

Heavy Metal & Tubes (India)

A fully self-reliant company manufacturing from round bars to finished seamless tubes

Heavy Metal & Tubes (India) Pvt. Ltd. has a strikingly young and dynamic management, which is resolved to taking the company to new heights through its clear vision, state-of-the-art technology, highly talented and qualified staff, and its determination to produce the highest quality products to ensure customer satisfaction. Capable of producing carbon and alloy steel tubes and pipes as well as stainless steel seamless and welded tubes and pipes starting from round bar to finished goods in-house in a vast variety of outer diameters, thicknesses, and lengths, the company has become a domestic and international force to be reckoned with. We caught up with Mr. Sandeep Kumar Mathur, the General Manager of Marketing to talk about the company's success story, its production capabilities, and its management's desire to play an ever increasing role in heat-exchanger-related industries.



➤ Heavy Metal & Tubes (India) Pvt. Ltd. company headquarters in Gujarat.

By John Butterfield

Brief history

"Heavy Metal & Tubes is a company with a considerable history and reputation," begins Mr. Sandeep Kumar Mathur. Founded in 1978, it can be considered to be one of the pioneers of cold drawn tube manufacture in the Indian sub-continent handling carbon, alloy, and stainless steel products all from its premises. The company began the production of cold drawn seamless carbon steel tubes in Mumbai in the late 1970s and in 1982 opened its second plant in Ankle-shwar in Gujarat. This latter plant quickly became dedicated in the production of special quality cold drawn seamless carbon steel tubes for the demanding market and application such as in the petrochemical, power plant, refinery, and fertilizer industries. Nine years later in 1991, after building considerably on their business acumen, Heavy Metal & Tubes "HMT" invested in a further two dedicated manufacturing facilities for seamless carbon and alloy steel tubes and stainless steel seamless and welded tubes at Chhatral in Gujarat. This strategy enabled the company to not only seize

upon an increasing market share but also to meet the growing demands of a continually expanding market situation.

Tubes and pipes galore

Certainly one of the factors leading to the company's resounding success and helping it to separate itself from the competition has been its ability to produce so many variety of tubes and pipes in different grades, thicknesses, sizes, and lengths under one roof. "No one else does what we are doing in India," says Mr. Mathur. "Hence we tag ourselves as a perfect blend of quality and integrity."

A self-reliant company from raw materials to finished goods in stainless, carbon, and alloy steel grades

Manufacturing of tubes and pipes

Seamless Stainless, Carbon and Alloy Steel hollows are mainly produced in-house or are bought from approved

Pvt. Ltd.

stainless, carbon & alloy steel tubes

vendors domestically and around the world. At Heavy Metal & Tubes they are either cold pilgered or cold drawn on draw benches with precision tooling (dies & plugs) to achieve required dimensions and smooth surfaces.

Welded Stainless Steel tubes are produced from high grade stainless steel strips, again purchased from reputed mills. The strip is transformed into tubular forms at the tube mill, after which they are welded using TIG welding methods. Weld beads are removed by bead rolling equipment. All tubes undergo solution annealing, straightening, and pickling operations, after which they are tested according to code/customer specifications before being marked and packed ready for transport to customers. Special packaging has, moreover, been developed to ensure that the tubes are not damaged under transit.

U-tubes: In order to bend the tubes the company possesses a modern semi-automatic 'U' bending machine that is used for precision cold bending. The accuracy of the bend is ensured by precisely prepared jigs and fixtures. The company has considerable experience in this since bending is carried out for a whole variety of products like heat exchangers, boiler tubes, condensers, and economizers, in carbon, alloy and stainless-steel seamless and welded tubes.

Focus on the heat exchanger market

'Heavy Metal & Tubes' seamless and welded tubes are largely used in shell & tube heat exchangers, and its other forms such as air-fin coolers, boilers, and condensers etc. Not surprisingly, the selection of tubes plays a significant role in such equipment as they are used in such vital industrial segments as oil & gas, refineries, chemical & petrochemical, pharmaceutical, power plant, sugar, and fertilizer plants around the world.

The company is also capable of producing tubing up to 34 meters long, which is a significant factor that separates it from the competition. Very few companies can do this in India. Additionally, it can supply tubing with outer diameters of between 0.4 and 220 mm and thicknesses from 0.5 to 25 mm, which is, naturally, very appealing. In addition to the above segments, Heavy Metals & Tube also supplies its tubes for the automobile industry, the defence industry, hydraulic and pneumatic systems, instrumentation, locomotives, and the pulp & paper industry.

Quality assurance

"As is known," says Mr. Mathur "we have been specialised in the manufacture of heat exchanger tubing for some time. As these tubes play a very critical part in the heat exchangers themselves and in heat transfer it is not surprising that such tubes have to pass some very stringent quality standards during the production process."



