



北京首钢股份有限公司
BEIJING SHOUGANG CO.,LTD.

北京首钢股份有限公司 产线及营销体系简介

MANUFACTURING PROCESSES AND MARKETING SYSTEM OF
BEIJING SHOUGANG CO.,LTD.



北京首钢股份有限公司
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Chapter 1 Company Profile

第一章 公司简介

北京首钢股份有限公司（简称“首钢股份”）是首钢集团所属的境内唯一上市公司。首钢股份于1999年10月由首钢总公司独家发起募集设立，1999年12月在深圳证券交易所上市（证券代码：000959）。

首钢股份拥有控股首钢京唐钢铁联合有限责任公司、首钢股份公司迁安钢铁公司、北京首钢冷轧薄板有限公司、首钢智新迁安电磁材料有限公司等钢铁实体单位，具有焦化、炼铁、炼钢、轧钢、热处理等完整的生产工艺流程，粗钢产能2170万吨。首钢股份拥有国际一流装备和工艺水平，具有品种齐全、规格配套的冷热系全覆盖板材产品序列，为客户提供电工钢、汽车板、镀锡板、管线钢、家电板等优质产品和先期介入等推增值服务。首钢股份致力于从产品制造商向综合服务商转变，努力成为具有世界竞争力的优秀上市公司。

Beijing Shougang Co.,Ltd. (hereinafter referred to as Shougang Co.,Ltd.) is the only domestic listed company of Shougang Group. Shougang Co.,Ltd. is a joint stock limited company established by means of raising in October 1999, listed in Shenzhen Stock Exchange since December 1999.(stock code 000959)

Shougang Co.,Ltd. owns holding Shougang Jingtang United Iron & Steel Co.,Ltd., Shougang Qian'an Iron and Steel Co.,Ltd., Beijing Shougang Cold Rolling Co.,Ltd., Shougang Zhixin Qian'an Electromagnetic rials Co.,Ltd., and other steel entities. has the whole production processes including coking, iron making, steelmaking, rolling and annealing. The crude capacity reaches 21.7 million tons. Shougang Co.,Ltd. stays as world-class level in the manufacture equipments and processes, achieved full coverage of hot-rolled and cold-rolled products, provides EVI and high quality products such as electrical steel, automotive steel, tinsplate, pipeline steel, appliance sheet. Shougang Co.,Ltd. is committed to transform from a product manufacturer to a comprehensive service provider, strive to become an excellent listed company with world competitiveness.

1.1 首钢京唐钢铁联合有限责任公司

Shougang Jingtang United Iron & Steel Co.,Ltd.

首钢京唐钢铁联合有限责任公司（简称首钢京唐公司）地处河北省唐山市曹妃甸区，是首钢搬迁调整的重要载体。建设首钢京唐钢铁联合有限责任公司钢铁项目，是党中央、国务院的重要战略决策，是国家“十一五”规划的重点工程，是完全按照循环经济理念设计建设的具有国际先进水平的大型钢铁项目。

京唐公司于2007年3月12日开工建设，已经具备年产1347万吨铁、1370万吨钢坯、1340.6万吨钢材的生产能力。京唐公司按照国家要求已逐步成为“具有国际先进水平的精品板材生产基地和自主创新的示范工厂、节能减排和发展循环经济的标志性工厂”。

Shougang Jingtang United Iron & Steel Co.,Ltd. (hereinafter referred to as Shougang Jingtang Co.), is located in Caofeidian New Area, Tangshan, Hebei province. The construction of Shougang Jingtang Co. is the important strategic decision of the Party Central Committee and the State Council and is a key project of national “Eleventh Five Year Plan”. It is an iron and steel joint enterprise with international advanced level designed and constructed in accordance with the concept of recycling economy.

Jingtang Co. started construction on March 12, 2007. The annual production capacity is 13.47 million tons of pig irons, 13.70 million tons of crude of steels, 13.406 million tons of hot rolled strips Jingtang Co. in accordance with national requirements of the state has gradually become a “quality plate production base with international advanced level and independent innovation demonstration plant, to become energy conservation and development of recycling economy iconic factory”.

1.2 首钢股份公司迁安钢铁公司

Shougang Qian'an Iron and Steel Co.,Ltd.

首钢股份公司迁安钢铁公司（简称迁钢公司）地处环渤海经济圈内的河北省迁安市，毗邻首钢迁安铁矿，距北京240公里、秦皇岛90公里、唐山曹妃甸120公里，交通发达，水陆运输便利。

迁钢公司自2002年12月18日注册成立以来，已经具备年产780万吨铁、800万吨钢坯、780万吨热轧板带钢的生产能力。



Shougang Qian'an Iron and Steel Co.,Ltd. (hereinafter referred to as Qiangang Co.) locates in Qian'an city, Hebei province, which is in the Bohai Economic Circle, and close to Shougang Qian'an iron ore base. Qiangang Co. is 240km away from Beijing, 90km away from Qinhuangdao and 120km away from Caofeidian. Qiangang Co. has well-developed and convenient water and land transportation.

Qiangang Co. was put into production on December 18, 2002. The current annual production capacity is 7.8 million tons of pig irons, 8.0 million tons of crude of steels, 7.8 million tons of hot rolled strips.

1.3 北京首钢冷轧薄板有限公司 Beijing Shougang Cold Rolling Co.,Ltd.

