Euphoria

www.avrasyaexport.com

SPIRAL WELDED STEEL PIPES

PRODUCT SPECIFICATIONS

Annual Reproduction	460,000 tons
Pipe Length	6 m 20 m (Standard and special production up to 50 m)
Outside Diameter	219.1 3.048.0 mm
Wall thickness	4.0 25.4mm
Raw materials	Hot rolled coil sheet
Welding Process	Internal and external continuous submerged arc welding (SAW)
Material Quality	API 5L 2013 (45th Edition) GrB X80 EN 1002504 S235 JR S355 K2

PRODUCTION STANDARDS

Gas and Oil Pipelines	API 5L ISO 3183 TS 6047
Water Pipes and White Water Pipes	AWWA C 200 BS 534 TS EN 102171 TS 9341 EN 10224
Pipes for General Use	ASTM A 53 EN 102192
Piling Pipes	ASTM A 252

QUALITY CONTROL

100% reliability of the product is ensured in our factory for production and shipment.

Quality Conducted in Accordance with API 5L Specification Our Control Activities:

Input Quality Control

Eye and Measurement Control

Casting Analysis

Product

Analysis Tensile Test and Chemical Analysis

Process Quality Control

Eye and Measurement Control

Hydroshock Test

Tensile Test

Welded Tensile Test

Product Analysis

Guided Bending Test,

Steel Impact Test

Weight Drop Test

Non-Destructive Testing

OnLine Ultrasonic Examination

OffLine Ultrasonic Inspection

