



宝钢文化 Corporate Culture

严格苛求的精神
Stringent and exigent spirit

学习创新的道路
Learning and innovation road

争创一流的目标
Striving for first-class objective





核 心 价 值 Core Value

诚 信 Good Faith

协 同 Synergy





特钢事业部 Special Steel Business Unit

宝钢股份特钢事业部位于中国上海市的东北部，前身为五钢公司（创建于1958年的上海第五钢铁厂及上海钢铁研究所）和上海第三钢铁厂的特殊钢及特殊合金研发生产之主业部分，是我国最早的特殊钢生产基地之一。1998年并入宝钢集团，2005年5月，五钢公司核心资产被宝钢股份收购，组建宝钢股份特殊钢分公司。2009年4月，宝钢组建特钢事业部，特殊钢分公司整体划归特钢事业部。

具有五十多年生产经验的特钢事业部已拥有特种冶金，不锈钢、结构钢、高合金钢长材，合金板带及钢管等多条现代化的生产线，产品涉及棒（线）、板、带、无缝管、锻件等品种，形成以特冶、不锈钢、结构钢三大系列为核心并聚焦于航空航天、能源、汽车（交通）三个关键行业以及模具钢、轴承钢、冷轧辊芯棒及不锈钢棒线等四大类产品体系。

宝钢特钢一直致力于向前沿技术市场、知名大公司、行业领导者、具有社会影响力的客户提供优质服务 and 开展广泛的合作。按照宝钢新一轮发展战略，秉承“精品、精益制造、精品文化”精神，特钢事业部将建成国际一流、国内领先的、具有强大综合竞争力的生态型特钢精品制造基地和特钢新材料、新工艺、新技术的研发基地。

Baoshan Iron & Steel Co. Ltd. Special Steel Business Unit is located at the northeastern part of Shanghai, China. It grew out Shanghai No.5 Steel Co.(It consists of Shanghai No.5 Steel Works set up in 1958 and Shanghai Iron & Steel Research Institute) and special steel section of Shanghai No.3 Steel Works. It is one of the earliest special steel production bases in China. In 1998, it merged into Baosteel Group. In May 2005, the core assets of Shanghai No.5 Steel Co. was purchased by listed Baosteel, and it became Special Steel Branch of Baosteel. In April 2009, Baosteel set up Special Steel Business Unit with Special Steel Branch wholly affiliated to this Business Unit.

With more than 50-year experience, Special Steel Business Unit possesses advanced production lines for special metallurgy, stainless steel, structural steel and high alloy long products, alloy plate & sheet and strip and seamless tube, etc. Forms of products cover bar, wire, plate & sheet, strip, seamless tube, forging, etc. The production system is formed with the dominant products as special metallurgy, stainless steel and structural steel. It focuses on applications in industries of aerospace & aviation, energy resources, automobile (transportation) and 4 key products i.e. tool & die steel, bearing steel, cold-roll & mandrel and stainless steel bar & wire.

Baosteel Special Steel Business Unit has been devoting its efforts to providing quality service to customers among notable companies, industry leaders, social influential entities and frontier technology market. According to the new development strategy of Baosteel, Special Steel Business Unit will be built into an ecologically-friendly global premium special steel manufacturing base taking the leading position domestically with its comprehensive competitiveness, as well as into a special steel R & D base for new materials, new processes and new technology.





产线简介

Production Lines

宝钢特钢供应能力与优势

Baosteel Special Steel's Capabilities and Advantages



现代化的装备能力

Modern Production Facilities

完善的质量控制体系

Comprehensive Quality Assurance System

市场驱动的材料设计理念

Market-driven Design Concepts for Materials

差异化的产品服务

Differentiated Products and Services



产线简介 Production Lines

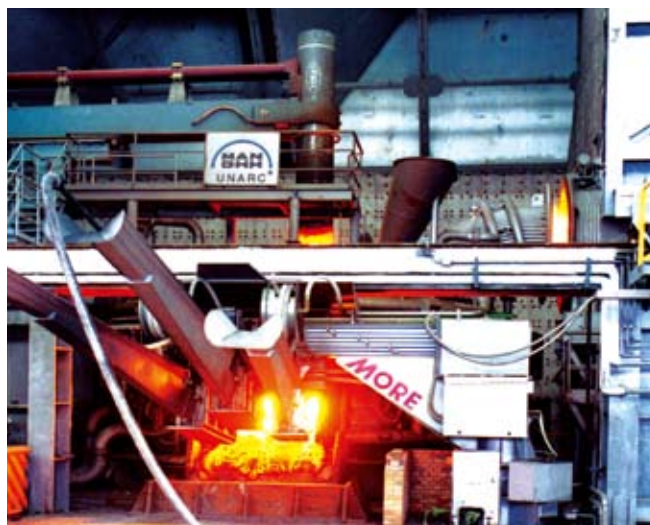
工模具钢是宝钢股份特钢事业部建设特钢精品基地的主要产品结构组成部分之一。工模具钢产线配备有电炉冶炼、电渣冶炼、真空精炼炉、模铸/连铸、初轧、热连轧、锻造、冷加工以及各种热处理、在线和离线无损检测、精整、酸洗等先进装备，并配备各类先进的检测仪器，能充分满足用户对中高端产品在质量、性能上的需求。

冶炼产线拥有40t/60t/100t 三种多台不同炉容量的电炉及相应配置的LF、VD 精炼炉，多条模铸作业线和三机三流160方/140 方连铸机组。冶炼及电渣产线配合各类锻材、模块、轧辊用材，模铸作业线浇铸锭型有二十余种，最大铸锭达35t，最大电渣锭重达20t。

轧钢产线拥有800 初轧机组、引进意大利达涅利二条全连轧和一条半连轧高合金轧制线。生产品种有线材、盘条、棒材等。轧制线后道配置离线带保护气氛连续式热处理炉、超声波探伤和涡流探伤的组合专业精整线，以充分满足工模具钢产品的质量、性能要求。

锻造产线拥有引进13MN 径锻机、25MN、40MN 快锻机各一台。产品品种有大规格棒材、大型模块、冷轧辊坯、限动芯棒锻材及饼环类锻件等。锻造产线后道配置热处理炉、超声波探伤、表面修磨等精整作业线，可充分满足生产各类大型锻材、锻件的需求。最大锻件单重25t 以上，圆棒、轴类锻件最大规格1200mm，饼环件最大直径2000mm。

银亮产线拥有银剥、连拉连拔、拉丝等三条专业生产产线，配备各类先进机组多达数十台，年产银亮材5万余吨。其冷加工产线可通过不同工艺组合生产剥皮、碾光、磨光等多种交货状态的棒材，尺寸公差可达到h9—h12级，同时可生产规格0.1—13mm 盘圆、直条和银亮钢丝。



Tool and die steel product is one of the main products of Special Steel Business Unit. The tool & die steel production line consists of electric arc furnaces, electroslag remelting furnaces, vacuum refining furnaces, ingot casting/continuous casting, blooming, hot continuous rolling, forging, cold working, heat treatment, on-line and off-line nondestructive testing, finishing, pickling facilities and various advanced testing equipment in laboratory, which can fully satisfy customers' demands and requirements of quality and performance of high-end products.

There are four 40-ton electric arc furnaces, one 60-ton electric arc furnace, one 100-ton electric arc furnace, followed with ladle refining furnaces and vacuum degassing furnaces, several ingot casting lines turning out more than twenty kinds ingots with the maximum weight of 35 tons and a three-strand continuous caster producing 160-mm and 140-mm square billets. The maximum weight of ingot for electroslag remelting is 20 tons.

There is an 800-mm blooming mill, two 100% continuous rolling mills imported from Danieli, Italy and a semi-continuous rolling mill for high alloy products. Products include wire rod, coil, bar, etc. In the downstream of the rolling lines there is an off-line continuous heat treatment furnace with protective atmosphere, a finishing line equipped with ultrasonic testing and eddy current testing facilities to assure the quality and performance of tool & die steel products.

In the forging shop there is one 13 MN radial forging press, one 25 MN forging press and one 40 MN forging press. Products include large-sized bars, large die block, cold-roll blank, forgings for retained mandrel and disk & rings, etc. Heat treatment furnaces, ultrasonic testing, surface grinding and other finishing facilities are equipped in the downstream of the forging line to meet requirements of production of various kinds of large forgings.

Bright steel production line consists of a peeling line, a continuous drawing line and a wire-drawing line. There equipped with dozens of advanced equipment with annual capacity of more than 50 thousand tons. With the combination of different cold working processes, bars can be delivered in peeled, calendered and polished state. The dimensional tolerance can be h9 - h12. Coiled rod, straight rod and bright wire with diameters ranging from 0.1 - 13 mm can be produced.





采用真空精炼+电渣重熔+快锻制成材+超细化热处理工艺生产出的大型锻造模具钢模块，纯净度高、碳化物均匀、显微组织细小，其模块质量水平达到北美压铸协会NADAC207 #规范。采用35吨大型钢锭锻造出的单重24吨预硬化注塑模具模块和凹型模块，材质致密、抛光性能佳、硬度均匀，填补了国内大型汽车保险杠注塑模具材料的空白。采用20吨电渣锭+4000吨锻机生产出的冷轧辊坯直径可达MAX680mm，单件净重MAX8.3t的高抗辊印性能可与进口同类产品媲美。

采用POMINI技术的高合金专业生产线制造的高合金模具钢轧制棒材，产品形状多样，精度高，冷作模具钢轧制棒材的碳化物均匀性评级优于国标规定级别，使用寿命长。含钴高速钢轧制棒材产品，红硬性高、适合恶劣服役环境，其产品质量达到国外同类产品实物质量水平。

The large forged die steel block manufactured via the processes of vacuum refining, electroslag refining, forging and ultra-finishing heat treatment is characterized by high cleanliness, evenly distributed carbide and fine microstructure. The quality level of the die block meet NADAC #207 specification. A 24-ton single piece weight of pre-hardened injection mold die block and concave die block with good soundness, good polishing performance and evenly distributed hardness was forged with a 35-ton ingot, which was the first time to supply die block for injection die arrangement of bumper bars of large vehicles domestically. A 20-ton electroslag remelted ingot can be forged with a 40 MN forging press into a cold-roll blank with the diameter up to 680 mm and the maximum weight of 8.3 tons. It's high anti-roll-mark performance is similar to that of imported ones.

