

首钢国际工程公司是由原北京首钢设计院改制成立、首钢集团相对控股的国际型工程公司，是国家科技部批准的高新技术企业，是北京市首家获得工程设计综合甲级资质的市属企业。公司可承揽各行业、各等级的所有工程设计，同时可提供规划咨询、设备成套、工程总承包等技术服务。公司在钢铁厂总体规划设计，炼铁、炼钢、轧钢、烧结、球团、焦化、工业炉、节能环保单项设计，冶金设备成套等方面具有独到优势和丰富业绩。

公司业绩遍布国内 70 余家钢铁企业，以及巴西、印度、马来西亚、越南、孟加拉、菲律宾、津巴布韦、安哥拉、秘鲁、沙特等多个国家。

公司获得国家科学技术奖和全国优秀设计奖等 30 余项、冶金行业和北京市优秀设计及科技成果奖等 300 余项，拥有数百项专利技术，多个项目创中国企业新纪录。

BSIET is an international engineering company established through reorganization of Beijing Shougang Design Institute. It is invested by Shougang Group who takes relative majority of the share.

BSIET is a High-Tech Enterprise approved by the Ministry of Science and Technology, having the Engineering Design Integrated Qualification Class A issued by the State. It is the first unit of Beijing municipal enterprises awarded this Qualification and is able to undertake engineering design for all industries and all grades. Meanwhile, it can provide technical services such as planning consultation, equipment integration and general contracting. BSIET owns unique technology and rich practical experience in overall design of iron and steel plants, individual design for iron making, steel making, steel rolling, sintering, pelletizing, coking, industrial furnace, environment protection and integration of metallurgical equipment.

BSIET has served more than 70 iron and steel enterprises in China, and has its achievements in more than 20 countries such as India, Malaysia, Brazil, Viet Nam, Bangladesh, the Philippines, Zimbabwe, Angola, Peru and Saudi Arabia, etc.

BSIET has been awarded with 30-odd national science & technology prizes and national excellent design prizes, 300-odd metallurgical industry and Beijing city excellent design and achievement prizes, and hundreds of national patents. Dozens of projects have created the new records of the Chinese enterprises.



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步进梁式加热炉技术 WALKING BEAM REHEATING FURNACE



源自百年首钢 服务世界钢铁
Expertise from hundred-year Shougang



北京首钢国际工程技术有限公司

BEIJING SHOUGANG INTERNATIONAL ENGINEERING TECHNOLOGY CO.,LTD.

从上世纪 70 年代全面完成首钢集团轧钢加热炉系统设计，到现今成为国内加热炉领域为数不多的集研发、设计、工程于一体的综合型公司，首钢国际工程公司一直致力于加热炉技术研发与创新，充分发挥企业设计院的优势，伴随着首钢集团的技术进步，在推钢式、步进底式和步进梁式加热炉方面，拥有完善的技术储备和丰富的工程业绩。

在步进梁式加热炉领域，首钢国际工程公司于 2009 年完成的大型在线液态排渣高温硅钢步进梁式加热炉，被誉为业内最具技术含量的加热炉工程。

首钢国际工程公司可以提供以下各种炉型的咨询、设计、设备成套及工程总承包服务：

Since the initial comprehensive accomplishment of engineering of reheating furnace for rolling mill of Shougang Group in the 70s of last century, BSIET has now become the considerably unopposed company integrated with research, innovation, design and engineering in domestic reheating furnace field. With its continuous devotion to development and innovation of reheating furnace technology, full play of advantages of enterprise design institute and the technology progress of Shougang Group, BSIET has attained perfect technology reserve and abundant reference projects in reheating furnaces of pusher type, walking hearth type and walking beam type.

In walking beam reheating furnace field, the then accomplished walking beam type reheating furnace with large on-line liquid slag discharging system for high-temperature silicon steel in 2009 by BSIET, was honoured the most technically valued reheating furnace project in the industry.

