



PIPELINES



Piping Division

EUROGUARCO SpA
Italy

La Spezia, Plant 1


The Company

Established since 1958 in La Spezia by Luciano Ghirlanda, the company has gradually developed to become a trustworthy reference point in the global market, where it operates directly and through distributors and agents.


La Spezia, Plant 2

Cremona, Plant 2


The activity is mainly focused on the production of products for various industrial fields such as Oil & Gas, Marine, Rail, Mechanical and Chemical.

Besides the company distributes semi-finished products to various processing and installation industries.



Quality System

Euroguarco work in Quality Assurance System Certificate:

- ISO 9001
- ISO/TS 29001
- API 6D license
- EN 9100 (Aeronautical Industry)
- 97/23/CE (PED)
- ATEX



Certification

Euroguarco products have Certifications & Approvals required for use in various Industrial Sectors, among which:

- Oil & Gas (DIN-DVGW)
- Marine Industry (MED/IMO)
- Railway Industry (EN 45545)
- Navy


Cremona, Plant 1




Products

Euroguarco offer the following 'one-stop shopping' service over a complete range of pipes and pipeline accessories such as bends and anchor flanges. The range of pipes include:

- Process pipes (Seamless or Welded)
- Pipeline pipes (L-SAW or Spiral)

- U-bended pipes for Heat Exchangers
- Tubes for various applications
- For high or low temperature
- Sizes up to 80".

- Anchor Flanges
- Monolithic Insulating Joints

Other products can be offered from the other **Euroguarco's** divisions (please see last page):

- Valves
- Flanges
- Fittings
- Gasket & Insulation materials.

The range of pipeline accessories include:

- Cold bends
- Hot bends

Specifications

Euroguarco pipes and pipeline accessories refer to the latest edition of international regulations: ASTM, API 5L, MSS SP 75, ASME, ANSI, ISPEL.

Manufacture can also comply to client's specification.



Quality Control & Testing

Our laboratory is able to accomplish all most common tests required by specifications, such as:

- Mechanical tests: Tensile test, Hardness survey, Impact test
- Bend test
- Hydraulic test
- Dimensional check
- Ultrasonic Inspection (UT)
- Liquid Penetration Control (PT)
- Magnetic Particle Control (MP)
- Radiographic inspections (RT)

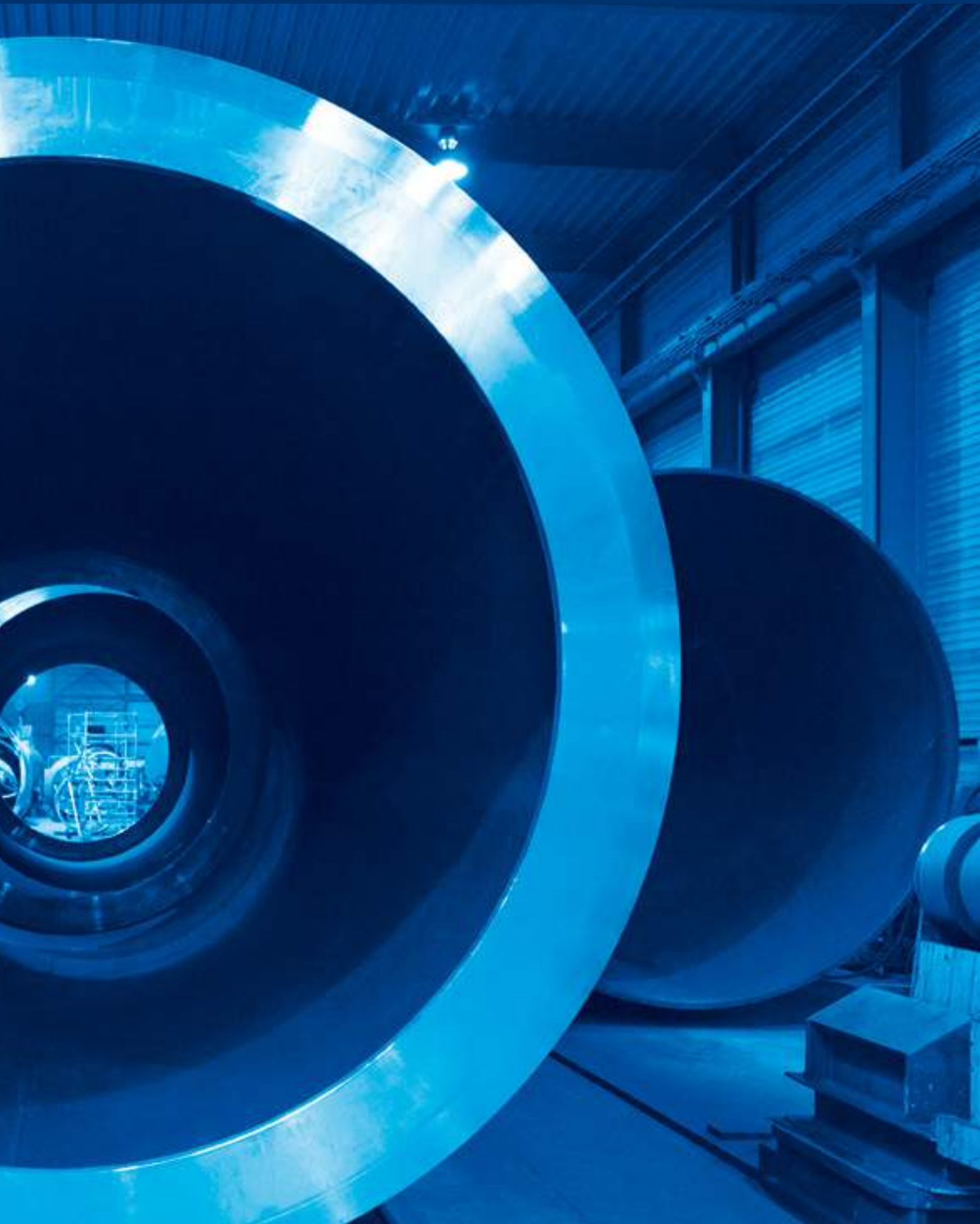
(at partner companies qualified to respect health protection regulations.)

