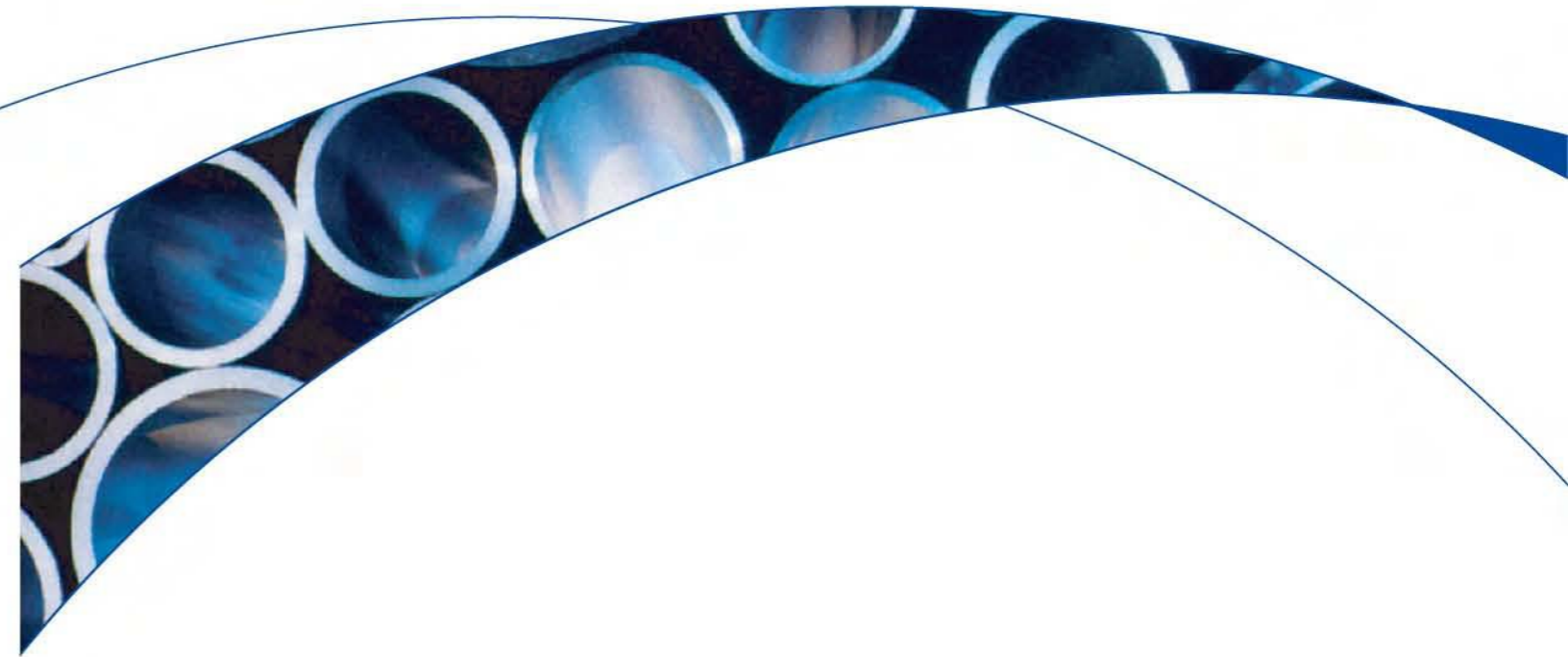


Tianjin Pipe International Economic & Trading Corporation

Steel Pipe & Tube Company Brochure



www.tpcointernational.com

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2016

Tianjin Pipe (Group) Corporation





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TPCO Business

Tianjin Pipe (Group) Corporation -TPCO is one of global leading seamless steel pipe manufacturers and the largest in China, headquartered in Tianjin, a dynamic & fast developing

industrial city. Its core business is manufacturing steel pipes that attains to the advanced international standards and serves global energy, machinery and other industries.

TPCO Advantages

- ◆ **Integrated mill:** strict quality control, starting from steel
- ◆ **Centralized and huge capacity:** short lead time and competitive cost control
- ◆ **World class R&D:** approved by IOCs for high end product tests
- ◆ **Transportation:** 15km to world-top-five seaport and 120 km from Beijing
- ◆ **JV with COSCO:** excellent management in logistics

TPCO Core Value

- People Oriented
- Innovation
- Responsibility
- Customer First



TPCO Introduction

TPCO is headquartered in Tianjin Binhai New Area and The China (Tianjin) Pilot Free Trade Zone (TJFTZ), enjoys benefits of advantageous geographical position and convenient transportation: 15 km from Tianjin port, 20 km from Tianjin Binhai International Airport, and 120 km from Beijing easily reachable by high speed train and expressway.

