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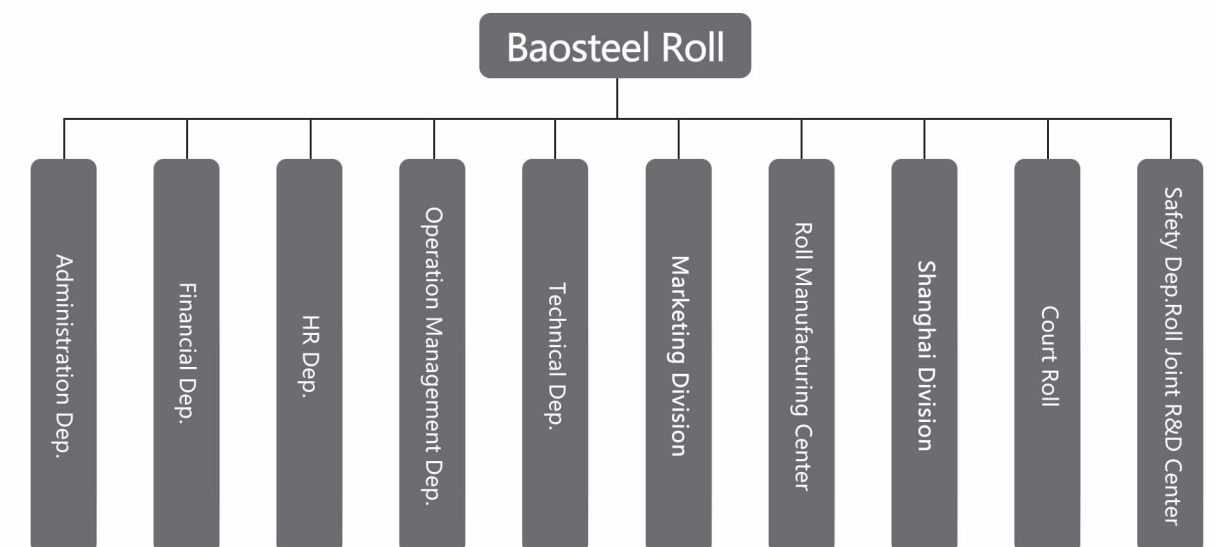


Introduction

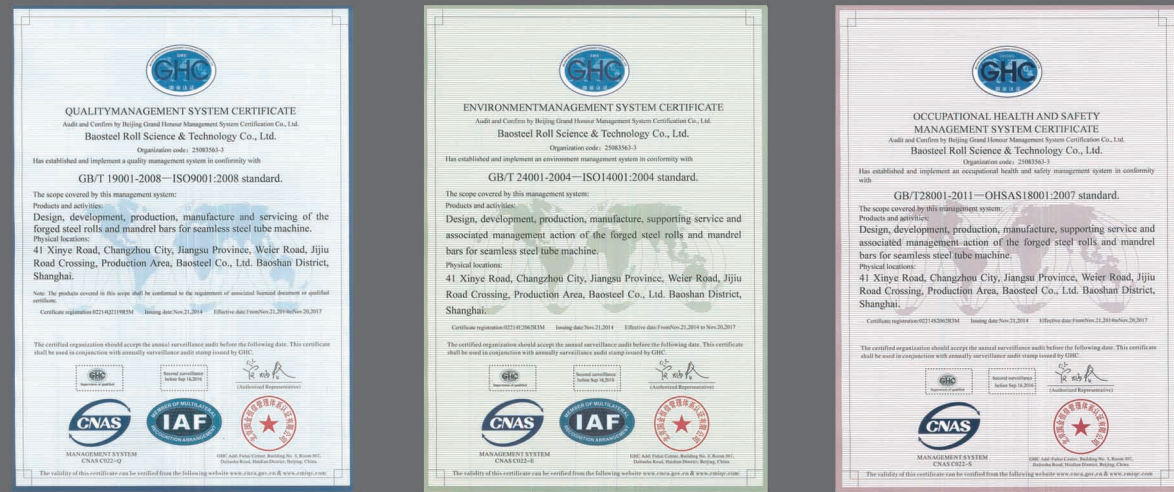
Baosteel Roll Science & Technology Co., Ltd (Hereinafter referred to as Baosteel Roll)has been established on 1st, April 2013 with Reorganization of resources and industrialization from integration of Baosteel Group Changzhou Roll Manufacture Co. Ltd (formerly known as Changzhou Metallurgical& Machinery Plant built in 1960), Shanghai Jiangnan Roll Co., Ltd(Hereinafter referred to as Jiangnan Roll), Shanghai Court Roll Surface Treatment Co., Ltd,(Hereinafter referred to as Court Roll) we are dedicated in whole life value service chain from R& D, design, manufacturing, using,maintenance as well as recycling process.