High alloy bar production line, which adopts Pomini technology, produces rolled high alloy die steel bars with high precision and various shapes of finish products. The rating of homogeneity of carbide of rolled cold working die steel bar is better than the rating stipulated in the National Standard leading to longer service life. Rolled cobalt containing high speed steel bar product has high red hardness and is suitable for working in harsh service environment, its quality reached the same quality level of similar foreign products in kind.



目录 Contents

工艺流程
Process Flow 07

生产装备
Production Facilities 10

产品大纲
Product Mix 18



07



24

牌号对照
Contrast of Grades 24

交货状态
Delivery State 27

质量保证
Quality Assurance 30

质量检测
Quality Inspection 35

客户服务
Customer Service 40



35



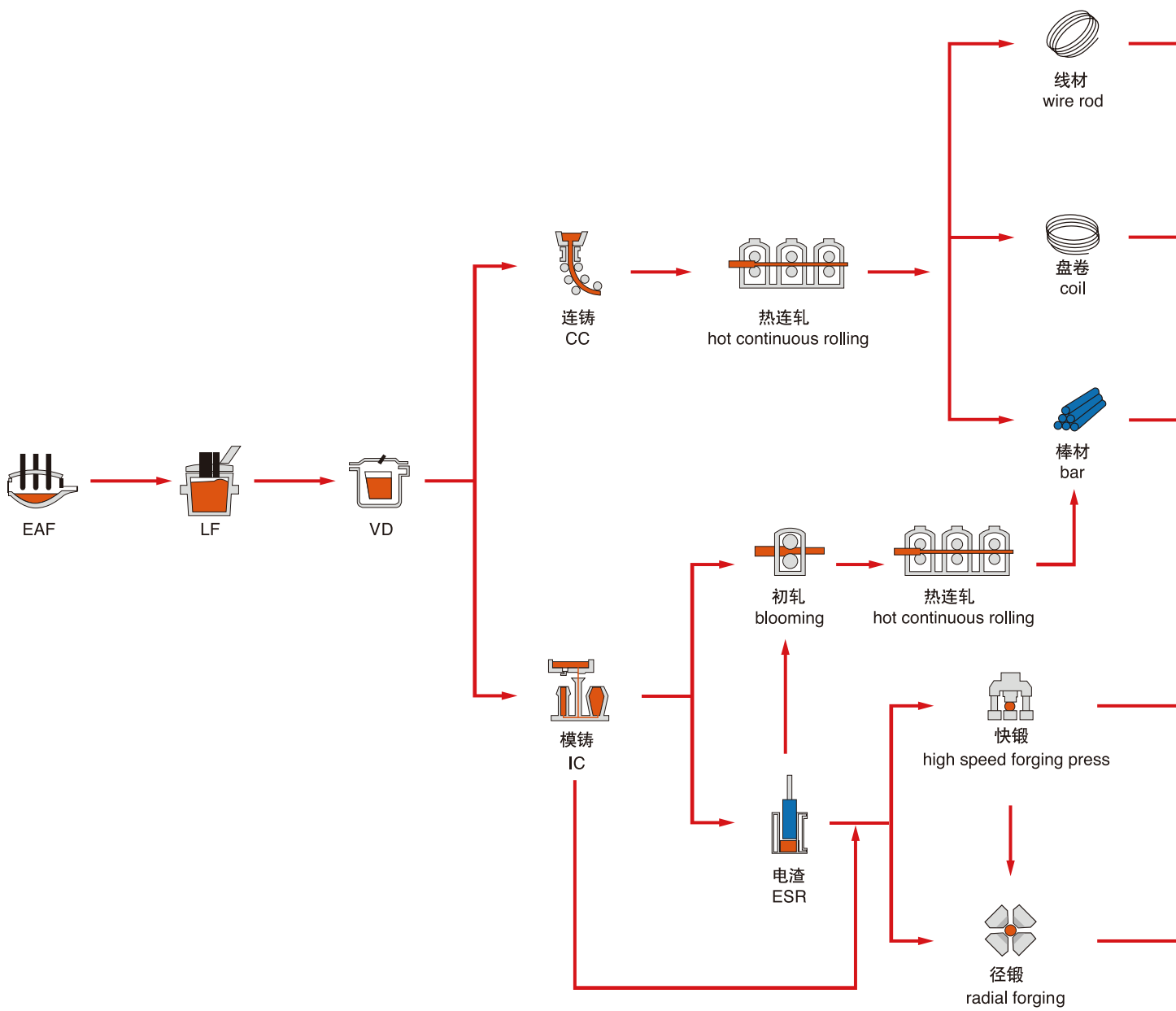
工艺流程

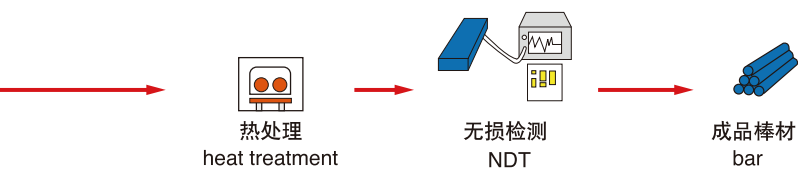
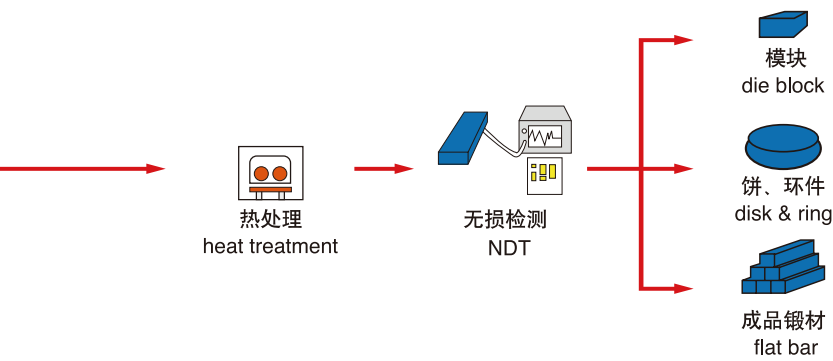
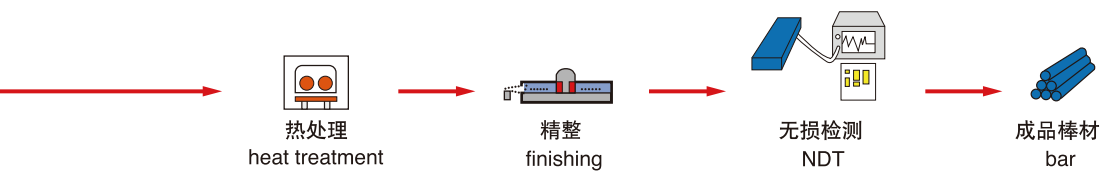
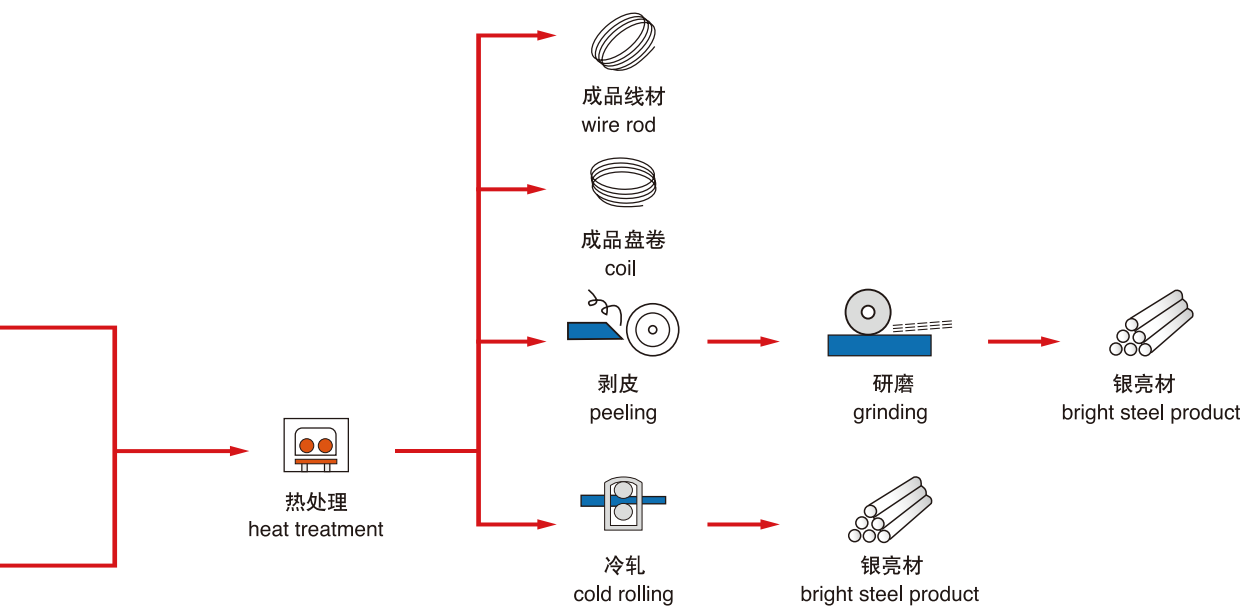
Process Flow





工艺流程 Process Flow







生产装备

Production Facilities





冶炼设备及特点 Melting Equipment & Features

电炉有40t、60t、100t三种容量等级共六座，能适应不同批量供货要求。其中60t为引进超高功率交流电弧炉，100t为引进超高功率直流电弧炉，电炉出钢形式有偏心底出钢和槽式出钢两种方式，以适应不同钢种的冶炼工艺特点需求。每台电炉配置容量等级相同LF、VD炉外精炼装置，确保钢液的纯净度。

There are six electric arc furnaces, i.e. one imported 100-ton ultra-high power DC electric arc furnace, one imported 60-ton ultra-high power AC electric arc furnace, four 40-ton AC electric arc furnaces, which allows more flexibility in responding customers' demands in tonnage and batches. To meet various melting process requirements of different grades tapping is made via an eccentric bottom tapping hole or via a tapping spout. In the downstream of each electric arc furnace, LF, VD refining devices with the same tonnage capacity are installed to assure the cleanliness of liquid steel.