北京首钢冷轧薄板有限公司 (简称冷轧公司) 位于北京市顺义区, 毗邻北京首都国际机场, 交通条件便利。

冷轧公司于 2008 年 8 月 5 日成立, 是具有国际先进水平的现代化冷轧带钢生产厂。公司产品年生产规模为 170 万吨, 其中冷轧连续退火产品 90 万吨, 热镀锌产品 80 万吨。

Beijing Shougang Cold Rolling Co., Ltd. (hereinafter referred to as Cold-R Co.) is located in Shunyi District, Beijing, adjacent to Beijing Capital International Airport, enjoys favorable geographical position and convenient transportation.

Cold-R Co. founded in August 5, 2008, as a modernized cold rolling factory that applied international advanced technologies. The total production capacity is 1.7 million tons per year, including 0.9 million tons annealed cold rolling strips and 0.8 million tons hot-dip galvanized strips.

1.4 首钢智新迁安电磁材料有限公司 Shougang Zhixin Qian'an Electromagnetic Material Co., Ltd.

首钢智新迁安电磁材料有限公司 (简称智新公司) 是首钢股份公司于 2018 年 3 月 22 日在河北省迁安市设立的全资子公司, 具备年产 150 万吨电工钢的生产能力, 连续六年实现单体工厂产量全球第一。自主研发掌握了低温板坯加热工艺生产高磁感取向电工钢技术, 成为全世界第四家全低温工艺产业化的企业, 产品广泛应用于 500kV 及以上超、特高压变压器生产制造, 实现国网交流“双百万”变压器应用突破, 薄规格产品成功应用于中国高铁首套智能化变电站, 跻身变压器材料世界第一阵营, 正在成长为“全球领先的电工钢制造商”。

Shougang Zhixin Qian'an Electromagnetic Material Co., Ltd. (hereinafter referred to as Zhixin company) is a wholly-owned subsidiary of Shougang Co., Ltd. established in Qian'an City, Hebei Province on March 22, 2018. It has an annual production capacity of 1.5 million tons of electrical steel, and has ranked first in the world for six consecutive years. We have independently developed and mastered the technology of producing high magnetic induction oriented electrical steel by low temperature slab heating process, and become the fourth enterprise in the world with all low temperature process industrialization. Our products are widely used in the production and manufacture of 500kV and above ultra-high voltage transformers, realizing the breakthrough of "double million" transformer application in State Grid AC, and the thin specification products have been successfully applied to the first set of intelligent substation in China's high speed railway, Among the first camp of transformer materials in the world, it is growing into a "global leading electrical steel manufacturer".

Chapter 2 Manufacturing Processes

第二章 产线简介

2.1 首钢京唐公司 Shougang Jingtang Co. Manufacturing Base

2.1.1 2250 热轧产线 2250 Hot Rolling Line

首钢京唐 2250mm 热轧生产线, 拥有 4 座加热炉、1 座定宽压力机、2 架可逆式粗轧机、保温罩、曲柄式飞剪、精轧除鳞机、7 架精轧机、4 组前置超快冷、常规层流冷却、2 组后置超快冷、3 座地下卷取机。该产线引进德国 SMSD 公司设备和日本 TMEIC 公司高精度自动化控制, 设计年产量 550 万吨, 带钢厚度 1.2 ~ 25.4mm, 带钢宽度 700 ~ 2130mm, 最大卷重 40 吨。2250 产线采用了热送热装工艺, 大侧压定宽机, 自动宽度、厚度、板型控制、控轧控冷、在线表面检测、钢材组织性能预报等 20 余项最先进技术。

The 2250mm Hot rolling production line of Shougang has 4 heating furnaces, 1 fixed width press, 2 reversible roughing mills, heat preservation cover, crank flying shear, finishing mill descaling machine, 7 finishing mills, 4 groups of pre super fast cooling, conventional laminar cooling, 2 groups of super fast cooling and 3 underground coiler. The production line is introduced into the equipment of SMSD company in Germany and high precision automatic control of tmeic company of Japan. The annual output is 5.5 million tons, the thickness of strip steel is 1.2-25.4mm, the width of strip is 700-213mm, and the maximum rolling weight is 40 tons. The 2250 production line adopts the hot delivery and heat installation process, large side press and width setting machine, automatic width, thickness, plate type control, rolling control and cooling control, on-line surface detection, steel structure performance prediction and other 20 most advanced technologies.

2.1.2 1580 热轧产线 1580 Hot Rolling Line

首钢京唐 1580mm 热轧生产线, 拥有 4 座加热炉、1 座定宽压力机、2 架可逆式粗轧机、保温罩、曲柄式飞剪、精轧除鳞机、7 架精轧机、层流冷却、3 座地下卷取机。该产线由国内自主集成, 引进日本 TMEIC 公司高精度自动化控制。设计年产量 390 万吨, 带钢厚度 1.2 ~ 12.7mm, 带钢宽度 700 ~ 1450mm, 最大卷重 28 吨。1580 产线采用了热送热装工艺, 大侧压定宽机, 自动宽度、厚度、板型控制、控轧控冷、在线表面检测、钢材组织性能预报等 20 余项最先进技术。

Shougang Jingtang 1580 mm hot rolling production line has 4 heating furnaces, 1 constant width press, 2 reversible roughing mills, heat preservation cover, crank flying shear, finishing mill descaling machine, 7 finishing mills, laminar cooling and 3 underground coilers. The production line is independently integrated in China and the high precision automatic control system imported from tmeic company of Japan. The designed annual output is 3.9 million tons, the strip thickness is 1.2-12.7 mm, the strip width is 700-1450 mm, and the maximum coil weight is 28 tons. The 1580 production line adopts more than 20 advanced technologies, such as hot delivery and hot charging process, large side pressing and sizing machine, automatic width, thickness, shape control, controlled rolling and controlled cooling, on-line surface detection, steel structure and property prediction, etc.

