



H A N D Y & H A R M A N T U B E C O .



C A M D E L M E T A L S

ABOUT US

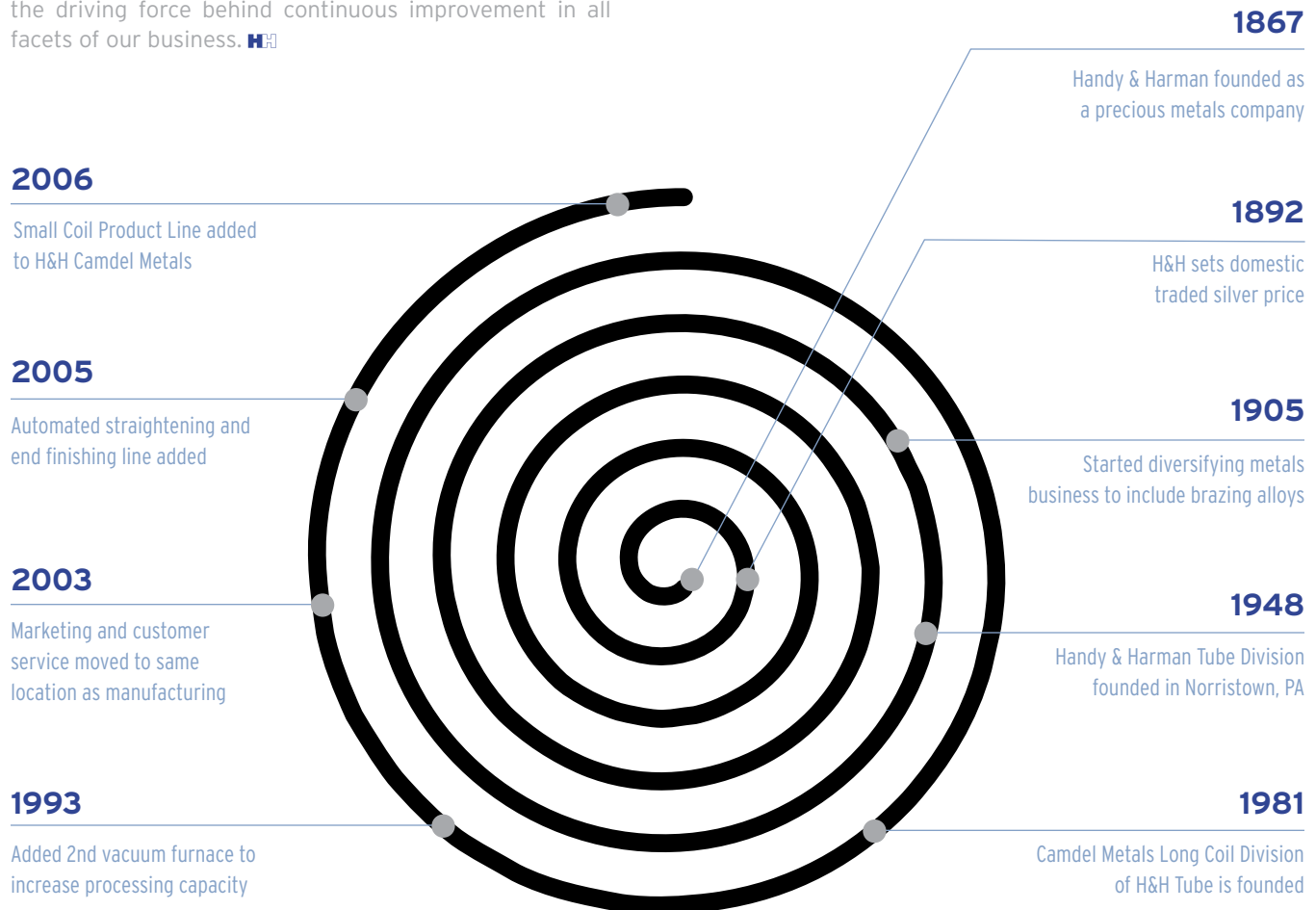
Handy & Harman Tube Co. – Camdel Metals Corporation is committed to being the best provider of seamless, stainless coil tubing in a global marketplace. Our goal is to be the brand of choice. We have been supplying well respected high quality seamless coil product into various industries since our founding in 1981.

