

HYDRAULIC & INSTRUMENTATION TUBING





TUBACEX IS HEADQUARTERED IN THE NORTHERN BASQUE REGION OF SPAIN, AN AREA WITH A STRONG CULTURAL IDENTITY AND THE OLDEST LIVING LANGUAGE IN WESTERN EUROPE, EUSKERA, WHICH IS SPOKEN IN PARALLEL WITH SPANISH. OUR NAME COMES FROM THE ABBREVIATION OF THREE SPANISH WORDS: "TUBOS" (TUBES), "ACERO" (STEEL), AND "INOXIDABLE" (STAINLESS). TUBACEX IS PRONOUNCED TUBATHEKS [TJUBƏÐEKS].

1963	1965	1970	1970-1985	1987	1991	1995
TUBACEX is founded in Spain as a carbon steel manufacturer	The company processes its first tube	The company goes public on the Spanish stock market	TUBACEX experiences significant growth, opening six new sales offices: • Mexico (1971) • Houston, Texas (1975) • Holland (1979) • Canada (1983) • France (1985) • Italy (1985)	TUBACEX produces its first stainless steel tube	TUBACEX acquires Salem Tube, located in Pennsylvania	The company enters the Chinese market with a new sales office in Beijing

OUR HISTORY

UPHOLDING A STRONG LEGACY

With a proven legacy of more than 50 years and a presence in more than 30 countries, TUBACEX is one of the world's leading providers of seamless and nickel-alloy tubing products.

Better known in the market by our premier brands, Salem Tube and Schoeller-Bleckmann, the roots of our expertise actually date back more than 100 years to 1870 when steel was first produced at the Schoeller factory in Ternitz, Austria.

No matter the name, our customers have come to count on us for their supply of premium tubes. That's because TUBACEX products are not only meeting standards – they're surpassing them to introduce a new benchmark in quality and service.

1999	2000-2010	2011-2016	2017	2020
TUBACEX acquires the Austrian company, Schoeller-Bleckman	The company opens more sales offices and new warehouses: SALES OFFICES: Seoul (2000) Shanghai (2004) Sao Paulo, Brazil (2006) Dubai (2007) Moscow (2008) WAREHOUSES: Canada (2001) Lyon, France (2004) Indonesia (2005)	TUBACEX experiences global growth through strategic acquisitions and greenfield development • Acquires IBF of Italy (2014) • Builds new plant in Cantabria, Spain (2014) • Acquires PRAKASH STEELAGE of India (2015) • Acquires Awaji Materia of Thailand (2016)	The company launches TUBACEX SERVICE SOLUTIONS (TSS) to provide customers easy access to a wide inventory of tubing products through service centers around the globe	TUBACEX extends US footprint to serve the growing market • Purpose-built 150,000 sq. ft. manufacturing- facility constructed and opened in Durant, Oklahoma • TSS PA Logistics and Services hub opened in Pennsylvania

WHAT MATTERS MOST

At Tubacex, we're proud of our legacy - our history tells of our experience, and our worldwide presence points to our capabilities. What matters most, however, are the principles we hold as a company and the value we promise to our customers - they underlie how we conduct our business and how we can help customers conduct theirs.



THE PRINCIPLES WE HOLD

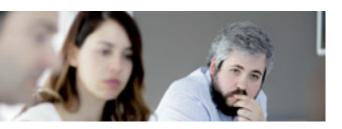
SAFETY

With safety always at the forefront of our minds, TUBACEX complies with industry safety standards and quality control guidelines to ensure the wellbeing of our people and the integrity of our products. Additionally, we maintain ISO 45001 certification at our manufacturing facilities and service centers worldwide.



ENVIRONMENTAL SUSTAINABILITY

Dedicated to sustainability and determined to minimize the impact our business activities have on the environment, TUBACEX has implemented environmentally-friendly solutions to reduce waste, manage our energy usage, and recycle everything from our raw materials to our shipping crates. Moreover, we follow ISO 14000 guidelines at nearly all of our facilities.



SOUND GOVERNANCE

In 1994, TUBACEX adopted an internal code of conduct to direct the way in which the company and its executive board operates, becoming one of the first Spanish companies to introduce and implement governance guidelines. Today, we remain committed to sound corporate governance, transparency, and integrity.



SOCIAL RESPONSIBILITY

TUBACEX prides itself on being a good employer to its 2600 worldwide workers, a trusted partner to its suppliers and customers, and a respected citizen in the communities where it operates - promoting fair practices, social inclusion and economic development wherever possible. Through our TUBACEF Foundation, TUBACEX helps fund global initiatives that support education, integration and child protection.