- Non-destructive examinations (NDT).



Pipes





Pipes

Tubes for Refinery Heaters

Tubes are supplied with manufacturer's certification as per EN 10204/3.1. Inspection and special tests can be carried out by any official testing authorities (BV, DNV, Lloyd's Register, R.I.Na. and others).



Mechanical Properties and Chemical Analysis of the Most Common Steel Grades

Steel Grade	Tensile Reqs. (PSI)			Chemical Reqs. (%)									
	TS	YS		C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V
ASTM 106-A ASME SA	S	48	30	≤ 0.25	0.27÷0.93	≤ 0.10	≤ 0.025	≤ 0.025	≤ 0.40	≤ 0.40	≤ 0.15	≤ 0.40	≤ 0.08
ASTM 106-B ASME SA	S(*)	60	35	≤ 0.30	0.29÷1.06	≤ 0.10	≤ 0.025	≤ 0.025	≤ 0.40	≤ 0.40	≤ 0.15	≤ 0.40	≤ 0.08
ASTM A 106-C ASME SA	S	70	40	≤ 0.35	0.29÷1.06	≤ 0.10	≤ 0.025	≤ 0.025	≤ 0.40	≤ 0.40	≤ 0.15	≤ 0.40	≤ 0.08
ASTM A 179 ASME SA	S(*)	-	-	0.06÷0.18	0.27÷0.63	-	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM A 214 ASME SA	W	-	-	≤ 0.18	0.30÷0.80	-	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM A 161-LC ASME SA	S	47	26	0.10÷0.20	0.27÷0.63	≤ 0.25	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM A 192 ASME SA	S	-	-	0.06÷0.18	≤ 0.93	≤ 0.25	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM 210-A1 ASME SA	S	60	37	≤ 0.27	0.29÷1.06	≤ 0.10	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM E 210-C ASME SA	S	70	40	≤ 0.35	0.30÷0.80	≤ 0.10	≤ 0.035	≤ 0.035	-	-	-	-	-
ASTM 161-T1 ASME SA	S	55	30	0.10÷0.20	0.30÷0.60	0.10÷0.50	≤ 0.025	≤ 0.025	-	-	0.44÷0.65	-	-
ASTM A 199-T5 A 200-T5	S(*)	60	25	≤ 0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	4.00÷6.00	-	0.45÷0.65	-	-
ASTM A 199-T9 A 200-T9	S(*)	60	25	≤ 0.15	0.30÷0.60	0.25÷1.00	≤ 0.025	≤ 0.025	8.00÷10.00	-	0.90÷1.10	-	-
ASTM A 199-T11 A 200-T11	S(*)	60	25	0.05÷0.15	0.30÷0.60	0.50÷1.00	≤ 0.025	≤ 0.025	1.00÷1.50	-	0.44÷0.65	-	-
ASTM A 199-T22 A 200-T22	S(*)	60	25	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	1.90÷2.60	-	0.87÷1.13	-	-
ASTM A 199-T91 A 200-T91	S	85	60	0.08÷0.12	0.30÷0.61	0.20÷0.50	≤ 0.020	≤ 0.010	8.00÷9.50	≤ 0.40	0.85÷1.05	-	0.18÷0.25
ASTM A 213-T2 ASME SA	S	60	30	0.10÷0.20	0.30÷0.60	0.10÷0.30	≤ 0.025	≤ 0.025	0.50÷0.81	-	0.44÷0.65	-	-
ASTM A 213-T5 ASME SA	S	60	30	≤ 0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	4.00÷6.00	-	0.45÷0.65	-	-
ASTM A 213-T9 ASME SA	S	60	30	≤ 0.15	0.30÷0.60	0.25÷1.00	≤ 0.025	≤ 0.025	8.00÷10.00	-	0.90÷1.10	-	-
ASTM A 213-T11 ASME SA	S	60	30	0.05÷0.15	0.30÷0.61	0.50÷1.00	≤ 0.025	≤ 0.025	1.00÷1.50	-	0.44÷0.65	-	-
ASTM A 213-T12 ASME SA	S	60	32	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	8.00÷1.25	-	0.44÷0.65	-	-
ASTM A 213-T21 ASME SA	S	60	30	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	2.65÷3.35	-	0.80÷1.06	-	-
ASTM A 213-T22 ASME SA	S	60	30	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	1.90÷3.60	-	0.85÷1.13	-	-
ASTM A 213-T91 ASME SA	S	85	60	0.08÷0.12	0.30÷0.80	0.20÷0.50	≤ 0.020	≤ 0.010	8.00÷9.50	≤ 0.40	0.85÷1.05	-	0.18÷0.25
ASTM A 209-T1 ASME SA	S	55	30	0.10÷0.20	0.30÷0.80	0.10÷0.50	≤ 0.025	≤ 0.025	-	-	0.44÷0.65	-	-
ASTM A 209-T1a ASME SA	S	53	28	0.15÷0.25	0.30÷0.80	0.10÷0.50	≤ 0.025	≤ 0.025	-	-	0.44÷0.65	-	-
ASTM A 209-T1b ASME SA	S	60	32	≤ 0.14	0.30÷0.80	0.10÷0.50	≤ 0.025	≤ 0.025	-	-	0.44÷0.65	-	-

(*) = Steel Grades Normally Available in Stock • S = Seamless • W = Welded.

Seamless Pipes for High Temperature Service

Pipes for high temperature service are made from low carbon steel with addition of Cr and Mo to improve heat resistance properties.



