FORTUNE SMART INDUSTRIAL LIMITED

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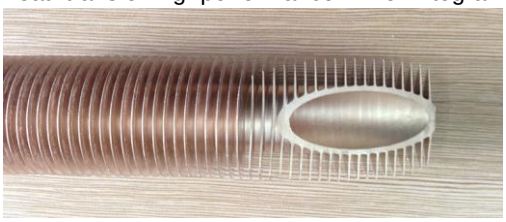
FSI Fin Tubes and Heat Exchangers

Fortune Smart Industrial Limited (Brief as FSI) provides customer-oriented Low, Medium and High Integral Copper/Cupronickel /Stainless Steel/Titanium Fin Tubes designed primarily for applications such as Condenser, Evaporator, Cooler, Boiler, Water Heater and Heater Pump etc. All the Finned Tubes have high Exterior-to-Interior surface area ratios to guarantee an excellent heat transferring performance. The Integral Finned Tubes are manufactured to a precise inside diameter to allow end connections of insert type or with stripped (un-finned) ends for expending into tube sheets or insertion into other end connections. Minimum wall thickness is held to meet code requirements for pressure designs. Maximum fin diameters are held to permit control of tube spacing.

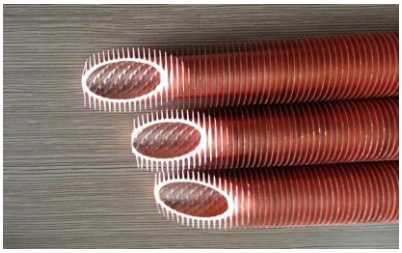


Resorting to Rolling processes, the Integral Finned Tubes guarantees excellent performances in heat transferring, long life and the resistance to vibration. Our Integral Finned Tubes are comparable in quality with any well-known American or European maker, such as Wieland and Wolverine.

The material of our Integral Finned Tube covers Copper (C10200, C12000, C12200), Cupro-Nickel (C70600), Aluminum, Alloy Aluminum (AISI6063), Stainless Steel (AISI304),Titanium, Aluminum-Steel, Aluminum-Stainless Steel and Aluminum-Copper for Double Wall Fin Tubes etc.

FSI provides clients with Integral Finned Tubes as Straight, Omega Shaping, Coiling and Folding with interior tube as Smooth, Corrugation (Wave) and Spiral which brings on different heat transferring efficiency.

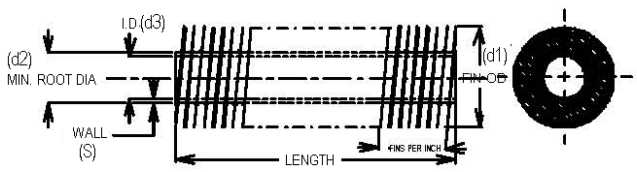
Sizes shown in the tables below classified as Low, Medium and High-Finned Copper tubes are produced in material of C12000, C70600, and C12200 etc. With a variety of material grades available, FSI can have products which will meet your needs.



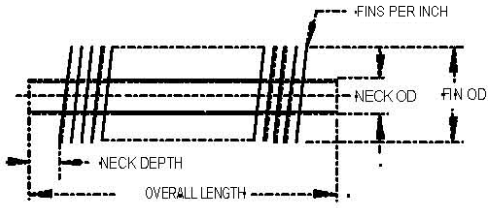
Tempers-Mechanical properties of the material in the" as finned temper" meet the requirements of an "as drawn temper" specified in ASME SB-359. Annealed temper tubes are supplied with a minimum average grain size of 0.040mm. The annealed finned tube as per temper 061 is softened and easily cut and coiled.

FSI processes long lengths which have been optimized for the shorter lengths our clients require. Cut-to-Length Finned Tubes with fully finned tubes or stripped ends are shipped in either full length as specified by the customer or to custom lengths utilizing a high speed precision CNC saw while providing specified OD for use into header sheets.

Each tube (prior to cutting to the finished length) shall pass a 250 PSI pneumatic leak test for a minimum of 5 seconds. A hydrostatic test at a pressure not to exceed 1000 psi may be performed as an option.



