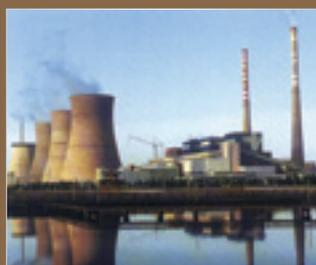




Hengyang Valin Steel Tube Co.,Ltd.



## CATALOGUE OF PRESSURE VESSEL TUBE & PIPE



# **HYST** CATALOGUE OF OCTG / LINE PIPE

HYST owns the most entire rolling mills, advanced equipment and complete product specifications.

HYST is one of the largest seamless steel tube & pipe manufacturers of OCTG and pressure vessel in China.

HYST is the biggest enterprise sharing the largest export volume of seamless steel tube & pipe in China

HYST is one of the main strategic suppliers of Petro China, Sinopec, CNOOC, Shell, ExxonMobil, Shanghai Boiler, Chinery Co., Ltd, Beijing Tianhai Industry Co., Ltd, ZOOMLION and Sany etc.



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## Company Profile

Hengyang Valin Steel Tube Co. Ltd. (hereinafter referred to as HYST) is a subsidiary of Hunan Valin Iron & Steel Group Co., Ltd. is one of the world's top five specialized seamless steel tube & pipe enterprises with total assets of 13.4 billion Yuan, which is a professional seamless steel tube & pipe manufacturing base containing iron, steel, tube & pipe and further processing. It has an annual tube & pipe capacity of 2 million MT with the most entire rolling mills, advanced equipment and complete product specifications.

HYST has now one set of 1080m<sup>3</sup> blaster, three sets of curve caster with large, middle and small round billet sizes, five sets of tube & pipe rolling line named as  $\phi$ 89 MM Mill,  $\phi$ 180 PQF Mill,  $\phi$ 219 Assel Mill,  $\phi$ 340 MPM Mill and  $\phi$ 720 Hot Pilger Mill and two sets of tube & pipe upsetting line. Among which  $\phi$ 89 MM Mill,  $\phi$ 180PQF Mill and  $\phi$ 340 MPM Mill are entire production lines with world advanced technology and equipment. And  $\phi$ 720 Hot Pilger Mill is the global current largest OD periodic mill.

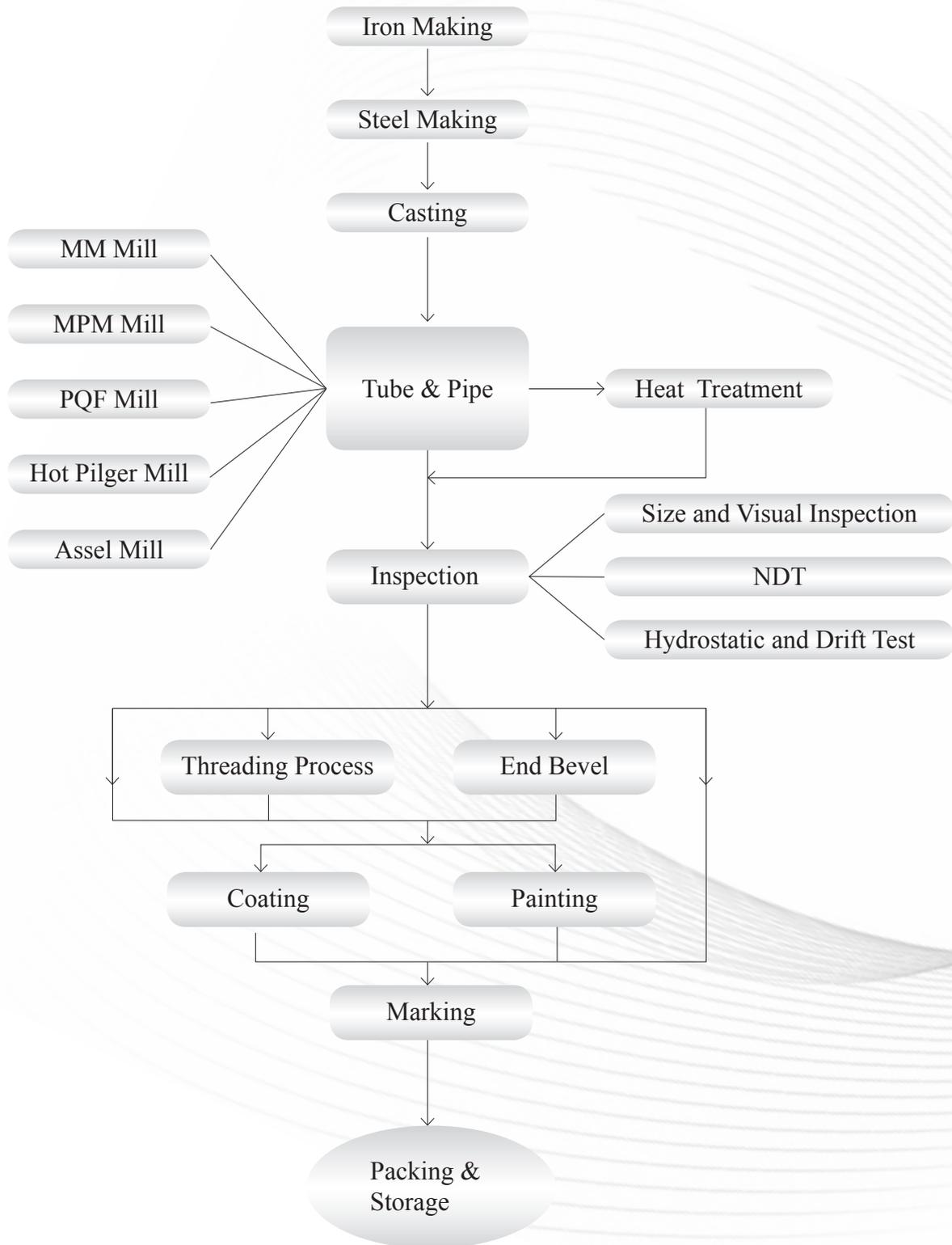
HYST is a seamless steel tube & pipe manufacturer with 50 years history, whose main products are OCTG, pressure vessel and mechanical processing with various specifications and sizes under OD800MM based on hot rolling and coating of anticorrosion technology.