➤ One of the factors that separates it from the competition is Heavy Metal & Tubes' ability to produce its own mother hollows in stainless, carbon, and alloy steel. Shown here – the production of mother hollows from round bar.

Building a pathway towards success therefore necessitates that Heavy Metal & Tubes places great emphasis on the quality aspects of its work. It has therefore attained ISO 9001:2015 and PED accreditation. Moreover, the company has implemented a quality assurance system that covers all production stages from raw materials, cold working, and heat treatment, right through to dispatch. All components of this system correspond to the requirements of national and international codes, as well as, where needed, to individual customer's quality assurance requirements.

The company's quality control department works independently of the manufacturing shop.

Quality is further guaranteed by a wide range of testing facilities, as per code requirement, mandatory & supplementary test including: air-under-water, eddy current, flaring, flattening, hardness, hydro, reverse bend, tensile,



➤ The accuracy of the U-bend tubes is ensured by precisely prepared jigs and fixtures.

PRODUCT RANGE

Carbon and alloy steel seamless tubes and pipes

Tube grades produced in carbon steel include:

ASTM A-106, A/B/C, A-179, A-192, SA-210 Gr. A1/C, A-209 T-1 and their equivalents in ASME, DIN, EN, GOST, JIS, etc.

Alloy steel grades produced include:

ASTM A-213 Gr. T-2/T-5/T-9/T-11/T-12/T-22/T-91, SA-335 Gr. P1/P2/P5/P9/P11/P12/P22/P91, A53 A/B, A333 Gr. 1/3/4/6/A556 (A2) A/B/C, BS 3059/1&2 and their equivalents in ASME, DIN, EN, GOST, JIS, etc. as applicable.

Manufacturing size range:

- OD: 4 mm to 220 mm
- Thickness 0.5 to 25 mm

Stainless steel seamless and welded tubes and pipes

In stainless steel the range includes:

ASTM A-268/269/213/554/688

Grades TP-304, 304L, 304H, 304LN, 310S, 310H, 316, 316L, 316H, 316Ti, 316N, 316 LN, 317, 317L, 321, 321H, 347, 347H, 405, 410, 430/904L, Duplex, 31803/32205, Super Duplex 32750 and their equivalents in ASME, DIN, EN, GOST, JIS, etc. as applicable.

Manufacturing size range:

- OD: 4 mm to 220 mm
- Thickness 0.5 to 25 mm

Length of tubes which can be produced is up to 34 meters in all grades.

Products are also produced to the specific requirements of individual clients.

ultrasonic, as well as incorporating laboratory tests with spectrometers, metallurgical investigations by metallurgical microscope, and experiments to determine grain size, corrosion, and microstructure. Both the plants have their own independent QC lab and have their separate equipment. All tubes, moreover, undergo hydro testing. Testing is carried out by trained, qualified personnel in compliance with the company's strict 'Quality Assurance Manual'. The tests help to safeguard that the highest quality manufacturing standards can be maintained according to the intended application, technical delivery conditions, or customer's specifications. In addition, the production sites have also been equipped with reliable

testing and measuring equipment for destructive and non-destructive testing.

It goes without saying that the mill and its products have been approved by some very significant inspection agencies including: ABS, Bureau Veritas, DNV, EIL, IBR, LRIS, Intertek, PDIL, SGS, and TÜV, among numerable others. Additionally, the company is approved by a large number of major customers to whom it regularly supplies products such as Alfa Laval, BHEL, BPCL, CPCL, FACT, HPCL, IOCL, KFL, L&T, NFL, NPCIL, NTPC, Reliance, SAIL, and many others.

Quality staffing

"Another factor that particularly stands out in our company is the high standard of technical competence of our staff," says Mr. Mathur. "They are not only knowledgeable and skilled, having relevant technical degrees where appropriate, but are also loyal and committed. Some of our employees have worked with us for anything from fifteen to twenty years. It says a lot about the mentality that we have created to be able to hold on to them and ensures that we have a great deal of skill and experience in-house to fall back on. Certainly at a time when many companies find it difficult to fill technical vacancies, we do not experience this type of trouble. Young engineers clamor to join us and build their careers under our roof. They feel involved and challenged in contributing to our success and we likewise take a great interest in helping them build their careers."

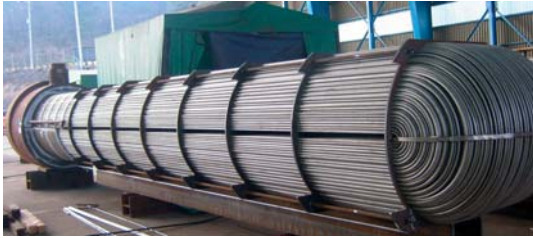
Management are equally concerned for all employees health & safety hence been accredited with certification ISO 14001: 2015 and OHSAS 18001: 2007.