FINNING FULL LENGTH



DE-FINNED ON ENDS

Email: jimmy@fsiheater.com *Http://www.fsiheater.com*

1. Low-Finned Integral Copper/Cupronickel Tubes (Low Fin)

The Low-Finned Integral Copper/Cupronickel Tubes are extruded from smooth seamless blank tubes. The OD of finned tubes is not higher than that of its smooth blank tubes.

The Low-Finned integral copper/Cupronickel tubes are principally used in: Shell and Tube for Heat Exchanger, Condenser, Evaporator, Oil Cooler etc., such as:

Refrigeration & Air Conditioning Industries (Refrigerant Condensers, Refrigerant Evaporator)

Machinery & Instrument Structures (Oil Cooler, Air Cooler)

Electrical Equipment Projects (Interdeck Superheater)

Process Projects (Condenser, Evaporator)

Available Materials: Copper & Alloy Copper (C12200 and C70600); Fin height: 0.8~1.3mm

Low-Finned integral copper/Cupronickel tubes Specifications:

Taking L-1915. 09125-00 as an example:

L	19	15	09	125	00
Low- Finned Integral Tube	Fins Per Inch	Fin Height 15×0.1=1.5 mm	Root Diameter(mm)	Wall Thickness 125×0.01=1.25 mm	Interior Hole Surface: 00—Smooth 01—Corrugation 02—Spiral

Low-Finned Integral Copper/Cupronickel Tube Specifications

Part Number	Specifications					
	Finned Tube OD: d1(inch)	Root Diameter : d2(inch)	Finned Tube ID:d3(inch)	Wall Thickness: S(inch)	Outside Surface Area A1(ft^2/ft)	Surface Area Ratio: Outside to Inside A1/A2
L-1915.09711-00	0.500	0.375	0.319	0.028	0.328	3.93
L-1915.09889-00	0.500	0.375	0.305	0.035	0.328	4.10
L-1915.12711-00	0.625	0.500	0.442	0.028	0.427	3.68
L-1915.12889-00	0.625	0.500	0.430	0.035	0.427	3.78
L-1915.12125-00	0.625	0.500	0.402	0.049	0.427	4.05
L-1915.15889-00	0.750	0.625	0.555	0.035	0.492	3.38
L-1915.15125-00	0.750	0.625	0.527	0.049	0.492	3.56
L-1915.15147-00	0.750	0.625	0.509	0.058	0.492	3.68
L-1915.19889-00	0.875	0.750	0.680	0.035	0.591	3.31
L-1915.19125-00	0.875	0.750	0.652	0.049	0.591	3.46
L-1915.19147-00	0.875	0.750	0.634	0.058	0.591	3.55
L-1915.22125-00	1.000	0.875	0.776	0.049	0.689	3.38
L-1915.22147-00	1.000	0.875	0.759	0.058	0.689	3.56
L-1915.22183-00	1.000	0.875	0.731	0.072	0.689	3.60
L-2615.12711-00	0.625	0.500	0.444	0.028	0.525	4.51
L-2615.12889-00	0.625	0.500	0.430	0.035	0.525	4.66
L-2615.12125-00	0.625	0.500	0.402	0.049	0.525	4.99
L-2615.15711-00	0.750	0.625	0.569	0.028	0.623	4.18
L-2615.15889-00	0.750	0.625	0.555	0.035	0.623	4.28
L-2615.15125-00	0.750	0.625	0.527	0.049	0.623	4.52
L-2615.22125-00	1.000	0.875	0.776	0.049	0.886	4.35
L-2615.22165-00	1.000	0.875	0.745	0.065	0.886	4.54

Remark: Customer-Oriented finned Tubes are welcomed.

2. Medium-Finned Integral Copper/Cupronickel Tubes (Medium Fin)

The Medium-Finned Integral Copper/Cupronickel Tubes are extruded from smooth seamless blank tubes. The Corrugation (Wave) and Spiral surface of interior holes are available which will improve the heat exchange efficiency. The finned tubes can be softened by annealing such as 061-temper which will improve great in easily cutting and coiling. Therefore, the small banding radius and coiling diameter are available to the Medium-Finned integral copper tubes facilitating to make all sort of heat exchangers.

