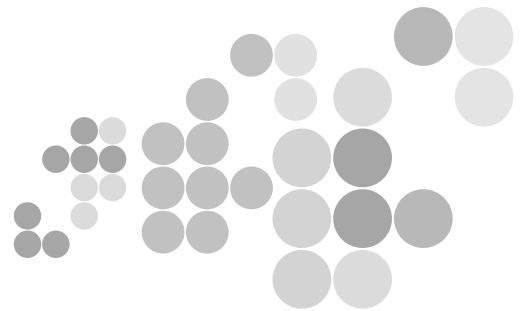
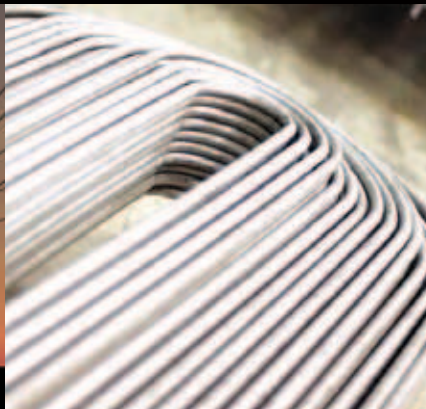


# Powergen Tubes

Special Tubes for Power Generation  
and Energy Industry



ISO 14001:2004



E9100811

OHSAS 18001:2007



H9100825



ISO/TS 16949 : 2002

**ISMT** LIMITED

Solutions You Can Trust

# Powergen Tubes

## Special Tubes for Power Generation and Energy Industry

ISMT manufactures the entire spectrum of seamless tubes required by the power generation and energy industries. Our tubes are used in manufacturing boilers, heat exchangers, superheaters, heat recovery, steam generators and other heat transfer devices.

All ISMT tubes embody over 20 years of experience in the manufacture of application-specific tubes for the power generation industry. We melt all our steel in-house and our tubes are manufactured to the most stringent industry standards.

### WIDE PRODUCT RANGE

Our research and product development teams have worked closely with our customers to develop a very wide range of products.

- Size range extending upto 273 mm dia (10 inches)
- Multi-ripped tubes (both A and B series)
- Creep-resistant T-series tubes including T1, T5, T11, T22, T91, T92 and T23 grades
- Long length tubes upto 25.5 meters
- Cold drawn tubes



### TOTAL PROCESS CONTROL

With extensive years of experience in supplying tubes to the power generation sector, 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 the tightly controlled 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 deliver tubes with smooth ID quality, uniform grain structure, and excellent straightness.

### 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 manufacturing 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 draw tubes. Our tube-mills are from Shloemann Mannesman in Germany and incorporate the best technology. The state-of-art equipment is backed by an operating team that is amongst the most technically qualified anywhere in the world – the tubes that we produce for the power generation and energy industries reflect this experience.



# GRADES AND SPECIFICATIONS

## Comparison Table - International Standards

USA				EUROPEAN UNION		GERMANY			JAPAN		UK			
ASME/ASTM				EN		DIN			JIS		BS			
SA / A106				SA/A 209	SA/A 210	SA/A 213 SA/A 335	EN 10216-2	EN 10216-4	DIN 17173	DIN 17176	DIN 17175	3461	3456	
Gr.A	SA/A 179	SA/A 192					P 235 GH				St.35.8	STPT 38	3458	3059/2 - 360
Gr.B					SA/A 210Gr.A1		P265 GH				St.45.8			3059/1 - 360
Gr.C					SA/A 210Gr.C						17Mo4			3059/2 - 440
							16Mo3				15Mo3			3059/2 - 243
				T1 / T1A		P1	16Mo3				16Mo3	STBA 12	STPA 12	3606 - 245
						T5 / P5	X11CrMo5		12CrMo195			STBA 25	STPA 25	3604 - 625
							X11CrMo5		X12CrMo5					3606 - 625
						T9 / P9	X11CrMo9-10		X12CrMo9-1			STBA 26	STPA 26	3059/2 - 629-590
														3604 - 629-590
						T11 / P11	10CrMo5-5					STBA 23	STPA 23	3604 - 621
														3606 - 621
						T12 / P12	13CrMo4-5				13CrMo4-4	STBA 22	STPA 22	3059/2-620
														3606 - 620
						T22 / P22	10CrMo9-10				10CrMo9-10	STBA 24	STPA 24	3059/2 - 622-490
														3604 - 622
						T91/P91	X10CrMoVNb9-1			X10CrMoVNb9-1		STBA 28	STPA 28	3059/2 - 91
						T92/P92	X10CrWMoVNb9-2					STBA 22	STPA 29	
						T23/P23	7CrWVMoNb9-6							
						T36/P36	15NiCuMoNb5-6-4							
				SA/A 333 Gr1				P215NL / P255 QL	TTS135N/V					
				SA/A 333 Gr6										3603:1991 - 43-LT

## SPECIAL PRODUCTS

### Multi-Rifled Tubes

ISMT has developed special multi-rifled tubes that defeat the formation of steam films on the inside surface of the tube thus increasing heat transfer efficiency. These tubes are produced through a special cold-drawing process ensuring tight tolerances on the rifle bore.