对高纯净度及有特殊要求的产品采用电渣重熔工艺。电渣炉容量从0.5t到20t，总台数达20余台，其中有引进保护气氛电渣炉2台，以适应高端产品重熔精炼。

Electroslag remelting process is adopted to produce high cleanliness steel and steel with special requirements. There are more than 20 electroslag remelting furnaces with capacity ranging from 0.5 tons to 20 tons. Two of them are imported ones with protective atmosphere for remelting high-end products.





浇铸设备及特点 Casting Equipment & Features



浇铸系统有引进的三机三流和五机五流连铸机各一台，铸坯尺寸分别有140方/160方/220方/182圆，并配有连铸坯缓冷设施。模铸有多条作业线，锭型从720kg至35t共二十余种。钢锭浇铸采用氩气保护浇铸技术，钢锭冷却有热送、缓冷、退火、模冷等多种方式以适应各类合金钢、高合金钢的生产工艺要求。

Casting system consists of an imported three-strand continuous casting machine and an imported five-strand continuous casting machine followed with billet slow cooling facilities. Billet sizes are 140 mm in square, 160 mm in square, 220 mm in square and 182 mm round billet. There are several ingot casting operation lines. More than twenty kinds of ingots can be produced with the weight ranging from 720 kilograms to 35 tons. Argon shielding is adopted in ingot casting. Ingot may be hot charged, slow cooled, annealed or cooled in mold after casting to meet process requirements of production of various kinds of alloy steel and high alloy steel.





锻造设备及特点 Forging Equipment & Features

锻造产线由13MN 径锻、25MN 快锻和40MN 快锻三套锻造主机组成以及相配套的热工炉和后步热处理、精整、机加工设备等组成。13MN 径锻机组由SMS—Meer 公司制造，25MN 快锻机组由DEMARC 公司制造，40MN 快锻机组由SPS 公司制造。锻造产线主要承担中高合金钢的中大型棒材、方扁钢、模块、轧辊辊坯以及轴类锻件、饼环件各类异形自由锻锻件等产品的锻制，以及锻造部分高合金难变形材料，为下工序供坯。

精整线有抛丸、砂轮剥皮/切割等处理手段。还配备有棒材超声波探伤、高精度C扫描等先进无损检测装备。

锻造产品圆棒最大规格 $\phi 1200\text{mm}$ ，饼环件最大直径 $\phi 2000\text{mm}$ ，最大锻件单重25t。

Forging production line consists of one 13 MN radial forging press manufactured by SMS-Meer, one 25 MN forging press manufactured by Demarc, one 40 MN forging press manufactured by SPS, related heating furnaces, and downstream heat treatment furnaces, finishing facilities, machining facilities, etc. The forging production line is mainly to produce forged intermediate- and large-size high alloy bars, square steel, flat steel, die block, roll blank, shafting, disk and shaped forgings. It also forges some less-deformable high alloy materials to feed the downstream processes.

Finishing line consists of shot blasting, abrasive wheel grinding and cutting facilities. In the downstream, there equipped with advanced nondestructive facilities including an ultrasonic tester, high precision C-scan equipment, etc.

The maximum diameter of the forged bar is 1200 mm. The maximum diameter of forged disk is 2000 mm. The maximum weight of single piece of forging is 25 tons.





锻造设备及特点 Forging Equipment & Features

为满足模块、大型锻件产品性能的特殊要求，在后道热处理工序配置14座退火/正火炉，6座淬/回火（固溶）炉，4座淬火介质槽，可处理最大工件为20-30t。锻造后步机加工工序有锯床、立式带锯、龙门铣床、刨床、无芯剥皮机床及各类车床总数达50余台，组成完备的模块加工中心。

In order to meet special requirements of performance of die block and large forged products, fourteen annealing/normalizing furnaces, six quenching/tempering(solution) furnaces and four quenching tanks with different quenching media are installed in the downstream of the line. The maximum weight of heat treated forging is 20-30 tons. In the downstream of the forging line there is a die block processing center equipped with more than fifty machines including saw machines, vertical belt saws, gantry milling machines, planers, centerless peeling machines, various lathe machines, etc.





轧制设备及特点 Rolling Equipment & Features

800初轧产线

800 初轧产线采用.800 二辊可逆式轧机。主要生产方坯、扁和圆棒，后道设有退火炉、缓冷坑及表面修磨精整探伤线。轧制规格有：100~220mm 方坯、80~130×180~440mm 扁钢、 ϕ 140~230mm 圆棒。

Blooming Production Line

There is an 800-mm two-high reversing blooming mill followed with annealing furnaces, slow cooling pits, surface finishing facilities and flaw detection facilities. The main products are 100 - 220 mm square billets, 80 - 130 x 180 - 440 mm flat steel and ϕ 140 - 230 mm round bars.

棒材连轧生产线

棒材连轧生产线引进DANIELI 全连轧技术，生产规格范围： ϕ 20~90mm 棒材。为满足特钢棒材产品不同的性能要求，后道配置六台连续式热处理炉，能对棒材进行球化退火、软化退火及正火处理，另外配有4条完善的精整探伤线，保证产品表面与内在质量。

Continuous Rolling Line for Bars

Danieli's 100% continuous rolling technology is adopted to produce ϕ 20 - 90 mm bars. Six continuous heat treatment furnaces are installed in the downstream for spheroidal annealing, softening annealing and normalizing to meet various performance requirements of special steel bar products. There are four comprehensive finishing and flaw detection lines to assure the surface and inner quality of products.



线材生产线

线材生产线引进DANIELI 初轧机及MORGEN 高线轧制技术，可生产棒材、线材和盘条，生产规格范围有： ϕ 14~50mm 棒材、 ϕ 16~40mm 盘圆、5~20mm 线材。后道有在线环形热处理炉、保护气氛连续退火炉、酸洗生产线等。

Wire Rod Production Line

Danieli roughing mill and Morgen high speed wire rod rolling technology are adopted in this line to produce ϕ 14 - 50 mm bar, ϕ 16 - 40 mm coiled bar and 5 - 20 mm wire rod. In the downstream there is an on-line annular heat treatment furnace, continuous annealing furnaces with protective atmosphere and pickling lines.



轧制设备及特点 Rolling Equipment & Features

高合金棒材生产线

高合金棒材生产线是引进POMINI 技术的半连轧高合金生产线。该产线适用于生产高合金棒材，包括：镍基高温合金、钛合金、高合金工模具钢、阀门钢、特种不锈钢等高附加值产品。其生产规格有： $\phi 14\sim 85\text{mm}$ 棒材、 $20\sim 50\text{mm}$ 方钢、 $8\sim 20\times 28\sim 75\text{mm}$ 扁钢。为了适应高合金品种的生产，产线配置中间加热，轧线配置二辊可逆式粗轧机组，16架 45° 布置CCR 连轧机组，规格组距范围大，产品尺寸精度高。产线后道配置多台移罩式预退火炉，满足相对批量较小的高合金工模具钢等轧后需要缓冷品种的生产。精整产线配套有多台连续式退火炉，车底式退火炉、固溶炉、电加热时效炉，满足各类高合金产品热处理。另外还配置多台抛丸机、矫直机、剥皮机、抛光机及超声波探伤线等，能够满足高质量要求的品种生产。

High Alloy Bar Production Line

Imported Pomini technology is applied in semi-continuous high alloy bar production line to produce high value-added nickel base superalloy, titanium alloy, high alloy tool & die steel, valve steel, special stainless steel with the size of $\phi 14 - 85 \text{ mm}$ bars, $20 - 50 \text{ mm}$ square steel and $8 - 20 \times 28 - 75 \text{ mm}$ flat steel. To meet deformation characteristics of high alloy steel during hot working, intermediate heating can be applied. The line consists of a two-high reversing roughing mill train and 16 mill stands with continuous 45° skew rolling mill. Wide range of class interval of products and high dimensional accuracy feature the line. In the downstream of the line several batch type pre-annealing furnaces are installed for the slow cooling of rolled high alloy tool & die steel. There equipped with continuous annealing furnaces, car-bottom annealing furnaces, solution furnaces, electrical heating aging furnaces for heat treatment of high alloy products. Besides, there are several shot blasting machines, straightening machines, peeling machines, polishing machines and ultrasonic detecting lines to meet the high quality requirements of some products.





银亮设备及特点 Bright Steel Equipment & Features

连拉/连拔专业线由多台冷拉机和引进连拔机组成。连拔机组具有在线探伤、在线平头、倒角功能。最大连拔机组拉拔力达8吨，最大成品规格： $\phi 22\text{mm}$ ，公差精度h8~h9。产品外形有圆、方、六角等。

银剥专业线由三台剥皮机、三台矫直碾光机、十九台无芯外圆磨床和一台超声波探伤机组成。产线可通过不同工艺组合生产剥皮、剥皮碾光、剥皮磨光等多种交货状态材料。

拉丝专业线由单、双头盘圆拉丝机、矫直机、强对流退火炉、光亮连续退火炉、盘圆打包机等组成。产品规格0.1~13mm。产品外形有盘圆、直条、银亮钢丝等。

Bright steel production line consists of four specialized sub-lines, i.e. bright peeling, continuous drawing, wire-drawing and cold working lines for valve steel.

Bright peeling line consists of three peeling machines, three straightening calenders, nineteen centerless cylindrical grinders and one ultrasonic flaw detector. Products can be turned out in different delivery state, peeled, peeled and calendered, peeled and ground, via combination of different processes.

Wire-drawing line consists of single/double-coil drawing machines, straightening machines, a forced convection annealing furnace, continuous bright annealing furnaces, coil rod packing press, etc. Coil rod, straight rod and bright wire can be produced with the diameters ranging from 0.1 - 13 mm.