HYST products are famous for his professional and special reputation both in domestic and oversea market, who is the main strategic supplier of Petro China, Sinopec, CNOOC, Shell, ExxonMobil, Zoomlion and etc. It has established his stable sales channels in domestic industries of petroleum, petrochemical, automobile, boiler, coal mining and chemical etc. His export markets cover over 80 global main regions and countries and export volume has continuously kept the leading position in China seamless tube & pipe industry for many years.

HYST keeps his development together with his customers and tries to transform himself from a manufacturer to an integrated server. It has achieved centralized management of production, supply and marketing to continuously improve the service capacity and customer's feedback. It has realized the Enterprise Resource Planning Management (ERP), an efficient & convenient e-commerce platform and a sales resource planning and on-time delivery system (DSP) so that it can run his dynamic integration control of company's capital flow, logistics and information.

At a new starting point HYST's objective is to become a global first class integrated server of specialized seamless steel tube & pipe with perfect and convenient systematic service.

# Process Flow Chart



# Technical Facilities

## Smelting Systems

One High Quality Iron Making 180m<sup>3</sup> Sinter+1080m<sup>3</sup> Blast Furnace  
Two Curve Continuous Casters for Round Billet  
φ140mm、φ150mm、φ180mm、φ220mm、φ250mm  
φ280mm、φ330mm  
One curve Continuous Caster for Large Round Billet  
φ500mm、φ600mm、φ700mm、φ800mm

## Tube & Pipe Production Lines

φ89m MM Mill φ38mm~φ127mm ×3.5mm~12mm  
φ180m PQF Mill φ73mm~φ180mm ×4mm~22mm  
φ219m Assel Mill φ68mm~φ260mm ×8mm~55mm  
φ340m MPM Mill φ139mm~φ368mm ×5mm~42mm  
φ720m Hot Pilger Mill φ273mm~φ720mm ×8mm~120mm

## Tube End Upsetting Lines

Tubing Upsetting Line φ48.3mm ~φ114.3mm  
Drill tube Upsetting Line φ60.3mm ~φ127.0mm

