

**STAINLESS STEEL AND
HIGH NICKEL ALLOYS
TUBULAR SOLUTIONS**





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A Global Leader in Seamless Stainless and High Nickel Alloys Pipes and Tubes

NEW BOILERPLATE:

Tubacex is a global leader in the manufacture of high value-added industrial products in advanced stainless steels and special alloys for the energy and mobility sectors. With a commitment to innovation and excellence, our fully integrated value chain spans from research and development to the delivery of the end-product. This integration guarantees cutting-edge technology, superior quality, and a focus on sustainability and circularity that sets industry standards. We specialize in a range of advanced materials, including corrosion-resistant alloys (CRA), and offer a suite of advanced machining services.

Tubacex operates production facilities and service centers across over 30 countries, ensuring valuable service delivery to its clients worldwide. Its commitment to sustainability and environmental stewardship is recognized and validated by top ESG certification authorities. This includes adherence to Science-Based Targets (SBT) for reducing emissions, to the Carbon Disclosure Project (CDP), and meeting the sustainability criteria set by S&P.

Tubacex: a global integrated Group at your Service



STAINLESS STEEL AND HIGH NICKEL ALLOYS INGOTS, BARS AND BILLETS

Stainless Steel and High Nickel Alloy long products are produced by the Group's subsidiary Aeralava, either rolled or forged up to 20":

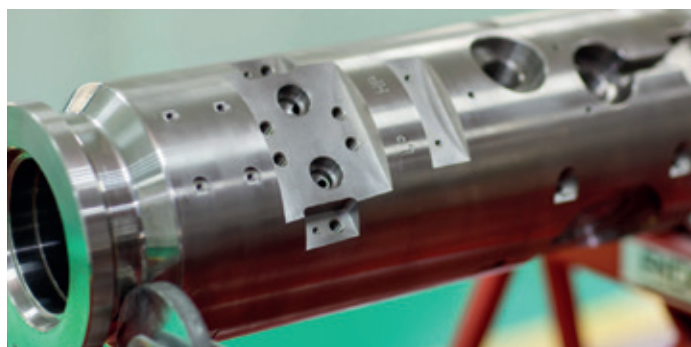
- Round bar.
- Round billet.
- Square billet.
- Ingot.



SEAMLESS STAINLESS STEEL PIPES & TUBES

Seamless pipes up to 8" are the bulk of Tubacex portfolio, with focus in Stainless Steel and High Nickel Alloys materials. This includes:

- Pipes and tubes for several applications.
 - Straight / U-bended tubes.
 - Welded and coiled seamless tubes (for umbilical application).
- Mechanical tubing.
- Big outside diameter seamless pipes and tubes.



HIGH PRECISION MACHINING

Tubacex Group is able to offer high-precision non-magnetic steel components for the oil and gas industry with focus on Inconel, Duplex, Superduplex and Titanium steels through NTS Group.



FITTINGS AND SPECIAL COMPONENTS

The Tubacex Group's range includes the design and manufacturing of butt welding fittings, tube bends, elbows, tees, reducers and caps (both seamless and welded), complementing the wide offer of tubular solutions, in a complete manufacturing range that goes up to 72" in any thickness.

THE GLOBAL MASTER STOCKIST

Tubacex Group has reinforced its global leadership on the distribution market increasing its market proposal through Tubacex Service Solutions (TSS); a master distributor able to offer its distributor clients a wide range of products in stock with full availability anywhere in the world.

Worldwide presence

Through our commercial offices

Competitiveness

Thanks to our lean manufacturing process

Service

Cooperation with our customers

Flexibility

In materials chemical composition & deliveries

Reliability

Of a fully integrated company

Our Customers are the main driver of The Tubacex Group's activity and efforts. Our organization and investments are continuously adapting to fulfill the increasing requirements that companies are facing everyday in high demanding activities in the oil & gas, petrochemical, chemical and power generation industries, amongst others. These new challenging needs are driving us to implement in our mills the most advanced verification equipment and inspection procedures to assure product quality and a high service, guaranteed by a fully integrated company with a worldwide presence.



OIL AND GAS EXPLORATION AND PRODUCTION

New challenging corrosive environments and applications are driving Tubacex product portfolio of corrosion resistant alloys in both on-shore and off-shore E&P, with a particular focus in:

- Oil Country Tubular Goods (OCTG) • Umbilical tubes along with a wide range of Seamless Stainless and High Nickel Alloys for subsea application (risers, flowlines, manifolds...).
- Tubes for platforms (piping systems, separators...).



POWER GENERATION

Tubacex's manufacturing range covers the main stainless steel heat resistant grades used in boiler equipment, in both:

- Critical equipment • Ultra Super Critical (USC) equipment • Industrial power plants.
- Nuclear power plants.



LOW CARBON

y boosting hydrogen supply and expanding CCUS applications, we support our customers in achieving emission reduction goals playing a pivotal role in global decarbonization efforts.

- Hydrogen • CCUS technologies.



HYDROCARBON PROCESSING INDUSTRIES

Tubacex offers an extensive grade and size portfolio to achieve designers expectations regarding several areas and equipments in the Petrochemical and Chemical industry, particularly:

- Regas Facilities • Refineries • Heat exchangers • Reactors • Furnaces, Heaters and Re-Heaters • Other process industries.



FERTILIZER PRODUCTION

Fertilizer production materials need to bear severe corrosion conditions. Tubacex provides pipes & tubes for the equipment involved in the production of Urea, Ammonia, Nitric acid, Sulphuric acid, Phosphoric acid and Melamine.

- Strippers • Condensers • Scrubbers • Reactors • Piping.









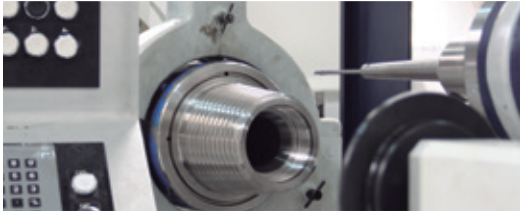

TRANSPORTATION & NEW INDUSTRIES

Tubacex's portfolio covers a wide range of applications in transportation and new industries:

- Hollow Bars for metal-mechanic industries • Machined Parts • Instrumentation and hydraulic tubing for a wide range of high added value industries, including automotive and aerospace.

The Widest Portfolio in Stainless Steel

A global solutions provider at your service

	SOLUTIONS	BUSINESS UNIT
	Stainless Steel and High Nickel alloys bars and billets	ACERALAVA TUBACEX GROUP
	Seamless Pipe and Tubes to 8" (extrusion, piercing, cold finishing)	TTI TUBACEX GROUP
		SCHOELLER BLECKMANN TUBACEX GROUP
		SALEM TUBE TUBACEX GROUP
		TUBACEX DURANT TUBACEX GROUP
		TUBACEX INDIA TUBACEX GROUP
	Seamless Pipe and Tubes to 72"	IBF TUBACEX GROUP
	Fittings and special connections from 1/2" to 72"	TTA TUBACEX GROUP
		AWAJI STAINLESS TUBACEX GROUP
	High precision machining	NTS Group SENAAT - TUBACEX JV
	Value added operations and services	TBX UPSTREAM TUBACEX GROUP
		TUBACEX SERVICES TUBACEX GROUP
		TUBACOAT TUBACEX GROUP
	Stock, service and trading	TSS TUBACEX GROUP

RANGE

Round and Square Stainless and Nickel Alloy Billets

Rolled from 120 to 280 mm (4 ¾" - 11")

Forged from 230 to 508 mm (9" - 20")

Acerálava is the main steel supplier of the Tubacex Group's companies. It also supplies its products to the Stainless Steel Market. Acerálava's manufacturing range covers the main stainless steel grades requested by the industry, with exceptions possible on request.