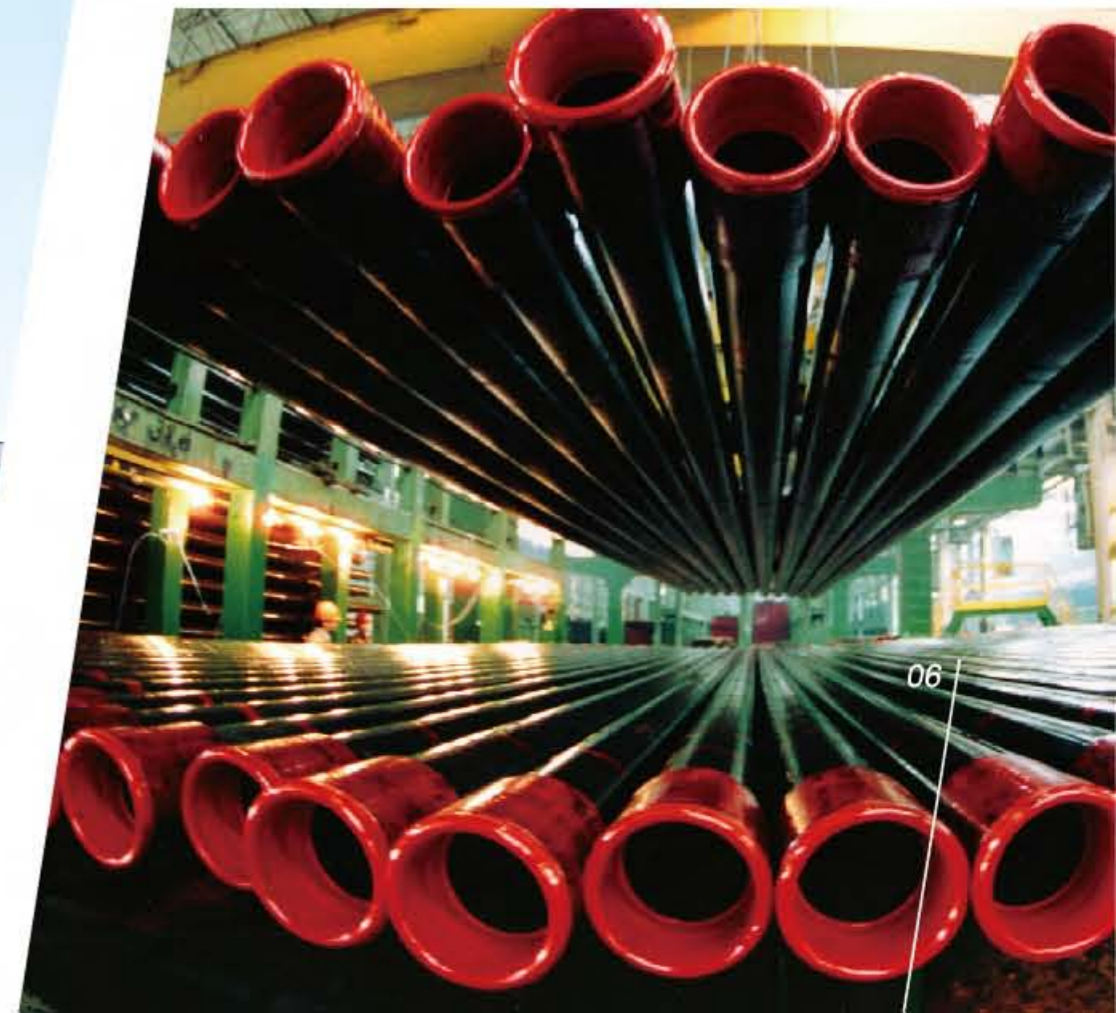
The full-scale construction of the project started in May 1989. The

successive tests of the steel-making, pipe-rolling and pipe-finishing systems began on June 27, 1992 and production followed. Through years of sustained investments and efforts, TPCO in Tianjin now owns 3 steel-making works, 6 rolling mills, 2 welded pipe lines, 24 finishing lines, 11 heat treatment lines, and one cold-rolling, cold-drawing production systems. One 508 PQF in Jiangsu Province of China, is the world largest PQF mill for continuous rolling to 20"O.D.

The annual production capacity of TPCO is 3.95 million ton steel pipes, in which 3.5 million tons are seamless pipes, ranking No.1 in output in the world since 2009, and 450,000 tons are ERW welded pipes. The main products are casing, tubing, green drill pipe and line pipe. The others are high-medium and low pressure boiler tube, high-pressure cylinder tube, hydraulic support pipe, structural pipe, fluid transmission pipe and others, both seamless and welded. They are exported to about 100 countries and

regions in Europe, America, Asia, Africa and Oceania.

