



Large Diameter Pipes (LSAW)





Table of Contents

01

- 2 Company overview
- 6 Worldwide operations
- 8 Manufacturing process
of pipes
- 10 Pipe coating process

02

- 12 Products
- 18 Certificates

03

- 20 Projects





Company overview

Company overview

12

million tonnes of steel

35

km away from the port of St. Petersburg

15

years of experience in producing large diameter pipes

6000

thousands of tonnes per year

Severstal is one of the world's most efficient metals and mining companies, working with customers and partners to create new products and integrated solutions from steel.

Founded in 1955, our company has successfully supplied European, MENA, CIS and Russian companies for more than 60 years which makes it one of the world's leading steel producers with annual production over 12 million tonnes.

The main production site Cherepovets Steel Mill was opened in the city of Cherepovets, Russia.

For the energy sector, Severstal offers large diameter pipes LSAW to oil and gas companies that are used for the construction of oil and gas pipelines for onshore and offshore applications. Our pipes are manufactured in accordance with the international standards and can be addressed to a wide list of applications, including the most challenging ones. In designing our products one of the main focuses is to increase reliability and durability and reduce operating costs of production facilities.

Severstal has its own production asset Izhora

Pipe Mill with over 15 years of experience in producing large diameter pipes LSAW for projects in Russia and worldwide. The production capacity is about 600 thousands of tonnes per year. The location of Izhora Pipe Mill is just 35 km away from the port of St. Petersburg, that leads to a more efficient logistics for the delivery of pipes.

Severstal is vertically integrated and, therefore, controls all the manufacturing process from steel slabs to pipes. This give us quality control of the whole manufacturing process, as well as flexibility in supplying our customers by offering steel flat products (plate, coil) and pipes.

We are ready to offer solutions tailored to customer needs and innovative products by assuring our cooperation from the design phase to the manufacturing of the final products thanks to our own R&D department.



Worldwide operations

14
regions



>35
major projects

Supply parameter designations

Steel grade: X70

Coating: *

1 Export supplies 16 Russian supplies

Coating

- * Bare pipe
- External Coating
- External and internal Coating
- Concrete Weight Coating
- Thermal insulating coating