Radiographic Examination/Fluoroscopic Peak

Magnetic Particle / Liquid Penetrant Examination

CTOD Test

Final Quality Control

Eye and Measurement Control

Surface Comparison

Surface Roughness

Coating Thickness Test

Porosity Test

Peeling Test

Coup Test

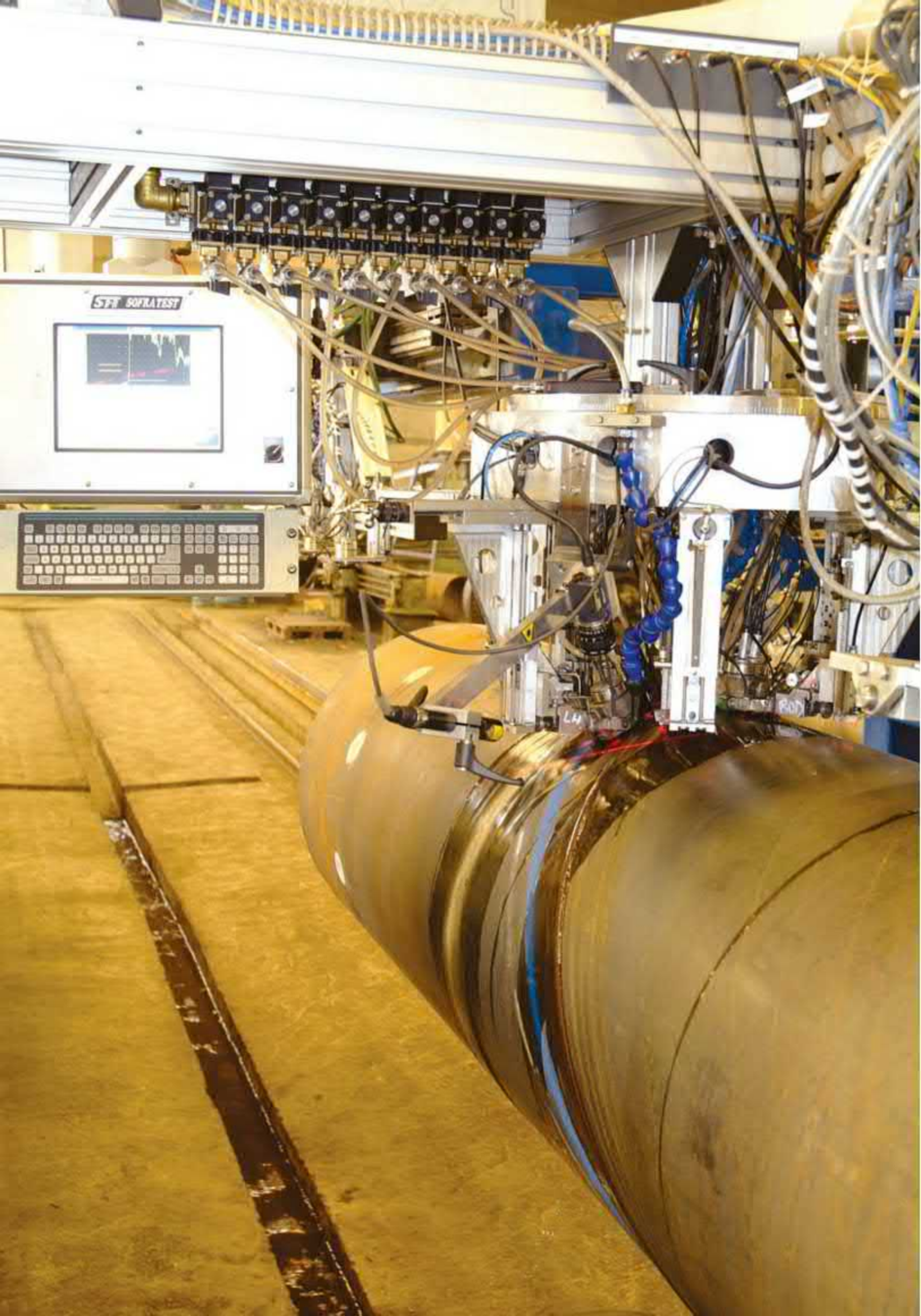
Elongation Test

Sinking Test

Hardness Test

Cathodic Peeling Test

Marking and Final Inspection


SFT SOFTATEST

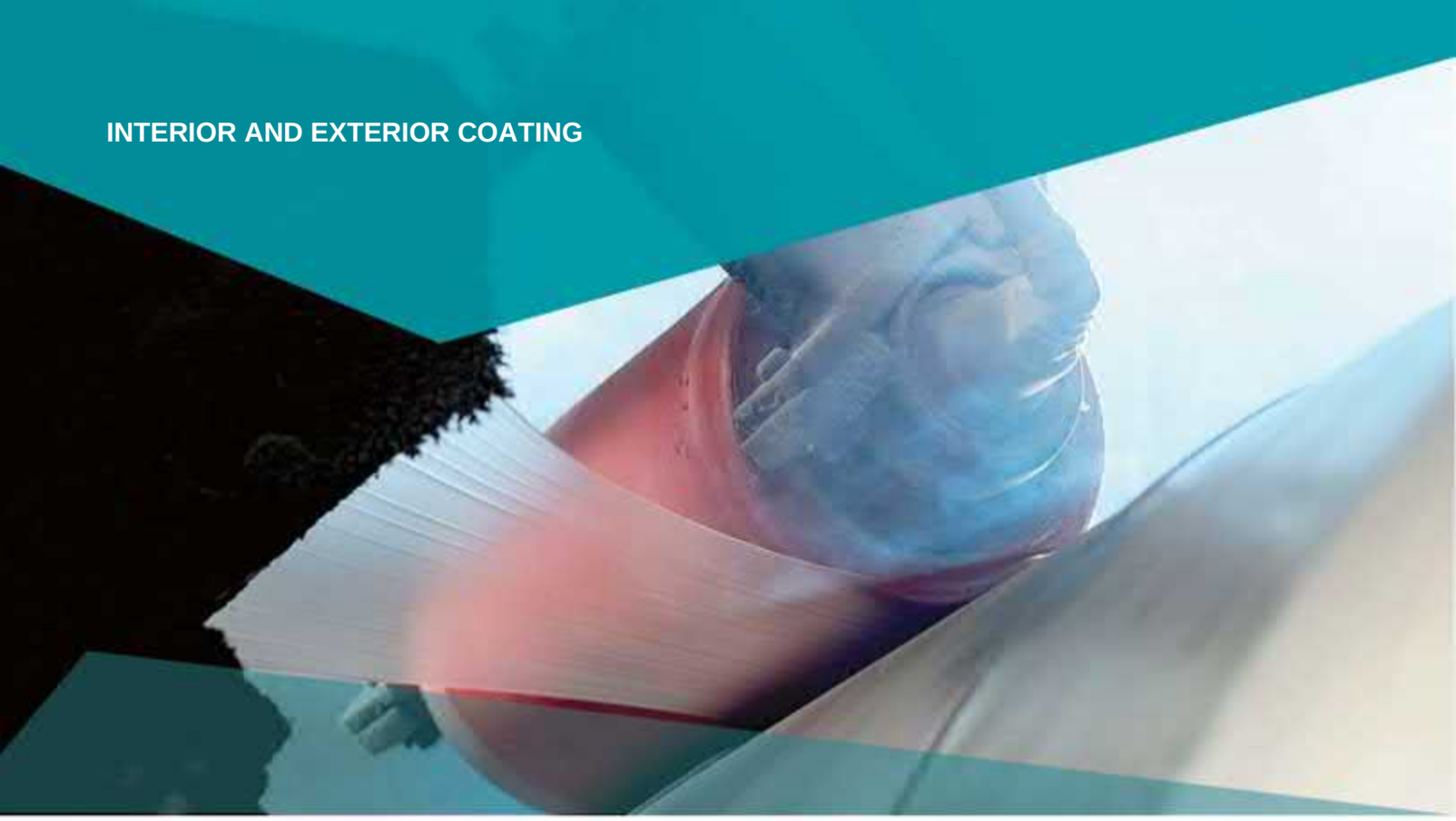
QUALITY MANAGEMENT

Our company aims to continuously improve process quality within the framework of the basic principle of customer focus;

• At every stage of production
• Continuity in product quality is ensured by using qualified materials, •
Developing standard requirements are realized in the shortest time and at the highest level by complying with legal obligations, • Employees, subcontractors and
By meeting the training needs of suppliers, human resources are supported,

• In order to prevent work accidents and occupational diseases, hazards are eliminated at source,
• The environmental impacts of our activities are prevented by respecting the environment,
• System performance is ensured throughout the are evaluated and improved in stages.