ALL THE SUCCESS IN THE WORLD MEANS NOTHING IF WE DON'T TAKE CARE OF OUR PEOPLE AND OUR ENVIRONMENT - SAFETY IS WHERE EVERYTHING STARTS.

Jesús Esmorís, TUBACEX Group CEO



THE VALUE WE PROMISE

RELIABILITY & FLEXIBILITY

From the sourcing of high performance steel alloys to the engineering, manufacturing and distribution of the widest portfolio of tubing solutions, TUBACEX is a fully-integrated provider with control of every stage of our tubing production. That means we can offer our customers flexible options and reliable delivery.



CUSTOMIZATION CAPABILITIES

At TUBACEX, our engineers are at their best when they're tackling a new challenge. We embrace every opportunity to partner with companies to design custom solutions that meet their application's unique demands, configurations and specifications.



CUSTOMER SERVICE

We understand the financial cost that delays can cause. With 16 manufacturing facilities located in nine different countries, TUBACEX maintains a comprehensive inventory of tubes in various alloys and diameters. Moreover, we operate 16 strategically-positioned stocking service centers around the globe. All of this allows us to respond promptly to service emergencies and fulfill crucial supply needs where and when it matters most.





TSS BRASIL

OUR PRESENCE IS GLOBAL

TUBACEX manufactures the world's widest portfolio of seamless stainless steel and high nickel-alloy products. With 16 manufacturing facilities and 16 stocking service centers strategically-positioned around the globe, TUBACEX can offer unsurpassed service to more than 30 countries.

COMMERCIAL PRESENCE IN OVER 30 COUNTRIES

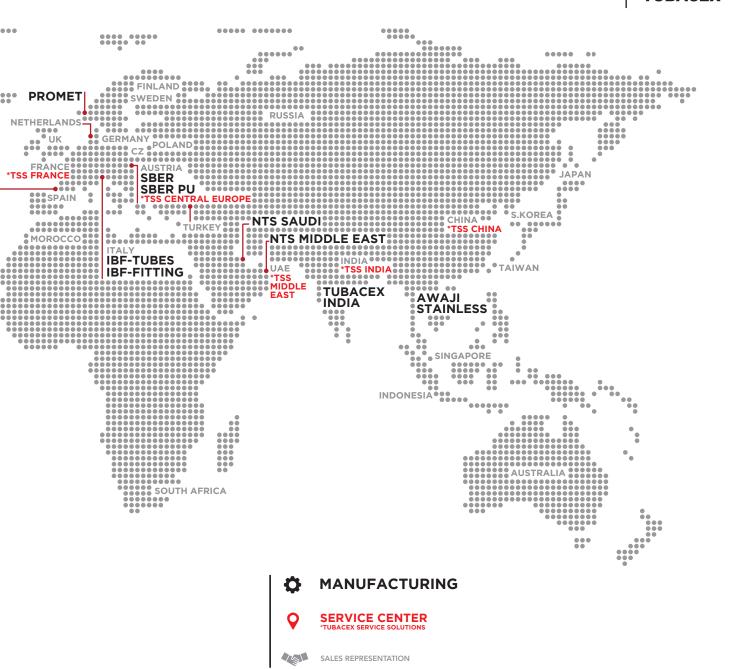
2600 EMPLOYEES ACROSS THE GLOBE

16 STOCKING AND SERVICE CENTERS IN 8 COUNTRIES

16 MANUFACTURING FACILITIES IN

WIDEST PORTFOLIO OF TUBULAR SOLUTIONS

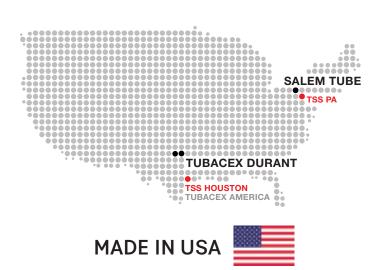
ROUND BARS, BILLETS AND INGOTS	SEAMLES	SS PIPE AND TUBES TO	SPECIAL COMPONENTS FITTINGS AND SPECIAL CONNECTIONS				
ACERALAVA TUBÂÇEX	TTI TUBÂCEX	SCHOELLER BLECKMANN TUBÂCEX	SALEM TUBE TUBÂÇEX	TUBACEX DURANT TUBÂÇEX	TUBACEX INDIA TUBÂCEX	IBF TUBÂÇEX	TTA TUBÂCEX