Global presence: the world is our oyster

Roughly 70% of the Heavy Metal & Tubes products are sold within India. A further 30% is exported literally right around the world. Today company products reach as far afield as the Americas: Argentina, Brazil, Chile, Mexico,



➤ Staff feel involved, challenged, and proud of the company's success and the company has the advantage of having a great deal of skill and experience to fall back on in-house.



➤ Specialization in heat exchanger tubes.

and the USA, and Europe: Belgium, France, Germany, Greece, Italy, The Netherlands, Spain, Turkey, and the United Kingdom, whilst in the Middle East their products are used in: Bahrain, Kuwait, Oman, Saudi Arabia, and the UAE. In addition, they also have clients throughout Asia, including South Korea. "The quality and services that we provide are very much appreciated by our clients," says Mr. Mathur "as is seen by the large numbers of repeat orders we receive on a yearly basis."

With regards to the tubing market for heat exchangers, Heavy Metals & Tubes tends to concentrate its sales to four major regions of the world: India, South Korea in Asia, Italy in Europe, and North America, though manufacturers heat-exchanger-type equipment into the former Eastern Block countries of Europe and Russia as well as the Gulf States are also important. Certainly not much has changed in the past ten years with regards to this market situation.

Our milestone

Mr. Mathur stresses that Heavy Metal & Tubes is the only approved company from India by BHEL for the T-91 grade of alloy steel for tube production and has executed the single largest order worth 1800 MT for them with great success.

Strategy for the future

"The Covid-19 pandemic has created a fight for survival for many industries in today's economy, but at the same time has refreshed us to find new ways to overcome difficulties. From the past we were only self-dependent for our required raw material 'Mother Hollows' for carbon and alloy steels but recently we have successfully developed Mother Hollows in stainless steels up to 5" OD. This development has made us self-dependent in



➤ Special shape critical U-tubes of T11 grade (88.9 mm x 4 mm) WT x 15 meters in length.

SPECIALTY PLANTS

Plant for cold drawn stainless steel seamless and welded tubes and pipes
27,500 m² covered area
14 pilger mills
5 cold draw benches
3 controlled atmosphere furnaces
1 Solution Annealing Furnace
3 U-bending machines
3 U-bending SR setups
3 TIG Welding tube mills

Plant for cold drawn carbon and alloy steel tubes and pipes
13,500 m² covered area
9 draw benches
2 U-bend machines
1 U-bend SR furnace
1 U-bend electric resistance heating setup
1 pilger mill
1 controlled atmosphere furnace
1 roller hearth Furnace

Milestones:

- BHEL - Hyderabad HP heater tubes
Supplied 18,000 U-tubes – Project 2 x 660MW Tengen, Ennore
Supplied 22,000 U-tubes - Project 1 x 800MW GSECL / Wanakbori & 1 x 800MW
- L & T - NTPC, Khargone - HP heater tubes - 3,900 U tubes supplied
- Toshiba-Darlipalli - HP heater tubes - 22,000 U-tubes supplied
- 2,000 tons of heat exchanger St. and U-tubes for Dangote (Nigeria) project
- 27.5 metres of straight length carbon steel long tubes exported to Italian client
- 23 metres of straight length alloy steel long tubes exported to Italian client
- Special shape critical U-tubes in grade T11, size 88.9mm x 4mm x 15 metres in length
- Supplied 12.7mm OD x 1.5mm thickness, 22 metres long CS tubes to Italian client
- Executed order in grade UNS32205 of size 12.7 x 0.9mm – 25 metres long for one European customer.

Achievements/Projects:

- Executed short delivery job for German client for 15 metre long super duplex tubes
- Recently under execution job for BHEL – Trichy, single order worth 1,800 tons grade T-91 boiler tubes
- Executed single order 800 tons for Airfin cooler tubes for IOCL-Ennore LNG project
- Executed 1,500 tons single order for HMEI, Bhatinda Refinery for piping and tubing
- Exported T9 alloy tubes to European and Canadian client
- Supplied HE tubes in grade SA-334 Gr. 3 for Adani group



➤ 27.5 meter long straight tubes supplied to a European customer for use in a heat exchanger.

all respect for our manufactured products as is true to the 'Made in India' concept," states Mr. Mathur very proudly.

"Our strategy for the future will be to continue to service the domestic and global markets to the highest possible quality standards with fully original Indian material right from basic raw materials. As such we see our business continuing to expand as we foresee that the need for tubes and pipes in demanding applications will continue to quickly increase. In particular, we intend to concentrate increasingly on serving the manufacturers of heat exchangers. To this effect we have expanded our marketing team to progressively cover this market. We intend to be there for our customers to ensure that their future is also a great success." «

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