Seamless Stainless Steel and Nickel Alloy tubes and pipes

The size manufactured through the extrusion press and the 11 cold rolling machines, goes from ½" up to 8" NPS, or 19 - 250 mm OD, at manufacturing facilities located at Llodio and Amurrio (Spain).

A specific line is fully devoted to OCTG (Oil Country Tubular Goods) manufacturing, in a range that goes to 9 5/8" (currently in trial).

Seamless Stainless Steel pipes and tubes

Schoeller Bleckmann Edelstahlrohr, located in Ternitz, Austria, manufactures Seamless Stainless Steel in dimensions between 1/8" and 8" NPS, or 6 - 250 mm OD. A specific plant is devoted to special tube manufacturing, with focus in straight and welded tubes for umbilical application and other high demanding applications (Nuclear, Fertilizer).

Welded and Seamless Stainless Steel and Nickel Alloy tubes.

Located in Greenville, PA (USA) Salem tube's manufacturing range goes from 1/8" to 2" OD.

The company is highly specialized in precision tubing for the most demanding industries such as military and aerospace, with a heavy concentration of high nickel alloy in their product portfolio.

Straight and coiled cold finished stainless steel and nickel alloy tubes

Tubacex Durant is located in Durant Oklahoma and is dedicated to making standard instrumentation (straight and coiled) tubing and heat exchanger tubing ranging in sizes from 0.250" OD to 1.660" OD. This purpose-built facility, equipped with its own lab, was created to serve the US market's growing demand for precision tubing in corrosion resistant alloys.

Seamless Stainless Steel tubes and pipes

Located in Umbergaon (Gujarat- India), Tubacex India manufactures cold finished tubes and pipes from 6 mm OD to 273.1 mm OD

The company is able to deliver tubes up to 28 m (length), straight and U-Shape, to a wide range of customers. The company is ISO 9000 and ISO 14000 certified.

Mechanically bored tubes

Located in Vittuone, Italy, IBF pipes division manufactures mechanically bored tubes up to 72" in any wall thickness.

Fittings

Located in San Niccolo, Italy, IBF fittings and special parts division manufactures fittings, elbows, and special components in a manufacturing range that goes from ½" to 72" NPS.

Stainless steel (also carbon and alloy) butt welding fittings

Size range goes from 1 ½" up to 12" NPS, in short and long radius as well as in special radii. Located in Artziniega, Spain, Tubacex Taylor Accesorios (TTA) manufactures fittings (elbows and return bends) mainly for the Petrochemical industry, perfectly complementing the portfolio of the rest of The Group.

Stainless Fittings

Located in Amphur Muang-Samutprakarn, Thailand, Awaji Stainless manufactures stainless fittings (seamless and welded) in austenitic grades from 1/2" to 12".

The company is able to manufacture in both ASTM and JIS standards - for the high quality demanding Japanese market.

Stainless steel machined parts manufacturing and repair

Boasting over two decades of experience in the oil&gas industry, NTS Group (with plants in UAE, Saudi Arabia, Norway, USA, Canada and Singapore) develops solutions which minimize turnaround times, extend the life and availability of equipment and optimize costs while ensuring adherence to the highest levels of quality: Specialized repairs to extend life and availability of Measuring While Drilling (MWD), Logging while drilling (LWD), non-mag drill collars and other drilling accessories. Manufacture of complex components for drilling, topside, subsea and process systems, using conventional and Additive Manufacturing techniques

OCTG added value operations

Located in Spain, Tubacex Upstream Technologies provides worldwide OCTG value added operations.

Value added services applied to tubular products

Tubacex Services is a company devoted to service and customized solutions applied to steel products. The company provides complete project management improving organizational efficiency working collaboratively with key industry stakeholders, cultivating win-win relationships.

Ceramic coating

Tubacoat is an innovative ceramic coating applicable to long steel and high-nickel alloy products which increases the useful life of petrochemical refinery processing units. In-house developed industrial process allows the application of thin tailor made ceramic coatings to steel tubes, bars or open profiles that result in added-value products with outstanding abrasion resistance (64HRC hardness) and corrosion resistance in different media and thermal conditions, as well as anti-adherent and anti-fouling properties.





