



Specialty Tubing for Petroleum and Natural Gas Exploration and Production



LINKING THE OIL AND GAS INDUSTRY FROM END TO END

A brand of the
Prysmian
Group

Customized Tubing Solutions for the Petroleum and Natural Gas Industry

A wealth of experience

Draka Specialty Tubing (DST) serves the petroleum and natural gas industry with high quality, corrosion-resistant tubing in lengths up to 50,000 feet or more.

Our products include austenitic stainless steel, nickel-base alloy, and duplex stainless steel seam-welded and austenitic stainless steel and nickel-based seamless tubing in sizes from 1/8" through 5/8" outside diameter. DST's small-diameter, corrosion-resistant tubing is ideal for control line, instrumentation, chemical injection, well monitoring and other high-performance applications in harsh environments where strength, corrosion resistance and reliability are essential.

DST is the only manufacturer with complete in-house sheathing and encapsulation capability. This permits us to sheath our own insulated copper conductors and optical fibers with stainless and nickel alloy and encapsulate them. We can also sheath customer-provided cores with the proper alloy and encapsulation materials.

All of our products are manufactured to our detailed tubing specifications which meet or exceed applicable ASTM requirements.

A commitment to quality

We monitor product quality through a rigorous inspection and testing process conducted by our team of highly qualified professionals. The extensive training and experience of DST associates includes:

- mechanical, electrical and metallurgical engineering
- the design, fabrication and assembly of tube mills and production equipment
- non-destructive testing such as eddy current, radiographic, hydrostatic, and high pressure gas underwater.

This diverse skill set enables us to ensure high quality at every stage of the manufacturing process.

We take pride in our ability to respond promptly to customer requests. Our experience and adaptability allow us to fulfill orders quickly, even for special requirements on short notice. Our customers rely on us to meet their precise requirements and delivery dates, every time – and we deliver.



DST's Quality Management System (QMS) has been independently certified by Lloyd's Register Quality Assurance, Inc. (LRQA) to be in compliance with ISO 9001:2008.

LRQA, whose reputation is renowned worldwide, is itself accredited by the ANSI - ASQ National Accreditation Board (ANAB).



A Reputation for Excellence

Tough tubing for tough environments

DST has been involved in bringing a number of technological advances to the industry, including a significant increase in the length of tubing manufactured without orbital welds. We also introduced Tube Encapsulated Conductors (TEC) to the oil and gas industry in 1985.

DST has assembled a diverse management team of skilled industry experts who share our commitment to quality management and customer satisfaction.

With over a century of combined experience in the tube manufacturing business, these professionals ensure that DST's customers receive customized, high-quality solutions to every tubing need.

While there have been a lot of changes in the tubing business over the years, one thing that hasn't changed is the level of service necessary to satisfy our customers. Every day, we look for new ways to continually improve our processes to maintain - and surpass - that high level of service.

DST's goal is to meet or exceed each customer's expectations regarding the high quality of our products, the ease of doing business with us, and the responsiveness of our entire team.

As a DST customer, your satisfaction is our highest priority.

Precision manufacturing

DST operates from a complex of buildings totaling 80,000 square feet.