Our team strives to provide exceptional, responsive customer service with an emphasis on speed. We realize the unique advantage of having our manufacturing plant and sales department at the same location. This helps us better serve our customer's needs through open communication channels from sales representatives to production control personnel and vice versa.

We are also dedicated to providing a world-class safe working environment for our employees while embracing a culture of teamwork, mutual respect and community support. Our employees represent our foundation and are the driving force behind continuous improvement in all facets of our business. **H&H**

The name Handy & Harman represents a diversified industrial manufacturer and the “parent” of a family of materials engineering and specialty manufacturing businesses. Our products include electronic and engineered materials, tubing and fabricated precious metals. Other companies under the H&H umbrella include Olympic Manufacturing Group, Continental Industries, Lucas-Milhaupt, Protechno S.A., Indiana Tube Corporation, and Micro-Tube Fabricators.

All of our businesses share a commitment to integrity that has been synonymous with the name “Handy & Harman” for more than 135 years. We express this commitment by our dedication to quality in our products and in our service to our customers. **H&H**



TIMELINE OF H&H HISTORY

TUBE PRODUCTS

LARGE COIL

Handy & Harman Tube Co. – Camdel Metals Corporation has specialized in the manufacture of long length seamless coil tubing of outer diameter sizes smaller than 1" (25.4mm) for over 26 years. Our seamless coil tubing is available in a number of high performance corrosion resistant stainless steel and high nickel alloys, capable of withstanding a variety of environmental conditions. Our specific advantage is being able to make long lengths of tube which are free of welds up to and exceeding 5,000 feet long. This reduces installation efforts and the need for excess fittings as well as minimizes the risk of leaks. **H&H**



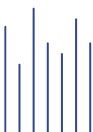
SMALL COIL

To further our market applications and manufacturing capability, Handy & Harman Tube Co. – Camdel Metals Corporation has expanded manufacturing equipment to include even smaller diameter tubing. We are able to offer tubes with outer diameter sizes as small as 0.020" (0.508mm) and inner diameter sizes as small as 0.005" (0.127mm). For reference, a human hair is approximately 0.003" in size. Applying the same technology that we use to manufacture large coils, and with precision equipment specifically designed in house, we are able to bring a more complete tubing solution to our customers. **H&H**



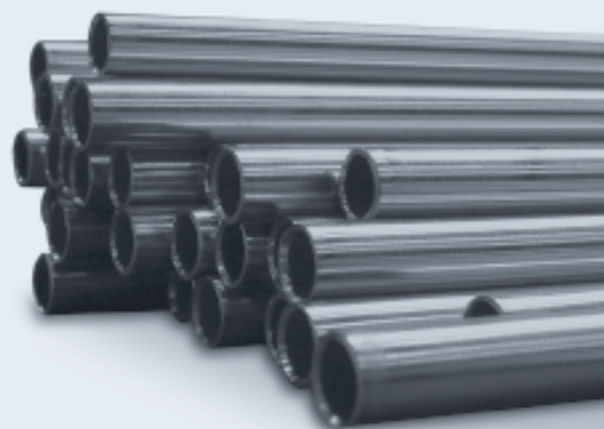
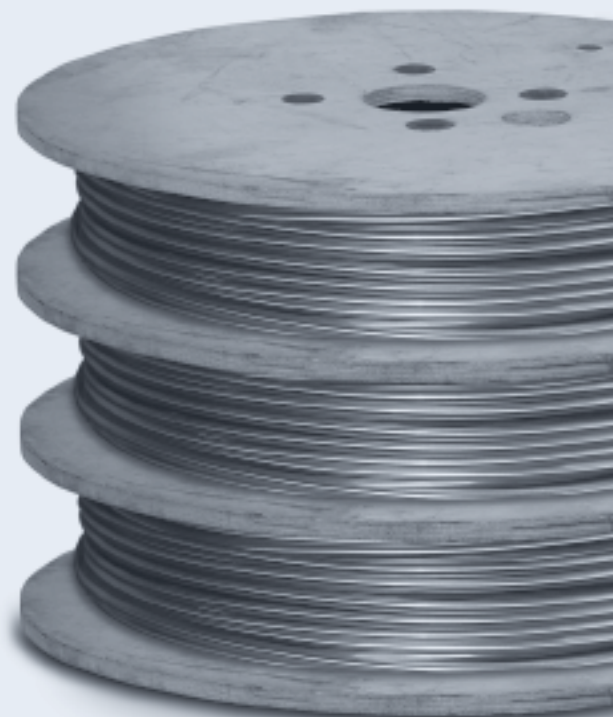
STRAIGHT LENGTHS