Gas pipeline

Oil pipeline

Port infrastructure

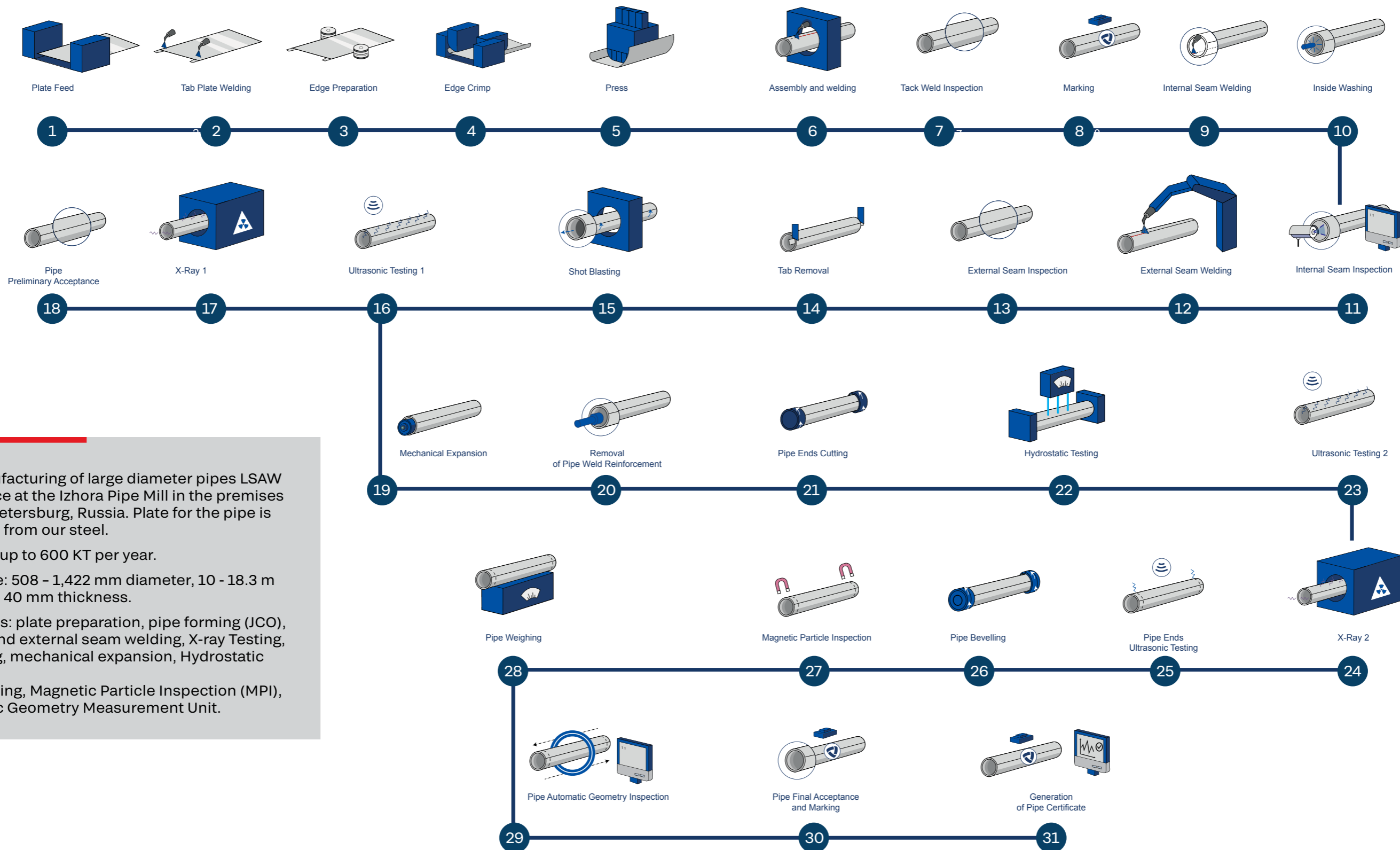


- 12 **Gas pipeline, Poland**
Gaz-System
- 13 **Polish-Slovak Gas Interconnector, Slovakia**
Eustream A.S.
- 14 **Gas pipeline, Bulgaria**
Bulgartransgaz EAD
- 15 **Field development Serica Project North Eigg,**
U.K., Serica Energy

- 1 **Gas pipeline, Canada**
Distribution Network
- 2 **Gas pipeline, USA**
Distribution Network
- 3 **Pipeline for copper mine, Peru**
Southern Peru Copper
- 4 **Barcarena LNG, Brazil**
New Fortress Energy
- 5 **Field development, Brazil**
Petrobras
- 6 **Gas pipeline, Egypt**
Petrojet
- 7 **Construction, Egypt**
Orascom Construction
- 8 **Construction, Egypt**
North Sinai Petroleum Company
- 9 **TurkStream, Russia-Turkey**
South Stream Transport B.V.
- 10 **Gas pipeline, Kazakhstan-China**
Carbon Geocom LLC
- 11 **Rooppur NPP, Bangladesh**

- 16 **Engineering Construction for the modernization of the dry dock**
United Shipbuilding Corporation
- 17 **Centre for the construction of large-tonnage offshore structures**
Novatek
- 18 **LUGAPORT**
Novotrans
- 19 **Ultramar Terminal**
Ultramar
- 20 **ESG of the North-Western region, section Gryazovets - «KS Slavyanskaya»**
Gazprom
- 21 **Baltic Pipeline System-2**
Transneft
- 22 **Gas pipeline Bovanenkovo - Ukhta and Bovanenkovo - Ukhta 2**
Gazprom
- 23 **Gas pipelines Ukhta - Torzhok and Ukhta - Torzhok - 2**
Gazprom
- 24 **Oil pipelines Purpe - Samotlor, Zapolyarye - Purpe**
Transneft
- 25 **Oil transportation system VostoK Oil**
Rosneft
- 26 **Utrenneye (Salmanovskoye) field**
Novatek
- 27 **Obskyi Gas Terminal**
Novatek
- 28 **Utrenny LNG Terminal**
Novatek
- 29 **Novoportovskoye oil and gas condensate field**
Gazprom
- 30 **Kharasaveyskoye gas field**
Gazprom
- 31 **Kharampur gas field**
Rosneft
- 32 **Oil terminal Port Bay North**
Rosneft
- 33 **Gas pipeline Power of Siberia**
Gazprom
- 34 **Oil pipeline Eastern Siberia - Pacific Ocean**
Transneft
- 35 **Amur gas processing plant**
Gazprom
- 36 **Sakhalin - Khabarovsk - Vladivostok gas pipeline**
Gazprom

Manufacturing process of pipes



The manufacturing of large diameter pipes LSAW takes place at the Izhora Pipe Mill in the premises of Saint-Petersburg, Russia. Plate for the pipe is produced from our steel.