Services as consulting, design, complete set of equipment and EPC are available from BSIET:

- ◎ 大型板坯常规步进梁式加热炉
- ◎ Conventional walking beam reheating furnace for large slab
- ◎ 大型板坯蓄热、预热组合步进梁式加热炉
- ◎ Regeneration and preheating combined walking beam reheating furnace for large slab
- ◎ 特殊钢棒材及精品线材步进梁式加热炉
- ◎ Walking beam reheating furnace for special steel bars and quality wire rods
- ◎ 棒线材蓄热式步进梁式加热炉
- ◎ Regeneration walking beam reheating furnace for steel bars and wire rods
- ◎ 棒线材常规步进梁式加热炉
- ◎ Conventional walking beam reheating furnace for steel bars and wire rods

大型板坯常规步进梁式加热炉

Conventional walking beam reheating furnace for large slab

首钢迁钢2160mm热轧250t/h × 4加热炉

4x250t/h Reheating Furnaces for Shougang Qiangang 2160mm Hot Strip Mill

形式 Type	大型板坯加热炉；长行程装、出料机装、出料；汽化冷却 Reheating furnace for large slab; feeding and reclaiming by long stroke charging and discharging device; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, 2300 × 4.18KJ/Nm ³
供热方式 Heating mode	空气、煤气双预热，空气预热温度≥500℃，煤气预热温度≥300℃ Air and gas double preheating, air preheating temperature≥500℃, gas preheating temperature≥300℃
烧嘴形式 Form of burner	均热段上部：平火焰烧嘴；其它各段：超低NO _x 长火焰调焰烧嘴 Top of soak section: flat-flame burner; other sections: ultra low NO _x long flame-adjusting burner
坯料规格 Billet specification	230mm × 1350mm × 10500mm
加热钢种 Steel grades to be heated	普碳钢、优质碳素钢、低合金钢、X100管线钢和汽车板等 Common carbon steel, quality carbon structural steel, low alloy steel, X100 pipeline steel and automobile plate etc.
产量 Throughput	冷装：250t/h；热装：320t/h Cold charging: 250t/h; hot charging: 320t/h
尺寸 Dimension	加热炉有效长41100mm；加热炉内宽11100mm Effective length of reheating furnace 41100mm; inner width of reheating furnace 11100mm
技术特点 Technical features	<ul style="list-style-type: none"> ◎ 采用长行程装钢机装料，调节加热炉产量和出钢节奏，起到匹配连铸和热轧节奏及缓冲生产的作用，生产组织灵活 ◎ 烧嘴采用间拔控制技术，提高坯料加热质量 ◎ 配备完善的一、二级自动控制系统，实现炼钢、连铸、热轧生产一体化管理 ◎ Adopt long-stroke slab charging machine for charging, as well as to regulate throughput and steel discharging rhythm, thus matching the continuous casting and hot rolling rhythm, buffering production and flexibly organizing production ◎ Interval control technology is deployed on the burner to improve the heating quality of billets ◎ Perfect level 1 and level 2 automatic control system are equipped to realize production management integrated with steel-making, continuous casting and hot rolling production



首钢京唐2250mm热轧350t/h × 3加热炉 3 × 350t/h Reheating Furnaces for Shougang Jingtang 2250mm Hot Rolling Mill

该项目加热炉属于当时国内最大规模，具有很高的工艺技术水平、装备水平和自动化控制水平。

Reheating furnaces of this project reached the biggest scale at home then, featuring considerably high process and technology, equipment level and automatic control level.

形式 Type	大型板坯加热炉；长行程装、出料机装、出料；汽化冷却 Reheating furnace for large slab; feeding and reclaiming by long stroke charging and discharging device; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, $2000 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	空气、煤气双预热，空气预热温度 $\geq 500^\circ\text{C}$ ，煤气预热温度 $\geq 250^\circ\text{C}$ Air and gas double preheating, air preheating temperature $\geq 500^\circ\text{C}$, gas preheating temperature $\geq 250^\circ\text{C}$
烧嘴形式 Form of burner	均热段上部：平火焰烧嘴；其它各段：大调节比、低 NO_x 调焰烧嘴 Top of soak section: flat-flame burner; other sections: large regulation ratio, ultra low NO_x long flame-adjusting burner
坯料规格 Billet specification	230mm × 1400mm × 11000mm
加热钢种 Steel grades to be heated	碳素结构钢、锅炉及压力容器用钢、造船用钢、管线用钢、耐候钢、桥梁用钢、双相（DP）等 Carbon structural steel, boiler and pressure vessel steel, shipbuilding steel, pipeline steel, weathering resistant steel, bridge steel and double phase (DP) etc.
产量 Throughput	350t/h
尺寸 Dimension	加热炉有效长50900mm；加热炉内宽11700mm Effective length of reheating furnace 50900mm; inner width of reheating furnace 11700mm
技术特点 Technical features	采用长行程装钢机热装作业，热装率可达到90% With direct charging by long stroke steel charging machine, direct charging rate can achieve 90%