产品大纲

Product Mix





产品大纲 Product Mix

工具钢产品 Tool Steel Products

序号 No.	产品大类 Product Categories	执行标准 Standards	代表牌号 Typical Grades	加工方式 Downstream Processing	产品规格 Specifications mm	应用领域 Applications
1	碳素工具钢轧材 rolled carbon tool steel	GB/T 1298	T8A T8	切削加工、冷压力加工、 热压力加工 machining or cold working or hot working	棒材：圆14 - 130 round bar	制造切削刃口在工作时不变热的工具，或能承受振动和需要足够韧度且有较高硬度的工具 to make the cutting tool without cutting edge heated during working, or to make vibration-resistant tools with sufficient toughness and high hardness
			T10A T10			用于承受冲击载荷而且具有锋利刃口与少许韧度的工具，或切削刃口在工作时不变热的工具 to make the impact-load-resistant cutting tool with sharp cutting edge and some toughness, or to make the cutting tool without cutting edge heated during working
2	碳素工具钢锻材 forged carbon tool steel	GB/T 1298	T10A	热压力加工 hot working	棒材：圆90 - 235 round bar	用于制造切削刃口在工作时不变热的工具，不承受冲击负荷而具有锋利刃口和少许韧性的工具 to make the cutting tool without cutting edge heated during working and the cutting tool with sharp cutting edge and some toughness without impact load during working
3	合金工具钢轧材 rolled alloy tool steel	GB/T 1299	6CrW2Si	切削加工、冷压力加工、 热压力加工 machining or cold working or hot working	棒材：圆14 - 130 round bar	耐冲击工具用，用于制造空气锤工具、顶头模、切割器、剪刀、凿子、冲头等 for shock-resistant tools, to make air hammer, top mold half, cutter, scissors, chisels, punching pin, etc.
		GB/T 1299	9Mn2V	切削加工、冷压力加工、 热压力加工 machining or cold working or hot working	棒材：圆14 - 130 round bar	适于制造各种精密量具、样板 suitable to make various precision measuring tools, templates
		GB/T 1299 YB/T 095	9SiCr	切削加工、冷压力加工 machining or cold working	棒材：圆14 - 85 round bar 线材：圆5.5 - 40 round wire rod 冷拉棒：圆4 - 45 cold-drawn round bar 六角：9 - 40 hexagonal bar 冷拉钢丝：圆1.6 - 12 cold-drawn round wire	用于制造钻头、铰刀、齿轮铣刀、板牙、丝锥、块规、量规等 to make drills, reamers, milling cutters for gears, screw die, screw tap, block gauge, gauge, etc.
		协议 agreement	45CrNiMoVA 18CrNi3MoA 22SiMnNi2CrMoA	切削加工、冷压力加工 machining or cold working	棒材：圆20 - 130 round bar	用于制造钎具、钎杆等 to make drill tools, drill rod, etc.
		协议 agreement	S2	冷压力加工 cold working	线材：圆5.5 - 40 round wire rod	
		协议 agreement			冷拉棒：圆4 - 45 cold-drawn round bar 六角：9 - 40 hexagonal bar 冷拉钢丝：圆1.6 - 12 cold-drawn round wire	用于生产电批头、风批头、螺丝批头、起子头等 to make the tip of electric driver, the tip of pneumatic driver, the tip of screwdriver, etc.



产品大纲 Product Mix

工具钢产品 Tool Steel Products

序号 No.	产品大类 Product Categories	执行标准 Standards	代表牌号 Typical Grades	加工方式 Downstream Processing	产品规格 Specifications mm	应用领域 Applications
4	合金工具钢锻材 forged alloy tool steel	GB/T 1299	9SiCr	热压力加工 hot working	圆90 - 325 round bar	用于制造形状复杂、变形小、耐磨性高、低速切削的工具 to make complicated shape low-speed cutting tools with less deformation and high wear resistance
		GB/T 1299	CrWMn	热压力加工 hot working	圆90 - 400 round bar	用于制造在工作时切削刃口不剧烈变热的工具和淬火时要求不变形的量具和刀具 to make cutting tools without severe heating of the cutting edge during working and measuring tools and cutting tools without deformation during quenching
		GB/T 1299	9Mn2V	热压力加工 hot working	圆90 - 400 round bar	适于制造各种精密量具、样板，也用于一般要求的尺寸比较小的冲模及冷压模、雕刻模、落料模等 suitable to make various precision measuring tools and templates, and to make normal small punching die, cold die, engraving die and blanking die, etc.
5	高速工具钢轧材 rolled high speed tool steel	GB/T 9943	W9Mo3Cr4V W2Mo9Cr4VCo8 W18Cr4V	冷压力加工、热压力加工 cold working or hot working	棒材：圆14 - 85 round bar	用于各种机床的切削工具，如车刀、钻头、铣刀、钻头绞刀、丝锥、锯片、冲头等，也用于高载荷模具及特殊耐热耐磨零件 to make cutting tools for various machine tools, such as lathe tool, drill, milling cutter, drill reamer, screw tap, saw web, punching pin, etc. and to make high load die arrangement and special heat-resistant wear-resistant parts
			W6Mo5Cr4V2		棒材：圆14 - 85 round bar 线材：圆5.5 - 20 round wire rod 冷拉棒：圆4 - 45 cold-drawn round bar 六角：9 - 40 hexagonal 冷拉钢丝：圆1.6 - 12 cold-drawn round wire	
6	高速工具钢锻材 forged high speed tool steel	GB/T 9943	W6Mo5Cr4V2	热压力加工 hot working	圆90 - 180 round bar	用于制造切削速度高、负荷重、工作温度高的各种切削刀具，也可用于制造要求耐磨性高的冷热处理模具、高温弹簧、高温轴承等 to make various cutting tools working with high cutting speed, heavy load and high working temperature, and to make cold/hot deformation die arrangements with high wear resistance, high temperature spring and high temperature bearing, etc.
		GB/T 9943	W18Cr4V	热压力加工 hot working	圆90 - 180 round bar	用于制造形状复杂的小型刀具 to make small cutting tools with complicated shapes
		GB/T 9943	W2Mo9Cr4VCo8	热压力加工 hot working	圆90 - 130 round bar	具有高的常温硬度(可达70HRC)和高温硬度、高红硬性、易磨削、锋利等优点，适用制作各种高精度复杂刀具 suitable to make various high precision and complicated cutting tools due to its advantages of high hardness at room temperature (up to 70 HRC), high hardness at elevated temperature, high red hardness, easy to grind, sharpness, etc.

模具钢产品 Die Steel Products

序号 No.	产品大类 Product Categories	执行标准 Standards	代表牌号 Typical Grades	加工方式 Downstream Processing	产品规格 Specifications mm	应用领域 Applications
1	塑料模具钢 (合金) die steel for plastics (alloy)	协议 agreement	SWP20	切削加工 machining	厚度: 100 - 400 thickness 宽度: 460 - 1570 width	预硬注塑模, 可一般抛光 pre-hardened injection mold, can be polished normally
			SW718H	切削加工 machining	厚度: 100 - 1020 thickness 宽度: 460 - 1650 width	预硬大尺寸注塑模, 可一般抛光 pre-hardened large-size injection mold, can be polished normally
2	塑料模具钢 (碳素) die steel for plastics(carbon)	协议 agreement	S55C	切削加工 machining	厚度: 140 - 1100 thickness 宽度: 360 - 1700 width	塑料模具钢 die steel for plastics
3	热作模具钢轧材 rolled hot working die steel	Q/BQB 2741 Q/BQB 2742	H13	热压力加工、切削加工 hot working or machining	棒材: 圆14 - 130 round bar	用于制造铝合金挤压模, 铝镁锌等金属长寿命压铸模具 to make extrusion die for aluminum alloy, and long service life die-casting die for aluminum, magnesium, zinc, etc.
		GB/T 1299	3Cr2W8V			用于制造工作温度 $\geq 550^{\circ}\text{C}$, 并承担较高的静载荷, 而冲击载荷较低的热挤压模具 to make hot extrusion die working under high dead load and low impact load with working temperature $\geq 550^{\circ}\text{C}$
		协议 agreement	X40CrMoV5-1	冷压力加工 cold working	棒材: 圆20 - 130 round bar 线材: 圆5.5 - 20 round wire rod	用于制造生产热作模顶针/顶杆 to make knockout pin/mandrel of hot die
4	热作模具钢锻材 forged hot working die steel	Q/BQB 2741	H13	热压力加工、切削加工 hot working or machining	锻棒: 圆90 - 300 forged round bar 厚度: 100 - 250 thickness 宽度: 100 - 500 width	铝压铸、挤压模、薄壁塑胶模 die-casting die for aluminum, extrusion die, mold for thin-walled plastics
		Q/BQB 2742	H13	热压力加工、切削加工 hot working or machining	锻棒: 圆90 - 500 forged round bar 厚度: 100 - 440 thickness 宽度: 100 - 800 width	铝压铸、挤压模、热锻模、薄壁塑胶模 die-casting die for aluminum, extrusion die, hot forging die, mold for thin-walled plastics
		Q/BQB 2743	SWPH13	热压力加工、切削加工 hot working or machining	锻棒: 圆90 - 500 forged round bar 厚度: 100 - 440 thickness 宽度: 100 - 800 width	铝、镁、钛压铸、挤压模, 性能明显优于H13 die-casting die for aluminum, magnesium and titanium, extrusion die, Performance is obviously better than that of H13.
		GB/T11880	5CrNiMo	热压力加工、切削加工 hot working or machining	锻棒: 圆90 - 500 forged round bar 厚度: 110 - 500 thickness 宽度: 130 - 1000 width	大中型锤锻模 large- and medium-sized hammers forging dies
		GB/T 1299	3Cr2W8V	热压力加工 hot working	锻棒: 圆90 - 260 forged round bar	冷热交变较缓的热作工具及锻模 hot working tools and forging dies working with moderate alternation of hot and cold



