

中英文对照
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世界特殊钢厂手册

THE HANDBOOK OF THE WORLD'S SPECIAL STEEL WORKS

《世界特殊钢厂手册》编委会

Editorial Board
« The Handbook of the World's
Special Steel Works »

中国科学技术出版社
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The Handbook of the World's Special Steel Works

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中国

China

本溪钢铁公司一钢厂

地址：中国辽宁省本溪市钢铁路

电话：2765

概况

本溪钢铁公司一钢厂创建于1938年，是我国主要特殊钢厂之一。建立后，几经扩建、改造，设备、工艺更臻完善，重点生产高速工具钢，滚珠轴承钢，耐热、不锈钢等产品。全厂职工7,000余人，附设特殊钢研究所。

主要设备

该厂现拥有电弧炉、电渣炉、真空感应炉、真空脱气装置等冶炼设备，并有锻锤、中小型轧机、冷热轧带钢轧机以及无缝钢管、钢丝生产等加工设备。产品的理化检测手段也较齐全，置有直读光谱、原子吸收光谱、高温金相显微镜、扫描电镜、透射电镜等检测设备。该厂近年来已经生产500多个钢种，其中经常大量生产的有250多种。各种钢材，畅销国内外，其中异型材、中型材、中小扁钢、叶片不锈钢和大规格高速工具钢轧材等产品，在全国3,400余用户中享有盛誉。

该厂炼钢原料全部使用本溪低杂质生铁和废钢，原料质地优良，得天独厚。近年来，该厂推行了全面质量管理体系，在职工中树立全心全意为用户服务的思想，建立了一整套质量检查、签证出厂的管理体系。根据用户的反映，不断改进产品质量。为了促进产品的更新换代，满足用户新的要求，该厂从重点用户单位、大专院校、科研院所聘请了技术顾问，以指导工艺的改进和新产品的研制。

主要产品

轴承钢：内部组织均匀，碳化物颗粒细小，纯洁度高。表面质量、端面形状尺寸完全符合相应标准。钢丝显微组织为细粒状珠光体，表面良好。厚度0.24毫米以上的各种规格冷轧带钢均采用保护气氛退火，脱碳层极微。

汽轮机叶片钢：该厂生产叶片钢，历史悠久，质量稳定，品种规格齐全。异型叶片钢的生产为国内首创，产品在国内外、外用户厂享有盛誉。

No.1 Steel Works, Benxi Iron & Steel Co

Address: Gang Tie Road, Benxi City, Liaoning Province, China

Tel: 2765

General

No.1 Steelworks, Benxi Iron and Steel Company was founded in 1938, and now is one of the main special steel works in the People's Republic of China. Expansion programs have been successively realized since its foundation, the up-to-date installations are employed and processes are advanced in technology. The main products are high speed steels, ball bearing steels, heat-resisting and stainless steels etc. The works has more than 7,000 workers and staff members and an affiliated special steel research institute.

Main plants

The melting shops include electric arc furnaces, electroslag remelting equipments, vacuum induction furnaces, vacuum degassing unit. For steel forming, there are forging shop, bar and rod mills, hot and cold strip mills, seamless tube mills and wire-drawing shop. The steelworks is provided with the advanced testing and inspection equipments, including direct-reading spectroscopy, atomic absorption spectroscopy, high temperature metallurgical microscope, scanning and transmission electron microscope etc. In recent years, more than 500 grades of special steel have been produced, over 250 grades are produced in quantities. The products are marketed well both at home and abroad. The special shape, rod and bar, medium- or small-size flat, stainless steel blade and large-size high speed steel products have been highly praised by more than 3,400 domestic users.

The works uses the famous Benxi pig iron with low impurities and well processed scrapes, other raw materials are also of superior quality. What's more, the works has also established an uncompromising TQC (Total Quality Control) system to ensure that all our products always meet the high standards required by customers. "Serve the customer best" is the aim. A whole set of management system including quality control, certificate and shipment etc. was set up. In keeping with the customers' ever increasing requirements, competent specialists from customers, from technical colleges, and scientific institutes are requested to be the works' advisors in technology to improve production and develop new products.

Main Products

Bearing steels: with internal homogeneous structure, fine carbide particles and guaranteed purity. Its surface, ends and shape are up to standards. Microstructure of wire is in fine pearlite, with smooth finish. Cold-rolled strips with thickness over 0.24 mm are annealed under protecting atmosphere, having very thin decarburized layer.