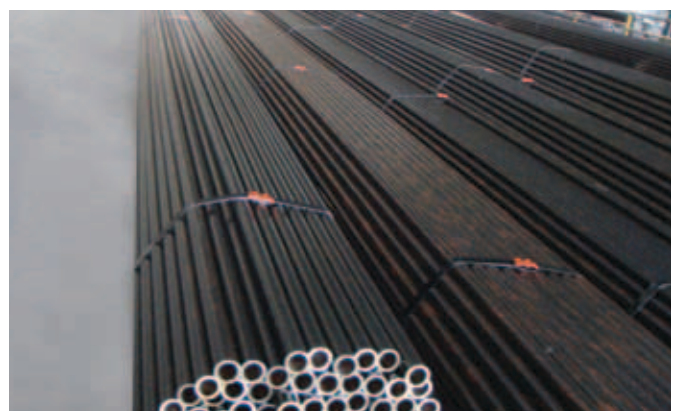


### Long Length Tubes

We can supply both cold-drawn as well as hot-finished tubes upto 23.5 mm in length. The use of such tubes reduces the number of weld joints thereby saving costs and productivity.

### Creep-Resistant Tubes

ISMT is one of the few companies in the world to manufacture special creep resistant, alloy steel tubes (such as T91, T92, T23 etc.) for uninterrupted high temperature service (upto 625° C, 1155° F). The manufacture of such steels, as well as the manufacture of tubes made from these steels requires a tremendously high degree of discipline and stability in the manufacturing processes.



### Header Pipes

We manufacture header pipes upto 273 mm OD (10 3/4 inches). These tubes are produced with special attention to straightness to enable ease of welding. We can supply tubes with straightness levels of 1 in 6,000.

## STANDARD PACKING

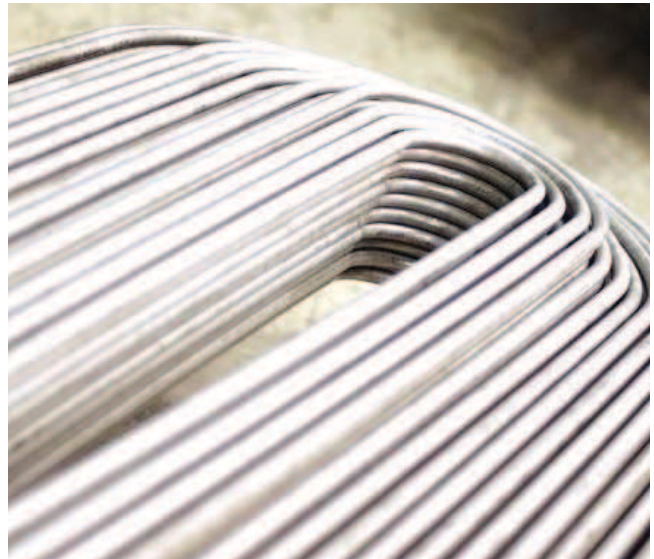
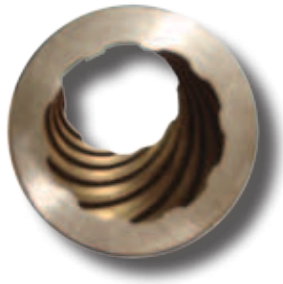
Each tube is oiled, internally as well as externally, and then packed into hexagonal bundles. This ensures that the tubes are protected from corrosion and that they retain their straightness during transport. Based on your requirements, we can provide end-caps and also wrap the bundles in LDPE sheets.