We have annual output of 35,000tons of manufacturing capacity for forged rolls and other roller shaft products with obtaining package of service capability of roll manufacturing, texturing & chro-plating,repairing and roll shop service etc.

Organization



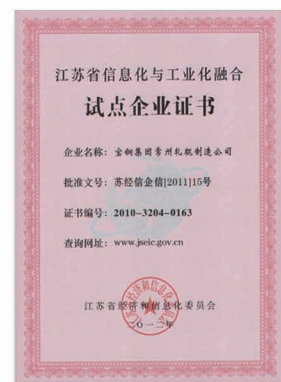
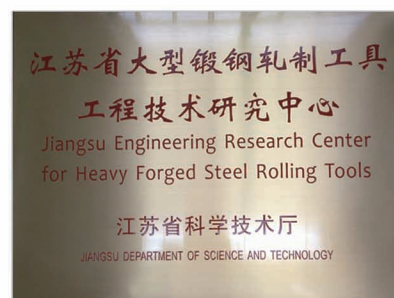
Technical Qualification Equipment



Baosteel Roll hosts the compilation and modification of the State Standard: GB/T13314: General specifications of forged steel working rolls for cold rolling.

We have been the National High-Tech Enterprise continuously for six years with numbers of R&D products rated by National Key New Products as well as Jiangsu Province High-Tech Products. We have realized seamless connection of customer needs and technological research.

Currently, Baosteel Roll has obtained hundreds of professional technicians (including some external industry experts) new material R& D, technology optimization, inspection and test as well as site services etc.



To ensure the first-class products and service, Baosteel has self-developed and introduced the top-level specialized machining equipment, built strict quality control system, established mechanical physics laboratory, physical and chemical analysis laboratory, metallurgical laboratory, heat treatment laboratory, metrology laboratory etc.



Forged WR, IMR

Baosteel Roll has been widely applied to domestic and global cold mills, ferrous mills, SPM as well as straighteners relying on the excellent technology and reliable quality stability, our rolls have been used for rolling automotive sheet, appliance board, tin plates, silicon steel, stainless steel, aluminum, copper etc.

Since the forged WR need to be directly contacted with the strip, therefore, the quality of WR will directly impact the surface quality of strip. IMR from Baosteel mainly used for high-precision 6Hi and 8Hi cold mill which directly influence the strip shape. So far, Baosteel Roll has developed series of new functional WR/IMR materials based on normal Cr2, Cr3, Cr5 materials, i.e., anti-hydrogen, high wear resistance, anti-roll mark, anti-accident, high hardness retention, free chro-plating etc.