高速工具钢：碳化物均匀，颗粒度细小，低倍组织细密。长度可按定尺或倍尺交货。

该厂新型耐H₂S腐蚀钢和耐热钢获得全国和省科技大会的奖励。汽轮机叶片钢和量规用铬钢等被辽宁省和冶金工业部命名为“优质产品”。

该厂严格履行交货合同，按时交货。如有特殊需要，可按特殊条件或国外技术标准另行生产，欢迎用户洽谈。

Steam-turbine blade steels: With long experience in production, reliable quality, complete range of supply, the steelworks is the first manufacturer of special-shape blade steel in China and the products have enjoyed a high fame from users both at home and abroad.

High speed steels: With homogeneous, fine carbide particles and dense structure, the product can be offered at specified length or at its multiples.

The new type H₂S-resistant and heat resistant steels have won awards from National and Provincial Science and Technology Conferences. The steam-turbine blade steel, gauge-block Cr steel etc. were certified "Excellent Quality Product" by both Liaoning Provincial Government and the Ministry of Metallurgical Industry.

The works always abides by contracts, and the products are delivered on time. We can offer products in accordance with the customers' specific requirements or foreign standards.

本溪钢铁公司一钢厂产品品种规格表（毫米）

钢 类	轧 材	锻 材	丝 材	管 材	带 材
碳素结构钢	10—130	135—250	0.2—7.5	70-108 × 4-15	3-6 × 60-120 (热) 0.25-3 × 25-150 (冷)
碳素工具钢	10—130	135—200	0.5—7.5		3-6 × 60-120 (热) 0.25-3 × 25-120 (冷)
合金结构钢	10—130	135—250	0.3—7.5	φ 70-108 × 4-15	3-6 × 60-120 (热) 0.25-3 × 60-120 (冷)
合金工具钢	10—130	130—200			4-6 × 50-100 (热) 1.0-3 × 50-100 (冷)
弹 簧 钢	10—130	140—180	1.0—3.5 (碳素) 0.5—7.5 (合金)		3-6 × 60-100 (热) 0.25-3 × 25-120 (冷)
轴 承 钢	10—120	125—180	1.8—7.5	φ 70-108 × 4-15	3-6 × 60-120 (热) 0.24-3 × 60-100 (冷)
不锈钢耐热钢	10—120	125—180	0.3—6.0	φ 70-108 × 4-15	4-6 × 60-100 (热) 0.15-2 × 25-100 (冷)
高速工具钢	10—120	125—150	0.5—7.5		4-6 × 50-100 (热) 1-3 × 30-100 (冷)
模 具 钢	10—55	60—180			

冶金工业部长城钢厂

总厂地址：中国四川省江油县中坝

电话：长城钢厂总机转669

电报：江油6921

长城钢厂系冶金工业部直属重点特殊钢厂之一，始建于1964年，占地8,350亩。下设四个分厂和三个部（机动、运输、修建），拥有二十个主要生产车间、

Changcheng Steel Works, Ministry of Metallurgical Industry, PRC.

Head office: Zhongba, Jiangyou County, Sichuan, China

Tel: Extension 669 via, the exchange of Changcheng Steel Works

Cable: 6921 Jiangyou

Changcheng Steel Works is one of the key special steel works directly under the Ministry of Metallurgical Industry. It

十六个辅助车间和四个中心试验室，是国内生产装备比较先进，产品品种、规格比较齐全，技术力量比较雄厚的大型特殊钢厂。

全厂现有职工 23,880 人，其中工人 15,900 名。共有冶炼设备七种炉型 36 座，冷、热加工设备 76 台套，并拥有原子吸收光谱仪、光电直读光谱仪、X-射线分析仪、电子探针及超声波探伤仪等比较先进的检测设备。

自投产以来品种规格不断扩大，产量逐年增加。现可生产 400 多个钢号，10,000 多个品种规格。1Cr18Ni9Ti 冷轧薄板、GH140 冷轧薄板、1Cr18Ni9Ti 冷拔（轧）无缝钢管和 ML35 冷锻钢热轧盘条获冶金工业部优质产品称号。

长城钢厂一分厂

地址：中国四川省江油县中坝
电话：长城钢厂总机转一分厂 442
电报：6920

概况

一分厂始建于 1964 年，1966 年 6 月陆续投产。下设炼钢、锻钢、轧钢和钢管四个主要生产车间。中心试验室的检测手段比较齐全。现有职工 4,860 人，其中工人 3,560 人，工程技术人员 360 人，管理和服务人员 800 人。

