

# **POWER GENERATION**

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**STEEL PIPES, TUBES & FITTINGS**

# Tubacex: Your partner for growth





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# Tubacex: your global technological partner for powergen pipes and



The TUBACEX group is a fully integrated seamless tubes & pipes manufacturer with more than 40 years of experience in the manufacturing of tubes for the Powergen Industry. With production mills in Europe, US and Asia and a commercial presence in more than 100 countries, the TUBACEX Group is able to combine a global commercial presence and a consolidated metallurgical and tube manufacturing expertise and capabilities.

Market competitiveness and low emissions policies worldwide are pushing designers to improve their current equipments. End Users demand the most outstanding technologies for the new thermal plants. This means improving plants efficiencies by means of increasing the operating conditions. As a consequence, plants consume less fuel per MW and therefore emit less CO which is a big challenge today.

It is in this context where the development of new materials for tubes and pipes is becoming a key issue in the industry.

Tubacex brings the experience of a world leader in the manufacturing of stainless steel tubes and pipes and a strong position in the Power Gen Industry.

## 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)

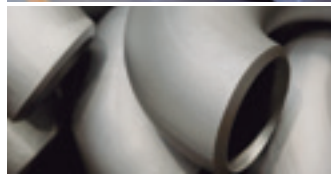
**SCHOELLER BLECKMANN**  
TUBACEX GROUP

**SALEM TUBE**  
TUBACEX GROUP

**TUBACEX INDIA**  
TUBACEX GROUP

Seamless Pipe and Tubes to 72"

**IBF**  
TUBACEX GROUP



Fittings and special connections from ½ " to 72"

**TTA**  
TUBACEX GROUP

**AWAJI STAINLESS**  
TUBACEX GROUP



Stock, Service and Trading Value added operations

**TSS**  
TUBACEX GROUP





## R&D Capabilities

In the recent years, the control of emissions has become the center point of the Research and Development efforts of leading Power Plant designers.

The results of such efforts have been applied to ultra-supercritical pressure boilers, pressurized fluidized bed boilers, gas turbine combined power plants, high efficiency industrial waste incineration boilers, among others.

In order to cope with the new demand, TUBACEX has devoted big R&D and Investment resources to develop new grades which can withstand the required conditions of these new equipments.

## Range of products

Thanks to its industrial capabilities TUBACEX is able to offer a wide range of products within a power plant

- Reheater and superheater stainless steel tubes
- Header pipes
- Big OD/ID line pipes for main steam
- Fittings and Forgings

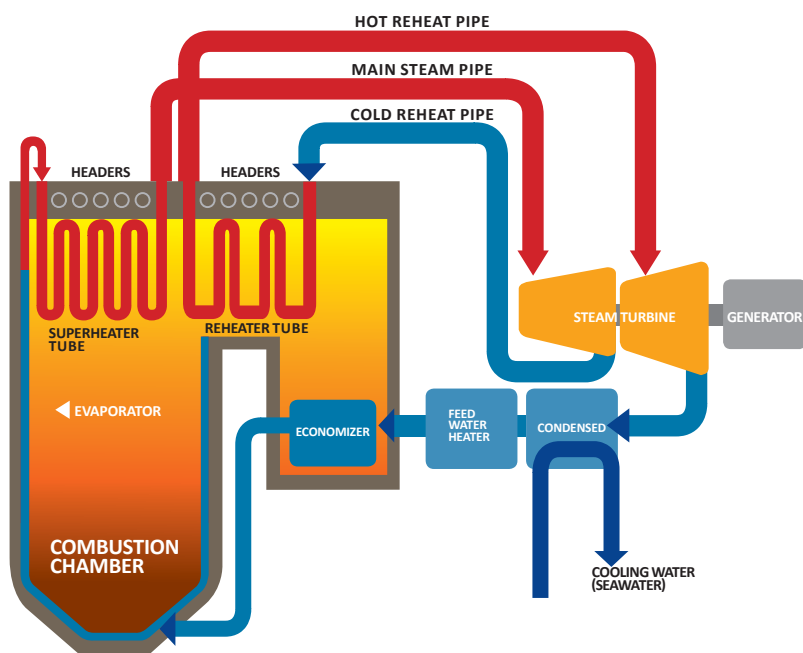
*"More than 65.000 MW of experience in USC plants worldwide"*

## Set of Steel Grades

Tubacex offers to the market a complete tailor made package of steel grades melted in our own steel plant **Aceralava**.

- Carbon Steels
- Low and high Alloys
- Stainless steels
- Ni Based materials

## Power plant system diagram



### Flexibility

In materials chemical composition & deliveries.

### Reliability

Of a fully integrated company.

### Quality standards

to cope with the tightest requirements.