Mechanical Properties and Chemical Analysis of the Most Used Steel Grades

Steel Grade	Tensile Reqs. (PSI)		Chemical Reqs. (%)									
	TS	YS	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V
ASTM A 335-P1 (*) ASME SA	55	30	0.10÷0.20	0.30÷0.80	0.10÷0.50	≤ 0.025	≤ 0.025	-	-	0.44÷0.65	-	-
ASTM A 335-P2 ASME SA	55	30	0.10÷0.20	0.30÷0.61	0.10÷0.30	≤ 0.025	≤ 0.025	0.50÷0.81	-	0.44÷0.65	-	-
ASTM A 335-P5 (*) ASME SA	60	30	≤ 0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	4.00÷6.00	-	0.45÷0.65	-	-
ASTM A 335-P5b ASME SA	60	30	≤ 0.15	0.30÷0.60	1.00÷2.00	≤ 0.025	≤ 0.025	4.00÷6.00	-	0.45÷0.65	-	-
ASTM A 335-P5c ASME SA	60	30	≤ 0.12	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	4.00÷6.00	-	0.45÷0.65	-	-
ASTM A 335-P9 (*) ASME SA	60	30	≤ 0.15	0.30÷0.60	0.25÷1.00	≤ 0.025	≤ 0.025	8.00÷10.00	-	0.90÷1.10	-	-
ASTM A 335-P11 (*) ASME SA	60	30	0.05÷0.15	0.30÷0.60	0.50÷1.00	≤ 0.025	≤ 0.025	1.00÷1.50	-	0.44÷0.65	-	-
ASTM A 335-P12 ASME SA	60	32	0.05÷0.15	0.30÷0.61	≤ 0.50	≤ 0.025	≤ 0.025	0.80÷1.25	-	0.44÷0.65	-	-
ASTM A 335-P21 ASME SA	60	30	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	2.65÷3.35	-	0.80÷1.06	-	-
ASTM A 335-P22 (*) ASME SA	60	30	0.05÷0.15	0.30÷0.60	≤ 0.50	≤ 0.025	≤ 0.025	1.90÷2.60	-	0.87÷1.13	-	-
ASTM A 335-P91 ASME SA	85	60	0.08÷0.12	0.30÷0.60	0.20÷0.50	≤ 0.020	≤ 0.010	8.00÷9.50	≤ 0.40	0.85÷1.05	-	0.18÷0.25

(*) = Steel Grades Normally Available in Stock.

Range of Application

Nominal Composition	Plates	Pipes	Fittings	Flanges & Forged Valves	Max Service Temp.
0.5Mo	SA/A204Gr.A/B	SA/A335Gr.P1	SA/A234WP1	SA/A182F1	470°C
1.0Cr-0.5Mo	SA/A387Gr.12	SA/A335Gr.P12	SA/A234WP12	SA/A182F12	565°C
1.25Cr-0.5Mo	SA/A387Gr.11	SA/A335Gr.P11	SA/A234WP11	SA/A182F11	565°C
2.25Cr-1.0Mo	SA/A387Gr.22	SA/A335Gr.P22	SA/A234WP22	SA/A182F22	593°C
5.0Cr-0.5Mo	SA/A387Gr.5	SA/A335Gr.P5	SA/A234WP5	SA/A182F5	600°C
9.0Cr-1.0Mo	SA/A387Gr.9	SA/A335Gr.P9	SA/A234WP9	SA/A182F9	650°C

Pipes

Seamless Pipes for Low Temperature Service

Pipes for low temperature service are made from killed low carbon fine grain steel, with addition of Ni to improve low temperature impact properties.



Mechanical Properties and Chemical Analysis of the Most Used Steel Grades

Steel Grade	Tensile Reqs. (PSI)				Chemical Reqs. (%)					
	TS	YS	C	Mn						
ASTM A 333-1 / ASME SA	55	30	≤ 0.30	0.40÷1.06	-	≤ 0.025	≤ 0.025	-	-	-
ASTM A 333-3 (*) / ASME SA	65	35	≤ 0.19	0.31÷0.64	0.18÷0.37	≤ 0.025	≤ 0.025	-	-	3.18÷3.82
ASTM A 333-6 (*) / ASME SA	60	35	≤ 0.30	0.29÷1.06	≤ 0.10	≤ 0.025	≤ 0.025	-	-	-
ASTM A 333-7 / ASME SA	65	35	≤ 0.19	≤ 0.90	0.13÷0.32	≤ 0.025	≤ 0.025	-	-	2.03÷2.57
ASTM A 333-8 / ASME SA	100	75	≤ 0.13	≤ 0.90	0.13÷0.32	≤ 0.025	≤ 0.025	-	-	8.40÷9.60

(*) = Steel Grades Normally Available in Stock.

Range of Application

Nominal Composition	Plates	Pipes	Fittings	Flanges & Forged Valves	Max Service Temp.
CARBON STEEL	SA/A516Gr.55/65	SA/A333Gr.1/6	SA/A420WPL1/6	SA/A350LF1/2	-46°C
3.5 Ni	SA/A203Gr.D/E	SA/A333Gr.3	SA/A420WPL3	SA/A350F3	-100°C
9.0 Ni	SA/A553Gr. I	SA/A333Gr.8	SA/A420WPL8	-	-195°C
9.0 Ni	SA/A353	SA/A335Gr.8	-	-	-195°C



Line Pipes

Manufacture Material Tolerances
As per relevant standards.

