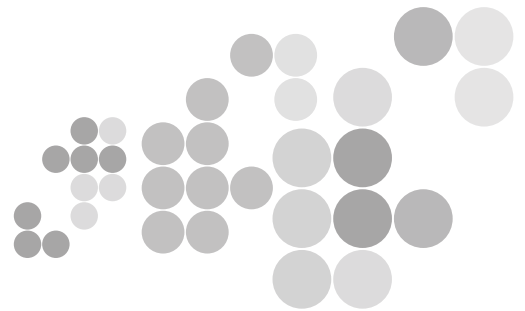


Auto Components

Seamless Tubes and Tube Based Products
for the Automotive Industry



ISO 14001:2004



E9100811

OHSAS 18001:2007



H9100825



ISO/TS 16949 : 2002

ISMT LIMITED

Solutions You Can Trust

Auto Components

Seamless Tubes and Tube Based Products for the Automotive Industry

ISMT manufactures seamless tubes and tube based value-added products for a wide range of applications in the automotive and heavy vehicle industries. We are one of the few integrated manufacturers of seamless tubes globally, producing all steel in-house for the manufacture of tubes. Thus, we retain complete control over quality and delivery of the final product. Our strength lies: in our understanding of tube properties specific to each automotive application; in being able to develop special grades of steel to meet a particular requirement; in supplying small lots - cost effectively; and in the wide range of tubes that we can supply. In addition, with over 25 years of experience in manufacturing and supplying tubes to the automotive industry worldwide, we are entirely familiar with the needs and expectations of the industry.



WIDE PRODUCT RANGE

ISMT manufactures seamless tubes ranging from an outer diameter of 6 mm to 273 mm for a wide variety of applications. Typical uses include:

- Stabilizer bars
- Air bag canisters
- Front wheel drive shafts
- Anti-roll bars
- Piston pins
- Collapsible steering columns
- Steering linkages
- Transmission shafts or Propeller shafts
- Trailer axles
- Stub axles
- Gear shafts
- Common rails (Diesel engines)
- Clutch parts
- CV cages



SELECT APPLICATION DETAILS

Piston Pins

ISMT manufactures special smooth bore tubes for piston pins. These tubes are cold drawn with a mirror finish on the ID so as to achieve a Ra value of as low as 0.5. Piston pins made from seamless tubes offer a cost effective alternative to piston pins made either by forging or by machining solid bar stock.

Airbag Canisters

We are approved for the supply of air-bag canister tubes by four of the largest suppliers of air-bags globally. ISMT has developed special fine grain steels as well as tube finishing processes to obtain extremely high burst pressure values at low temperatures.

Stabilizer Bars

Hollow stabilizer bars made from seamless tubes are lighter than their traditional solid counterparts and as a result these are increasing in popularity. ISMT is an established supplier of seamless tubes to some of the largest manufacturers of stabilizer bars globally. We have worked closely with our customers to develop special grades of steels that are cost effective and yet meet the high fatigue failure norms required of these tubes.



Profile Tubes for Steering Columns

We manufacture cold drawn tubes with special sections such as oval or triangular for collapsible steering columns. These tubes enjoy extremely tight cross sectional tolerances so as to transmit torque without any perceptible play between the sliding members.

Hollow Bar

Hollow bars are very thick seamless tubes that can be used as machining stock instead of solid bar. They offer a cost effective alternative for the manufacture of various turned components used in the automotive industry. ISMT can supply Hollow Bars in standard or customized grades of steel.



VALUE ADDED PRODUCTS

Annular Components

ISMT uses a combination of cold ring rolling (on Bad Deuben Machines) and machining to produce a variety of annular components such as gear changing shifter sleeves and dog clutches (for synchromesh gear boxes), cages for constant velocity (CV) joints, pulleys, etc.

Swaged and Machined Axle Casings

ISMT specializes in the manufacture of tubular axle casings duly machined and fitted with a flange, saddle and brackets. These items can also be supplied in an intermediate stage i.e., as a formed (swaged) axle blank or as a formed and CNC machined axle blank.

Machined Gear Blanks

ISMT supplies CNC turned gear blanks in case carburising, direct hardening or nitriding steels with any desired profile and in a form that is ready for broaching, hobbing, shaving, or other finishing processes.

APPLICATION ORIENTED MANUFACTURING

Be it piston pins which require ultra-smooth bore tubes, or air-bag canister tubes which have to be capable of withstanding a high burst pressure, our strength lies in our understanding of your applications and our ability to develop and manufacture tubes to meet those requirements. Our Technology Process Group (TPG), comprising some of our best engineers, works closely with our customers at the design level as well as at the shop floor level to understand the application requirements, and to translate these process specifications for making the steel and tubes. Our entire organization and our processes have been structured along application verticals, so that, we are unique in our ability to meet our customers' changing needs. We can, not only supply what you require today but also work with you to develop new products with the singular aim of cutting costs and improving product effectiveness.



