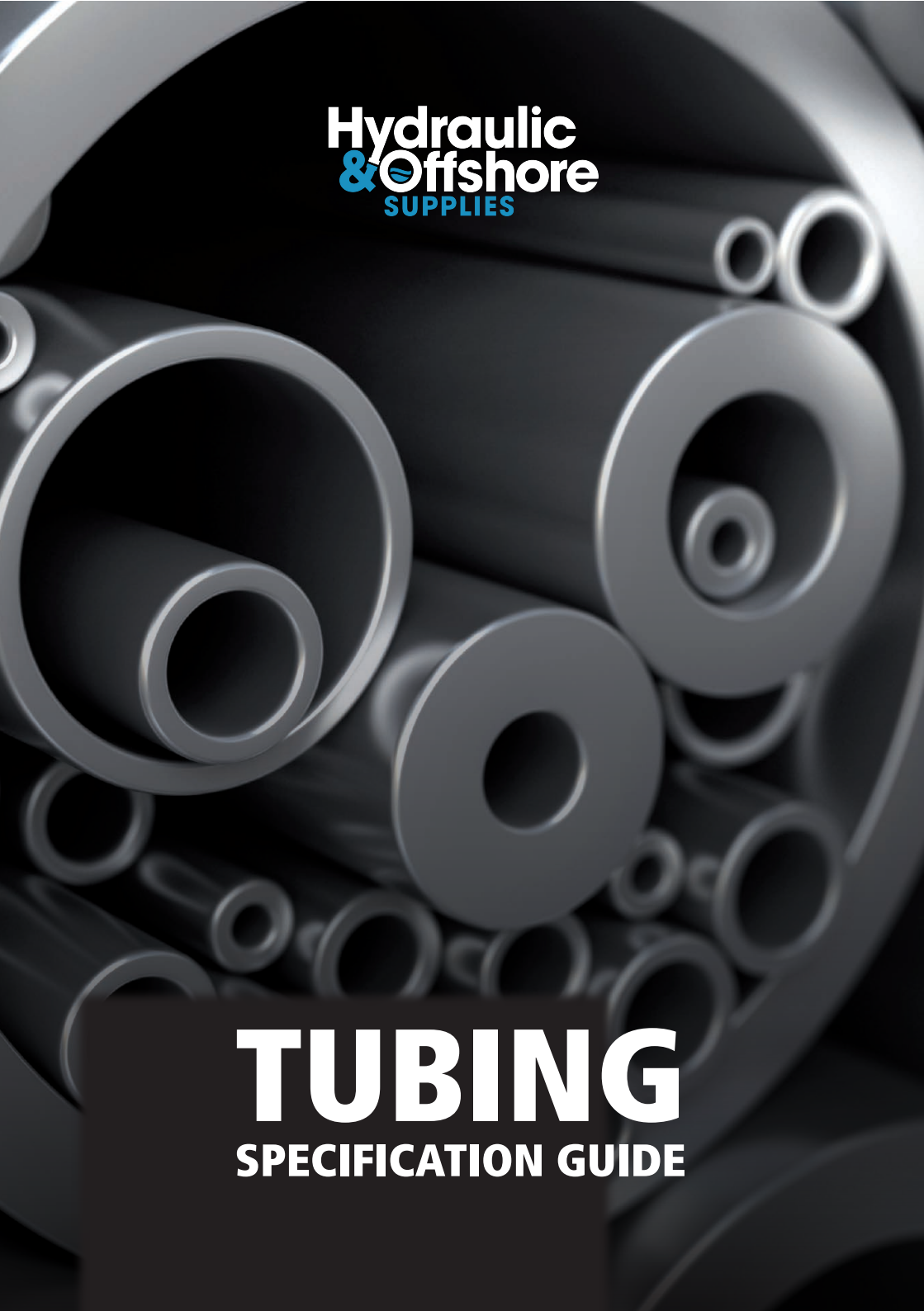
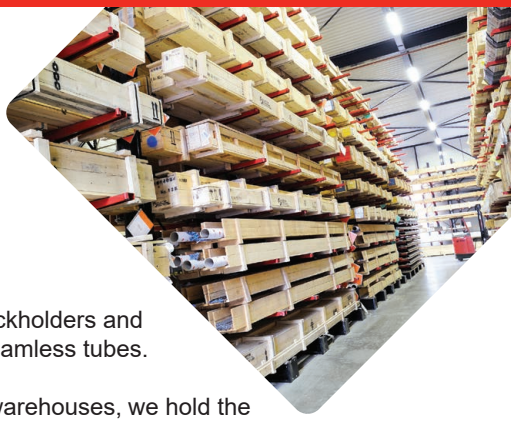

Hydraulic
&Offshore
SUPPLIES
TUBING
SPECIFICATION GUIDE

Hydraulic & Offshore SUPPLIES



Hydraulic & Offshore Supplies are leading stockholders and distributors of Stainless Steel and Nickel Alloy seamless tubes.

Combined with our Dutch, German and French warehouses, we hold the largest stocks in Europe.

Our tubes are sourced in large quantities direct from mills worldwide, which are selected for their quality, value and reliability.

This enables us to share our high standards with you and your customer.

We are now well established in our new larger UK premises, increasing our warehouse capacity, providing a wider stock range of Stainless Steel and Nickel Alloy tubes so we can offer you:

- **Quality Products at very competitive prices.**
- **A Professional and Friendly Customer Experience.**
- **Guaranteed same day dispatch on all our stock items.**
- **Complete project packages.**

ALLOYS FROM STOCK

Hydraulic & Offshore Supplies offers a comprehensive list of tubing from stock in the following alloys:

Stainless Steel	Pages	Nickel alloys	Page	Duplex & Titanium	Page
316/316L	4-7	400	16-17	Super Duplex 32750	24-25
316Ti	8-9	625	18-19	Titanium Grade 2	26-27
317L	10-11	825	20-21		
6Mo/254SMO to Norsok	12-13	C276	22-23		
904L	14-15				

Main industry applications:

- **Oil & Gas**
- **Petrochemical & Oil Refining**
- **Process**
- **Instrument & Medical**
- **Shipbuilding**
- **Pharmaceutical & Biotechnology**
- **Electric Power Generation**
- **General Commerce**

STAINLESS STEEL

316/316L (STRAIGHT LENGTHS & COILS)

Wst. 1.4401 / 1.4404
UNS S31600 / UNS S31603

Specification: ASTM A 269/A 213/ASME SA 213 AW/EN 10216-5 tab.1
EN 10305/ISO 15156-3/EN ISO 1127 D4/T3 – D3/T3
NACE MR0175/PED 97/23 EC

Maximum service temperature: 430°C / 800°F

Alloy 316/316L is the most used austenitic Stainless Steel in the chemical process industry, including steel tubing. The higher nickel and molybdenum content in this grade allows it to demonstrate better overall corrosion resistant properties than alloy 304/304L, especially regarding pitting and crevice corrosion in chloride environments. The steel also offers higher creep, stress rupture and tensile strength in elevated temperature. Alloy 316L is an extra-lower carbon version of alloy 316 that eliminates harmful carbide precipitation due to welding. Generally, all Merinox tubing is dual-certified to meet both 316 and 316L.

