



## Seamless Heat Exchanger (HX) Straight Tubes:

Krystal manufactures High Performance Heat Exchanger Tubes serving all industries and applications across the Globe. Our heat exchanger tubes are efficiently used for the cooling, heating or re-heating of fluids, gases, air in a diverse range of industries.

Krystal Tubes are highly efficient having very high working life being produced with very stringent production and quality norms.

- ✧ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ✧ **Outside Diameter** : 9.53 mm to 76.2 mm
- ✧ **Wall Thickness** : 0.7 mm to 4.00 mm
- ✧ **Specification** : SB 163, SB 167, SB 407, SB 423, SB 444, ASTM A-213, A-268, A-789, EN 10216-5
- ✧ **Length** : As per Requirement, maximum up to 24 Meters long
- ✧ **Surface Finish** : Bright Annealed(CFA), Solution Annealed(CFD), OD Polished
- ✧ **End Cut** : Plain End



## Seamless Heat Exchanger (HX) U Tubes:

Krystal has dedicated facility to manufacture U Tubes with developed lengths upto 24 meters in U bend, Multiple U Bend, C Bend(Two Bend) and Different shapes of Bending.

- ✧ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ✧ **Outside Diameter** : 9.53 mm to 88.9 mm
- ✧ **Wall Thickness** : 1.00 mm to 6.00 mm
- ✧ **Specification** : SB 163, SB 167, SB 407, SB 423, SB 444, ASTM A-213, A-268, A-789, EN 10216-5, TEMA 'RCB' 2.3 & ASTM A-688
- ✧ **Length** : As per Customer's Drawing, Developed length up to 24 Meter
- ✧ **Surface Finish** : Bright Annealed(CFA), Solution Annealed(CFD), OD Polished
- ✧ **Special Process** : Full Length Stress Revealing(SR), In Situ Metallography, Dye Penetrant Test(DPT), Ball Pass test
- ✧ **End Cut** : Plain End



We manufacture Products as per ASTM, ASME, DIN EN (GERMAN), NF (AFNOR), JIS (JAPAN) & Other Equivalent Standards.

## Seamless Hydraulic & Instrumentation (H&I) Tubes:

Krystal is one of the renowned manufacturer and supplier of a qualitative range of Instrumentation Tubes that are being designed as per the national and international standards and specifications. Krystal Tubes are a perfect fit for the ferrule fittings in all range with smooth biting, turning and clamping.

- ❖ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ❖ **Outside Diameter** : 3.17 mm to 101.6 mm
- ❖ **Wall Thickness** : 0.4 mm to 8.00 mm
- ❖ **Length** : 6 Meter Fixed Length or as per Requirement. Maximum up to 24 Meter long
- ❖ **Specification** : SB 163, SB 167, SB 407, SB 423, SB 444, ASTM A-269, A-268, A-789, EN 10216-5
- ❖ **Surface Finish** : Bright Annealed (CFA), Solution Annealed (CFD), OD & ID Polished upto 1200 Grits.
- ❖ **End Cut** : Plain End
- ❖ **Special Process** : Ball Pass Test, PVC / TPU Outer Jacket, Pre - Insulated, Hydro test up to 10000 PSI



## Seamless Process Pipes:

Cold Finished Seamless Pipes are produced from Hot Extruded as well as Hot Pierced Mother hollows in different alloys meeting the national and international standards.

- ❖ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ❖ **Range** : 6 NB to 300 NB
- ❖ **Outside Diameter** : 1/8" NPS (10.3) up to 12" NPS (323.90 mm)
- ❖ **Wall Thickness** : up to 17.50 mm
- ❖ **Specification** : EN10216-5, ASTM A312/A312M, ASME SA312/SA312M, ASTM A790 / A790M
- ❖ **Length** : Single Random Length 5 to 7 Meter or Double Random Length 10 - 12 Meter or Cut Length
- ❖ **Surface Finish** : Solution Annealed (CFD), Mechanical Polished, Sand Blasting
- ❖ **End Cut** : Plain End or Beveled End



## Seamless Bright Annealed Electropolished (SBA-EP) Tube

Krystal understands the importance of end to end smooth flow of material. Krystal Tubes with Inside and Outside Mechanical polish as well as Electro Polish provides super smooth surface for the transfer of material without stagnancy in the flow.