## Heat Treatment Lines

φ89 Tubing Heat Treatment Line φ48.3mm ~φ127.0mm  
φ89 Tubing Intermediate Frequency Heat Treatment Line  
φ340 Casing Heat Treatment Line 1 φ139.7mm ~φ376mm  
φ340 Casing Heat Treatment Line 2 φ73mm ~φ244.5mm  
φ180 Heat Treatment Line φ114mm ~φ219mm  
φ720 Heat Treatment Line φ159mm ~φ720mm

## Threading Lines

Threading Lines φ60.3mm ~φ508mm

## Coating Lines

External Surface Abrasive Blasting Line φ21.0 mm  
-φ800.0mm  
Internal Surface Abrasive Blasting Line φ114.0 mm  
-φ800.0mm  
O-die Extrusion Process Line φ21.0mm-φ406.0/114.0mm-  
φ800.0mm  
Winding-up Extrusion Process Line φ159.0mm-φ800.0mm  
Internal Corrosion-resistant Painting Line φ114.0mm-  
φ800.0mm



φ340 MPM Mill



φ720 Hot Pilger Mill



Blast Furnace



Curve Casters of Round Billet



End upsetting Line



Φ89 MM Mill



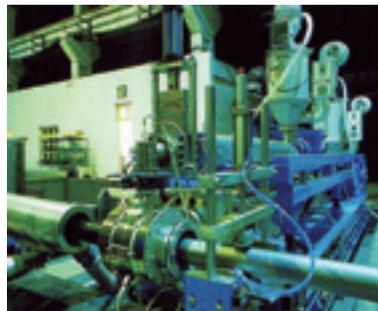
Φ180 PQF Mill



Φ219 Assel Mill



Heat Treatment Lines



Coating Line



Threading Lines

# Product Mix

## Boiler Products

Variety	Size		Steel Grade	Specification	Typical Application
	OD (mm)	WT (mm)			
Low-Medium Pressure Boiler	38 ~ 720	3.5 ~ 120	10	GB 3087	Low and medium pressure boiler heating tube & pipe, container & steam piping
			20		
High Pressure Boiler	38~ 720	3.5 ~ 120	20G	GB 5310	Heating tube & pipe, container & steam piping at working pressure >9.8MPa and temperature 450-650 C
			20MnG		
			25MnG		
			15MoG		
			20MoG		
			12CrMoG		
			15CrMoG		
			12Cr2MoG		
			12Cr1MoVG		
			10Cr9Mo1VNbN		
			15Ni1MnMoNbCu		
			SA106A/B/C		
			SA192		
			T1/T1a		
			SA210A-1/C		
			T/P2		
			T/P11		
			T/P12		
			T/P22		
			T23		
			T24		
			T/P91		
			T/P36		
			P195/235/265GH	EN 10216	
			16Mo3		
			13CrMo4-5		
			10CrMo9-10		
			15NiCuMoNb5-6-4		
			P355N	DIN 17175	
			St35.8、St45.8		
15Mo3					
13CrMo44					
			10CrMo910		

Note: 15NiCuMoNb5-6-4(Abbreviation Wb36) used for high pressure water piping

**For Nuclear Power Station**

Variety	Size		Steel Grade	Specification	Typical Applications
	OD (mm)	WT (mm)			
Nuclear Power Station	38 ~ 720	3.5 ~ 120	HD245、HD245Cr	GB24512.1 GB24512.2	Carbon and alloy products for Nuclear Station Island and Conventional Island
			HD265、HD265Cr		
			HD280、HD280Cr		
			HD12Cr2Mo		
			HD15Ni1MnMoNbCu		
			TUE250B	RCC-M 2000 edition(02) addendum	
			TU42C		
			TU48C		
			P280GH	ASME SA106 ASME SA335	
			SA106B/C		
			P11		
			P22		
			P36(WB36CN1)		

**For Pressure Chemical Fertilizer Equipments and Petroleum Cracking**

Variety	Size		Steel Grade	Specification	Typical Applications	
	OD (mm)	WT (mm)				
High Pressure Chemical Fertilizer Equipments	38~ 720	3.5 ~ 120	10	GB 6479	High pressure chemical fertilizer and pipeline	
			20			
			Q345B、Q345C、Q345D、Q345E			
			10MoWVNb			
			12CrMo			
			15CrMo			
			12Cr5Mo			
			12Cr2Mo			
			T/P5			ASME SA213 ASME SA335
			T/P9			
Petroleum Cracking	38~ 720	3.5 ~ 120	10	GB 9948	Cracking furnace of petroleum refineries	
			20			
			12CrMo			
			15CrMo			
			12Cr5MoI、12Cr5MoNT			