### Worldwide presence

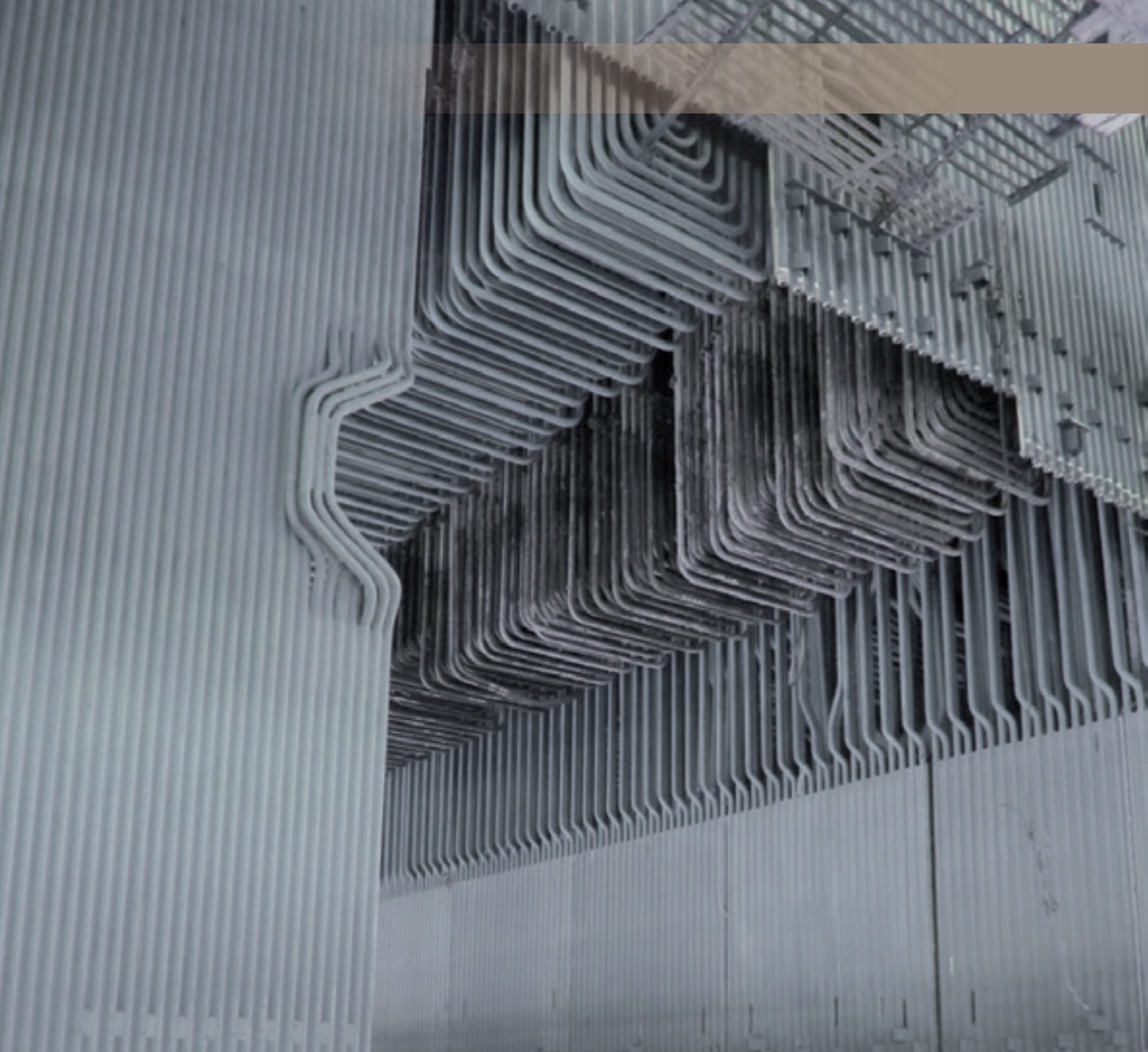
through our global network.

### Competitiveness

Thanks to our lean manufacturing process.

### Complete Package supplier

A complete Premium set of tubes and pipes from single source.



# TUBACEX: Reheater and superheater boiler tubes





# Boiler tubes. Materials description

Tubacex tube manufacturing range covers all main grades used for heat corrosion and oxidation resistance applications. Stainless and nickel grades are traditionally used in reheater and superheater though they may also be required in other parts of the plant.

The use of stainless and nickel heat resistance materials in RH an ST has proven to be far superior over ferritic steels in high temperature corrosion and oxidation environments.

Their outstanding properties make them the correct choice for our customers when searching for materials in advanced equipments.

## Devoted to low emission technologies

Our metallurgical engineers are devoted to the development of sophisticated steels capable of operating in the demanding environments of the future.

Tubacex has signed collaboration agreements with leading R&D laboratories and main Industry Associations in order to participate in the next generation of Power plants at 700°C, Ni-based, in which CO<sub>2</sub> emissions are significantly reduced.

*“24.000 tons of premium tubes delivered for advanced equipments”*

## Grades and Equivalencies

Equivalent grades according to national and international standards

Steel Grade	Composition	Applicable Standards (abbreviation)						Application				Temperature
		Product standards	ASTM/ASME	EN	DIN	VdTUV	JIS	Economizer	Superheater	Reheater	feedwater tube	
FERRITIC-AUSTENITIC	22Cr-5Ni-3Mo	ASTM A789 ASME SA-789 EN 10216-5	UNS S31803	1.4462	X2CrNiMoN22-5-3	418		x				
	25Cr-6Ni-5Mo	ASTM A789 ASME SA-789 EN 10216-5	UNS S32760	1.4501	X2CrNiMoCuWN25-7-4			x				
	25Cr-7Ni-4Mo	ASTM A789 ASME SA-789 EN 10216-5	UNS S32750	1.4410	X2CrNiMoN25-7-4							
AUSTENITIC	21Cr-12Ni-Si-N-Ce	ASTM A213, A312 EN 10297-2	UNS S30815 (253MA)	1.4835	X9CrNiSiN21-11-2							
	18Cr-8Ni	ASTM A213, A312 EN 10216-5	TP304H	1.4948	X6CrNi18-10		SUS304H		x	x	x	400°
	18Cr-8Ni-Ti	ASTM A213, A312 EN 10216-5	TP321H	1.4541 1.4878 1.4940	X8CrNiTi18-10		SUS 321H		x	x		
	16Cr-14ni-2.5 Mo	ASTM A213, A312 EN 10216-5	TP316H	1.4919	X6CrNiMoB17-12-2		SUS316H		x	x		
	18Cr-8Ni-Nb	ASTM A213, A312 EN 10216-5	TP347H	1.4550 1.4912	X6CrNiNb18-10		SUS347H		x	x		
	25Cr-20Ni	ASTM A213, A312 EN 10216-5	TP310H	1.4845	X8CrNi25-21							
									x	x		
	18Cr-9Ni-3 Cu-N-Nb	ASTM A213, A312 EN 10216-5 ASME CC2328-2	UNS 30432 TX304HB	1.4907	X10CrNiCuNb 18-9-3	550	KA-SUS-304J1HTB		x	x		
	18Cr-11Ni-0.6 Nb	ASTM A213, A312 EN 10216-5 ASME CC2159-2	TP347HFG TX347HFG	1.4908	X8CrNi19-11	547			x	x		
	25Cr-20Ni-Nb-N	ASTM A213, A312 EN 10216-5 ASME CC2115-3	TP310HCbN TX310HCbN	1.4952	X6CrNiNbN25-20	546	KA-SUS 310J1TB		x	x		
HIGH NICKEL	57Ni-22Cr-W-Mo	ASTM B-622 ASME SB-622 ASTM B-619 ASME B-626	UNS N06230(*)	2.4733	NiCr22W14Mo				x			
	54Ni-22 Cr-Co-Al-Ti-B	ASTM B167-08 ASME SB-167	UNS N06617(*)	2.4663	NiCr23Co12Mo	485			x	x		730°
	32Ni-21 Cr-Al-Ti	ASTM B-407 ASTM A213, A312 EN 10216-5 ASME SB-407 EN 10297-2	UNS N08800/ UNS N08810/ UNS N08811	1.4876 / 1.4959 / 1.4858	X10NiCrAlTi32-21 / X8NiCrAlTi32-21 / X5NiCrAlTi31-20	412 / 434			x			
	42Ni -22 Cr- Mo -Cu	ASTM B-423 ASME SB-423	UNS N08825	2.4858					x			
	62Ni -21Cr-Mo-Nb	ASTM B-444 ASME SB-444	UNS N06625(*)	2.4856					x			