Handy & Harman Tube Co. – Camdel Metals Corporation manufactures straight length tube, produced according to ASTM, MIL-T, SCI, and AMS specifications. Our straight length tube is ideal for ultra high purity, military, aircraft, semiconductor, medical, and general instrumentation applications. Through our unique processing, we manufacture straight length tube suitable for all assembly methods including flared and compression fittings, also with superior weldability. **H&H**



ALLOYS

304 / 304L	446	Hastelloy C276
310	EB26	Monel 400
316 / 316L	Inconel 600	MP35N
317L	Inconel 625	Nickel 200
321	Incoloy 825	Nitronic 50
347	Hastelloy C22	



MARKET APPLICATIONS

OIL & GAS: SUBSEA



LARGE COIL



Sub-Surface Safety Valves (SSSV) / Umbilicals: Tubes filled with Hydraulic Fluid which run from floating platform or FPSO to the well head on the sea floor.

OIL & GAS: DOWNHOLE

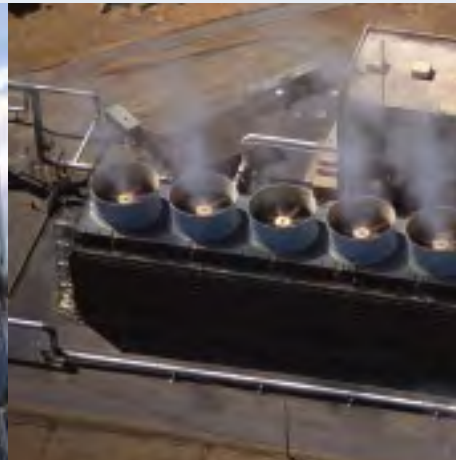


LARGE COIL



Downhole Control Lines: Tubes running from above ground surface controls into a downhole well to the location of the well's safety valve.

GEOTHERMAL



LARGE COIL



Calcite Inhibition System: Carries chemicals into earth's crust to flash point of water in a geothermal well; injected to break down calcite deposits and extend life of the well.

PETROCHEMICAL



LARGE COIL & STRAIGHT



Tubes used in the transportation of liquid or gaseous material between processes or locations within a production facility.

CHROMATOGRAPHY



SMALL COIL & STRAIGHT



Gas Chromatography (GC) & High Performance Liquid Chromatography (HPLC): Method of analyzing a solution in a chromatographic column by adsorbing and separating the solution into its constituent elements.

FLOW MEASUREMENT & SENSING



SMALL COIL & STRAIGHT



Process Management Instruments: Used to measure pressure, temperature and flow to maintain optimum performance within a safe working system.

MEDICAL



SMALL COIL & STRAIGHT



Medical Implants: Cardiac Pacemaker leads and lead sheathing. Dental Instrumentation: Dental pick handles.

MARKET APPLICATIONS

STEAM & HEAT TRACE



LARGE COIL



Tubing Bundles: Encapsulated small diameter tubing with steam or electric tracer lines used to keep a substance at a controlled temperature.

