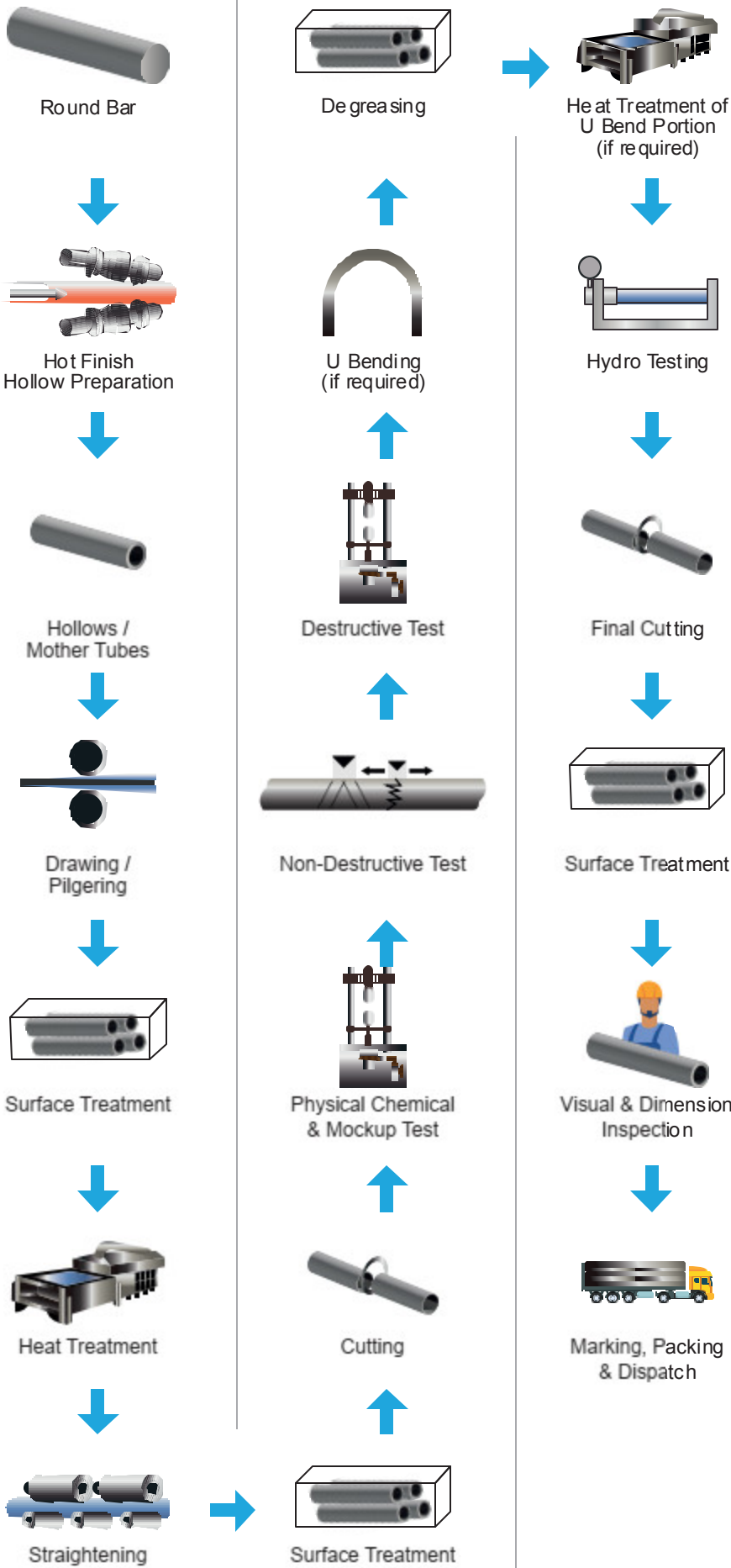
### CAPACITY

6,000 MTPA

Other Specification / Grades can be supplied as per customer's requirements



# Flow Chart





## Unit-2



# Cold Drawn Carbon & Alloy Steel Plant

HMT has a dedicated plant of 13,500 sq. mtr. of covered area for manufacturing cold drawn of Carbon & Alloy Steel Tubes / pipes.

Cold finished Tubes / Pipes are produced out of quality seamless hollows produced in house in. Seamless hollows are either cold pilgered over pilger mills or drawn over draw benches using precision tooling (dies & plugs) to achieve perfect dimensions and smooth surfaces.

Drawn/pilgered tubes are subjected to heat treatment, straightening and surface treatment. Finished tubes / pipes undergo various testing as per the specification / customer's requirements followed by marking and packing.

### PRODUCTS

- Carbon Steel Seamless Tubes and Pipes
- Alloy Steel Seamless Tubes and Pipes
- "U" Tubes and Special Shapes
- Rifle Tubes
- Bright Annealed Tubes

### MANUFACTURING RANGE

**OD** : 4 mm to 220 mm

**THK** : 0.5 mm to 25 mm

**Length** : Upto 34 Meters depending upon size

### GRADE & SPECIFICATIONS

ASTM/ASME A/SA 179, 192, 199, 106/53 (Gr. A, B, C), 210 (Gr. A1, C), A 519, 213 (Gr. T1, T2, T5, T9, T91, T11, T12, T22), 335 (Gr. P1, P2, P5, P9, P91, P11, P12, P22), 334/333 (Gr. 1, 3, 8, 6), 209 (Gr. T1, T1A, T1B), 556 (Gr. A, B, C) etc.  
DIN 17175/2391 (Gr. St35.8, St45.8, St 52, 16 Mo3, 13CrMo44, 10CrMo910), 2448, 1630, BS 3059, 980, 6323, 3602/1, EN10716-2, 4130, EN 18, P235, P275, P355, 1026, 1030 etc.

### CAPACITY

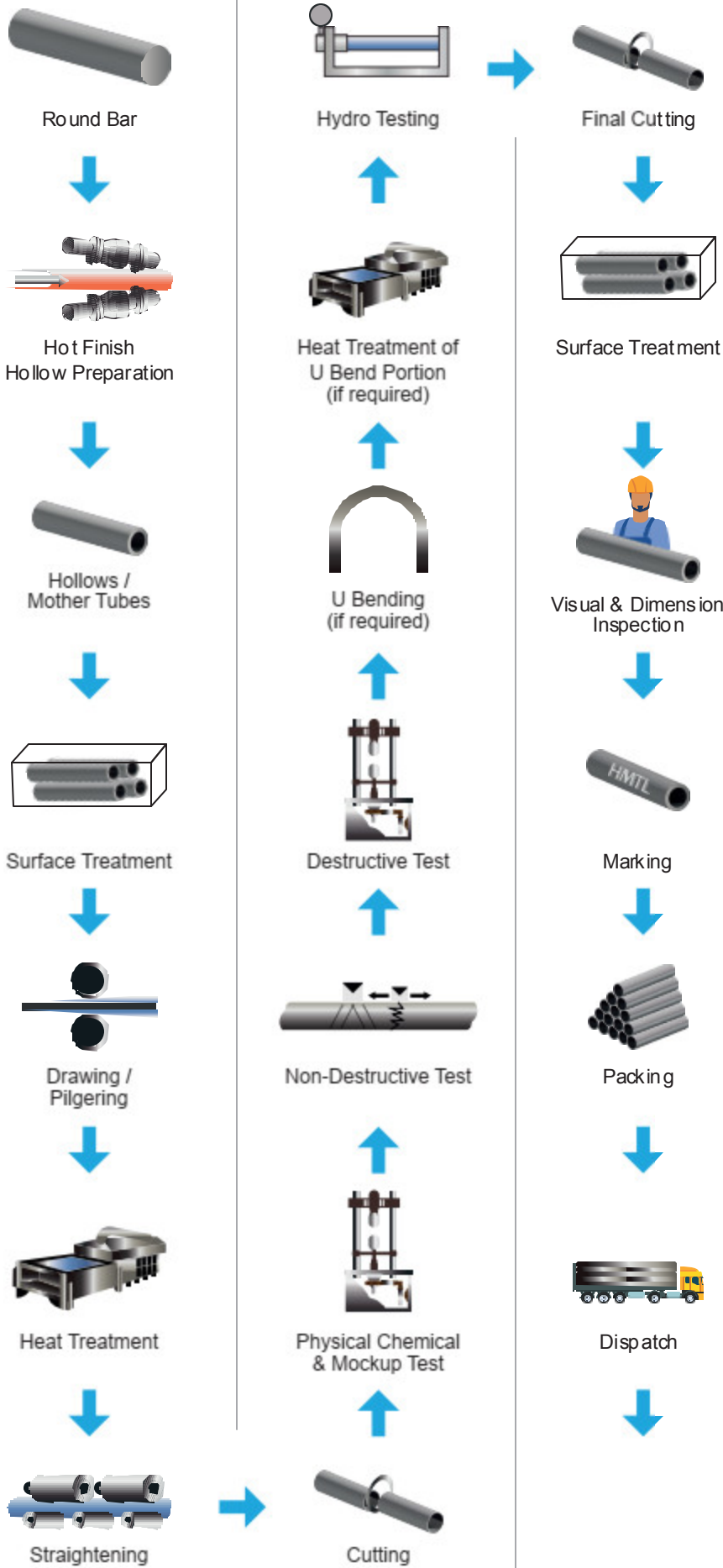
24,000 MTPA

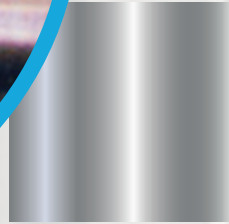
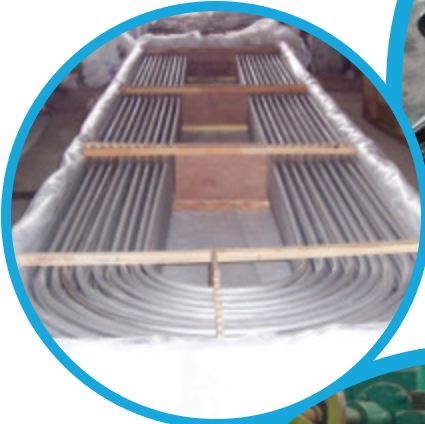
Other Specification / Grades can be supplied as per customer's requirements

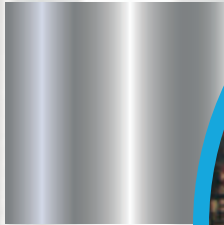




# Flow Chart







## Unit - 3



### Hot & Cold Carbon, Alloy & Stainless Steel Plant

HMT HFS Unit has been commenced and commissioned with state-of-the-art manufacturing process of cross roll piercing, accu rolling, SRM technology In Dec 2011 and produces various carbon, alloy and stainless steel grades of seamless tubular products. Cross roll piercing process begins with piercing of a hot round bar cut piece on the piercer, followed by accu roll for precision dimensional control of intermediate product, hollow cylindrical shell. Finally, the dimensions are controlled within specified variations on the stretch reducing mill (SRM). This process ensures better control over wall thickness variations as compared to other manufacturing process.