### For Gas Cylinder

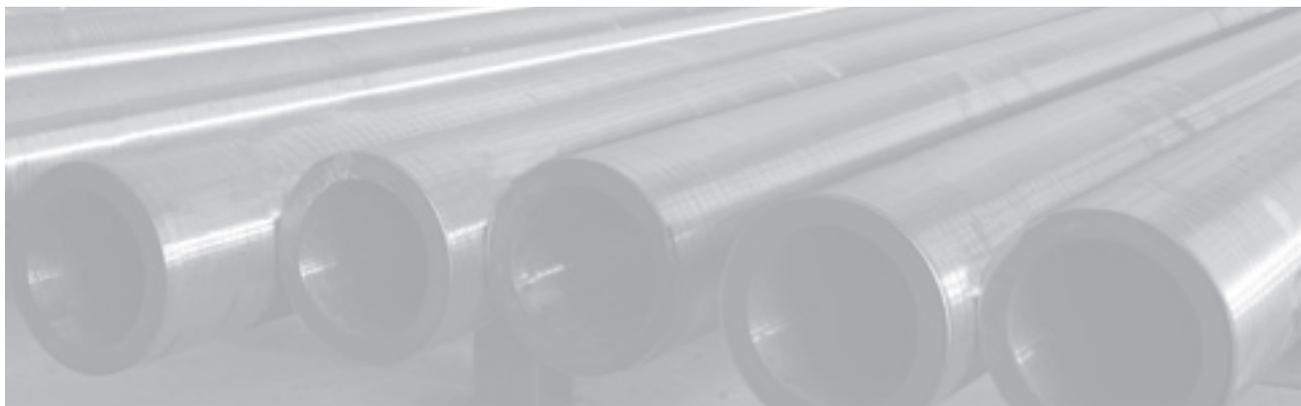
Variety	Size		Steel Grade	Specification	Typical Application
	OD (mm)	WT (mm)			
Gas Cylinder	38 ~ 720	3.5 ~ 120	37Mn、37Mn/1、37Mn/2	GB 18248 GB 28884 or Technical Specification	Oxygen bottle、 hydrogen bottle, natural gas bottle、 accumulator
			30CrMo、30CrMoE		
			35CrMo		
			34CrMo4、34CrMo4/1、 34CrMo4/2、34CrMo4A		
			42CrMoE		
			4130X		
			4145、4147		

### For Ship and Vessel

Variety	Size		Steel Grade	Specification	Typical Application
	OD (mm)	WT (mm)			
Ship & Vessel	38 ~ 720	3.5 ~ 120	410I、410II	CSS and GB/T5312	Boiler tube & pipe of vessel, over heater and pipeline
			R410	GL	
			410HB	BV	
			Gr3、Gr5	ABS	
			TS410	DNV	
			410I、410II	LR	
			RST138、RST142	KR	
			KSTPG38、KSTPG42、KSTS38	NK	

### For Cryogenic Device

Variety	Size		Steel Grade	Standards	Typical Application
	OD (mm)	WT (mm)			
Cryogenic Device	38-720	3.5-120	16MnDG	GB/T 1994-2003	Cryogenic Fluid Tube & Pipe
			Gr3	ASME SA333	
			Gr6		
			Gr8		