INTERIOR AND EXTERIOR COATING

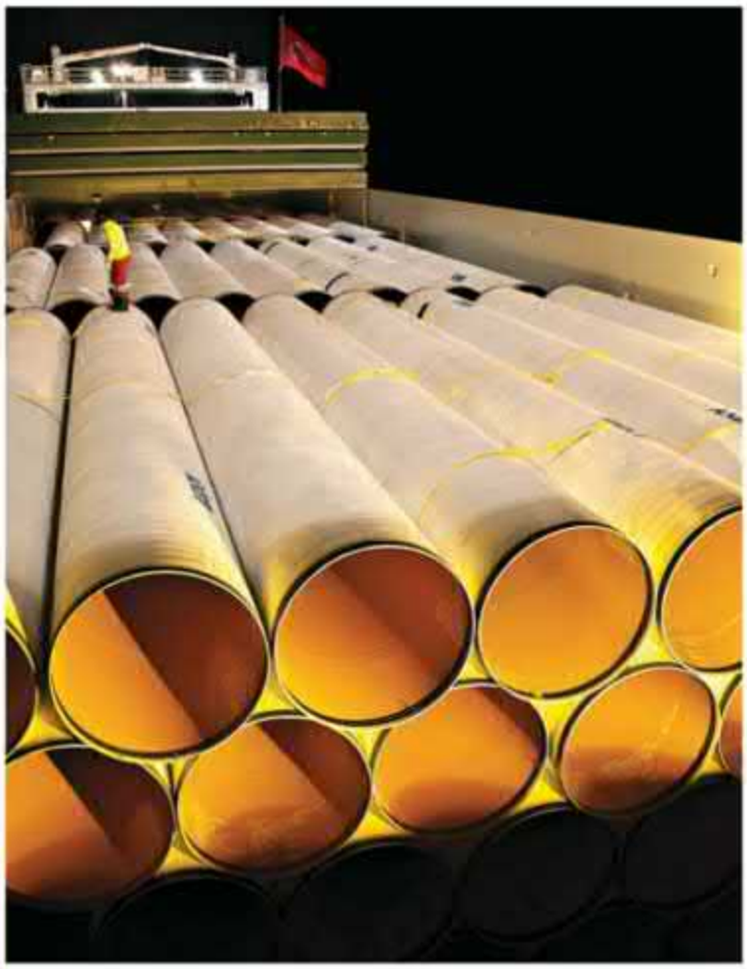


Coating Standards

External Polyelene Coating	AWWA C 215 DIN 30670 TS 5139 NF A 49710
External Polypropylene Coating	AWWA C 215 DIN 30678 NF A 49711
Interior Concrete Coating	AWWA C 205 DIN 2614 TS 8590 EN 10298
InsideOutside CoalTar Enamel Coating	AWWA C 203 BS 4164
InteriorExterior Epoxy Paint Coating	AWWA C 210 TS EN 10289 NF A 49709
InteriorExterior Polyurethane Coating	EN 10290

TRANSPORT

After the production stages are completed in our factory, the products
The process of delivering to our customers begins. Land, sea and railway options are used in the transportation of products. Before transportation, the loading of pipes into containers, wagons and ship holds is carried out under the supervision of Final Product Quality Control Teams and using appropriate equipment.
Our products leave our factory insured against any damage that may occur during the transportation process.



AREAS OF USE OF STEEL PIPES

- Oil Pipelines
- Natural Gas Pipelines
- Water Distribution Lines
- Foundation Piles
- Industrial Pipe Networks
- Steel Structures
- Refineries
- Special Purpose Uses

INTERNATIONAL DRINKING WATER AND PILE PIPES REFERENCE LIST

Country	Pipe Eba (mm x mm)	Amount (metre)	Amount (ton)	Year
Algeria Plateau El Esnam Water Pipeline Project HYDROAMENAGEMENT	Ø 1219.2 x 11.0 Ø 711.2 x 7.1 Ø 609.6 x 6.3	3,060 4,410 16,950	1,003 544 1,589	2015