TOTAL PROCESS CONTROL

With long standing experience of supplying tubes to the automotive industry, we are fully aware of the criticality of these tubes. Therefore, we manufacture all our steel in-house through the Electric Arc Furnace route maintaining complete control of the entire production process. The raw material mix is chosen and prepared carefully to ensure the highest standards of cleanliness. All heats are fully killed, ladle refined and vacuum degassed before continuous casting and rolling. Right through the production process, we maintain full traceability of the material and a record of all critical process parameters. This ultra-clean steel forms the starting point for the manufacture of our seamless tubes. Stringent process control continues through the tube rolling as well as final heat treatment process so that we are able to consistently deliver tubes with the exact qualities that are required.

STATE-OF-THE-ART EQUIPMENT

The manufacture of precision seamless tubes is as much a matter of equipment as it is of experience and process technology. At ISMT, we believe in investing in the finest of equipment. For making seamless tubes we operate three Assel Mills and a brand new PQF Mill. We also have a number of Cold Draw Benches for producing cold-drawn tubes. Our tube mills are from Shloemann Mannesman in Germany and incorporate the best in technology. This state-of-the-art equipment is backed by an operating team that is technically amongst the most qualified anywhere in the world - the tubes that we produce for the automotive and heavy vehicle industries reflect this experience.



FLEXIBLE AND SHORT DELIVERY CYCLES

ISMT is unique in that we operate to a weekly manufacturing cycle. We can go from scrap to finished tubes of any size or grade, ready for dispatch, in less than 15 days. As a result we offer the tightest delivery lead times in the industry.

Moreover, given the combination of mills that we operate, the PQF mill and three Assel Mills, we can produce both small quantities of customized product as well as large quantities of standard product cost effectively. The Assel Mills are ideally suited for producing customized sizes while the PQF Mill is suited to larger volume production.



TYPICAL AUTOMOTIVE GRADES

SAE 1019, 1518, 1035, 1040, SAE 4130H, SAE 4140H, SAE 8620, 20 Mn Cr5, 16NiCr4 and ST-62-N. Other steel grades may also be used on specific request.

SPECIFICATIONS

Standard specifications that we manufacture include BS980, DIN 2391, BS 1717, IS 1601, IS 1074, JIS Gr.6, STK 45. In addition, we also manufacture to customized specification depending on the requirements of a particular customer.

LENGTHS

Tubes are generally supplied in random lengths of 4 to 7 meters (or in a different range as per customer specifications). Tubes in exact lengths, multiples of specified unit lengths or in long lengths can also be supplied.

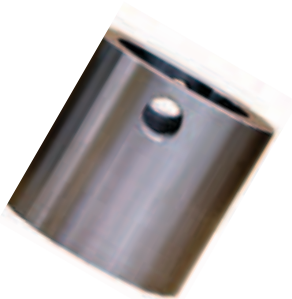


STANDARD PACKING

Each tube is oiled, internally as well as externally, and then packed into hexagonal bundles. This ensures that the tubes are corrosion protected and that they retain their straightness during transport. Upon request we can provide end caps and also wrap the bundles in LDPE sheets.