The Medium-Finned integral copper/Cupronickel tubes are principally used in: Heating, Refrigeration, Air-Conditioning, and Cooling/Heating liquid, Air/Oil cooler etc, such as:

Heating Industry (Heater);

Machinery Industry (Oil Cooler, Air Cooler)

Refrigeration & Air Conditioning Industries (Refrigeration Condenser, Refrigeration Evaporator)

Process Technology, liquid cooling/Heating

Available Materials: Copper & Alloy Copper (C12200 and C70600), Aluminum & Alloy Aluminum. Fin height: 3~4.5mm.

Medium-Finned integral copper/Cupronickel tubes Specifications:

Taking M-1145. 18100-00 as an example:

M	11	45	18	100	00
Medium- Finned Tubes	Fins Per Inch	Fin Height 45×0.1=4.5mm	Root Diameter(mm)	Wall Thickness 100×0.01=1mm	Interior Hole Surface: 00—Smooth 01—Corrugation 02—Spiral

Medium-Finned Integral Copper/Cupronickel Tubes Specifications

Part Number	Specifications					
	Finned Tube OD: d1(inch)	Root Diameter : d2(inch)	Finned Tube ID:d3(inch)	Wall Thickness: S(inch)	Outside Surface Area A1(ft^2/ft)	Surface Area Ratio: Outside to Inside A1/A2
M-1132.12076-01	0.750	0.500	0.440	0.030	0.581	5.05
M-1132.12089-01	0.750	0.500	0.430	0.035	0.581	5.16
M-1132.15084-01	0.875	0.626	0.560	0.033	0.702	4.78
M-1132.15103-01	0.875	0.626	0.545	0.041	0.702	4.92
M-1132.19096-01	1.000	0.750	0.674	0.038	0.823	4.64
M-1132.19120-01	1.000	0.750	0.656	0.047	0.823	4.80
M-1135.10080-00	0.669	0.394	0.331	0.031	0.492	5.71
M-1135.12080-00	0.748	0.472	0.409	0.031	0.591	5.48
M-1135.12100-00	0.748	0.472	0.394	0.039	0.591	5.70
M-1135.14080-00	0.827	0.551	0.488	0.031	0.656	5.22
M-1135.14100-00	0.827	0.551	0.472	0.039	0.656	5.39
M-1135.18100-00	1.004	0.728	0.650	0.039	0.853	4.98
M-1135.24100-00	1.240	0.965	0.886	0.039	1.083	4.65
M-1145.10100-00	0.748	0.394	0.315	0.039	0.656	7.96
M-1145.12100-00	0.827	0.472	0.394	0.039	0.755	7.44
M-1145.14100-00	0.906	0.551	0.472	0.039	0.853	6.99
M-1145.16100-00	1.004	0.650	0.571	0.039	0.984	6.60
M-1145.18100-00	1.083	0.728	0.650	0.039	1.083	6.38
M-1135.12080-01	0.748	0.472	0.409	0.031	0.591	5.14
M-1135.12100-01	0.748	0.472	0.394	0.039	0.591	5.35
M-1135.14080-01	0.827	0.551	0.488	0.031	0.656	4.90
M-1135.14100-01	0.827	0.551	0.472	0.039	0.656	5.06
M-1135.18080-01	1.004	0.728	0.665	0.031	0.853	4.58
M-1135.18100-01	1.004	0.728	0.650	0.039	0.853	4.67
M-1135.24100-01	1.240	0.965	0.886	0.039	1.083	4.43
M-1145.12100-01	0.827	0.472	0.394	0.039	0.755	6.98
M-1145.14100-01	0.906	0.551	0.472	0.039	0.853	6.55
M-1145.16100-01	0.984	0.630	0.551	0.039	0.951	6.25
M-1145.18100-01	1.063	0.709	0.630	0.039	1.050	6.03

Remark: Customer-Oriented finned Tubes are welcomed.