2.1.3 1600 MCCR 产线 1600 MCCR Line

MCCR 产线采用全新的产线布局及技术形式，生产更灵活，质量更优异，产品更高端，全长 288m，含一台单流高拉速薄板坯连铸机、一座隧道均热炉和一条热轧带钢生产线，主体设备包括：一台连铸机，粗轧 3 机架轧机、精轧 5 机架轧机、层流冷却系统和卷取机。其中，辊底式隧道均热炉，在改善板坯温度均匀性的同时，使生产组织更灵活，实现单坯、半无头及无头模式的自由切换；三处高压除鳞装置，为带钢高表面质量提供保障；感应加热系统，使超薄规格生产更稳定。加长的层流冷却系统，适应高端、复杂品种的工艺要求。



MCCR production line adopts a new production line layout and technical form, with more flexible production, better quality and more high-end products. It has a total length of 288M, including a single strand high casting speed thin slab caster, a tunnel soaking furnace and a hot strip production line. The main equipment includes: a caster, 3-stand roughing mill, 5-stand finishing mill, laminar cooling system and coiler. Among them, roller hearth tunnel soaking furnace can improve the temperature uniformity of slab, make the production organization more flexible, and realize the free switching of single slab, semi headless and headless modes; three high-pressure descaling devices can guarantee the high surface quality of strip steel; induction heating system can make the ultra thin production more stable. The lengthened laminar cooling system adapts to the process requirements of high-end and complex varieties.

2.1.4 1600 酸洗线 1600 Pickling Line

高强钢连续酸洗生产线是一条包括智库仓储系统在内的高端智能化生产线，由法国普锐特公司总设计，具备世界先进的设计理念和工艺技术。产线采用五段浅槽紊流酸洗技术，配备米巴赫激光焊机、破鳞机、平整机、拉矫机等先进设备，能有效改善改善带钢板形和表面质量，提高酸洗效率，产线还配备了三个机器人，分别用于入口去捆带、出口取样及贴标签。该机组年产 150 万吨酸洗卷，最高酸洗速度 320 m/min，产品强度可达 1100MPa，产品类型主要包括低碳家电类、高强汽车板以及薄规格热代冷产品，品种覆盖 CQ、DQ、LHSS、HSS、UHSS、SUHSS 等多类钢种，是一条高生产率、高质量的生产线。

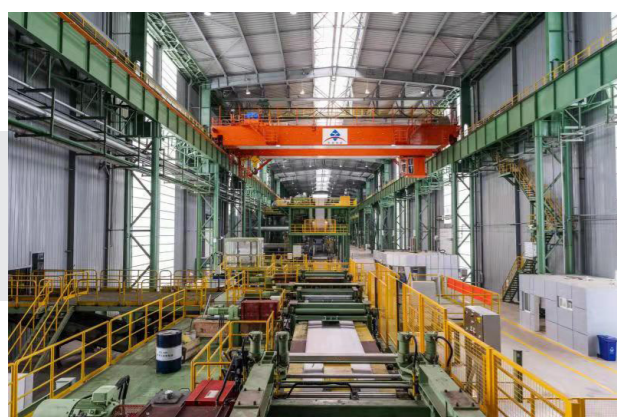


The ultra-high strength steel(UHSS) continuous pickling line is a high-end intelligent production line including think-tank storage systems. It is overall designed by Primetals Technologies France with world's advanced design concept and technology. The pickling line adopted 5 flat pickling tanks with turbulent pickling technology and equipped with laser welding machine of Miebach, scale breaker, skin pass mill, tension leveler and other advanced equipment, which can effectively improve the steel plate shape , surface quality and pickling efficiency. The pickling line is also equipped with three robots, respectively for dismantling packing strap in the entry, taking sampling and labeling at the exit. The unit has an annual output of 1.5 million tons of pickling products. Its maximum pickling speed is 320 m/min and the product strength can reach 1100MPa. The product types mainly include low carbon household appliances steel, high strength automotive plates and thin cold forming plates. The steel grade covers CQ, DQ, LHSS, HSS, UHSS, SUHSS. All these make it a high productivity and high quality production line.

2.1.5 热基镀锌产线 Hot base galvanizing line

热基镀锌产线核心技术来自比利时 CMI 公司，关键设备和工艺包括：激光焊机，水平式直燃加热炉，陶瓷锌锅，CMI 气刀，Blowstab 冷却风箱，四辊光整机，湿式拉矫机，新式水平式涂机，远红外钝化烘干冷却设备，涂油机，钳口和皮带助卷器双功能卷取机等；以及先进的自动化检测控制技术，包括测宽测径装置、锌锅液位和温度传感器、炉鼻子加湿装置、锌层测厚仪、在线表检仪、测宽测厚仪等，实现产品质量的闭环控制。该产线可生产 CQ、DQ、C-Mn、HSLA、DP、TRIP、CP 等钢种，规格覆盖 1.0-6.0mm×750-1500mm。热基板 6Al3Mg 产品属于国内首家。

The core technology of hot base galvanizing line comes from CMI Company in Belgium, the key equipment and processes include Laser welding machine, Horizontal direct firing furnace, ceramic zinc pot, CMI air knife, Blowstab cooling bellows, four-roll skin pass mill, new horizontal coating machine, far infrared passivation drying and cooling equipment, oiling machine, double function coiler with clamp mouth and belt booster, etc.. The line has advanced automatic detection and control technology, such as width and diameter measuring device, zinc pot liquid level and temperature sensor, Snout humidifying device, Zinc layer thickness measuring instrument, online table measuring instrument, width and thickness measuring instrument etc.. Production quality can be controlled in closed cycle. This line can produce many grade types, such as CQ, DQ, C-MN, HSLA, DP, TRIP, CP, etc.. Specifications of steel cover 1.0-6.0mm×750-1500mm. The hot base plate 6Al3Mg is the first product in domestic.