Stainless Steel long products distribution

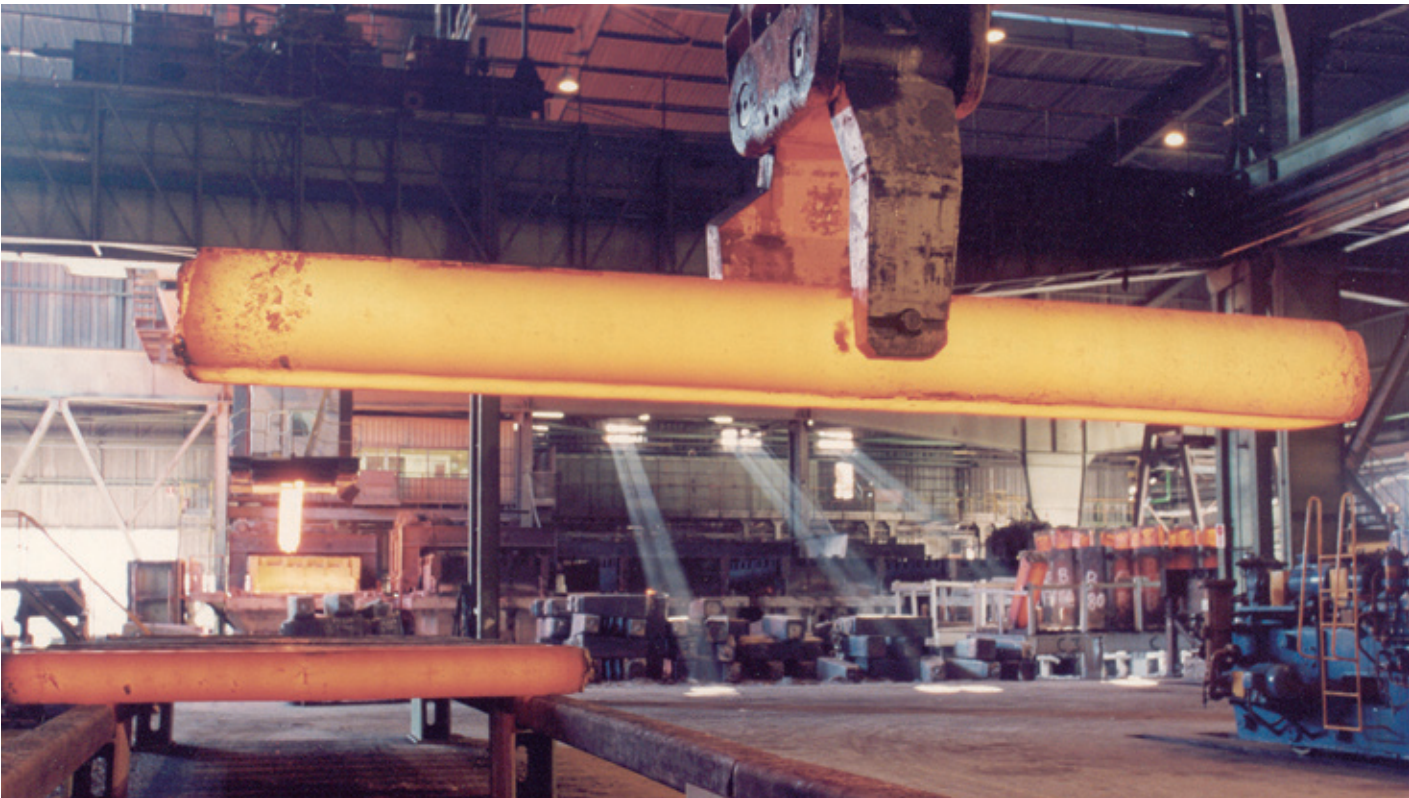
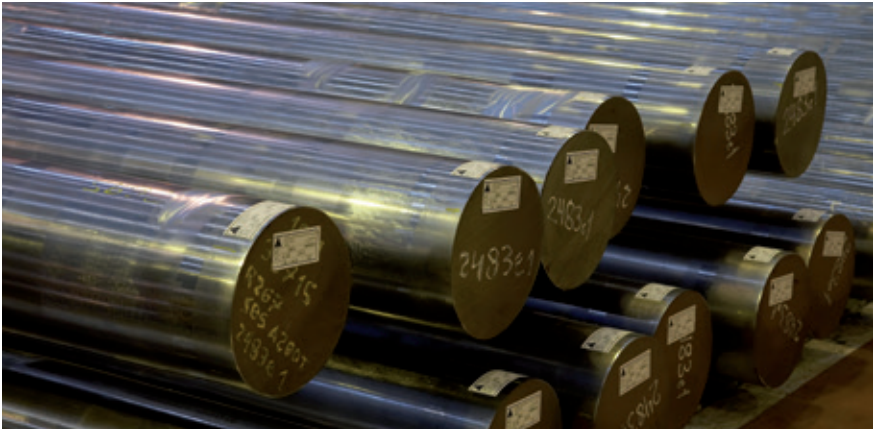
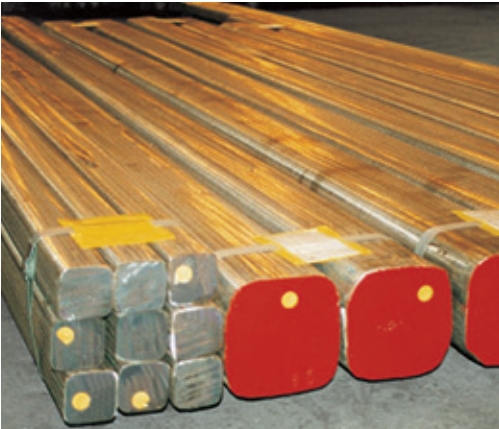
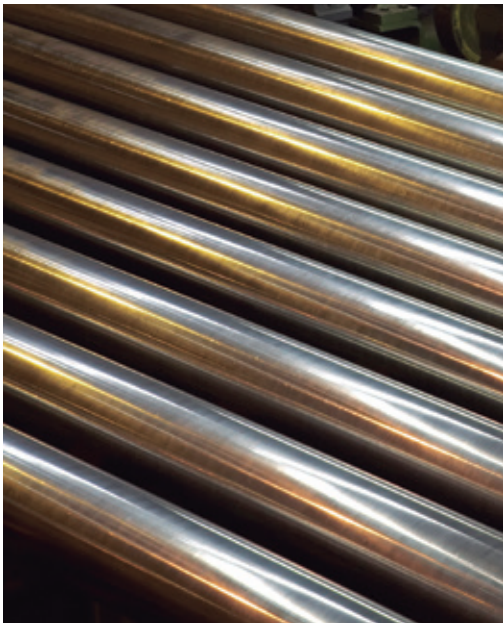
Service centers located in Spain, France, Austria, the United States, Brazil, China, India, Dubai and Norway.

Stainless Steel Bars and Billets

Acerálava is The Tubacex Group's steel melting shop, which provides the bulk of raw material supply for the rest of the Group's manufacturing units. In addition, Acerálava offers a wide stainless steel portfolio to our customers.

Acerálava's product range includes stainless steel long products such as square and round bars, billets and ingots, rolled and forged. Our standard portfolio can be defined as follows:

ROUNDS BARS & BILLETS			
Products	Size range	Condition	Grades
	165 mm. up to 230 mm. (6 1/2" - 9")	Rolled	Martensitics Austenitics Ferritic - Austenitics High Nickel Alloys
	230 mm. up to 500 mm. (9" - 19 3/4")	Forged	
SQUARE BILLETS			
Products	Size range	Condition	Grades
	120 mm. up to 280 mm. (4 3/4" - 11")	Rolled	Martensitics Austenitics Ferritic - Austenitics High Nickel Alloys
	280 mm. up to 508 mm. (11" - 20")	Forged	



Stainless Steel Bars and Billets

Acerálava's manufacturing range covers the main stainless steel grades requested by the industry and a tailor made list of steels. Our metallurgical engineers are devoted to the development of sophisticated steels capable of operating in the demanding environments of the future. Exceptions over the standard steel grades can be met upon request.



STAINLESS STEEL GRADES								
	ASTM	WNR	AFNOR	C max*	Cr	Ni	Mo	Other
AUSTENITIC	304	1.4301	TU Z 6 CN 18-09	0,08	17/20	8/11		
	304 L	1.4306	TU Z 2 CN 18-10	0,03	18/20	10/12		
	304 L	1.4307	TU Z 3 CN 19-09	0,03	17,5/19,5	8/10,5		
	304 H		TU Z 6 CN 19-10	0,04/0,10	18/20	8/11		
	TX304HB**	1.4907		0,07	17/19	7,5/10,5		Nb 0,3/0,6 Cu 2,5/3,5
	321	1.4541	TU Z 6 CNT 18-10	0,08	17/19	9/12		5 C ≤ Ti ≤ 0,60
	321 H		TU Z 6 CNT 18-12 B	0,04/0,10	17/20	9/13		4 C ≤ Ti ≤ 0,60
	347	1.4550	TU Z 6 CNNb 18-10	0,08	17/19	9/12		10 C ≤ Nb ≤ 1,0
	347 H		TU Z 6 CNNb 18-12 B	0,04/0,08	17/20	9/13		8 C ≤ Nb ≤ 1,0
	347 H FG	1.4908		0,07	17/19	9/13		8 C ≤ Nb ≤ 1,1
	316	1.4401	TU Z 6 CND 17-11	0,08	16/18	11/14	2/3	
	316 L	1.4404	TU Z 2 CND 17-12	0,03	16/18	11/14	2/3	
	316 Ti	1.4571	TU Z 6 CNDT 17-12	0,08	16,5/18,5	10,5/13,5	2/2,5	5 C ≤ Ti ≤ 0,80
	(316 L)	1.4435	TU Z 2 CND 17-13	0,03	17/18,5	12,5/15	2,5/3	
	(316)	1.4436	TU Z 6 CND 17-12	0,07	16,5/18,5	11/14	2,5/3	
	316 Nb	1.4580		0,08	16/18	11/13	2/2,5	10 C < Nb < 1,0
	316 N/316 LN			0,03	16/18	11/14	2/3	N 0,10/0,16
	316 L urea			0,03	17/18	13/15	2/3	
	317		TU Z 2 CND 19-15	0,08	18/20	11/15	3/4	
	317 L	1.4438	TU Z 2 CND 19-15	0,03	18/20	11/15	3/4	
	309 S/309 H	1.4833	TU Z 12 CN 24-12	0,08	22/24	12/15	≤ 0,75	
	310 S/310 H	1.4845	TU Z 12 CN 25-20	0,08	24/26	19/22	≤ 0,75	
	310 HCbN	1.4952		0,07	24/26	19/22		0,2 ≤ Nb ≤ 0,6
	310 MoLN	1.4466		0,02	24/26	21/23	2/2,5	N=0,1/0,15 Si<0,4 P<0,02
		1.4828	TU Z 17 CNS 20-12	0,20	19/21	11/13		Si 1,5/2,5
	314	1.4841	TU Z 15 CNS 25-20	0,15	24/26	19/21		Si 1,5/2,5
	UNS S31254	1.4547		0,02	19,5/20,5	17,5/18,5	6,0/6,5	Cu 0,50/1,00 N 0,18/0,22
FERRITIC AUSTENITIC	UNS S31803	1.4462	TU Z 2 CND 22-05-03	0,03	21/23	4,5/6,5	2,5/3,5	N 0,12/0,20
	UNS S32750	1.4410			24,0/26,0	6,0/8,0	3,0/5,0	
	UNS S32760	1.4501	TU Z 3 CND 25-06-Az	0,03	24/26	6/8	3/5	N 0,2/0,3 Cu & W 0,5/1,0
HIGH NICKEL	904 L	1.4539	TU Z 1 CNDU 25-20	0,02	19/21	24/26	4/5	Cu 1,20/2,00 N 0,04/0,10
	800-H-HT	1.4876	(TU Z10 NC 32-21)	0,6/0,10	19/23	30/35		Al & Ti 0,15/0,60
	UNS N08020	2.4660		0,07	19/21	32/38	2/3	Cu 3/4 Nb 8xC-1,0 Fe Balance
	UNS N08825	2.4858		0,05	19,5/23,5	38/46	2,5/3,5	Cu 1,5/3,0 Al 0,2 max Ti 0,6/1,2 Fe Balance
	UNS N08028	1.4563	TU Z2 CNDU 31-27	0,03	26/28	30/32	3/4	Cu=0,8/1,4 N=0,04/0,15 Fe Balance
	G-3 N06985				21,0/23,5	44,0/52,0	6,5/8,0	Fe: 18,0/21,0