France Water Pipeline Project	Ø 1048 x 8.8	14,000	3,157	2015
Austria Water Pipeline Project	Ø 1016 x 17.0	2,400	1,005	2015
Iceland Water Pipeline Project	Ø 711.2 x 8.8 Ø 609.6 x 11.0	696 3,828	106 622	2015
South Africa Water Pipeline Project	Ø 711.2 x 6.0 Ø 1320.8 x 12.0	10,880 620	11,135 240	2014
Congo Piling Pipe Project	Ø 1828.8 x 19.84	5,674	5,022	2014
Equatorial Guinea Piling Pipe Project	Ø 1200.0 x 10.0	686	204	2013
Serbia Water Pipeline Project	Ø 1016.0 x 8.0 Ø 914.4 x 10.0 Ø 711.2 x 7.1	4,284 4,179 3,086	852 932 381	2013
Azerbaijan Water Pipeline Project HYDROPARK	Ø 1219.2 x 14.0	2,956	1,230	2013
Angola Piling Pipe Project	Ø 914.4 x 20.0	4,018	1,773	2013
Algeria Plateau El Esnam Water Pipeline Project ENT	Ø 1270.0 x 8.0 Ø 1117.6 x 7.0 Ø 1016.0 x 6.3	1,577 8,824 74	393 1,692 12	2013
Serbia Water Pipeline Project	Ø 711.2 x 7.1 Ø 711.2 x 9.0 Ø 711.2 x 9.0	6,756 3,792 3,792	833 591 591	2013
Holland Piling Pipe Project		3,912	1,800	2012
Azerbaijan Water Pipeline Project		24,000	1,850	2012
France Piling Pipe Project	Ø 2043.0 x 15.0 Ø 813.0 x 12.5	1,293 978.96	971 242	2012
Azerbaijan Water Pipeline Project HYDROPARK	Ø 1828.8	7,432	3,430	2012
Equatorial Guinea Piling Pipe Project	Ø 1200.0 & 1300.0	2,574	795	2012
Algeria Oud AthmaniaAin Kercha Water Pipe Ha Project ANBT	Ø 2438.4 x 12.7 Ø 2235.2 x 11.9 Ø 2438.4 x 12.7 Ø 2438.4 x 12.7	4,594 3,320 10,784 10,700	3,490 2,166 8,193 8,129	2012