FROM ½ TO 72"		ADDE	D-VALUE OPERATIONS	S AND SERVICES		WAREH	OUSING
AWAJI STAINLESS TUBÂCEX	NTS TUBÂÇEX	TUBACEX UPSTREAM TECHNOLOGIES TUBÂCEX	TUBACEX LOGISTICS TUBÂCEX	TUBACEX SERVICES TUBÂCEX	TUBACOAT TUBÂCEX	TSSTUBÂCEX	TUBOS MECÁNICOS TUBÂCEX



TUBACEX AMERICA



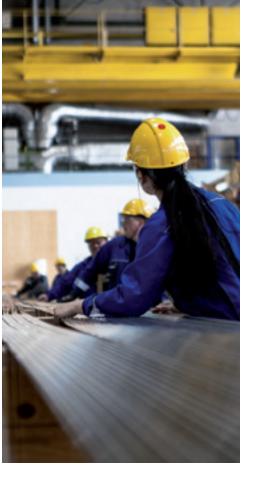
Over the past 50 years, to meet the world's ever-increasing demand for precision tubular products, we at TUBACEX have expanded our worldwide presence and portfolio through a combination of strategic acquisitions and investments in new manufacturing facilities. The newest facility, located in Durant, Oklahoma began production at the end of 2019 and further strengthens our position as a leading supplier of premium seamless tubes.

Tubacex Durant joins Salem Tube as USA based manufacturing facilities enabling us to deliver the market's widest offering of corrosion-resistant alloys. Also, with two US-based locations of our master distribution arm, Tubacex Service Solutions (TSS-Houston & TSS-Pennsylvania), we can offer unsurpassed commitment to service through customized stocking agreements, thus lowering your lead-times in most cases.

MANUFACTURING

Since 1977, **Salem Tube** has been manufacturing top of the line tubes that fulfill the need for fuel, hydraulic, bleed, cooling and sampling lines for a variety of industries and applications. In the past four decades, Salem has also become one of the leading redraw facilities in the United States, capable of producing seamless as well as welded & drawn stainless steel tubes in outside diameters (OD) ranging from 1/8" to 2" and in more than 25 different alloys.

Today, highly-specialized in producing thin-walled and heavy-walled tubing, Salem Tube is our company's Center of Excellence for the aerospace and defense industry. Moreover, Salem Tube is Nadcap accredited in three special processes – Heat Treatment, Material Testing and Non-Destructive Testing – demonstrating our commitment to observe superior manufacturing standards and provide consistently high quality products for our aerospace customers. Salem Tubes is also the company's leading producer of medium and high-pressure tubes.



Tubacex Durant, the newly constructed 150,000 sq. ft. manufacturing plant located in Durant, Oklahoma, will be TUBACEX's flagship mill dedicated to making standard instrumentation tubing (as well as heat-exchanger tubing) ranging in sizes from 1/4" OD up to 1-1/2" OD. In addition to producing standard straight-length tubes that the industry has come to know, the Durant facility will also produce weld-free long lengths of coil tubes in the same dimensions. Initial production will focus on austenitic grades (304/304L, 316/316L, 317/317L, and 321) with nickel-alloys (625 and 825) to follow. Coiled tubing will be supplied as spool-less and level-wound on wooden reels in standard lengths ranging from 70 ft. to 1103 ft.

Most notably, through an advanced, proprietary manufacturing procedure, the Durant facility will also be capable of manufacturing both straight-length and coil tubing with internal Ra (roughness average) values as low as 10 μ " - without the need for electropolishing and with tighter tolerances.



SERVICE CENTERS

TUBACEX Service Solutions (TSS), our company's service arm, is the world's largest global master distributor of seamless stainless steel and high nickel alloy tubes and fittings. With a global network of warehouses and service support centers located within the world's main industrial hubs, TSS is able to quickly source and restock product and provide a wide range of support services to meet customers' specific needs.

TSS now has two locations - Houston, TX and Greenville, PA. Strategically located in the "Energy Capital of the World", TSS Houston is well connected by air, land and sea to rapidly respond to the demanding needs of the oil and gas industry. TSS Pennsylvania can quickly service the East Coast and Midwest regions of the US.



COMMERCIAL & TECHNICAL HUB

TUBACEX America office located in Houston's "Energy Corridor" is home to our North American commercial, technical and service support activities. By bringing together our top-notched engineers, product specialists and commercial professionals, we can align our expertise and breadth of capabilities to better meet the needs of the US, Canadian and Latin American markets.