Products Specification WR IMR

Desc.	Material	Products Specification				Technical Requirements		
		Max. Length	Max Barrel Length	Max. Dia.	Max. Weight	Hardness Range	Hardening Depth	Hardness Uniformity
WR	MC2, MC3, MC5, MC6, BSH, BH, BYL, BYR, BJL, BJR	7000mm	5000mm	1200mm	30t	60-105 HSD	max 50mm	≤2HSD
IMR	MC2, MC3, MC5, BSH					70-88 HSD	max 50mm	≤2HSD

Main Technical Parameters

Material	Hardening Depth (mm)	Wear Resistance	Carbide Particle Size(μm)	Carbide Particle Type
WR				
MC2	8~18	1	0.32~0.8	M ₃ C
MC3	15~28	1.1~1.5	0.3~0.8	M ₃ C+ M ₇ C ₃
MC5	20~50	2.2~2.4	0.1~0.5	M ₇ C ₃
MC6	20~50	2.8~3.2	0.1~0.5	M ₇ C ₃
BSH2	40~50	3.5~4.0	0.1~0.3	MC
BSH3	40~50	3.5~4.0	0.1~0.3	M(C,N)
BH2	>50	4~5.5	0.1~0.3	MC+M ₂₃ C ₆ +M ₂ C
IMR				
MC2	8~18	1	0.32~0.8	M ₃ C
MC3	15~28	1.1~1.5	0.3~0.8	M ₃ C+ M ₇ C ₃
MC5	20~50	2.2~2.4	0.1~0.5	M ₇ C ₃
BSH1	30~50	3~3.5	0.1~0.3	M ₇ C ₃

Mechanical Property

Area	Typical Clients	
Domestic	Baosteel, Anshan Steel, Wisco, Shougang steel, Tisco	
Overseas	Europe	TKS, SMS, Constellium, TATA, Marcegaglia
	America	USS, AK Steel, CSA, AHMSA
	Aisa Pacific Rim	POSCO, JFE, Udogava, CSC, Lotus
	South Asia	TATA, JSW, JSL, BHUSHAN Group
	Middle East, Africa	BORCELIK, TEZCAN, MMI, Kandil
	Russia	MMK, Severstal

Forged BUR

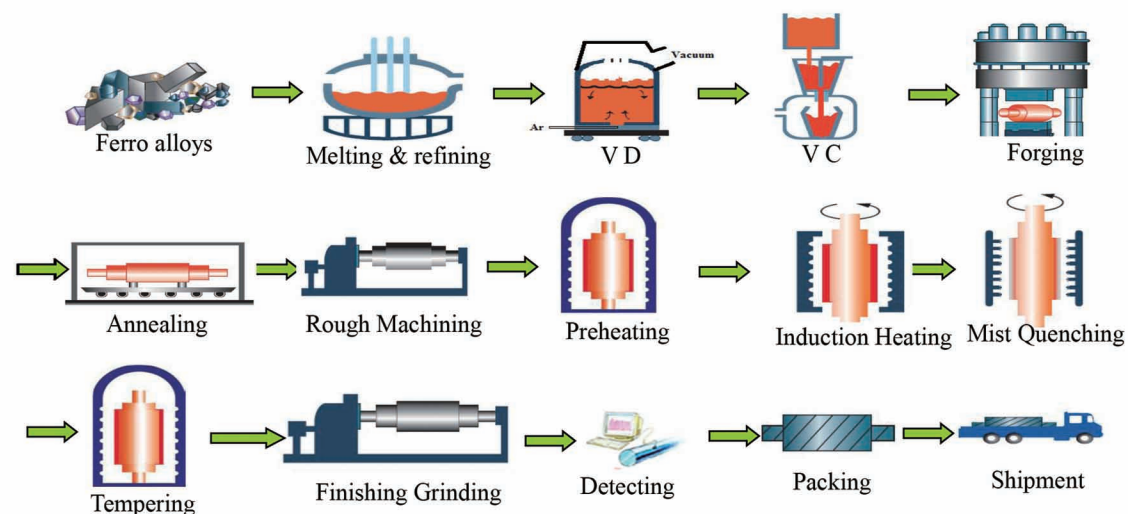
Baosteel Roll is able to provide all BURs for cold and hot rolling mill except for heavy strip mill, SPM BURs and ferrous mill BURs, we can meet the BUR demands of single stand cold rolling mill and tandem mill 1220, 1420, 1450, 1550, 1730, 1750, 1800, 2030 as well as of hot strip mill 1420, 1580, 1780, 1880, 2050, 2250, 2300 etc. Currently, Baosteel Roll is the only roll supplier who has Low Frequency Static Induction Hardening Technology apart from the normal Gas Fire Hardening technology for normal roll supplier in China, we have formed the manufacturing capability of series BURs in material Cr2, Cr3, Cr4, Cr5 and promoted Cr5 etc.