Capacity: up to 600 KT per year.

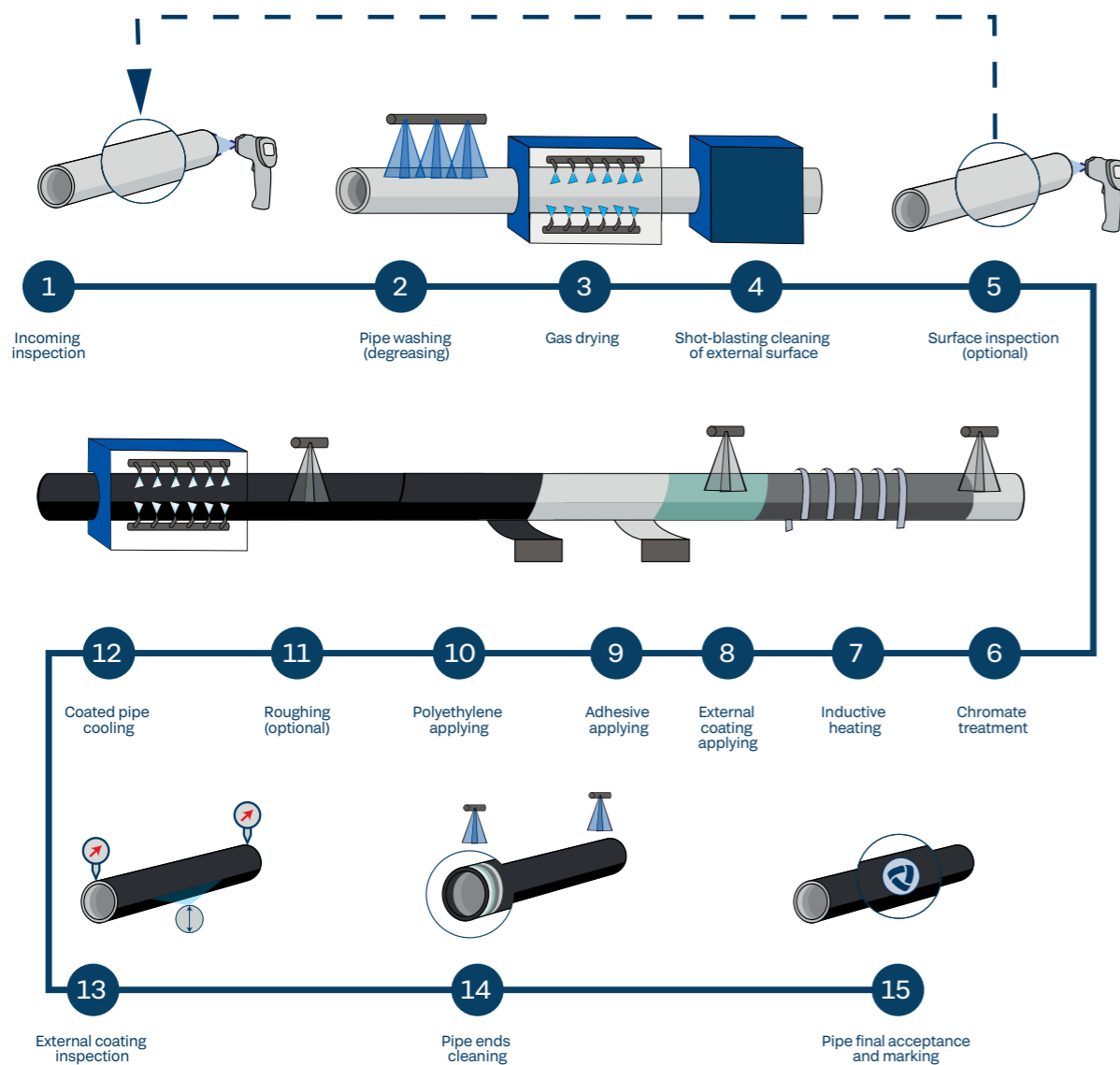
Size range: 508 - 1,422 mm diameter, 10 - 18.3 m length, 8 - 40 mm thickness.