316/316L Characteristics:

- Higher creep resistance
- Excellent formability and weld ability
- Rapture and tensile strength at high temperatures
- Corrosion and pitting resistance
- Exceptional resistance in acid and hard water areas

Market applications:

- Chemical & pharmaceutical
- Oil & gas refining
- Instrument construction and engineering products
- Shipbuilding, hydraulics construction, and engineering products
- Paper industry digesters, evaporators & handling equipment
- Surgical and medical tools

STAINLESS STEEL

316/316L (STRAIGHT LENGTHS & COILS)

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	SI	P	C	S
316	min	Bal.	16	11	2	–	–	–	–	–
	max	–	18	14	3	2	0.75	0.04	0.08	0.03
316L	min	Bal.	16	10	2	–	–	–	–	–
	max	–	18	15	3	2	0.075	0.04	0.035	0.03

MECHANICAL PROPERTIES	316	316L
Tensile Strength [mpa, min]	510-710	460-690
Yield Strength [0.2% offset mpa, min]	205	190
Elongation [%, min]	40	40
Density / Weight [g / cm3 / kg]	8.0	8.0

STAINLESS STEEL

316/316L (STRAIGHT LENGTHS & COILS)

DIMENSIONS AVAILABLE FROM STOCK - 316/316L STRAIGHT LENGTHS

METRIC			
Size	Weight (KG p/m)	Size	Weight (KG p/m)
2mm x 0.5mm	0.019	16mm x 1mm	0.376
3mm x 0.5mm	0.031	16mm x 1.5mm	0.545
3mm x 1mm	0.050	16mm x 2mm	0.701
4mm x 0.5mm	0.044	16mm x 2.5mm	0.845
4mm x 1mm	0.075	18mm x 1mm	0.426
5mm 0.5mm	0.056	18mm x 1.5mm	0.620
5mm x 1mm	0.100	18mm x 2mm	0.801
6mm x 0.5mm	0.069	20mm x 1mm	0.475
6mm x 1mm	0.125	20mm x 1.5mm	0.695
6mm x 1.5mm	0.169	20mm x 2mm	0.901
6mm x 2mm	0.200	20mm x 2.5mm	1.096
7mm x 1mm	0.150	20mm x 3mm	1.277
8mm x 0.5mm	0.094	22mm x 1.5mm	0.770
8mm x 1mm	0.175	22mm x 2mm	1.002
8mm x 1.5mm	0.244	25mm x 1.5mm	0.883
8mm x 2mm	0.300	25mm x 2mm	1.152
9mm x 1mm	0.200	25mm x 2.5mm	1.409
10mm x 0.5mm	0.119	25mm x 3mm	1.653
10mm x 1mm	0.225	25mm x 4mm	2.103
10mm x 1.5mm	0.319	28mm x 1.5mm	0.995
10mm x 2mm	0.401	28mm x 2mm	1.302
11mm x 1mm	0.250	28mm x 2.5mm	1.596
11mm x 2mm	0.451	30mm x 2mm	1.402
12mm x 1mm	0.275	30mm x 3mm	2.028
12mm x 1.5mm	0.394	30mm x 4mm	2.604
12mm x 2mm	0.501	35mm x 2mm	1.653
12mm x 2.5mm	0.595	35mm x 3mm	2.404
12mm x 3mm	0.676	38mm x 3mm	2.629
13mm x 1.5mm	0.432	38mm x 4mm	3.405
14mm x 1mm	0.326	38mm x 5mm	4.132
14mm x 1.5mm	0.470	42mm x 2mm	2.003
14mm x 2mm	0.601	42mm x 3mm	2.930
15mm x 1mm	0.351	42mm x 4mm	3.806
15mm x 1.5mm	0.507	50mm x 5mm	5.634
15mm x 2mm	0.651		

IMPERIAL			
Size	Weight (KG p/m)	Size	Weight (KG p/m)
1/16" x 0.014"	0.011	1/2" x 0.109″	0.665
1/16" x 0.020"	0.014	1/2" x 0.125"	0.758
1/8" x 0.020"	0.034	5/8" x 0.036″	0.334
1/8" x 0.028"	0.044	5/8" x 0.049"	0.455
1/8" x 0.036″	0.051	5/8" x 0.065"	0.588
1/8" x 0.049"	0.060	5/8" x 0.083"	0.728
3/16" x 0.020"	0.054	5/8" x 0.125"	1.011
3/16" x 0.028"	0.072	3/4" x 0.036″	0.405
3/16" x 0.036″	0.086	3/4" x 0.049″	0.553
3/16" x 0.049"	0.109	3/4" x 0.065"	0.719
1/4" x 0.028"	0.100	3/4" x 0.083"	0.895
1/4" x 0.036″	0.122	3/4" x 0.095"	0.997
1/4" x 0.049"	0.159	3/4" x 0.109″	1.085
1/4" x 0.065"	0.194	3/4" x 0.125"	1.264
1/4" x 0.083"	0.224	1" x 0.036″	0.546
5/16" x 0.020"	0.095	1" x 0.049"	0.750
5/16" x 0.028"	0.129	1" x 0.065"	0.981
5/16" x 0.036″	0.157	1" x 0.083"	1.231
5/16" x 0.049"	0.208	1" x 0.095"	1.377
5/16" x 0.065"	0.260	1" x 0.109″	1.505
3/8" x 0.036″	0.193	1″ x 0.120″	1.71
3/8" x 0.049"	0.257	1" x 0.125"	1.769
3/8" x 0.065"	0.326	1 1/4" x 0.065"	1.244
3/8" x 0.083"	0.392	1 1/4" x 0.083"	1.566
3/8″ x 0.095″	0.43	1 1/4" x 0.109″	1.924
3/8" x 0.109″	0.457	1 1/4" x 0.125"	2.275
3/8" x 0.125"	0.506	1 1/2" x 0.065"	1.506
1/2" x 0.036″	0.263	1 1/2" x 0.083"	1.902
1/2" x 0.049"	0.356	1 1/2" x 0.109″	2.344
1/2" x 0.065"	0.457	1 1/2" x 0.125"	2.781
1/2″ x 0.083″	0.560		

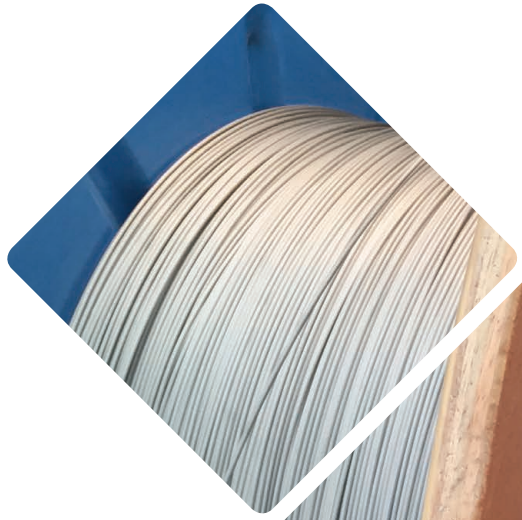
STAINLESS STEEL

316/316L (STRAIGHT LENGTHS & COILS)