HMT manufactures specialized tubes for various mechanical applications in Boilers and Boiler components, Economizers, Heat Exchangers and pipes used for cryogenic applications. These items can be customized to the requirement of individual customers in terms of heat treatment end end finishes.

HMT has introduced 4 pilger mill and 2 heavy duty draw bench in Unit 3 with annual production capacity of 12000MT p.a. to manufacture mechanical, hydraulic, boiler tubes, etc. This multistep forming process guarantees high quality seamless tubes. This process greatly improves materials grain structure & due to multi step reduction process from larger diameter tube to smaller diameter tube yields excellent outside & inside surface and closed eccentricity quality tubes.





## Process

The hot finish seamless carbon steel & alloy steel division is equipped with latest machineries and all processes are fully automatic with on line ultrasonic & eddy current testing & latest testing facilities for chemical & mechanical testing to meet the customer requirements.

### CROSS-ROLL PIERCING-ACCU ROLLING - SRM TECHNOLOGY FOR HFS-HMT UNIT-III

This is the state-of-the-art manufacturing process for high quality seamless pipes and tubes. All the operational points of manufacturing involves through closely monitored and professionally executed, to meet the requirements of clients and various third party inspection agencies. The raw material steel round bars selected for HFS tubular products are ensured within the framework of our stringent internal TDC encompassing the specific requirement mentioned In P.O. conforming to the highest quality standard.

This process begins with heating of round bars steel between temperature range 1150-1250°C in a rotary hearth furnace which passes through a cross-roll piercing mill where solid round bar steel is converted into cylindrical elongated hollow shells. These hollow shells are passed through accu roll mill governed by two guided disk monitored by power pack system

where high precision mandrel inside the hollow moves along with pipe during rolling, which ensures of maintaining precision dimensional variation, smooth inside surface finish of elongated shells. These hollow shells are re heated at 900 to 950°C prior to passing through 24 stand SRM (Stretch Reducing Mill) where final size, dimension and surface finish of HFS tubular product is achieved. Finished tubes / pipes undergo various testing as per the specification / customer's requirements followed by marking and dispatch.

### MANUFACTURING RANGE

**OD** : 4 mm to 168.3 mm

**THK** : 0.5 mm to 25 mm

**Length** : Upto 31 Meters depending upon size

### GRADE & SPECIFICATIONS

ASTM/ASME A/SA 179, 192, 199, 106/53 (Gr. A, B, C), 210 (Gr. A1, C), A 519, 213 (Gr. T1, T2, T5, T9, T91, T11, T12, T22), 335 (Gr. P1, P2, P5, P9, P91, P11, P12, P22), 334/333 (Gr. 1, 3, 8, 6), 209 (Gr. T1, T1A, T1B), 556 (Gr. A, B, C) etc. DIN 17175/2391 (Gr. St35.8, St45.8, St 52, 16 Mo3, 13CrMo44, 10CrMo910), 2448, 1630, BS 3059, 980, 6323, 3602/1, EN10716-2, 4130, EN 18, P235, P275, P355, 1026, 1030 etc.

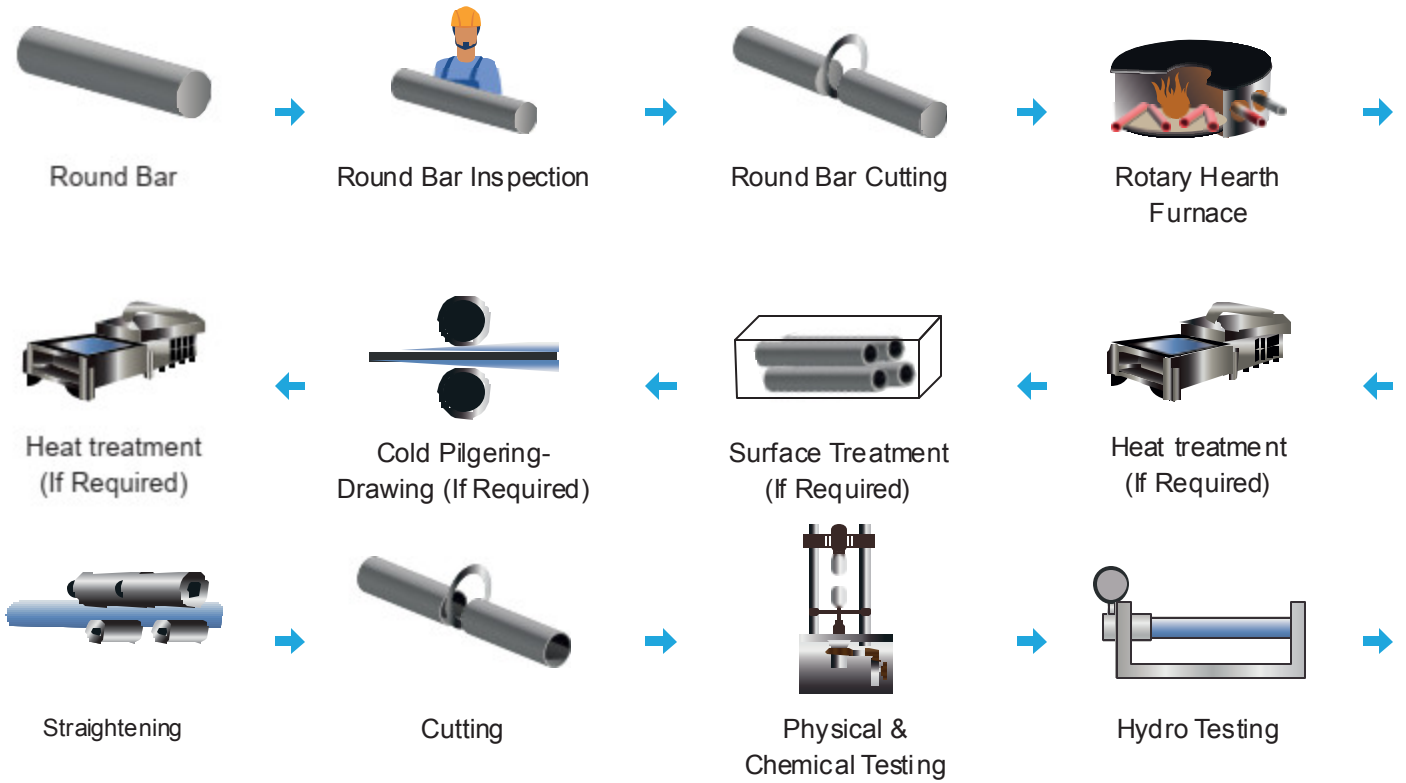
### CAPACITY

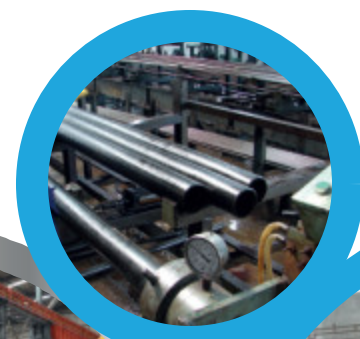
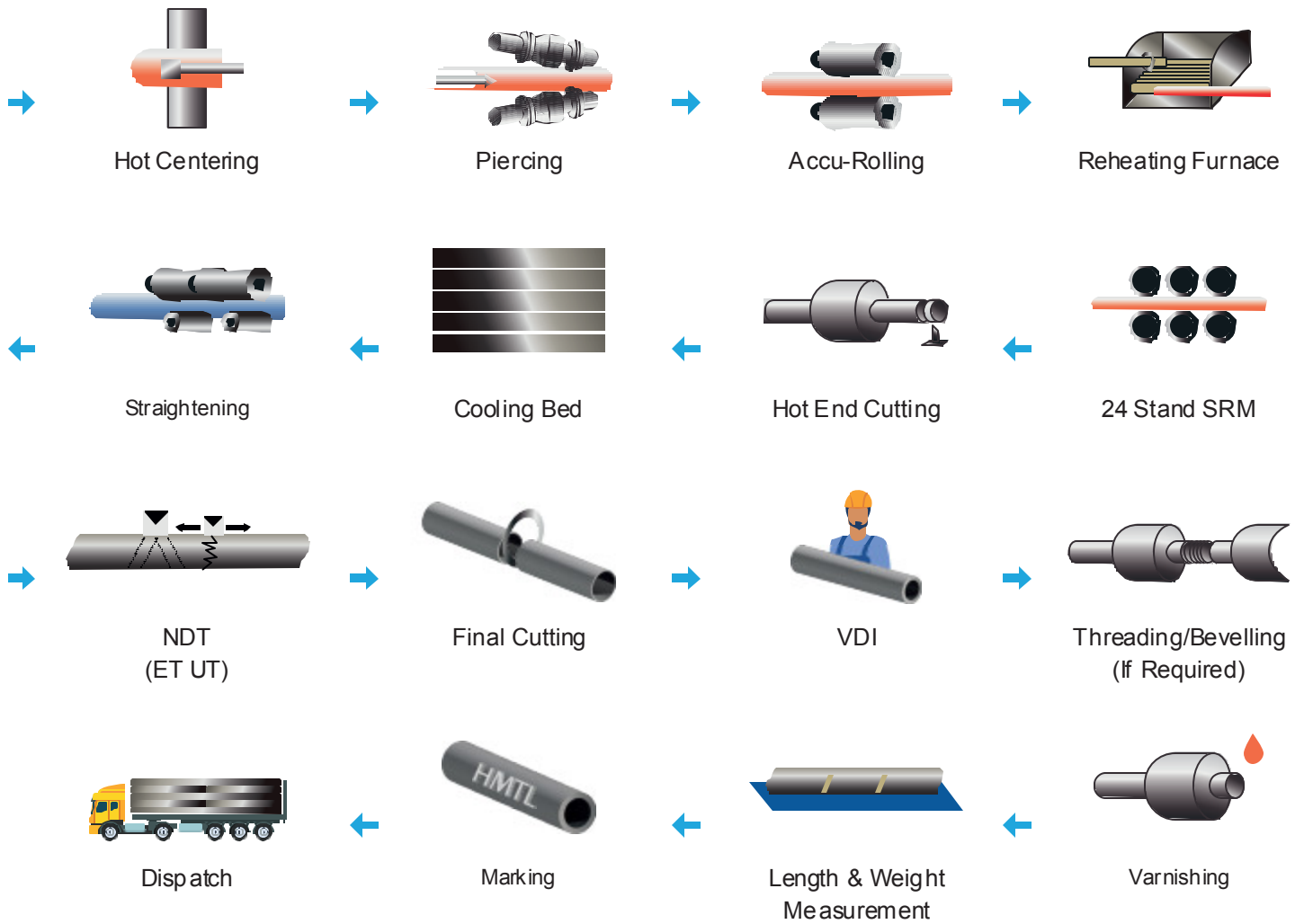
75,000 MTPA

