

Datasheet

Experience

The Oil & Gas sector represents one of Fine Tubes principal markets for supply of a wide range of tubular product forms and materials. Our products have been successfully applied in some of the most aggressive subsea and downhole conditions and we have a long proven track record of supplying products that meet the strict quality requirements of the oil and gas sector.

Fine Tubes offers coiled and straight length tubing in a wide range of corrosion resistant stainless steels, titanium alloys and nickel alloys. We have extensive experience in product supply and innovation in this sector, from the technological advances required for subsea developments in the 1970's up to the deepwater challenges of the day.



Applications

Our products are used in the following applications:

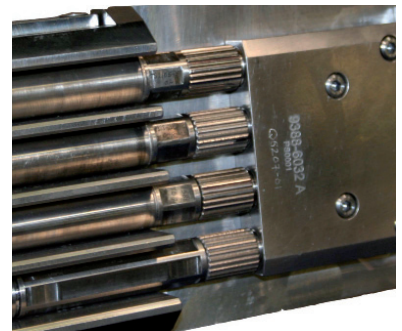
Coiled Tubing

- Steel tube umbilicals
- Downhole control lines
- Chemical injection lines
- Smooth bore tubing
- Flow line bundle control line tubing
- Downhole gauge cables with single and twisted pair conductors

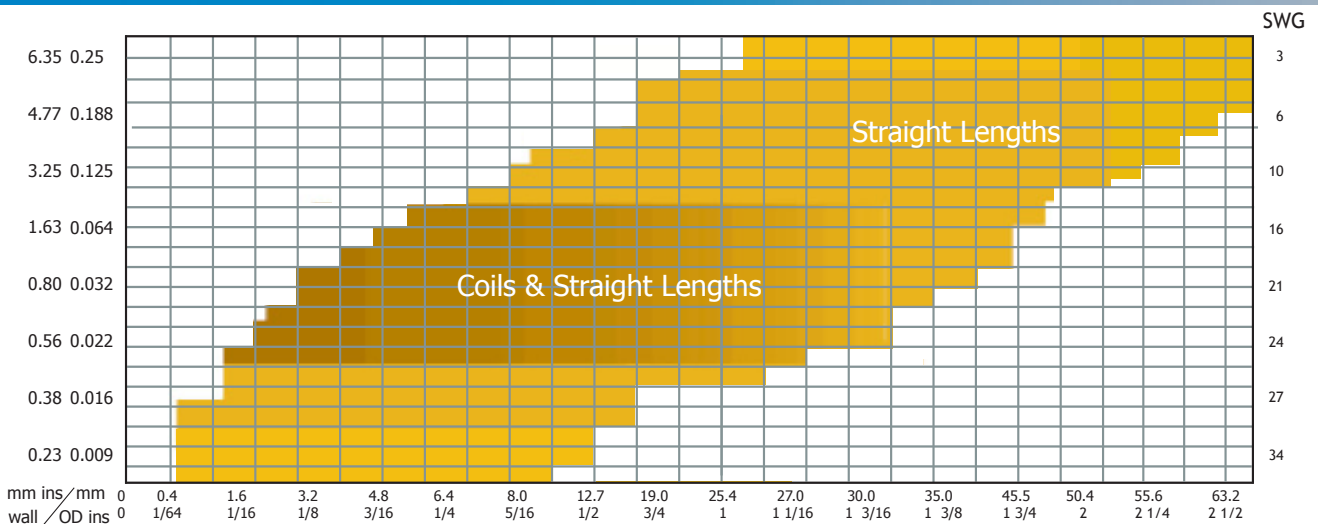


Straight Length Tubing

- Control & instrumentation - up to 150,000 psi service rating
- High strength pressure housings
- Hydraulic & chemical injection lines
- Stainless steel, nickel alloys and titanium seamless and seam welded tube



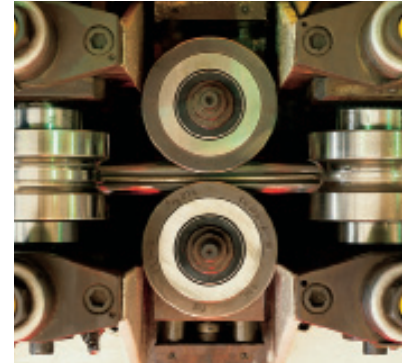
Size Range



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Production Facilities

- Cold pilger mills
- Cold draw benches
- Tube welding mills - In-line weld mills
- Controlled atmosphere heat treatment
- Bright annealing
- Pickling & passivation plant
- NDT ultrasonic & eddy current testing
- Hydrostatic testing
- Radiographic examination