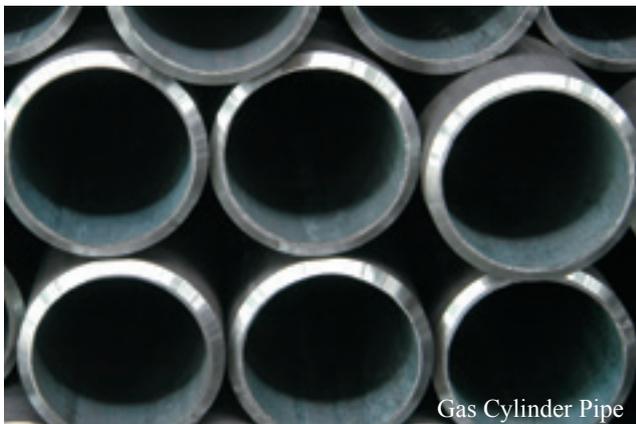




High Pressure Boiler



Ship and Vessel



Gas Cylinder Pipe



Nuclear Power Station

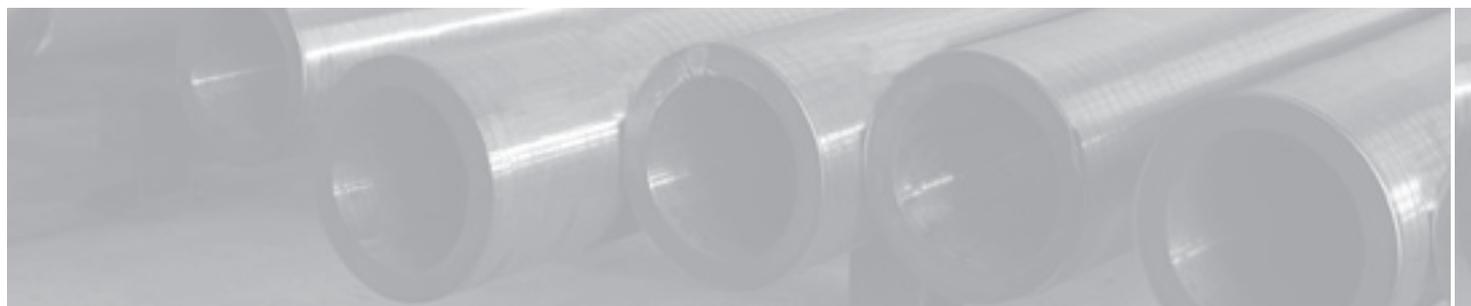
# Quality Management

HYST insists on his operation concept with “to seek the survival at his quality” and Management objective with “to focus on customers”. It develops the system and products certification as the propelling force and implements the quality policy by deepening the total quality management, process approach, continuous improvement of his product application and enhancement of the customers’ satisfaction. It improves the product’s stable quality by quality performance indicators to each individual person and standardization quality management.



## System Certification

ISO9002:2000 approved in 1998; Quality Management Cert.in 1994;  
 ISO9001:2000 Change Edition in 2001; ISO9001:2008 Change Edition in 2008;  
 ISO10012:2003 Measurement Management System in 2008  
 Laboratory Cert. approved by China National Accreditation Service in 2008.



## Products Certification

TüV and ü Certificates for pressure vessel and building material products in 2000

PED EU for pressure vessel products in 2003

Manufacturing license for pressure piping parts in 2006

CPD EU for Structural products in 2010

Vessel Classification Societies Certificates by China, United Kingdom, Germany, France, Norway, USA, Korea and Japan

Manufacturing license for civil nuclear safety equipment in 2013



## API Logo Use Rights

API 5CT



API 5L



API 5DP



## Second-part Qualification

It was approved by famous oil companies from 70 different countries such as Shell, Mobil, Total, Chevron Corporation, Alstom, Iraq, U.A.E, Petro China, Sinopec, CNOOC etc.



## Inspection capability

HYST has his own Laboratory approved by China National Accreditation Service and with more than 170 sets of various inspection and test equipment. It can run his mechanical test, metallographic inspection and failure analysis of metal materials such as the metal room temperature tensile, high temperature tensile, impact, hardness, Flattening, flaring, expanding, tube & pipe ring tensile, bending, and flanging etc. It can also analysis the chemical contents of steel, alloy, iron ore, coke, coal and other auxiliary material. It has Anti-hydrogen sulfide corrosion test can be done on tube & pipe. It is available to have the measure meter, pressure gauge, thermoelectric couple, electricity, threading calibrated and set here.



Tensile Tester



Impact Tester



Hardness tester



Tube & Pipe technology Tester



Metallurgical microscope



Vertical Scanning Electron Microscope



X-ray fluorescence spectrometer



Plasma spectrometer



600T Flattening Tester



Hydrogen Analyzer



Oxygen & Nitrogen Analyzer



Direct-reading spectrometer



Stress ring



Thermocouple calibration device



Energy meter calibration device



Individual parameters calibration device

# Health, Safety, Environment

HYST always insists on his strategic development objective by "Green HYST" and it has fully reached the standard discharge on the industrial pollution sources in 2000. It has been approved by ISO14001 environmental management system certification, United Kingdom UKAS certification and OHSAS18001 occupational health and safety management system certification early in 2001 and 2002, which was one of the foregoers in the Chinese metallurgical industry. In June 2005 it was the first one published <HYST Environmental Protection White Book> in Hunan industrial enterprises.