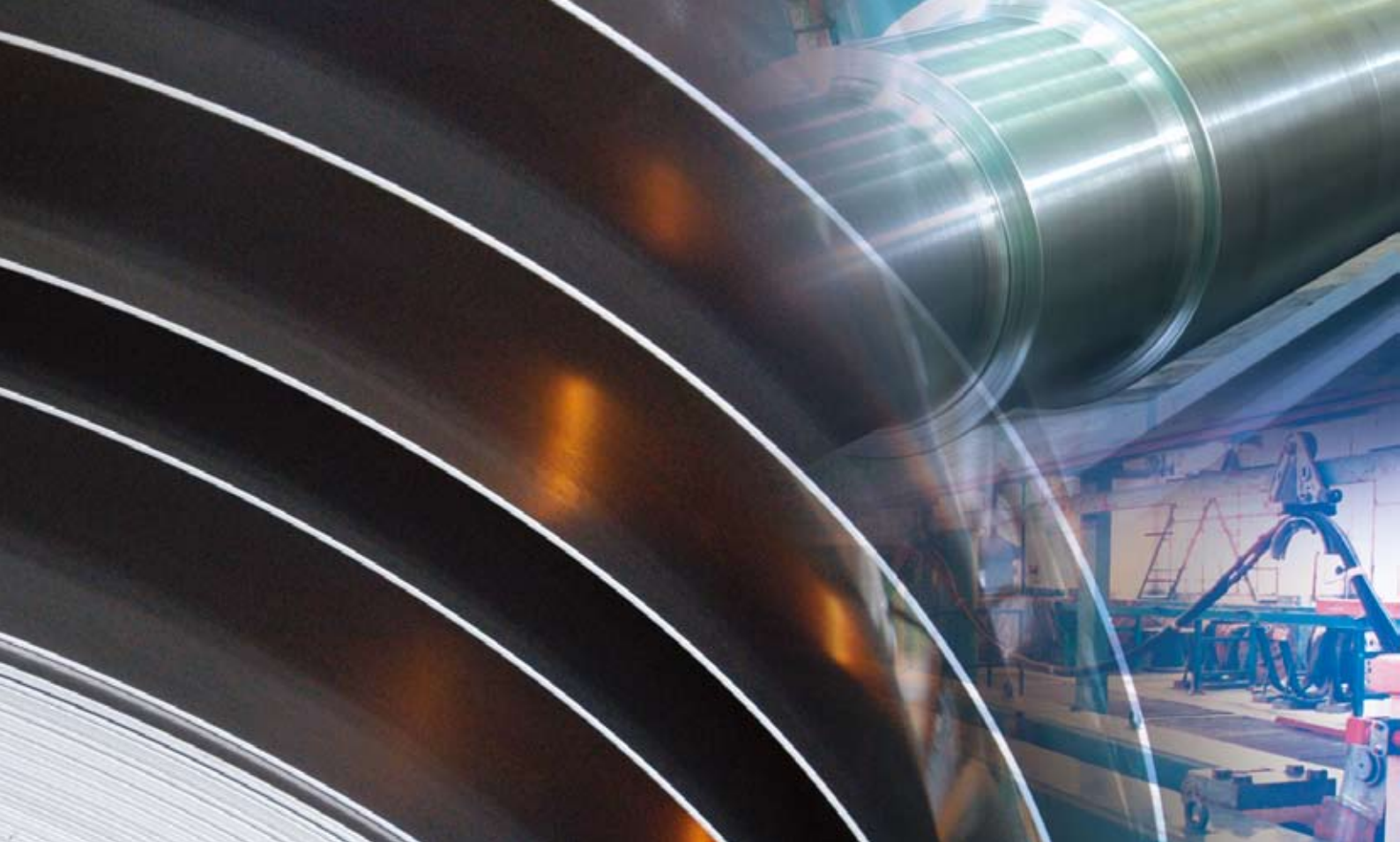
产品大纲 Product Mix

模具钢产品 Die Steel Products

序号 No.	产品大类 Product Categories	执行标准 Standards	代表牌号 Typical Grades	加工方式 Downstream Processing	产品规格 Specifications mm	应用领域 Applications
5	冷作模具钢轧材 rolled cold working die steel	GB/T 1299	Cr12	热压力加工 hot working	棒材: 圆14 - 85 round bar	应用于小动载条件下高耐磨、形状简单的拉伸和冲压模 used for simple-shaped stretching die and stamping die having high wear resistance under low dynamic load condition
			Cr12MoV			下料模、冲头、滚丝轮、剪刀片、冷镦模、陶土模及热固塑料成形模等 blanking die, punching pin, thread rolling die, shear blade, cold heading die, pot clay die and forming die for thermosetting plastics
Cr12Mo1V1	重型落料模、冷挤压模、深拉深模、滚丝模、剪刀片、冷镦模、陶土模等 heavy blanking die, cold extrusion die, deep drawing die, thread rolling die, shear blade, cold heading die, pot clay die, etc.					
CrWMn	形状复杂高精度的下料模、冲头、成形模、搓丝板顶出杆及小型塑料压模 high precision and shape-complicated blanking die, punching pin, forming die, ejector rod of screw plate and small die for plastics					
		Q/BQB 2744	7Cr7Mo2V2Si	热压力加工 hot working	棒材: 圆14 - 85 round bar	适用于要求强韧性及高冲击载荷下工作的冷镦冷冲等作业模具、标准件和钢球的冷镦模具及汽车弹簧钢板的冲孔冲头 suitable for applications that require high strength and toughness and working under high impact load, such as die arrangement of cold heading and cold punching, cold heading die arrangement for standard parts and steel balls and punching pin for automotive spring steel plate
6	冷作模具钢锻材 forged cold working die steel	GB/T 1299	Cr12MoV	热压力加工 hot working	圆90 - 260 round bar	用于制造各种高精度、长寿命的冷作模具、刃具和量具 to make various high precision, long service life cold-working dies, cutting tools and measuring tools
		GB/T 1299	Cr12	热压力加工 hot working	圆90 - 230 round bar	用于制造承受冲击载荷小和耐磨性高的冷作模具 to make high wear resistance cold working die arrangement working under low impact load
		GB/T 1299	Cr12Mo1V1	热压力加工 hot working	圆90 - 260 round bar	用于制造各种高精度、长寿命的冷作模具、刃具和量具 to make various high precision, long service life cold-working dies, cutting tools and measuring tools
		协议 agreement	7Cr7Mo2V2Si	热压力加工 hot working	圆90 - 260 round bar	适用于要求强韧性及高冲击载荷下工作的冷镦冷冲等作业模具、标准件和钢球的冷镦模具及汽车弹簧钢板的冲孔冲头 suitable for applications that require high strength and toughness and working under high impact load, such as die arrangement of cold heading and cold punching, cold heading die arrangement for standard parts and steel balls and punching pin for automotive spring steel plate
7	不锈钢模具钢 stainless die steel	协议 agreement	4Cr16Mo SW4Cr13	切削加工 machining	厚度: 100 - 250 thickness 宽度: 500 - 800 width	抗腐蚀塑料模具 corrosion-resistant die arrangement for plastics

专业用钢产品 Steel for Specific Applications

序号 No.	产品大类 Product Categories	执行标准 Standards	代表牌号 Typical Grades	加工方式 Downstream Processing	产品规格 Specifications mm	应用领域 Applications
1	轧辊辊坯 roll blank	协议 agreement	MC5 MC3A 9Cr2Mo 9Cr3Mo	切削加工 machining	电渣钢辊身直径: 100 - 680 diameter of electroslag refined roll 净重 net weight $\leq 8.3t$ / 件 piece,	冷轧薄钢板冷轧机组用冷轧工作辊 cold working roll for cold sheet rolling
2	限位芯棒 retained mandrel	协议 agreement	BTXB-1 H13X1 H13X2	热压力加工、 切削加工 hot working or machining	车光材: 圆100 - 300 \times (≤ 12 m) turned round bar 黑皮材: 圆300 - 390 (≤ 14 m) black round bar	限位芯棒连轧管机穿管芯棒坯 blank of retained mandrel for continuous tube- rolling mill
3	汽车保险杠用凹型模块 concave die block for bumper	协议 agreement	SW718H	切削加工 machining	厚度: 900 - 1020 thickness 宽度: 900 - 1200 width	预硬大尺寸注塑模, 可一般抛光 pre-hardened injection mold, can be polished normally
4	风力发电主轴 main shaft of windmill generator	协议 agreement	42CrMo	切削加工 machining	最大断面处直径 diameter at the maximum cross-section 圆1400 - 1680 diameter	风力发电主轴 main shaft of windmill generator
5	饼环件 ring & disk	协议 agreement	18CrNiMo7-6	切削加工 machining	外径: 圆582 - 1135 outer diameter 内径: 圆200 - 390 inner diameter 长度: 170 - 310 length	风力发电增速器、工业减速器 speed increaser of windmill generator, industrial reducer
6	饼状模块 disk die block	协议 agreement	H13	切削加工 machining	外径: 圆400 - 950 diameter 厚度: 95 - 450 thickness	铝压铸、挤压模、薄壁塑胶模 die-casting die for aluminum, extrusion die, mold for thin-walled plastics



牌号对照

Contrast of Grades

已有四十余年工模具钢生产历史的特钢精品基地---宝钢股份特钢事业部，拥有具有国际先进水平的装备、工艺技术和检测能力，具有雄厚的技术力量和丰富的工模具钢研究、开发和生产经验，按照GB、ASTM、DIN、JIS等标准及本公司参照国际先进标准制订的高要求企业标准生产各种牌号的高质量工模具钢。

With more than 40 years of experience in research, development and production of tool & die steel, Baosteel Special Steel Business Unit possesses globally advanced facilities, technology and testing capacities. It can produce various high quality tool & die steel according to GB, ASTM, DIN, JIS and the Company standard formulated based on advanced international standards.