Country	Pipe Eba (mm x mm)	Amount (metre)	Amount (ton)	Year
Azerbaijan Water Pipeline Project HYDROPARK	Ø 1625.6 x 14.0	10,000	5,564	2012
Algeria BoussiabaBeni Haroun Water Pipeline Project ANBT	Ø 1422.4 x 11.0 Ø 1625.6 x 12.5 Ø 2032.0 x 16.0	17,685 12,175 291	6,771 6,054 231	2011
Syria Water Pipeline Project		2,574	807	2011
Colombia Piling Pipe Project		1,500	900	2011
Algeria Ighil EmdaMahouane Water Pipe Ha Project ANBT	Ø 1828.8 x 14.5 Ø 711.2 x 8.8 Ø 711.2 x 7.1	43,000 4,000 19,630 7,956	32,000 2,600 3,000 1,000	2009
Portugal Water Pipeline Project	Ø 1219.2 x 10.0	4,069	1,215	2009
Saudi Arabia Shuqaiq Water Pipeline Project SWCC		16,763	2,250	2009
Algeria Water Pipeline Project ANBT	Ø 1219.2 x 14.0	2,500	1,040	2009
Algeria Water Pipeline Project ANBT	Ø 1219.2 x 14.0	1,900	791	2009
Jordan Water Pipeline Project FEMALE		92,881	61,087	2009
Italy Water Pipeline Project	Ø 711.2 x 7.5	6,000	781	2008
Peru Piling Pipe Project	Ø 914.4 x 18.0	1,190	474	2008
Azerbaijan Water Pipeline Project	Ø 2032.0 x 18.0	8,190	7.321	2008
Azerbaijan Water Pipeline Project	Ø 2032.0 x 14.0	7,000	4,877	2008
Turkmenistan Water Pipeline Project		2,305	655	2008
Nigeria Piling Pipe Project	Ø 762.0 x 14.3 Ø 914.4 x 15.0	6,895 5,000	1,820 1,665	2007
Reunion Island Piling Pipe Project	Ø 762.0 x 12.0 Ø 762.0 x 11.2	36 1,537	113 493	2006
France Water Pipeline Project	Ø 914.4 x 11.1 Ø 863.6 x 11.1	2,730 2,730	675 675	2004
Sweetcorn Water Pipeline Project	Ø 524.0 x 12.0	10,000	1,515	2004