In recent years, it has invested more than 650 million RMB to renovate and rebuild more than 70 major environmental pollution treatments and waste water recycling facilities, therefore it basically has reduced the industrial waste water to zero discharge, and the exhaust gas and noise to standard discharge. All industrial furnaces use the clean natural gas mixed with the self BF gas, harmless solid waste and reutilization is implemented at a 98% comprehensive utilization rate.

Many energy conservation and emission reduction technologies have been used such as the comprehensive utilization of BF gas, TRT (Blast Furnace Top Gas Recovery Turbine Unit), power generation, waste heat boilers, oxygen-enriched combustion, dry dust removal and sinter desulfurization etc.

In order to guarantee the effective operation of environmental protection facilities, HYST ensures a specialized environmental protection operations authority protects the sub-contract of the main facilities. The main pollutant of HYST has reached the international cleaner production level and/or the advanced domestic level and was the first one to pass the cleaner production auditing of Metallurgical industry in Hunan in September 2011.

It won "Hunan environmental century" Special Honorary Award in 2002, "Hunan environmental century" Industrial enterprise honorary award in 2007, "Hunan Two-create Model units", Hunan "garden style unit", and "Secondary safety production standardization Enterprise".

"National Advanced Unit for energy saving" in February 2013, "Advanced Unit of safe Production" and "Safety and Health Cup" awards for many years.