Products Specification BUR

Desc.	Material	Products Specification			
		Max. Length	Max Barrel Length	Max. Dia.	Max. Weight
BUR	CR2A、CR2B、CR3A、CR3B、CR3C、CR4A、CR5A、CR5B、CR5C	8000mm	2800mm	1800mm	80t

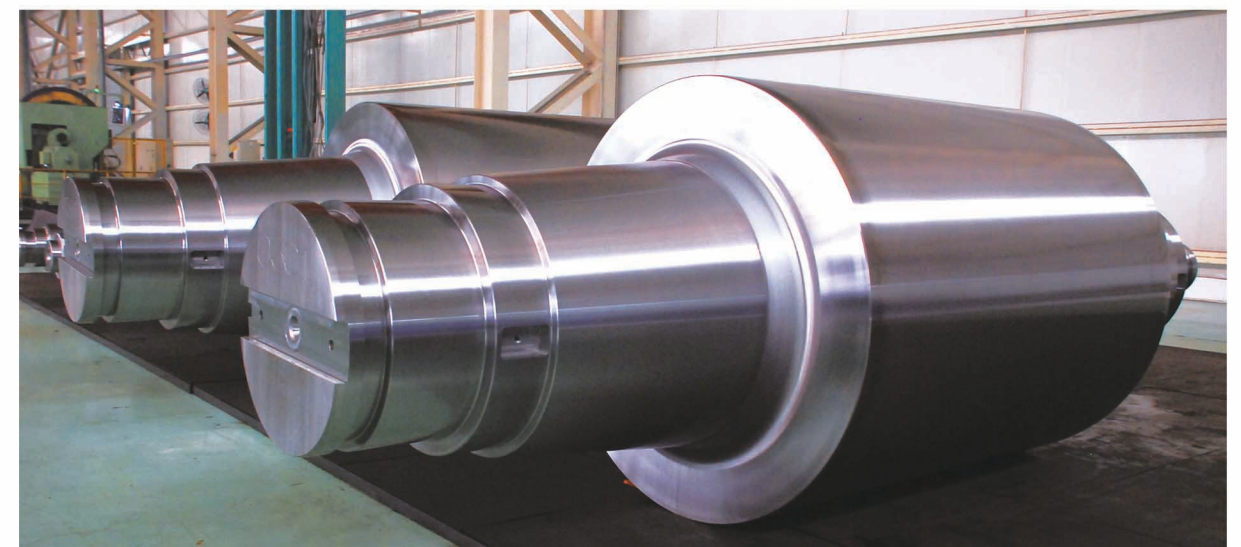
Major Technical Parameter

Technology	Gas Fire Hardening	Low Frequency Static Induction Hardening
Material	Cr3、Cr4、Cr5 series	
Hardness Uniformity	±2 HSD	±1.5 HSD
Hardening Depth	≤90mm	≥100mm
Working Layer Hardness Reduction Gradient	≤5HSD	≤3HSD



Typical BUR Clients (Domestic/ Overseas)

No.	Typical Clients(Domestic)	No.	Typical Clients (Overseas)
1	Baosteel	1	Posco
2	shougang Group	2	Constellium
3	Wisco	3	Severstal
4	Tisco	4	Bhushan Power
5	Lisco	5	JSW
6	Hebei Steel	6	Formosa
7	YEHUI	7	SAPA
8	SMS	8	Duferco
9	Danieli	9	Mobarakeh
10	Primetal		



Cluster Mill Rolls

Baosteel Roll is devoted to the research of developing new material of cluster mill rolls, can manufacture varies of sendzimir rolls of die and tool steel.