大型板坯蓄热、预热组合步进梁式加热炉 Regeneration and preheating combined walking beam reheating furnace for large slab

首钢迁钢1580mm热轧270t/h × 2加热炉 2x270t/h Reheating Furnaces for Shougang Qiangang 1580mm Hot Rolling Mill

该项目具有较高的整体工艺装备水平及自动化控制水平，运行指标达到国际先进水平。

Equipped with relatively high overall process and technology level, equipment level and automatic control level, the operation indices of this project has reached international advanced level.



形式 Type	大型板坯加热炉；长行程装、出料机装、出料；汽化冷却 Reheating furnace for large slab; feeding and reclaiming by long stroke charging and discharging device; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, $2300 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	煤气预热、空气蓄热与预热结合，煤气预热温度 $\geq 250^\circ\text{C}$ ，空气蓄热温度 $\geq 1000^\circ\text{C}$ Gas preheating, air regeneration and preheating, gas preheating temperature $\geq 250^\circ\text{C}$, air regeneration temperature $\geq 1000^\circ\text{C}$
烧嘴形式 Form of burner	均热段上部：平火焰烧嘴；其它各段：空气单蓄热式烧嘴 Top of soak section: flat-flame burner; other sections: air single regenerative burner
坯料规格 Billet specification	(8000 ~ 10500)mm × (800 ~ 1470)mm × 230mm (单排 single line) ; (4500 ~ 5000)mm × (800 ~ 1470)mm × 230mm (双排 double line)
加热钢种 Steel grades to be heated	优质碳素结构钢、低合金结构钢、桥梁用结构钢、汽车大梁用钢、高牌号无取向硅钢等 Quality carbon structural steel, low alloy structural steel, bridge structural steel, automobile frame steel, high grade non-oriented silicon steel etc.
产量 Throughput	270t/h(普碳钢); 220t/h(无取向硅钢) 270t/h(carbon steel); 220t/h(non-oriented silicon steel)
尺寸 Dimension	加热炉有效长43600mm；加热炉内宽11100mm Effective length of reheating furnace 43600mm; inner width of reheating furnace 11100mm
技术特点 Technical features	采用蓄热和预热组合式燃烧技术、三流股宽火焰超低 NO_x 蓄热烧嘴技术、蓄热烧嘴全分散换向技术、蓄热烧嘴低负荷时序“间拔”控制技术、支撑梁汽化冷却技术、坯料炉内“梅花”定位技术、优化加热的二级控制系统等综合技术 Comprehensive technologies are applied such as regeneration and preheating combined combustion technology, three-strand wide flame ultra low NO_x regenerative burner technology, all scattering regenerative burner reverse technology, “interval” control technology by low load regenerative burner sequence, support beam evaporative cooling technology, “club” position technology in billet furnace, L2 control system for optimized heating

首钢迁钢1580mm热轧150t/h高温硅钢液态排渣加热炉 High Temperature Silicon Steel Reheating Furnace with Liquid Slag Discharging System for Shougang Qiangang 1580mm Hot Rolling Mill

该项目在高温硅钢加热炉上采用蓄热式燃烧技术，属国内首创。主要用于加热高温出炉板坯（取向硅钢如HIB和高温出炉的CGO），也能加热低温出炉板坯（如碳素钢等）。经过多年的生产实践，运行指标达到国际先进水平。

This project is the first practice at home of adopting the regenerative combustion technology on the high temperature silicon steel reheating furnace. It could mainly be applied on reheating the high temperature discharged slab (oriented silicon steel, HIB and high temperature discharged CGO for instance), and also the low temperature discharged slab (carbon steel for instance). Through years of production practice, operation indices all reached international advanced level.



