



ASTERIA Copper Pipe Factory

ASTERIA company has set up its copper pipe production line by the Cast & Roll method and with a nominal annual capacity of 25000 tons, on a land of and varied transportation, on a land of 9 hectares and 75000 Square Metre of infrastructure. This company plans to initiate the development phase for the production of insulated pipes and various types of copper fittings in the near future to complete its product portfolio.

A diverse basket of various products, the quality of produced products, reduction in production time (especially in the producing of inner-grooved pipes), along with access to cheap and varied transportations, and consequently faster delivery time has positioned ASTERIA as an ideal option for use in air conditioning industries, cooling-heating industries, construction industry, household appliances, hospital equipment, and other applications.

The Process of Producing Copper Pipes

This Plant includes 14 main sections: Melting, Horizontal casting of mother tubes, surface milling, planetary rolling (PSW), Primary and secondary drawing (spinner block), Level winder, Intermediate annealing, Inner grooving, Finishing, Final annealing, Quality control, and Packaging.

Type of product and dimensional range of productions	Shape	Outer diameter			Thickness		Length (meter)				
		Unit	From	To	From	To	From			To	
	Pancake	inch	3/16	7/8	0.012	0.059	5	15	30	50	100
mm		4.76	22.22	0.3	1.5						
Plain straight/ inner grooved straight	inch	1/4	3 1/8	0.014	0.108	3			6		
	mm	6.35	79.37	0.35	2.76						
Plain coil/inner grooved coil/ Jumbo	inch	3/16	3/4	0.012	0.056	—			—		
	mm	4.76	19.05	0.3	1.42						
Capillary tube	inch	0.074	0.12	0.014	0.025						
	mm	1.9	3	0.35	0.64						

The DHP alloy contains 150-400 ppm (0.015- 0.040 by weight) Phosphorus. Phosphorus is a deoxidizing element and increases the fluidity of the melt, resulting in better welding. This alloy also has excellent thermal conductivity, high resistance to corrosion and hydrogen embrittlement.

	Outer diameter, mm (inch)	Thickness, mm (inch)	Tolerance of average diameter, mm	Tolerance of average thickness, mm
Dimensional tolerance for commonly used sizes	6.35 (1/4)	0.5 (0.020)	± 0.05	± 0.05
	9.52 (3/8)	0.35 (0.014)		± 0.03
	12.7 (1/2)		0.5 (0.020)	± 0.05
	15.87 (5/8)	0.63 (0.025)		± 0.06
	19.05 (3/4)			



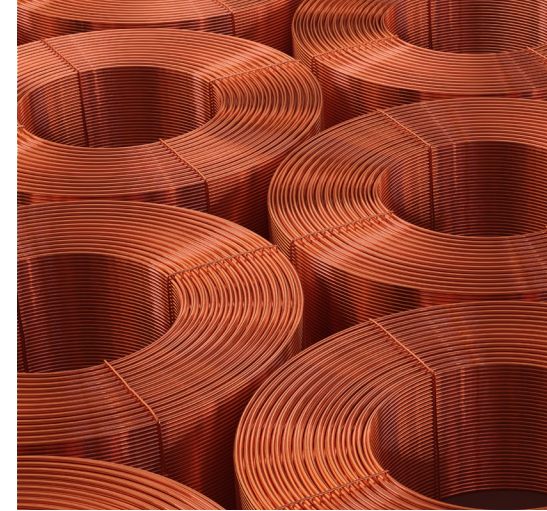
Quality Control and Laboratory

The quality control of ASTERIA copper pipe factory operates as an independent unit to control incoming raw materials, intermediate products, and final products. A quality control strategy based on the PDCA cycle and continuous improvement of product quality and production processes has been developed, which has established Total Quality Management thinking by training and involving all employees, making quality the main priority of the plant. This laboratory, equipped with precise laboratory equipment, examines its products with the highest quality that meets international standards (ASTM, EN, DIN, BS, JIS) and after approval, delivers them to its customers.

Some of the executed tests are mentioned below:

- Chemical analysis (Elemental analysis of the input cathode and produced tube, phosphorus and hydrogen)
- Eddy current (A thorough examination of the pipes to ensure their integrity)
- Tensile strength testing
- Hardness testing
- Metallography and grain size determination
- Dimensional control
- Test for measuring surface contamination of pipes from oil and shavings
- Bending test
- Expand test
- Hydrostatic and pneumatic pressure test
- Moisture measurement test for packaging pallets

Standard	Code/No.	Designation	Annealing temper		Minimum tensile strength, Mpa	Minimum elongation, %	Grain size, μm	Vickers hardness, (HV5)
ASTM	B75 B88 B111 B280	C12200	O60	Soft Annealed	205	40	40 min	—
			O50	Light Annealed	205	40	15-40	—
			H58	Drawn	250	—	—	—
			H80	Hard-drawn	310	—	—	—
EN	12735-1 & 21057	Cu-DHP (CW024A)	Y035	Soft Annealed	210	40	30-60	—
			R220 / Y040	Light Annealed	220	40	15-40	40-70
			R250	Half Hard	250	30	—	75-100
			R290	Hard	290	3	—	100 min
JIS	H3300	C1220	O	Soft Annealed	205	40	25-60	69 max
			OL	Light Annealed	205	40	40 max	73 max
			1/2 H	Half Hard	245-235	—	—	70-110
			H	Hard	315	—	—	100 min





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