## 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.

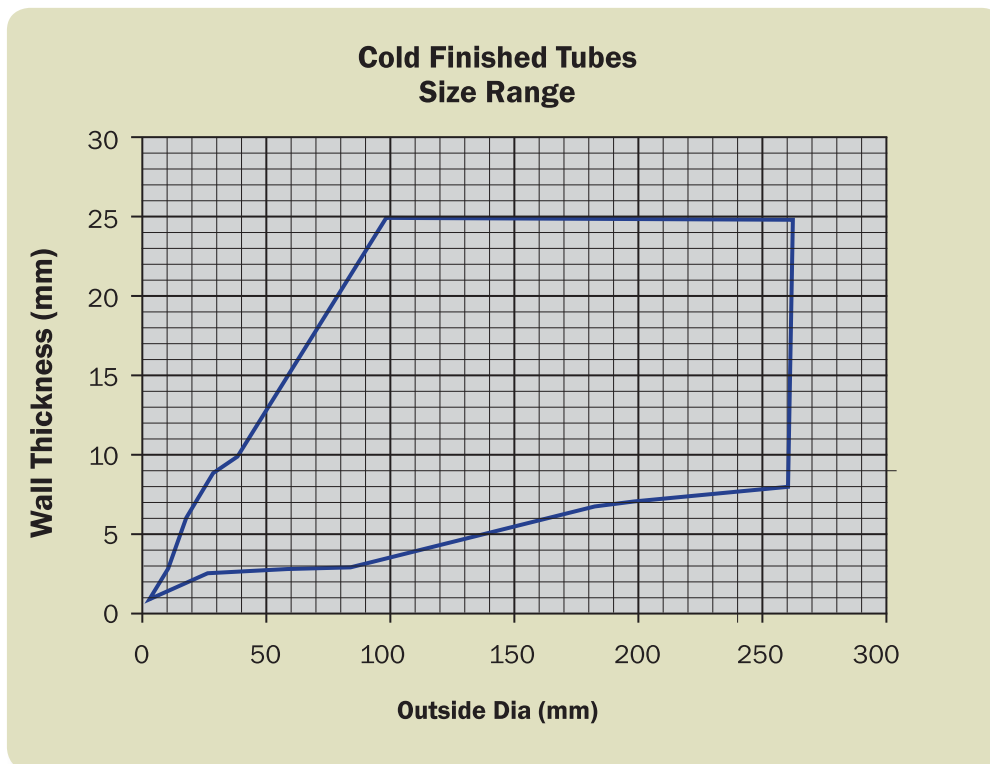
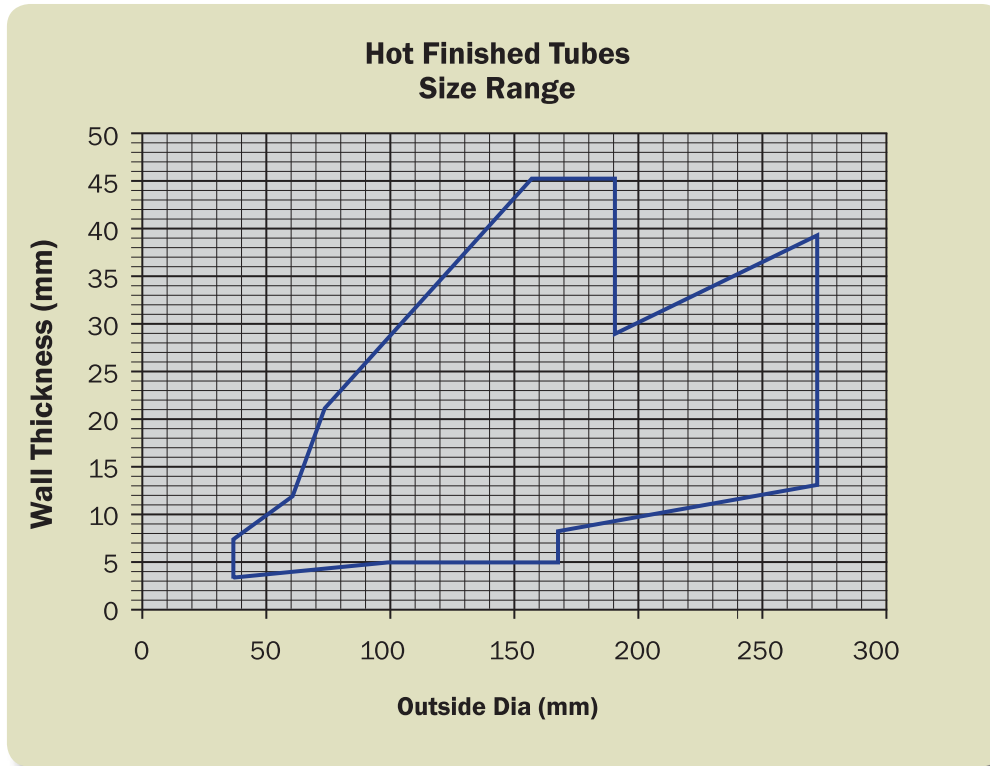
## SHORT DELIVERY CYCLES

ISMT is unique in that we operate to a weekly manufacturing cycle; we can go from scrap 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.



## SIZE RANGE

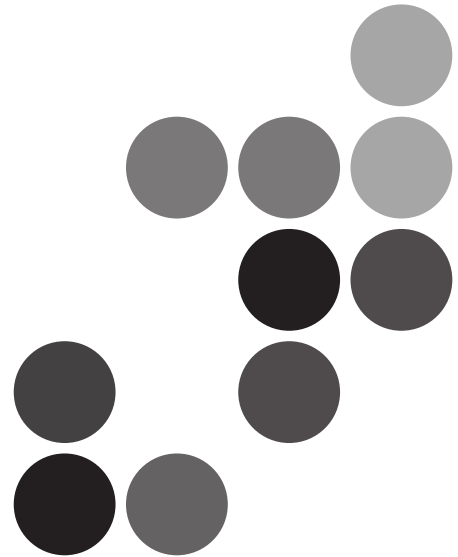
We produce seamless tubes with up to an outer diameter of sizes 273 mm (10 inches). In addition, we can produce any customized size as per the graphs below.



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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[www.ismtna.com](http://www.ismtna.com)

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Fax: +49 (0) 711 4567142

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### ISM T Tube Plant B

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### ISM T Steel Plant

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Tel: +9102115 253335

### Structo Hydraulics AB

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