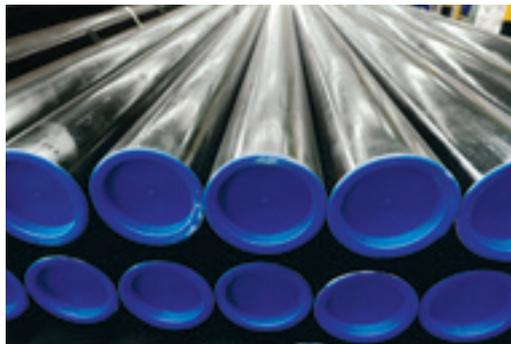




# Marketing and Service

## Main Customers

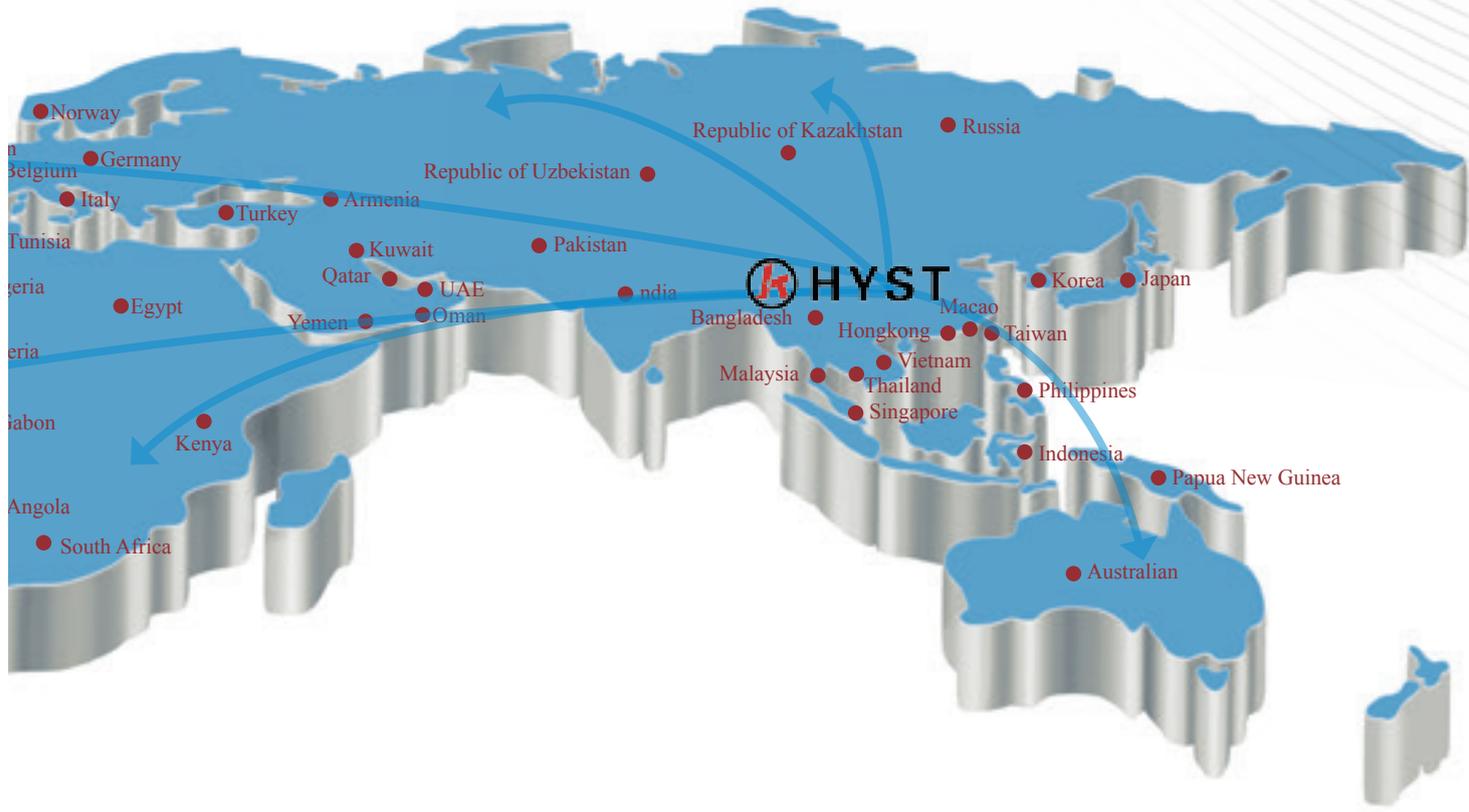
- Shanghai Boiler Works Ltd.
- Harbin Boiler Company Limited
- Dongfang Boiler Group Co., LTD.
- Wuhan Boiler Co., LTD.
- Babcock & Wilcox Beijing Company LTD.
- Wuxi Huaguang Boiler Co., LTD.
- Sichuan Boiler –making Plant
- Hangzhou Boiler Group Co., LTD.
- Chinercy Co., LTD.
- China Nuclear Power Engineering Co., Ltd.
- Beijing Tianhai Industry Co., Ltd.
- Sinoma
- Bharat Heavy Electricals Limited
- Everest Kanto Cylinder Ltd.





## Sales Network





# Product Application

The Main Clients of pressure vessel products includes a lot of large power station boiler and steam Turbine manufacturers in China, such as Harbin Boiler、Dongfang Boiler、Shanghai Boiler、Wuhan Boiler、B & W、Wuxi Boiler、Hangzhou Boiler、Sichuan Boiler. Harbin Turbine、Shanghai Turbine、Dongfang Turbine etc. Meanwhile we have the ability to provide the nuclear piping for nuclear power station and dozen sizes of carbon and alloy products have been used in the nuclear power projects such as Ningde、Taishan、Sanmen in Fujian and Yangjiang Project in Guangdong etc.

Each year more than 20,000 metric tons of high pressure boiler tube & pipe (ASME specification) are exported to India、Europe、America and Middle East etc.

In recent years our high pressure boiler products are used in large thermal power units as follows:

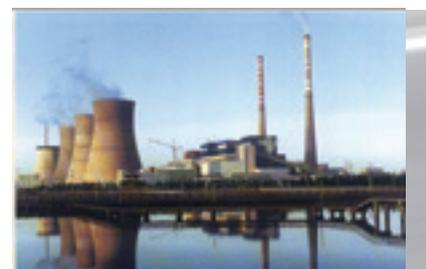
1000MW ultra-supercritical units of Huaneng Yuhuan Power Plant、Haimen Power Plant、Guangdong Yudean Power Plant、Guangxi Hezhou Power Plant of China Resources (Holdings)、Shandong Laizhou Power Plant of China Huadian Corporation、Zhejiang Jiaxing Power Plant of Zhejiang Energy、ZhunDong Power Plant、Jurong Power Plant of China Huadian Corporation etc.