主要设备

冶炼：5 吨和 15 吨（出钢量）电弧炉 4 座，0.5 吨中频感应炉，0.2 吨真空感应炉，2.5 吨真空自耗炉，0.5—2 吨电渣炉 5 座。加工：1—5 吨汽锤 4 台， $\phi 500$ 毫米 $\times 2$ / $\phi 300$ 毫米 $\times 5$ 中型轧机 1 套，5—30 吨冷拔管机 5 台， $\phi 15$ —70 毫米冷轧管机 7 台。

工艺流程

电弧炉冶炼，用于生产一般要求的钢；
电弧炉冶炼——喷粉（倒包）工艺，主要用于生产不锈钢；
电弧炉冶炼——电渣炉重熔，主要用于生产纯洁度要求较高的钢；

was founded in 1964, occupying an area of 557 hectares. Changcheng Steel Works has four sub-plants and three sections namely power, transport and construction, and possesses twenty principal workshops, sixteen auxiliary shops and four central laboratories. It is a large special steel works in China which has relatively advanced operating installations, produces a great number of varieties of products with a complete range of specifications and has a qualified technical team.

Changcheng Steel Works now employs 23,880 people among which 15,900 are workers. This works possesses totally 36 furnaces in 7 different types for steelmaking, 76 cold and hot forming units as well as relatively advanced inspection equipment such as atomic absorption spectrometers, optoelectronic direct reading spectrometers, X-ray analysers, electron probe and ultrasonic defect detectors.

Since the works went into operation it has gradually enlarged its products both in varieties and specifications, and increased its production year after year. Today it is capable of producing more than 400 steel grades with over 10,000 varieties and specifications. Its 1Cr18Ni9Ti cold-rolled sheets, GH140 cold-rolled sheets, 1Cr18Ni9Ti cold-rolled/drawn seamless tubes and ML35 cold-heading and hot-rolled coils have been entitled "Quality Product" by the Ministry of Metallurgical Industry.

NO.1 Plant of Changcheng Steel Works

Address: Zhongba, Jiangyou County, Sichuan, China
Tel: 442 via, the exchange of Changcheng Steel Works
Cable: 6920 Jiangyou

General

No.1 Plant started its foundation in 1964 and was put into operation in June 1966. It has 4 main production shops for steelmaking, forging, rolling and tube mill. It has relatively complete range of inspecting and testing means in its central laboratory. In this plant there are all together 4,860 people, among which 3,560 are workers, 360 engineers and 800 administrative and service personnel.

Main Plants

Steelmaking: four electric arc furnaces of 5 ton and 15 ton capacity; 0.5 ton medium frequency induction furnace; 0.2 ton vacuum induction furnace; 2.5 ton vacuum consumable electrode remelting furnace; five electrosag furnaces of 0.5-2 ton capacity. Fabricating: four 1-5 ton steam hammers; a medium section mill with 2 stands of $\phi 500$ mm and 5 stands of $\phi 300$ mm; five 5-30 ton cold-drawing tube mills; seven cold rolling tube mills, $\phi 15$ -70mm.

Procedure

Electric arc furnace for producing steels of common use;
Electric arc furnace—powder injection (ladle to ladle) mainly for producing stainless steels;
Electric arc furnace—electrosag remelting furnace mainly for producing steels with relatively high purity;

非真空感应炉（真空感应炉）熔炼—电渣炉（真空自耗炉）重熔，用于生产航空、宇航、原子能工业用钢或合金。

主要产品

钢种：优质碳素结构钢、合金结构钢、碳素工具钢、合金工具钢（包括模具钢）、高速工具钢、高碳铬轴承钢、不锈钢及高温合金等。

钢材： $\phi 80-150$ 毫米锻材， $\phi 20-75$ 毫米热轧中小型圆钢， $\phi 6-70$ 毫米 $\times 0.5-6$ 毫米冷拔（轧）无缝钢管。其中1Cr18Ni9Ti冷拔（轧）无缝管系冶金部优质产品。

长城钢厂二分厂

地址：中国四川省江油县厚坝
电话：长城钢厂总机转二分厂240
电报：6922

概况

该厂于1965年由原上海带钢厂、上海冷轧带钢厂和上海钢管厂等单位内迁组建而成。该厂主要以其他分厂的钢坯生产钢带、焊管和钢丝。现有职工2,600余人，其中工人1,780人，工程技术人员110人，管理及服务人员750人。

主要设备

$\phi 400$ 毫米 $\times 3/\phi 300$ 毫米 $\times 3$ 二列式扁坯热轧机， $\phi 300 \times 400$ 毫米三列式带钢热轧机，4辊、2辊冷轧机14台， $\phi 76$ 毫米/ $\phi 32$ 毫米高频焊管机4套，6/300—1/1,000拉丝机15台。