In addition, TPCO also has the capacity to produce annually 100,000 tons of PPGI coil, 1.3 million pieces of medium-and high-pressure cylinders, 380,000 tons of copper rod, 400,000 tons of stainless steel coil and capacity to manufacture large equipment for steel mill and power generation projects such as hydraulic electrogenerating and wind power generation.



TPCO Introduction (cont.)

TPCO is gaining ground to be multi-nationally operating corporation. It has established many overseas sales companies and offices including those in Houston, Dubai, Singapore, Moscow, Seoul, Australia, Hong Kong and etc. for better access to the global market. TPCO has also designated agencies and distributors in more than 50 countries and regions and licensed

more and more premium connection repair workshops overseas to offer quality services to customers.

TPCO built its first overseas facility in Batam, Indonesia, an OCTG heat treatment and finishing plant, to meet the local content requirement of the country and serve South East Asian market.

TPCO America

On August 26 2011, TPCO started construction of a full process seamless steel pipe mill in Texas, U.S.A, which was designed for annual capacity of 500,000 tons of OCTG,

line pipes and others. The heat treatment facilities and finishing lines, as the first stage, now has been API certified and put into commercial production.



TPCO International

Tianjin Pipe International Economic & Trading Corporation (TPCO INTL) is a wholly owned subsidiary of Tianjin Pipe (Group) Corporation, fully responsible for global marketing and sales of TPCO products, and importation of raw materials, spare parts and equipments for TPCO and other domestic customers. TPCO INTL has been successfully managing TPCO's overseas companies, offices and designated partners to bring us closer to our customers

and provide the best level of services to the clients. TPCO INTL warmly welcome and anticipate interest, inquiries and orders from the valuable customers and clients, the long time, new and potential ones, and look forward to becoming your source of first choice and long term partner for pipe and tube and other products now and in the future. TPCO INTL welcome you to visit us to get your first hand impression of our products and facilities.



TPCO is equipped with the world's first-rate production equipment and technology. The production lines are composed of 4 major parts: iron-making, steel-making (billet), pipe-rolling and pipe finishing.

Smelting system

There are now one iron-making works and three steel-making works in TPCO. The steel-making plants are equipped with electric arc furnace (EAF), ladle refining furnace (LF), vacuum degassing device (VD),

vacuum oxygen degassing furnace (VOD), RH vacuum degassing furnace and continuous casting lines to meet the requirements of producing high purity and quality steel billets.

The steel making works are equipped respectively with 150-ton, 90-ton, and 100-ton EAFs and can produce round billets of outside diameters 210~500 mm

and square billets of 150 x 150 mm. Total annual billet capacity is 2.9 million tons.

Electric Arc Furnace (EAF)



Continuous Casting (Round Billets)



Pipe rolling system

Main equipment:

Rotary billet heating furnaces, piercing mills, rolling mills, reheating furnaces, sizing mills, cooling beds and NDE inspection systems.

Rolling mill:

TPCO has installed seven rolling mills of different technologies, including MPM, PQF, ASSEL, and Rotary Expansion.

Scope of pipe sizes

Mill / Unit	Outside Diameters (mm)	Wall Thicknesses (mm)
168 PQF Mill	32~170	2.5~22
219 ASSEL Mill	88.9~219	9.5~50.8
250 MPM Mill	114~340	4.5~40
258 PQF Mill	114~245	4~30
460 PQF Mill	245~457	6.4~57.0
508 PQF Mill	299~508	7.5~60
720 Rotary Expansion Mill	325~720	9.5~40.0
Hot Expansion Unit	Below 1200	6~80
Cold-rolling and Cold-drawing Unit	25~250	1~28



Heat treatment system

There are 14 heat treatment lines installed in TPCO for producing high grade pipes satisfying the most stringent applications, among which a brightening line and a solution annealing line treats stainless steel

pipes, high alloy pipes and boiler tubes, making excellent product quality after treatment.

Annual treatment capacity: 1.71 million tons.

Pipe finishing system

TPCO runs 30 pipe finishing lines, mainly including: 18 casing and tubing lines, 8 plain-end pipe lines (for line pipe and P.E. OCTG), 1 tubing upsetting line, 3 coupling lines.

Capacity:

Casing and tubing: 1.68 million tons
Plain-end pipes: 1.05 million tons

Main equipment:

CNC threading machines, chamfering machines, hydraulic testing machines, NDTs, saws, coupling screw-up machine, coupling phosphate line, up-setter, marking/measuring/weighing devices, and others.

CNC threading machines: introduced from U.S.A., Belgium, Spain, Germany and Japan.