DIMENSIONS AVAILABLE FROM STOCK - 316/316L COILS

METRIC
3mm x 0.5mm
3mm x 1mm
4mm x 1mm
5mm x 0.5mm
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm

IMPERIAL
1/32" x 0.2mm ID
1/32" x 0.4mm ID
1/32" x 0.5mm ID
1/16" x 0.295mm
1/8" od x 0.020"
1/8" od x 0.028"
1/8" od x 0.036″
1/4" od x 0.036″
1/4" od x 0.049"
1/4" od x 0.065"
3/8" od x 0.036″
3/8" od x 0.049"
3/8" od x 0.065"
1/2" od x 0.036″
1/2" od x 0.049"
1/2" od x 0.065"
1/2" od x 0.083"
3/4" od x 0.065"



STAINLESS STEEL
316Ti

Wst. 1.4571
UNS S31635

Specification: EN 10216-5/EN10305/TSI 15156-3/EN ISO 1127 D4/T3 – D3/T3
NACE MR0175/PED 97/23 EC

Maximum service temperature: 500°C / 930°F

316Ti is a titanium-stabilised version of 316L molybdenum-bearing austenitic stainless steel. This results in a better high temperature strength and mechanical strength, but equivalent corrosion resistance to sensitisation. It is not typically a free machining grade and, therefore, not recommended for difficult high-speed machining processing. Sensitisation resistance is achieved with the addition of titanium to stabilize the structure of 316Ti against chromium carbide precipitation, which is the source of the sensitisation.

Characteristics:

- Good corrosion and pitting resistance
- Good resistance at higher temperature
- Good impact strength on cryogenic temperatures down to minimal -200°C /-325°F
- High creep, stress-rupture and tensile strength at elevated temperature

Market Applications:

- Chemical & petrochemical equipment
- Pharmaceutical
- Food & Beverage
- Brewery
- Shipbuilding
- Heat exchangers

STAINLESS STEEL
316Ti

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MN	SI	P	C	S
316Ti	min	Bal.	16.0	10.0	2.0	–	–	–	–
	max	–	18.0	14.0	3.0	0.75	0.450	0.080	0.030

MECHANICAL PROPERTIES	316Ti
Tensile Stength [mpa, min]	500-730
Yield Strength [0.2% offset mpa, min]	210
Elongation [%, min]	35
Density / Weight [g / cm3 / kg]	8.0

DIMENSIONS AVAILABLE FROM STOCK

METRIC ONLY			
4mm x 0.5mm	11mm x 1mm	16mm x 3mm	25mm x 3mm
4mm x 1mm	11mm x 2mm	18mm x 1mm	25mm x 4mm
5mm x 0.5mm	12mm x 1mm	18mm x 1.5mm	28mm x 1.5mm
5mm x 1mm	12mm x 1.5mm	18mm x 2mm	28mm x 2mm
6mm x 0.5mm	12mm x 2mm	18mm x 2.5mm	28mm x 2.5mm
6mm x 1mm	12mm x 2.5mm	18mm x 3mm	28mm x 3mm
6mm x 1.5mm	12mm x 3mm	20mm x 1.5mm	30mm x 2mm
6mm x 2mm	14mm x 1mm	20mm x 2mm	30mm x 3mm
8mm x 0.5mm	14mm x 1.5mm	20mm x 2.5mm	30mm x 4mm
8mm x 1mm	14mm x 2mm	20mm x 3mm	35mm x 2mm
8mm x 1.5mm	15mm x 1mm	22mm x 1.5mm	35mm x 3mm
8mm x 2mm	15mm x 1.5mm	22mm x 2mm	38mm x 2mm
9mm x 1mm	15mm x 2mm	22mm x 2.5mm	38mm x 3mm
10mm x 1mm	16mm x 1mm	22mm x 3mm	38mm x 4mm
10mm x 1.5mm	16mm x 1.5mm	25mm x 1.5mm	38mm x 5mm
10mm x 2mm	16mm x 2mm	25mm x 2mm	42mm x 2mm
10mm x 2.5mm	16mm x 2.5mm	25mm x 2.5mm	42mm x 3mm

STAINLESS STEEL
317L

Wst. 1.4438
UNS S31703

Specification: ASTM A 213/ASME SA 213
EN 10216-5/EN 10305/ISO 15156-3
NACE MR0175/PED 97/23 EC

Maximum service temperature: 430°C / 800°F

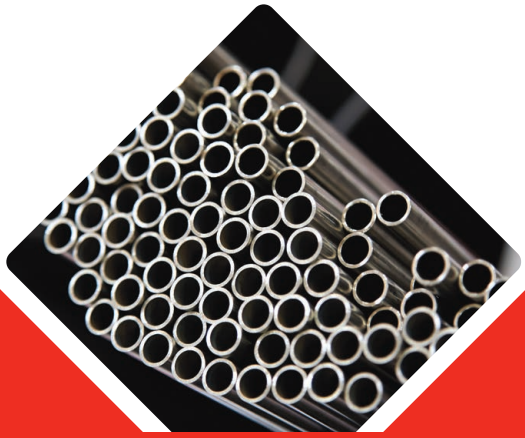
Alloy 317L is a molybdenum-bearing austenitic stainless steel, with greatly increased resistance to chemical attack compared to the conventional chromium-nickel austenitic steel tubes as 304L & 316L. The addition of molybdenum gives alloy 317L tubing improved resistance to chloride and other halides. Due to its low carbon content, 317L tubing can be welded without risk of sanitisation due to inter granular corrosion that can result from chromium carbide precipitation in the grain boundaries. 317L is non-magnetic in the annealed condition, but can become slightly magnetic because of welding.

Characteristics alloy 317L:

- Resistance to sensitisation during welding
- Higher creeps, stress-to-rapture and tensile strength at elevated temperatures
- Corrosion and pitting resistance
- Resistance in acidic and hard water areas

Market applications:

- Offshore, oil & gas
- Chemical
- Hydraulic
- Shipbuilding
- Refining
- Pulp and paper



STAINLESS STEEL
317L

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	SI	P	C	S
317L	min	Bal.	18	11	3	–	–	–	–	–
	max	–	20	15	4	2	1	0.04	0.035	0.03

MECHANICAL PROPERTIES	317L
Tensile Strength [mpa, min]	515-750
Yield Strength [0.2% offset mpa, min]	205
Elongation [%, min]	35
Density / Weight [g / cm3 / kg]	7.9

DIMENSIONS AVAILABLE FROM STOCK

METRIC
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
12mm x 2mm
15mm x 1.5mm
16mm x 1.5mm
18mm x 1.5mm
18mm x 2mm
20mm x 2mm
22mm x 2mm

IMPERIAL
1/4" x 0.036"
1/4" x 0.049"
1/4" x 0.065"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
1/2" x 0.083"
5/8" x 0.065"
3/4" x 0.049"
3/4" x 0.065"
3/4" x 0.083"
3/4" x 0.109"
1" x 0.065"
1" x 0.083"
1" x 0.109"

STAINLESS STEEL

6MO/254SMO TO NORSOK

Wst. 1.4529 / 1.4547
UNS N08367 / S31254

Specification: ASTM A 269/A 213/A 1016, NACE MR0175, PED 97/23 EC
EN 10216-5 / NORSOK M-650 MDS R18

Maximum exposure temperature: 400°C / 848°F

6Mo/254SMO is a super-austenitic stainless steel with a minimum of 6% of molybdenum and a high level of nitrogen, providing high resistance to pitting and crevice corrosion, combined with high strength, compared with other austenitic stainless steels such as 316L, 317L and 904L. These alloys were developed for use in halide-containing environments such as brackish water, seawater, hydrochloric acid and sculpture acid. The increased levels of molybdenum combined with chromium and nitrogen provide levels of pitting and crevice corrosion resistance more typically associated with a higher alloy such as 625 (UNS NO6625).