* Maximum unless otherwise indicated. ** Tubacex name.

In addition to these standards, Tubacex's capabilities include a wide range of stainless steel and high nickel alloy grades depending on our customers' requirements.

Seamless Pipes and Tubes Extrusion / Cold drawing

The Tubacex Group has an extensive manufacturing program for Stainless Steel and Nickel Alloys Seamless pipes and tubes covering most dimensions and grades required by the industry. Seamless Stainless Steel Tubing can be hot or cold finished, covering the following range:

MANUFACTURING RANGE

HOT MANUFACTURING DIMENSIONS																																																				
OUTSIDE DIAMETER			WALL THICKNESS																																																	
ASTM A 312 ASME B 36.10			Inch mm	0,120 3,05	0,126 3,20	0,133 3,38	0,134 3,40	0,140 3,56	0,145 3,68	0,148 3,76	0,154 3,91	0,179 4,55	0,191 4,85	0,200 5,08	0,203 5,16	0,216 5,49	0,218 5,54	0,226 5,74	0,237 6,02	0,250 6,35	0,258 6,55	0,276 7,01	0,280 7,11	0,281 7,14	0,300 7,62	0,318 8,08	0,322 8,18	0,337 8,56	0,344 8,74	0,375 9,52	0,406 10,31	0,432 10,97	0,438 11,13	0,500 12,7	0,531 13,49	0,562 14,27	0,625 15,88	0,719 18,26	0,906 23,10	1,000 25,40	Inch mm											
NPS	Inch	mm	DIN mm		3,2				3,6		4,0	4,5		5,0		5,49		5,6		6,3	6,55		7,1	7,14		8,0			8,8		10,0	11,0		12,5							25,0	DIN mm										
	1,496		38,0																														38,0																			
	1,575		40,0																														40,0																			
1 1/4	1,660	42,16	42,4	40				80				160															42,4																									
	1,752		44,5																														44,5																			
1 1/2	1,900	48,26	48,3	40				80				160																	48,3																							
	2,008		51,0																														51,0																			
	2,126		54,0																														54,0																			
	2,244		57,0																														57,0																			
2,0	2,375	60,33	60,3					40				80				160																	60,3																			
	2,500		63,5																														63,5																			
	2,756		70,0																														70,0																			
2 1/2	2,875	73,03	76,1									40				80				160																	76,1															
3,0	3,500	88,9	88,9																			40				80				160																	88,9					
3 1/2	4,000	101,60	101,6																							40				80															101,6							
	4,252		108,0																																				108,0													
4,0	4,500	114,30	114,3																			40								80				120				160							114,3							
	5,236		133,0																															133,0																		
	5,500		139,7																															139,7																		
5,0	5,563	141,3	141,3				10																			40				80				120				160							141,3							
	6,260		159,0																																					159,0												
6,0	6,625	168,28	168,3				10																							40				80				120				160							168,3			
	7,626		193,7																																					193,7												
8,0	8,625	219,08	219,1							10																							40				60				80				120				160			219,1
	9,000		228,6																																				228,6													
	9,626		244,5																																				244,5													

Range of Tubacex Tubos Inoxidables and Schoeller Bleckmann Edelstahlrohr for austenitic hot manufactured tubes and pipes. Production according to main manufacturing standards (ASTM/ASME, EN and other international manufacturing standards). Non standard articles available upon request.

COLD MANUFACTURING DIMENSIONS

[illegible]

Range of Tubacex Tubos Inoxidables, Schoeller Bleckmann Edelstahlrohr, Salem Tube and Tubacex India for Austenitic cold manufactured tubes and pipes. Production according to main manufacturing standards (ASTM/ASME, EN and other international manufacturing standards). Non standard articles available on request.