Dimensions

Seamless pipes are available from O.D. 1/4" to O.D. 34" according to API standards, larger sizes up to 80" are available longitudinal or spiral welded (ERW or SAW).

Certification

Pipes are supplied with manufacturer's Mill Test Certificate EN 10204.

Lengths

Pipes available in single or double random lengths; LSAW pipe of large diameter (40" - 56") till 18 mtrs.

Ends

Pipe ends are plain or bevelled according to API standards.



Mechanical Properties and Chemical Analysis of the Most Used Steel Grades

Steel Grade	Tensile Reqs. (PSI)		Chemical Reqs. (%)									
	TS	YS	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V
ASTM A 53-A S-W	30	48	≤ 0.25	≤ 0.95	-	≤ 0.05	≤ 0.06	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.08
ASME SA												
ASTM A 53-B S-W(*)	35	60	≤ 0.30	≤ 1.20	-	≤ 0.05	≤ 0.06	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.40	≤ 0.08
ASME SA												
API 5L-A S-W	30	48	≤ 0.22	≤ 0.90	-	≤ 0.030	≤ 0.030	-	-	-	-	-
API 5L-B S-W(*)	35	60	≤ 0.27	≤ 1.15	-	-	≤ 0.030	-	-	-	-	-
API 5L-X42 S-W	42	60	≤ 0.29	≤ 1.25	-	-	≤ 0.030	-	-	-	-	-
API 5L-X46 S-W	46	63	≤ 0.31	≤ 1.35	-	-	≤ 0.030	-	-	-	-	-
API 5L-X52 S-W	52	66	≤ 0.31	≤ 1.35	-	-	≤ 0.030	-	-	-	-	-
API 5L-X56 S-W	56	71	≤ 0.26	≤ 1.35	-	-	≤ 0.030	-	-	-	-	-
API 5L-X60 S-W	60	75	≤ 0.26	≤ 1.35	-	-	≤ 0.030	-	-	-	-	-
API 5L-X65 W(**)	65	77	-	-	-	-	-	-	-	-	-	-
API 5L-X70 W(**)	70	82	-	-	-	-	-	-	-	-	-	-
API 5L-X80 W(**)	80	90	-	-	-	-	-	-	-	-	-	-

(*) = Steel Grades Normally Available in Stock • S = Seamless • W = Welded • (**) = by Agreement for Seamless Pipe

By agreement between purchaser and manufacturer

Surface Protection

Pipes can be supplied with external surface either rolled or oiled.

On request pipes can be supplied with surface protected

as shown in the table below:

Surface	Nominal Size	Type of Protection	Max Length of Pipe
External	1/2" ÷ 80" O.D.	Bituminous Standard Coating • Bituminous Heavy Coating Special Coating According to Specifications, such as Polyethylene or Epoxy Resin.	18.300 mm

Pipes

Stainless Steel

Seamless and Welded Tubes and Pipes for the Chemical and Petrochemical Industry.



Chemical Analysis Austenitic Grades

ASTM Grade	UNS Designation	Chemical Reqs. (%)								
		C	Mn	P	S	Si	Ni	Cr	Mo	Ti
TP304	S30400	≤ 0.08	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	8.00÷11.0	18.0±20.0	-	-
TP304H	S30409	0.04±0.10	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	8.00÷11.0	18.0±20.0	-	-
TP304L	S30403	≤ 0.035	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	8.00±13.0	18.0±20.0	-	-
TP309	S30900	≤ 0.15	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	12.0±15.0	22.0±24.0	-	-
TP310	S31000	≤ 0.15	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	19.0±22.0	24.0±26.0	-	-
TP316	S31600	≤ 0.08	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	11.0±14.0	16.0±18.0	2.00±3.00	-
TP316H	S31609	0.04±0.10	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	11.0±14.0	16.0±18.0	2.00±3.00	-
TP316L	S31603	≤ 0.035	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	10.0±15.0	16.0±18.0	2.00±3.00	-
TP316 Mod. (Urea Grade)	-	≤ 0.03	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	11.5±14.5	16.0±18.5	2.50±3.00	-
TP316Ti	-	≤ 0.08	≤ 2.00	≤ 0.045	≤ 0.030	≤ 1.00	10.5±13.5	16.0±18.5	2.00±2.50	5xC min; 0.80.max
TP317	S31700	≤ 0.08	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	11.0±14.0	18.0±20.0	3.00±4.00	-
TP317L	S31703	≤ 0.035	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	11.0±15.0	18.0±20.0	3.00±4.00	-
TP321	S32100	≤ 0.08	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	9.00±13.0	17.0±20.0	-	-
TP321H	S32109	0.04±0.10	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	9.00±13.0	17.0±20.0	-	-
TP347	S34700	≤ 0.08	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	9.00±13.0	17.0±20.0	-	-
TP347H	S34709	0.04±0.10	≤ 2.00	≤ 0.040	≤ 0.030	≤ 0.75	9.00±13.0	17.0±20.0	-	-