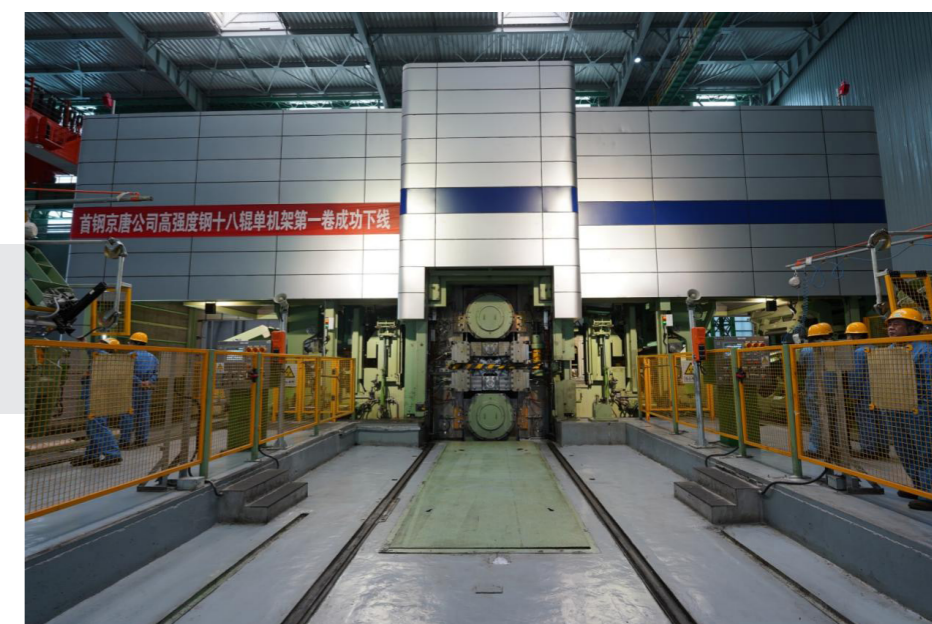
2.1.6 18 辊单机架产线 18-high single stand production line

高强度钢十八辊单机架生产线由安德里茨公司负责总设计并提供关键工艺设备，由宝信自动化公司提供机组电气自动化系统。该产线选用当今主流 S6-high 十八辊单机架机型，采用稳定可靠的侧支撑系统、中间辊传动系统、中间辊弯窜系统、快速换辊系统和高张力卷取机等关键设备，以及板型仪、测厚仪、测速仪等关键仪表，以保证高强度钢稳定轧制和高品质质量需求。

可生产规格带钢厚度：1.5～6.0 mm，带钢宽度：750-1630mm，设计年产量 28 万吨，780MPa 及以上级别产品 18 万吨，占比 64.2%；并预留了 (7.0-3.5) *1350mm，抗拉强度 780MPa 产品的轧制能力。

The 18-high single stand production line of high strength steel is designed and provided by Andritz company and provides key process equipment, and Baoxin automation company provides the electrical automation system of the unit. The production line selects the current mainstream S6 high 18 high single stand machine, adopts stable and reliable side support system, intermediate roll transmission system, intermediate roll bending system, rapid roll changing system, high tension coiler and other key equipment, as well as shape gauge, thickness gauge, velocimeter and other key instruments, so as to ensure the stable rolling of high strength steel and high quality requirements.

The line can produce specification strip thickness: 1.5-6.0 mm, strip width: 750-1630 mm, designed annual output: 280000 tons, 780 MPa and above grade products: 180000 tons, accounting for 64.2%; and reserved rolling capacity of (7.0-3.5) * 1350 mm, tensile strength: 780 MPa products.





2.1.7 3500 中板产线 3500 medium size plate production Line

3500mm 中板生产线主体设备由原首钢 3500mm 中板厂和秦皇岛 3300mm 中板厂设备整合优化组成，主要包括两座加热炉（一座步进式，一座推钢式）、一台 3500mm 单机架轧机、一套 ACC 快速冷却系统、一台热矫直机及一条精整线。主要品种包括管线用钢、船舶及海洋工程用钢、压力容器用钢、风电用钢、工程机械用钢、桥梁结构用钢、高层建筑用钢、结构用钢、模具用钢、复合板等。产线年设计产能 52.6 万吨，钢板厚度 6-80mm，钢板宽度 1050-3050mm，产线侧重在薄、窄规格及小单重钢板的灵活生产优势，与 4300mm 产线一并实现全规格接单生产能力。

The main equipment of 3500mm medium size plate production line is composed of the original 3500mm medium size plate plant of Shougang and 3300mm medium size plate plant of Qinhuangdao. It mainly includes two heating furnaces (one stepping type and one pushing type), a 3500mm single stand mill, a set of ACC system, a hot straightener and a finishing line. The main products include pipeline steel, ship and ocean engineering steel, pressure vessel steel, wind tower steel, construction machinery steel, bridge steel, high-rise building steel, structural steel, mold steel, clad plate, etc. The annual design capacity of the production line is 526000 tons, the thickness of steel plate is 6-80mm, and the width of steel plate is 1050-3050mm. The production line focuses on the flexible production of thin, narrow size plate and small unit weight steel plate, so as to realize to cover the full specification order with 4300mm production line.