PRODUCTS & APPLICATIONS

HYDRAULIC & INSTRUMENTATION TUBING

Some applications demand a high degree of precision – others test the boundaries of strength and endurance – and still others do both. Through our Salem Tube and Tubacex Durant facilities, we manufacture premium tubing that is capable of performing in the world's most demanding environments.

THROUGH OUR ADVANCED, PROPRIETARY MANUFACTURING PROCESS THAT INVOLVES A COMBINATION OF TOOLING DESIGN AND LUBRICATION, TUBACEX DURANT IS CAPABLE OF MANUFACTURING EXTREMELY SMOOTH FINISHES WITH A SURFACE ROUGHNESS AS LOW AS 10RA.





STRAIGHT-LENGTH

At TUBACEX, we have the capability to manufacture straight-length H&I tubing in accordance with all ASTM, MIL-T and AMS specifications in an wide range of alloys/grades - more than 25 different grades in fact.

Additionally, beyond being able to supply tubing with "standard" internal roughness (typically 40 Ra or higher), now TUBACEX can also supply the same tubes with Ra values as low as 10 μ " – without electropolishing-in wall-thickness up to 0.049" - making TUBACEX's H&I tubes among the smoothest on the market.



COILED TUBING

At our new Durant facility, TUBACEX can produce seamless coiled tubing in outside diameters (OD) as small as 1/4" and up to 1-1/4" and in lengths exceeding 2,260 ft (depending on OD and weight). Moreover, TUBACEX's coiled tubing is manufactured to the same restrictive tolerances as our straight-length H&I tubing.

On long tubing runs, coiled tubing can significantly reduce installation time and eliminate labor costs associated with having to weld shorter 20 ft stick tubing. It is also ideal for underground applications where mechanical joints are not allowed or highly restricted.



MEDIUM & HIGH-PRESSURE TUBES

In addition to standard straight-length tubing, TUBACEX also offers a full series of medium and high-pressure tubes in a wide range of alloys including 304, 316, 317, 904L, Duplex and Super Duplex, 6MO and Alloy 625.

TUBACEX's medium and high-pressure tubing is cold-drawn, supplied in 1/8 hard condition, and manufactured in strict accordance with customer specifications to ensure a secure fit. The tensile strength of these tubes is generally 40 percent higher than annealed tubing of the same dimension and weight.



DIMENSIONS, ALLOYS & PRESSURES

AUSTENITIC GRADES

(304/304L, 316/316L, 317/317L)



STRAIGHT-LENGTHS

WALL THICKNESS



SUPER AUSTENITIC, DUPLEX, NICKEL-ALLOY, & PH GRADES

(904L, 6MO, 2205, 2507, 400, 600, 617, 625, 690, 825; N200; N201, C22, C276, 15-5, 17-4,17-7)

WALL THICKNESS

		INCH	0.020	0.028	0.035	0.039	0.049	0.059	0.065	0.079	0.083	0.095	0.109	0.120	0.179	0.188	
I	INCH	ММ	0.51	0.71	0.89	1	1.24	1.5	1.65	2	2.11	2.41	2.77	3.05	4.55	4.78	
	1/8	3.18															
	1/5	4.76															
	1/4	6.35															
2	1/3	7.94															
Ë	3/8	9.53															
¥	2/5	10															
AMETE	4/9	12															
ם ם	1/2	12.7															
	3/5	15															
EP.	5/8	16					STRAIGHT-LENGTHS ONLY										
OUT	5/7	18															
0	3/4	19.05															
	7/9	20															
	6/7	22															
-	1	25.4															
	1-1/4	31.75															
-	1-1/2	38.1															
-	1-3/4	44.45															
	2	50.8															

AVERAGE SIZE AND COILED TUBING LENGHTS

(304/304L, 316/316L, 317/317L, 321)

IMPERIAL

IMPER	IAL (IN)	LENGTH				
OD	WALL	FT	М			
1/4	0.028	1,103	336			
1/4	0.035	1,086	331			
1/4	0.049	826	252			
1/4	0.065	673	205			
3/8	0.035	692	211			
3/8	0.049	514	157			
3/8	0.065	407	124			
3/8	0.083	337	103			
4/9	0.035	489	149			
4/9	0.049	373	114			
4/9	0.065	291	89			
4/9	0.083	238	72			
5/8	0.035	401	122			
5/8	0.049	293	89			
5/8	0.065	226	69			
5/8	0.083	183	56			
3/4	0.049	242	74			
3/4	0.065	186	57			
3/4	0.083	148	45			
3/4	0.109	118	36			
1	0.065	137	42			
1	0.083	108	33			
1	0.109	86	26			
1	0.120	78	24			
1	0.134	70	21			