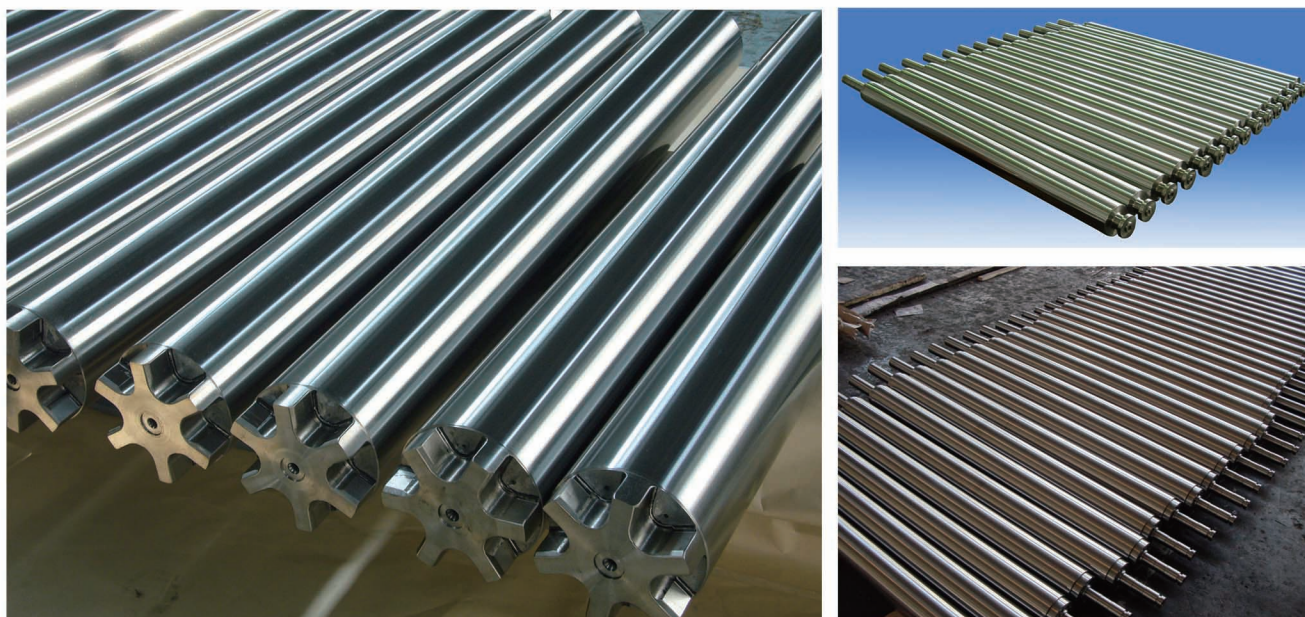
For years, successfully developed the High speed steel material and semi-high speed steel material, and help the world-wide high end customers obtained the preferred performance.

Products Scope

Desc.	Material	Hardness	Hardness Homogeneity
WR	BDW1、BDW2、BDW3、BDW4、BDW5	HRC60-66	≤1HRC
IMR	BDM1、BDM2、BDM3、BDM4、BDM5	HRC55-64	≤1HRC

Representative Customers

BAOSTEEL, ANSTEEL, WISCO, SHOUGANG STEEL, TISCO.



Mandrel

Baosteel Roll Mandrel shop established since May, 2010, now become the World-top level, domestic leading, with comprehensive strength mandrel production base and R&D base for new special steel material with advanced technology.

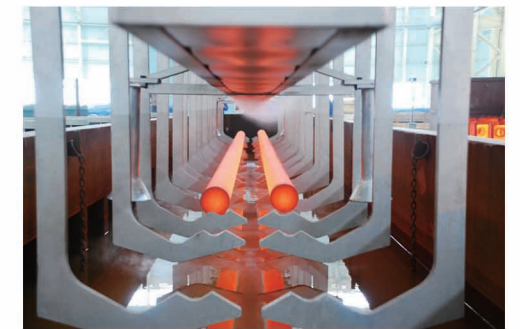
Now with the annual production capacity of 3000tons mandrel, and make service for major pipe plants in world-wide.