Non - destructive tests

Various NDT technologies are adopted in TPCO for detection of transversal, longitudinal and lamination defects in the inner and outer surfaces of pipe body, pipe end and coupling, including electro-magnetic, ultrasonic, magnetic particle, eddy current, to ensure that all pipes supplied to the customers are of high quality.



Subsea line pipes: specific production facilities

To fully satisfy stringent technical requirements for manufacturing of subsea line pipe, such as DNV OS-F101, API, ISO specifications, EPC specifications and client/project specifications, TPCO has built several

production lines focusing on subsea and offshore line pipes, which provide higher technical and production capabilities than for normal onshore products.

Higher hydraulic test pressure:

max. 200 MPa (for pipe O.D. of 273.1mm or below)

More accurate pipe end I.D. tolerance:

min. +/- 0.6mm (depending on pipe sizes)

Automatic measurement of pipe end dimensions

Low press die stamping on bevel:

For pipe O.D. ranging from 114.3mm to 323.90mm

Inner surface stenciling:

For pipe O.D. ranging from 219.1mm to 323.90mm

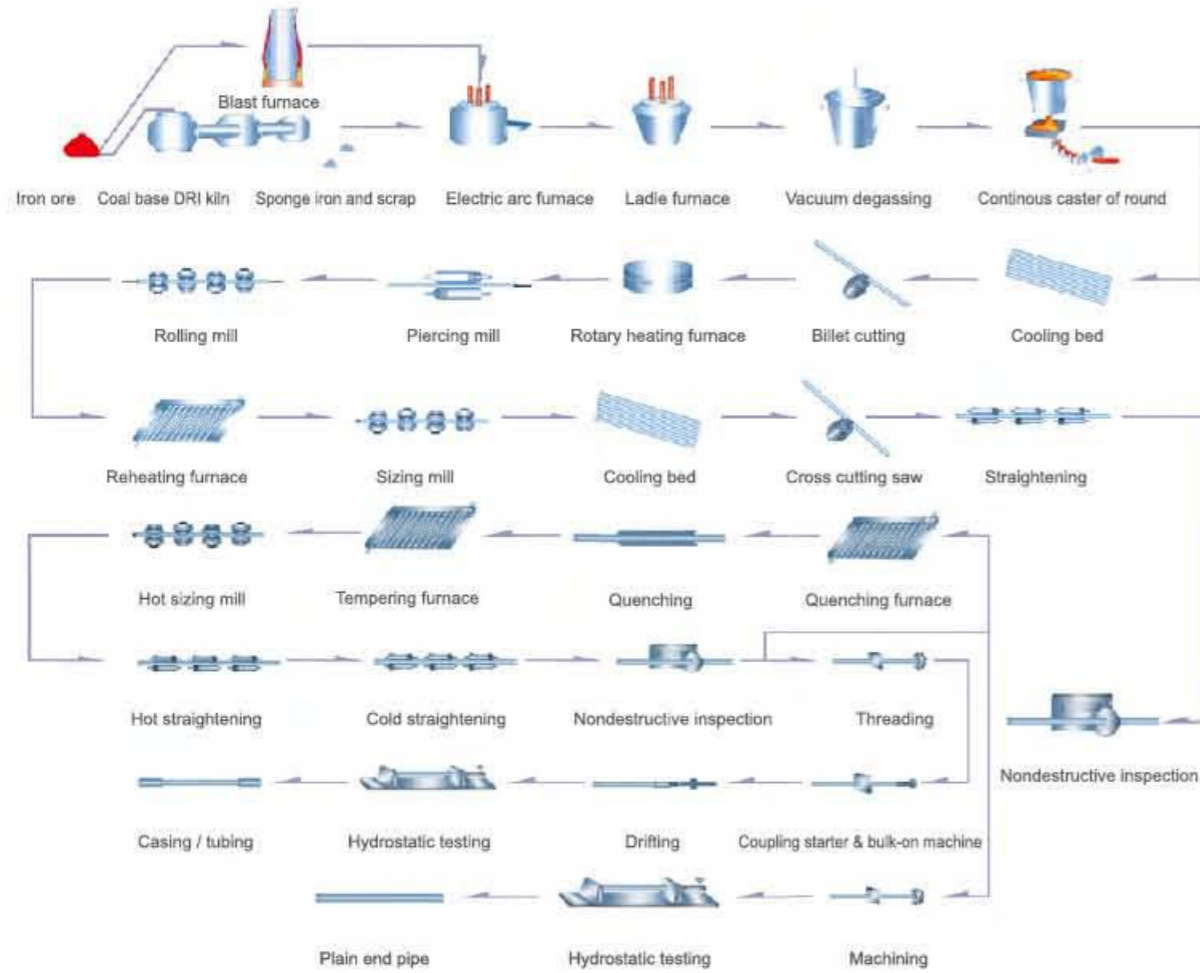
Capacity: 400,000 tons, subsea line pipes