Seamless Pipes and Tubes Extrusion / Cold drawing

WEIGHT PER METER CONVERSION

SEAMLESS PIPE

Wall thickness: Average

APPROXIMATE WEIGHTS ACC. TO. ANSI / ASME B36.19 AND ASME B36.10 DIMENSIONS

NPS	OD	Sch 5S		Sch 10S		Sch 40S		Sch 80S		Sch 120S		Sch 160S		XXS	
		Wall	Wt	Wall	Wt	Wall	Wt	Wall	Wt	Wall	Wt	Wall	Wt	Wall	Wt
	mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
inch	inches	inch.	lb/ft	inch.	lb/ft	inch.	lb/ft	inch.	lb/ft	inch.	lb/ft	inch.	lb/ft	inch.	lb/ft
1/8"	10.29 0.405	0.89 0.035	0.21 0.14	1.24 0.049	0.28 0.19	1.73 0.068	0.37 0.25	2.41 0.095	0.48 0.32						
1/4"	13.72 0.540	1.24 0.049	0.39 0.26	1.65 0.065	0.50 0.34	2.24 0.088	0.64 0.43	3.02 0.119	0.81 0.54						
3/8"	17.15 0.675	1.24 0.049	0.49 0.33	1.65 0.065	0.64 0.43	2.31 0.091	0.86 0.58	3.20 0.126	1.12 0.75						
1/2"	21.34 0.840	1.65 0.065	0.81 0.54	2.11 0.083	1.02 0.68	2.77 0.109	1.29 0.87	3.73 0.147	1.64 1.10			4.78 0.188	1.98 1.33		
3/4"	26.67 1.050	1.65 0.065	1.03 0.69	2.11 0.083	1.30 0.87	2.87 0.113	1.71 1.15	3.91 0.154	2.23 1.50			5.56 0.219	2.94 1.97		
1"	33.40 1.315	1.65 0.065	1.31 0.88	2.77 0.109	2.12 1.43	3.38 0.133	2.54 1.71	4.55 0.179	3.29 2.21			6.35 0.250	4.30 2.89	9.09 0.358	5.53 3.71
1 1/4"	42.16 1.660	1.65 0.065	1.67 1.12	2.77 0.109	2.73 1.83	3.56 0.140	3.44 2.31	4.85 0.191	4.53 3.04			6.35 0.250	5.69 3.82	9.70 0.382	7.88 5.29
1 1/2"	48.26 1.900	1.65 0.065	1.93 1.30	2.77 0.109	3.15 2.12	3.68 0.145	4.11 2.76	5.08 0.200	5.49 3.69			7.14 0.281	7.35 4.93	10.16 0.400	9.69 6.51
2"	60.32 2.375	1.65 0.065	2.42 1.62	2.77 0.109	3.99 2.68	3.91 0.154	5.52 3.71	5.54 0.218	7.60 5.10			8.74 0.344	11.29 7.58	11.07 0.436	13.65 9.16
2 1/2"	73.02 2.875	2.11 0.083	3.75 2.52	3.05 0.120	5.34 3.59	5.16 0.203	8.77 5.89	7.01 0.276	11.58 7.78			9.52 0.375	15.14 10.16	14.02 0.552	20.71 13.90
3"	88.90 3.500	2.11 0.083	4.59 3.08	3.05 0.120	6.56 4.40	5.49 0.216	11.46 7.70	7.62 0.300	15.50 10.41			11.13 0.438	21.67 14.55	15.24 0.600	28.10 18.87
3 1/2"	101.60 4.000			3.05 0.120	7.52 5.05	5.74 0.226	13.77 9.25	8.08 0.318	18.92 12.70			12.70 0.500	28.26 18.97	16.15 0.636	34.55 23.19
4"	114.30 4.500			3.05 0.120	8.49 5.70	6.02 0.237	16.32 10.96	8.56 0.337	22.66 15.21	11.13 0.438	28.74 19.30	13.49 0.531	34.04 22.85	17.12 0.674	41.66 27.97
5"	141.30 5.563			3.40 0.134	11.74 7.88	6.55 0.258	22.09 14.83	9.52 0.375	31.41 21.09	12.70 0.500	40.88 27.45	15.88 0.625	49.87 33.48	19.05 0.750	58.32 39.15
6"	168.28 6.625			3.40 0.134	14.03 9.42	7.11 0.280	28.69 19.26	10.97 0.432	43.20 29.00	14.27 0.562	55.02 36.94	18.26 0.719	68.59 46.05	21.95 0.864	80.43 54.00
8"	219.08 8.625			3.76 0.148	20.27 13.61	8.18 0.322	43.19 28.99	12.70 0.500	65.61 44.05	18.26 0.719	91.79 61.63	23.04 0.906	112.94 75.82	22.22 0.875	109.53 73.53

For minimum wall according to ASTM A 213 add 10%

SEAMLESS TUBE

Wall thickness: Average

APPROXIMATE WEIGHTS ACC. TO. BIRMINGHAM WIRE GAUGE - BWG

			20	18	16	15	14	13	12	11	10	9	8	7	6	5	4
inch	mm	mm inch	0,890 0,035	1,245 0,049	1,650 0,065	1,830 0,072	2,110 0,083	2,410 0,095	2,770 0,109	3,050 0,120	3,400 0,134	3,760 0,148	4,190 0,165	4,570 0,180	5,160 0,203	5,590 0,220	6,040 0,238
1/4"	0,250	6,35	kg/m lb/ft	0,12 0,08	0,16 0,11	0,19 0,13											
3/8"	0,375	9,53	kg/m lb/ft	0,19 0,13	0,26 0,17	0,33 0,22	0,35 0,24	0,39 0,26									
1/2"	0,500	12,70	kg/m lb/ft	0,26 0,18	0,36 0,24	0,46 0,31	0,50 0,33	0,56 0,38	0,62 0,42	0,69 0,46	0,74 0,50						
5/8"	0,625	15,88	kg/m lb/ft	0,33 0,22	0,46 0,31	0,59 0,40	0,64 0,43	0,73 0,49	0,81 0,55	0,91 0,61	0,98 0,66	1,05 0,70	1,13 0,76				
3/4"	0,750	19,05	kg/m lb/ft	0,40 0,27	0,55 0,37	0,72 0,48	0,79 0,53	0,89 0,60	1,01 0,68	1,13 0,76	1,22 0,82	1,33 0,90	1,40 0,94	1,52 1,02	1,61 1,08	1,73 1,16	
1"	1,000	25,40	kg/m lb/ft		0,75 0,51	0,98 0,66	1,08 0,73	1,23 0,83	1,39 0,93	1,57 1,05	1,71 1,15	1,87 1,26	2,00 1,35	2,18 1,45	2,33 1,56	2,56 1,73	
1 1/4"	1,250	31,75	kg/m lb/ft		0,95 0,64	1,24 0,84	1,37 0,92	1,56 1,05	1,77 1,19	2,01 1,35	2,19 1,47	2,42 1,62	2,60 1,75	2,85 1,91	3,05 2,05	3,37 2,26	3,58 2,41
1 1/2"	1,500	38,10	kg/m lb/ft		1,15 0,77	1,51 1,01	1,66 1,12	1,90 1,28	2,16 1,45	2,45 1,65	2,68 1,80	2,96 1,99	3,20 2,15	3,51 2,35	3,78 2,55	4,19 2,82	4,47 3,01
1 3/4"	1,750	44,45	kg/m lb/ft		1,35 0,90	1,77 1,19	1,95 1,31	2,24 1,50	2,54 1,71	2,89 1,94	3,16 2,12	3,50 2,35	3,83 2,57	4,21 2,83	4,55 3,05	5,05 3,39	5,40 3,63
2"	2,000	50,80	kg/m lb/ft			2,03 1,37	2,24 1,51	2,57 1,73	2,92 1,96	3,33 2,24	3,64 2,45	4,04 2,71	4,43 2,97	4,88 3,28	5,28 3,55	5,87 3,95	6,30 4,24
2 1/4"	2,250	57,15	kg/m lb/ft				2,53 1,70	2,91 1,95	3,31 2,22	3,77 2,53	4,13 2,77	4,58 3,08	5,04 3,38	5,55 3,74	6,01 4,04	6,70 4,50	7,20 4,84
2 1/2"	2,500	63,50	kg/m lb/ft				2,82 1,90	3,24 2,18	3,69 2,48	4,23 2,84	4,61 3,12	5,13 3,44	5,64 3,79	6,23 4,18	6,74 4,54	7,54 5,06	8,09 5,44
3"	3,000	76,20	kg/m lb/ft					3,91 2,63	4,46 3,00	5,14 3,42	5,58 3,75	6,20 4,17	6,82 4,58	7,57 5,08	8,25 5,54	9,19 6,18	9,91 6,66
3 1/2"	3,500	88,90	kg/m lb/ft					4,58 3,08	5,23 3,51	5,97 4,01	6,55 4,40	7,29 4,90	8,02 5,38	8,91 5,97	9,70 6,52	10,85 7,28	11,71 7,85

For minimum wall according to ASTM A 213 add 10%

Stainless Steel Mechanical Tubes

Tubacex Group covers the Mechanical Tube market mainly through Tubacex Service Solutions (Cotubes, MIS and Tubacex America). Cotubes in particular, is specialized in the commercialization of Hollow Bar manufactured in both T.T.I. Tubacex Tubos Inoxidables and Schoeller Bleckmann Edelstahlrohr. Cotubes offers excellent availability supported by a global distribution network. In addition, the company operates one of the world's most relevant seamless stainless steel tubes and pipes stocks.