形式 Type	大型板坯加热炉；长行程装、出料机装、出料；水梁冷却方式：水冷 Reheating furnace for large slab; feeding and reclaiming by long stroke charging and discharging device; water beam cooling mode: water cooling
燃料介质 Fuel media	混合煤气 Mixed gas, 2700 × 4.18KJ/Nm ³
供热方式 Heating mode	煤气预热、空气蓄热与预热结合，煤气预热温度≥250℃，空气蓄热温度≥1000℃ Gas preheating, air regeneration and preheating, gas preheating temperature≥250℃, air regeneration temperature ≥1000℃
烧嘴形式 Form of burner	均热段上部、二加上下部：常规烧嘴；其它各段：空气单蓄热式烧嘴 Top of soak section, top and bottom of second heating section: conventional burner; other sections: air single regenerative burner
坯料规格 Billet specification	(8000 ~ 10500)mm × (800 ~ 1470)mm × 230mm(普碳坯 common carbon billet) ; 9600mm × 1100mm × 230mm (HIB硅钢坯 HIB silicon steel billet)
加热钢种 Steel grades to be heated	高牌号取向硅钢、低合金结构钢、桥梁用结构钢、汽车大梁用钢、集装箱板等 High grade oriented silicon steel, low alloy structural steel, bridge structural steel, automobile frame steel, container plate, etc.
产量 Throughput	150t/h(取向硅钢); 220t/h(无取向硅钢); 270t/h(普碳钢) 150t/h(oriented silicon steel); 220t/h(non-oriented silicon steel); 270t/h(common carbon steel)
尺寸 Dimension	加热炉有效长43600mm; 加热炉内宽11100mm Effective length of reheating furnace 43600mm; inner width of reheating furnace 11100mm
技术特点 Technical features	<ul style="list-style-type: none"> 采用坯料无间隙装钢技术、高温段在线液态排渣技术，取向硅钢周期加热量达12000t 采用三流股宽火焰超低NO_x蓄热烧嘴技术、蓄热排烟系统“抽吸比”控制技术、蓄热烧嘴全分散换向技术、蓄热烧嘴低负荷时序“间拔”控制技术、优化加热的二级控制系统等综合技术 Application of no gap billet charging technology and on-line liquid slag discharging technology at high temperature section to make cyclical heating of oriented silicon steel up to 12000t Comprehensive technologies are applied such as three strand wide flame ultra low NO_x regenerative burner technology, "intake ratio" control technology for regenerative fume exhausting system, all scattering regenerative burner reverse technology, interval control technology by low load regenerative burner sequence, L2 control system for optimized heating and so on

首钢京唐1580mm热轧300t/h × 3加热炉 3 × 300t/h Reheating Furnaces for Shougang Jingtang 1580mm Hot Rolling Mill

该项目实践了循环经济和低碳、环保的绿色钢铁理念。三座加热炉主要用于生产普碳钢、造船用钢和管线钢，同时预留了4#加热炉位置。每座加热炉均能实现冷装和热装。

This project follows the concepts of circular economy, low-carbon and environment-friendly green iron and steel. Three reheating furnaces are mainly deployed for production of common carbon steel, shipbuilding steel and pipeline steel, and the space for 4# reheating furnace is preserved. Both indirect charging and direct charging can be realized on each reheating furnace.