Other Specification / Grades can be supplied as per customer's requirements



# Flow Chart











## Stainless Steel Welded Tubes/Pipes

Stainless Steel Welded Tubes / Pipes are produced out of prime quality stainless steel strips procured from reputed approved vendors. Strips are converted into tubular form over tube mill & edges are welded using tungsten inert gas (TIG) welding technique. Inside weld bead is removed with bead rolling equipment fitted on the mill.

Welded tubes/pipes are subjected to solution annealing, straightening and pickling operations.

Finished tubes/pipe undergo various testing as per the specification / customer's requirements followed by marking and packing.

### MANUFACTURING RANGE

**OD** : 4 mm to 60.3 mm

**THK** : 0.5 mm to 6 mm

**Length** : Upto 30 Meters (100 ft) long subject to size

### GRADE & SPECIFICATIONS

ASTM / ASME: A/SA 249, 269, 270, 312, 554, 688,  
DIN: 17458 TP: 304, 304L, 304H, 304N, 316, 316L, 316H,  
316Ti, 317, 317L, 347, 347H, 405, 410 DIN: 1.4006, 1.4301,  
1.4306, 1.4401, 1.4404, 1.4541, 1.4550, 1.4571, 1.4449

### CAPACITY

1,200 MTPA



## "U" Tubes

Latest type of "U" bending machine is used for precision cold bending of tubes. Specifically prepared jigs and fixtures are used to ensure three dimensional accuracy for "U" bend tubes. Bending is done for all kind heat exchanges, condenser, economizer, boiler tubes in carbon steel, alloy steel and stainless steel seamless as well as welded. HT of bent portion is carried out.

Radii upto 1D.

Note: Different types/ Shapes of bends also available.

# Packing

Packing plays very important role for Steel Tubes & Pipes. Special care is taken for Long Thin Walled Tubes and 'U' Bend Tubes.

Different types of packing methods are adopted by HMTIPL, depending on the customer's need and type of product. Some of them are given in attached photographs.

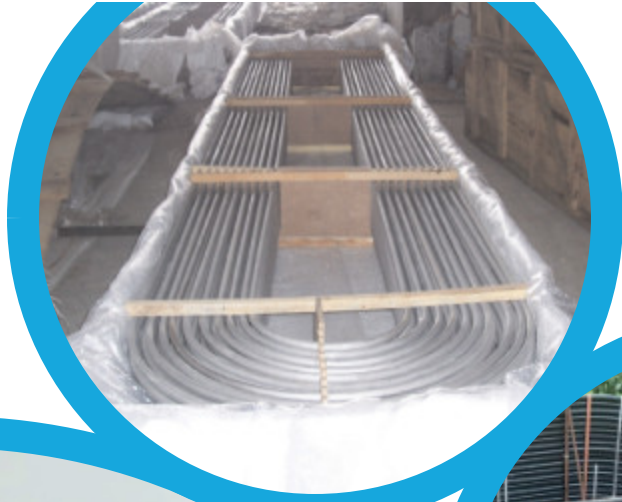
## Standard Packing Chart

Sr.	Type of Packing	Applicability
1	Hessian / PVC Cloth Bundles with PVC Box Strap or Hexagonal Bundles Details not given in Customer's Order.	As Per Customer Requirement. Regular Packing When Packing
2	Wooden Crate For Domestic Supply.	As Per Customer Requirement.
3	Wooden Box made of treated wood or plywood sheet Recommended For Long, Thin Walled & 'U' bend tubes.	As Per Customer Requirement.
4	Bare Tubes Bundles	For Big Diameter & Heavy Thickness Piping Material
5	Tubes With PVC Sleeve and packed in Wooden Boxes	For Polished Tubes & If Customer Require
6	Tubes bundles with PVC Film and Plywood Sheets on the bundles.	For Export Tubes Bundles.

### Notes

- (1) Selection of type of packing depends on customers need as specified in customer's purchase order. If nothing is specified in the customer purchase order, our standard packing style is followed.
- (2) All the tubes are supplied with standard end caps on both ends. Special types of end caps are supplied if required by customer.
- (3) Care is taken during handling & packing of thin tubes to prevent dent & scratches.
- (4) Shipping Marks are attached to each Wooden Crate, Wooden Box and Bundle packing.





# Quality Assurance

Quality assurance system implemented at HMT covers all production stages right from raw materials, hot working, cold working, heat treatment, till the final tubular product is ready for dispatch. The elements of the quality assurance system correspond to the requirements of national and international codes, as well as customer's own quality assurance requirements.

The quality control department is independent of manufacturing shop. All tests are carried out by trained quality personnel in compliance with the guidelines of the quality assurance system. The documented 'Quality Assurance Manual' establishes the practice concerning these guidelines.

Depending on the intended application and technical delivery conditions or customer's specifications, a variety of specific tests can be carried out to ensure that highest quality standards are maintained. The plants have been equipped with reliable testing and measuring equipment for destructive and non-destructive testing.

Our products are approved by all leading TPI, EPC, Contractors and sub-contractors:

## World is our Playground



- **ISO 9001 : 2015**
- **ISO 45001 : 2018**
- **ISO 14001 : 2015**
- **AD 2000 - Merkblatt WO**
- **PED 2014/68/EU**
- **Well Known Tube / Pipe Maker under the Indian Boiler Regulations 1950**



# Our Clientele



# Quality Control

Sr.	Non-Destructive Test	Di structive Test t
1	Eddy Current Test (3 nos)	Flaring Test / Flattening Test
2	Hydrostatic Test (12 nos)	Hardness Test
3	Ultrasonic Testing (4 nos)	Reverse Bend Test
4	Boroscopy	Metalography Test
5	Visual Inspection	Corrosion Test
6	DP / MP / RF ECT Testing	Impact
7	PMI	Tensile Test

## Non - Destructive Testing Machine

Online Testing of tubes/pipes by Ultrasonic Testing & Eddy Current Method to check dimension, length and other defects.  
100% tubes are hydro tested at HMT irrespective of client requirement.

Sr.	Ultrasonic	3 Rotating Probe Method	1 Scanner (Upto 8")
1	Channels	10 Channels	10 Channels
2	Longitudal Defect	4 Probes	4 Probes
3	Transverse Defect	4 Probes	4 Probes
4	Wall Thickness	1 Probe	1 Probe
5	OD & ID	1 Probe	1 Probe
6	Speed of Testing	Up to 20 Meters per Minute	Up to 20 Meters per Minute
7	Notch Depth	5% of Wall Thickness	5% of Wall Thickness



# Appreciations



इंडियन ऑयल कॉर्पोरेशन लिमिटेड  
 Indian Oil Corporation Limited  
 Gujarat Refinery P.O. Gandhinagar  
 Dist. Vadodra, Gujarat - 391 329  
 भारत + 91-265-2237106  
 ईमेल : gdr@oilrefinery@indianoil.in वेबसाइट : www.iocl.com



रिफाइनरी इकाई  
 Refineries Division

M/s Heavy Metals and Tubes India P Ltd  
 101, Bileshwarpura Near Calcutta  
 Taluka Kalol, Gandbi Nagar  
 Ahmedabad National Highway  
 PIN: 382729, Gujarat  
 Mob: 9821234155

06.07.2021

Sub: Appreciation letter against Purchase Order (GEM order no. GEMC-51168776082704 dated 10.05.2021) (OCL SAP PO No. 2899953)

Kind Attention Mr. Hitesh Jain

Dear Sir,

This has reference to the above subjected Purchase order GEM order no. GEMC-51168776082704 dated 10.05.2021. We are pleased to issue this Appreciation Letter to your company for doing excellent efforts in the execution of this order during the difficult period of COVID-19.

In spite of having low manpower, Industrial Oxygen issue, non-availability of Raw Material, labor issues etc, you have provided your all out efforts to supply the material within the delivery period.

Material was required for our scheduled ongoing project and timely delivery of the material helped us in smooth running of project.