- Mandrel size: ϕ 80mm-- ϕ 510mm Length \leq 18m
- ESR material to ensure the material chemical structure and purity, extend the thermal fatigue lifetime.
- Adopt imported 6000tons fast forging press and 1300tons radial forging press to keep high density structure
- Heat-treatment process using water-soluble quenching liquid to ensure full quenching, no pollution and environment friendly.

Main Technical Parameter

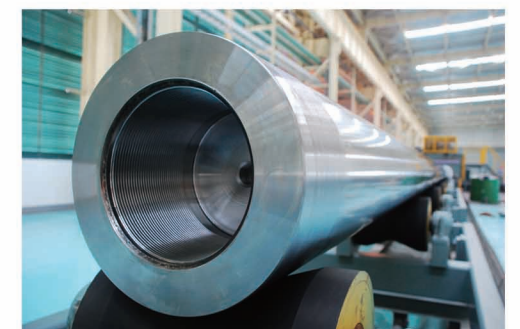
Working Part chemical composition

Material	Chemical composition %							
	C	Si	Mn	Cr	Mo	V	S	S+P
H13	0.30~0.38	0.70~1.20	≤0.60	4.50~5.50	1.00~1.50	0.80~1.20	≤0.005	≤0.020



Mechanical Properties

Item	Rp0.2 N/mm ²	Rm N/mm ²	A %	Z %	AK (v) J
Specifications	≥882	1029~1274	≥8	≥25	≥15



Representative Customers

TMK Group, Baogang GROUP, Yantai Baosteel Pipe Co.,Ltd.

□ Shanghai Jiangnan Roll Co.,Ltd.

Shanghai Jiangnan Roll Co.,Ltd belongs to Baosteel Roll Science & Technology Co.,Ltd. ; is an independent legal entity. The company was founded in July 1998, operation started in November 1999. Obtained the certificate of ISO9001:2000 in 2001, ISO14001:2004 in 2005, OHSAS18001:1999 in 2006, High and new technology enterprise certificate and be awarded enterprise credit rating AAA.

The company equipped with advanced imported CNC roll grinders, Inspection device, and experienced and professional team workers. Main equipments including: WALDRICH SIEGEN grinder from Germany, HERKULES grinder from Germany, Shunyu grinder, OSB heat-treatment equipment from Belgium and CNC cutting blade Grinder; to provide customer-made grinding, maintenance service for Baosteel Group and other customers.

□ Major Cooperation Customers ▶

Baoshan Iron & Steel Co.,Ltd, Shanghai Baosteel Equipment Maintenance Co.,Ltd, Baosteel Stainless Co.,Ltd., Baosteel Special Steel Co.,Ltd., ALCOA (Shanghai) Aluminum Co.,Ltd., Jiangnan Group, etc.

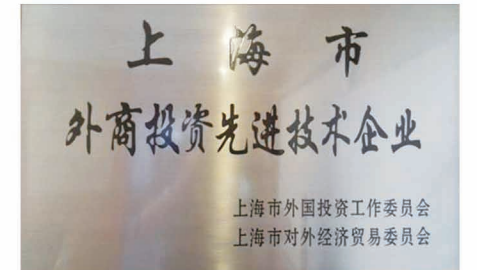


Shanghai Court Roll Surface Treatment Co.,Ltd. □

Shanghai Court Roll Surface Treatment Co.,Ltd. (Shanghai Court) is a joint venture company of Shanghai Baosteel Engineering & Technology Co.,Ltd., and Court Holdings (Canada) ; established on 28th December 1999. Focus on the roll's and other metal product's surface treatment like grinding, texturing, and chroming, also provide related technical service, technical consulting.