(\*) Note: Under development

Other materials and customizations upon request



The main characteristics of stainless steels are:

- High creep rupture strength
- Good resistance to fire side corrosion

Nickel based Materials improve the material properties at high temperatures:

- Higher creep rupture strength
- Lower thermal expansion than stainless grades
- Resistance to Thermal fatigue
- Oxidation and corrosion behavior

# Boiler tubes. Size range & Tolerances



The Tubacex Group has extensive manufacturing program for seamless stainless and nickel steel tubes for its application in boiler equipments.

Tubacex manufactures boiler tubes at an outside diameter from 38.1 to 76.2 mm according to international manufacturing standards.

## ASTM A213 Hot finished (lb./ft.)

mm	O.D.	38.1	42.2	44.5	48.3	50.8	54.0	57.2	60.3	63.5	73.0	76.2
W.T.	inch	1.500	1.660	1.750	1.900	2.000	2.125	2.250	2.375	2.500	2.875	3.000
3.05	0.120	2.08	2.32	2.46	2.69	2.84	3.03	3.22	3.41	3.61	4.18	4.37
3.43	0.135	2.31	2.58	2.74	2.99	3.17	3.38	3.60	3.81	4.03	4.67	4.89
3.81	0.150	2.53	2.83	3.01	3.29	3.48	3.72	3.96	4.20	4.44	5.16	5.39
4.19	0.165	2.72	3.06	3.25	3.56	3.77	4.03	4.29	4.55	4.81	5.59	5.85
4.57	0.180	2.93	3.30	3.50	3.84	4.07	4.35	4.64	4.92	5.21	6.06	6.34
5.08	0.200	3.20	3.60	3.83	4.21	4.46	4.78	5.09	5.41	5.73	6.67	6.99
5.59	0.220	3.46	3.90	4.15	4.57	4.84	5.19	5.54	5.89	6.23	7.28	7.62
6.01	0.240	3.66	4.14	4.41	4.86	5.16	5.53	5.91	6.28	6.65	7.78	8.15
6.60	0.260	3.89	4.41	4.70	5.19	5.51	5.92	6.32	6.73	7.13	8.35	8.75
7.11	0.280	4.11	4.67	4.98	5.51	5.86	6.29	6.73	7.17	7.60	8.91	9.35
7.62	0.300	4.32	4.92	5.25	5.82	6.19	6.66	7.12	7.59	8.06	9.46	9.93
8.13	0.320	4.52	5.15	5.51	6.11	6.51	7.01	7.51	8.01	8.50	10.00	10.50
8.64	0.340	4.70	5.38	5.76	6.40	6.82	7.35	7.88	8.41	8.94	10.53	11.06
9.14	0.360	4.87	5.59	6.00	6.67	7.12	7.68	8.24	8.80	9.36	11.04	11.60
9.65	0.380	5.04	5.79	6.22	6.93	7.40	8.00	8.59	9.18	9.77	11.55	12.14
10.16	0.400	5.19	5.98	6.43	7.18	7.68	8.30	8.93	9.55	10.17	12.04	12.66
10.67	0.420	5.32	6.16	6.63	7.42	7.94	8.60	9.25	9.91	10.56	12.52	13.18
11.18	0.440	5.45	6.33	6.82	7.65	8.19	8.88	9.57	10.25	10.94	12.99	13.68

Intermediate sizes are available on request. Tighter tolerances upon request.  
O.D.: outside diameter; W.T. : Wall thickness

Wall thickness tolerances for hot finished seamless tubes		
Minimum wall thickness		ASTM requirements Hot finished
mm	inch	
≤ 3.8	≤ 0.15	-0 +35%
> 3.8 - ≤ 4.6	> 0.150 - ≤ 0.180	-0 +33%
> 4.6	> 0.180	-0 +28%

Outside diameter tolerances for hot finished seamless tubes		
Outside diameter		ASTM requirements Hot finished
mm	inch	
≤ 1.500	≤ 38.1	-1/32 [-0.8] +1/64 [+0.4]
> 1.500 - ≤ 2.000	> 38.1 - ≤ 50.8	
> 2.000	> 50.8	