Characteristics:

- High resistance to general corrosion
- Excellent resistance to stress corrosion crashing
- Better strength than conventional austenitic stainless steels
- Good weldability

Market Applications:

- Offshore, oil & gas
- Chemical processes
- Seawater systems
- Control and instrumentation
- Desalination plant equipment
- Pulp and paper processing

STAINLESS STEEL

6MO/254SMO TO NORSOK

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	CU	SI	P	N	C	S
254SMO	min	Bal.	19.5	17.5	6	–	0.5	–	–	0.18	–	–
	max	–	20.5	18.5	6.5	1	1	0.80	0.03	0.25	0.03	0.01
6MO	min	Bal.	20	23.5	6	–	–	–	–	0.18	–	–
	max	–	22	25.5	7	–	0.75	1	0.04	0.25	0.04	0.03

MECHANICAL PROPERTIES	254SMO	6MO
Tensile Strength [mpa, min]	650-850	675-875
Yield Strength [0.2% offset mpa, min]	300-340	310-350
Elongation [%, min]	35	30
Density / Weight [g / cm3 / kg]	8.05	8.05

DIMENSIONS AVAILABLE FROM STOCK

METRIC	
3mm x 1mm	16mm x 2mm
6mm x 1mm	18mm x 1.5mm
6mm x 1.5mm	18mm x 2mm
8mm x 1mm	20mm x 1.5mm
8mm x 1.5mm	20mm x 2mm
8mm x 2mm	20mm x 2.5mm
10mm x 1mm	22mm x 2mm
10mm x 1.5mm	25mm x 2mm
10mm x 2mm	25mm x 2.2mm
12mm x 1mm	25mm x 2.5mm
12mm x 1.5mm	25mm x 3mm
12mm x 1.8mm	30mm x 3mm
12mm x 2mm	38mm x 3mm
15mm x 1.5mm	38mm x 4mm
16mm x 1.5mm	

IMPERIAL	
1/8" x 22swg	1/2" x 0.083"
1/4" x 0.036"	3/4" x 0.049"
1/4" x 0.049"	3/4" x 0.065"
1/4" x 0.065"	3/4" x 0.083"
3/8" x 0.036"	3/4" x 0.109"
3/8" x 0.049"	1" x 0.049"
3/8" x 0.065"	1" x 0.065"
3/8" x 0.083"	1" x 0.083"
1/2" x 0.036"	1" x 0.095"
1/2" x 0.049"	1" x 0.109"
1/2" x 0.065"	

STAINLESS STEEL
904L

Wst. 1.4539
UNS N08904

Specification: ASTM A 269/A 213/A 1016
ASME SB-677/NACE MR0175/PED 97/23 EC

Maximum service temperature: 450°C / 824°F

Alloy 904L is a low-carbon, high-alloy austenitic stainless steel, with a chromium, nickel, molybdenum and copper content, widely used in applications where the corrosion properties of alloy 316L and alloy 317L are inadequate. Although originally developed for greatly improved resistance to strong reducing acids, particularly sulphuric acid, the steel also has a very high resistance to a wide range of environments. This feature has proved to be very successful after many years of practical applications, which has resulted in alloy 904L being standardised in many countries.

Characteristics of alloy 904L:

- The high Mo and the addition of copper to this grade gives it greatly-improved resistance to strong reducing acids, particularly aspheric acid
- The steel is highly resistant to chloride attack, both pitting crevice corrosion and stress corrosion crashing
- Good machine ability and weld ability
- The austenitic structure of alloy 904L also gives this grade excellent toughness, even down to cryogenic temperatures

Market applications:

- Offshore, oil & gas
- Chemical processes
- Seawater cooling equipment
- Control and instrumentation
- Pharmaceutical
- Pulp and paper processing

STAINLESS STEEL
904L

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	CU	SI	P	N	C	S
904L	min	Bal.	19	23	4	–	1	0.045	–	–	–	–
	max	–	23	28	5	2	2	1	0.045	0.1	0.02	0.015

MECHANICAL PROPERTIES	904L
Tensile Strength [mpa, min]	490-700
Yield Strength [0.2% offset mpa, min]	220
Elongation [%, min]	35
Density / Weight [g / cm3 / kg]	8.05

DIMENSIONS AVAILABLE FROM STOCK

METRIC	
6mm x 1mm	12mm x 1mm
6mm x 1.5mm	12mm x 1.5mm
8mm x 1mm	12mm x 2mm
8mm x 1.5mm	18mm x 1.5mm
10mm x 1mm	20mm x 2mm
10mm x 1.5mm	20mm x 2.5mm
10mm x 2mm	25mm x 2mm

IMPERIAL	
1/4" x 0.036"	1/2" x 0.083"
1/4" x 0.049"	3/4" x 0.049"
1/4" x 0.065"	3/4" x 0.065"
3/8" x 0.036"	3/4" x 0.083"
3/8" x 0.049"	3/4" x 0.095"
3/8" x 0.065"	3/4" x 0.109"
3/8" x 0.083"	1" x 0.065"
1/2" x 0.036"	1" x 0.083"
1/2" x 0.049"	1" x 0.116" / 0.120"
1/2" x 0.065"	

NICKEL ALLOYS

400

Wst. 2.4360
UNS N04400

Specification: ASTM B 163/ASME SB 163
ASTM B 165/ASME SB 165
EN 10216-5/EN ISO 1127
NACE MR0175/PED 97/23 EC

Maximum expose temperature: 425°C / 772°F

Alloy 400 is a copper-nickel alloy (approx. 67% Ni – 23% Cu) that is resistant to seawater and steam at high temperatures as well as to salt and caustic solutions. It is a solid-solution alloy that can be hardened only by cold working. It's widely used in marine applications and other nox-oxidising chloride solutions. This nickel alloy is particularly resistant to hydrochloric and hydrofluoric acids when they are de-aerated. As would be expected from its high copper content, alloy 400 is rapidly attacked by nitric acid and ammonia systems.