形式 Type	大型板坯加热炉；长行程装、出料机装、出料；汽化冷却 Reheating furnace for large slab; feeding and reclaiming by long stroke charging and discharging device; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, 2000 × 4.18KJ/Nm ³
供热方式 Heating mode	煤气预热、空气蓄热与预热结合，煤气预热温度≥250℃，空气蓄热温度≥1000℃ Gas preheating, air regeneration and preheating, gas preheating temperature≥250℃, air regeneration temperature ≥1000℃
烧嘴形式 Form of burner	均热段上部：平火焰烧嘴；均热段下部：调焰烧嘴；其它各段：低NO _x 蓄热式烧嘴 Top of soak section: flat-flame burner; bottom of soak section: flame adjusting burner; other sections: low NO _x regenerative burner
坯料规格 Billet specification	长尺 Specified length: 230mm × (850 ~ 1650)mm × (9000 ~ 11000)mm; 短尺 Short length: 230mm × (850 ~ 1650)mm × (4500 ~ 5300)mm
加热钢种 Steel grades to be heated	碳素结构钢、锅炉及压力容器用钢、造船用钢、管线用钢、桥梁用钢、超微细晶粒等高强度钢等 Carbon structural steel, boiler and pressure vessel steel, shipbuilding steel, pipeline steel, bridge steel and double phase(DP) etc.
产量 Throughput	冷装：300t/h；热装：380t/h Indirect charge: 300t/h; direct charge: 380t/h
尺寸 Dimension	加热炉有效长44870mm；加热炉内宽11700mm Effective length of reheating furnace 44870mm; inner width of reheating furnace 11700mm
技术特点 Technical features	<ul style="list-style-type: none"> 燃烧系统采用国际先进的蓄热式燃烧技术和装置 采用长行程装钢机，最大限度地缓冲了连铸和轧钢之间的节奏差异，将紧凑的工艺流程体现得更加完美 The combustion system adopts the international advanced regenerative combustion technology and equipment Long stroke steel charging machine is applied to buffer the rhythm differentiation between continuous casting and steel rolling to the largest extent so as to make compact process flow better more perfect



特殊钢棒材及精品线材步进梁式加热炉

Walking beam reheating furnace for special steel bars and quality wire rods

首钢精品棒材140t/h加热炉

Reheating Furnace for Shougang Quality Bar Mill

形式 Type	上下加热步进梁分段式加热炉；悬臂辊侧进侧出；汽化冷却 Top and bottom sectional heating walking beam reheating furnace; cantilever roller table side-in and side-out; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, $2000 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	空气预热, 预热温度 $\geq 500^\circ\text{C}$ Air preheating, preheating temperature $\geq 500^\circ\text{C}$
烧嘴形式 Form of burner	均热和加热段上部: 平焰烧嘴; 均热和加热段下部: 调焰烧嘴 Top of soak and heating section: flat-flame burner; bottom of soak and heating section: flame-adjusting burner
坯料规格 Billet specification	160mm \times 160mm \times 10000mm, 200mm \times 200mm \times 10000mm
加热钢种 Steel grades to be heated	优碳钢、合结钢、齿轮钢、弹簧钢、轴承钢等 Quality steel, alloy structure steel, pinion steel, spring steel, bearing steel etc.
产量 Throughput	140t/h
尺寸 Dimension	加热炉有效长28830mm; 加热炉内宽10788mm Effective length of reheating furnace 28830mm; inner width of reheating furnace 10788mm
技术特点 Technical features	<ul style="list-style-type: none"> 采用两段步进梁式加热炉, 可采用相同步距或不用步距, 满足不同钢种和规格的要求 采用炉内悬臂辊道侧进侧出, 减少散热损失、改善操作环境和实现紧凑布置 配置不供热的预热段(余热回收段), 充分利用高温烟气预热入炉的冷料, 降低排烟温度 Two-section walking beam type reheating furnace is applied with both same or different pace to satisfy different grades and specifications In-furnace cantilever roller table side-in and side-out mode is applied to lower radiation loss, improve operational conditions and realize compact layout Non-heat-supply preheating section (residual heat recovery section) is foreseen to fully utilize the high temperature fume and gas to preheat the charged cold materials and lower exhaust fume temperature



首钢一线材120t/h加热炉

120t/h Reheating Furnace for Shougang High Speed Wire Rod Mill #1

该项目加热炉最初(2005年)使用重油为燃料, 后于奥运之前将燃料改为天然气。

Heavy oil was used as fuel for this reheating furnace in this project (2005), and later changed into natural gas before the Beijing Olympic Games.