## ASTM A213 Cold finished (lb./ft.)

mm	O.D.	38.1	42.2	44.5	48.3	50.8	54.0	57.2	60.3	63.5	73.0	76.2
W.T.	inch	1.500	1.660	1.750	1.900	2.000	2.125	2.250	2.375	2.500	2.875	3.000
3.05	0.120	1.96	2.20	2.33	2.55	2.70	2.88	3.06	3.24	3.42	3.96	4.14
3.43	0.135	2.18	2.45	2.60	2.84	3.01	3.21	3.41	3.61	3.82	4.43	4.63
3.81	0.150	2.39	2.70	2.86	3.13	3.31	3.53	3.76	3.99	4.21	4.89	5.11
4.19	0.165	2.59	2.93	3.11	3.41	3.61	3.86	4.10	4.35	4.60	5.34	5.59
4.57	0.180	2.79	3.16	3.36	3.68	3.90	4.17	4.44	4.71	4.98	5.79	6.06
5.08	0.200	3.05	3.46	3.68	4.04	4.28	4.58	4.88	5.18	5.48	6.38	6.68
5.59	0.220	3.30	3.75	3.99	4.38	4.65	4.98	5.31	5.64	5.97	6.96	7.29
6.01	0.240	3.54	4.02	4.28	4.72	5.01	5.37	5.73	6.09	6.45	7.53	7.89
6.60	0.260	3.76	4.29	4.57	5.04	5.35	5.74	6.14	6.53	6.92	8.09	8.48
7.11	0.280	3.98	4.55	4.85	5.35	5.69	6.11	6.53	6.95	7.38	8.64	9.06
7.62	0.300	4.19	4.79	5.11	5.66	6.02	6.47	6.92	7.37	7.82	9.18	9.63
8.13	0.320	4.38	5.02	5.37	5.95	6.33	6.81	7.30	7.78	8.26	9.70	10.18
8.64	0.340	4.56	5.25	5.62	6.23	6.64	7.15	7.66	8.17	8.68	10.22	10.73
9.14	0.360	4.74	5.46	5.85	6.50	6.93	7.47	8.01	8.56	9.01	10.72	11.26
9.65	0.380	4.90	5.66	6.07	6.76	7.22	7.79	8.36	8.93	9.50	11.22	11.79
10.16	0.400	5.06	5.85	6.29	7.01	7.49	8.09	8.69	9.29	9.89	11.70	12.30
10.67	0.420	5.20	6.03	6.49	7.25	7.75	8.38	9.01	9.65	10.28	12.17	12.80
11.18	0.440	5.33	6.20	6.68	7.47	8.00	8.66	9.33	9.99	10.65	12.63	13.30

Intermediate sizes are available on request. Tighter tolerances upon request. O.D.: outside diameter; W.T. : Wall thickness

Wall thickness tolerances for cold finished seamless tubes		
Minimum wall thickness		ASTM requirements Cold finished
mm	inch	
≤ 3.8	≤ 0.15	D ≤ 1.500 [38.1]
> 3.8 - ≤ 4.6	> 0.150 - ≤ 0.180	-0 +20%
> 4.6	> 0.180	D > 1.500 [38.1] -0 +22%

Outside diameter tolerances for cold finished seamless tubes		
Outside diameter		ASTM requirements Cold finished
mm	inch	
≤ 1.500	≤ 38.1	±0.006 [0.15]
> 1.500 - ≤ 2.000	> 38.1 - ≤ 50.8	±0.008 [0.20]
> 2.000	> 50.8	±0.010 [0.25]



## The largest stainless and Nickel size range in the market

Our customers will benefit of the largest size range in the market in these steel grades starting from 6mm OD up to 72"



### EN 10216-5 Hot finished (kg./m.)

mm	O.D.	38.0	40.0	42.4	44.5	48.3	51.0	54.0	57.0	60.3	63.5	70.0	73.0	76.1
W.T.	inch	1.496	1.575	1.669	1.752	1.902	2.008	2.126	2.244	2.374	2.500	2.756	2.874	2.996
3.20	0.126	2.78	2.94	3.14	3.30	3.61	3.82	4.06	4.30	4.57	4.82	5.34	5.58	5.83
3.60	0.142	3.01	3.28	3.49	3.68	4.02	4.27	4.54	4.81	5.10	5.39	5.98	6.25	6.53
4.00	0.157	3.40	3.60	3.84	4.05	4.43	4.70	5.00	5.30	5.63	5.95	6.60	6.90	7.21
4.50	0.177	3.77	3.99	4.26	4.50	4.93	5.23	5.57	5.91	6.28	6.64	7.37	7.71	8.06
5.00	0.197	4.13	4.38	4.68	4.94	5.41	5.75	6.13	6.50	6.91	7.31	8.13	8.50	8.89
5.60	0.220	4.54	4.82	5.15	5.45	5.98	6.36	6.78	7.20	7.66	8.11	9.02	9.44	9.87
6.30	0.248	4.99	5.31	5.69	6.02	6.62	7.04	7.51	7.99	8.51	9.01	10.03	10.51	10.99
7.10	0.280	5.48	5.84	6.27	6.64	7.31	7.79	8.32	8.86	9.44	10.01	11.16	11.70	12.25
8.00	0.315	6.00	6.40	6.88	7.30	8.06	8.60	9.20	9.80	10.46	11.10	12.40	13.00	13.62
8.80	0.346	6.42	6.86	7.39	7.85	8.69	9.28	9.94	10.60	11.33	12.03	13.46	14.12	14.81
10.00	0.394	7.00	7.50	8.10	8.63	9.58	10.25	11.00	11.75	12.58	13.38	15.00	15.75	16.53
11.00	0.433	7.43	7.98	8.64	9.21	10.26	11.00	11.83	12.65	13.56	14.44	16.23	17.05	17.90
12.50	0.492	7.97	8.59	9.34	10.00	11.19	12.03	12.97	13.91	14.94	15.94	17.97	18.91	19.88