Characteristics:

- Resistance to seawater and steam at high temperatures
- Excellent resistance to many corrosive environments
- High strength and toughness over a wide temperature range
- Particularly resistant to stress corrosion cracking
- High resistance to alkalis and alkaline salt

Market Applications:

- Marine engineering
- Chemical and hydrocarbon processing equipment
- Steam generators
- Heat exchanges
- Control lines

NICKEL ALLOYS

400

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	NI	MN	CU	SI	C	S
400	min	–	63	–	28	–	–	–
	max	2.5	70	2	40	0.5	0.3	0.024

MECHANICAL PROPERTIES	400
Tensile Strength [mpa, min]	480
Yield Strength [0.2% offset mpa, min]	195
Elongation [%, min]	40
Density / Weight [g / cm3 / kg]	8.83

DIMENSIONS AVAILABLE FROM STOCK

METRIC
3mm x 1mm
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
12mm x 2mm

IMPERIAL
1/16" x 0.014"
1/8" x 0.028"
1/4" x 0.036"
1/4" x 0.049"
1/4" x 0.065"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
1/2" x 0.083"
3/4" x 0.065"
3/4" x 0.083"
1" x 0.083"

NICKEL ALLOYS

625

Wst. 2.4856
UNS N06625

Specification: ASTM B 444
EN 10216-5/EN ISO 1127
NACE MR0175

Maximum expose temperature: 980°C /1800°F

Alloy 625 is a nickel-chromium-molybdenum alloy with an addition of niobium used for its high strength, excellent fabric ability and outstanding corrosion resistance. The addition of molybdenum acts with the niobium to stiffen the alloy matrix, providing a high strength without a strengthening heat-treatment. This combination of chemical elements is also responsible for superior resistance to a wide range of corrosive environments of unusual severity as well as to high-temperature effects such as oxidation and carburisation.

Characteristics:

- Excellent strengths and stress-corrosion cracking resistance to chloride ions
- Seawater pitting and crevice corrosion resistant
- High creep-rupture strength
- High temperature resistance up to 980°C/1800°F
- Non magnetic

Market Applications:

- Control and instrumentation tubes
- Chemical processing
- Oil refineries
- Oil & gas
- Aircraft and aerospace
- Seawater equipment

NICKEL ALLOYS

625

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	SI	P	C	S	TI	NB	AL
625	min	–	20	58	8	–	–	–	–	–	–	3.15	–
	max	5	–	–	10	0.5	0.5	0.015	0.1	0.015	0.4	4.15	0.4

MECHANICAL PROPERTIES	625
Tensile Strength [mpa, min]	827
Yield Strength [0.2% offset mpa, min]	414
Elongation [%, min]	30
Density / Weight [g / cm3 / kg]	8.44

DIMENSIONS AVAILABLE FROM STOCK

METRIC
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
15mm x 1.5mm
16mm x 1.8mm

IMPERIAL
1/4" x 0.036"
1/4" x 0.049"
1/4" x 0.065"
1/4" x 0.083"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
3/8" x 0.083"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
1/2" x 0.083"
5/8" x 0.083"
3/4" x 0.065"
1" x 0.083"

NICKEL ALLOYS

825

Wst. 2.4858
UNS N08825

Specification: ASTM B 163/ ASTM B 423/ASTM B 829
NACE MR0175/ISO 15156-3

Maximum service temperature: 550°C / 1020°F

Alloy 825 is an austenitic nickel-iron-chromium alloy with additions of copper, molybdenum and titanium. The alloy chemical composition is designed to provide exceptional corrosion resistance in both oxidising and reducing environments. The nickel content is sufficient for resistance to chloride-ion stress corrosion cracking and the molybdenum also aids resistance to pitting and crevice corrosion. The addition of titanium stabilises the alloy 825 against sensitisation and inter granular corrosion. The resistance of alloy 825 to general and localised corrosion under diverse conditions gives the alloy a broad range of usability.

Characteristics

- Exceptional resistance to many corrosive environments
- Very good resistance to sulphuric and phosphoric acids
- Good mechanical properties from moderately to high temperatures
- Good formability and weld ability
- Good resistance to stress-corrosion, cracking and pitting

Market Applications:

- Chemical process equipment
- Oil and Gas well tubing
- Chemical infection lines
- Acid production
- Down hole control lines

NICKEL ALLOYS

825

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	CU	SI	P	C	S	TI	AL
825	min	22	19.5	38	2.5	–	1.5	–	–	–	–	0.6	–
	max	–	23.5	46	3.5	1	3	0.5	0.030	0.05	0.03	1.2	0.2

MECHANICAL PROPERTIES	825
Tensile Strength [mpa, min]	590
Yield Strength [0.2% offset mpa, min]	240
Elongation [%, min]	30
Density / Weight [g / cm3 / kg]	8.14

DIMENSIONS AVAILABLE FROM STOCK

METRIC
3mm x 1mm
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
12mm x 2mm
16mm x 2mm
20mm x 2mm
20mm x 2.5mm
25mm x 2.5mm

IMPERIAL
1/8" x 0.028"
1/4" x 0.036"
1/4" x 0.049"
1/4" x 0.065"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
3/8" x 0.083"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
1/2" x 0.083"
5/8" x 0.083"
3/4" x 0.049"
3/4" x 0.065"
3/4" x 0.083"
3/4" x 0.109"
1" x 0.065"
1" x 0.083"
1" x 0.095"
1" x 0.104"

NICKEL ALLOYS

C276

Wst. 2.4819
UNS N10276

Specification: ASTM B 622/ASTM B 626/ASME SB-622/ASME SB-626
NACE MR0175/ PED 97/23 EC

Maximum service temperature: 1038°C / 1900°F

Alloy C276 is a nickel-molybdenum-chromium super alloy with a small amount of tungsten, designed to have excellent corrosion resistance in a wide range of severe environments. These contents make the nickel alloy C276 especially resistant to pitting and crevice corrosion in reducing environments, while chromium conveys resistance to oxidising media. The low carbon content minimises carbide precipitation during welding to maintain corrosion resistance in welded structures.

Characteristics:

- Corrosion/oxidation resistance thanks to the chromium content
- Excellent formability
- High strength with low weight
- Good impact strength on cryogenic temperatures down to min. 200°C/-325°F
- Ease of cleaning and beauty of appearance

Market Applications:

- Petrochemical
- Pharmaceutical
- (Nuclear) power plants
- Food and leverage
- Pulp and paper

NICKEL ALLOYS

C276

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	CU	SI	P	C	S	V
C276	min	4	14.5	Bal.	15	–	3	–	–	–	–	–
	max	7	16.5	–	17	2.5	4.5	0.8	0.3	0.02	0.35	1

MECHANICAL PROPERTIES	C276
Tensile Strength [mpa, min]	690
Yield Strength [0.2% offset mpa, min]	290
Elongation [%, min]	40
Density / Weight [g / cm3 / kg]	8.88

DIMENSIONS AVAILABLE FROM STOCK

METRIC
3mm x 1mm
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
12mm x 2mm
15mm x 1mm
15mm x 1.5mm

IMPERIAL
1/16" x 0.014"
1/16" x 0.020
1/8" x 0.020"
1/8" x 0.028"
1/4" x 0.036"
1/4" x 0.049"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
1/2" x 0.083"
3/4" x 0.065"
1" x 0.083"

DUPLEX & TITANIUM

SUPER DUPLEX 32750

Wst. 1.4410/1.4501
UNS 32750

Specification: ASTM A 789/ASME SA 789/EN ISO 1127 D4/T3
EN 10216-5/NACE MR0175/PED 97/23 EC

Maximum service temperature: 300°C / 572°F

Super Duplex is a material that consists of an equal amount of austenitic and ferrite elements. They are characterised by high Chromium and Molybdenum. These combine excellent corrosion resistance with high strength. Mechanical properties are approximately double those of singular austenitic steel and resistance to crevice corrosion and stress corrosion cracking is superior compared to the alloys 316L, 317L or duplex 2205 in chloride solutions. Also, in ambient and sub-zero temperatures (down to minus 50°C), notch ductility is good.