METRIC

METRI	C (MM)	LENGTH				
OD	WALL	FT	М			
6.00	1.00	1,052	321			
6.00	1.50	774	236			
8.00	1.00	755	230			
8.00	1.50	540	165			
10.00	1.00	590	180			
10.00	1.50	415	126			
10.00	2.00	329	100			
12.00	1.00	483	147			
12.00	1.50	337	103			
12.00	2.00	264	81			
16.00	1.50	245	75			
16.00	2.00	190	58			
18.00	1.50	215	66			
18.00	2.00	167	51			
20.00	1.50	204	62			
20.00	2.00	164	50			
20.00	2.50	136	42			
25.00	1.50	152	46			
25.00	2.00	116	35			
25.00	2.50	80	24			

MEDIUM AND HIGH PRESSURE TUBING*

(316/316L)

IMPERIAL										
OD (IN)	ID (IN)	WALL (IN)	PRESSURE (PSI)							
1/47	0.125	0.063	15,000							
1/4 " 0.243"/0.248"	0.109	0.071	20,000							
0.243 /0.246	0.083	0.084	60,000							
2/0"	0.219	0.078	15,000							
3/8"	0.203	0.086	20,000							
0.365"/ 0.370"	0.125	0.125	60,000							
	0.359	0.102	10-15,000							
9/16"	0.344	0.109	15,000							
0.552"/ 0.557"	0.312	0.125	20,000							
0.552 / 0.55/	0.250	0.156	40,000							
	0.187	0.188	60,000							
	0.516	0.117	10-15,000							
3/4"	0.469	0.141	15,000							
0.740"/ 0.745"	0.437	0.157	20,000							
	0.250	0.250	60,000							
	0.688	0.156	10,000							
1"	0.656	0.172	15,000							
0.990"/ 0.995"	0.562	0.219	20,000							
	0.438	0.281	30-43,000							

1"	0.656	0.172	15,000
0.990"/ 0.995"	0.562	0.219	20,000
	0.438	0.281	30-43,000
		uced in 304, 6MO, and All	317, 904L, Duplex, oy 625

IMPERIAL										
OD (IN)	ID (IN)	CONDITION	PRESSURE (PSI)							
1/4 "	0.065	1/8-HARD	20,000							
1/4	0.095	ANNEALED	15,000							
3/8"	0.083	1/8-HARD	20,000							
3/0	0.134	ANNEALED	15,000							
1/2"	0.109	1/8-HARD	20,000							
1/2	0.188	ANNEALED	15,000							
3/4"	0.165	1/8-HARD	20,000							