O.D. : 60 ~ 711mm

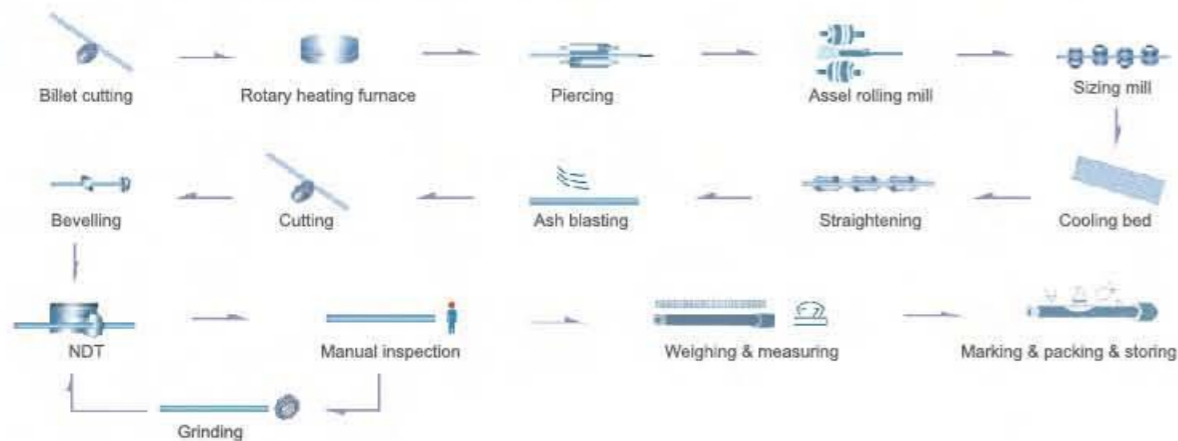
W.T. : 4.0 ~ 50mm



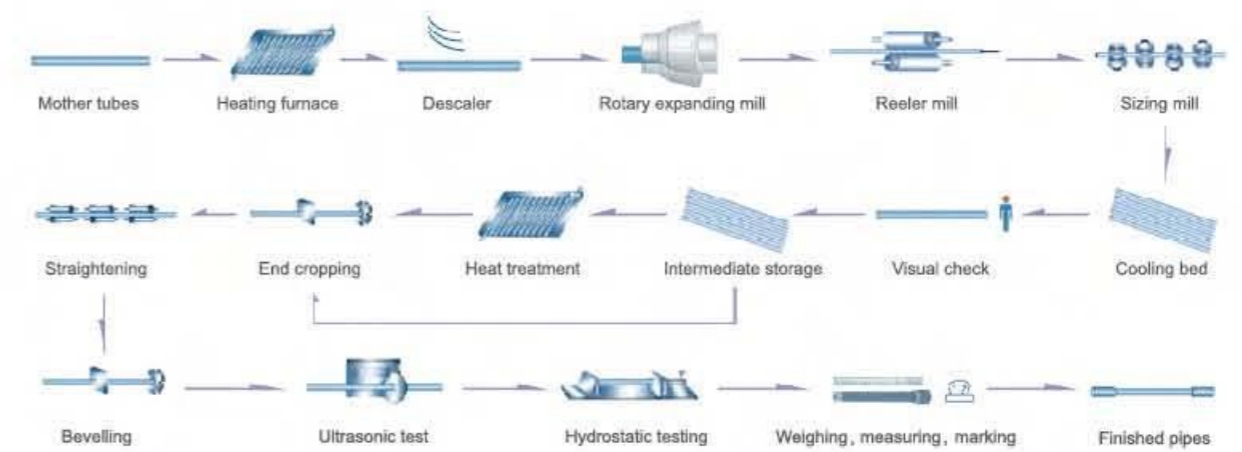
Main process (MPM & PQF rolling)