The company successfully passed the ISO 9001& ISO14000 certification in 2002, and OHSAS18001 in 2007.

Through continuous technical R&D, fulfill lots of technical innovation achievements, and owns the unique court new process and new technology; which efficiently improved high precision cold rolling WR's continuous service period (5-7 times, and foreign technology can only get 3 times.) Compares to other domestic chrom plating company, Shanghai Court with significant technological advantages.



□ Business Extension And Cooperation Customers ▶



- Establish shanghai headquarter, provide service for Baoshan Iron & Steel Co.,Ltd., Baosteel-NSC/Arcelor Co.,Ltd., Baosteel Stainless steel Co.,Ltd., and other ferrous and non-ferrous cold rolling Companies in Jiangsu, Zhejiang Province.

- Establish Nanjing branch company, undertake Meishan Iron& Steel Co., Ltd.'s cold rolling grind shop by "BOO" way in December 2007. It is the 1st "BOO" professional outsourcing grind shop, to provide full process of de-chock, grinding,EDT,Chroming service.

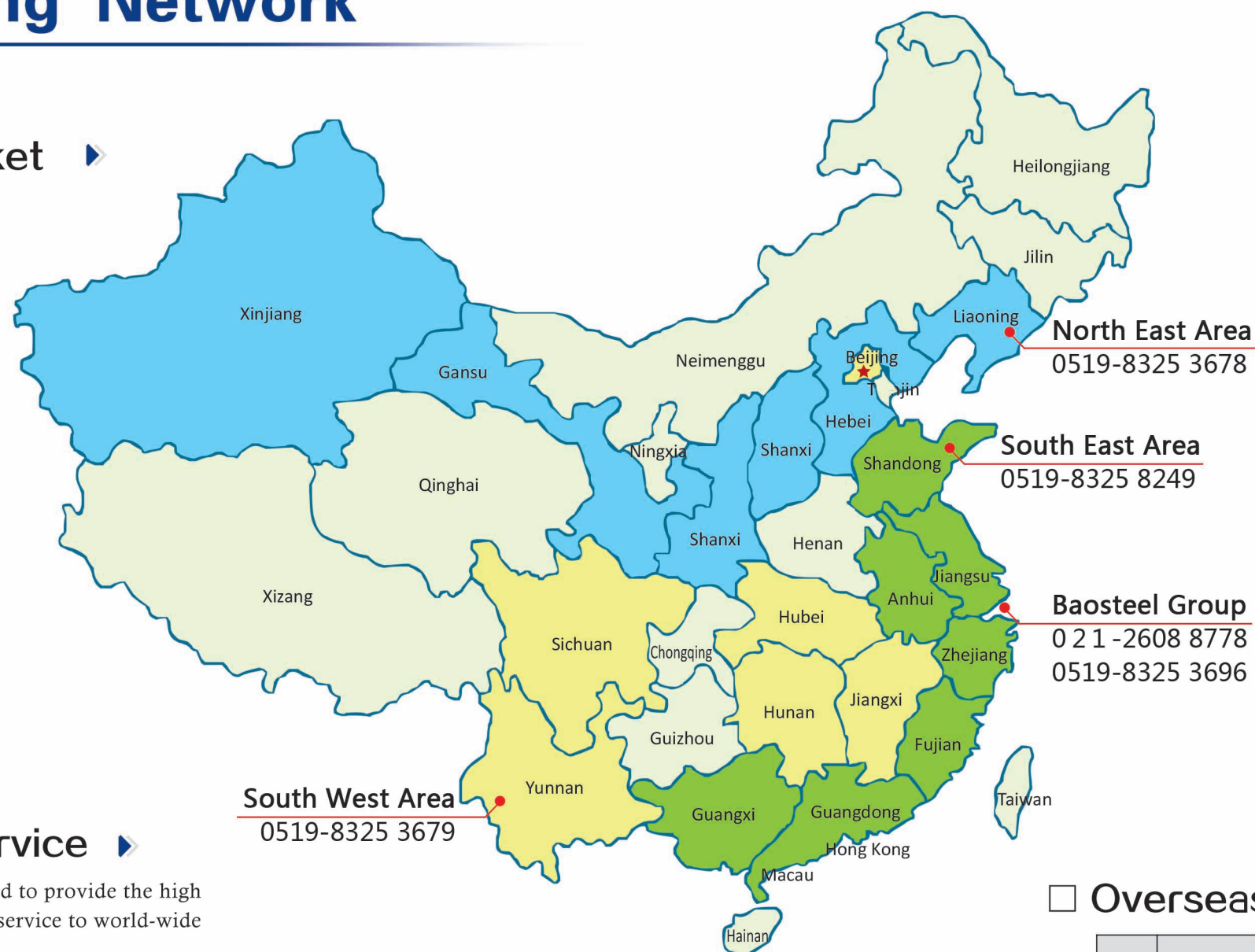
- Establish Anshan Court in November 2011, which is a joint venture with Ansteel, provide service for the steel industry in whole North East area.