牌号对照 Contrast of Grades

工具钢产品 Tool Steel Products

产品大类 Product Categories	牌号 Grades	国标 GB	企标 Q/BQB	美标 AISI/ASTM	日标 JIS	欧标 EN
碳素工具钢轧材 rolled carbon tool steel	T8A	T8A	-	W1-71/2	SK6	C70W2
	T10A	T10A	-	W1-91/2	SK4	-
碳素工具钢锻材 forged carbon tool steel	T10A	T10A	-	W1-1.0C	SK3	C100W2
合金工具钢轧材 rolled alloy tool steel	9SiCr	9SiCr	-	-	-	-
	6CrW2Si	6CrW2Si	-	S1	-	60WCrV7
	22SiMnNi2CrMoA	-	-	-	-	FF710
合金工具钢锻材 forged alloy tool steel	9SiCr	-	-	-	-	90SiCr5
	CrWMn	-	-	-	SKS31	1.2510
	9Mn2V	-	-	O2	-	1.2842
高速工具钢轧材 rolled high speed tool steel	W18Cr4V	W18Cr4V	-	T1	SKH2	S18-0-1
	W9Mo3Cr4V	W9Mo3Cr4V	-	-	-	-
	W6Mo5Cr4V2	W6Mo5Cr4V2	-	M2	SKH51	S6-5-2
	W2Mo9Cr4VCo8	W2Mo9Cr4VCo8	-	M42	-	-
	W18Cr4V	W18Cr4V	-	T1	SKH2	S18-0-1
高速工具钢锻材 forged high speed tool steel	W6Mo5Cr4V2	W6Mo5Cr4V2	-	M2	SKH51	1.3343
	W18Cr4V	W18Cr4V	-	T1	SKH2	1.3355
	W2Mo9Cr4VCo8	W2Mo9Cr4VCo8	-	M42	SKH59	1.3247

模具钢产品 Die Steel Products

产品大类 Product Categories	牌号 Grades	国标 GB	企标 Q/BQB	美标 AISI/ASTM	日标 JIS	欧标 EN
塑料模具钢 (合金) die steel for plastics (alloy)	SWP20	3Cr2Mo	-	P20	-	1.2312
	SW718H	3Cr2MnNiMo	-	P20+Ni	PDS5S	1.2738
塑料模具钢 (碳素) die steel for plastics (carbon)	55	55	-	AISI1055	S55C	CK55
热作模具钢轧材 rolled hot working die steel	H13	4Cr5MoSiV1	4Cr5MoSiV1/H13	H13	SKD61	X40CrMoV5-1
	3Cr2W8V	3Cr2W8V	-	H21	SKD5	-
热作模具钢锻材 forged hot working die steel	H13	4Cr5MoSiV1	4Cr5MoSiV1/H13	H13	SKD61	1.2344
	SWPH13	4Cr5MoSiV1	SWPH13	H13	SKD61	8407
	5CrNiMo	5CrNiMo	-	-	SKT4	1.2713
	3Cr2W8V	3Cr2W8V	-	H21	SKD5	1.2581



牌号对照 Contrast of Grades

模具钢产品 Die Steel Products

产品大类 Product Categories	牌号 Grades	国标 GB	企标 Q/BQB	美标 AISI/ASTM	日标 JIS	欧标 EN
冷作模具钢轧材 rolled cold working die steel	Cr12	Cr12	-	D3	SKD1	X210Cr12/BD3/ SVERER3/210Cr12
	CrWMn	CrWMn	-	-	SKS31	95MnCrW1/105WCr6
	Cr12MoV	Cr12MoV	-	-	SKD11	X165Cr12MoV12
	Cr12Mo1V1	Cr12Mo1V1	-	D2	SKD11	160CrMoV12/ X155CrMoV12-1/BD2
	9Mn2V	9Mn2V	-	O1	SKS3	90Mn2V8/90Mn2V/BO2
	7Cr7Mo2V2Si	-	7Cr7Mo2V2Si	-	-	-
冷作模具钢锻材 forged cold working die steel	Cr12MoV	Cr12MoV	-	-	SKD11	1.2601
	Cr12	Cr12	-	D3	SKD1	1.2080
	Cr12Mo1V1	Cr12Mo1V1	-	D2	SKD11	1.2379
	7Cr7Mo2V2Si	-	7Cr7Mo2V2Si	-	-	-
不锈钢具 stainless die steel	4Cr16Mo	-	-	-	-	X36CrMo17(DIN1.2316)
	SW4Cr13	4Cr13	-	420	SUS420J2	X42Cr13(DIN1.2083)

专业用钢产品 Steel for Specific Applications

产品大类 Product Categories	牌号 Grades	国标 GB	企标 Q/BQB	美标 AISI/ASTM	日标 JIS	欧标 EN
轧辊坯 roll blank	MC5	-	-	-	MC5	-
	MC3A	-	-	-	MC3A	-
	9Cr3Mo	-	-	-	-	-
	9Cr2Mo	9Cr2Mo	9Cr2Mo	-	-	-
限位芯棒 retained mandrel	BTXB-1、H13X1、 H13X2	-	-	-	-	-



交货状态

Delivery State





交货状态 Delivery State

产品可以根据用户的需求采用退火态、正火态、预硬化态交货，产品外观也可以根据不同用户的需求采用黑皮、剥皮、车光及铣光等状态交货。材料交货长度可以根据用户需求采用定尺和定倍尺，尺寸精度严格按照国家相应标准执行。热作模具钢P级材采用先进的超细化组织处理的球化退火工艺交货，其材料的碳化物带状、显微组织、晶粒度及冲击值等关键质量特性值达到北美压铸协会NADCA207# 规范。大规格预硬化塑料模具钢模块和耐蚀不锈钢模块采用先进的扩氢退火+淬火+回火处理工艺，其模块内在组织均匀致密，其材料的交货硬度可以根据用户需求控制在HRC28-HRC36 范围内，用户可以直接采用我方提供的预硬化模块材料制造相应模具，无需进一步热处理。

Products can be delivered in annealed, normalized and prehardened state. The surface of the products can be black, peeled, turned, milled, etc. according to customers' demand. The length of the product on delivery can be cut-to-length and multi-cut-to-length according to customers' demand. The dimensional accuracy can be controlled strictly according to the related national standard. P-class hot working die steel has been ultra-finishing treated with advanced spheroidizing annealing process before delivery. The key quality characteristics indices of the material including carbide banding, microstructure, grain size and impact value meet The North American Die Casting Association's NADCA #207 specification. Large-sized prehardened die steel block for plastics and corrosion resistant stainless die block are treated with advanced hydrogen diffusion annealing + quenching + tempering processes with homogeneous and sound internal structure. The hardness of the material on delivery can be controlled within HRC 28 to HRC 36 according to customers' demand. The prehardened die block can be used to make the die arrangement directly without additional heat treatment.

工具钢产品 Tool Steel Products

产品大类 Product Categories	热处理状态及类型 Heat Treated Condition	加工用途 Downstream Processing	表面及端部加工状态 Surface and End Condition
碳素工具钢轧材 rolled carbon tool steel	热轧/退火 hot rolled/annealed	切削加工/冷压力加工/热压力加工 machining or cold working or hot working	黑皮;端部剪切/锯切 black; end sheared/sawn
碳素工具钢锻材 forged carbon tool steel	退火 annealed	热压力加工 hot working	黑皮; 端部锯切 black; end sawn
合金工具钢轧材 rolled alloy tool steel	热轧/退火 hot rolled/annealed	冷压力加工/热压力加工 cold working or hot working	黑皮、砂剥、剥皮、磨光、碾光、酸洗(磷皂化);端部剪切/锯切 black, abrasive wheel ground, peeled, ground, calendered, pickled (phosphatized); end sheared/sawn
合金工具钢锻材 forged alloy tool steel	退火 annealed	切削加工/热压力加工 machining or hot working	黑皮; 端部锯切 black; end sawn
高速工具钢轧材 rolled high speed tool steel	退火 annealed	切削加工/冷压力加工/热压力加工 machining or cold working or hot working	黑皮/磨光/酸洗/砂剥; 端部剪切/锯切 black/ground/pickled/abrasive wheel ground; end sheared/sawn
高速工具钢锻材 forged high speed tool steel	退火 annealed	热压力加工 hot working	黑皮; 端部锯切 black; end sawn

模具钢产品 Die Steel Products

产品大类 Product Categories	热处理状态及类型 Heat Treated Condition	加工用途 Downstream Processing	表面及端部加工状态 Surface and End Condition
塑料模具钢（合金） die steel for plastics (alloy)	预硬化处理 prehardened	切削加工 machining	黑皮/车光;端部锯切 black/turned; end sawn
塑料模具钢（碳素） die steel for plastics (carbon)	正火 normalized	切削加工 machining	黑皮/车光; 端部锯切 black/turned; end sawn
热作模具钢轧材 rolled hot working die steel	退火 annealed	冷压力加工/热压力加工/切削加工 cold working or hot working or machining	黑皮/砂剥/剥皮/磨光/碾光 /酸洗; 端部剪切/锯切 black/abrasive wheel ground/peeled/ ground/calendered/pickled; end sheared/sawn
热作模具钢锻材 forged hot working die steel	退火/超细化 annealed/ultra-finishing treated	切削加工 machining	黑皮/砂剥/车光; 端部锯切 black/abrasive wheel ground/turned; end sawn
冷作模具钢轧材 rolled cold working die steel	退火 annealed	热压力加工 hot working	黑皮/砂剥; 端部剪切/锯切 black/abrasive wheel ground; end sheared/sawn
冷作模具钢锻材 forged cold working die steel	退火 annealed	热压力加工 hot working	黑皮/砂剥; 端部锯切 black/abrasive wheel ground; end sawn
不锈模具 stainless die steel	退火/预硬化 annealed/prehardened	切削加工 machining	黑皮; 端部锯切 black; end sawn