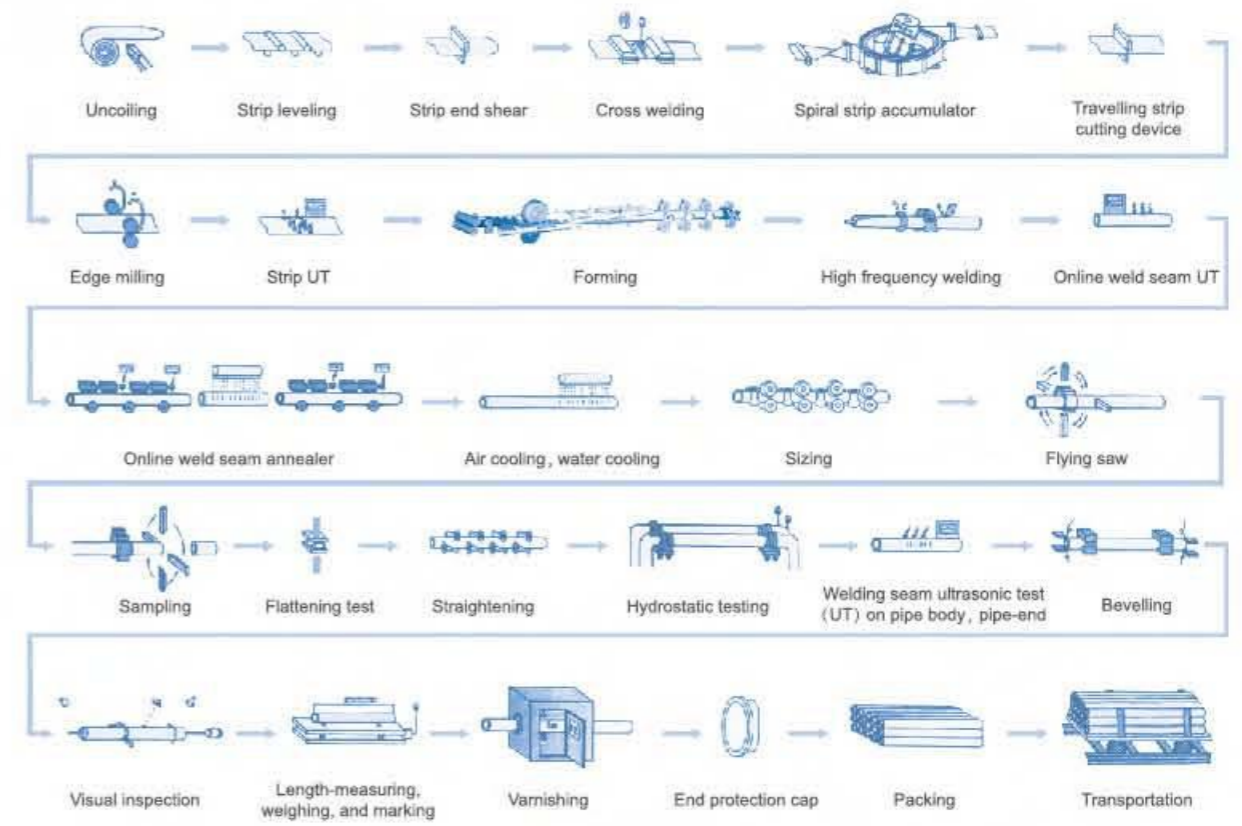
Process through Assel mill



Rotary expansion process



HFI/HFW process



Seamless pipe manufacture

Tianjin

Main production base of TPCO
Capacity: 3 million tons SMLS pipes
Size Range (O.D.): 1-1/2" ~ 28"

Jiangsu Tianhuai pipe Co., Ltd (508 PQF)

Located in Huai'an city, Jiangsu province.

Capacity: 0.5 million tons
Size Range (O.D.): 12" ~ 20"

Its main products include line pipe & process pipe, high-medium-low

pressure boiler pipe, oil cracking pipe, high pressure chemical fertilizer pipe, mechanical structure pipe, hydraulic support pipe, cylinder pipe, fluid transmission pipe, structure pipe and etc.

PT. TPCO Pan Asia

Located in Batam Indonesia, it has one heat treatment, one plain end line and three threading lines, to produce OCTG of API and TPCO premium connections.

Capacity: 60,000 tons
Size Range (O.D.): 2-3/8" ~ 13-3/8"
As one of the most advanced

integrated premium seamless pipe manufacturer in the world, TPCO uses the same spirit of quality and the latest technologies bringing the best quality products and services into Southeast Asia to meet the highest quality standards that required in the local Oil and Gas industry.

TPCO America Corporation

Located in Corpus Christi, USA (the rolling mill is under commissioning, Stage 2)

Capacity: 0.5 million tons
Size Range (O.D.): 4" ~ 10-3/4"

Main products: OCTG, Line pipe, Green drill pipe, Mechanical pipe

The plant is full process production facility and strategically located near Houston, the world energy center. The construction started in 2011, one heat treatment line and one threading line (Stage 1) is in normal operation.



ERW & others

Tianjin TPCO & TISCO Welding Pipe Corporation

Capacity: 450,000 tons ERW pipes
Size Range (O.D.): 6" ~ 26"
Products: line pipe, casings and structural round pipes
TTPCO is a joint venture set up by Tianjin Pipe (Group) Corporation (TPCO) and Shanxi Taigang Stainless

Steel Co., Ltd. (TISCO), producing high-frequency ERW welded pipes.