SHIP BUILDING



LARGE COIL



Tubing Bundles: Encapsulated remote hydraulic control, level gauge, draft gauge, gas detection & sampling, and fire damper open / shut lines.

HYDROGEN

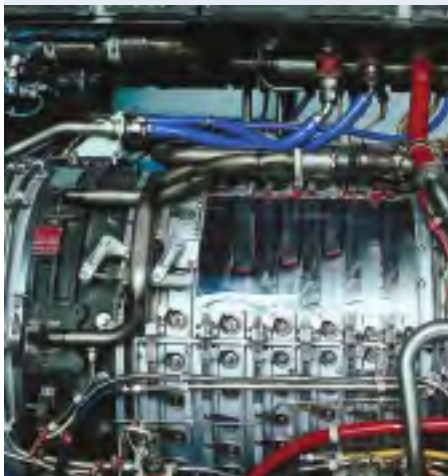


LARGE COIL



Hydrogen Gas Refueling Station: Seamless connection lines which span the distance between a remote storage tank and a hydrogen gas refueling pump.

MILITARY / AEROSPACE

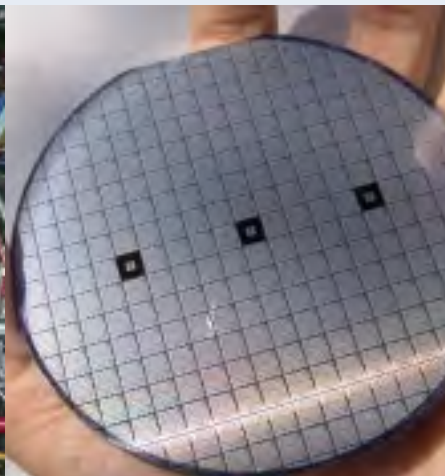


STRAIGHT



Military: Humvee brake lines & gas return tube for M16. Aircraft Engine Lines: With no weakened areas due to welding, seamless tube is preferred for airframe, hydraulic, and fuel lines applications.

SEMICONDUCTOR



STRAIGHT



Ultra High Purity (UHP): Controlled inside surface roughness of the tube makes it suitable for gas transfer, solvents, and other chemicals with cleanliness requirements as well as further electropolish processing.

INSTRUMENT



STRAIGHT



Common connection tubing for control panels, pneumatic equipment, and fluid lines.