Tolerances on outside diameter and wall thickness for tubes ordered hot finished			
Tolerances on outside diameter		Tolerances on wall thickness	
Tolerance class	Permissible deviation	Tolerance class	Permissible deviation
D2	±1.0% or ±0.5mm. whichever is greater	T1	±15%
		T2	±12.5% or ±0.4mm. whichever is greater

Intermediate sizes are available on request. Tighter tolerances upon request. O.D.: outside diameter; W.T. : Wall thickness

### EN 10216-5 Cold finished (kg./m.)


mm	O.D.	38.0	40.0	42.4	44.5	48.3	51.0	54.0	57.0	60.3	63.5	70.0	73.0	76.1
W.T.	inch	1.496	1.575	1.669	1.752	1.902	2.008	2.126	2.244	2.374	2.500	2.756	2.874	2.996
3.20	0.126	2.78	2.94	3.14	3.30	3.61	3.82	4.06	4.30	4.57	4.82	5.34	5.58	5.83
3.60	0.142	3.01	3.28	3.49	3.68	4.02	4.27	4.54	4.81	5.10	5.39	5.98	6.25	6.53
4.00	0.157	3.40	3.60	3.84	4.05	4.43	4.70	5.00	5.30	5.63	5.95	6.60	6.90	7.21
4.50	0.177	3.77	3.99	4.26	4.50	4.93	5.23	5.57	5.91	6.28	6.64	7.37	7.71	8.06
5.00	0.197	4.13	4.38	4.68	4.94	5.41	5.75	6.13	6.50	6.91	7.31	8.13	8.50	8.89
5.60	0.220	4.54	4.82	5.15	5.45	5.98	6.36	6.78	7.20	7.66	8.11	9.02	9.44	9.87
6.30	0.248	4.99	5.31	5.69	6.02	6.62	7.04	7.51	7.99	8.51	9.01	10.03	10.51	10.99
7.10	0.280	5.48	5.84	6.27	6.64	7.31	7.79	8.32	8.86	9.44	10.01	11.16	11.70	12.25
8.00	0.315	6.00	6.40	6.88	7.30	8.06	8.60	9.20	9.80	10.46	11.10	12.40	13.00	13.62
8.80	0.346	6.42	6.86	7.39	7.85	8.69	9.28	9.94	10.60	11.33	12.03	13.46	14.12	14.81
10.00	0.394	7.00	7.50	8.10	8.63	9.58	10.25	11.00	11.75	12.58	13.38	15.00	15.75	16.53
11.00	0.433	7.43	7.98	8.64	9.21	10.26	11.00	11.83	12.65	13.56	14.44	16.23	17.05	17.90
12.50	0.492	7.97	8.59	9.34	10.00	11.19	12.03	12.97	13.91	14.94	15.94	17.97	18.91	19.88

Tolerances on outside diameter and wall thickness for tubes ordered cold finished			
Tolerances on outside diameter		Tolerances on wall thickness	
Tolerance class	Permissible deviation	Tolerance class	Permissible deviation
D3	±0.75% or ±0.3mm. whichever is greater	T3	±10%

Intermediate sizes are available on request. Tighter tolerances upon request. O.D.: outside diameter; W.T. : Wall thickness





A photograph of a complex industrial facility, likely a power plant, featuring a dense network of large pipes, metal walkways, and structural supports. A semi-transparent teal rectangular overlay covers the middle-left portion of the image, serving as a background for the title text.

# TUBACEX: Large OD and ID Pipes & Fittings



# Pipes & Fittings. Materials description

TUBACEX mill in Italy IBF manufactures large OD and ID pipes and fittings for Powergen Applications. The main grades demanded from fabricators are Carbon, low alloy and high Chrome ferritic steels.

## Grades and Equivalencies of ferritic grades

Equivalent grades according to national and international standards

Steel Grade	Composition	Applicable Standards (abbreviation)				Application									Temperature
		Product standards	ASTM/ASME	EN/DIN/VdTÜV/WB	JIS	Economizer	Evaporator	Superheater	Reheater	Headers	Main Steam tube	reheater pipe	feedwater tube	feedwater pipe	
CARBON STEEL	0.15-0.25C	EN 10216-2 DIN 17175	A106: Gr A	(EN) P235GH (DIN) St.35.8	STB340 STP370	x	x						x		300°C 580 F
		EN 10216-2 DIN 17175	A106: Gr B	(EN) P265GH (DIN) St.45.8	STB410 STP410										
	0.25-0.35C	DIN 17175: 17	A106: Gr C A210: Gr C	(DIN) 17Mn4 / St.55/ St.55.4	STPT480 (STPT49)	x	x						x	x	
LOW ALLOY STEEL	0.3Cr-0.5Mo	EN 10216-2 DIN 17175	A335: P1	(EN) 8MoB5-4 (DIN) 15Mo3 (VdTÜV)16Mo5 1.5415	STBA12, 13  STPA12		x	x	x				x		625°C 1155 F
		EN 10216-2 DIN 17175	A335: P36	(EN) 15NiCuMoNb5-6-4 (WB36) (VdTÜV) 15NiCu- MoNb5-6-4 (WB36) 1.6368				x	x			x			
	0.5Cr-0.5Mo		A335: P2		STBA20 STPA20		x	x	x			x			
		EN 10216-2	A335: P11	(EN) 10CrMo5-5 1.7338	STBA23 STPA23		x	x	x			x			
	1Cr-0.5Mo	EN 10216-2 DIN 17175	A335: P12	(EN ) 13CrMo 4-5 (DIN) 13CrMo 4-4 1.7335	STBA22  STPA22		x	x	x			x			
	2.25Cr-1Mo	EN 10216-2 DIN 17175	A335: P22	(EN) 10CrMo9-10 (DIN) 10CrMo9-10 1.7380	STBA24  STPA24			x	x		x	x			
	2.25Cr-1.6W- V-Nb	EN 10216-2	A335: P23 (ASME CC2199)	(EN) 7CrWVMoNb9-6	KA-ST- BA24J1 KA-STPA24J1			x	x		x	x			
HIGH CHROME FERRITIC STEEL	9Cr-1Mo	EN10216-2	A335: P9	(EN) X11CrMo9-1 (VdTÜV) X12CrMo9-1 1.7386	STBA26  STPA26			x	x	x	x	x			625°C 1155 F
	9Cr-1Mo- V-Nb 9Cr-1Mo- V-Nb	EN10216-2	A335: P91	(EN) X10CrMoVNb9-1 (VdTÜV) X10CrMoVNb9-1 1.4903	STBA27  STPA27			x	x	x	x				
		EN10216-2	A335: P91.1	(EN) X10CrMoVNb9-1-1 (VdTÜV) X10CrMoVNb911 (E911)				x	x	x	x				
	9Cr-1.8W- V-Nb	EN10216-2	A335: P92 (ASME CC2179)	(EN) X10CrWMoVNb9-2 (VdTÜV) X10CrW- MoVNb9-2 1.4901	KA-STBA29  KA-STPA29			x	x	x	x				