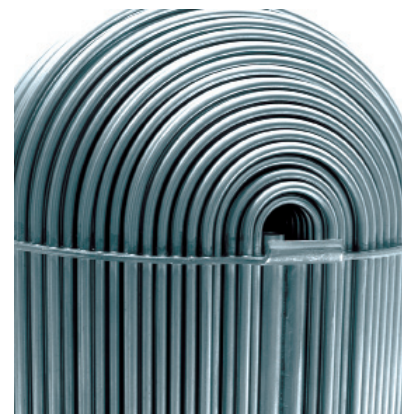


Supply Forms

Coiled Tubing

Coiled seam welded or welded and drawn tubing is available in standard materials including stainless steel 316L, lean and superduplex stainless steel and nickel alloys 825, 625 and 400. Other materials are also available on request. Information on burst, yield and collapse pressures for the various materials are also available on request. Tubing can be supplied in the annealed or cold worked condition.

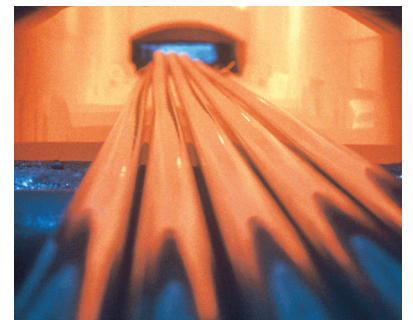
- Seamless and welded, welded and drawn tubing
- Welded floating plug drawn for higher quality tube
- Diameters from 3 mm (0.118") to 25.4 mm (1") OD
- Wall thicknesses from 0.5 mm (0.020") to 3 mm (0.118")
- Coils up to 1,500 m (5,000 ft) without orbital joints
- Coils up to 13,500 m (45,000 ft) with orbital joints
- Encapsulated, PVC coated or bare line tubing
- Gauge cable - TEC
- Impulse lines
- Available on wooden or steel drums



Straight Lengths

Straight length tubing can be manufactured in a wide range of stainless steels, superduplex stainless steels, titanium grades and nickel alloys. The tubing can be supplied in a range of conditions including annealed, age hardened, cold worked or stress relieved.

- Seamless tubes up to 11 m (36 ft) long
- Outside diameters from 0.3 mm (0.01") to 63.5 mm (2.5")
- Controlled wall, OD/ID precision tolerances
- Manufactured to industry or customer specifications
- High / Super pressure tubing
- Surface conditions include bright annealed, pickled, passivated, polished or ground
- PVC coated tubing