IOCL Gujarat Refinery has also shown the good gesture and we have released the payment within 10 days of supply.

We are very appreciative of your help and looking forward to continuing to work together.

We once again sincerely appreciate the efforts of your company and expect the similar help in future maintaining the good business relationship.

Thanks & Regards,

(Anil Agarwal)  
 Chief Materials Manager  
 For and on behalf of Indian Oil

गुरुदेव इंडिया प्राइवेट लिमिटेड  
 अहमदाबाद  
 Chief Materials Manager  
 गुजरात रिफाइनरी, नर्मदा, વાડોદરા  
 Gujarat Refinery, NMCL, Vadodra

फैक्ट्री कार्यालय : जी-9, लोदी बजार रोड, कालोल, वडोदरा - 382 729 (गुजरात)  
 Regd. Office : G-9AB, Lodi Bazar Road, Kalola (Gujarat) Maharashtra - 400 951 (India)  
 CNR4.23591, MN0259, SOI 001380

## BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)  
 Heavy Power Equipment Plant  
 Ramachandrapuram, Hyderabad, 502 032, A.P., India  
 Product Division : HE & FAB

Date: 07.12.2016

### PERFORMANCE REPORT OF SS SEAMLESS U TUBES AT BHEL WORKS

This is to certify that M/s. Heavy Metal & Tubes Limited, Gujarat has manufactured and supplied SS Seamless U Tubes of SA213 TP304 Grade (with 0.05% max. Carbon as per BHEL Specification HES1173) with the following details:

- Purchase Order No. and Date : D315A00026 Dated 15.09.2015
- Tube Outer Diameter : 15.875 mm
- Tube Thickness : [2.1, 2.2, 2.3, 2.35, 2.4, 2.45 MIN] mm
- Tube Leg Length : [8500, 11200, 8000] mm
- Total Number of Tubes : 22,200 Nos.
- Total Weight of Tubes : 347 MT
- Equipment : HP Heater 6A/6B, 7A/7B and 8A/8B
- Project Name : 1x800MW GSECL Wanakbori and 1x800MW TSGENCO Kothagudem

This is to be certified that these SS Seamless U Tubes were assembled by BHEL in the equipment and successfully hydro tested at 545 Kg./Sq. Cm without any leakage.

#### Reference:

- Hydro test report: HYQC/3636/2016-17/004 Dated: 06.06.2016 and 15.06.2016
- Hydro test report: HYQC/3636/2016-17/005 Dated: 16.06.2016 and 17.06.2016
- Hydro test report: HYQC/3636/2016-17/006 Dated: 06.06.2016 and 14.06.2016
- Hydro test report: HYQC/3636/2016-17/007 Dated: 17.06.2016
- Hydro test report: HYQC/3636/2016-17/010 Dated: 19.07.2016 and 21.07.2016
- Hydro test report: HYQC/3636/2016-17/011 Dated: 23.07.2016

This is issued against your request for submission to APGENCO, Hyderabad.

B. SRIHARAN (IITM)  
 General Manager / P.O. - Hyderabad  
 BHEL, Hydco BHEL HYD-22

Regd. Office : BHEL House, Siri Fort, New Delhi - 110 049

## MERU INDUSTRIES LLP



Date: 23/08/2021

To,  
**HEAVY METAL & TUBES (I) PVT. LTD.**  
 101, Bileshwarpura, Tal. Kalol,  
 Dist. Gandhinagar 382 729  
 Gujarat, INDIA.

Ref.: Our Purchase Order No. MI/2020-21/1014 Dtd. 19/02/2021

Dear Mr. Hitesh Jain,  
 We received alloy steel tubes ASTM A213 T91 ordered vide our above referred purchase order. We write this letter to appreciate your in-time delivery and quality of tubes as per our Specification, even though this is a very challenging grade to mfg. and you delivered in 2 months' time.

We would be glad to recommend your mill for T91 tubes to all our customers in future and we hope that you will live up to the same high standard to quality and timely delivery.

We are happy to have you as our vendor and wish you more success in future.

Thanking You

For Meru Industries LLP

  
 S. B. Pawar  
 General Manager

Corporate Office  
 Plot No. T-105/33, MIDC Bhosari, Pune - 411 026  
 Tel: +91-20-2712921 Fax: +91-20-2712948  
 E-mail: info@meruindustries.com

Factory Address:  
 Unit-1, S-21, Block, MIDC Bhosari, Pune - 411 026  
 Unit-2, G-10, Block, MIDC, Havelbawad, Chakan, Tal. - Ahmednagar - Pune-430 505  
 Unit-3, T-1, Block, MIDC Bhosari, Pune - 411 026



To,  
**M/s HEAVY METAL AND TUBES (INDIA) PVT. LIMITED**  
 101, Bileshwarpura, Tal. Kalol,  
 Dist. Gandhinagar, Gujarat - 382729, INDIA

Dated: 05<sup>th</sup> April 2021

Subject: Business Appreciation for supply of SA192 tubes. PO reference 9520004321 dated 16.02.2021

Dear Mr. Sandeep Kumar Mathur (G.M. Marketing)

I am writing this letter on behalf of HPCL Mittal Energy Limited. I would like to take an opportunity to first of all thank Heavy Metal & Tubes (India) Pvt. Ltd. for being a long-time partner vendor of HMECL with excellent track record. We have always appreciated the timely deliveries from your end. Having business terms with professional organizations like yours is indeed a positive verify for us.

I am particularly writing to appreciate you for the recent delivery of SA192 tubes of 50.8mm OD x 4.57mm WT. 20MT to HMECL. HMECL wanted above said material for some very pressing emergency purpose and we were highly impressed to see Heavy Metal & Tubes (India) Pvt. Ltd. taking up the challenge and execute the job in 3 days' with TPI.

HMECL greatly appreciates the dedication and professionalism shown by Heavy Metal & Tubes (India) Pvt. Ltd. over the years and more so in this particular job.

We acknowledge and appreciate your services and we look forward to have such excellence in near future as well.

Wish you all the best for your future business with us.

Best Regards

  
 Shailesh Patwa  
 V.P. (Contract & Procurement)  
 HPCL Mittal Energy Limited, NOIDA

# Carbon & Alloy Steel Seamless Tubes/Pipes Product Specifications

GRADE	CHEMICAL ANALYSIS (%)																MECHANICAL PROPERTIES		
	C	Si	Mn	P	S	Nb	V	Altot.	Ti	Cr	Ni	Mo	Cu	Zr	N	CEV	Min Y.S.(ReH)Mpa	TS (Rn)Mpa	
A 106																			
A	0.25max	0.10 min	0.27-0.93	0.035 max	0.035max	-	0.08 max	-	-	0.40 max	0.40 max	0.15 max	0.40 max	-	-	-	205	-	330
B	0.30max	0.10 min	0.29-1.06	0.035 max	0.035max	-	0.08 max	-	-	0.40 max	0.40 max	0.15 max	0.40 max	-	-	-	240	-	415
C	0.35 max	0.10 min	0.29-1.06	0.035 max	0.035max	-	0.08 max	-	-	0.40 max	0.40 max	0.15 max	0.40 max	-	-	-	275	-	485
A 179	0.06-0.18	-	0.27-0.63	0.035 max	0.035max	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A 192	0.06-0.18	0.25 max	0.27-0.63	0.035 max	0.035max	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A 210 GR A1	0.27 max	0.10 min	0.93 max	0.035 max	0.035max	-	-	-	-	-	-	-	-	-	-	-	255	-	415
A 210 GR C	0.35 max	0.10 min	0.29-1.06	0.035 max	0.035max	-	-	-	-	-	-	-	-	-	-	-	275	-	485
A 209																			
GR T1	0.10-0.20	0.10-0.50	0.30-0.80	0.025 max	0.025max	-	-	-	-	-	-	0.44-0.65	-	-	-	-	205	-	380
GR T1 a	0.15-0.25	0.10-0.50	0.30-0.80	0.025 max	0.025max	-	-	-	-	-	-	0.44-0.65	-	-	-	-	220	-	415
GR T1 b	0.14 max	0.10-0.50	0.30-0.80	0.025 max	0.025max	-	-	-	-	-	-	0.44-0.65	-	-	-	-	195	-	365
A 213																			
T2	0.10-0.20	0.10-0.30	0.30-0.61	0.025 max	0.025max	-	-	-	-	0.50-0.81	-	0.44-0.65	-	-	-	-	205	-	415
T5	0.15 max	0.50 max	0.30-0.60	0.025 max	0.025max	-	-	-	-	4.0-6.0	-	0.45-0.65	-	-	-	-	205	-	415
T11	0.05-0.15	0.50-1.0	0.30-0.60	0.025 max	0.025max	-	-	-	-	1.0-1.5	-	0.44-0.65	-	-	-	-	205	-	415
T12	0.05-0.15	0.50 max	0.30-0.61	0.025 max	0.025max	-	-	-	-	0.80-1.25	-	0.44-0.65	-	-	-	-	220	-	415
T22	0.05-0.15	0.50 max	0.30-0.60	0.025 max	0.025max	-	-	-	-	1.90-2.60	-	0.87-1.13	-	-	-	-	205	-	415
T91	0.07-0.14	0.20-0.50	0.30-0.60	0.020 max	0.010max	0.06-0.10	0.18-0.25	0.02	0.01	8.0-9.5	0.40	0.85-1.05	-	0.01	0.030-0.070	-	415	-	585
T9	0.15 max.	0.25-1.0	0.30-0.60	0.025 max	0.025max	-	-	-	-	8.0-10.0	-	0.90-1.10	-	-	-	-	205	-	415
A335																			
P1	0.10-0.20	0.10-0.50	0.30-0.80	0.025 max	0.025max	-	-	-	-	-	-	0.44-0.65	-	-	-	-	205	-	380
P2	0.10-0.20	0.10-0.30	0.30-0.61	0.025 max	0.025max	-	-	-	-	0.50-0.81	-	0.44-0.65	-	-	-	-	205	-	380
P5	0.15 max.	0.50 max.	0.30-0.60	0.025 max	0.025max	-	-	-	-	4.0-6.0	-	0.45-0.65	-	-	-	-	205	-	415
P9	0.15 max.	0.25-1.0	0.30-0.60	0.025 max	0.025max	-	-	-	-	8.0-10.0	-	0.90-1.10	-	-	-	-	205	-	415
P11	0.05-0.15	0.50-1.0	0.30-0.60	0.025 max	0.025max	-	-	-	-	1.0-1.5	-	0.44-0.65	-	-	-	-	205	-	415
P12	0.05-0.15	0.50 max.	0.30-0.61	0.025 max	0.025max	-	-	-	-	0.80-1.25	-	0.44-0.65	-	-	-	-	220	-	415
P22	0.05-0.15	0.50 max.	0.30-0.60	0.025 max	0.025max	-	-	-	-	1.90-2.60	-	0.87-1.13	-	-	-	-	205	-	415
P91	0.08-0.12	0.20-0.50	0.30-0.60	0.020 max	0.010max	0.06-0.10	0.18-0.25	0.02 max	0.01	8.0-9.5	0.40	0.85-1.05	-	0.01	0.030-0.070	-	415	-	585
334																			
Gr1	0.30 Max	-	0.40-1.06	0.025 Max	0.025Max	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gr3	0.19 Max	0.18-0.37	0.31-0.64	0.025 Max	0.025Max	-	-	-	-	-	3.18-3.82	-	-	-	-	-	-	-	-
Gr6	0.30 Max	0.10 Min	0.20-1.06	0.025 Max	0.025Max	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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# Carbon & Alloy Steel Seamless Tubes/Pipes Product Specifications