形式 Type	上下加热步进梁分段式加热炉；悬臂辊侧进侧出；汽化冷却 Top and bottom sectional heating walking beam type reheating furnace; cantilever roller table side-in and side-out; evaporative cooling
燃料介质 Fuel media	天然气 Natural gas, $8430 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	空气预热, 预热温度 $\geq 500^\circ\text{C}$ Air preheating, preheating temperature $\geq 500^\circ\text{C}$
烧嘴形式 Form of burner	均热段上下部、加热段上部: 直焰烧嘴; 加热段下部: 天然气低 NO_x 调焰烧嘴 Soak section and top of heating section: flat-flame burner; bottom of heating section: natural gas NO_x adjusting flame burner
坯料规格 Billet specification	160mm \times 160mm \times 10000mm
加热钢种 Steel grades to be heated	优碳钢、合结钢、齿轮钢、弹簧钢、轴承钢等 Quality steel, alloy structure steel, pinion steel, spring steel, bearing steel etc
产量 Throughput	120t/h
尺寸 Dimension	加热炉有效长19980mm; 加热炉内宽12788mm Effective length of reheating furnace 19980mm; inner width of reheating furnace 12788mm
技术特点 Technical features	<ul style="list-style-type: none"> 燃烧系统为加热段下部侧烧、加热段上部端烧、均热段上、下端烧 将均热段上、下分别分为左、右、中三段, 充分发挥加热炉的控温出钢作用, 更好为轧线系统服务 The combustion system is in side-combustion at bottom of the heating section, end-combustion at top of the heating section, as well as end combustion at both top and bottom of the soaking section The upper and lower soak section is divided into three sub-sections, namely, left, middle and right accordingly to fully exert the temperature controlled steel discharging of reheating furnace for better service of rolling line system

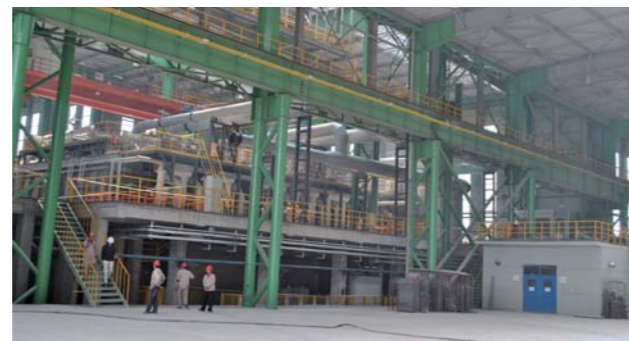
棒线材蓄热式步进梁式加热炉

Regeneration walking beam reheating furnace for steel bars and wire rods

首钢长钢100万t/a棒材180t/h加热炉

180t/h Reheating Furnace for Shougang Changgang 1.00MTPA Bar Mill

形式 Type	棒材加热炉；侧进侧出；水梁冷却方式：水冷 Reheating furnace for bar; side-in and side-out; water beam cooling method: water cooling
燃料介质 Fuel media	混合煤气 Mixed gas, $750 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	空气、煤气双蓄热，空气、煤气蓄热温度 $\geq 1000^\circ\text{C}$ Air and gas double regeneration, air and gas regeneration temperature $\geq 1000^\circ\text{C}$
烧嘴形式 Form of burner	全炉：上下组合蓄热式烧嘴 All the furnace: upper and lower combined regenerative burner
坯料规格 Billet specification	150mm × 150mm × 12000mm
加热钢种 Steel grades to be heated	轴承钢、弹簧钢及其它合金钢种 Bearing steel, spring steel and other alloy steel grades
产量 Throughput	180t/h
尺寸 Dimension	加热炉有效长28000mm；加热炉内宽12644mm Effective length of reheating furnace 28000mm; inner width of reheating furnace 12644mm
技术特点 Technical features	<ul style="list-style-type: none"> ◎ 采用专利产品“多流股二级燃烧、高温低氧、低NO_x组合式蓄热烧嘴” ◎ 采用专利产品“悬臂辊道侧进侧出步进梁式加热炉出料端的自动排渣装置” ◎ Adopted patented product "multi-flow two-stage combustion, high temperature low oxygen, low NO_x compound regenerative burner" ◎ Adopted patented product "automatic slag discharging device at exit end of overhung roller table side-in and side-out walking beam reheating furnace"