SEAMLESS STAINLESS MECHANICAL TUBES MANUFACTURING RANGE																																										
		Wall thickness: Average																																								
OUTSIDE DIAMETER	OD	INSIDE DIAMETER																																								
		16	20	25	28	32	36	40	45	50	55	56	60	61	63	67	69	71	75	80	85	90	95	98	100	106	110	112	118	122	125	130	132	140	150	160	170	180	186	190	200	
	32	8	6																																							
	36	10	8	5,5																																						
	40		10	7,5	6																																					
	45		12,5		8,5	6,5																																				
	50			12,5		9	7																																			
	56				14		10	8																																		
	63					15,5	13,5	11,5	9	6,5																																
	71						17,5	15,5	13	10,5	7,5																															
	75							17,5	15	12,5	9,5	7,5																														
	80								20	17,5	15	12			8,5																											
	85									20	17,5	15		12		9																										
	90										20	17			13,5	11,5		9,5																								
	95											22,5	19,5			16		13		10																						
	100												22			18,5			14,5	12,5	10																					
	106												25				21,5			17,5	13	10,5																				
	112																	24,5			20,5	16	13,5	11																		
	118																		27,5			23,5	19		14	11,5																
	125																				27	22,5	17,5	15		12,5																
	132																				30,5	26		21		17		13														
	140																					30		25		20	17		14													
	150																						35		27,5		22			16		12,5										
	160																							35		30		24		19			14									
	170																								35		30		26			20		15								
	180																									40		34			27,5			20		15						
	190																										42			36			29		20		15					
	200																											44						35		30		25		20		
	212																															43,5	41			31		21				
	224																																	46	42		32	27,5	22			
236																																		48	43		33			23		
240																																				35				25		
250																																							32		25	



The Tubacex Group offers the main dimensions of mechanical tubes according to EN 10294-2, in a wide range of combinations of OD/ID.

In the manufacture of cylindrical tools or hollow stainless steel parts, the cost of machining the bore is greatly reduced when hollow bar is used as basic material. Chip loss is substantially lower than if solid bar is used. A wide range of hollow parts can be processed from hollow bar, as liners, feed bushes, shearing cylinders, cutting rings, fittings, pumps, flange rings and hollow axles.

The Tubacex Group supplies mechanically bored tubes through IBF. Located in Vittuone, Italy, IBF pipes division manufactures mechanically bored tubes up to 72" in any wall thickness.

Big Outside Diameter Seamless Pipes and Tubes

Growing sizes in both outside diameter and wall thickness are a clear trend in almost all seamless pipe demanding industries (oil and gas, refining and petrochemical, power generation). Starting either from forged round bars (rough or machined) or from hollow forging (heat treated or as forged) Tubacex offers a wide manufacturing range through trepanning technology:

MANUFACTURING RANGE	
Trepanned Pipes	Outside Diameter
From round bar	1/2" - 26"
From hollow bar	22" - 72"
Seamless heavy wall pipes	
Any thickness	
Lengths up to 20 meter	



Materials covered include a wide range of grades, from carbon steel to titanium, with focus in stainless steel and high nickel alloys:

GRADE RANGE - BIG OUTSIDE DIAMETER SEAMLESS PIPES AND TUBES	
Carbon steels	ASTM A105, A106, A333...
Carbon steels with high yield limit	X52- X60-X65 in conformity with the standards A864, A860, MSS-SP-75, API 5L...
Low alloy steels	ASTM A182, A234, A335 grade F/WP/P1, 5, 11,12, 22, 91, 92, 122...
Austenitic stainless steels	Standardaustenitic (304,316,321, 347 series...) and superaustenitic steels (UNS S31254,UNS S34565...)
Martensitic and ferritic stainless steels	400 Series: 410...
Ferritic-austenitic stainless steels	22% Cr Duplex (UNS S31803, S32205); 25% Cr Super Duplex (UNS S32760, S32750, S32550)
Nickel and nickel alloys	Inconel (N06625, N06600...); Incoloy (N08825, N0800H)
Titanium alloys	



Fittings and Special Components



The Tubacex range includes the design and manufacturing of butt welding fittings, tube bends, elbows, tees, reducers and caps (both seamless and welded), complementing the wide offer of tubular solutions, by IBF and TTA companies. In addition, IBF offers a wide range of special parts (manifolds, laterals, special reducers...)

- TTA size range goes from 1 ½" to 14" NPS, in short and long radius as well as special radii. Located in Artziniega, Spain, Tubacex Taylor Accesorios (TTA) manufactures fittings (elbows and return bends) mainly for the petrochemical industry, perfectly complementing the portfolio of the rest of the Group and particularly the seamless tubes for furnace applications, heaters and re-heaters.
- Located in San Niccolo, Italy, IBF fittings and special parts division manufactures fittings, elbows, and special components in a manufacturing range that goes from ½" to 72" NPS for a wide range of end users (Oil and Gas, Power Gen, Nuclear...). Specialized in special and big size pieces, cold drawn dimensions are mainly sourced from its participated company CFF.
- Located in Amphur Muang-Samutprakarn, Thailand, Awaji Stainless manufactures stainless fittings (seamless and welded) in austenitic grades from 1/2" to 12" in both ASTM and JIS standards.

The Tubacex Group's fitting and special components extensive production program is suitable for all kinds of projects. The range offered is one of the widest in the industry:

MANUFACTURING RANGE - FITTINGS AND SPECIAL PARTS

Seamless	1/2" to 44"
Welded	1/2" to 72"

Hot drawing, bending and cold drawing processes
Any thickness
Lengths from 0,5 to 20 meter

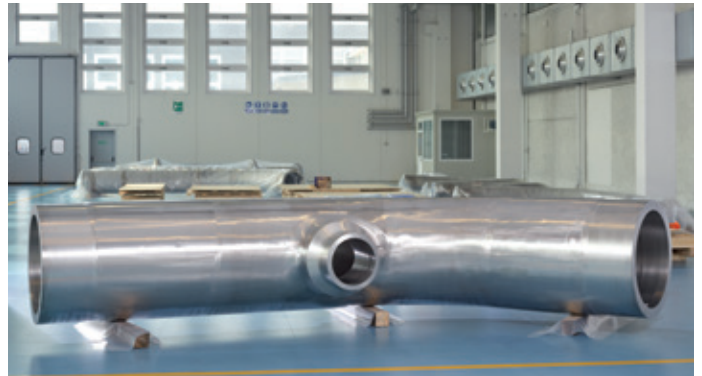
Materials covered include a wide range of grades, from carbon steel to titanium, with focus in Stainless Steel and High Nickel Alloys – same as described regarding trepanned pipes. The Tubacex Group maintains a very high stock level in finished and semifinished products, as well as base materials, to provide full flexibility and a extremely competitive lead time.