OIL AND NATURAL GAS PIPE PRODUCTION

Standard	Material Quality	Diameter	Wall Thickness	Project Details
API 5L PSL2	X70 PSL2	56 inches 56 inches 48 inches 48 inches	10.45 mm (141.899 meters) 16.67 mm (34.492 meters) 19.45 mm (300 meters) 16.67 mm (228 meters)	Trans Anatolian Natural Gas Pipeline Project (TANAP) Türkiye Project Date: 2015 2016
API 5L PSL2	X65 PSL2	24 inches	9.53 mm (30,000 meters) 12.7 mm (5,000 meters)	SONATRACH Hassi Messaoud Natural Gas Pipeline Project ALGERIA Date of Completion: October 2015
API 5L PSL2	X52 PSL2	16 inches	7.10 mm (12,750 meters)	GAMA Power Systems Engineering and Contracting Inc. Kÿrÿkkare Natural Gas Pipeline Project Completion Date: October 2014
API 5L PSL2 ISO 3183 PSL2	X52 PSL2 X60 PSL2	16 inches 20 inches	10.3 mm (15,500 meters) 14.3 mm (7,500 meters)	CAMEG Natural Gas Pipeline Project ALGERIA Date of Completion: August 2013
EN 102082	X70 PSL2	32 inches	10.0 mm (10,000 meters)	OTF Natural Gas Pipeline Project HUNGARY Date of Completion: May 2013
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	36 inches	14.3 mm (8.275 meters) 15.9 mm (5,589.5 meters) 20.6 mm (3.455 meters)	BOTAÿ Suggestions Keÿan (Gelibolu) Natural Gas Pipeline Project, Esenyurt Ambarlÿ Natural Gas Pipeline Project Date of Completion: October 2012
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	40 inches 16 inches	11.90 mm (30.346 meters) 14.30 mm (3.315 meters) 6.40 mm (20.832 meters) 7.1 mm (971 meters)	BOTAS Diyarbakir Bismil Batman Natural Gas Pipeline Project Date of Completion: May 2010
API 5L PSL2 ISO 3183 PSL2	X60 PSL2	36 inches	24.40 mm (350 meters)	SONATRACH Natural Gas Pipeline Project ALGERIA Date of Completion: September 2009
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	36 inches	11.12 mm (24,500 meters) 14.30 mm (24.380 meters)	BOTAÿ Bozüyük Seçköy Natural Gas Pipeline Project Date of Completion: January 2008
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	40 inches	11.90 mm (101.772 meters) 14.30 mm (1.034 meters) 17.50 mm (519 meters)	BOTAS Adiyaman ÿ.Urfa Elazÿÿ – Diyarbakÿr Natural Gas Pipeline Project (Phase 3) Date of Completion: July 2007

Standard	Material Quality	Diameter	Wall Thickness	Project Details
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	42 inches	12.70 mm (45.817 meters)	BOTAS Azerbaijan Türkiye Natural Gas Pipeline Project (Shah Deniz Project) (Phase 1) Completion Date: December 2006
API 5L PSL2 ISO 3183 PSL2	X60 PSL2	30 inches	9.52 mm (79,500 meters) 11.12 mm (900 meters) 14.27 mm (3,150 meters) 17.47 mm (31,500 meters)	Tabriz Natural Gas Pipeline Project NIGC Buttress IRAN Date of Completion: July 2006
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	18 inches	5.6 mm (55.776 meters) 6.4 mm (18.273 meters) 7.9 mm (727 meters)	BOTAS Eastern Black Sea Natural Gas Pipeline Project (Phase 2) Date of Completion: November 2006
API 5L PSL2 ISO 3183 PSL2	X60 PSL2	24 inches	7.92 mm (136,000 meters) 9.52 mm (3,000 meters) 11.12 mm (12,000 meters) 14.3 mm (4,000 meters)	Via NIGC Central Stores Sahlan Orumiyeh Natural Gas Pipeline Project IRANIAN Date of Commencement: 2005
API 5L PSL2 ISO 3183 PSL2	X65 PSL2	40 inches 24 inches	11.90 mm (183,250 meters) 7.1 mm (42,050 meters)	BOTAS Malatya Gaziantep Natural Gas Pipeline Project Date of Commencement: 2003
API 5L PSL2 ISO 3183 PSL2	X52 PSL2	20 inches	7.9 mm (1.004 meters)	SONATRACH Haoud El Hamra Arzew Natural Gas Pipeline Project ALGERIA Date of Commencement: 2003
API 5L PSL2 ISO 3183 PSL2	X52 PSL2	24 inches	8.7 mm (30,000 meters)	EGO (INDET TURKERLER) Ankara Natural Gas Pipeline Project Date of Commencement: 2003
API 5L PSL2 ISO 3183 PSL2	X65 PSL2 X65 PSL2 X52 PSL2 X52 PSL2 X52 PSL2 X52 PSL2	36 inches 36 inches 32 inches 28 inches 24 inches 12 inches	11.1 mm (18,000 meters) 14.3 mm (4,000 meters) 11.9 mm (8,000 meters) 10.3 mm (7,000 meters) 8.7 mm (21,000 meters) 5.2mm (500 meters)	EGO (INDET TURKERLER) Ankara Natural Gas Pipeline Project Date of Completion: 2002
API 5L PSL2 ISO 3183 PSL2	Grade B API 5L PSL2 Grade B API 5L PSL2	20 inches 24 inches	7.14 mm (2,800 meters) 7.92 mm (1,250 meters)	IGDAS Istanbul Natural Gas Pipeline Project Date of Commencement: 2001