2.1.8 4300 宽厚板产线 4300 wide and heavy plate production Line

4300mm 宽厚板生产线采用西门子—西马克设备总包和全流程自动化控制轧制及控制冷却技术，主体设备包括两座步进式加热炉、两台 4300mm 轧机、一套超快冷设备、一套 ACC 快速冷却设备、一台预矫直机、一台热矫直机、一台温矫直机、两条精整剪切线、四条热处理线。4300mm 产线以宽、厚钢板为主，设计年产量 165 万吨，钢板厚度 6-380mm，钢板宽度 900-4100mm，钢板最大单重 28.5 吨。4300mm 产线产品涵盖 12 大系列、400 多个品种，包括造船及海工钢、管线钢、桥梁钢、容器板、风电钢、高建及 Z 向钢、工程机械用钢、耐磨钢、储罐钢、水电钢、结构用钢、模具钢。产品广泛应用于能源、造船及海洋平台、机械制造、桥梁制造、交通运输、电力工程等行业。

The 4300 mm wide and heavy plate production line adopts Siemens-SMS equipment with full process automatic control rolling and cooling technology. The main equipments includes two walking beam furnaces, two 4300 mm rolling mills, one set of ultra fast cooling system, one set of ACC fast cooling equipment, one pre straightener, one hot leveller, one room temperature leveller, two finishing shear lines and four heat treatment lines. The 4300 mm production line is mainly to produce wide and thick steel plates, with a designed annual capacity of 1.65 million tons, plate thickness of 6-380 mm, plate width of 900-4100 mm, and a maximum unit weight of 28.5 tons. The 4300 mm production line covers 12 series and more than 400 steel grades, including shipbuilding and marine steel, pipeline steel, bridge steel, container plate, wind tower steel, high-rise building and Z-direction steel, engineering machinery steel, wear-resistant steel, tank steel, hydropower steel, structural steel and mold steel. Products are widely used in energy, shipbuilding and offshore platform, machinery manufacturing, bridge manufacturing, transportation, power engineering and other industries.



2.1.9 彩涂线 Color-Coated Line

彩涂生产线设备是从美国法塔公司引进，是一条典型的二涂二烘的高速彩涂板生产线，机组最高工艺速度120米/分，年产彩涂板17万吨。涂机选用了拥有FATA专利技术的单滑道三辊闭环控制涂机，具有降低设备刚度、减少设备振动、提高涂层厚度的稳定性的优势；彩涂线配备两个精涂机可在生产线不减速、不影响产品质量的条件下实现飞速换色，具备了缩短客户小批量、特殊颜色产品订货时间的生产能力。

The coil coating line was built in October 2003 and be with annual output of 170,000 tons. The equipment of the line is based on the latest, proven technology provided by FATA Hunter. Reliable strip tracking and strip tension control is achieved throughout the line by means of the proper configuration and number of bridle units and steering units thereby limiting strip lippage, edge damage, strip breakage, telescoped finished coils and equipment abuse while at the same time, promoting higher coating uniformity. All coating heads on the finish coaters are be of the new, patented, single-slide design and equipped with nip-force feedback control system to achieve repeatable, uniform and accurate coating control. The oven system is based on the FATA Hunter's CLEAN AIRTM design, which offers minimum strip contamination and high fuel efficiency. A cold laminator unit with turret pay-off and guiding unit can apply a strippable protective film to the coated strip.

2.1.10 1700 冷轧单元 1700 cold rolling plant

1700 冷轧单元主体设备从德国、日本和比利时成套引进，包括酸洗机组、1700mm 五架连续冷轧机组、连续退火炉、罩式退火炉、连续热镀锌机组（具备热镀锌纯锌和热镀锌铝硅生产能力）等。酸洗机组采用盐酸浅槽酸洗，可有效清除热轧卷表面的氧化铁皮。轧机装有厚度自动控制（AGC）系统，并采用了最新的板形检测调节装置和轧辊凸度连续可变（CVC）技术，从而保证了板形和厚度精度。罩退炉可生产各种性能优良的产品。连续退火炉组可一次完成清洗、再结晶退火和平整，降低了生产成本，提高了生产效率。可生产表面质量和性能优良的产品。所有机组均采用计算机控制。

The main equipment of 1700 cold rolling plant is imported from Germany, Japan and Belgium in complete sets, including pickling unit, 1700mm five continuous cold rolling units, continuous annealing furnace, bell annealing furnace, continuous hot dip galvanizing unit (with the production of hot-dip pure zinc and hot-dip aluminized silicon). Pickling unit adopts hydrochloric acid shallow groove pickling, which can effectively remove scales on the surface of hot rolling coil. The rolling mill is equipped with AGC system, and the latest shape detection and adjustment device and CVC technology are adopted to ensure the shape and thickness accuracy of the rolling mill. The cover and exit furnace can produce various excellent products. Continuous annealing unit can complete cleaning, recrystallization annealing and leveling at one time, which reduces production cost and improves production efficiency. It can produce products with good surface quality and excellent performance. All units are controlled by computer.