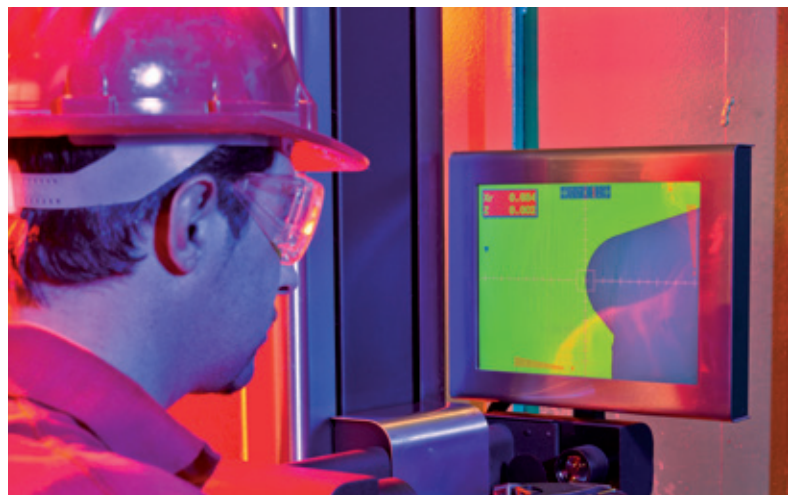
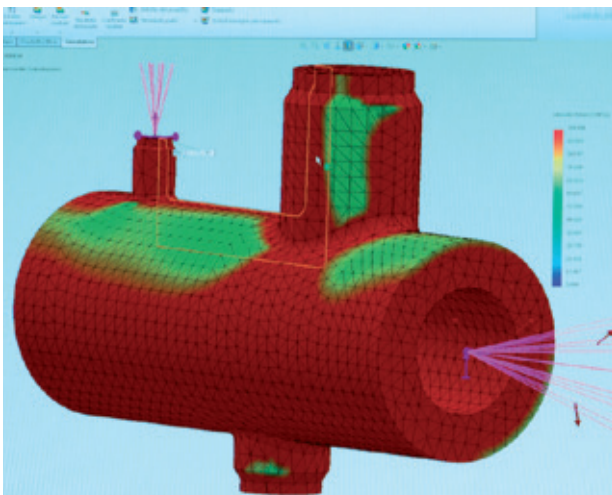
Product portfolio

- The Tubacex Group's Fittings program covers all kind of fittings (Butt welding fittings & elbows, tees, reducers, caps) from standard to special products, manufactured by hot drawing, bending or cold drawing.
- In addition to fittings, special components such as laterals, manifolds, tees, stress joints, weldolets are manufactured at IBF fittings and special parts division, with a clear trend to a more particularized design.

FITTINGS	SPECIAL PARTS
Butt Welding fittings & elbows	Special components
Tees	Manifolds
Reducers	Laterals
3D / 5D Bends / Stress Joints	Special Reducers



- Flexible production processes allow The Tubacex Group's products to be manufactured by a variety of production methods, to reach a wide range in a specialized market, where particularized designs are growingly demanded – designs defined and calculated by our engineering departments.
- IBF has a technical department equipped with CAD systems for design and calculation. This department designs fittings and special items in compliance with all applicable standards and specifications and in conjunction with the client's specific requirements. In addition, the department offers support to the development of all necessary production equipment, machinery and technical processes.



The Tubacex Group's Vision remarks the aspiration of becoming a global supplier, benchmark in the development of innovative tubular solutions in advanced materials. Creativity and Innovation, along with customer satisfaction, are the values behind this vision.

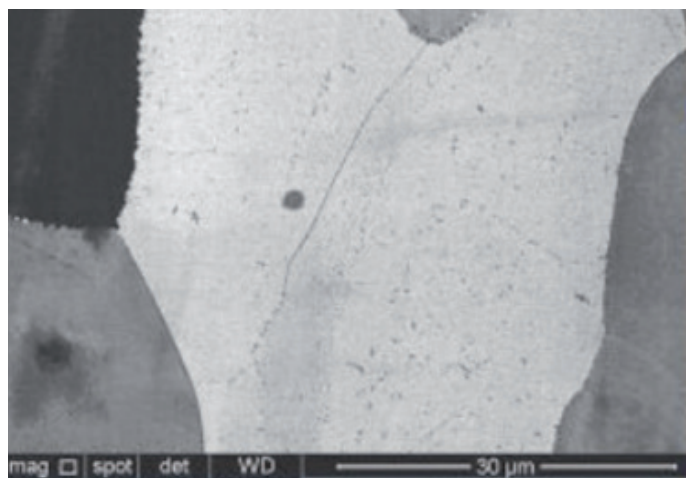
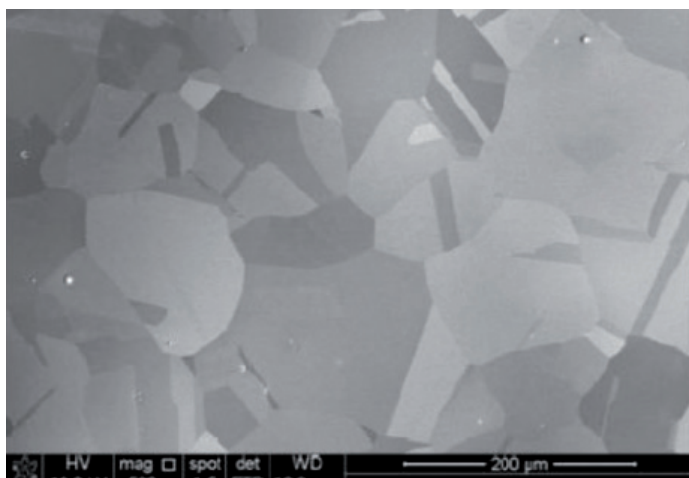


The Tubacex Group has made a significant effort in innovation in recent years, which is constantly being reflected in results and in the sales figure.

The Group has a corporate innovation unit called Tubacex Innovación, with human and technical resources devoted exclusively to innovation activities, consisting of product R&D projects and development projects for the different industrial plans of the Group's companies, in which technological development is required.

Tubacex Innovation

- Steel Portfolio Management
- R&D Projects Management
- New Products Development
- Known grades. Performance Improvement. New requirements
- Participation in Industrialization Projects
- Participation in Continuous Improvement Projects
- Investigation and analysis of Metallurgical claims
- Heat treatments design
- Group Laboratories Standardization
- Technical support to Sales and Engineering
- Customers Assistance



Important approvals with potential customers have also been obtained, which will enable sales of high value-added products to increase in the future. Since 2008, and more notably in the past two years, we have entered all of the strategic sectors that were defined as targets, namely: OCTG, umbilical offshore tubes, ultra supercritical boilers and recently, fertilizers. This has been possible thanks not only to R&D activities, but also to significant investment in recent years, in excess of €150M, and the improved processes in all of the Group's plants.

A milestone in 2014 was the opening of a new laboratory specifically devoted to R&D, which is located in the Zamudio Scientific and Technology Park (Bizkaia). This new laboratory will accelerate the development of the R&D unit, in skills such as metallurgical and metallographic knowledge, which is key for the development of new materials and processes. The creation of the new laboratory will act as a base for the future growth of the R&D capacities of the Tubacex Group, enabling closer collaboration with customers in the development of new solutions for the energy sector.

Service is the other main driver of the Tubacex Group's vision. This means excellent service in the existing portfolio, along with the development of new value added services that can complement and enrich the Tubacex Group's product portfolio.

Service

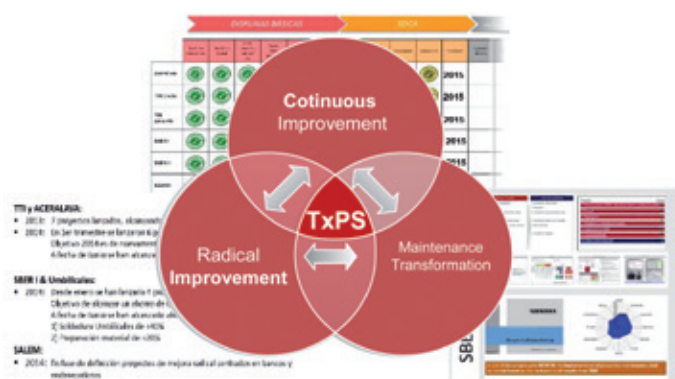


Excellent service in the existing portfolio - Tubacex Production System

TxPS, the acronym of Tubacex Production System, is the standard Management System for the entire Tubacex Group focused on:

- Implementing an continuous improvement system in all areas
- Involving all personnel from all areas
- Ensuring that the improvements are sustained over time

TxPS is based on action on three levels: yearly management plan, daily management and specific action for radical improvement.