棒线材常规步进梁式加热炉

Conventional walking beam reheating furnace for steel bars and wire rods

山西中阳高速线材120t/h加热炉

120t/h Reheating Furnace for High Speed Wire Rod Mill in Zhongyang, Shanxi



形式 Type	步进梁式加热炉；悬臂辊侧进侧出；汽化冷却 Walking beam reheating furnace; cantilever roller table side-in and side-out; evaporative cooling
燃料介质 Fuel media	混合煤气 Mixed gas, $4000 \times 4.18\text{KJ/Nm}^3$
供热方式 Heating mode	空气预热，预热温度 $\geq 500^\circ\text{C}$ Air preheating, preheating temperature $\geq 500^\circ\text{C}$
烧嘴形式 Form of burner	均热和加热段上部：平焰烧嘴；均热和加热段下部：调焰烧嘴 Top of soak and heating section: flat-flame burner; bottom of soak and heating section: flame-adjusting burner
坯料规格 Billet specification	150mm × 150mm × 12000mm
加热钢种 Steel grades to be heated	普通碳素钢、优质碳素钢、低合金钢等 Common carbon steel, quality carbon structure steel, low alloy steel, etc.
产量 Throughput	120t/h
尺寸 Dimension	加热炉有效长18300mm；加热炉内宽12644mm Effective length of reheating furnace 18300mm; inner width of reheating furnace 12644mm

首钢水钢精品棒材180t/h加热炉

180t/h Reheating Furnace for Shougang Shuigang Quality Bar Mill

该项目加热炉适应热装热送，适应快节奏，高自动化的要求，最终实现全自动出钢、单根出钢周期 37 秒以内，小时出钢数达到了 97 根，充分满足了快速轧制的要求。

Reheating furnace of this project meets the requirements of direct and hot charging, fast pace, high automation, and finally realized the full automatic steel discharging, single piece of steel discharging cycle in 37 seconds, 97 pieces of steel discharged in one hour, thus fully satisfied requirements of fast rolling.



形式 Type	悬臂辊道侧进侧出；水梁冷却方式：水冷 Cantilever roller table side-in and side-out; water beam cooling method: water cooling
燃料介质 Fuel media	高焦转混合煤气， $2200 \times 4.18\text{kJ/Nm}^3$ Gas mixed with BFG, COG and converter gas, $2200 \times 4.18\text{kJ/Nm}^3$
供热方式 Heating mode	空气预热，预热温度 $\geq 500^\circ\text{C}$ Air preheating, preheating temperature $\geq 500^\circ\text{C}$
坯料规格 Billet specification	150mm × 150mm × 12000mm
加热钢种 Steel grades to be heated	普碳钢、优质碳素结构钢及低合金钢等 Carbon steel, quality carbon structure steel, low alloy steel
产量 Throughput	180t/h
尺寸 Dimension	加热炉有效长24000mm；加热炉内宽12800mm Effective length of reheating furnace 24000mm; inner width of reheating furnace 12800mm
技术特点 Technical features	<ul style="list-style-type: none"> ◎ 采用整根步进梁纵梁，有效长度24米 ◎ 采用专利产品“悬臂辊道侧进侧出步进梁式加热炉出料端的自动排渣装置” ◎ One single walking longitude beam in use, effective length is 24m; ◎ Adopted patented product"automatic slag discharging device at exit end of overhung roller table side-in and side-out walking beam reheating furnace"



首钢水钢高速线材120t/h加热炉

120t/h Reheating Furnace for High Speed Wire Rod Mill of Shougang Shuigang

该项目加热炉适应热装热送，适应快节奏，高自动化的要求，最终实现全自动出钢、钢坯加热质量高，温度均匀性好，氧化烧损率低。

Reheating furnaces of this project fulfilled the requirements of direct charging, fast rhythm and high automation, and finally realized fully automatic steel discharging, high-quality billet reheating, good uniformity of temperature and low oxidizing and burning loss of billets.



形式 Type	悬臂辊道侧进侧出；水梁冷却方式：水冷 Cantilever roller table side-in and side-out; water beam cooling method: water cooling
燃料介质 Fuel media	高焦转混合煤气， $2200 \times 4.18\text{kJ/Nm}^3$ Gas mixed with BFG, COG and converter gas, $2200 \times 4.18\text{kJ/Nm}^3$
供热方式 Heating mode	空气预热，预热温度 $\geq 500^\circ\text{C}$ Air preheating, preheating temperature $\geq 500^\circ\text{C}$
坯料规格 Billet specification	150mm × 150mm × 12000mm
加热钢种 Steel grades to be heated	普碳钢、优质碳素结构钢及低合金钢等 Carbon steel, quality carbon structure steel, low alloy steel
产量 Throughput	120t/h
尺寸 Dimension	加热炉有效长19552mm；加热炉内宽12800mm Effective length of reheating furnace 19552mm; inner width of reheating furnace 12800mm
技术特点 Technology features	采用专利产品“悬臂辊道侧进侧出步进梁式加热炉出料端的自动排渣装置” Adopted patented product"automatic slag discharging device at exit end of overhung roller table side-in and side-out walking beam reheating furnace"