## Grades and Equivalencies of stainless and nickel based materials

IBF produces a wide range of stainless and nickel based materials from 8" up to 72" in lengths up to 14 m. For more details refer to page 7 in this brochure.

### Main advantages of Ferritic grades:

- High Creep Resistance
- Low thermal expansion
- Good resistance to thermal fatigue
- Reasonable oxidation resistance



# Large OD/ID pipes. Size Range



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:

## LARGE OD/ID PIPES RANGE

MANUFACTURING RANGE	
Technology	Outside Diameter
Trepaned pipes made wall thickness	4" - 72"
Cold forming thin wall thickness	6" - 24"

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



## One only stop shop for a complete size & Steel grades range

Tubacex is able to supply tubes and fittings in ferritic, austenitic and nickel based grades from ¼" – 72" from its plant IBF in Italy.



## Special tolerances

Our Special tolerance service guarantees clear advantages for fabricators

- Easier weldability
- Economies due to weight control

Specialized in the manufacturing of ID and minimum Wall thickness controlled pipes

- Tight tolerances  
-0  
+4mm

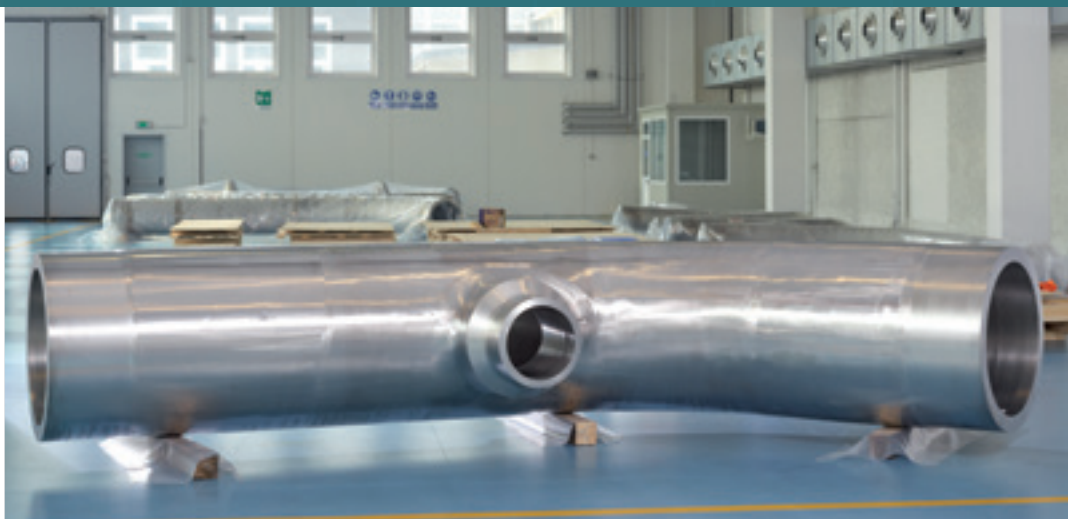
Double random lengths and above available upon request



## Large OD/ID fitting. Size Range

Tubacex Group mill in Italy IBF is specialized in the manufacturing of large OD and ID controlled pipes and fittings in any kind of Steel.

Our scope covers the biggest and largest pipe size in the world.



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

### FITTINGS RANGE

#### MANUFACTURING RANGE - FITTINGS AND SPECIAL PARTS

Seamless	1/2" ton 44" (bigger sizes upon request)
Welded	1/2" ton 72"

### A complete set of seamless & welded fittings

TX offers to our customers a convenient selection of fittings in both seamless and welded technology.

- Elbows
- Tees
- Reducers
- Caps

The Tubacex Group fittings manufacturing business units TTA and IBF cover the widest range in the market.

Our capabilities include 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 TTI companies.

#### TTA in Spain

Located in Artziniega, Spain, Tubacex Taylor Accesorios (TTA) manufactures fittings (elbows and return bends).

Its size range goes from 1 1/2" up to 12" NPS, in short and long radius as well as special radii.

#### IBF in Italy

Located in San Nicolo, Italy, IBF fittings and special parts division manufactures fittings, elbows, and special components. Its manufacturing range goes from 1/2" to 72" NPS.

Specialized in big diameter hot formed pipes but also complemented by cold drawn dimensions which are mainly sourced from its participated company CFF.

#### Awaji Stainless in Thailand

Located in Samut Prakan, Thailand, Awaji manufactures Stainless steel butt welding fittings. Its Manufacturing range goes from 1/2" to 12" NPS with a wall thickness from SCH10 to SCH160.