Characteristics:

- High resistance to chloride pitting and crevice corrosion
- Very high mechanical and physical properties
- Good weldability and workability
- Low rate of thermal expansions
- Good general corrosion resistance

Market Applications:

- Chemical and Petrochemical industry
- Offshore Oil and Gas industry
- Subsea centralises
- Stream vessels
- Heat exchanges

DUPLEX & TITANIUM

SUPER DUPLEX 32750

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	CR	NI	MO	MN	SI	N	C
32750	min	Bal.	24	6	3	1.2	0.8	0.24	0.030
	max	–	26	8	5	1.2	0.8	0.32	0.030

MECHANICAL PROPERTIES	32750
Tensile Strength [mpa, min]	800
Yield Strength [0.2% offset mpa, min]	550
Elongation [%, min]	25
Density / Weight [g / cm3 / kg]	7.9

DIMENSIONS AVAILABLE FROM STOCK

METRIC	
6mm x 1mm	12mm x 1.5mm
8mm x 1mm	16mm x 2mm
10mm x 1mm	18mm x 2mm
10mm x 1.5mm	20mm x 2mm
12mm x 1mm	25mm x 2mm

IMPERIAL	
1/4" x 0.036"	1/2" x 0.065"
1/4" x 0.049"	1/2" x 0.083"
1/4" x 0.065"	5/8" x 0.083"
3/8" x 0.036"	3/4" x 0.049"
3/8" x 0.049"	3/4" x 0.065"
3/8" x 0.065"	3/4" x 0.083"
3/8" x 0.083"	3/4" x 0.095"
1/2" x 0.036"	1" x 0.083"
1/2" x 0.049"	1" x 0.109"

DUPLEX & TITANIUM

TITANIUM GRADE 2

Wst. 3.7035
UNS R50400

Specification: ASTM B 337/ASME SB 337
ASTM B 338/ASME SB 338
EN ISO 1127/EN 10305/PED 97/23 EC

Maximum service temperature: 430°C / 800°F

Titanium Grade 2 is a commercially-pure Titanium, and the most commonly used type of titanium for industrial applications. The alloy is used primarily for its corrosion resistance to pitting, crevice and cavitation corrosion, erosion and stress corrosion cracking in salt water, and a broad range of acids, alkalis and industrial chemicals. Titanium is a low-density material with a high strength to weight ratio.

Characteristics

- Excellent resistant to oxidising or mildly-reducing media
- Good impact properties at low temperatures
- Very good resistance to corrosion and erosion by seawater and marine atmospheres
- Good ductility and formability
- Easy weldability

Market Applications:

- Petrochemical
- Aerospace
- Medical equipment
- Oil and Gas
- Seawater equipment

TITANIUM GRADE 2

TECHNICAL DETAILS

TECHNICAL COMPOSITION [%]		FE	N	CI	TI	O	H
Grade II	min	–	–	–	99.2	–	–
	max	0.3	0.03	0.1	–	0.25	0.015

MECHANICAL PROPERTIES	GRADE II
Tensile Strength [mpa, min]	485
Yield Strength [0.2% offset mpa, min]	345
Elongation [%, min]	28
Density / Weight [g / cm3 / kg]	4.51

DIMENSIONS AVAILABLE FROM STOCK

METRIC
6mm x 1mm
8mm x 1mm
10mm x 1mm
10mm x 1.5mm
12mm x 1mm
12mm x 1.5mm
18mm x 1.5mm

IMPERIAL
1/4" x 0.036"
1/4" x 0.049"
1/4" x 0.065"
3/8" x 0.036"
3/8" x 0.049"
3/8" x 0.065"
1/2" x 0.036"
1/2" x 0.049"
1/2" x 0.065"
3/4" x 0.065"
1" x 0.083"

SIZE GRID

*1 - Weight based on quality 316L. *2 - Working pressure based on quality 316L by temperature 20 °C.

O.D. mm	WALL mm	inch dimensions	+/- kg p/m *1	work. Pr pres./ in bar *2	QUALITIES AVAILABLE											
					316/ 316L	316L COILED	S.D 32750	317L	904	6Mo 254SMO	316Ti	400	Hast. C276	625	825	Tit'n Gr. 2
					1.4404	1.4404	1.4410	1.4438	1.4539	1.4547	1.4571	2.436	2.4819	2.4856	2.4858	3.7035
1.58	0.36	1/16" x 0.014"	0.011	581	x							x	x			
3.00	0.500		0.031	428	x	x										
3.00	1.000		0.050	856	x	x				x		x	x		x	
3.18	0.510	1/8" x 0.020"	0.034	412	x	x							x			
3.18	0.710	1/8" x 0.028"	0.440	573	x	x				x		x	x		x	
3.18	0.890	1/8" x 0.036"	0.051	718	x	x										
3.18	1.240	1/8" x 0.048"	0.060	1001	x											
4.00	0.500		0.044	321	x											
4.00	1.000		0.075	642	x	x										
4.76	0.510	3/16" x 0.020"	0.054	275	x											
4.76	0.710	3/16" x 0.028"	0.072	383	x											
4.76	0.890	3/16" x 0.035"	0.086	480	x											
4.76	1.240	3/16" x 0.048"	0.109	669	x											
4.76	1.650	3/16" x 0.065"	0.128	890	x											
5.00	0.500		0.056	257	x	x										
5.00	1.000		0.100	513	x											
6.00	0.500		0.069	214	x											
6.00	1.000		0.125	428	x	x	x	x	x	x	x	x	x	x	x	x
6.00	1.500		0.169	642	x	x			x	x	x					
6.00	2.000		0.200	856	x						x					
6.35	0.710	1/4" x 0.028"	0.100	287	x											
6.35	0.890	1/4" x 0.036"	0.122	360	x	x	x	x	x	x		x	x	x	x	x
6.35	1.240	1/4" x 0.048"	0.159	501	x	x	x	x	x	x		x	x	x	x	x
6.35	1.650	1/4" x 0.065"	0.194	667	x	x	x	x	x	x		x		x	x	x
6.35	2.110	1/4" x 0.083"	0.224	853	x									x		
7.00	0.500		0.081	183	x											
7.00	1.000		0.150	367	x											
7.94	0.710	5/16" x 0.028"	0.129	230	x											
7.94	0.890	5/16" x 0.036"	0.157	288	x											
7.94	1.240	5/16" x 0.049"	0.208	401	x											
7.94	1.650	5/16" x 0.065"	0.260	533	x											
7.94	2.110	5/16" x 0.083"	0.308	682	x											

Other sizes and grades available on request

*1 - Weight based on quality 316L. *2 - Working pressure based on quality 316L by temperature 20 °C.