2.1.11 2230 冷轧单元 2230 cold rolling plant

2230 冷轧单元包括一条酸轧线、两条连退线、三条镀锌线，其中3# 镀锌线主要生产汽车用热镀锌与热镀锌铝镁内板与外板，5# 镀锌线为镀锌高强度汽车板专用生产线，用以生产高强度和超高强度的汽车板，其处理带钢的最大宽度为1580mm，能生产强度级别为1180MPa的汽车用高强钢，预留1500Mpa级别的生产能力。该单元采用了当今世界成熟的先进工艺技术，设备配置先进、高效、可靠，其中主体机械设备技术分别从德国和比利时引进。可生产产品包括连退、热镀锌、热镀锌铝镁等，钢种涵盖IF钢、烘烤硬化钢、含磷高强钢、低合金高强钢、相变高强钢、铝镇静钢、碳锰高强钢等，具有性能参数稳定、表面质量优良、板形控制精准、尺寸精度高等特点，是国内仅有的几家可生产宽幅汽车板的钢厂之一。

2230 cold rolling unit consists of one Pickling tandem cold rolling mill line, two continuous annealing lines and three galvanizing lines. Among them, the 3 galvanizing line mainly produces hot-dip galvanizing and hot-dip galvanizing aluminum magnesium inner and outer plates for automobile and the 5 galvanizing line is a special production line for galvanized high-strength automobile sheet, which is used to produce high-strength and ultra-high strength automobile sheet. The maximum width of treated strip is 1580 mm, which can produce high-strength automobile steel with strength grade of 1180 MPa, 1500 MPa production capacity is reserved. The unit adopts the mature advanced technology in the world, with advanced, efficient and reliable equipment configuration. The main mechanical equipment technology is introduced from Germany and Belgium. The products include continuous annealed products, hot-dip galvanized products, hot-dip galvanized aluminum magnesium products. The steel grades include if steel, bake hardening steel, phosphorus containing high strength steel, low alloy high strength steel, phase transformation high strength steel, aluminum killed steel, carbon manganese high strength steel, etc. it has the characteristics of stable performance parameters, excellent surface quality, accurate shape control and high dimensional accuracy. It is one of the few steel plants in China that can produce wide width automobile sheet One.

2.1.12 1420 冷轧单元 1420 cold rolling plant

1420 冷轧单元配备有 1 条酸洗轧机联合机组、1 条连续退火机组、2 条热镀锌机组、1 条罩式退火机组。主要产品有高级包装用电镀锡板，家电板，产品规格范围为厚度：0.12-0.55mm；宽度：700-1280mm。

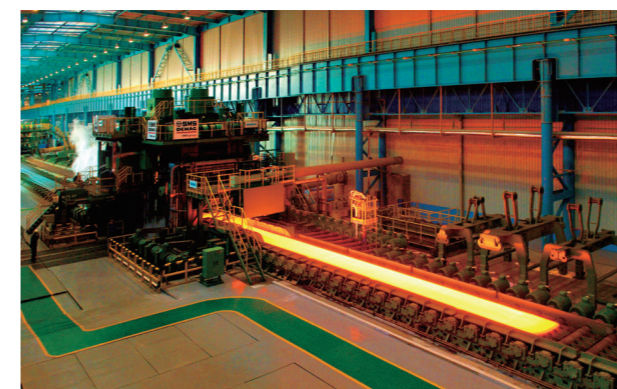
The 1420 cold rolling unit is equipped with one PL-TCM, one CAL, two ETLs, one BAL. The main production includes high-level wrapping electrolytic tin plates and household appliance plates. The standard range of thickness is from 0.12mm to 0.55mm; and width is from 700mm to 1280mm.



2.2 迁钢公司 Qiangang Co. Manufacturing Base

2.2.1 2250 热轧产线 2250 Hot Rolling Line

2250mm 产线，2005 年 3 月 30 日破土动工，2006 年 12 月 23 日成功轧制第一卷热轧板卷，圆了首钢几代人的梦想，该产线年设计生产能力 400 万吨，主体设备是 1 套德国西马克、西门子公司与首钢合作设计制造，辊身长 2250 毫米的半连续热轧带钢轧机（简称 2160 轧机），测量仪表齐全，测宽仪、测厚仪、凸度仪、平直度仪等在线监测，结合德国 parsytec 公司先进的表面质量检测系统，实现了生产过程中的实时监控，保证了产品具有较高的尺寸精度、良好的板型和表面质量。主要产品为汽车结构钢、工程机械用钢、管线钢、耐候钢、特殊钢、专用钢、冷轧基料、普通结构钢等。



Hot rolling line 2250 started building in March 30,2005 and went into operation in December 23, 2006. The first hot rolled strip achieved the dream of generations of Shougang. The designed capacity is 4 million tons each year. The main sets of the equipments in the line were designed by SMS group , Siemens and Shougang. Mainly equipment is semi-continuous hot strip mill which has 2250 millimeters long roller(hereinafter referred to as 2160). The products guaranteed the high dimensional accuracy and good plate shape and surface quality through online quality detection system such as online surface inspection system-Parsytec, width gauge, thickness gauge, profile gauge,etc.. The main products from line 2250 cover automobile structural steel, construction machinery steel, pipeline steel, weathering steel, Special steel, exclusive steel, base materials for cold rolling, Ordinary structural steel.

2.2.2 1580 热轧产线 1580 Hot Rolling Line

1580mm 产线，主轧线设备设计及制造者为中国一重集团，主轧线电气自动化系统、高温感应加热炉、边部加热器设计及供货者为 TMEIC 公司，加热炉蓄热式烧嘴、燃烧控制系统及二级系统设计及供货者为 ROZAI 公司，侧压机设计及供货者为德国西马克公司，其他设备及配套设计和供货者均为首钢国际工程公司，测量仪表齐全，实现了生产过程中的实时监控，保证了产品具有较高的尺寸精度、良好的板型和表面质量。2009 年 12 月 14 投产。年设计生产能力 380 万吨，主要产品为硅钢、冷轧料、酸洗板、集装箱板、焊瓶钢等。

Hot rolling line 1580 went into operation in December 14, 2009. The designed capacity is 3.8 million tons each year. The main equipment in the line was designed and provided by China first heavy industries. Electric automation system, high temperature induction heating furnace, edge heater was designed and provided by TMEIC. Heating furnace regenerative burner, combustion control system, information control system was designed and provided by ROZI. Other equipments was designed and provided by BSIET. The products guaranteed the high dimensional accuracy and good plate shape and surface quality by online quality detection system. The main products from line 1580 cover base materials for cold rolling, electrical steel, pickling steel, container steel, welding bottle steel, etc..