GRADE	CHEMICAL ANALYSIS (%)															MECHANICAL PROPERTIES		
	C	Si	Mn	P	S	Nb	V	Altot.	Ti	Cr	Ni	Mo	Cu	Zr	N	CEV	Min Y.S.(ReH)Mpa	Ts (Rn)Mpa
A 333																		
Gr 1	0.30 max		0.40-1.06	0.025 max	0.025 max												205	380
Gr 3	0.19 max	0.18-0.37	0.31-64	0.025 max	0.025 max					3.18-3.82							240	450
Gr 6	0.30 max	0.10 min	0.29-1.06	0.025 max	0.025 max		0.08			0.03	0.04	0.12	0.04				240	415
A 556																		
Grade A	0.18 max		0.27-0.63	0.035 max	0.035 max												180	320
Grade B	0.27 max	0.10 min.	0.29-0.93	0.035 max	0.035 max												260	410
Grade C	0.30 max	0.10 min.	0.29-1.06	0.035 max	0.035 max												280	480
BS 3059/2																		
320	0.16 max	0.10 min	0.30-0.70	0.040 max	0.040 max												195	320
243	0.12-0.20	0.10-0.35	0.40-0.80	0.035 max	0.035 max							0.25-0.35						
360	0.17 max	0.10-0.35	0.40-0.80	0.035 max	0.035 max												235	360
440	0.12-0.18	0.10-0.35	0.90-1.20	0.035 max	0.035 max												245	440
620	0.10-0.15	0.10-0.35	0.40-0.70	0.030 max	0.030 max				0.70-1.10			0.45-0.65					275	480
622	0.08-0.15	0.50 max	0.40-0.70	0.03 max	0.03 max				2.0-2.5			0.9-1.2					275	480
DIN 1 629																		
St 37.0	0.17 max			0.040 max	0.040 max												235	350
St 44.0	0.21 max			0.040 max	0.040 max												275	420
St 52.0	0.22 max	0.55 max	1.60 max	0.040 max	0.035 max												355	500
DIN 17175																		
10 crMo9 10	0.08-0.015	0.50 max	0.40-0.70	0.035 max	0.035 max					2.0-2.5		0.90-1.20					280	450
13crMo44	0.10-0.18	0.10-0.35	0.40-0.70	0.035 max	0.035 max				0.70-1.10			0.45-0.65					305	440
14MnV6 3	0.10-0.18	0.10-0.35	0.40-0.70	0.035 max	0.035 max		0.22-0.32		0.30-0.60			0.50-0.70					320	460
15Mo3/1 6Mo3	0.17 max	0.10-0.35	0.40-0.80	0.040 max	0.040 max							0.25-0.35					235	360
17Mn4	0.14-0.20	0.20-0.40	0.90-1.20	0.040 max	0.040 max				<0.30								270	660
19Mn5	0.17-0.22	0.30-0.60	1.0-1.30	0.040 max	0.040 max				<0.30								310	510
St 35.8	0.17 max	0.10-0.35	0.40-0.80	0.040 max	0.040 max												235	360
St 45.8	0.21 max	0.10-0.35	0.40-1.20	0.040 max	0.040 max												255	410
DIN 239 1-2																		
St 35	0.17 max	0.35 max	>0.40	0.025 max	0.025 max												235	340
St 45	0.21 max	0.35 max	>0.40	0.025 max	0.025 max												255	440
St 52	0.22 max	0.55 max	<1.60	0.025 max	0.025 max												355	490

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# Carbon & Alloy Steel Seamless Tubes/Pipes Product Specifications

GRADE	CHEMICAL ANALYSIS (%)														MECHANICAL PROPERTIES					
	C	Si	Mn	P	S	Nb	V	Al tot	Ti	Cr	Ni	Mo	Cu	Zr	N	CEV	Min Y.S.(ReH)Mpa	TS (Rm)Mpa		
A 519																				
1008	0.10max.	-	0.30-0.50	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1010	0.08-0.13	-	0.30-0.60	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1012	0.10-0.15	-	0.30-0.60	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1015	0.13-0.18	-	0.30-0.60	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1016	0.13-0.18	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1017	0.15-0.20	-	0.30-0.60	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1018	0.15-0.20	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1019	0.15-0.20	-	0.70-1.0	max0.040	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1020	0.18-0.23	-	0.30-0.60	0. max040	0.050 max	-	-	-	-	-	-	-	-	-	-	-	HR-345	HR-221		
1021	0.18-0.23	-	0.60-0.90	0.04 maxx0	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1022	0.18-0.23	-	0.70-1.0	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1025	0.22-0.28	-	0.30-0.60	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1026	0.22-0.28	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1030	0.28-0.34	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1035	0.32-0.37	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-		
1040	0.37-0.44	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	276	40	448	
1045	0.43-0.50	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	310	45	517
1050	0.48-0.55	-	0.60-0.90	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	345	50	552
1541	0.36-0.44	-	1.35-1.65	0.040 max	0.050 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SAE4130	0.28-0.33	0.15-0.35	0.40-0.60	0.04 max	0.04 max	-	-	-	0.80-1.10	-	-	-	-	-	-	-	-	-	-	-
S235JRH	<0.17	-	<1.40	<0.040	<0.040	-	-	-	-	-	-	-	-	-	<0.009	<0.37	<0.39	235	225	360-510
S275J0H	<0.20	-	<1.50	<0.035	<0.035	-	-	-	-	-	-	-	-	-	<0.009	<0.41	<0.43	275	265	430-580
S275J2H	<0.20	-	<1.50	<0.030	<0.030	-	-	-	-	-	-	-	-	-	<0.009	<0.41	<0.43	275	265	430-580
S355J0H	<0.22	<0.55	<1.60	<0.035	<0.035	-	-	-	-	-	-	-	-	-	<0.009	<0.45	<0.47	355	345	510-680
S355J2H	<0.22	<0.55	<1.60	<0.030	<0.030	-	-	-	-	-	-	-	-	-	<0.009	<0.45	<0.47	355	345	510-680
S355K2H	<0.22	<0.55	<1.60	<0.030	<0.030	-	-	-	-	-	-	-	-	-	<0.009	<0.45	<0.47	355	345	510-680
S275NH	<0.20	<0.40	0.50-1.40	<0.035	<0.035	<0.050	>0.08	<0.03	<0.30	<0.30	<0.10	<0.10	-	-	<0.015	0.40	0.40	275	265	370-510
S275NLH	<0.20	<0.40	0.50-1.40	<0.030	<0.030	<0.050	>0.08	<0.03	<0.30	<0.30	<0.10	<0.10	-	-	<0.015	0.40	0.40	275	265	370-510
S355NH	<0.20	<0.50	0.90-1.65	<0.035	<0.035	<0.050	>0.12	<0.03	<0.30	<0.50	<0.10	<0.10	-	-	<0.020	0.43	0.45	355	345	470-630
S355NLH	<0.18	<0.50	0.90-1.65	<0.030	<0.030	<0.050	>0.12	<0.03	<0.30	<0.50	<0.10	<0.10	-	-	<0.020	0.43	0.45	355	345	470-630
S420NH	<0.22	<0.60	1.00-1.70	<0.035	<0.030	<0.050	>0.20	<0.03	<0.30	<0.80	<0.10	<0.10	-	-	<0.025	0.50	0.52	420	400	520-680
S420NLH	<0.22	<0.60	1.00-1.70	<0.030	<0.030	<0.050	>0.20	<0.03	<0.30	<0.80	<0.10	<0.10	-	-	<0.025	0.50	0.52	420	400	520-680
460NH	<0.22	<0.60	1.00-1.70	<0.035	<0.030	<0.050	>0.20	<0.03	<0.30	<0.80	<0.10	<0.10	-	-	<0.025	0.53	0.55	460	440	540-720
S460NLH	<0.22	<0.60	1.00-1.70	<0.030	<0.030	<0.050	>0.20	<0.03	<0.30	<0.80	<0.10	<0.10	-	-	<0.025	0.53	0.55	460	440	540-720
SAE8620	0.28-0.33	0.15-0.35	0.40-0.60	0.04	0.04	-	-	-	0.80-1.10	-	0.15-0.25	-	-	-	-	-	-	-	-	-
EN 18	0.35-0.45	0.10-0.35	0.50-0.80	0.04 Max	0.04 Max	-	-	-	0.90-1.40	-	0.20-0.40	-	-	-	-	-	-	-	-	-