O.D. mm	WALL mm	inch dimensions	+/- kg p/m *1	work. Pr pres./ in bar *2	QUALITIES AVAILABLE											
					316/ 316L	316L COILED	S.D 32750	317L	904	6Mo 254SMO	316Ti	400	Hast. C276	625	825	Tit'n Gr. 2
					1.4404	1.4404	1.4410	1.4438	1.4539	1.4547	1.4571	2.436	2.4819	2.4856	2.4858	3.7035
8.00	0.500		0.094	160	x											
8.00	1.000		0.175	321	x	x	x	x	x	x	x	x	x	x	x	x
8.00	1.500		0.244	481	x	x			x	x	x					
8.00	2.000		0.300	642	x					x	x					
9.00	1.000		0.200	285	x											
9.00	1.500		0.282	428	x											
9.53	0.710	3/8" x 0.028"	0.157	191	x											
9.53	0.890	3/8" x 0.036"	0.193	240	x	x	x	x	x	x		x	x	x	x	x
9.53	1.240	3/8" x 0.049"	0.257	334	x	x	x	x	x	x		x	x	x	x	x
9.53	1.650	3/8" x 0.065"	0.326	444	x	x	x	x	x	x		x	x	x	x	x
9.53	2.110	3/8" x 0.083"	0.392	568	x		x		x	x				x	x	
9.53	2.41	3/8" x 0.095"	0.43	648	x											
9.53	2.650	3/8" x 0.104"	0.457	714	x											
9.53	3.180	3/8" x 0.125"	0.506	856	x											
10.00	0.500		0.119	128	x											
10.00	1.000		0.225	257	x	x	x	x	x	x	x	x	x	x	x	x
10.00	1.500		0.319	385	x	x	x	x	x	x	x	x	x	x	x	x
10.00	2.000		0.401	513	x				x	x	x					
10.00	2.500		0.470	642	x						x					
11.00	1.000		0.250	233	x											
11.00	2.000		0.451	467	x											
12.00	0.500		0.144	107	x											
12.00	1.000		0.275	214	x	x	x	x	x	x	x	x	x	x	x	x
12.00	1.500		0.394	321	x	x	x	x	x	x	x	x	x	x	x	x
12.00	1.800		0.460	350						x						
12.00	2.000		0.501	428	x	x		x	x	x	x	x			x	
12.00	2.500		0.595	535	x											
12.00	3.000		0.676	642	x						x					
12.70	0.890	1/2" x 0.036"	0.263	180	x	x	x	x	x	x		x	x	x	x	x
12.70	1.240	1/2" x 0.048"	0.356	251	x	x	x	x	x	x		x	x	x	x	x
12.70	1.650	1/2" x 0.065"	0.457	333	x	x	x	x	x	x		x	x	x	x	x
12.70	2.110	1/2" x 0.083"	0.560	426	x	x	x	x	x	x		x	x	x	x	

Other sizes and grades available on request

SIZE GRID

*1 - Weight based on quality 316L. *2 - Working pressure based on quality 316L by temperature 20 °C.

O.D. mm	WALL mm	inch dimensions	+/- kg p/m *1	work. Pr pres./ in bar *2	QUALITIES AVAILABLE											
					316/ 316L	316L COILED	S.D 32750	317L	904	6Mo 254SMO	316Ti	400	Hast. C276	625	825	Tit'n Gr. 2
					1.4404	1.4404	1.4410	1.4438	1.4539	1.4547	1.4571	2.436	2.4819	2.4856	2.4858	3.7035
12.70	2.640	1/2" x 0.104"	0.665	534	x											
12.70	3.250	1/2" x 0.125"	0.758	643	x											
13.00	1.000		0.300	197	x											
13.00	1.500		0.432	296	x											
14.00	1.000		0.326	183	x											
14.00	1.500		0.470	275	x											
14.00	2.000		0.601	367	x											
15.00	1.000		0.351	171	x						x		x			
15.00	1.500		0.507	257	x			x		x	x		x	x		
15.00	2.000		0.651	342	x											
15.88	0.890	5/8" X 0.035"	0.334	144	x											
15.88	1.240	5/8" X 0.048"	0.455	200	x											
15.88	1.650	5/8" X 0.065"	0.588	267	x			x								
15.88	2.110	5/8" X 0.083"	0.728	341	x		x							x	x	
15.88	2.640	5/8" X 0.104"	0.875	427	x											
15.88	3.180	5/8" X 0.125"	1.011	514	x											
16.00	1.000		0.376	160	x											
16.00	1.500		0.545	241	x			x		x	x					
16.00	2.000		0.701	321	x		x			x	x				x	
16.00	2.500		0.845	401	x											
16.00	3.000		0.977	481	x											
18.00	1.000		0.426	143	x											
18.00	1.500		0.620	214	x	x		x	x	x	x					x
18.00	2.000		0.801	285	x		x	x		x	x					
19.05	0.890	3/4" x 0.035"	0.405	120	x											
19.05	1.240	3/4" x 0.048"	0.553	167	x	x	x	x	x	x					x	
19.05	1.650	3/4" x 0.065"	0.719	222	x	x	x	x	x	x		x	x	x	x	x
19.05	2.110	3/4" x 0.083"	0.895	284	x		x	x	x	x		x			x	
19.05	2.41	3/4" x 0.095"	0.997	320	x		x		x							
19.05	2.640	3/4" x 0.104"	1.085	356	x			x	x	x					x	
19.05	3.180	3/4" x 0.125"	1.264	428	x											
20.00	1.000		0.475	128	x											

Other sizes and grades available on request

*1 - Weight based on quality 316L. *2 - Working pressure based on quality 316L by temperature 20 °C.

O.D. mm	WALL mm	inch dimensions	+/- kg p/m *1	work. Pr pres./ in bar *2	QUALITIES AVAILABLE											
					316/ 316L	316L COILED	S.D 32750	317L	904	6Mo 254SMO	316Ti	400	Hast. C276	625	825	Tit'n Gr. 2
					1.4404	1.4404	1.4410	1.4438	1.4539	1.4547	1.4571	2.436	2.4819	2.4856	2.4858	3.7035
20.00	1.500		0.695	193	x					x						
20.00	2.000		0.901	257	x		x	x	x	x	x				x	
20.00	2.500		1.096	321	x				x	x	x				x	
20.00	3.000		1.277	385	x						x					
20.00	4.000		1.603	513	x						x					
22.00	1.500		0.770	175	x						x					
22.00	2.000		1.002	233	x			x		x	x					
25.00	1.500		0.883	154	x											
25.00	2.000		1.152	205	x		x		x	x	x					
25.00	2.500		1.409	257	x					x	x				x	
25.00	3.000		1.653	308	x					x	x					
25.40	0.890	1" x 0.036"	0.546	90	x											
25.40	1.240	1" x 0.048"	0.750	125	x					x						
25.40	1.650	1" x 0.065"	0.981	167	x			x	x	x					x	
25.40	2.110	1" x 0.083"	1.231	218	x		x	x	x	x		x	x	x	x	x
25.40	2.41	1" x 0.095"	1.377	240	x					x					x	
25.40	2.640	1" x 0.104"	1.505	267	x		x	x		x					x	
25.40	3.048	1" x 0.120"	1.71	295	x											
25.40	3.180	1" x 0.125"	1.796	321	x											
28.00	1.500		0.995	138	x											
28.00	2.000		1.302	183	x						x					
28.00	2.500		1.596	229	x											
30.00	2.000		1.402	171	x											
30.00	3.000		2.028	257	x					x	x					
30.00	4.000		2.604	342	x						x					
35.00	3.000		2.404	220	x						x					
38.00	3.000		2.629	203	x					x	x					
38.00	4.000		3.405	270	x					x	x					
38.00	5.000		4.132	338	x											
42.00	2.000		2.003	122	x											
42.00	3.000		2.930	183	x											
50.00	5.000		5.634	257	x											