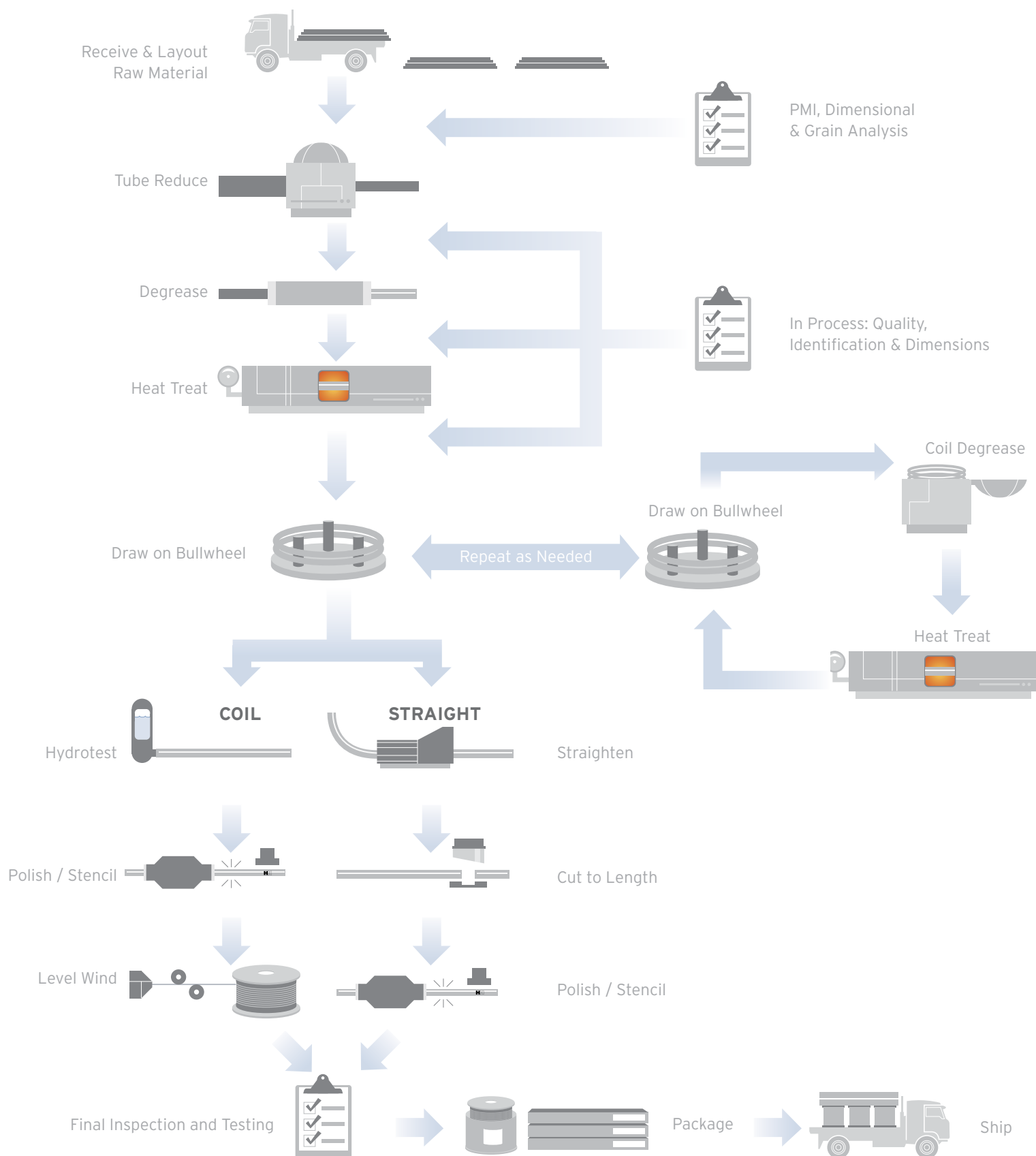
SIZECOMPATIBILITY

			WALL																											
OD & ID Tolerance			(in.)																											
	(in.)	(mm.)	3.175	2.997	2.769	2.616	2.413	2.108	2.000	1.778	1.650	1.500	1.245	1.000	0.889	0.711	0.610	0.508	0.406	0.305	0.279	0.254	0.229	0.203	0.178	0.152	0.127	0.006"	0.005"	
+/-0.010	1.250"	31.750	●	●	●	●																								
+/-0.010"	1.000"	25.400	●	●	●	●	●	●	●	●																				
+/-0.010"	0.787"	20.000	●	●	●	●	●	●	●	●	●	●																		
+/-0.008"	0.750"	19.050	●	●	●	●	●	●	●	●	●	●																		
+/-0.008"	0.625"	15.875			●	●	●	●	●	●	●	●	●	●	●															
+/-0.008"	0.563"	14.288		●	●	●	●	●	●	●	●	●	●	●	●															
+/-0.005"	0.500"	12.700				●	●	●	●	●	●	●	●	●	●															
+/-0.005"	0.473"	12.000			●	●	●	●	●	●	●	●	●	●	●															
+/-0.005"	0.394"	10.000					●	●	●	●	●	●	●	●	●	●	●													
+/-0.005"	0.375"	9.525						●	●	●	●	●	●	●	●	●	●	●												
+/-0.003"	0.315"	8.000						●	●	●	●	●	●	●	●	●	●	●	●											
+/-0.003"	0.250"	6.350						●	●	●	●	●	●	●	●	●	●	●	●	●										
+/-0.003"	0.236"	6.000							●	●	●	●	●	●	●	●	●	●	●	●	●									
+/-0.003"	0.188"	4.775								●	●	●	●	●	●	●	●	●	●	●	●									
+/-0.002"	0.125"	3.175										●	●	●	●	●	●	●	●	●	●									
+/-0.002"	0.110"	2.794										●	●	●	●	●	●	●	●	●	●	●								
+/-0.001"	0.095"	2.413												●	●	●	●	●	●	●	●	●	●	●	●	●				
+/-0.001"	0.086"	2.184													●	●	●	●	●	●	●	●	●	●	●	●	●			
+/-0.001"	0.076"	1.930													●	●	●	●	●	●	●	●	●	●	●	●	●			
+/-0.001"	0.062"	1.575													●	●	●	●	●	●	●	●	●	●	●	●	●	●		
+/-0.001"	0.059"	1.500														●	●	●	●	●	●	●	●	●	●	●	●	●		
+/-0.001"	0.040"	1.016															●	●	●	●	●	●	●	●	●	●	●	●		
+/-0.001"	0.031"	0.787																●	●	●	●	●	●	●	●	●	●	●	●	
+/-0.001"	0.020"	0.508																		●	●						●	●		

