As a premium manufacturer, HandyTube provides customer-specific solutions for the flow of gas, steam and liquid for critical applications around the world. Our unique process allows us to produce made-to-order, seamless, stainless steel and high-nickel alloyed tubing with diameters ranging from 1.00” to 0.020”. HandyTube’s longest seamless coil can stretch 6,926 feet, which is approximately 5.5 times the height of New York City’s Empire State Building.

“The use of coiled tubing has saved time and money. We did not require as many fittings and it shortened the time dramatically for the install. It also improved quality by giving us fewer potential leak points by not using fittings.”

–Installation Program Manager
An Industry Leader

Our customers trust us. From our proprietary cleaning process to our in-house, climate-controlled laboratory, we provide only the BEST quality and service. With over 65 years of experience, HandyTube is a world leader in design and service for multiple industries.

- **1867** Handy & Harman founded as a precious metals company
- **1948** Handy & Harman Tube Division is founded in Norristown, Pennsylvania
- **1981** Camdel Metals Long Coil Division is founded in Camden, Delaware
- **2006** Precision Materials product line added to Camdel Metals
- **2011** Camdel Metals Corporation is renamed HandyTube Corporation
- **2012** Xtreme Length™ coil launched
- **2013** Ultra-Small Diameter (USD™) capillary tubing successfully engineered
- **2014** First compressed natural gas station constructed using CNG Tubing
Unrivaled Service

We’re working to create advantages for you. With in-depth knowledge, passion for quality and years of experience, HandyTube’s engineers provide expertise on new product development, testing and proof-of-principle. We have worked successfully with our customers worldwide to take products from idea to implementation.

- Significant cost savings as we develop components from raw material
- High quality, at the right cost, to ensure your position in a competitive market
- One-stop shop – HandyTube simplifies the supply chain by reducing the number of suppliers you have to manage
- Global distribution – Local stock for just-in-time delivery

In a technology-driven business climate, meeting service expectations is a challenge; exceeding them is rare. Transparent communication, proactive business solving, and above-and-beyond attitude on every transaction makes HandyTube different.

Jessie Cochran, Mid-South Technologies
COIL TUBING – REDUCE COSTS, SAVE TIME

Our, long-length coils help customers decrease changeovers and eliminate waste.

• INCREASED SAFETY
  Fewer connections means fewer leak points, decreasing the potential for hazardous materials to escape from the system.

• IMPROVED RELIABILITY
  Using fewer couplings increases overall system integrity and minimizes maintenance.

• REDUCED SCRAP
  Coils can be cut to exact lengths in the field, minimizing waste.

• REDUCED INSTALLATION COSTS
  Installing long-length coils saves time and money by reducing the labor and material costs associated with joining shorter lengths.

• IMPROVED FLOW
  Each connection adds friction to a system, interrupting flow and reducing overall efficiency.
HandyTube uses only precisely controlled vacuum furnaces in its processes. Vacuum furnaces promote lot traceability and produce consistent products from load to load.

**VACUUM ANNEALING VS. CONVENTIONAL HEAT TREATMENT**

**VACUUM ANNEALING**

- Material undergoes precisely controlled process cycles.
- Inert atmosphere does not cause oxidation or allow scale to develop on the surface of material.
- Furnace work zones maintained within ± 25° F, resulting in a consistent anneal.

**CONVENTIONAL HEAT TREATMENT**

- Temperature of the furnace can vary.
- Varying temperatures affect material performance in the field.
- Process variations may cause material to have a lower pressure rating.
Our world-class workforce operates state-of-the-art equipment to consistently produce paramount quality.

Truly Seamless

HandyTube only manufactures the highest quality seamless tubing for use in extreme environments. When welded tubing is used in medium- to high-risk environments, it must undergo rigorous testing, such as nondestructive examinations and corrosion analyses. Even after the testing is complete, there is still an opportunity for defects to occur.

<table>
<thead>
<tr>
<th>SEAMLESS TUBING</th>
<th>VS.</th>
<th>WELDED TUBING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produced from one integral extrusion</td>
<td></td>
<td>Produced from strip that is rolled and welded together to form a tube</td>
</tr>
<tr>
<td>Consistent dimensions and metallurgy offer increased corrosion resistance.</td>
<td></td>
<td>Dimensional and metallurgical variation create opportunity for corrosion.</td>
</tr>
<tr>
<td>Safer and more cost-effective long term</td>
<td></td>
<td>More costly long term when defects and repairs are required</td>
</tr>
<tr>
<td>Increased working pressures*</td>
<td></td>
<td>Decreased working pressures*</td>
</tr>
</tbody>
</table>

*Per ASME B31.3 using same alloy, tubing dimensions and operating conditions

Micrographs of seamless, as-welded and seam-free tubing

HandyTube’s heat-treated seamless tubing
Seam-free tubing
As-welded tubing
HandyTube’s facilities are ISO 9001 certified, ensuring only high-quality products ship through our doors. We also have the latest testing equipment and trained personnel to assure compliance with stringent specifications.