Other sizes and grades available on request

STANDARDS & TOLERANCES

ASTM - STANDARDS

A 213 Seamless ferritic and austenitic alloy steel boiler, superheater and heat exchanger tube.
A 269 Seamless and welded austenitic stainless steel tubing for general service.
A 312 Seamless and welded austenitic stainless steel pipe.
A 511 Seamless stainless steel mechanical tubing.
A 789 Seamless and welded ferritic-austenitic stainless steel tubing for general service. (duplex)
B 161 Seamless nickel pipe and tube. (alloy 200, 201)
B 163 Seamless nickel alloy condenser and heat exchanger tube. (alloy 200, 400, 600, 825)
B 165 Seamless nickel-copper pipe and tube. (alloy 400)
B 167 Seamless pipe and tube in nickel-chromium-iron. (alloy 600, 601)
B 337 Seamless and welded titanium pipe and tube for general service.
B 338 Seamless and welded titanium tube for condensers and heat exchangers.
B 407 Seamless pipe and tube in nickel-iron-chronium. (alloy 800, 800H, 800HT)
B 423 Seamless pipe and tube in nickel-iron-chromium-molybdenum-copper. (alloy 825)
B 444 Seamless pipe and tube in nickel-chromium-molybdenum-columbium. (alloy 625)
B 622 Seamless pipe and tube in nickel and nickel-cobalt. (alloy C276, C4)
B 668 Seamless tube. (alloy 28)
B 677 Seamless pipe and tube. (alloy 904L)

Tolerances of seamless cold drawn tubing, acc to EN 10216-5 TC 1, in stainless steel acc. to ASTM A 269 / A 213 / A 632, ISO 1127 D4/T3, and duplex, nickel alloy, titanium tubing: acc. to ASTM A789, B 163, B 165, B 167, B 407, B 423, B 444, B 622 & B 677.

Our high quality tubes are from EC, US or Japanese origin, with various specifications:- ASTM, ASME, DIN, ISO, EN, NACE, PED, Norsok, AD 2000 W2, TÜV and Lloyd's Register.

QUALITY ASSURANCE

ASTM-, DIN-, ISO Tolerances

Tolerances according to ASTM A269 and A213 a.w. (Welded and seamless tube).

Outside Diam.	Tol.O.D.	Tol.wall	Tol. ovality	Tol. cut length
mm	mm	%	mm	mm
up to 12,7 mm	± 0,13 mm	± 15 %	-	+ 3,18 mm - 0 mm
12,7 mm up to 38,1 mm	± 0,13 mm	± 10 %	max, 1,65 mm	+ 3,18 mm - 0 mm
38,1 mm up to 88,9 mm	± 0,25 mm	± 10 %	max, 2,41 mm	+ 4,76 mm - 0 mm

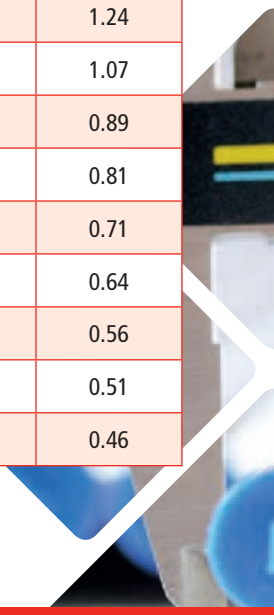
Quality assurance: Merinox is ISO 9001 certified, with 100% traceability on all instrument tubes and material test reports accompany every shipment upon request.

Certificate Number 7338
ISO 9001

STANDARD AND BIRMINGHAM WIRE GAUGES

Standard wire Gauge SWG		
	Wall Thickness	
SWG	IN	MM
8 SWG	0.160	4.06
9 SWG	0.144	3.66
10 SWG	0.128	3.25
11 SWG	0.116	2.95
12 SWG	0.104	2.64
13 SWG	0.092	2.34
14 SWG	0.080	2.03
15 SWG	0.072	1.83
16 SWG	0.064	1.63
17 SWG	0.056	1.42
18 SWG	0.048	1.22
19 SWG	0.040	1.02
20 SWG	0.036	0.91
21 SWG	0.032	0.81
22 SWG	0.028	0.71
23 SWG	0.024	0.61
24 SWG	0.0220	0.56
25 SWG	0.0220	0.51
26 SWG	0.0180	0.46

Standard wire Gauge BWG		
	Wall Thickness	
BWG	IN	MM
8 BWG	0.165	4.19
9 BWG	0.148	3.76
10 BWG	0.134	3.40
11 BWG	0.120	3.05
12 BWG	0.109	2.77
13 BWG	0.095	2.41
14 BWG	0.083	2.11
15 BWG	0.072	1.83
16 BWG	0.065	1.65
17 BWG	0.058	1.47
18 BWG	0.049	1.24
19 BWG	0.042	1.07
20 BWG	0.035	0.89
21 BWG	0.032	0.81
22 BWG	0.028	0.71
23 BWG	0.025	0.64
24 BWG	0.022	0.56
25 BWG	0.022	0.51
26 BWG	0.018	0.46



EXTRA SERVICES

PACKING
Goods are despatched in protective cardboard tubes or wooden cases. Cases can be specific to your exporting requirements.

CUTTING
We provide a cutting service from 3mm O.D. up to 50mm O.D. and tube can be middled for ease of transportation.

POLISHING
We polish over a range of sizes from 6.00 mm o.d. up to 50 mm o.d. Polishing standards are gritt 180, 240, 320, 400 and mirror.

CLEANING
A degrease service and oxygen cleaning are available. If you have a more specific requirement, please ask.

RE-MARKING
We also have the ability to re-mark tube once it has been cleaned thanks to our new inkjet printer.

DIRECT SHIPPING
We can ship direct to your customer with your documentation, saving you time, additional freight costs and reducing our carbon footprint.

PVC COATING
We can arrange PVC coating in most colours and printed to your specifications.

EXTRA TESTING
We have recently acquired an "XRF" testing gun, allowing us to perform 100% PMI testing on all tube. We can also conduct Chemical and Mechanical testing as witnessed by independent authorities such as Lloyd's Register.

SEAMLESS TUBING

Diameter:

from 1.58 mm up to 50 mm o.d.

GRADES

Stainless steel:

316L, 316Ti, 317L, 904L, 254 SMO (6MO) To Norsok

Nickel alloys:

400, 625, 825, C276

Titanium / Duplex:

Titanium Grade 2 & Super Duplex S32750

Also:

Medium and high pressure tubes for 20,000 PSI & 60,000 PSI

INSTRUMENTATION | HYDRAULIC SYSTEMS

PRECISION APPLICATIONS | CAPILLARY PURPOSES