Krystal Super Bright Annealed (SBA) tubes are well established High Performance Tubes for the Pharmaceutical, Dairy, Breweries, Biotechnology & Semiconductor Industries.

- ✧ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ✧ **Outside Diameter** : 3.18 mm to 88.9 mm
- ✧ **Wall Thickness** : 0.89 mm to 2.77 mm
- ✧ **Specification** : ASTM A213 / ASTM A269
- ✧ **Length** : 6 Meter Fixed Length or as per customer requirements
- ✧ **Roughness** :  $Ra \leq 0.25\mu\text{m}$  (Internal),  $Ra \leq 0.50\mu\text{m}$  (External)
- ✧ **Packing** : Each tube purged with N2 gas, capped on both ends, packed in clean double-layer of bags and final into wooden case.
- ✧ **End Cut** : Plain End

## Coil Tube

Krystal manufacture stainless steel and nickel alloy tubing for high-performance applications where corrosion resistance, tolerance and purity are critical. Our coiled tubing - supplied in one continuous length - prevents the impurities associated with welding sections of tubing together, and it is available in both loose & bulk wound into coils or level wound onto various reel sizes.

Relying on one continuous length of tubing reduces installation time, as it doesn't require welding multiple tube sections. The tubing seamless construction also improves its performance since the entire coil has the same dimensions and durability properties.

- ✧ **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
- ✧ **Outside Dimension** : 4.76 mm to 25.4 mm
- ✧ **Wall thickness** : 0.5 mm to 2.11 mm
- ✧ **Specification** : ASTM A269 / ASTM A213
- ✧ **Length** : Up to 300 Meter (1000 Feet) in coil Length with respect to dimensions.
- ✧ **End Cut** : Plain Cut
- ✧ **PVC** : 1 mm or 2 mm PVC coated





## Finned Tubes

Krystal Finning Division is solely focused on producing the largest variety and most complete solutions for finned tubing. Finned Tubes increase the Performance and Heat Transfer.

-  **Base Tube Material** : Stainless Steel, Duplex and Nickel Alloys
-  **Fin Type** : Extruded, Embedded( G Type), wrap-on(L, LL, KL), Integral low finned tubes, Welded finned tubes, Studded finned tubes, Crimped finned tubes.
-  **Base Tube Diameter** : 12.00 mm to 38.00 mm
-  **Fin Material** : Aluminum and other materials
-  **Fin Thickness** : 0.35 mm to 0.45 mm
-  **Fin Height** : 8 mm to 15.8 mm
-  **Fin Pitch Inch** : 6 FPI to 12 FPI
-  **Length** : As per Customer Requirement, Maximum up to 18 Meters
-  **Testing** : Fin Tubes will be supplied duly Hydro Tested after finning
-  **End** : Plain portion at both end, Sleeves



## Corrugated Tubes

Krystal offers Single Corrugation as well as Cross Corrugation in Seamless Tubes by indenting plain tube with smooth and spiral projections, which generate turbulence in both outside and inside media increasing value for money and life of the tubes.

Corrugated tubes have variety of application such as Absorption type Refrigerator, Turbo Refrigerators and Screen Refrigerators Distillation Facility with multiple effects, for various effluent water, Dye-house effluent, Digestion Sludge, Food, Grain Slurry, Fruit Pulp, etc.

-  **Metallurgy** : Nickel Alloys, Austenitic, Super Austenitic, Duplex, Super Duplex, Ferritic & Exotic Grades.
-  **Range** : 6.35 mm To 50.8 mm OD
-  **Thickness** : 0.50 mm TO 6.0 mm
-  **Length** : As per Customer requirement, Maximum upto 22 Meter Long.
-  **Specifications** : ASTM A213, ASTM A269
-  **Packing** : Sleeved, Ends Capped, Wooden Box
-  **End Cut** : Plain Cut