Chemical Analysis Austenitic-Ferritic Grades

UNS Designation	Chemical Reqs. (%)									
	C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu
S31803	≤ 0.030	≤ 2.0	≤ 0.030	≤ 0.020	≤ 1.0	4.50±6.50	21.0±23.0	2.50±3.50	0.08±0.20	-
S31500	≤ 0.030	1.20±2.00	≤ 0.030	≤ 0.030	1.40±2.00	4.25±5.25	18.0±19.0	2.50±3.00	0.05±0.10	-
S32500	≤ 0.040	≤ 1.5	≤ 0.040	≤ 0.030	≤ 1.0	4.50±6.50	24.0±27.0	2.90±3.90	0.10±0.25	1.5±2.5
S32304	≤ 0.030	≤ 2.50	≤ 0.040	≤ 0.040	≤ 1.0	3.0±5.5	21.5±24.5	0.05±0.60	0.05±0.20	0.05±0.60
S32760	≤ 0.030	≤ 1.2	≤ 0.035	≤ 0.020	≤ 0.8	6.0±8.0	24.0±26.0	3.0±5.0	0.24±0.32	0.5

Pipeline Accessories



Hot & Cold Bends

Characteristics

Our patented technique can produce cold bending of carbon steel, alloyed steel, stainless steel, duplex and titanium pipes, both longitudinally welded and seamless, with diameters up to 60", wall thickness ranging from 2 to 40 mm and angles up to 180°.

The system ensures a negligible out-of-roundness and minimum wall thickness reduction

for bending radius larger than 5D.

The finished products have an even and smooth surface, completely devoid of defects. When required, heat treatment can be performed for all bends.

Bends are calibrated, bevelled and bored at customer's request.



Production Capacity

We operate to fulfil client's request for bends ranging from 6" to 48" diameter, 400 mm to 5100 mm bending radius and wall thickness up to 100 mm.

An upgrading to 56" diameter and 10200 mm bending radius is currently scheduled.

Bending Radius	Diameter 2"+ 5"	5"+ 40"	34"+ 60"
1D	Not available	Not available	Not available
2D	Not available	Hot	Not available
3D	Not available	Hot	Not available
4D	Cold	Cold	Cold
5D	Cold	Cold	Cold
6D	Cold	Cold	Cold
7D	Cold	Cold	Cold
8D	Cold	Cold	Cold
9D	Cold	Cold	Cold
10D	Cold	Cold	Cold

Productive Capacity

■ Not available
 ■ Hot
 ■ Cold
 ■ Cold / Hot

Tolerances

Model	External Diameter	Bending Angle	Wall Thickness	Ovality
4D Bends	-3% +0%	30' ~ 1°	12% max thinning on extrados	- /+1% of Pipe Diameter
5D Bends	-2% +0%	30' ~ 1°	10% max thinning on extrados	- /+1% of Pipe Diameter
7D Bends and above	-1,5% +0%	30' ~ 1°	10% max thinning on extrados	- /+1% of Pipe Diameter

Heat Treatments

A mobile-heart furnace, equipped with a thermocouples-controlled system, can perform heat treatments upon requests

on all kinds of steels (stainless steel excepted) such as:

- Stress-relieving heat treatment ($\leq 640^{\circ}\text{C}$) for carbon steel bends
- Tempering heat treatment ($\leq 740^{\circ}\text{C}$) for alloyed-steel bends
- Normalizing heat treatment ($\leq 920^{\circ}\text{C}$).

Technical features of the furnaces:

- Width 3500 mm
- Length 10500 mm
- 12 gas Burners
- Max Temperature 1000°C .

Anchor Flanges

Characteristics

Euroguarco designs and manufactures anchor flanges used in pipelines to minimize thermal expansion and distribute axial thrust of the pipeline.