Two continuous-forming HFI/HFW welded pipe production lines were introduced from SMS-MEER, Germany.

Tianjin TPCO Coating Engineering Co., Ltd

TPCO Coating plant is a joint venture of Tianjin Pipe (Group) Corporation (TPCO) and Beijing Permanent Future Technology Development Co., Ltd. located in TPCO. Company focuses

on pipeline anti-corrosion coating, including $\Phi 76 \sim 1016$ mm external coating production line, $\Phi 108 \sim 508$ mm internal coating production line.

Zhejiang TPCO-JIULI Composite Metals Co., Ltd

Located in Huzhou City, Zhejiang Province of China, it was joint established by Tianjin Pipe (Group) Corporation and Zhejiang JIULI Hi-Tech Metals Co., Ltd. Company can product two kinds of bimetal composite pipe, lined pipe and clad pipe, which are manufactured with whole length

external restriction mold forming and JCO forming technology respectively. it satisfy the different conditions of various tough working environment.
Lined pipe: 60 ~ 610mm O.D.
12.5m L.max.
Clad pipe: 168.3 ~ 1620mm O.D.
80m L.max.

TPCO has been producing and supplying casing, tubing and line pipes according to API standards, non-API standards, premium connections, for onshore, offshore and subsea applications, and other pipes used in various industries, with 26 steel grades, and about 10,000 varieties, being among the top rank of the world pipe industry.

TPCO produces OCTG of API grades and TP series. TP series are the proprietary products developed

independently by TPCO suitable for oil and gas wells with severe and tough conditions, including high collapse casing series, steam injection/ heavy oil recovery casing series, high collapse anti-sour corrosion series, 3Cr and 13Cr anti-CO₂ corrosion series, Ni-based CRA and Ti-based alloy grades, and high-strength super-deep well casing series. TPCO has its own proprietary products of the premium connection series.

Seamless pipe

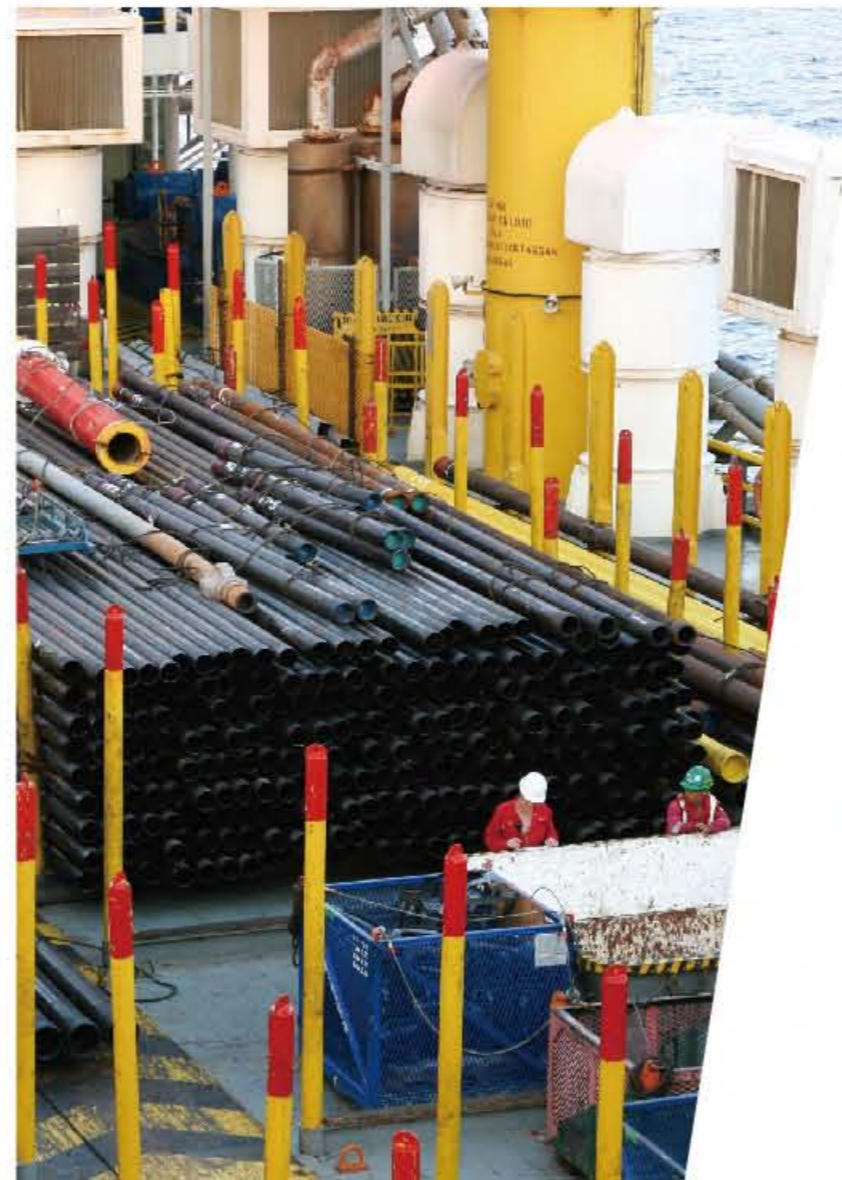
Casing: O.D. 4-1/2" ~ 20"
Tubing: O.D. 2-3/8" ~ 4-1/2"
Green drill pipe: O.D. 2-3/8" ~ 6-5/8"
Line pipe: O.D. 2" ~ 28"
Cylinder pipe: O.D. 5" ~ 24"
Boiler tubes: O.D. 2" ~ 24"
Mechanical pipe: O.D. 4-1/2" ~ 28"