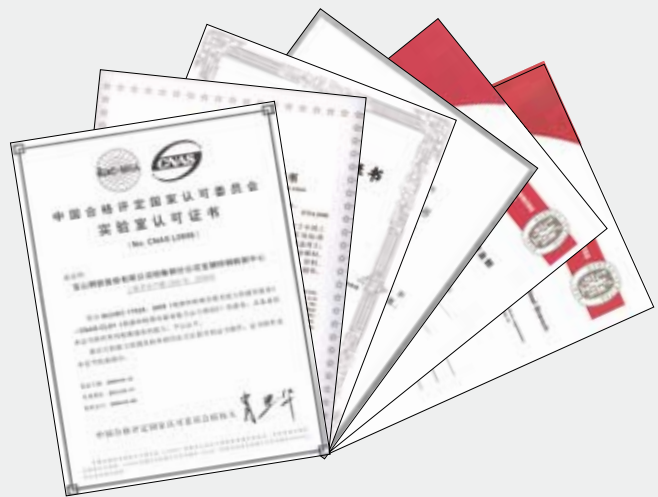
专业用钢产品 Steel for Specific Applications

产品大类 Product Categories	热处理状态及类型 Heat Treated Condition	加工用途 Downstream Processing	表面及端部加工状态 Surface and End Condition
轧辊辊坯 roll blank	退火态 annealed	切削加工 machining	表面为粗车态, 一端平头, 卡头端卡头部分允许黑皮不平头 rough-turned surface, one plain end, the other end clamped in lathe chuck is allowed to be black and no plain end
限位芯棒 retained mandrel	球化退火（车光） spheroidal annealed(turned) 软化退火（黑皮） softening annealed(black)	热压力加工、切削加工 hot working or machining	黑皮、车光;端部锯切 black, turned; end sawn



质量保证

Quality Assurance





质量认证 Quality Certification

- 公司从1995年开始逐步按照ISO9001、ISO9001:2000、AS9100-B、GJB9001A、HAF003、ISO/TS16949标准以及顾客的特殊要求，建立航空航天、军工、核电及汽车质量管理体系，并形成一整套质量体系文件。
 - 特钢事业部确定并运行的质量体系过程共有21个，包括：管理策划过程、管理评审过程、内部审核过程、纠正预防措施改进过程、数据分析和利用过程、顾客满意度监视和测量过程、需求识别和评审过程、设计和开发过程、生产过程、交付过程、服务过程、生产计划过程、设备和工装管理过程、文件管理过程、人力资源管理过程、采购和供方管理过程、产品防护过程、检验和试验管理过程、测量设备管理过程、标识和可追溯性管理过程、不合格品控制过程。
 - 特钢事业部通过制定和落实质量目标、定期开展内部质量审核和管理评审等，持续改进质量体系。
 - 特钢事业部的各类质量体系均通过了第三方的认证。
- Since 1995, the Company began to establish aviation, aerospace, military, nuclear power and automobile quality management systems according to ISO9001, AS9100B, GJB9001A, HAF003, ISO/TS16949 and specific requirements from customers and has formed a complete set of quality system documents.
 - There are 21 quality system processes have been established and kept running in the Company, i.e. management planning process, management reviewing process, internal audit process, corrective and preventive measures for improvement process, data analysis and use process, customer satisfaction monitoring and measurement process, demand identification and assessment process, design and development process, production process, delivery process, service process, production planning process, equipment and tooling management process, document management process, human resource management process, procure and supplier management process, product protection process, inspection and test management process, measuring equipment management process, identification and traceability management process and nonconforming product management process.
 - Special Steel Business Unit keeps improving quality systems persistently by formulating quality targets and adopting workable measures, carrying out internal quality audit and management review regularly.
 - All kinds of quality systems received certifications from the third party .



中国冶金质量认证中心ISO9001:2000质量管理体系认证
ISO9001:2000 Certificate issued by China Metallurgy Quality Certification Center



质量认证 Quality Certification



必维国际检验集团(ANAB)AS9100-B航空航天质量管理体系认证
Certificate of ISO 9001:2000 and AS9100-B issued by ANAB



中国商检质量认证中心ISO9001:2000质量管理体系认证
ISO9001:2000 Certificate issued by China Commodity Inspection Quality
Certification Centre



中启计量体系认证中心
ISO 10012:2003测量管理体系认证
Certificate of Conformity for Measurement Management
Systems, ISO 10012:2003, issued by Zhongqi
Measuring System Certification Center



军工产品质量管理体系认证证书
Certificate of Quality System for Military Products



2003年获得了国家武器装备科研和生产许可证
National Licence of Research and Production of Weaponry obtained in 2003



中国新时代认证中心
GJB9001A-2001军工质量管理体系认证
Certificate of Quality Management System for
Military Projects, GJB9001A-2001, issued by China
Xinshidai Quality System Certification Center



质量认证 Quality Certification



SW718H品质卓越产品证书
Excellent Quality Metallurgical Products Certificate for SW718H



H13金杯奖证书
Golden-cup Prize Certificate for H13



质量检测

Quality Inspection

特钢事业部设有独立的冶金产品及其原料的理化性能检测、无损检测和相应测试技术研究开发的综合性检验部门，配有先进、精确的检测设备和合格的检测人员，承担着事业部汽车用钢、轴承钢、不锈钢、工模具钢、高温合金、精密合金和钛及钛合金等棒、无缝管、丝、饼、环、盘圆及异型材等中间坯料、成品材的检测能力，可进行化学仪器分析、湿法分析、金相高倍检测、金相低倍检测、力学性能、物理性能检测及无损在线检测等。同时，产品检验实验室于2005年4月顺利通过了实验室国家认可。

近年来，随着事业部热轧炉卷、热挤压管等新项目的逐步上马，检测中心引进了MTS810型低周疲劳试验机、HFP150型高频疲劳试验机、5585H型高温拉伸试验机、1000HDX大型液压高精度拉伸试验机、BPU200型杯突试验机等检测设备，具备了断裂韧性、轴向疲劳等项目的检测能力，有效地填补了检测中心在物理性能试验领域中的不足。同时，通过对精密仪器的功能开发，使等离子荧光仪、气体分析仪、X射线荧光仪等分析仪器的检测精度得到了进一步的提升，痕量元素的检测精度达到了ppm级。

There is an independent laboratory equipped with advanced, accurate test facilities within Special Steel Business Unit for physical and chemical examinations and nondestructive tests on finish products, blanks and raw materials and research and development of related test techniques. Products cover automotive steel, bearing steel, stainless steel, tool & die steel, superalloy, precision alloy, titanium & titanium alloy, etc. in the forms of bar, seamless tube, wire, disk, ring, coiled rod and profiles. Qualified staff members are specialized in chemical instrument analysis, wet analysis, metallographic examinations on both macrostructure and microstructure, mechanical performance, physical properties and on-line nondestructive test. In April 2005, the laboratory was audited and obtained a Laboratory Accreditation Certificate issued by China National Accreditation Service for Conformity Assessment.

During the past several years, with the installation of Steckel mill and hot extruder for tube, the laboratory imported some advanced test facilities, including MTS810 low-cycle fatigue tester, HFP150 high-frequency fatigue tester, 5585H elevated temperature tensile tester, 1000HDX large hydraulic high precision tensile tester, BPU200 cupping machine, etc. to enhance its capabilities in physical properties test including fracture toughness, axial fatigue. Tapping the potentials of the existing precision test instruments, test accuracy of inductively coupled plasma spectrometers, gas analyzers, X-ray fluorescence spectrometers has been improved. Determination of trace elements can be done at ppm level.



质量检测 Quality Inspection

化学检测 Chemical Analysis



PW2404 X射线荧光分析仪
PW2404 X-ray fluorescence spectrometer



ARL4460光电直读光谱仪
ARL4460 photoelectric direct-reading spectrometer



EMIA-820V红外碳硫分析仪
EMIA-820V infrared carbon and sulfur analyzer



EMGA-620W氧氮联测仪
EMGA-620W oxygen and nitrogen analyzer



EMGA-621W氢分析仪
EMGA-621W hydrogen analyzer



电感耦合等离子体发射光谱仪
inductively coupled plasma emission spectrometer



石墨炉原子吸收光谱仪
graphite oven atomic absorption spectrometer

物理检测 Physical Test



ZOOMTESTOR布、洛、维三
用硬度计
ZOOMTESTOR Brinell,
Rockwell, Vickers hardness
tester



YAW6106液压压力试验机
YAW6106 hydraulic pressure
tester



Z150电子式高温拉伸试验机
Z150 electronic elevated
temperature tensile tester



BUP200杯突试验机
BUP200 cupping machine



MTS 810电液伺服低周疲劳试验
MTS 810 electrohydraulic
servo low-cycle fatigue tester



HFP150高频疲劳试验机
HFP150 high-frequency fatigue
tester



DIL402C膨胀仪
DIL402C dilatometer



质量检测 Quality Inspection

金相分析 Metallographic Test



Axioplan-2 正置式金相显微镜
Axioplan-2 metallographic microscope for
specimens upward-mounted



显微硬度计 FM-700D
FM-700D microhardness tester



AXIOVERT25CA 金相显微镜
AXIOVERT25CA metallographic microscope



NEOPHOT32 卧式金相显微镜
NEOPHOT32 horizontal metallographic
microscope



STRUERS 自动磨样设备
STRUERS automatic specimen grinding machine

无损检测 Nondestructive Test

无损检测作为特钢产品检测不可缺少的手段之一，在产品质量保证中起着至关重要的作用。

近年来，公司先后建立了多条无损检测生产线，产品无损检测的应用范围不断扩大，检测精度在同行业中处于领先水平。其中超声波探伤生产线主要用于裂纹、缩孔、夹渣、白点等内部缺陷的探伤；涡流、漏磁、磁粉、渗透探伤生产线主要用于裂纹、折叠等表面、近表面缺陷的探伤。在产品质量保证过程中，无损检测技术已成为最有效的检测方法之一，产品探伤能力达到80%以上。

Nondestructive test is one of the indispensable test means for special steel products, which plays a very important role in product quality assurance.

During the past several years, the Company established several nondestructive test lines. Coverage of nondestructive tests on products has been extended with the test accuracy taking the leading position in the industry. Ultrasonic test lines mainly used for detection of internal flaws of products such as crack, shrinkage, slag inclusion, flake, etc. Eddy current, magnetic flux leakage, magnetic particle and penetrant flaw detection lines mainly used for detection of surface and subsurface flaws such as crack, pincher and others. Nondestructive test technology has become one of the most effective detection methods. Nondestructive test capability covers more than 80% percent of products.