Design

- Mechanical design as per ASME VIII Div.1 and MSS SP-44
- Other designs upon request.

Materials

- ASTM A105
- ASTM A694
- Other materials upon request.

Dimensions

- Maximum diameter: 3000 mm.

Non-Destructive Tests

- Ultrasonic test on flange according to A388
- Magnetic particle after flange machining
- Liquid penetrants on welding bevels
- X-ray examination (if requested).



Monolithic Insulating Joints

Characteristics

The purpose of insulating joints installation on gas and oil pipelines, it is to ensure electrical isolation among sections of pipelines preventing detrimental electrochemical interaction among the sections themselves.

Insulating joints are also used to ensure effective current spreading on cathodic protection systems.

The insulating joint is suitable for installation either under, or above ground.

It shall be installed on pipeline by means of girth welding it between two sections of pipeline itself.



Design

All Joints shall be of Monolithic type construction by welding pipe-pups on either side of it.

The Insulating joints shall be designed and prepared for welding to fit the pipe size and grade specified by the client.

Construction shall not incorporate any flanges, bolts, nuts and threaded unions and structure shall be stiff, strong and suitable for maintenance free field installation, no matter if installed on buried or surface laid pipeline.

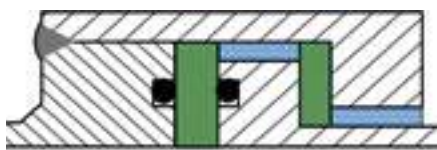


The insulating joint body shall be designed in accordance with the method described on ASME VIII Division 1 Appendix 2, adequately adapted.

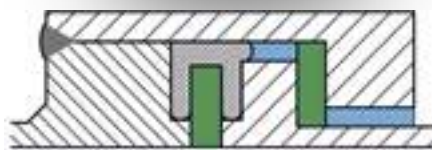
As a minimum requirement, the design pressure shall be the same of the design pressure of the pipeline.

Sealing Gasket shall be designed such that the joint assembly complies with the mechanical and electrical requirements of the project.

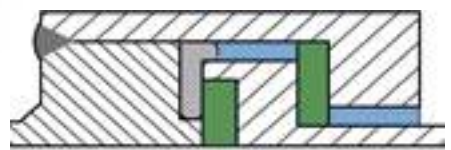
The seal gasket shall be made of one rectangular or "U" shaped piece, alternatively it can be O-Ring type.



O-Ring System



U-Shape System



Rectangular Shape System





Euroguarco Divisions



Piping

Conforming to ANSI, BWG, AWG, BS and other international standards:

line pipe, boiler pipe, heat-exchanger tube, tube expanders, torque wrenches, condenser tube, boiler and heater tubes, U-tubes, assembly bundle tubes, finned tube for air-cooling systems; Carbon steel, stainless steel, Cu-Ni, admiralty brass, cast iron, special alloys.



Insulation

High temperature textiles (fabrics, tapes, ropes, sleeves), insulating blankets, felts, millboards, papers

and mouldables, pre-formed insulating jackets, welding blankets, polymeric foam insulating boards, acoustic boards and sound barriers, fire-resistant textiles, compensation joints. Speciality items for marine, oil & gas, steel, glass industries.



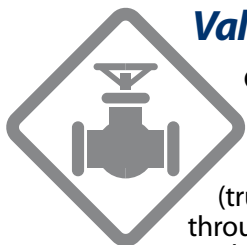
Engineering

Often in cooperation with partners, Euroguarco has performed several turn-key and sub-contract works

for the engineering, supply and construction of industrial and civil projects. Based on the project, Euroguarco can offer his customers with advantageous solution by reducing the cost impact of many services that normally EPCs give in outsource. Some cases:

- Piping system engineering, fabrication and testing
- Pig Launcher & Receiver (Iraq, Libya)
- Gas/Oil Tanker Jetty (Iran)
- Gas, oil or finished products Pipeline project (Turkey, Iran, Iraq)
- Slug Catcher (Iran)
- Steel & alloy piping structure (Mexico)
- Air and water cooling systems (Iraq)
- Insulation cut-on-design and supply for piping and pressure vessels (Kazakhstan, Italy)
- Flares and burners (Iraq)
- LPG storage and distribution system (Ghana, Tanzania)
- LPG filling station (Tanzania)
- Railway project (Ghana)
- Pumping station (Russia)
- Stations on skid (Iraq)

Euroguarco is also active in environment friendly projects, in cooperation or in consortium with specialized partner companies.