BELGIUM
FRANCE
CROATIA
SERBIA
MONTENEGRO
BOSNIA
HERZOGEVINA
ITALY
BULGARIA
SPAIN
PORTUGAL
GREECE
TURKEY
KAZAKISTAN
AZERBAIJAN
IRAN
ISRAEL
JORDAN
MOROCCO
ALGERIA
EGYPT
NIGERIA
CONGO
PERU
ANGOLA
SOUTH AFRICA
REUNION
ISLAND

A BETTER WORLD

WE ARE WORKING FOR INFRASTRUCTURE

PRODUCTION RANGE

Nominal diameter *Outer diameter* *Thickness*

Anma Çapı		Dış Çap	Et Kalınlığı		0.160	0.192	0.250	0.281	0.315	0.344	0.394	0.492	0.559	0.625	0.688	0.787	0.866	0.984
in	mm	mm	in	mm	4.0	5.0	6.3	7.1	8.0	8.8	10.0	12.7	14.2	16.0	17.5	20.0	22.0	25.0
12	300	323.9	0.219	5.6														
14	350	355.6	0.250	5.6														
16	400	406.4	0.250	6.3														
18	450	457.2	0.250	6.3														
20	500	508.0	0.250	6.3														
22	550	558.8	0.250	6.3														
24	600	609.6	0.250	6.3														
26	650	660.4	0.281	7.1														
28	700	711.2	0.281	7.1														
30	750	762.0	0.312	8.0														
32	800	812.8	0.312	8.0														
36	900	914.4	0.394	10.0														
40	1000	1016.0	0.394	10.0														
44	1100	1117.6	0.394	10.0														
48	1200	1219.2	0.492	12.5														
52	1300	1320.8	0.492	12.5														
56	1400	1422.4	0.492	12.5														
60	1500	1524.0	0.559	14.5														
64	1600	1625.6	0.559	14.2														
68	1700	1725.2	0.559	14.2														
72	1800	1828.8	0.592	14.2														
80	2000	2032.0	0.625	16.0														
88	2200	2235.2	0.625	16.0														
100	2500	2540.0	0.688	17.5														
120	300	3048.0	0.787	20.0														

API 5L X80M PSL2

CALCULATIONS RELATED TO PIPE PRODUCTION

1. Weight Calculation of Pipes:

W : 0.02466 (Dt) x t. (kg/m)

D : Pipe Outer Diameter (mm)

t : Pipe Wall Thickness (mm)

W : Pipe Unit Weight (kg/m)

2. Hydrostack Test Pressure:

The hydrostatic test pressure is found by a calculation method that includes a stress lower than the yield stress of the steel.

P : Hydrostack Test Pressure (bar)

k : Percentage of Yield Stress Entered into

s Calculation : Determined Minimum Yield Stress (MPa)

t : Pipe Wall Thickness (mm)

D : Outer Diameter of Pipe (mm)

$$P = \frac{20xkxsxt}{D}$$

According to API 5L;

Grade A: k=0.60

Grade B: k=0.60

X42 X80: k= 0.60 Outer Diameter < 5 9/16 in

k=0.75 Outer Diameter 6 5/88 5/8 in

k=0.85 Outer Diameter 10 3/418 in

k=0.90 Outer Diameter > 20 in

3. Unit Surface Area:

A=D x ÿ x 103(m2/m)

A : Unit Surface Area (m2/m)

D : Pipe Outer Diameter (mm)

4. Manufacturing Helix Angle:

$$\text{Cos } ÿ = \frac{B}{ÿD}$$

B : Band Width (mm)

D : Pipe Outer Diameter (mm)

5. Manufacturing Time of 1m Pipe:

T=1 / (Cos ÿ x V)

: Manufacturing time (min.)

T ÿ : Manufacturing Helix Angle

V : Welding Speed (m/min.)

www.avrasyaexport.com

5L-0387

K-Q TSE-ISO-EN 9000

TSE ISG-OHSAS TS 18001

CE