- Establish ZhanJiang branch company in May,2015. Undertake Baosteel Zhanjiang Iron & Steel Co., Ltd.'s cold rolling grind workshop, hot rolling grind workshop, roll surface treatment center by "BOO" way to provide the whole process rolls grinding service, also can serve the cold rolling non-ferrous industry in Guangdong, Guangxi province.

- Establish Xichang Court in August 2015, to provide service for cold rolling non-ferrous industry in South West area.

Marketing Network

Domestic Market



Changzhou Headquarter

Add: 41, Xinye Road, Changzhou, Jiangsu, China
Tel: +86-519-83258560
Fax: +86-519-83265020

Shanghai Office

Add: No.8, Lane 550, Keshan Road, Baoshan District, Shanghai China
Tel: +86-21-26088778

Shanghai Jiangnan Roll Co.,Ltd.

Add: N0.1288, Fujin Road, Baoshan District, Shanghai, China
Tel: +86-21-56198799
Fax: +86-21-56195386

Shanghai Court Roll Co.,Ltd.

Add: N0.1288, Fujin Road, Baoshan District, Shanghai, China
Tel: +86-21-56192660
Fax: +86-21-56191820

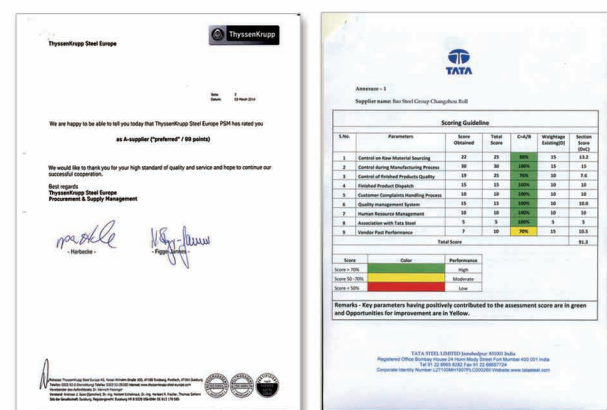
Market and Service

For years, Baosteel roll committed to provide the high qualified products and advanced service to world-wide customers.

In domestic market, Baosteel roll keeps more than 70% market share in high end cold rolling industry (BAOSTEEL, ANSTEEL, WISCO, Shougang Steel, and TISCO.)

For overseas market, Baosteel roll is the largest overseas roll supplier in India cold rolling market, and also the approved supplier for JFE, Constellium, ArcelorMittal, POSCO, TMK, etc.

Baosteel roll also be awarded as the “excellent supplier” by Thyssenkrupp, Germany and TATA Steel Group in 2014.



Overseas Market

No	Area	Contact Tel
1	South East Asia	+86 519 83253719
2	Europe	+86 519 83253719
3	America, South Africa	+86 519 83253717
4	South Asia	+86 519 83253717
5	Russia	+86 519 83258428