Fine Tubes Grade Chart e102 - oil & gas

ALLOY UNS No.	Werkstoffe	Chemical Analysis %													Density			Temper		Tensile Rm (min)		Yield Rp 0.2% (min)		Elong. % min	Hardness HV	Application
		C	Mn	Ni	Cr	Fe	Mo	Ti	Nb	N	Al	Other	g/cm³	lb/in³	ksi	MPa	ksi	MPa								
316L S31603	1.4404	0.035 max	2.0 max	10.0-13.0	16.0-18.0	bal	2.0-2.5 2.5-3										7.93	0.286	70	485	25	170	35	200 max	Standard oil and gas CRA. 316L with minimum molybdenum content of 2.5%.	
	1.4435																									
316Ti S31635	1.4571	0.080 max	2.0 max	10.0-14.0	16.0-18.0	bal	2.0-3.0 3.0-4.0	5xC+N -0.700	0.10 max								7.93	0.286	70	485	25	170	35	200 max	Austenitic stainless steel with addition of 0.5% Ti to improve alloy stability at temperatures above 800°C.	
317L S31703	1.4438	0.035 max	2.0 max	11.0-15.0	18.0-20.0	bal	3.0-4.0										7.9	0.29	75	515	30	205	35	200 max	Austenitic stainless steel with higher corrosion resistance than 316L.	
904L N08904	1.4539	0.020 max	2.0 max	23.0-28.0	19.0-23.0	bal	4.0-5.0										8	0.289	70	485	40	275	35	200 max	Stainless steel with higher resistance to general pitting & crevice corrosion than 316L.	
6Mo S31254	1.4547	0.020 max	1.0 max	17.5-18.5	19.5-20.5	bal	6.0-6.5	0.18-0.22									8	0.289	98	675	45	310	35	230 max	Super-austenitic stainless steel with good resistance to pitting and crevice corrosion.	
Duplex S31803	1.4462	0.030 max	2.0 max	4.5-6.5	21.0-23.0	bal	2.5-3.5	0.08-0.20									7.8	0.281	90	620	65	450	25	290 max	High mechanical strength and good resistance to localised cracking & chloride stress corrosion.	
Super Duplex S32750	1.441	0.030 max	1.2 max	6.0-8.0	24.0-26.0	bal	3.0-5.0	0.24-0.32									7.79	0.28	116	800	80	550	15	310 max	Superduplex alloy combining excellent strength with good corrosion resistance in high chloride and seawater environments.	
Super Duplex S32760	1.4501	0.020 max	1.0 max	6.0-8.0	24-26	bal	3.0-4.0	24-32									7.70	0.278	109	750	73.5	507	35	310 max		
N50 S20910	1.3964	0.060 max	4.0-6.0	11.5-13.5	20.5-23.5	bal	1.5-3.0	0.2-0.4	0.1-0.3	V 0.1-0.3	7.880	0.285	0.270	ANN	CW	100	690	55	380	35	1034	20	285 max	528 max	Nitrogen strengthened austenitic grade with exceptional strength in the cold worked condition & low magnetic permeability.	
Alloy 800H N08810	1.4876	0.05-0.10 max	1.5 max	30.0-35.0	19.0-23.0	39.5 min	0.15-0.60										8.08	0.292	75	517	30	207	30	200 max	High temperature strength and excellent corrosion resistance in petrochemical environments.	
Alloy 825 N08825	2.4858	0.05 max	1.0 max	38.0-46.0	19.5-23.5	bal	2.5-3.5	0.6-1.20									8.1	0.292	85	586	35	241	30	209 max	Very good sour well and chloride stress corrosion cracking resistance.	
Alloy 718 N07718	2.4668	0.08 max	0.4 max	50.0-55.0	17.0-21.0	bal	2.80-3.30	0.65-1.15	4.75-5.50								8.19	0.296	150	1084	120	827	20	382 max	Age hardenable, high strength nickel alloy with good sour well corrosion resistance.	
Alloy 625 N06625	2.4856	0.10 max	0.5 max	bal	20.0-23.0	5.0 max	8.0-10.0	0.40 max	3.15-4.15	0.40 max	8.44	0.305	ANN	SLN	ANN	100	690	40	276	30	222 max	30	260 max	222 max	Nickel alloy with very good resistance to pitting, crevice corrosion & sour well environments.	
Alloy 276 N10276	2.4819	0.02 max	1.0 max	bal	14.5-16.5	4.0-7.0	15.0-17.0										8.9	0.321	100	690	41	283	40	210 max	Excellent sour service corrosion resistance.	
Alloy 22 N06022	2.4602	0.015 max	0.5 max	bal	20-22.5	6.0	12.5-14.5										8.61	0.311	100	690	45	310	45	270 max	Excellent sour service corrosion resistance combined with a very high pitting index.	
Alloy 59 N06059	2.4605	0.010 max	0.5 max	bal	22.0-24.0	1.5 max	15.0-16.5										8.60	0.311	100	690	45	310	45	270 max	Excellent in Sour Service Environments. Highly resistant to Chloride, Sea Waters and Acids.	
MP35N R30035		0.03 max	0.2 max	33.0-37.0	19.0-21.0	2.5 max	9.0-10.5	1.0 max									8.43	0.304	220	1514	200	1380	10	528 max	Nickel cobalt alloy with very high strength, toughness and outstanding corrosion resistance.	
Alloy 400 N04400	2.436	0.30 max	2.0 max	63.0-70.0			2.5 max										8.83	0.319	70	480	28	195	35	180 max	General purpose Ni alloy with a good combination of strength, ductility & corrosion resistances.	
CP Grade 2 R50400	3.7035	0.08 max				0.30 max			0.03 max								4.51	0.163	50	345	40-65	275-450	20		Very high strength to weight ratio combined with excellent seawater corrosion resistance.	
Ti 3Al/2.5V Grade 9 R56320	3.7194	0.08 max				0.25 max			0.03 max								4.48	0.162	125	860	105	725	10		High strength to weight ratio. Excellent corrosion resistance.	
Ti 6Al/4V Grade 5 R56401	3.7165								6.0								4.33	0.156	159	1100	141	980	8		Very high strength to weight ratio.	

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Quality Assurance

Process and quality Control of Fine Tubes products is critical in respect of consistently achieving the highest standards in the Chemical Process Industry for all applications. Strict quality Controls are applied at every stage of the processing operations.

We have BS EN ISO 9001 and BS EN ISO 14001 approvals as well as individual client approvals. Fine Tubes also has First Point Approval and can supply to NACE MR-0175 and P.E.D. Reference lists and individual client approvals are available on request.

Fine Tubes also have Nadcap approvals for their most critical operations:

ISO9001: 2008 / AS EN 9100 by BSI.

Nadcap (Heat Treatment) reaccredited at Merit Status by P.R.I.

Nadcap (NDT) reaccredited at Merit Status by P.R.I.

AD2000 Merkblatt W0/TRD100 – TÜV

97/23/EC (PED) – TÜV

Fine Tubes also has First Point Approval and can supply to NACE MR-0175 and Norsok M-650 requirements. Project reference lists and individual client approvals are available on request.

Information on the pressure ratings of tubing is available upon request.



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