Contact us for custom orders or size availability not shown.

COILS	●
COILS & STRAIGHTS	●

PROCESSFLOW



QUALITY&TESTING

QUALITY

QUALITY POLICY: "Strive to consistently exceed customer's needs in quality, delivery & service."



H&H COMMITMENT TO QUALITY EXCELLENCE

From the time an order is received, sent through the production process, completed, and finally shipped, many levels of inspection occur to reinforce H&H Tube's Quality Policy. The job of ensuring quality products extends as far as our machine operators. H&H operators take ownership over material processed at their stations by measuring for dimensional accuracy and conducting a visual inspection of every piece. **H&H**

To further support our quality policy, H&H Tube – Camdel Metals is fully documented to satisfy or exceed ISO 9001 certification requirements. **H&H**

TESTING

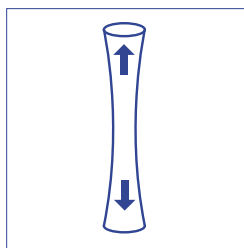
NON DESTRUCTIVE TESTS:

Hydrostatic
Eddy Current
Surface Roughness
Dimensional Analysis

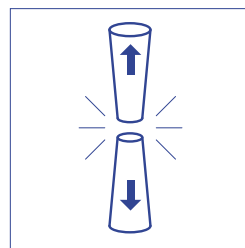
DESTRUCTIVE TESTS:

Yield Strength
Tensile Strength
Elongation
Positive Material Identification (PMI)
Grain Size
Rockwell Hardness

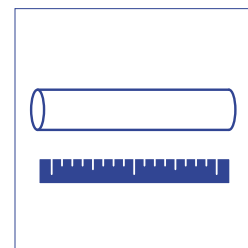
We also utilize many laboratories and testing facilities which allow us to offer ultrasonic and corrosion resistance tests.



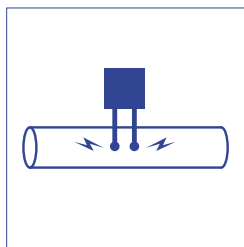
Yield Strength



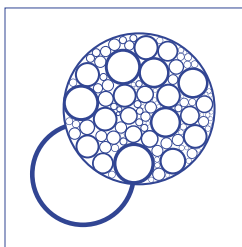
Tensile Strength



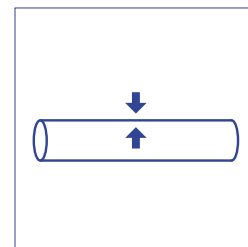
Elongation



Positive Material Identification (PMI)



Grain Size



Rockwell Hardness

Certificates are included with every order which document manufacturing specifications, dimensions, mechanical test results, alloy chemistry, and country of origin. **H&H**