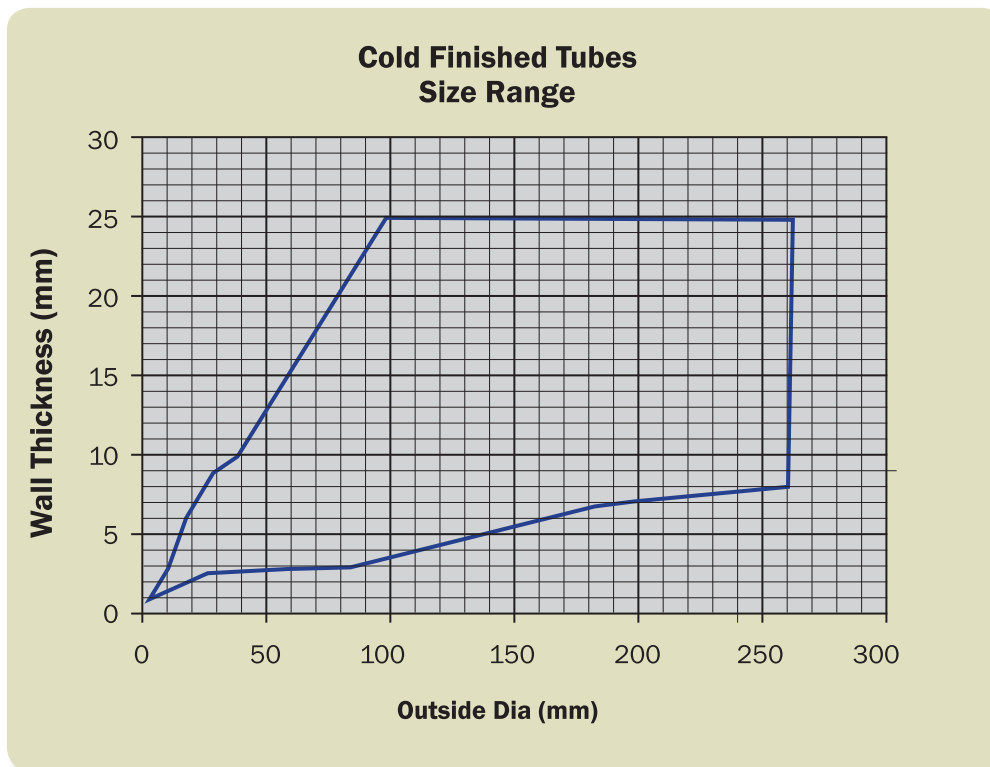
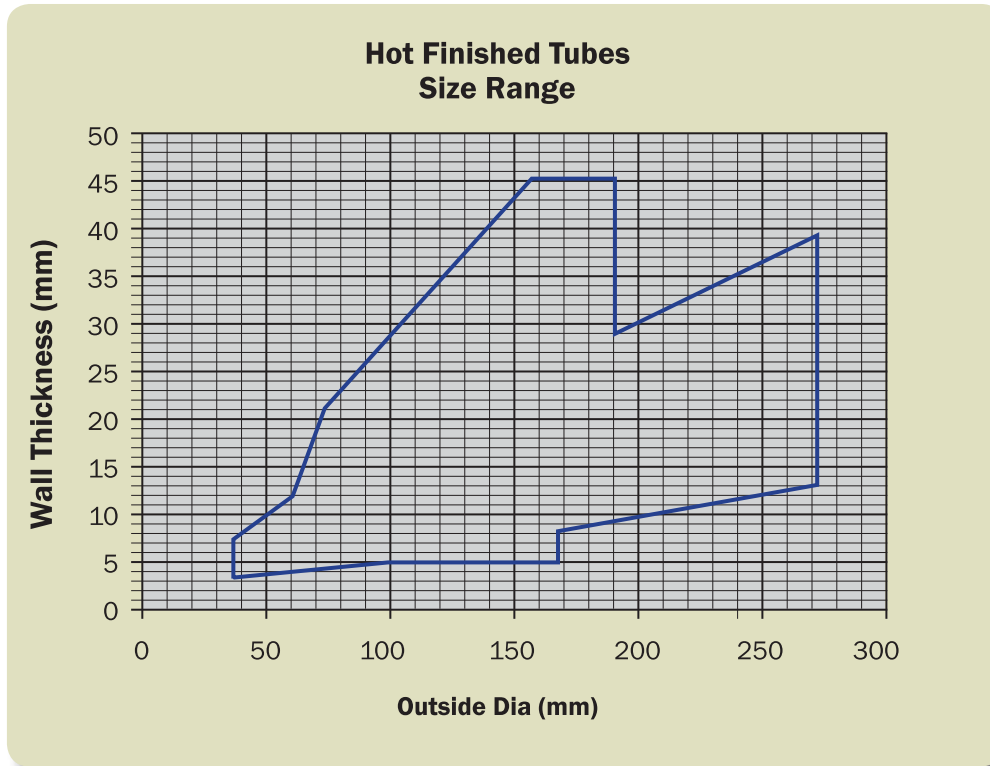
TESTING AND INSPECTION

All our tubes are tested as per customer requirements. Our testing facilities include full-body Ultrasonic, Eddy Current, Leakage-Flux and Hydro-testing.



SIZE RANGE

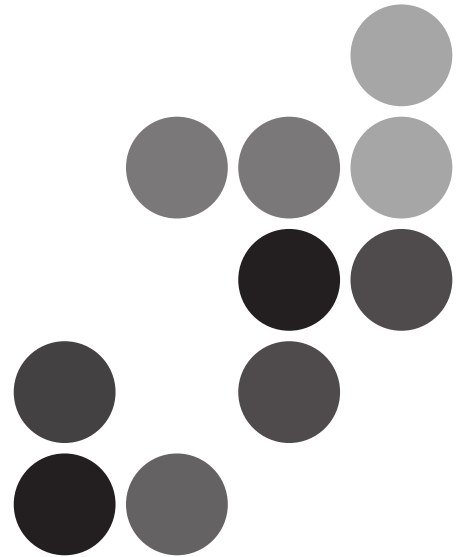
We produce seamless tubes with up to an outer diameter of sizes 273 mm (10 inches). In addition we can produce any customized size as per the graphs below.



ISM T manufactures carbon/alloy steel and seamless tubes for:

- Energy and Power Generation
- Automotive Components
- Hydraulic and Pneumatic Pressure Lines
- Hydraulic Cylinders
- Gas Cylinders
- Mining and Construction
- Bearings
- General Engineering Applications
- Oil and Petroleum Applications

Product details are available on request



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