#### Special parts

In addition IBF offers a wide range of special parts and components (pipes with Stubs, laterals, special reducers...)

#### Stock service

Thanks to our stock service of semifinished and base materials, we are able to provide full flexibility and a extremely competitive lead time.



A large industrial manufacturing facility, likely a power plant or refinery, with high ceilings and complex machinery. In the foreground, there are large, white, corrugated metal structures. In the middle ground, a worker in a blue hard hat and yellow safety vest is standing near a machine labeled "TUBACEX SERVICES". Another worker in a blue hard hat and yellow safety vest is standing further back on the right side of the image. The background shows more industrial equipment and structural elements.

# TUBACEX: Added value Services

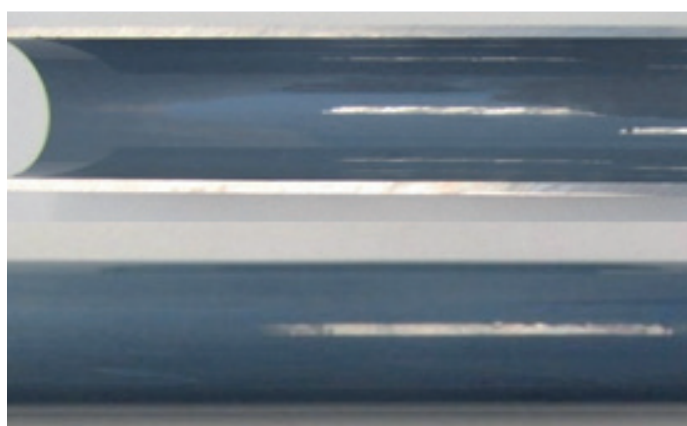


## Added value Services

### TUBACEX SERVICES

**Tubacex Services** is an innovative business unit developed to offer our customers auxiliary services around the manufacturing of tubes.

From finishing through design or special processes improving the material characteristics, our team is devoted to offer our customers solutions to unsolved situations.



### SHOT PEENING

This particular technique is available for tubes requested to withstand exceptionally aggressive oxidation environments.

This process facilitates the diffusion of Chromium through the inside of the tubes enabling the creation of an inner protective layer.

### SPECIAL CERAMIC COATING

Tubacoat is a specific solution developed at Tubacex for offering our customers materials with enhanced properties with regards to corrosion and erosion resistance.

An effective solution to reduce operating costs in plants with challenging working conditions.



### PIPE COMPONENTS & MADE TO FIT PIECES

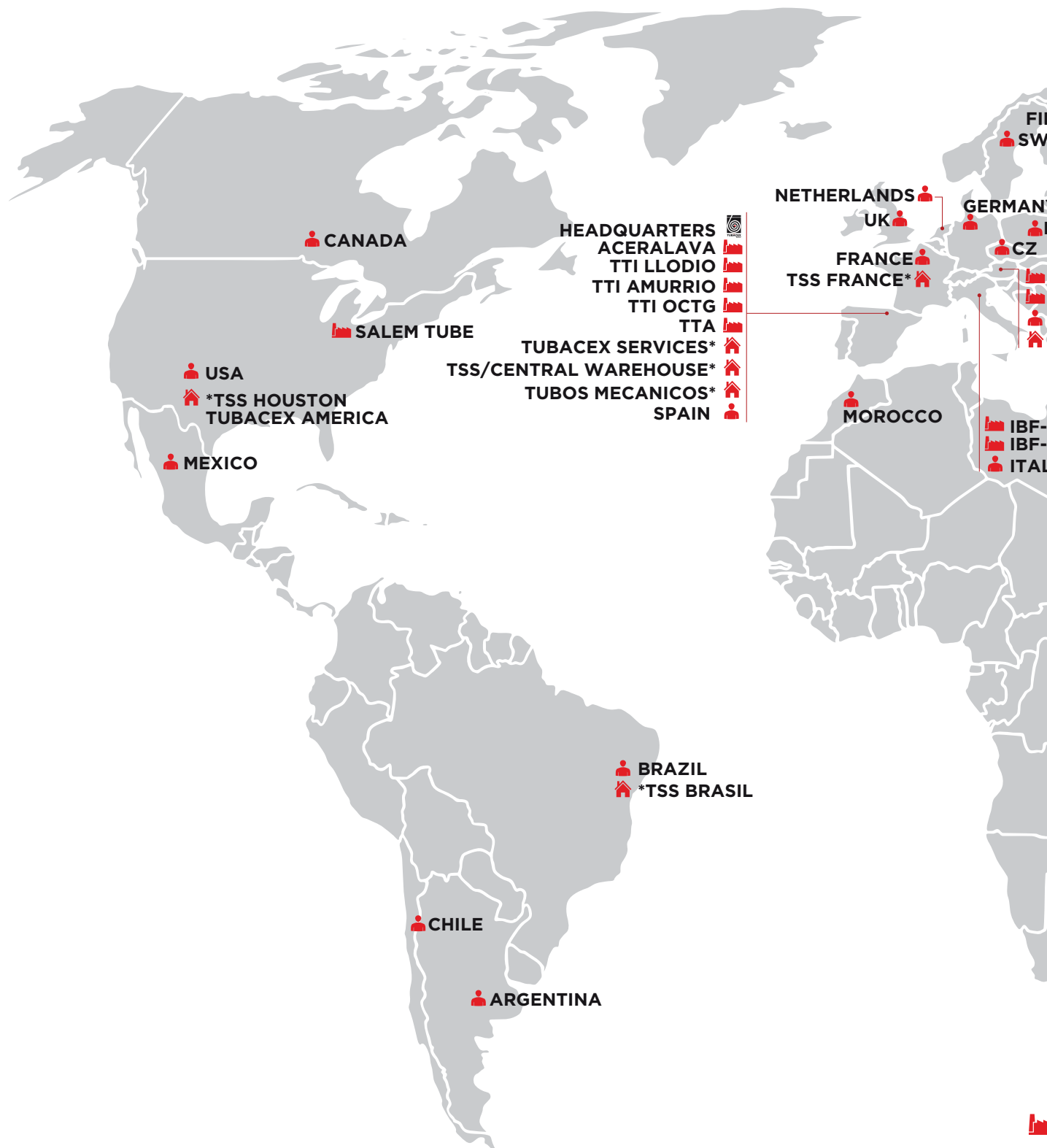
Thanks to our Engineering department a wide range of pre-fabricated pieces can be supplied with multiple pieces of different shapes produced at our mill. Our complete made to fit solutions are naturally part of our services.