600MW supercritical units of Weixin Power Plant、Tadian Power Plant、Wangqu Power Plant、Changshu Power Plant、San Menxia Power Plant、Qinbei Power Plant、Taicang Power Plant、Shantou Power Plant、Datang Power Plant、Baoqing Power Plant of China Power、Panxian Power Plant in Guizhou etc.

600MW sub-critical units of Pannan Power Plant、Datong Power Plant、Diandong Power Plant、Gongxian Power Plant etc.

300MW sub-critical units of Yushe Power Plant、Shi Zuishan Power Plant、Xuanwei Power Plant、Zhongning Power Plant、Guotai Power Plant in Hebei etc.

300MWCFB Boiler of Baima Power Plant.



Name of Power Generation Boiler	Boiler Parameter	User	Delivery Time	Material	Size
Qibei 1#、2#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Oct,2003	12Cr1MoVG	Φ50.8×4.8
Pannan 1#、2#	600MW Sub-rritical	Dongfang Boiler Group Co., Ltd.	Fed,2004	15CrMoG	Φ63.5×6.5
Qibei 1#、2#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Oct,2003	15CrMoG	Φ50.8×4.5
Yuhuan#1-2	1000MW ultra-supercritical	Harbin Boiler Company Limited	March,2006	12Cr1MoVG	Φ89×12
Yuhuan#4	600MW supercritical	Harbin Boiler Company Limited	April,2006	SA-209T1a	Φ63.5×4.5
Yuhuan#4	600MW supercritical	Harbin Boiler Company Limited	April,2006	SA-209T1a	Φ63.5×4.8
Malaysia 2#	1000MW ultra-supercritical	Harbin Boiler Company Limited	Jan,2007	SA-213T11	Φ50×4
Malaysia 2#	1000MW ultra-supercritical	Harbin Boiler Company Limited	Jan,2007	SA-213T12	Φ57×4.5
India 2#	1000MW ultra-supercritical	Harbin Boiler Company Limited	July,2007	SA-213T12	Φ57×6.5
Zhuanghe 2#、 Jiangyin1#、 Shuang yashan1#、 PINGwei2#	1000MW ultra-supercritical	Harbin Boiler Company Limited	April,2006	SA-213T22	Φ38×5.6
Malaysia #1-2	1000MW ultra-supercritical	Harbin Boiler Company Limited	Jan,2007	SA-213T22	Φ57×5
Qing Tongxia 1#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Oct,2009	12Cr1MoVG	Φ298.5*65
Jurong 2#	1000MW supercritical	Dongfang Boiler Group Co., Ltd.	Sep,2011	12Cr1MoVG	Φ190.7*38
Dilong 2#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Oct,2009	12Cr1MoVG	Φ377*25
Zhulong 1#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Sep,2011	15CrMoG	Φ323.9*40
Tongzi 1#(58N)	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Sep,2010	SA-106C	Φ127*22
Saudi Arabia Rabigh 1/2#	600MW Sub-rritical	Dongfang Boiler Group Co., Ltd.	Oct,2010	SA-106C	Φ219*34
Shaoguan 1#	600MW supercritical	Dongfang Boiler Group Co., Ltd.	Nov,2011	SA-106C	Φ219*30
Kashi #6	600MW supercritical	Harbin Boiler Company Limited	March,2011	15CrMoG	Φ324*50
Panxian #1	1000MW ultra-supercritical	Harbin Boiler Company Limited	April,2012	12Cr1MoVG	Φ559*60
Linhuan II #2	600MW supercritical	Harbin Boiler Company Limited	March,2012	12Cr1MoVG	Φ325*40
India Anuppur	600MW supercritical	Harbin Boiler Company Limited	Nov,2011	SA-335P12	Φ559*60
India Cuddalore	600MW supercritical	Harbin Boiler Company Limited	Nov,2011	15NiCuMoNb5-6-4	Φ559*60
Linhua II #2	600MW supercritical	Harbin Boiler Company Limited	Jan,2011	SA-106C	Φ457*58
India Cuddalore	600MW supercritical	Harbin Boiler Company Limited	Jan,2011	SA-106C	Φ406*50
Nanjing Xiaguan #2	600MW supercritical	Harbin Boiler Company Limited	March,2008	SA-210C	Φ89*15.5
Lv Sigang #3	600MW supercritical	Harbin Boiler Company Limited	April,2008	SA-210C	Φ89*15.5