2.2.3 1600 酸洗线 1600 Picking Line

1600mm 推拉式酸洗线，2012 年 9 月投产，年设计产能 77 万吨，采用五段分槽紊流酸洗工艺，利用侧面进酸设计，增强紊流效果，酸洗槽底部设有新酸补充口，可以改善带钢在槽内的浮力导向，确保上下表面酸洗均匀性。西门子的控制系统，可以实现分槽对酸液温度，酸液流量及紊流效果的控制。五段喷淋式漂洗可使带钢在确保漂洗干净同时缩短在漂洗段停留时间，避免出现锈蚀。产品可实现厚度 1.5-7.0mm，宽度 700-1600mm，强度 800MP 以下汽车机构钢、汽车大梁钢、家电用钢、一般结构用钢、双相钢等钢种全系列覆盖。

1600mm push-pull pickling line went into operation in September 2012, The designed capacity is 770,000 tons each year. The turbulent pickling process of shallow tank with five sections is adopted, and the side acid feeding design is used to enhance the turbulent effect. The bottom of pickling tank is equipped with a new acid supplement mouth. It can improve the buoyancy guide of the strip in the tank, so as to ensure the pickling uniformity of the upper and lower surfaces. Siemens control system can control the acid temperature, acid flow rate and turbulence effect by separate tank. The five section spray rinsing can make the strip clean and shorten the stay time in the rinsing section to avoid corrosion. The specification of production can cover the thickness from 1.5mm to 7.0mm, the width range from 700mm to 1600mm. The main products from line 1600 cover automobile structural steel, appliance steel, structural steel, double phase steel. The highest tensile strength of products is 800MPa.



2.2.4 1630 酸洗线 1630 Pickling Line

1630mm 热轧连续式酸洗线于 2018 年 10 月 15 日开工建设，2020 年 4 月 29 日成功下线第一卷钢，年设计产能 95 万吨，产品厚度覆盖 1.2-7mm，宽度 800-1600mm，产品最高强度达到 1200MPa。产线采用点菜式自主柔性集成，技术水平全国领先，操作方式智能化，生产工艺低碳化，产线具有全连续生产、产量高、表面质量好的优势，主要定位于高端汽车酸洗板，同时覆盖家电用钢、高强系列用钢、工具用钢等。

Continuous hot rolled pickling line 1630 started building in October 15, 2018 and went into operation in April 29, 2020. The designed capacity is 950 thousand tons each year. For line 1630, the thickness of the products covers from 1.2mm to 7mm, the width of the products covers from 800mm to 1900mm, the highest tensile strength of products is 1200MPa. The technology of the line is on the leading domestic level with adopting order flexible integration, intelligent operation mode, low carbonization production process. The line has advantages in continuous production and stable surface quality. The main products from line 1630 cover automobile structural steel, appliance steel, tool steel, etc.



2.3 冷轧公司 Cold-R Co. Manufacturing Base

主要生产高技术含量、高附加值汽车用钢、家电用钢、高等级建筑用钢和特殊用钢等 1000 多个冷轧、镀锌产品。产品规格覆盖宽度 800-1850mm，厚度 0.30-2.50mm。通过了德、美、韩、法、意及自主品牌的部分车企认证。