New Services to develop and complete our offer - Tubacex Services

To further increase our service capabilities we are developing final added value operations for small niches:

- Final treatments
- Special packages
- Others

The Group has developed a new unit called Tubacex Services, with resources devoted exclusively to the development of those added value operations to the Group's portfolio. This unit is already developing specialized process as Shot peening in a new mill in Santander (north of Spain).



Global Service Center Network - Tubacex Service Solutions

In addition, the group network of service centers in Europe, America and Asia offers availability and proximity service to our customers through Tubacex Service Solutions service centers (Spain, France, Austria, the United States, Brazil, China, India, Dubai and Iran).



Quality and Approvals

The Tubacex Group holds several approvals as a manufacturer of seamless tube and pipe, and can deliver tubular products in accordance with most international standards.

MANUFACTURING STANDARDS

Apart from standards mentioned in the catalogue we also manufacture according to UNE, BS, SIS, GOST, JIS and other international standards and steel grades.

MANAGEMENT SYSTEM CERTIFICATES

ISO 9001.

API Q1.

ENVIRONMENTAL RESPONSABILITY

The Tubacex Group is highly engaged with the environment and it is ISO 14001 certified.

SAFETY

Occupational Health and Safety is also a key element of our culture. The company is OHSAS 18.001 certified.

APPROVALS

Tubacex is approved to manufacture according to TÜV, Lloyd's register, DNV, Germanischer Lloyd's, BV, Norsok etc. Complete list of approvals is available upon request.

OTHER CERTIFICATIONS

Tüv Süddeutschland (Ad - Merkblatt Wo / Trd 100)

Lloyd's Register of Shipping (rules for the manufacture, testing and certification of materials)

Qualification as Manufacturer of Special Materials to Norsok M-650

ASME Quality System Certificate as Material Organization for Ferrous and Nonferrous Material

Tüv Süddeutschland (Pressure Equipment Directive 97/23Ec)

Det Norske Veritas (Dnv's Rules for Classification Pt.2)

Germanischer Lloyd (Austenitic Stainless Steel Pipes and Tubes According to En 10216-5 or Equivalent Standards)

PED 97/23/EC.

AD2000, werkblatt W0.

JIS Mark scheme

Complete list of approvals and certifications is available on request.



MANAGEMENT SYSTEM CERTIFICATES

UNE - EN - ISO 9001:2000
ER-0006/1991

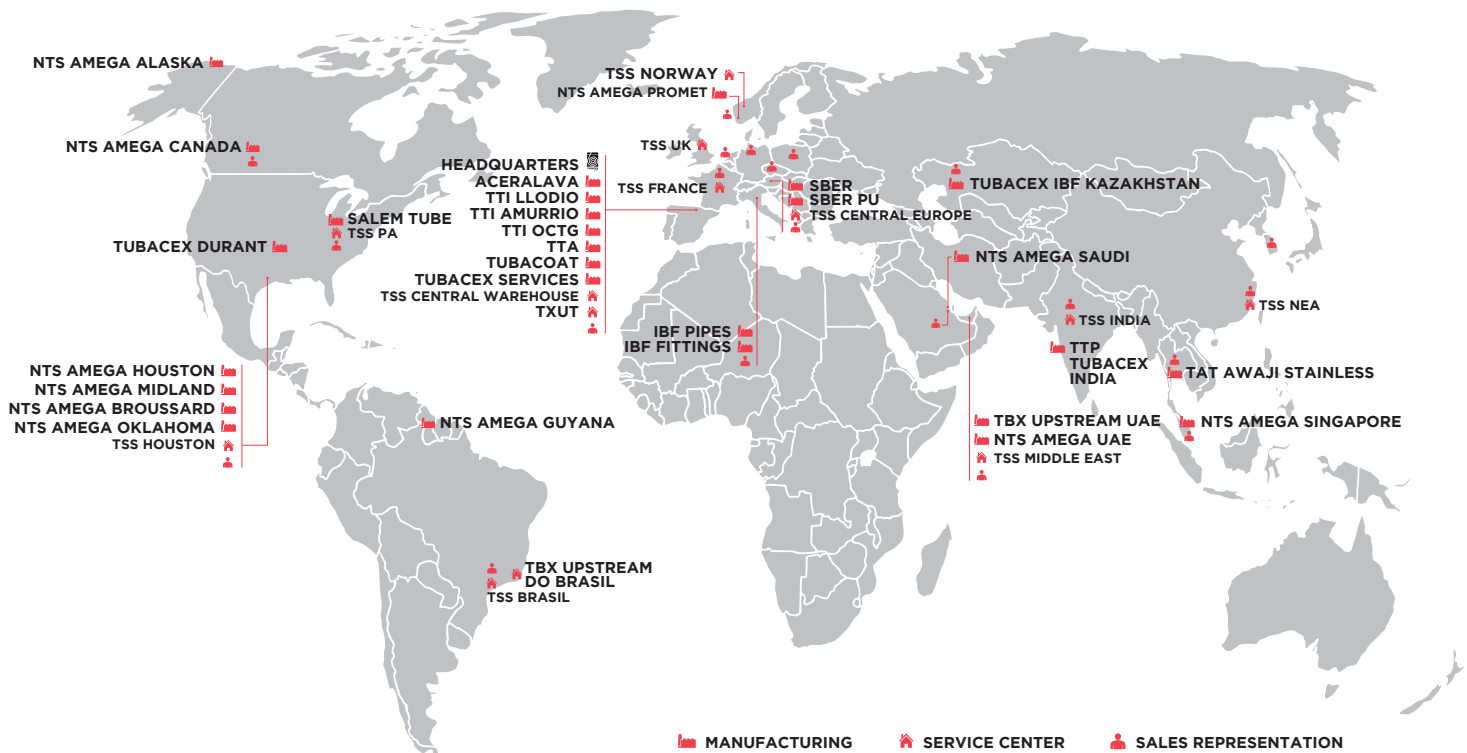


OHSAS 18001:1999



UNE - EN - ISO
14001:1996
GA-2001/0127





MANUFACTURING COMPANIES

ACERALAVA
Amurrio. SPAIN

TTI
Llodio. SPAIN
Amurrio. SPAIN

SBER
Ternitz. AUSTRIA

SALEM TUBE, INC.
Greenville. PA. USA

Tubacex Durant
Durant.OK.USA

IBF
Vituone - Milano. ITALY
San Nicolò - Piacenza. ITALY

TTP
Umbergaon. INDIA

TUBACEX AWAJI
Amphur Muang-Samutprakarn.
THAILAND

TTA
Arzeniega. SPAIN
TUBACEX SERVICES, S.L.
Santander. SPAIN

TUBACOAT
Santander. SPAIN

NTS GROUP
UAE
USA
CANADA
SINGAPORE
NORWAY
SAUDI ARABIA

TBX UPSTREAM
CRA OCTG manufacturing and threading
Abu Dhabi, United Arab Emirates

SERVICE CENTERS

TUBACEX SERVICE SOLUTIONS (TSS)
Amurrio, SPAIN

TSS FRANCE
Satolas & Bonce, FRANCE

TSS CENTRAL EUROPE
Ternitz, AUSTRIA

TSS INDIA
Gandhidham, INDIA

TSS HOUSTON
Houston (TX), USA

TSS PA
Greenville, (PA), USA

TSS MIDDLE EAST
Dubai, UNITED ARAB EMIRATES

TSS NORWAY
Stavanger, NORWAY

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São Paulo, BRAZIL

TSS NEA
Shanghai, CHINA

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