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# Carbon & Alloy Steel Seamless Tubes/Pipes Product Comparison

ASTM STANDARD	ASTM STEEL	DIN STANDARD	DIN STEEL	BS STANDARD	BS STEEL	EN STANDARD	EN STEEL	UNI STANDARD	UNI STEEL	GOST STANDARD	GOST STEEL	JIS STANDARD	JIS STANDARD
A106	Gr.A	17175	S135.8	3059-2	360	10216-2	P235GH	-	C14	1050	10	G3456	STPT370
	Gr.B	17175	S145.8	3059-2	430	10216-2	P265GH	-	C18	1050	20	G3456	STPT410
	Gr.C	17175	17Mn4	3059-2	440	-	(P295 GH)	-	-	4543	14G2	G3456	STPT480
A179	A179	17175	S135.8	3602-1	360	10216-2	P235GH	-	C14	1050	10	G3456	STPT370
A192	A192	17175	S135.8	3602-1	360	10216-2	P235GH	-	C14	1050	10	G3456	STPT370
A209	T1, T1a, T1b	-	16Mo5	-	-	-	-	-	16Mo5	-	-	G3462	STBA12
A210	Gr.A-1	17175	S145.8	3602-1	430	10216-2	P265GH	-	-	-	-	G3456	STPT410
	Gr.C	17175	17Mn4	-	-	-	-	-	-	-	-	-	-
A213	T/P122	-	-	-	-	-	1Cr1NiMoVNbN1B	-	-	-	-	-	HOM 12A
	T/P911	-	-	-	-	-	X11CrMoVNb9-1-1	-	-	-	-	-	-
	T/P92	-	-	-	-	-	X11CrMoVNb9-2	-	-	-	-	-	-
	T11	-	-	3604-1	621	10216-2	10CrMo5-5	-	-	-	-	G3462	STBA29
	T12	17175	13CrMo4 4	3059-2	620	10216-2	13CrMo4-5	-	14CrMo3	4543	15CHM	G3462	STBA22
	T2	-	-	-	-	-	(15 CrMo2-5)	-	-	-	-	G3462	STBA20
	T21	17176	12CrMo12-10	-	-	-	-	-	-	-	-	G3462	STBA25
	T22	17175	10CrMo9 10	3059-2	622-490	10216-2	10CrMo9-10	-	12CrMo9 10	5520	10CHM	G3462	STBA24
	T23	-	-	-	-	-	7Cr1WMoNb 9-6	-	-	-	-	-	HOM 2S
	T24	-	-	-	-	-	7Cr1MoTiB 10-10	-	-	-	-	-	-
	T5, T5b, T5c	17176	12CrMo19 5	3604-1	625	10216-2	X11CrMo5	-	-	550	15CHM	-	-
	17	-	-	-	-	-	(X11CrMo7)	-	-	-	-	G3462	STBA26
	T9	17176	X12CrMo9 1	3059-2	629	10216-2	X11CrMo9-1	-	-	-	-	-	-
A333	T91	-	-	3059-2	629-590	10216-2	X10CrMoVNb9-1	-	-	-	-	63462	STBA28
	Gr.1	17173	TTS35N	3603	430LT	10216-4	P215 NL	-	C15	-	-	G3460	STPL380
	Gr.3	17173	10Ni14	3603	503LT	10216-4	12Ni14	-	18Ni14	-	-	G3460	STPL450
	Gr.6	17174	TTS35V	3603	430LT	10217-4	P265 NL	-	C20	-	-	-	-
	Gr.7	-	-	-	-	-	(10Ni9)	-	18Ni9	-	-	-	-
A334	Gr.8	17173	X8Ni9	3603	509LT	10216-4	X10Ni9	-	X12Ni109	-	-	-	-
	Gr.1	17174	TTS35N	-	-	10217-4	P215 NL	-	-	-	-	G3464	STBL380
	Gr.3	17173	10Ni14	3603	503LT	10253-2	12Ni14	-	18Ni14	-	-	G3464	STBL450
	Gr.6	17173	TTS35V	3603	430LT	10217-6	P265 NL	-	C20	-	-	-	-
A335	Gr.7	-	-	-	-	-	-	-	18Ni9	-	-	-	-
	P1	-	-	-	-	-	-	-	16Mo5	-	-	G3458	STPA12
	P11	-	-	3604-2	621	10253-2	10CrMo5-5	-	-	-	-	G3458	STPA23
	P12	2609	13CrMo4 4	3604-1	620-440	10253-2	13CrMo4-5	-	-	-	-	G3458	STPA22
	P2	-	-	-	-	-	-	-	-	-	-	G3458	STPA20
	P21	-	-	12CrMo12-10	-	-	-	-	-	-	-	G3458	STPA25
	P22	2609	10CrMo9 10	3604-1	6222	10253-2	10CrMo9-10	-	-	-	-	G3458	STPA24
A53	P24	-	-	-	-	-	7Cr1MoVTiB 10-10	-	-	20072	15CHM	-	-
A566	P5, P5b, P5c	17176	12CrMo19 5	3606	625	10253-2	X11CrMo5	-	-	-	-	G3458	STPA26
	P7	-	-	-	-	-	(X11CrMo7)	-	-	-	-	-	-
	P9	-	-	3604-1	629	10253-2	X11CrMo9-1	-	-	-	-	-	-
	P91	-	-	-	-	10253-2	X10CrMoVNb9-1	-	-	-	-	G3458	STPA28
	Gr.A	17121	RS137-2	6233-3	HFS 3	10025-2	S235JR	-	Fe35-1	1050	10	-	-
	Gr.B	17121	S144-3	6233-3	HFS4	10025-2	S275J2	-	Fe45-1	1050	20	-	-
	Gr.A-2	17175	S135.8	3602-1	360	10216-2	P235GH	-	C14	1050	10	G3456	STPT370
	Gr.B-2	17175	S145.8	3602-1	430	10216-2	P265GH	-	-	-	-	-	-
	Gr.C2	-	-	-	-	-	-	-	-	-	-	-	-

Above data are only for reference and HMT don't take any liability for the same.