Main steps: plate preparation, pipe forming (JCO), internal and external seam welding, X-ray Testing, UT testing, mechanical expansion, Hydrostatic testing, end beveling, Magnetic Particle Inspection (MPI), Automatic Geometry Measurement Unit.

Pipe coating process

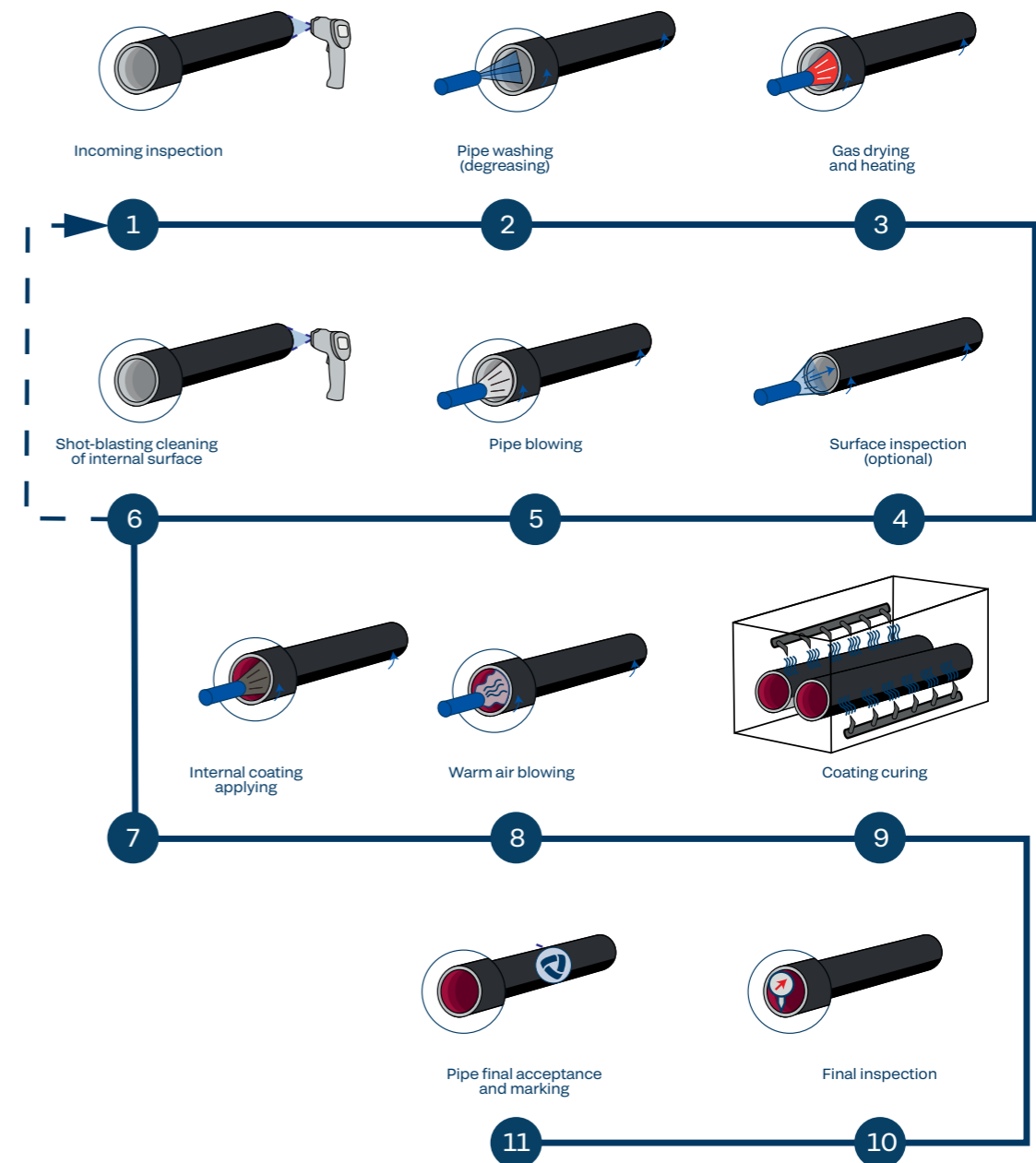
External coating

- Two layer polyethylene coating (2LPE) and three layer polyethylene coating (3LPE) for oil and gas pipelines at operating temperatures up to +80 °C
- Three layer polypropylene coating (3LPP) for oil and gas pipelines at operating temperatures from -20 °C to +110 °C
- Epoxy coating for oil and gas pipelines at operating temperatures up to +120 °C



Internal coating

- Epoxy coating to transport dry gases
- Corrosion protection coating to transport oil, oil products, as well as water, including potable water





Products

Large diameter pipes

Large diameter pipes for sour service

For its clients, Severstal provides longitudinal seam (LSAW) pipes for onshore and offshore applications through the production asset Izhora Pipe Mill with more than 15-year experience and a production capacity of about 600 thousands of tones per year in accordance with the international standards. Pipes are manufactured from 508 to 1,422 mm in diameter, with steel grades reaching up to X100, and lengths from 10 to 18.3 m.