主要业绩表

Performance Reference

序号 No.	用户名称 User	加热炉形式 Type	产量 Throughput (t/h)	数量 Qty	燃料 Fuel	投产日期 Start-up time
1	水城钢铁公司线材厂 Wire Rod Mill of Shuicheng Iron & Steel Co.	步进梁式 Walking beam	120	1	混合煤气 Mixed gas	2011.7
2	水城钢铁公司棒材厂 Bar Mill of Shuicheng Iron & Steel Co.	步进梁式 Walking beam	180	1	混合煤气 Mixed gas	2011.6
3	长治钢铁公司棒材厂 Bar Mill of Changzhi Iron & Steel Co.	步进梁式 Walking beam	180	1	高炉煤气 BF gas	2011.6
4	首钢迁钢公司1580mm热带轧机 1580mm Hot Strip Rolling Mill of Shougang Qiangang	步进梁式 Walking beam	270	4	混合煤气 Mixed gas	2010.4
5	首钢京唐钢铁公司1580mm热带轧机 1580mm Hot Strip Rolling Mill of Shougang Jingtang	步进梁式 Walking beam	280	4	混合煤气 Mixed gas	2008.12
6	首钢京唐钢铁公司2250mm热带轧机 2250mm Hot Strip Rolling Mill of Shougang Jingtang	步进梁式 Walking beam	350	4	混合煤气 Mixed gas	2008.8
7	首钢迁钢公司2160mm热带轧机 2160mm Hot Strip Rolling Mill of Shougang Qiangang	步进梁式 Walking beam	250	4	混合煤气 Mixed gas	2006.12
8	西昌钢铁公司棒材厂 Bar Mill of Xichang Iron and Steel Co.	蓄热推钢式 Regenerative and pushing	100	1	高炉煤气 BF gas	2006.6
9	首钢（一线材）精品线材厂 1# High Speed Wire Rod Mill of Shougang	步进梁式 Walking beam	120	1	重油 Heavy oil	2005.12
10	首钢精品棒材厂 Quality Bar Mill of Shougang	步进梁式 Walking beam	140	1	高、焦炉混合气 BFG, COG	2005.10
11	首钢中板厂 Plate Mill of Shougang	蓄热推钢式 Regenerative and pushing	120	2	混合煤气 Mixed gas	2005.4
12	新疆八一钢厂中型厂 Medium Section Mill of Bayi Steel Plant, Xinjiang	步进梁式 Walking beam	70	1	混合煤气 Mixed gas	2004.10
13	山西中阳高速线材厂 High Speed Wire Rod Plant of Zhongyang, Shanxi	步进梁式 Walking beam	120	1	混合煤气 Mixed gas	2004.7
14	云南楚雄德胜公司棒材厂 Bar Plant of Desheng Co. Chuxiong, Yunan	蓄热推钢式 Regenerative and pushing	130	1	焦炉煤气 COG	2003.5
15	新疆八一钢厂中型厂 Medium Section Mill of Bayi Steel Plant, Xinjiang	蓄热步进梁式 Regenerative walking beam	65	1	混合煤气 Mixed gas	2002.12
16	新抚钢高速线材厂 High Speed Wire-rod Mill of New Fugang	蓄热步进梁式 Regenerative walking beam	100	1	煤气重油 Gas and heavy oil	2002.6
17	首钢型材厂三车间 Section Mill 3# of Shougang	蓄热推钢式 Regenerative and pushing	160	1	转炉煤气 Converter gas	2002.2
18	天铁集团崇利轧钢公司 Chongli Steel Rolling Co. of Tiantie Group	蓄热推钢式 Regenerative and pushing	60	1	转炉煤气 Converter gas	2001.12
19	宣钢高速线材厂 High Speed Wire Rod Mill of Xuangang	步进梁式 Walking beam	100	1	混合煤气 Mixed gas	2000.12