# Stainless Steel Seamless & Welded Tubes / Pipes Product Specification & Comparison

GRADE	CHEMICAL ANALYSIS (%)											COMPARISON / EQUIVALENT										
	C	Si (Max.)	Mn (Max.)	P (Max.)	S (Max.)	Ni	Cr	Mo	Other	UNS (USA)	B.S (UK)	EN/DIN (Germany)	AFNOR NF (France)	UNI (Italy)	SS (Sweden)	JL.S (Japan)	GB/PR (China)	KS (Korea)				
304	0.08 max	1.00	2.00	0.045	0.030	8.00-11.00	18.00-20.00	-	-	S30400	304S31 / 304S15	1.4301	Z7 CN 18-09 / Z6 CN 18-09	X5CrNi1810	2.333	SUS 304	0Cr-18Ni9	STS 304				
304L	0.035 max	1.00	2.00	0.045	0.030	8.00-13.00	18.00-20.00	-	-	S30403	304S11	1.4307	Z2 CN 18-10 / Z3 CN 18-10	X2CrNi1811	2.352	SUS 304L	00Cr-19Ni10	STS 304L				
304N	0.08 max	1.00	2.00	0.045	0.030	8.00-11.00	18.00-20.00	-	N:0.10-0.16	S30451	304S71	1.6907	-	-	-	-	-	-				
304LN	0.035 max	1.00	2.00	0.045	0.030	8.00-12.00	18.00-20.00	-	N:0.10-0.16	S30453	304S61	1.4311	Z3 CN 18-10 Az	-	SUS 304LN	00Cr-18Ni10N	STS 304LN					
304H	0.04-0.10	1.00	2.00	0.045	0.030	8.00-11.00	18.00-20.00	-	-	S30409	304S51	1.4848	Z6 CN 18-09	X8CrNi1810	2.333	SUS 304	1Cr-18Ni9	STS 304				
316	0.08 max	1.00	2.00	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00	-	S31600	316S31	1.4401	Z7 CND 17-11-02	X5CrNiMo1712	2.347	SUS 316	0Cr17Ni2Mo2	STS 316				
											316S33 / 316S31	1.4436	Z7 CND 18-12-03	X5CrNiMo1713	2.343							
316L	0.035 max	1.00	2.00	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00	-	S31603	316S11 / 316S11	1.4404	Z3 CND 17-11-02 / Z3 CND 18-12-02	X5CrNiMo1712	2.348	SUS 316L	00Cr-18Ni2Mo2	STS 316L				
											316S13 / 316S11	1.4435	Z3 CND 18-14-03	X2CrNiMo1713	2.353							
316N	0.08 max	1.00	2.00	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00	N:0.10-0.16	S31651	-	-	-	-	-	-	-	-				
316LN	0.035 max	1.00	2.00	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00	N:0.10-0.16	S31653	316S61	1.4406	Z3 CND 17-11 Az	-	SUS 316LN	00Cr-17Ni12Mo2N	STS 316LN					
316TI	0.08 max	0.75	2.00	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00	Ti:5X(C+N)-0.70 N:0.10 max	S31635	320S31	1.4571	Z6 CND 17-12	X6CrNiMoTi1713	2.350	SUS 316TI	0Cr-18Ni12Mo2Ti	STS 316TI				
316H	0.04-0.10	1.00	2.00	0.045	0.030	11.00-14.00	16.00-18.00	2.00-3.00	-	S31609	316S52	1.4401 / 1.4919	Z6 CND 17-12	X8CrNiMo1712	-	-	-	-				
321	0.08 max	1.00	2.00	0.045	0.030	9.00-12.00	17.00-19.00	-	Ti:5X(C+N)-0.70	S32100	321S31	1.4541	Z6 CNT 18-10	X6CrNiTi1811	2.337	SUS 321	0Cr-18Ni9Ti	STS 321				
321H	0.04-0.10	1.00	2.00	0.045	0.030	9.00-12.00	17.00-19.00	-	Ti:4X(C+N)-0.70	S32109	321S51	1.4878	Z6 CNT 18-10	X8CrNiTi1811	2.337	SUS 321	-	-				
317	0.08 max	1.00	2.00	0.045	0.030	11.00-15.00	18.00-20.00	3.00-4.00	-	S31700	317S16	1.4449	Z3 CND 19-15-04	X5CrNiMo1815	-	SUS 317	-	-				
317L	0.035 max	1.00	2.00	0.045	0.030	11.00-15.00	18.00-20.00	3.00-4.00	-	S31703	317S12	1.4438	Z6 CND 18-10	X2CrNiMo1815	2.367	SUS 317L	00Cr-19Ni11.3Mo3	STS 317L				
347	0.08 max	1.00	2.00	0.045	0.030	9.00-13.00	17.00-19.00	-	Nb+Ta 10XC%-1.00	S34700	347S31	1.455	X6CrNiMo1811	2.338	SUS 347	0Cr-18Ni11Mo	STS 347					
347H	0.04-0.10	1.00	2.00	0.045	0.030	9.00-13.00	17.00-19.00	-	Nb+Ta 8XC%-1.0	S34709	316SJa	1.4861	Z8 CN 25-20	X8CrNiMo1811	2.347	-	-	-				
310 S	0.080 max	1.00	2.00	0.045	0.030	19.00-22.00	24.00-26.00	0.75	-	S31008	310S16 / 310S24	1.4845	Z1 2 CN 25-20	X6CrNi2520	2.361	SUS 310S	1Cr-25Ni20	STS 310S				
904L	0.020 max	1.00	2.00	0.045	0.030	23.00-28.00	19.00-23.00	4.0-5.0	N:0.10 Cu:0.10-2.00	N08904	904S13	1.4539	Z2 NCDU 23-05 AZ	X1 NiCr MoCu 25-20-5	2.562	-	-	STS 317 J5L				
310H	0.04-0.10	1.00	2.00	0.045	0.030	19.00-22.00	24.00-26.00	-	-	S31009	-	-	-	-	-	-	-	-				
Duplex 31803	0.03 max	1.00	2.00	0.03	0.020	4.50-6.50	21.00-23.00	2.50-3.50	N:0.08 -0.20	S31803	-	1.4462	Z2 CND 22-05 Az	-	2.377	00Cr-22Ni5Mo3N	-	-				
Duplex 2205	0.03 max	1.00	2.00	0.03	0.020	4.50-6.50	22.00-23.00	3.00-3.50	N:0.14 -0.20	S32205	318S13	1.4462	Z3 CND 23-05 AZ	-	2.377	00Cr-22Ni5Mo3N	STS 329J3L					
Super Duplex 2507	0.03 max	0.80	1.20	0.035	0.020	6.00-8.00	24.00-26.00	3.00-5.00	N:0.24-0.32 Cu:0.09	S32750	-	1.441	-	2.328	00Cr-25Ni7Mo4N	-	-					
405	0.08 max	1.00	1.00	0.040	0.030	0.50	11.50-14.50	-	Al:0.10-0.30	S40500	405S17	1.4002	Z6 CA113	-	-	SUS 405	-	-				
410	0.15 max	0.75	1.00	0.04	0.030	-	11.50-13.50	-	-	S41000	410S21	1.4006	Z1 2C3	X12Cr13	2.302	SUS 410	1Cr12	STS 410				
430	0.12 max	0.75	1.00	0.04	0.030	-	16.00-18.00	-	-	S43000	430S17	1.4016	Z8 C17	X8Cr17	2.320	SUS 430	1Cr17	STS 430				

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# Cold Drawn Seamless Stainless, Carbon & Alloy Steel Manufacturing Range

OUTSIDE DIAMETER		in mm	6.350	12.700	19.050	25.400	31.750	38.100	44.450	50.800	57.150	63.500	69.850	76.200	82.550	88.900	95.250	101.600	
WALL THICKNESS		in inch	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	
Gauge	mm	inch																	
22 SWG	0.711	0.028	0.099	0.210	0.322	0.433	0.544	0.656	0.767	0.878	0.990	1.101							
22 BWG	0.711	0.028	0.099	0.210	0.322	0.433	0.544	0.656	0.767	0.878	0.990	1.101							
21 SWG	0.813	0.032	0.111	0.238	0.366	0.493	0.620	0.748	0.875	1.002	1.130	1.257							
21 BWG	0.813	0.032	0.111	0.238	0.366	0.493	0.620	0.748	0.875	1.002	1.130	1.257							
20 SWG	0.914	0.036	0.123	0.266	0.409	0.552	0.695	0.838	0.981	1.124	1.268	1.411	1.554						
20 BWG	0.889	0.035	0.120	0.259	0.398	0.537	0.677	0.816	0.955	1.094	1.233	1.373	1.512						
19 SWG	1.016	0.040	0.134	0.293	0.452	0.611	0.770	0.929	1.088	1.247	1.406	1.566	1.725						
19 BWG	1.067	0.042	0.139	0.306	0.473	0.640	0.807	0.974	1.142	1.309	1.476	1.643	1.810						
18 SWG	1.219	0.048	0.154	0.345	0.536	0.727	0.918	1.109	1.300	1.491	1.681	1.872	2.063	2.254	2.445	2.636	2.827		
18 BWG	1.245	0.049	0.157	0.352	0.547	0.742	0.937	1.132	1.327	1.522	1.716	1.911	2.106	2.301	2.496	2.691	2.886		
17 SWG	1.473	0.058	0.177	0.408	0.639	0.869	1.100	1.331	1.561	1.792	2.023	2.253	2.484	2.715	2.945	3.176	3.407		
17 BWG	1.499	0.059	0.179	0.414	0.649	0.884	1.118	1.353	1.588	1.823	2.057	2.292	2.527	2.762	2.996	3.231	3.466		
16 SWG	1.626	0.064	0.189	0.444	0.699	0.953	1.208	1.463	1.717	1.972	2.226	2.481	2.736	2.990	3.245	3.500	3.754	4.009	
16 BWG	1.651	0.065	0.191	0.450	0.708	0.967	1.226	1.484	1.743	2.001	2.260	2.518	2.777	3.035	3.294	3.552	3.811	4.070	
15 SWG	1.829	0.072	0.204	0.490	0.777	1.063	1.350	1.636	1.922	2.209	2.495	2.782	3.068	3.355	3.641	3.927	4.214	4.500	
15 BWG	1.829	0.072	0.204	0.490	0.777	1.063	1.350	1.636	1.922	2.209	2.495	2.782	3.068	3.355	3.641	3.927	4.214	4.500	
14 SWG	2.032	0.080	0.216	0.535	0.853	1.171	1.489	1.807	2.126	2.444	2.762	3.080	3.399	3.717	4.035	4.353	4.671	4.990	
14 BWG	2.108	0.083	0.221	0.551	0.881	1.211	1.541	1.871	2.201	2.531	2.861	3.192	3.522	3.852	4.182	4.512	4.842	5.172	
13 SWG	2.337	0.092	0.237	0.597	0.963	1.329	1.695	2.061	2.427	2.793	3.159	3.525	3.891	4.257	4.623	4.989	5.355	5.721	
13 BWG	2.413	0.095	0.242	0.612	0.990	1.368	1.746	2.124	2.502	2.879	3.257	3.635	4.013	4.391	4.769	5.147	5.525	5.902	
12 SWG	2.642	0.104	0.257	0.655	1.069	1.483	1.897	2.310	2.724	3.138	3.552	3.966	4.379	4.793	5.206	5.620	6.034	6.448	
12 BWG	2.769	0.109	0.262	0.678	1.112	1.545	1.979	2.413	2.846	3.280	3.714	4.147	4.581	5.014	5.448	5.882	6.315	6.749	
11 SWG	2.946	0.116	0.271	0.709	1.170	1.631	2.093	2.554	3.015	3.477	3.938	4.399	4.861	5.322	5.783	6.245	6.706	7.167	
11 BWG	3.048	0.120	0.276	0.726	1.203	1.680	2.157	2.635	3.112	3.589	4.067	4.544	5.021	5.499	5.976	6.453	6.931	7.408	
10 SWG	3.251	0.128	0.281	0.758	1.267	1.776	2.285	2.794	3.303	3.812	4.321	4.830	5.340	5.849	6.358	6.867	7.376	7.885	
10 BWG	3.404	0.134	0.287	0.780	1.313	1.847	2.360	2.913	3.446	3.979	4.512	5.045	5.578	6.111	6.644	7.177	7.710	8.243	
9 SWG	3.658	0.144	0.291	0.816	1.389	1.961	2.534	3.107	3.680	4.253	4.826	5.398	5.971	6.544	7.117	7.690	8.263	8.836	
9 BWG	3.759	0.148	0.294	0.829	1.418	2.006	2.595	3.183	3.772	4.361	4.949	5.538	6.127	6.715	7.304	7.893	8.481	9.070	
8 SWG	4.064	0.160	0.301	0.866	1.502	2.138	2.775	3.411	4.048	4.684	5.321	5.957	6.593	7.230	7.866	8.503	9.139	9.775	
8 BWG	4.191	0.165	0.303	0.879	1.536	2.192	2.848	3.505	4.161	4.817	5.474	6.130	6.786	7.443	8.099	8.755	9.412	10.068	
7 SWG	4.470	0.176	0.307	0.907	1.607	2.307	3.007	3.707	4.407	5.107	5.807	6.507	7.207	7.907	8.607	9.307	10.007	10.707	
7 BWG	4.572	0.180	0.309	0.920	1.632	2.348	3.064	3.780	4.496	5.212	5.928	6.644	7.360	8.076	8.792	9.508	10.224	10.940	
6 SWG	4.877	0.192	0.311	0.945	1.705	2.468	3.232	3.996	4.760	5.523	6.287	7.051	7.815	8.579	9.343	10.107	10.871	11.635	
6 BWG	5.156	0.203	0.314	0.977	1.767	2.574	3.362	4.189	4.996	5.804	6.611	7.419	8.226	9.034	9.841	10.648	11.456	12.263	
5 SWG	5.385	0.212	0.316	1.000	1.815	2.658	3.501	4.345	5.188	6.031	6.875	7.718	8.561	9.404	10.248	11.091	11.934	12.778	
5 BWG	5.588	0.220	0.318	1.023	1.855	2.730	3.605	4.480	5.356	6.231	7.106	7.981	8.856	9.731	10.606	11.481	12.356	13.231	
4 SWG	5.893	0.232	0.320	1.048	1.912	2.835	3.758	4.681	5.603	6.526	7.449	8.372	9.295	10.218	11.141	12.063	12.986	13.909	
4 BWG	6.045	0.238	0.322	1.061	1.955	2.885	3.832	4.779	5.725	6.672	7.619	8.565	9.512	10.459	11.405	12.352	13.299	14.245	
3 SWG	6.401	0.252	0.324	1.085	2.009	2.999	4.002	5.004	6.006	7.009	8.011	9.014	10.016	11.018	12.021	13.023	14.026	15.028	
3 BWG	6.579	0.259	0.326	1.100	2.054	3.054	4.084	5.114	6.144	7.175	8.205	9.235	10.266	11.296	12.326	13.356	14.387	15.417	
2 SWG	7.010	0.276	0.330	1.150	2.179	3.179	4.277	5.375	6.473	7.570	8.668	9.766	10.864	11.961	13.059	14.157	15.255	16.352	
2 BWG	7.214	0.284	0.332	1.165	2.235	3.235	4.365	5.495	6.625	7.754	8.884	10.014	11.143	12.273	13.403	14.533	15.662	16.792	
1 SWG	7.620	0.300	0.334	1.215	2.361	3.341	4.535	5.728	6.921	8.114	9.308	10.501	11.694	12.888	14.081	15.274	16.467	17.661	
0 SWG	8.829	0.324	0.336	1.265	2.515	3.341	4.535	5.728	6.921	8.114	9.308	10.501	11.694	12.888	14.081	15.274	16.467	17.661	
0 BWG	8.636	0.340	0.338	1.240	2.490	3.570	4.923	6.275	7.628	8.980	10.332	11.685	13.037	14.390	15.742	17.094	18.447	19.799	