STEEL GRADES

												NIOAL BASS	DTIES -	2014
					ELEMENTS (T	YPICAL VA	ALUES) IN %				MECHA	NICAL PROPI TEMPERA		ЮМ
GRADE	UNS	С	Cr		Mn			Мо	Fe	Nb + Ta	MAX HARDNESS	YIELD RP 0.2MIN (MPA)	TENSILE RM MIN (MPA)	Elong. (%)
AUSTENITIC	STAINLESS ST	EEL												
304 / 304L	\$30400 / \$30403	MAX 0.03	18,5	0,50	1,3	10,2	MAX 0.030	-			90	205	515	40
310	S31000 / S31008	MAX 0.25	25,0	1,50	2,0	20,0	MAX 0.045	-			93	245	550	45
316 / 316L	S31600 / S31603	MAX 0.03	17,0	0,40	1,7	12,0	MAX 0.040	2,2			90	220	515	40
316L (2.5 Min Mo)	S31600 / S31603	MAX 0.03	17,0	0,40	1,7	12,0	MAX 0.040	2,7			90	220	515	40
317 / 317L	S31700 / S31703	MAX 0.03	19,0	0,75	2,0	13,5	MAX 0.045	3,5			95	205	515	40
321	S32100	MAX 0.08	17,5	0,75	2,0	11,0	MAX 0.045	-			90	205	515	40
347 / 347H	\$34700 / \$34709	MAX 0.08	18,0	0,75	2,0	11,0	MAX 0.045				93	205	515	40
SUPER AUSTENITIC STAINLESS STEEL														
904L	N08904	MAX 0.02	20,0	1,00	2,0	25,0	MAX 0.045	4,5			190	230	530	35
6Mo	S31254	MAX 0.02	20,0	0,80	1,0	18,0	MAX 0.030	6,25			210	300	650	35
DUPLEX														
2205	S31803	MAX 0.03	22,5	1,00	2,0	5,5	MAX 0.030	3,0			28	450	680	40
2507	S32750	MAX 0.03	25,5	0,80	1,2	7,0	MAX 0.025	3,5			32	550	800	20
25Cr SDSS	S32760	MAX 0.03	25,5	1,00	1,0	7,0	MAX 0.030	3,5			28	552	752	25
NICKEL ALLO	YS													
Alloy 200/201	N02200 / N02201	MAX 0.15		0,35	0,35	99*	MAX 0.010	-			75	105-275	380-550	60-40
Alloy 400	N04400	MAX 0.03		0,50	2,00	64	MAX 0.024				75	195	585	32
Alloy 600	N06600	MAX 0.15	15,0	0,50	1,00	72*	MAX 0.015				88	170-345	550-690	55-35
Alloy 617	N0617	MAX 0.15	22,0	1,00	1,00	45	MAX 0.015	9,0			193	383	758	56
Alloy 625	N06625	MAX 0.03	21,5	0,50	0,50	59	MAX 0.015	9,0			200	276	690	30
Alloy 690	N06690	MAX 0.05	29,0	0,50	0,50	59	MAX 0.015	-			190	461	758	39
All0y 718	N07718	MAX 0.08	18,0	0,35	0,35	52*	MAX 0.015	3,0			36	1034	1276	4
Alloy 825	N08825	MAX 0.03	21,5	0,50	1,00	41	MAX 0.030	2,7			240	241	586	30
Monel K500	N05500	MAX 0.25		0,50	1,50	63*	MAX 0.010				90	276-448	621-758	45-25
PH GRADES														
15-5	S15500	MAX 0.07	14,48	MAX 1.0	MAX 1.0	4,5	MAX 0.03	3,5	75	0,3	104	1275	1380	10
17-4	S17400	MAX 0.07	15.0-17.5	MAX 1.0	MAX 1.0	3.0-5.0	MAX 0.03	3.0-5.0	73	0.15- 0.45				
17-7	S17700	MAX 0.09	16-18	MAX 1.0	MAX 1.0	6.50 - 7.75	MAX 0.03		BALANCE		38	965	1170	6

SPECIFICATIONS AND INTERNATIONAL STANDARDS

S04/309L S30403 X2CMII9-II 1.430/J1.4306 S05304/309L A908, AIDI6, F899 SA213 5647, 5868, 6845, 8506 8504, 8506 3100 S31000 X15CrNIS(2520 1,434 SUH310 SA312 SA312	
AUSTENITIC STAINLSS STEEL 304/304L \$30400/ \$30400 \$X2CrNi19-11	11-Т
304/304L \$30400/ \$30403	
304/304L \$30403	•
S31008 X350NS12920 1,434 SUR310 SA100 SA312	,6845, i, 8606, 8973
S31603 X2CINIMOI/-12-2 1,440 SUS316/316L A213, A269, A270, A312, A450, A511, A632, A213 S573, 5584 B1	
(2.5 Min Mo) \$31603	973
317/317L S31703 X2C/NIMO18-15-4 1,444 SUS317/317L A213, A269, A312, A450, A511, A632, A1016 SA213 321 S32100 X6C/NIT118-10 1,454 SUS321 A213, A269, A312, A450, A511, A632, A1016 SA213 5557, 5570, 5576, 5645, 5896 8606, 81 347/347H S34709 X6C/N-INb18-10 1.4550/1.4961 SUS347 A213, A269, A312, A450, A511, A632, A1016 SA213 5556, 5571, 5646, 5897 8606, 81 SUPER AUSTENITIC STAINLSS STEEL 904L N08904 X1Nic/MoCu25-20-5 1,454 QS 2025 MC A213, A269, A312, A1016 SA213 — 6Mo S31254 X1C/NIMoCuN20-18-7 1,455 — A213, A269, A1016 SA213 — DUPLEX 2205 S31803 X2C/NIMON2253 1,446 QS 2205 A789 SA789 —	973
347 / 347H	
Super Austenitic Stainles	808, 8973
904L N08904 X1NiCrMoCu25-20-5 1,454 QS 2025 MC A213, A269, A312, A1016 SA213 — 6Mo S31254 X1CrNiMoCuN20-18-7 1,455 — A213, A269, A1016 SA213 — DUPLEX 2205 S31803 X2CrNiMoN2253 1,446 QS 2205 A789 SA789 —	808, 8973
6Mo S31254 X1CrNiMoCuN20-18-7 1,455 A213, A269, A1016 SA213 DUPLEX 2205 S31803 X2CrNiMoN2253 1,446 QS 2205 A789 SA789	
DUPLEX 2205 S31803 X2CrNiMoN2253 1,446 QS 2205 A789 SA789 —	
2205 S31803 X2CrNiMoN2253 1,446 QS 2205 A789 SA789 —	
2507 S32750 X2CrNiMoN25-7-4 1,441 A789 SA789 —	
25Cr SDSS S32760 X2CrNiMoCuWN25-7-4 1,450 A789 SA789	
NICKEL ALLOYS	
Alloy 200/201 N02200 / N02201 Ni 99.2 2.4066/2.4068 B161, B163 SB161, SB163 SB163	
Alloy 400 N04400 NiCu30Fe 2,436 QA 400 B163, B165 SB163, — SB165	
Alloy 600 N06600 NiCr15Fe 2,482 NCF 600 B163, B167 SB163, SB167 SB167	-
Alloy 617 N0617 NiCrCoMo 2,466 B167	
Alloy 625 N06625 NiCr22Mo9Nb 2,486 QA 625 B444 SB444 558	
Alloy 690 N06690 NiCr29Fe 2,464 B163, B167 SB163, SB167	
AllOy 718 N07718 N0719Fe19Nb5Mo3 2,467 B163, B167 SB163, SB167 SB167	-
Alloy 825 N08825 NiCr21Mo 2,486 NCF 825 B163 SB163 —	_
Monel K500 N05500 NiCu30Al 2,437 B163 SB163 4676	
PH GRADES	
15-5 S15500 X5CrNiCu15-5 1,454 5669	
17-4 S17400 X5CrNiCu17-4 1,455 5643	
17-7 S17700 X7CrNiAl17-7 1,457 5568	