Pipes of 18.3 m in length enable to decrease the cost of pipelines construction, as less amount of welding points become necessary.

When it comes to meeting specific needs of our customers, thanks to the full control over the entire manufacturing process (from slabs to pipes) and with the advanced R&D center we offer customized solutions on time and the ability to develop new products for technically challenging projects.

Dimensions of pipes (OD/WT)

OD (mm) \ WT (mm)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
508																	
609.6																	
711.2																	
812.8																	
914.4																	
1,016																	
1,066.8																	
1,219.2																	
1,422																	

Large diameter pipes for sour service are used for the transportation via pipeline of hydrogen sulfide-containing substances, CO₂ — containing substances.

Pipes must withstand high mechanical loads during installation and have resistance to operational corrosion.

Products

L245MS or BMS	L450MS or X65MS
L290MS or X42MS	L485MS or X70MS
L320MS or X46MS	
L360MS or X52MS	
L390MS or X56MS	normalized products
L415MS or X60MS	up to L360NS or X52NS

Corrosion resistance testing

- Hydrogen cracking test according to NACE TM 0284
- Sulfide stress corrosion cracking according to NACE TM 0177

Compliance with

- ANSI/NACE MR0175/ISO 15156-2
- API Spec 5L / ISO 3183 Annex H



Coatings for pipes

External Coatings

External 3LPE & 3LPP coating, Concrete weight coating (CWC), FBE, DFBE coating, Epoxy glass coating, Protection Varnish and epoxy coating.

*coatings which may be applied with the involvement of third-party organizations.

Internal flow coatings

Internal epoxy coating.

Glass reinforced plastic coating

Provides reliable protection of the pipe insulation coating against mechanical damage during construction, modernization, repair and operation of pipelines.

Application

- Overground, trenchless and trenching pipe
- Rocky and permafrost soils laying
- Corrosive media
- Sections of pipelines of high responsibility
- Operating temperature: from -45°C to +80°C



Hot rolled steel for oil & gas line pipes

Severstal has a long experience in producing plates for LSAW pipes and hot-rolled coils for ERW and HSAW pipes production, including sweet and sour application. The manufacturing is performed using Mills 2000, 2800 and 5000.

Hot-rolled plates

Thickness, mm	Width, mm	Length, mm	Grades
10 - 160	1,500 - 4,650	6,000 - 19,000	Gr.B-X100, L245M - L690M for sour service up to X65MS S275 - S460

Hot-rolled coils

Thickness, mm	Width, mm	Grades
PSL 1: 3 - 25 mm PSL 2: 3 - 14 mm	950 - 1,830	Up to X70 for sour service up to X52MS S275 - S420

Certificates

Izhora Pipe Mill' Quality Management System is certified according to key international standards.

Izhora Pipe Mill as a highly competitive manufacturer has an active Quality Management System meeting the requirements of the following standards.

- ISO 9001
- ISO 14001
- ISO 45001
- EN 10219
- EN ISO 3834
- API Specification Q1
- API Specification 5L
- Directive 2014/68/EU
- INTI.QS.S.30.4-08-2024-26
- INTI.QS.S.QS.7-06-2025-123



List of approved qualifications

Izhora Pipe Mill is qualified as a supplier of tubular products to the following companies:

Country	Company	Country	Company
Italy	ENI	Germany	Bilfinger
Austria	OMV	Austria	ILF
Hungary	EPC	Egypt	Petrojet, ENPPI
Spain	Enagas	UAE	Global Resource Design
Italy	SNAM	UAE	Bilfinger Middle East
Poland	Gaz System	Brazil	Andrade Gutierrez
Slovakia	Eustream	Greece	IGI-Poseidon SA
Serbia	Srbijagas	Kuwait	KNPC
UAE	Dragon Oil	Kuwait	KOC
UAE	ADNOC	Saudi Arabia	National Water Company
Egypt	EGPC	Uzbekistan	Uzbekneftegaz
Egypt	GASCO	Egypt	Petrobel
Libya	Sirte Oil Company	Morocco	ONHYM
Jordan	Ministry of Oil and Gas	Egypt	ENPPI
Tunisia	Tunisian Company of Electricity and Gas (STEG)	Kurdistan Region	MNR
Libya	Brega Oil Company	UAE	PETROFAC
Pakistan	Sui Southern Gas Company Limited	Tunisia	Tunisian Company of Electricity and Gas (STEG)
Mozambique	Empresa Nacional De Hidrocarbonetos	Columbia	Canacol Energy





03

Projects



TurkStream

Project Description:

The TurkStream directly connects the largest gas reserves in Russia to the Turkish gas transportation network, providing reliable energy to Turkey, South, and Southeast Europe. The offshore component of the system consists of two parallel lines running through the Black Sea.

Solution:

Izhora Pipe Mill has delivered for the offshore section of the gas pipeline pipes that have 812.8 mm in diameter, 12 m in length, 39.0 mm wall thickness, and are made of DNV450 SFDU steel. The scope of supply amounted to more than 260,000 tonnes of large diameter pipes.

Special pipes with a high deformation capacity can operate at a depth of 2.2 km.

Increased requirements for the geometry have been developed for the project. A special project requirement was 4 mm ovality, which significantly reduced the specific water pressure on the pipeline. During the development, it was proposed to use the steel 450 and to reduce the wall thickness (from 45 to 39 mm), implemented by the additional low-temperature tempering in the coating line.

These decisions reduced the cost of the project for the customer by 2%.

Technical information

Size & grade

- OD = 812.8 mm, WT = 39 mm
- Length = 12 m
- Standard: DNV-OS-F101
- Grade: DNV 450SFDU

Coating

- 3LPP
- Internal epoxy
- CWC



Polish-Slovak Gas Interconnector

Project Description:

The Poland-Slovakia Gas Pipeline represents an important gas transmission system dedicated to become a part of the North-South Gas Corridor in Central, Eastern, and South-Eastern Europe with a capacity of 5.7 billion cubic meters per year and 162 km in length, which will be operated by the Slovak Eustream and the Polish Gaz-System.

Solution:

Under the project for the client Eustream, Severstal has delivered, through its Izhora Pipe Mill production facility, more than 11,500 tonnes of large diameter pipes, 1,016 mm in diameter and 18 m in length, made of L485ME steel.

The application of 18 m long pipes enables cost reduction for the construction of pipelines and enhances reliability and efficiency.

To deliver the pipes to the client, a multimodal transportation logistics has been implemented, including pipes transportation by road, sea, and rail. This approach provides higher flexibility and efficiency of the logistics chain.

Technical information

Size & grade

- OD = 1,016 mm, WT = 11.4 mm
- OD = 1,016 mm, WT = 18.6 mm
- Length = 18 m
- Standard: EN ISO 3183
- Grade: L485ME, L415ME

Coating

- 3LPE
- Internal epoxy
- CWC
- Protecting coating



Power of Siberia

Project Description:

The project represents the construction of the largest gas transmission system in Russia's East with a capacity of 38 billion cubic meters per year and 3,000 km in length.

Solution:

The project demands pipes with high deformation capacity and cold resistance for pipelines in permafrost and areas with increased seismicity and active tectonic faults.

Special technology for X70 steel plate and pipe production has been developed.

Over 53,000 tonnes of LSAW pipes with high deformation capacity made of X70 steel and protected with external coatings and internal epoxy coatings have been supplied for areas with increased seismicity and active tectonic faults (ATF).