Valve

Gate, Swing-Check, Globe valves. Ball valves (trunnion, floating, through conduit), wrench and gear

operator. Forged and cast steel types. Butterfly, Wafer-type, Diaphragm and Knife-Gate valves.

Valves in bronze and brass: gate, globe, swing check and ball type. Conforming to dimensional standards ASME, ANSI, API, BS. Materials: carbon steel, stainless steel, cast iron, ductile iron and alloys. Sizes from 1/4" to 60", depending on the type of valve. Rating from 150 to 2500 Lbs.



Gasket

Conforming to ASME, DIN, EN and BS standards: compressed jointing sheets FASIT®, flexible graphite

GRAFLEX®, PTFE based sheets GUAFLON®, mica compound sheets GUARMICA®, gland packings, o-rings, die-cut gaskets, Weaveline gaskets, spiral-wound gaskets, metal-jacketed gaskets, ring-joint gaskets, flat metal gaskets, laminated gaskets, rubber gaskets, cam-profile gaskets, textile gaskets, manhole gaskets, etc.



Selected References

- ABB (Italy)
- ADOC Japan (EAU)
- Agip (Italy)
- Agip KCO (Kazakhstan)
- AGOCO (Libya)
- Alenia Aeronavale (Italy)
- Ameira Petroleum (Egypt)
- Ansaldo Energia (Italy)
- ASRY Shipyards (Bahrain)
- Attok Refinery (Pakistan)
- Bangladesh Gas Field Co. (Bangladesh)
- Banias Power Co. (Syria)
- Banias Refinery (Syria)
- Bateman-Litwin (France)
- Belleli (Italy)
- BP (Iraq)
- Brega (Libya)
- Brembana (Italy)
- Cairo Refining (Egypt)
- CERN (Switzerland)
- Daura Refinery (Iraq)
- Dongang Boiler Group (China)
- Eastern Refinery (Bangladesh)
- Eco Petrol (Colombia)
- Edipower (Italy)
- ENEL (Italy)
- ENI (Italy)
- Enppi (Egypt)
- Fincantieri (Italy)
- Finmeccanica (Italy)
- Fondital (Italy)
- Foster Wheeler (Italy)
- Gas Transmission Co. Ltd (Bangladesh)
- GAZPROM (Russia)
- GE Nuovo Pignone (USA, Italy)
- Homs Refinery (Syria)
- Jordan Petroleum Refinery (Jordan)
- LukOil (Russia)
- MAERSKOIL (Kazakhstan)
- Magotteaux (Belgium)
- Mangiarotti (Italy)
- Mari Gas Co. (Pakistan)
- McDermott (USA)
- Mellitah (Libya)
- Midland Refinery (Iraq)
- Ministry of Defense (Italy)
- National Refinery (Pakistan)
- NIGC (Iran)
- North Oil Company (Iraq)
- NPCC (EAU)
- Nuovo Pignone - GE (Italy)
- Officine Resta (Italy)
- Olmi - Alfa Laval (Italy)
- OPET Petrol (Turkey)
- ORYXGAS (Switzerland)
- Oto Melara (Italy)
- PDI-Pemex (Mexico)
- Petrojet (Egypt)
- Qatar Gas (Qatar)
- Ras Gas (Qatar)
- Saipem (Italy)
- Saras (Italy)
- SCOP (Iraq)
- Sirte Oil Co. (Libya)
- Snam (Italy)
- Solvay (Italy)
- South Oil Company (Iraq)
- SGS Oil & Gas (Czech Republic)
- SSGC (Pakistan)
- Kala Naft (Iran)
- Kordestan Petrochemical (Iran)
- MAPNA (Iran)
- Metec (Ethiopia)
- Nargan (Iran)
- NIOC (Iran)
- PDO (Oman)
- Pentair (USA)
- POGC (Iraq)
- Yara (Italy)
- Sung Kyong (South Korea)
- Tecnimont (Italy)
- Tehran Refinery (Iran)
- Termomeccanica Italiana
- Trenitalia (Italy)
- Waha Oil Company (Libya)
- Warri Refinery (Nigeria)



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