# Seamless Carbon & Alloy Steel Line Pipe Manufacturing Range

NOMINAL PIPE SIZE		SCHEDULE STANDARD		SCHEDULE 40		SCHEDULE XS		SCHEDULE 80		SCHEDULE 120		SCHEDULE 160		SCHEDULE XXS		
INCH	MM	IN MM	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.
1/4	8	13.7	2.24	0.63	2.24	0.63	3.02	0.80	3.02	0.8	-	-	-	-	-	-
3/8	10	17.1	2.31	0.84	2.31	0.84	3.2	1.10	3.2	1.1	-	-	-	-	-	-
1/2	15	21.3	2.77	1.27	2.77	1.27	3.73	1.62	3.73	1.62	-	-	4.78	1.95	7.47	2.55
3/4	20	26.7	2.87	1.69	2.87	1.69	3.91	2.20	3.91	2.2	-	-	5.56	2.9	7.82	3.64
1	25	33.4	3.38	2.50	3.38	2.50	4.55	3.24	4.55	3.24	-	-	6.35	4.24	9.09	5.45
1 1/4	32	42.2	3.56	3.39	3.56	3.39	4.85	4.47	4.85	4.47	-	-	6.35	5.61	9.7	7.77
1 1/2	40	48.3	3.68	4.05	3.68	4.05	5.08	5.41	5.08	5.41	-	-	7.14	7.25	10.16	9.58
2	50	60.30	3.91	5.44	3.91	5.44	5.54	7.48	5.54	7.48	-	-	8.74	11.11	11.07	13.44
2 1/2	65	73.00	5.16	8.63	5.16	8.63	7.01	11.41	7.01	11.41	-	-	9.52	14.90	14.02	20.39
3	80	88.90	5.49	11.29	5.49	11.29	7.62	15.27	7.62	15.27	-	-	11.13	21.35	15.34	27.83
3 1/2	90	101.60	5.74	13.57	5.74	13.57	8.08	18.64	8.08	18.64	-	-	-	-	-	-
4	100	114.30	6.02	16.08	6.02	16.08	8.58	22.32	8.58	22.32	11.13	28.32	13.49	33.54	17.12	41.03
5	125	141.30	6.55	21.77	6.55	21.77	9.52	30.94	9.52	30.94	12.70	40.28	15.88	49.12	19.05	57.43
6	150	168.30	7.11	28.26	7.11	28.26	10.97	42.56	10.97	42.56	14.27	54.21	18.28	67	21.95	79.22

# Seamless Cold Drawn Stainless Steel Line Pipe Manufacturing Range

NOMINAL PIPE SIZE		SCHEDULE 5 S		SCHEDULE 10 S		SCHEDULE 20 S		SCHEDULE 40 S		SCHEDULE 80 S		SCHEDULE 160 S		SCHEDULE XXS		
INCH	MM	IN MM	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.	WALL	WT.
1/8	6	10.30	1.20	0.28	1.24	0.28	1.50	0.33	1.73	0.37	2.41	0.48	-	-	-	-
1/4	8	13.70	1.20	0.38	1.65	0.50	2.00	0.59	2.24	0.65	3.02	0.81	-	-	-	-
3/8	10	17.10	1.20	0.48	1.65	0.64	2.00	0.79	2.31	0.86	3.20	1.12	-	-	-	-
1/2	15	21.30	1.65	0.82	2.11	1.02	2.30	1.10	2.77	1.29	3.73	1.65	4.75	1.98	7.47	2.60
3/4	20	26.70	1.65	1.04	2.11	1.31	2.55	1.55	2.87	1.72	3.91	2.25	5.56	2.96	7.82	3.72
1	25	33.40	1.65	1.32	2.77	2.14	2.55	1.98	3.38	2.56	4.55	3.31	6.35	4.33	9.09	5.57
1 1/4	32	42.20	1.65	1.69	2.77	2.75	3.00	2.96	3.56	3.47	4.85	4.56	6.35	5.74	9.70	7.94
1 1/2	40	48.30	1.65	1.94	2.77	3.18	3.00	3.42	3.68	4.14	5.08	5.53	7.14	7.41	11.10	10.41
2	50	60.30	1.65	2.44	2.77	4.02	3.00	4.33	3.91	5.56	5.54	7.64	8.74	11.36	11.07	13.73
2 1/2	65	73.00	2.11	3.77	3.05	5.38	4.00	6.96	5.16	8.82	7.01	11.66	9.53	15.24	14.02	20.84
3	80	88.90	2.11	4.61	3.05	6.60	4.00	8.56	5.49	11.54	7.62	15.61	11.10	21.76	15.24	28.29
4	100	114.30	2.11	5.97	3.05	8.55	4.50	12.45	6.02	16.43	8.56	22.81	13.49	34.27	17.12	41.93
5	125	141.30	2.77	9.67	3.40	11.82	5.00	17.17	6.55	22.24	9.53	31.65	15.88	50.19	19.05	58.69
6	150	168.30	2.77	11.55	3.40	14.13	6.35	25.92	7.11	28.88	10.97	43.49	18.25	69.01	21.95	80.95
8	200	219.08	2.77	15.10	3.76	20.40	6.35	34.04	8.18	43.47	12.70	66.05	23.01	113.69	22.23	110.27

For Carbon and Alloy Steel Tubes Cross Section Kg/mtr Weight is: (in mm) (OD -Thk) x Thk x 0.02466 15. For Stainless Steel Tubes Cross Section Kg/ mtr weight: (in mm); (OD -Thk) x Thk x 0.0252

# Carbon Drawn Seamless Stainless, Carbon & Alloy Steel Hydraulic/Mechanical Tubes Manufacturing Range

WT IN MM																					
MIN	MAX	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00	9.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
MAX	OD IN MM	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00	9.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
6.00	8.00	✓	✓	✓	✓																
8.00	10.00	✓	✓	✓	✓																
10.00	16.00	✓	✓	✓	✓	✓		✓													
16.00	25.00	✓	✓	✓	✓	✓	✓	✓	✓												
25.00	30.00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓									
30.00	40.00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
40.00	50.00		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50.00	60.00			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
60.00	75.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
75.00	90.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
90.00	110.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
110.00	130.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
130.00	150.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
150.00	175.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
175.00	200.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
200.00	220.00				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

For Carbon and Alloy Steel Tubes Cross Section Kg/mtr Weight is: (in mm): (OD - Thk) x Thk x 0.0246615. For Stainless Steel Tubes Cross Section Kg/mtr weight: (in mm): (OD - Thk) x Thk x 0.0252

## Applications / Industries

- Condensers
- Heat Exchanger
- Boiler & Pressure Vessel
- Instrumentation
- Hydraulic & Pneumatic Systems
- Ornamental & Hardware Appliances
- Thermal & Nuclear Power Plants
- Furniture
- Dairies
- Sugar Industries
- Railways
- Textile Machinery
- Solvent Plant
- Defense
- Petroleum & Petrochem
- Oil & Gas Refineries
- Pharmaceutical & Chemical
- Fertilizer Industries
- Automobile & Locomotive
- Chemical Industries
- Steel Plants



## HEAVY METAL & TUBES (INDIA) PVT. LTD.

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Dist. Gandhinagar - 382729 North Gujarat (INDIA)

### CS Plant - Unit 2

138, Bileshwarpura Chhatral, Tal. Kalol,  
Dist. Gandhinagar - 382729 North Gujarat (INDIA)

### HFS Plant - Unit 3

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Dist. Mehsana - 382732 North Gujarat (INDIA)

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