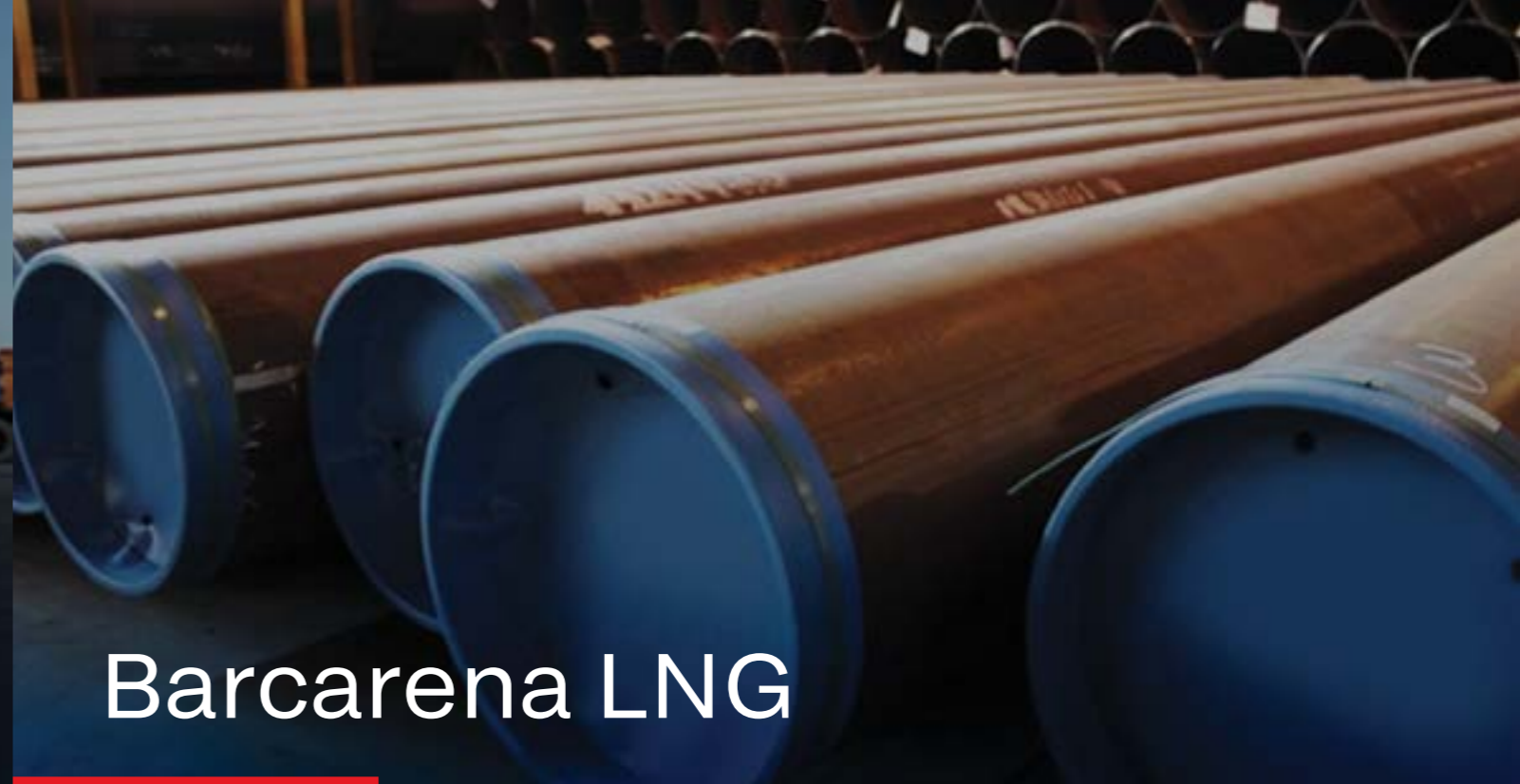
Technical information

Size & grade

- OD = 1.420 mm, WT = 25.8/32 mm
- Length: 12 m
- Grade: X70

Mechanical properties

- TS 570 - 690 MPa
- YS 485 - 595 MPa
- elongation - 20%
- minimum uniform elongation - 8 %
- maximum yield to tensile ratio - 0.86
- KCV 40°C min 150 J/cm²
- DWTT 20°C min 85 %
- CTOD 20°C min 0.40



Barcarena LNG

Project Description:

The Barcarena LNG involves the construction of a floating regasification unit with a capacity of 15 million cubic meters per day on the Para River, near the port of Vila do Conde in Brazil. Natural Gas from the terminal is intended for the transportation to the customers in the Barcarena industrial zone and for the needs of the Celba Power Plant with a total capacity of 605 MW. The project is expected to be completed and put into operation in 2022.

Solution:

For this project, Severstal has delivered pipes that have 508 mm in diameter, 11.5-11.8 m in length, 12.7 mm wall thickness, and are made of X65M steel grade.

Additional customer requirements have been met successfully.

Technical information

Size & grade

- OD = 508 mm, WT = 12.7 mm
- Length = 11.5-11.8 m
- Standard: API 5L
- Grade: X65M