Tube mill

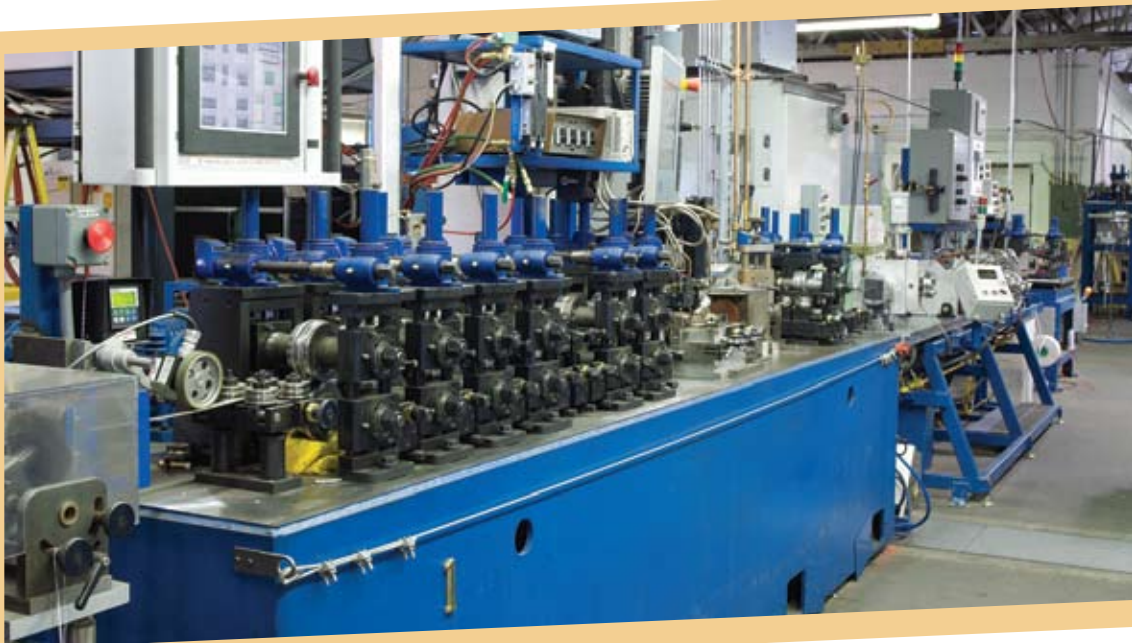
Tubing is formed and gas-tungsten arc or laser beam welded from strip stock on multiple tube mills designed and fabricated by DST.

Sinking operation

Sinking is a cold working process in which tubing is pulled through a lubricated die without an internal plug. For certain tubing dimensions, manufacturing process limitations prevent welding the tubing to final size. In such cases, the tubing is welded at a larger outside diameter and sunk in one or more reduction / heat treatment operations. Sunk tubing may be heat treated or left in the cold worked condition to increase its strength.

Off-mill heat treatment

The tubing is heat-treated to achieve specified mechanical properties and corrosion resistance in an off-mill furnace with a reducing atmosphere.



Tried and True - Testing and Quality Assurance

Tension and hardness testing

Tension and hardness testing is performed to ensure compliance with applicable specifications.

Positive material Identification

Positive material identification (PMI) of strip and tubing using X-ray fluorescence spectroscopy is performed to ensure the correct grade of material.

Eddy current testing

Eddy current testing, a non-destructive test, is performed on all tubing at multiple steps of the manufacturing process by DST personnel certified to ASNT SNT-TC-IA.

Hydrostatic and high pressure gas underwater testing

Hydrostatic and high pressure gas underwater testing are used to evaluate the ability of tubing coils to withstand high pressure.

Radiograph testing

Radiographic testing of strip splice and orbital welds using digital or film-based radiography is routinely performed by DST personnel certified to ASNT SNT-TC-IA.

Metallographic evaluation

Metallographic examination of cross sections is performed during qualification testing of welds and as needed.



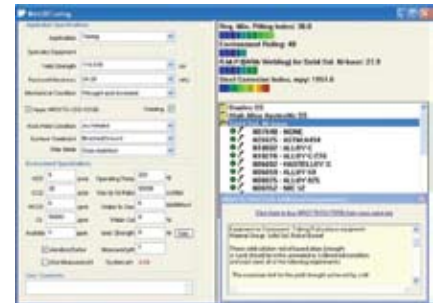
A Wide Range of Alloy Tubing for Your Exacting Applications

SOCRATES - Online tool for refining your alloy selection

SOCRATES (Selection Of Corrosion Resistant Alloys Through Environmental Specifications) is an online system that calculates the composition of the corrosion-resistant alloy best engineered to handle your well fluids.. SOCRATES It can increase the longevity and safety of your well by specifying alloys that can stand up to the rigors of your application. It also saves you money by not having to pay for potentially costly tubing alloys and processes like heat treatment/cold working when they are not needed.