A、B、C、D线棒材漏磁探伤设备
magnetic flux leakage testing equipment for wire and bar installed in Line A, Line B, Line C and Line D



银亮棒材超声探伤设备
ultrasonic flaw detection equipment for bright bars



棒材涡流探伤设备
eddy current flaw detection equipment for bars



用户服务

Customer Service





技术支撑 Technical Support

客户代表

是用户使用宝钢特钢产品的技术联络人，负责为用户提供选材咨询、订货、物流跟踪、货款结算、质量异议处理、使用技术指导、信息沟通等全方位服务。

产品工程师

来自宝钢特钢制造单元的资深工程师，为用户提供各类产品的生产、使用技术服务，并根据用户的特殊需求进行个性化的质量设计，与客户代表共同解决技术难题，必要时提供现场服务。

技术专家与首席工程师

来自宝钢特钢研究部门、制造单元的专业技术专家与首席工程师，针对用户和市场的需求，研发特钢新产品，并提供产品检测、腐蚀、焊接、热处理等用户技术服务。

产销研一体化小组

由宝钢特钢制造、销售、研发等各单元的骨干力量组成，以专业的团队方式解决用户使用及生产、研发方面的问题，提高宝钢特钢产品的市场竞争力。



Sales Representative

technical contact who is responsible for providing customer service concerning consultation over products, order placing, logistics tracing, settlement of payment, handling of claim on quality issue, guidance on application, information exchange, etc.

Product Engineer

senior engineer from manufacturing department who is responsible for providing technical service concerning production and application, customized quality design to meet specific requirements from customers, handling technical problems together with sales representative, and on-site service, in case of necessary

Technical Expert and Chief Engineer

technical expert and chief engineer with Baosteel research institute and manufacturing department who are responsible for developing new special steel products to meet demands of customers and the market, and providing after-sales service related with inspection, corrosion test, welding, heat treatment, etc.

Production, Sales, Research Team (PSRT)

a team consists of people from manufacturing, sales, research sections who are responsible for helping customers to solve problems in application, production and research and enhancing competitiveness of Baosteel's products in the market

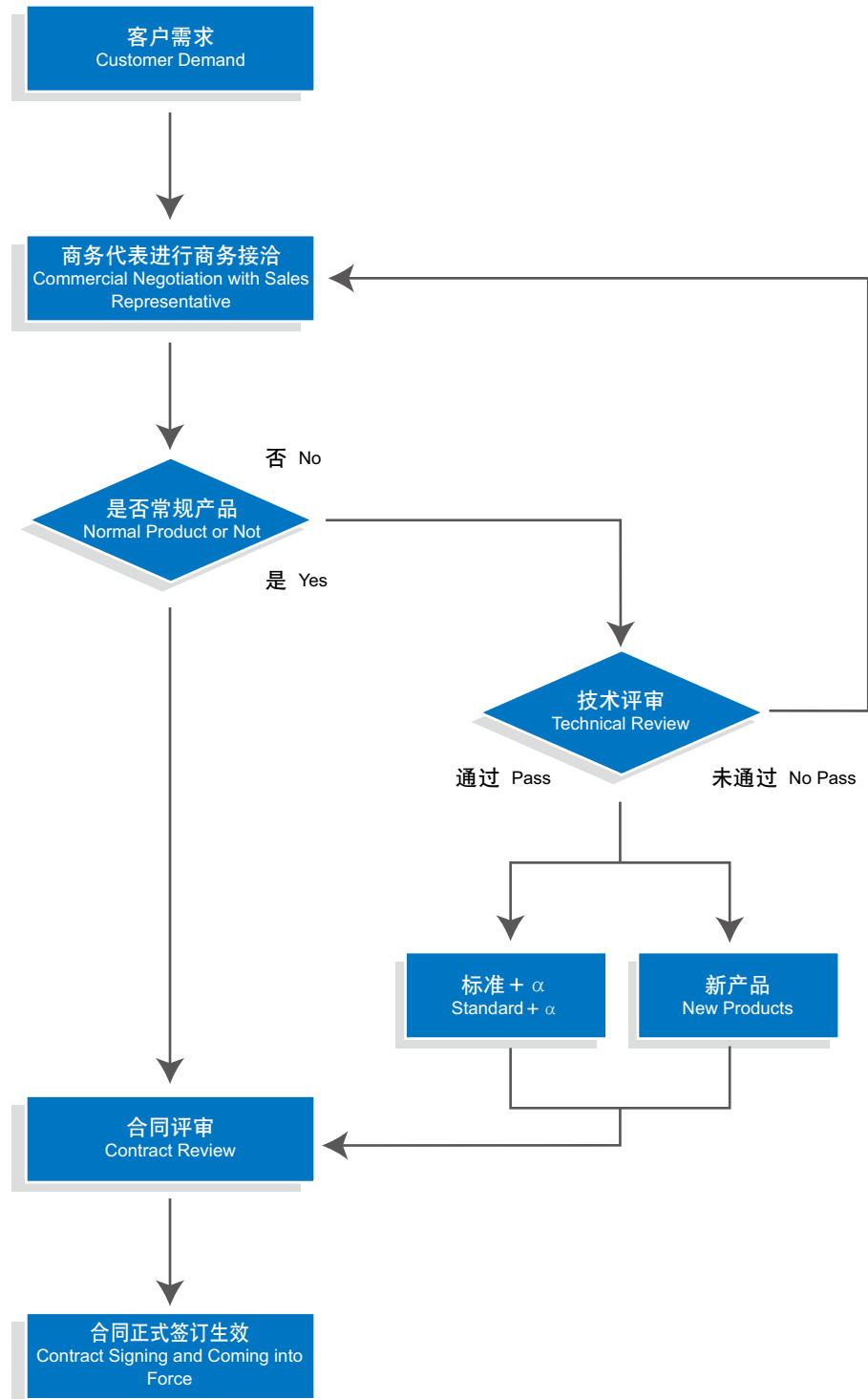




合同签订流程

Procedure of Contract Signing

<http://www.baosteel.com>





异议处理 Claims Handling

1 产品投诉 Complaint



一旦您在使用宝钢特钢产品中出现问题，请您将存在问题的产品尽量以供货状态保留，并在第一时间联系客户代表、商务代表或合同供货方。您的投诉将被及时反馈至宝钢特钢。投诉信息应包括合同号、交货量、异议量、问题描述、联系人、联系电话等内容。

In case of any problems related with products manufactured by Baosteel Special Steel Business Unit, the customer shall try his best to keep the problem product in delivery state as much as possible, and immediately contact Sales Representative, Business Representative, or the supplier of the contract indicating the contract number, quantity of delivery, quantity of the problem product, descriptions of the problem, full name of contact person and telephone number, etc. The complaint will be forwarded to related department of the Company in time.

2 投诉受理 Acceptance



我们接收到您的投诉后，客户代表或地区公司商务代表将会在第一时间对您的投诉进行初步确认，协助您解决问题。对于确系由宝钢特钢产品缺陷造成无法正常使用的情况，您的投诉将转入产品异议处理程序。

On receiving the complaint, Sales Representative or Business Representative will make a preliminary investigation on the complaint immediately and assist the user to solve the problem. In case the product can not be used because of defects, the complaint will be handled via claim handling procedure.

3 异议立案 Case Registration



对于确系宝钢特钢产品缺陷造成无法正常使用的情况，经特钢事业部立案确认，启动异议处理流程。

Once it is confirmed by Baosteel Special Steel Business Unit that the product can not be used because of defects, the complaint will be registered for handling.

4 实物确认 Identification of the Material in Kind



我们将在最短时间内派出服务人员到达现场，了解钢材使用情况，必要时进行相应取样检测和现场试验，与您充分沟通，共同对异议产生的原因进行判定达成一致意见。

Service personnel will be sent to the site in the shortest time to investigate the issue. Sampling and on-site test may be done, if necessary. Discussion with the customer will be held to reach the agreement on the causes of the problem.

5 商务谈判 Business Negotiation



在实物确认的基础上，根据异议责任判定达成的共识，宝钢特钢将与您进行友好协商，在确定异议理赔处理方案后，形成《产品异议处理表》并邮寄给您开具《进货退出及索取折让证明》。

Based on the identification of material in kind and agreement on the responsible party for the problem, consultation on claim settlement will be held in a friendly way to find a solution. *Form of Claim on Products Settlement and Goods Rejection and Discount Certificate* will be sent to the customer.

6 异议结案 Case Closed



我们将根据《产品异议处理表》，对您的损失作出相应赔偿，异议结案。

Compensation will be made for the related losses of the customer according to *Form of Claim on Products Settlement* and the case closed.

7 整改反馈 Rectification - Feedback



宝钢特钢会根据异议产生的原因对相关责任单位进行内部整改，并将整改结果反馈给用户。

Rectification will be made in the responsible manufacturing department(s) for the cause of the claim. The result of rectification will be fed back to the customer.

8 异议处理回访 Visit After Settlement

异议结案之后，宝钢特钢将对异议处理进行回访，并对回访中发现的问题进行跟踪落实。

After the settlement, Baosteel staff members will visit the customer tracing the settlement.



必维国际检验集团ISO 14001:2004 环境体系认证证书
ISO 14001:2004 Certificate issued by ANAB

环境方针 Environment Policy

节约资源， 减少排放， 实行全过程污染控制， 不断减轻环境负荷。持续改进， 遵法守约， 推行全方位清洁生产， 努力建设绿色特钢。

Saving resources, Reducing emissions, Carrying out pollution control through the process, Reducing environmental load consistently. Continuously improving , Persistently observing the law, Pursuing "clean production", Striving for "Green Special Steel".

环境目标 Environment Objective

推行清洁生产审计， 建设“绿色特钢”， 实现“世界一流清洁钢铁企业”。

Carrying out clean production audits, Building " Green Special Steel", Being a "world-class clean iron and steel enterprise."



必维国际检验集团OHSAS 18001:2007职业健康和安全管理体认证证书
OHSAS 18001:2007 Certificate issued by ANAB