- Service center for components (pipes & complements)
- Piping Spool optimization

### HEAT EXCHANGER & FEED WATER HEATER TUBES

Straight and U-bent tubes in lengths up to 37m can be offered in carbon, high alloy and stainless materials.

# TUBACEX: Worldwide Presence







 **MANUFACTURING**

 **SERVICE CENTER**  
\*TUBACEX SERVICE SOLUTIONS

 **SALES REPRESENTATION**

# Tubacex boiler tube: quality

## MANUFACTURING STANDARDS

We manufacture in accordance to ASTM/ASME and EN which are the most accepted standards in seamless stainless boiler tube manufacturing. Additionally we are also able to manufacture according to other international standards.



## MANAGEMENT SYSTEM CERTIFICATES

All group plants are certified according to ISO 9.001, ISO 14.001 and OHSAS 18.001 (occupational health and safety).

## OTHER CERTIFICATIONS

Tubacex holds approvals from major national and international official authorities, customers and third party organizations such as Lloyds, TÜV and ASME among others:

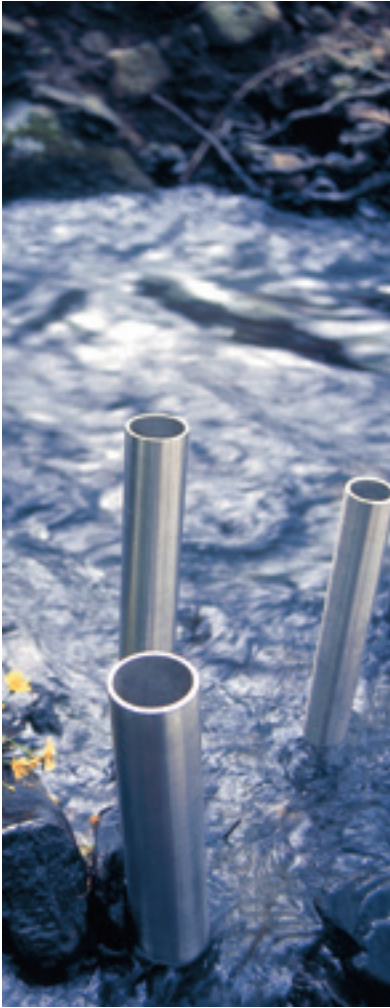
- TÜV SÜDDEUTCHLAND (PRESSURE EQUIPMENT DIRECTIVE 97/23/EC)
- TÜV SÜDDEUTCHLAND AD 2000 – MERKBLATT WO/TRD 100)
- ASME QUALITY SYSTEM CERTIFICATE AS MATERIAL ORGANIZATION FOR FERROUS AND NON FERROUS MATERIAL (INCLUDING NPT STAMP)
- LLOYDS REGISTER FOR THE MANUFACTURE. TESTING AND CERTIFICATION OF MATERIALS.



**TUBACEX GROUP**  
40 year experience  
in boiler tube  
manufacturing







## MANUFACTURING COMPANIES

**Acería de Álava, S.A.**  
STEEL MELTING SHOP  
Amurrio. SPAIN

**Tubacex Tubos Inoxidables, S.A.**  
HOT EXTRUSION PLANT  
Llodio. SPAIN

COLD FINISHING PLANT  
OCTG FINISHING PLANT  
Amurrio. SPAIN

**Schoeller Bleckmann Edelstahlrohr, GmbH**  
COLD FINISHING PLANT  
HOT EXTRUSION PLANT  
SPECIAL TUBE PLANT  
Ternitz. AUSTRIA

**Salem Tube, Inc.**  
COLD FINISHING PLANT  
Greenville. PA. USA

**IBF, S.p.a.**  
TUBES DIVISION  
Vituone - Milano. ITALY  
FITINGS DIVISION  
San Nicolò - Piacenza. ITALY

**Tubacex Prakash**  
COLD FINISHING PLANT  
Umbergaon. INDIA

**Tubacex Awaji**  
STAINLESS FITTINGS  
Amphur Muang-Samutprakarn.  
THAILAND

**Tubacex Taylor Accesorios, S.A.**  
BUTT WELDING FITTINGS  
Arzeniega. SPAIN

**Tubacex Services, S.L.**  
TUBE FINISHING SERVICES  
Santander. SPAIN

**Tubos Mecánicos, S.A.**  
CARBON & ALLOYED MECHANICAL  
TUBING DISTRIBUTION  
Barcelona. SPAIN

**TSS Central Europe**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Ternitz. AUSTRIA

## SERVICE & DISTRIBUTION COMPANIES

**Tubacex Service Solutions, S.A.**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Amurrio. SPAIN

**Tubacex America, Inc. / TSS Houston**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Houston. UNITED STATES

**Metaux Inox Services, S.A.S. / TSS France**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Satolas & Bonce. FRANCE

**TSS Brasil**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Sao Paulo. BRAZIL

**TSS India**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Gandhidham. INDIA

**TSS Middle East**  
STAINLESS STEEL LONG PRODUCTS  
DISTRIBUTION  
Dubai. UAE





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