3. High-Finned Integral Copper/Cupronickel Tubes (High Fin)

The High-Finned Integral Copper/Cupronickel Tubes are extruded from smooth seamless blank tubes. Single metal & composite metal finned tubes are available. The High-Finned tubes must be made by easily-shaped materials such as copper, aluminum etc. The maximum fin height of finned tubes by aluminum or alloy aluminum can reach 15mm. The maximum fin

height of finned tube by copper or alloy copper can reach 10 mm. The corrugation (wave) and spiral surfaces of interior holes for High-Finned tubes can substantially improve the heat exchange efficiency.

The composite High-Finned tubes are extruded from fin material and base tube material. The composite finned tubes have good anticorrosive properties under different-medium situations at different distance of the sheet and tube. Due to the different thermal expansion coefficient material between fin and base tube, the composite finned tubes can only be used under the situations below 250℃ temperature.

The High-Finned integral copper/Cupronickel tubes are mainly used in Gas-Fired Boiler, Condensing Boilers, Air Cooler and Air Heater etc, such as:

Heating (Gas-Fired Boiler, Condensing Boilers, Flue gas Condenser)

Machinery, Automobile industries (Oil Cooler, Air Cooler for a diesel locomotive, Mine Coolers)

Petroleum, Chemical industries (Air Cooler/Heater, Process Coolers)

Power Station (Air Cooler, Cooling Tower)

Nuclear –Powered projects (Uranium Enrichment Plants)

Available Materials: Copper & Alloy Copper (C12200 and C70600), Aluminum & Alloy Aluminum.

High-Finned Integral Seamless Tube Specifications:

Taking H-0810. 25125-00 as an example:

H	08	10	25	125	00
High-Finned Tubes	Fin Per Inch	Fin Height 10mm	Root Diameter(mm)	Wall Thickness 125×0.01=1.25 mm	Interior Hole Surface: 00—Smooth 01—Corrugation 02—Spiral 03—Composite

High-Finned Integral Copper/Cupronickel Tubes Specifications

Part Number	Specification					
	Finned Tube OD: d1(inch)	Root Diameter : d2(inch)	Finned Tube ID:d3(inch)	Wall Thickness: S(inch)	Outside Surface Area A1(ft^2/ft)	Surface Area Ratio: Outside to Inside A1/A2
H-0507.18125-00	1.319±0.020	0.728	0.630	0.049	0.951	5.70
H-0507.20125-00	1.319±0.020	0.807	0.709	0.049	1.017	5.40
H-0507.25150-00	1575±0.020	0.984	0.866	0.059	1.181	5.20
H-0507.27150-00	1.673±0.020	1.083	0.965	0.059	1.247	5.00
H-0610.18100-00	1.516±0.020	0.728	0.650	0.049	1.608	9.40
H-0610.20125-00	1.594±0.024	0.807	0.709	0.049	1.706	9.20
H-0610.25125-00	1.772±0.024	0.984	0.886	0.059	1.968	8.50
H-0610.27125-00	1.870±0.028	1.083	0.984	0.059	2.100	8.10
H-0610.35150-00	2.165±0.031	1.378	1.260	0.059	2.493	7.60
H-0710.18125-00	1.516±0.020	0.728	0.630	0.049	1.706	10.30
H-0710.20125-00	1.594±0.024	0.807	0.709	0.049	1.804	9.80
H-0710.25150-00	1.772±0.024	0.984	0.866	0.059	2.100	9.20
H-0710.27150-00	1.870±0.028	1.083	0.965	0.059	2.231	8.80
H-0710.35175-00	2.165±0.031	1.378	1.240	0.069	2.657	8.20
H-0810.18125-00	1.516±0.020	0.728	0.630	0.049	1.936	11.80
H-0810.25150-00	1.772±0.024	0.984	0.866	0.059	2.395	10.60
H-0810.27150-00	1.870±0.028	1.083	0.965	0.059	2.559	10.10
H-0810.35150-00	2.165±0.031	1.378	1.260	0.059	3.051	9.30
H-0813.18100-00*	1.752±0.024	0.728	0.650	0.039	2.723	16.10
H-0813.20125-00*	1.831±0.024	0.807	0.709	0.049	2.920	15.70
H-0813.25125-00*	2.008±0.028	0.081	0.886	0.049	3.314	14.20
H-0813.27150-00*	2.106±0.028	1.083	0.945	0.059	3.510	13.90
H-0913.20125-00*	1.831±0.028	0.807	0.709	0.049	3.248	17.40
H-0913.25125-00*	2.008±0.031	0.984	0.886	0.049	3.674	15.80
H-0913.27150-00*	2.108±0.035	1.083	0.965	0.059	3.904	15.40
H-0913.35175-00*	2.402±0.039	1.378	1.240	0.069	4.593	14.20
H-1107.14100-00	1.142±0.012	0.551	0.472	0.039	1.555	12.50