SERVICE & PACKAGING

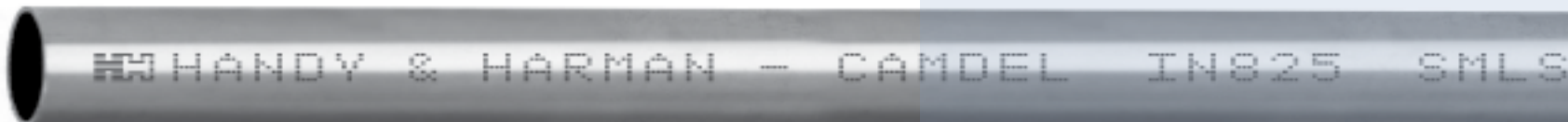
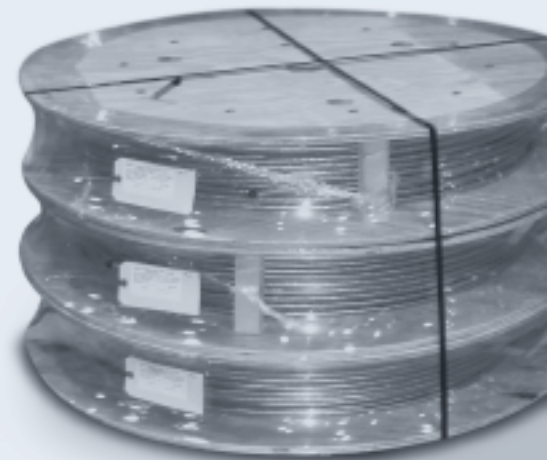
SERVICE

SERVICE POLICY: "To provide exceptional customer service is to meet the needs and expectations of the customer as defined by the customer - before, during and after service."

H&H COMMITMENT TO SERVICE EXCELLENCE

- 1. Identify Customer Expectations:**
Open communication to realize where H&H Tube can add value for the customer and exceed expectations.
- 2. Employee Ownership:**
Set service standards which encourage employees to use their skill, ingenuity, and experience to best fulfill customer needs.
- 3. Continuous Improvement:**
Constantly work to improve our products and processes, as well as learn from our strengths and weaknesses.
- 4. Promote Responsible Business:**
Aim to resolve customer complaints and deal with any issues in a timely manner.

	SMALL SPOOLS	LARGE SPOOLS	PALETTES	COIL DRUMS	COIL BOXES	STRAIGHT BOXES
DIMENSIONS	12" circular x 2" thick	44" circular x 7" thick	45" x 45" x 5"	15-24" circular x 13-27" tall	46" x 46" x 46"	10" x 10.5" x 21' / 26' long
WEIGHT (EMPTY)	2 lbs.	35 lbs.	40 lbs.	7-20 lbs.	130 lbs.	26 / 265 lbs.
CAPACITY	1 Coil	1 Coil	6 Large Spools	6 Small Spools	5 Large Spools	150-500 Pieces



GENERAL ASTM SPECIFICATION REFERENCE TABLE

SPEC. NO.	TITLE / SCOPE
ASTM A213	Seamless pressure tubes, made from ferritic (400 series) and austenitic (300 series) alloy for steel boiler, superheater, heat exchanger and condenser applications.
ASTM A269	Seamless austenitic stainless steel (300 series) tubing for general corrosion resisting and high-temperature service.
ASTM B161	Nickel alloy (Nickel 200) in the form of cold-worked seamless pipe and tube in annealed and stress-relieved condition.
ASTM B163	Seamless nickel alloy (Nickel 200 and Monel 400) condenser and heat exchanger tube.
ASTM B165	Nickel-copper alloy (Monel 400) seamless pipe and tube in annealed, half hard, and full hard condition.
ASTM B423	Nickel-iron-chromium-molybdenum-copper alloy (Incoloy 825) in the form of cold-worked and hot-finished seamless pipe and tube intended for general corrosive service.
ASTM B444	Nickel-chromium-molybdenum-columbium alloy (Inconel 625) in the form of cold-worked seamless pipe and tube in annealed or solution annealed condition.
ASTM B622	Seamless pipe and tube in nickel and nickel-cobalt alloys (C276).