- Traceability throughout the entire manufacturing process
- Material Test Reports accompany every shipment
- In-house, climate-controlled laboratory
- Samples retained from every lot for peace of mind
- 100% Positive Material Identification (PMI)
- 100% pressure testing of all coils

**Approvals and Product Standards**

- ISO 9001
- Pressure Equipment Directive (PED 97/23/EC)
- AD 2000-Merkblatt W 0
- DNV Approved Supplier
- BV Mode I Scheme
- NACE MR0175
- NACE MR0103
- ABS
- EN 10204
- NORSOK M-650

**Testing Abilities**

- Dimensional Analysis
- Positive Material Identification (PMI)
- Metallurgical Analysis
- Chemical Analysis
- Eddy-Current
- Hydrostatic
- Tensile
- Yield
- Elongation
- Hardness
- Grain Size
- Surface Roughness
- Flatten
- Flare
- Corrosion

*Other testing services available upon request.*
In Process: Quality, Identification & Dimensions

- Receive & Layout Raw Material
- PMI, Dimensional, Chemical & Metallurgical Analysis
- Tube Reduce
- Draw on Bullwheel
- Heat Treatment
- Degrease
- Repeat Drawing on Bullwheel, Coil Degrease and Vacuum Anneal as needed
- Coil Degrease
- Vacuum Anneal
- PMI
- Level Wind
- Polish / Stencil
- Pressure Test
- POLISH / STENCIL / ECT
- Cut-to-Length
- Straighten
- Straighten
- Final Inspection and Testing
- Package
- Ship
- In Process: Quality, Identification & Dimensions
HandyTube services its customers through two unique product lines: Fluid and Gas Transfer and Precision Materials. Fluid and Gas Transfer mainly serves those customers within the Oil and Gas, Chemical Processing and Shipbuilding markets, while Precision Materials serves those in Health Care, Life Sciences and Instrumentation.

**Fluid and Gas Transfer**
- **CNG tubing**—Provided in long lengths needed to transfer compressed natural gas, reducing time and money associated with joining shorter lengths
- **Xtreme Length™ coils**—Reduce the number of welds or fittings required to make connections
- **Optimized flow and pressure**—Tubing available with outer diameters up to 1.00” and heavy wall thicknesses to withstand extreme pressures and maximize flow.
- **Enhanced corrosion resistance**—HandyTube can provide many corrosion resistant coatings including PVC and TPU on many of its Xtreme Length™ coils.

**Precision Materials**
- **Ultra-Small Diameter (USD™)** capillary tubing, with an outside diameter less than 0.0625”
- **Chromat I.D.™** smooth bore capillary tubing
- **Chroma Clean I.D.™** proprietary cleaning process reduces impurities.
- **Inert coatings** improve the accuracy of results by reducing the reactivity of the steel surfaces.
- **TTOL™**—Controlled tolerances for a tighter seal when using standard compression fittings
- **Precision cutting**—Ability to produce short pieces with tight tolerances
### Wall Thickness

<table>
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<tr>
<th>[in.]</th>
<th>[mm]</th>
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<tbody>
<tr>
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<td>0.51</td>
</tr>
<tr>
<td>0.025</td>
<td>0.64</td>
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<tr>
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<tr>
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<tr>
<td>0.063</td>
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<tr>
<td>1.000</td>
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### Industry Standards and Tolerances

<table>
<thead>
<tr>
<th>Grade</th>
<th>UNS Number</th>
<th>Specification</th>
<th>Outer Diameter Tolerances</th>
<th>Wall Thickness Tolerances</th>
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<td>304/304L</td>
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<tr>
<td>316/316L</td>
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<td>316/316L (2.5% Mo)</td>
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<tr>
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<td>N02200</td>
<td>ASTM B161</td>
<td>± 0.005&quot;</td>
<td>± 10%</td>
</tr>
</tbody>
</table>

*Tighter tolerances available by request.
WHEN QUALITY COUNTS, COUNT ON HANDYTUBE

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