TUBÂCEX

WORKING PRESSURE (PSI) FOR 316/316L SEAMLESS TUBING*

		WALL THICKNESS (IN)										
		0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.156	0.188
	1/4	4,200	5,400	8,000	11,200	15,300						
	5/16	3,300	4,300	6,200	8,600	8,600	11,500					
2	3/8	2,800	3,500	5,100	7,000	9,300	10,900	13,000				
OUTSIDE DIAMETER (IN)	1/2		2,600	3,700	5,100	6,700	7,800	9,200	10,800			
AMET	5/8		2,000	2,900	4,000	5,200	6,000	7,100	8,300			
DE DI	3/4			2,400	3,300	4,200	4,900	5,800	6,700			
UTSI	1				2,400	3,100	3,600	4,200	4,900			
$ $ $^{\circ}$	1-1/4					2,400	2,800	3,300	3,600	4,100	4,900	
	1-1/2						2,300	2,700	3,000	3,400	4,000	4,900
	2							2,000	2,200	2,500	2,900	3,600

^{*}Working pressures [psi] calculated per ASME B31.3 for temperatures range of-425 °F to 300 °F for annealed TP 316/316L (UNS S31600/S31603) seamless tubing with standard tolerances offered by Tubacex™. All design and service conditions must be considered by the specifying engineers and were not taken into consideration for the calculations above. Dual-certified 316/316L meets the minimum chemistry and the mechanical properties of both alloy grades and must be specified at time of order placement.

WORKING PRESSURE (BAR) FOR 316/316L SEAMLESS TUBING*

		WALL THICKNESS (MM)												
		1.0	1.2	1.5	1.8	2.0	2.2	2.5	2.8	3.0	3.5	4.0	4.5	5.0
	6	461	569	741										
	8	335	410	528										
	10	264	322	412	506	571								
	12	218	264	337	413	465	518							
	14	185	225	285	348	391	435							
OUTSIDE DIAMETER (MM)	16	161	195	247	301	338	375							
EE	18		173	218	265	297	330	380	431					
DIAM	20		155	195	237	266	294	339	384	414				
SIDE	22		140	177	214	240	266	305	346	373				
5	25		123	155	187	210	232	266	301	324				
	28					180	200	230	20	280	330			
	30					170	180	210	240	260	310			
	32					160	170	200	220	240	290	330		
	38						140	160	190	200	240	270	310	
	50									150	180	210	240	270

^{*}Working pressures [bar] calculated per ASME B31.3 for temperatures range of-425 °F to 300 °F for annealed TP 316/316L (UNS S31600/S31603) seamless tubing with standard tolerances offered by Tubacex™. All design and service conditions must be considered by the specifying engineers and were not taken into consideration for the calculations above. Dual-certified 316/316L meets the minimum chemistry and the mechanical properties of both alloy grades and must be specified at time of order placement.