The SOCRATES software draws from the pooled expertise of oil companies, equipment manufacturers and materials suppliers. SOCRATES is continually updated with the latest published literature and field notes of how particular corrosion-resistant alloys function in real-world oil and gas field service.

Access to SOCRATES is available from your Draka Specialty Tubing representative. Go to <http://www.intercorr.com/software/socrates/soc.html> to download a demonstration module.



Draka Specialized Tubing Application Selection Chart

	Self-Supporting	Chemical Injection	Hydraulic Control Line	Power and Communications	Chloride Pitting/Crevice Corrosion Resistance	H2S / CO2 / Cl- Resistance	Chloride Stress Corrosion Cracking (SCC) Resistance	UNS / ASTM Specification
Alloy 316L - 30 ksi min. yield strength Seam Welded Pressure Tubing		•	•					S31603 / A269
Alloy 316L - 30 ksi min. yield strength Seamless Pressure Tubing		•	•					S31603 / A269
Alloy 825 - 35 ksi min. yield strength Seam Welded Pressure Tubing		•	•		•	•	•	N08825 / B704
Alloy 825 - 35 ksi min. yield strength Seamless Pressure Tubing		•	•		•	•	•	N08825 / B704
Alloy 2205 - 80 ksi min. yield strength Seam Welded Pressure Tubing	•	•	•		•	•	•	S32205 / A789
Alloy 825 - 90 ksi min. yield strength Seam Welded Pressure Tubing	•	•			•	•	•	N08825 / B704
Alloy 625 - 90 ksi min. yield strength Seam Welded Pressure Tubing	•	•			•	•	•	N06625 / B704
Alloy 316L - 90 ksi min. yield strength Seam Welded Sheath Tubing	•			•				S31603 / A269
Alloy 825 - 95 ksi min. yield strength Seam Welded Sheath Tubing	•			•	•	•	•	N08825 / B704
Alloy 625 - 115 ksi min. yield strength Seam Welded Sheath Tubing	•			•	•	•	•	N06625 / B704

Customization and installation support

Draka uses expert system software to assist customers in their selection of alloys for oil and gas environments. Consult ISO 15156-3 for alloy limits in hydrogen sulfide containing oil and natural gas environments.

316/316L Stainless Steel Tubing Weight per Foot (lbs)

Diameter Fraction	Diameter Decimal	Wall Thickness							
		0.010	0.012	0.020	0.028	0.035	0.049	0.065	0.083
1/8	0.1250	0.0126	0.0148	0.0230	0.0297	0.0344	-	-	-
5/32	0.1563	0.0160	0.0189	0.0298	0.0393	0.0464	0.0575	0.0648	-
3/16	0.1875	0.0194	0.0230	0.0366	0.0488	0.0584	0.0742	0.0871	-
1/4	0.2500	0.0262	0.0312	0.0503	0.0680	0.0823	0.1077	0.1315	0.1515
5/16	0.3125	0.0331	0.0394	0.0640	0.0871	0.1062	0.1412	0.1759	0.2083
3/8	0.3750	0.0399	0.0476	0.0776	0.1062	0.1301	0.1746	0.2203	0.2650
7/16	0.4375	0.0467	0.0558	0.0913	0.1254	0.1540	0.2081	0.2647	0.3217
1/2	0.5000	0.0536	0.0640	0.1050	0.1445	0.1779	0.2416	0.3091	0.3784
9/16	0.5625	0.0604	0.0722	0.1186	0.1636	0.2018	0.2751	0.3535	0.4351
5/8	0.6250	0.0672	0.0804	0.1323	0.1828	0.2258	0.3086	0.3980	0.4918
3/4	0.7500	0.0809	0.0968	0.1596	0.2210	0.2736	0.3755	0.4868	0.6052

Weight/ft = 10.933 x Wall Thickness x (Diameter - Wall Thickness)

Weight Conversions for other Alloys

Alloy	Conversion Factor (CF)
625	1.052
825	1.010
2205	0.976
304	0.990

Weight/ft_{alloy} = Weight/ft_{316L} x CF

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Draka

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