Welded pipe

Casing: O.D. 5" ~ 20"
Line pipe: O.D. 5" ~ 26"

Services

TPCO attaches great importance to serving customers, and always ready to meet the customers' requirements before sale and after sale at any time, including licensing the repair shops, providing with pup joints, cross over, technical training, engineering maintenance, field service for pipe running etc.



From 1994 until now, TPCO has been granted a number of acceptance certificates issued by several international and domestic institutions, such as:

- API certificates;
- ISO 9001 Quality Management System Certificate, by SGS UK, Yarsley International Certification Services; Det Norske Veritas (DNV); Lloyd's Register of shipbuilding;
- ABS Certificate of Design and Manufacturing Assessment;
- Product attestations by European Directive PED 97/23/EC and German Regulation (AD-W0/TRD100);
- ISO 14001 / OHSMS 18001.

TPCO's products also been well qualified and used by major international and national oil companies, such as Shell, Chevron, Saudi ARAMCO, Total, ExxonMobil, ConocoPhillips, Apache, etc.



ISO 9001



ISO 14001



ABS



API 5CT



API 5L



Lloyd



TÜV

Striving to become the world's top quality producer of tubular goods, TPCO adheres to its following internal guidelines:

- Superior material
- Refined smelting
- Accurate rolling
- Precision finishing
- Meticulous work

All TPCO products are manufactured with high quality steel round billets whose features are high purity, good uniformity and flawless surface. Using the most advanced rolling, heat treatment and finishing lines and

sophisticated inspection equipment and with the meticulous work of TPCO personnel, premium pipes are produced and our goal of total quality control is attained.



Advanced Means of Quality Inspection

To ensure product quality, a number of on-line inspection equipment has been established to monitor composition analysis, non-destructive testing, measurement, drifting, hydrostatic testing and other critical elements of pipes.

In addition to on-line inspection and testing, TPCO has also set up five

full-time & professional quality inspection stations which are responsible for the analysis, inspection and determination of process quality, quality of incoming raw material, physical and chemical properties of products and technical indexes, etc.

Total Quality Control & Customer Service

TPCO has established proven quality control systems in accordance with world-wide standards and is continuously implementing the latest proven systems as they become available. The current systems are established in accordance with API Q1 specifications, ISO9001 standards and others. TPCO insists on the system of internal quality examination and has trained internal examiners

organized in groups who play an important role in system operations to attain the goal of "Total Quality Control".

TPCO is committed to the highest level of customer service. Some of the goals are, on time delivery, close communication and proactive after-sales service to attain full customer satisfaction.



TPCO has set up a technical center of national level since 1996. It is a comprehensive R&D institution which is the largest in Chinese domestic pipe industry and one of top labs in global industry, with the most complete range of tests and analyses and the most means for tests and research.

After 20 years development, it has 15 specialized testing and researching divisions, and about three hundred researchers.

R&D center now owns a competent team, including: 8 specialists of the world top are engaged as technical advisers, 10 doctors and 28 masters. More than 10 senior technical specialists cultivated by company itself, who have already been the leaders of the company technology innovation, mainly devote to material researching, steel-making, rolling, premium connection developing and other important research fields.

There are over 390 units of large instruments and facilities for tests and analysis in the 14 laboratories, including a full-process, full-size intermediate experimental line which rarely exists in the other part of the global pipe industry and three full-length pipe load frames with which evaluation tests for premium

connections as per ISO13679 CAL IV can be performed in house. Strict quality analysis and tests of raw materials and finished products can be done at the labs to ensure that products meet the relevant standards such as API, ASME, ASTM, and customers' additional requirements.



Approved and accepted by:

Oil companies



EPCs





★ Sales & service centers

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★ Production sites

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