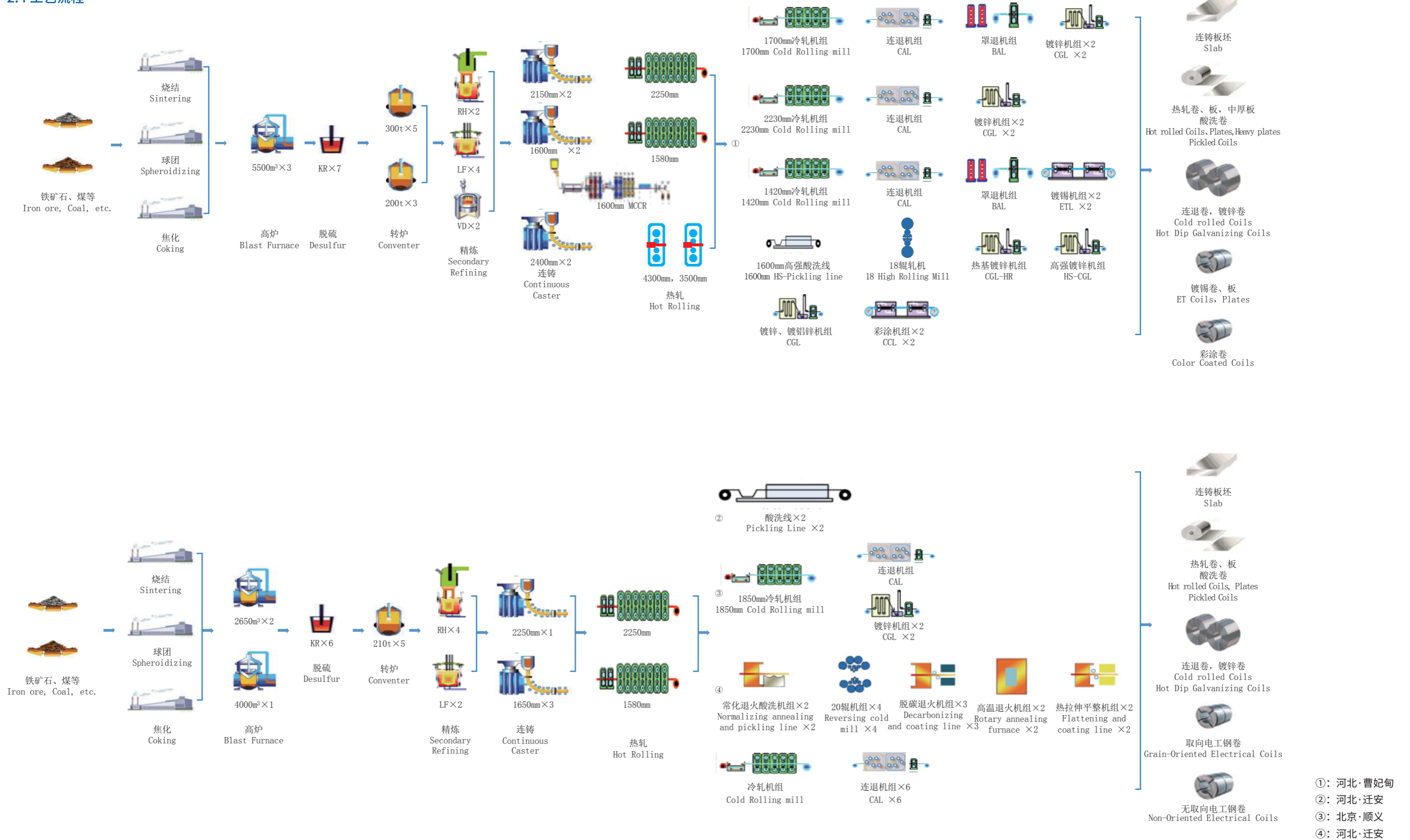
作为首钢高端产品代表，冷轧公司是 DH 钢亚太地区第一个通过戴姆勒认证的供应商，冷轧公司生产的 DH590+Z、DH780+Z 实现国内首发，对汽车质量提升、成本降低、节能环保提供了强有力的支持。免中涂产品已实现向大众、长城、吉利等中高端车企供货，为车企提高效率、降低成本。首钢免中涂产品的开发获得“冶金科技进步奖”一等奖，“首钢科技进步奖”一等奖。已完成高级汽车板“SmooSurf”商标注册，强化首钢汽车板品牌效应。

The company mainly produces more than 1000 cold-rolled and galvanized products with high technical content and high added value for automobile steel, steel for home appliances, high-grade construction steel and special steel. Product specifications cover width 800-1850mm, thickness 0.30-2.50mm. It has passed certifications of lots of auto enterprises from Germany, the United States, Korea, France, Italy and domestic.

As a representative of high-end products of Shougang, Cold Rolling Company is the first supplier of DH Steel in Asia Pacific region certified by Daimler. The DH590+Z and DH780+Z produced by Cold Rolling Company have been launched in China, providing strong support for automobile quality improvement, cost reduction, energy saving and environmental protection. Our products have been supplied to middle and high-end automobile enterprises such as Volkswagen, Great Wall, Geely, etc., to improve efficiency and reduce cost for automobile enterprises. Shougang won the first prize of metallurgical science and technology progress award and the first prize of metallurgical science and technology progress award for the development of free medium coating products. We have completed the registration of the trademark of "SMOOSURF" for advanced automobile steels, strengthening the brand effect of Shougang automobile steels.



2.4 工艺流程



Chapter 3 Marketing service system

第三章 营销体系

公司坚持“品种高端化、渠道终端化、合作战略化、服务标准化”营销战略目标，打造以用户为核心，以市场为导向的营销服务体系。

The company insists the marketing strategic goal of "Variety premiumisation, Channel terminal, Strategic cooperation and Service standardization" and builds user-centric and market-oriented marketing service system.

3.1 营销体系 Marketing system

为贴近市场服务用户，通过钢贸公司总部管控平台，建立了集中统一、快速响应、运行高效的营销管理网络。钢贸公司拥有上海、广州、山东、天津、武汉 5 家区域钢铁贸易公司，苏州、宁波、沈阳、佛山、哈尔滨、株洲等 11 个钢材加工配送中心，以及 1 家汽车板贸易公司和 1 条落料线。营销体系覆盖东北、华东、华南、华北、华中、西南等区域，为目标客户提供个性化钢材加工配送服务。

In order to provide better service to target customers, the centralized, unified, rapid-response and efficient marketing management network has been established through the management and control platform of the headquarters of Steel Trading. Steel Trading owns five regional steel trading companies in Shanghai, Guangzhou, Shandong, Tianjin and Wuhan, eleven steel processing and distribution centers in Suzhou, Ningbo, Shenyang, Foshan, Harbin, Zhuzhou etc. , two automobile-sheet trading companies and one blanking line. The marketing service system covers Northeast China, East China, South China, North China, Central China, Southwest China and other regions. Provide personalized steel machining and distribution services.



3.2 服务体系 Service system

公司持续完善客户服务体系建设，优化服务资源配置，不断提升营销服务能力。针对重点车企，成立多个汽车板大客户客户服务团队，充实和加强一线服务力量，稳步推进“首钢-客户”生态圈建设，实现智慧营销平台四大自助、客户诉求提报功能上线，提升首钢“制造+服务”综合竞争力。

The company continues to improve the construction of customer service system, optimize the allocation of service resources, and constantly improve the marketing service ability. In view of key automobile enterprises, a number of automobile-sheet customer service teams are established to enrich and strengthen the front-line service force, steadily promote the construction of "Shougang- customer" ecosystem, and realize the four major self-services and customer demand reporting functions of intelligent marketing platform, enhance Shougang "manufacturing+service" comprehensive competitiveness.



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