MASS

	LB	KG	TON (SHORT)	TON (METRIC)
1LB	1	0.4536	0.0005	0.00045
1KG	2.2046	1	0.0011	0.001
1 TON (SHORT)	2,000	907.1847	1	0.90718
1 TON (METRIC)	2,204.62	1000	1.1023	1

PRESSURE

	PSI	BAR	PA	ATM	MHG
1 PSI	1	0.06895	6.90E+03	0.0681	0.0517
1 BAR	14.5	1	1.00E+05	0.9869	0.7501
1 PA	1.45E-03	1.00E-05	1	9.87E-06	7.50E-07
1 ATM	14.7	1.01325	1.01E+05	1	0.76
1 MHG	19.34	1.3332	1.33E+05	1.3158	1

LENGTH

	CENTIMETER	METER	INCH	FOOT	YARD
1 CENTIMETER	1	0.01	0.3937	0.0328	0.0109
1 METER	100	1	39.37	32.81	1.0936
1 INCH	2.54	0.0254	1	0.0833	0.0278
1 F00T	30.48	0.3048	12	1	0.3333
1 YARD	91.44	0.9144	36	3	1

TEMPERATURE

°F to °C = 5/9 (°F-32°)

°C to °F = 9/5 (°C)+32





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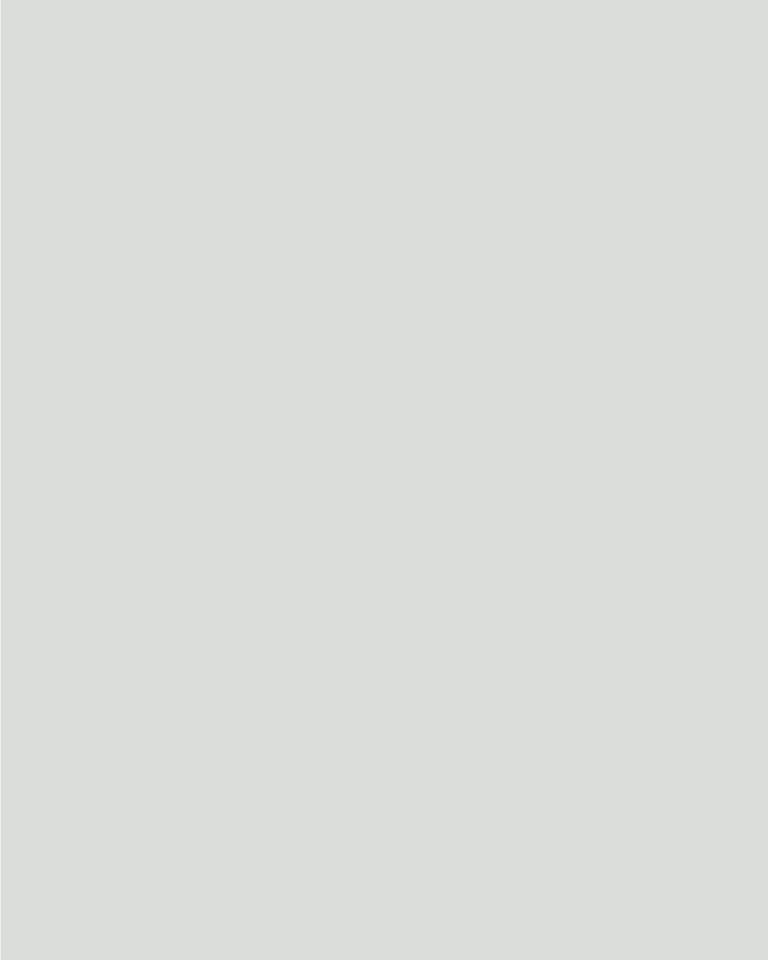
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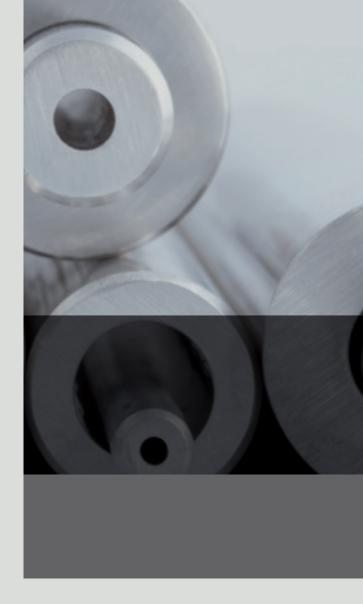
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