MATERIAL SPECIFICATION CROSSREFERENCE

COMMON NAME	Alloy 304 / 304L	Alloy 316 / 316L	Alloy 200	Alloy 400	Alloy 625	Alloy 825
TRADE NAME	Type 304 / 304L	Type 316 / 316L	Nickel 200	Monel 400	Inconel 625	Incoloy 825
UNS	S30400 / S30403	S31600 / S31603	N02200	N04400	N06625	N08825
ASTM	A213, A269	A213, A269	B161	B165	B444	B423
ASME	SA213, SA269	SA213, SA269	SB161	SB165	SB444	SB423
UK B.S. 3074	S15 / S11	S31 / S11	NA11	NA13	NA21	NA16
GERMAN DIN	17740	17740	17740	17742	17744	17744
WERKSTOFF	1.4301 / 1.4306	1.4401 / 1.4404	2.4066 / 2.4060	2.4360	2.4856	2.4858
RUSSIAN GOST	10498-63, 14162-69	10498-63, 14162-69	10498-63, 14162-69	10498-63, 14162-69	10498-63, 14162-69	10498-63, 14162-69
FRENCH AFNOR	Z 6CN18.09 / Z 2CN18.10	Z 6CND17.11 / Z 2CND17.12	–	NU30	NC22DNb	NC21FeDU
KOREAN KS	STS304TB D3577	STS316TB D3577	–	–	NCF625TP D3758	NCF825TP D3758
JAPAN JIS	SUS304TB G3463	SUS316TB G3463	NNCT H4552	NCUT H4552	NCF625TB G4904	NCF825TB G4904
SWEDEN SS	2333 / 2352	2343 / 2353	–	–	–	–

UNIT CONVERSIONS

MASS				
	LB	kg	ton (short)	ton (metric)
LB	1	0.4536	0.0005	0.000454
kg	2.20462	1	0.0011	0.0010
ton (short)	2000	907.1847	1	0.90718
ton (metric)	2204.623	1000	1.1023	1

PRESSURE					
	psi	bar	Pa	atm	mHg
psi	1	0.06895	6.895E+03	0.06805	0.05171
bar	14.50	1	1.0E+05	0.9869	0.7501
Pa	1.45E-03	1.00E-05	1	9.8690E-06	7.50E-07
atm	14.70	1.01325	1.01325E+05	1	0.76
mHg	19.34	1.3332	1.33E+05	1.3158	1

DISTANCE				
	in	mm	ft	m
in	1	25.4	0.08333	0.0254
mm	0.03937	1	0.00328	0.001
ft	10	304.8	1	0.3048
m	39.37	1000	3.28	1

DENSITY	
1 LB/ft ³ = 16.01846 kg/m ³	
1 kg/m ³ = 0.062428 LB / ft ³	

TEMPERATURE	
F° = 1.8C° + 32°	
K° = C° + 273°	



QUALITY SERVICE TO MATCH OUR QUALITY PRODUCTS.

CONTACT US FOR MORE INFORMATION ON HOW HANDY &
HARMAN TUBE CO. / CAMDEL METALS CORPORATION CAN
HELP FIND SOLUTIONS FOR ALL YOUR NEEDS.

GENERAL INFORMATION

TEL: +1 (302) 697-9521
FAX: +1 (302) 697-7405
EMAIL: INFO@HANDYTUBE.COM
WEBSITE: WWW.HANDYTUBE.COM

SALES & LOGISTICS EMAIL: SALES@HANDYTUBE.COM

HUMAN RESOURCES EMAIL: HR@HANDYTUBE.COM

QUALITY EMAIL: QUALITY@HANDYTUBE.COM

HANDY & HARMAN TUBE CO.

12244 WILLOW GROVE ROAD / CAMDEN, DE 19934 USA

WWW.HANDYTUBE.COM