H-1107.16120-00	1.220±0.012	0.646	0.551	0.047	1.804	12.50

Remark: 1. Customer-Oriented finned tube are warmly welcomed.

2. P/N with (*) can only be made from Aluminum or Alloy Aluminum.

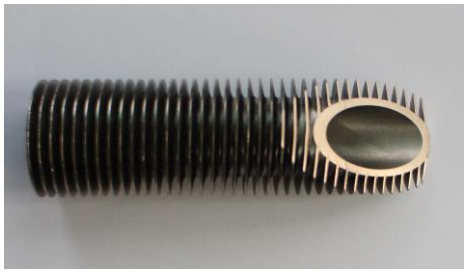
Part Number	Specifications					
	Finned Tube OD: d1(inch)	Root Diameter : d2(inch)	Finned Tube ID:d3(inch)	Wall Thickness: S(inch)	Outside Surface Area A1(ft^2/ft)	Surface Area Ratio: Outside to Inside A1/A2
H-0912.27060-01	2.000±0.039	1.047	1.000	0.024	3.30	
H-0915.27060-01	2.252±0.049	1.047	1.000	0.024	4.38	
H-1012.27060-01	2.000±0.039	1.047	1.000	0.024	3.78	
H-1015.27060-01	2.252±0.049	1.047	1.000	0.024	5.03	
H-1112.27060-01	2.000±0.039	1.047	1.000	0.024	4.22	
H-1115.27060-01	2.252±0.049	1.047	1.000	0.024	5.61	

Remark: 1. Customer-Oriented finned Tubes are welcomed.

2. The above P/Ns can only be made from Alloy Aluminum or Aluminum.

4. High-Finned Integral Stainless Steel and Titanium Tubes (High Fin)

The High Stainless Steel and Titanium Fin Tubes are available to FSI. Now we are one of the few manufacturers all over the world who can make the High Stainless Steel/Titanium Fin Tubes by Laser Welding processes for which it is a co-developed projected by our Sino-German Joint Venture. The fin height can reach more than 15mm which guarantees a high heat transferring efficiency which is widely used in hard surroundings. The Stainless Steel and Titanium Fin Tubes are mainly used in surroundings which require a high level of anti-corrosion such as Industries of Petroleum, Petrochemical, Metallurgical, Power, Food and Maritime etc.



High Titanium Fin Tube

The material for Stainless Steel/Titanium covers ASTM304, 304L, 316, 316L and Titanium. At the same time, heat exchangers by coiling stainless steel fin tubes are available too.

5. Diversified Heat Exchangers Product Lines by Coiling Copper/Cupronickel/Stainless Steel Fin Tubes

Diversified Heat Exchangers are coiled from Low, Medium-Fin Tubes into all kinds of shapes to meet the different installation spatial demands.

The coiling finned tubes are mainly used in water take heat exchanger, water tank condenser, coiler, air/water heater pumps etc.

Coiling fin tube heat exchanger can be made as per clients' design or requirement.

For more information on heat exchanger, please check our catalogue or visit our website: www.fsiheater.com.