主要产品

$\frac{1}{2}-1\frac{1}{2}$ 英寸普通碳素钢焊管，不同钢种（优质碳素结构钢、合金结构钢、碳素工具钢、弹簧钢等）的0.1—2.5毫米 $\times 10-130$ 毫米冷轧钢带， $\phi 0.8-6.0$ 毫米优质碳素结构钢和弹簧钢丝。其中普通碳素钢水煤气焊管系冶金部优质产品。

长城钢厂三分厂

地址：中国四川省江油县通口
电话：长城钢厂总机转三分厂265
电报：6923

概况

该厂于1964年兴建，1970年投产，是以生产高温合金和不锈钢为主的特殊钢厂。近年来，为适应国民经济发展的

Non-vacuum induction furnace (vacuum induction furnace)—electroslag remelting furnace (vacuum consumable electrode furnace) producing steel or alloy used for aviation, aerospace and atomic energy industries.

Main Products

Steel grades: high quality carbon structural steels, alloy structural steels, carbon tool steels, alloy tool steels (including die steels), high speed tool steels, high carbon-chromium bearing steels, stainless steels and superalloys etc.

Specifications: Forgings $\phi 80-150$ mm; Hot-rolled medium and small rounds $\phi 20-75$ mm; Cold-drawn/rolled seamless tubes $\phi 6-70$ mm $\times 0.5-6$ mm. Its 1Cr18Ni9Ti cold-drawn/rolled seamless tubes are named "Quality Product" by the Ministry of Metallurgical Industry.

NO.2 Plant of Changcheng Steel Works

Address: Houba, Jiangyou County, Sichuan, China
Tel: 240 via the exchange of Changcheng Steel Works
Cable: 6922 Jiangyou

General

The plant was merged from the former Shanghai Strip Plant, Shanghai Cold Rolling Strip Plant and Shanghai Steel Tube Plant and removed to Sichuan in 1965. It mainly produces strips, welded tubes and wires from the semis supplied by the other plants of Changcheng Steel Works. No.2 Plant employs over 2,600 people, among them 1,780 are workers, 110 engineers and 750 administrative and service personnel.

Main Plants

Two-train hot rolling slab mill, $\phi 400$ mm $\times 3$ stands/ $\phi 300 \times 3$ stands; three-train hot rolling strip mill, $\phi 300 \times 400$ mm; fourteen 4-high and 2-high cold rolling mills; four high frequency tube welding mills, $\phi 76$ mm/32mm; fifteen wire drawing machines 6/300-1/1000.

Main Products

$\frac{1}{2}$ in.- $1\frac{1}{2}$ in. welded tubes of plain carbon steels; 0.1-2.5mm \times 10-130mm cold rolled strips of various steels such as high quality carbon structural steels, alloy structural steels, carbon tool steels and spring steels; high quality carbon structural steels and spring steel wires, diameter varying from 0.8-6.0mm. Among its products, welded water-gas pipes of plain carbon steels have got the title of "Quality Product" of the Ministry of Metallurgical Industry.

NO.3 Plant of Changcheng Steel Works

Address: Tongkou, Jiangyou County, Sichuan, China
Tel: 265 via the exchange of Changcheng Steel Works
Cable: 6923 Jiangyou

General

Founded in 1964, and put into operation in 1970, No.3 Plant is a special steel plant specializing in producing superalloys and stainless steels. In recent years it has adjusted its

需要,调整了产品结构,各种合金钢和不锈钢的产量不断增加。全厂占地4万多平方米,拥有冶炼、锻造、轧钢和薄板四个主要生产车间和一个检测设备齐全的中心试验室。现有职工约3,500人,其中工人2,240余人,工程技术人员275人,管理及服务人员880人。

主要设备

冶炼:5吨和15吨(出钢量)电弧炉2座,0.5—2.5吨电渣炉5座,3/5吨非真空感应炉1座,1.5吨和3,000磅真空感应炉各1座,7吨真空自耗炉1座,200 KW和1,200 KW电子束炉各1座。加工:3吨汽锤1台,2,000吨快速锻压机2台;3机架 $\phi 650$ 毫米3辊轧机1台,4机架 $\phi 400$ 毫米3辊轧机1台,3辊劳思式轧机1台,2辊周期式热轧板机1台,4辊冷轧板机2台。

工艺流程

电弧炉冶炼,用于生产一般用钢;
电弧炉熔炼—电渣炉重熔,用于生产不锈钢和低牌号高温合金;
非真空感应炉(真空感应炉)熔炼—电渣炉(真空自耗炉)重熔,用于生产航空、宇航、原子能工业用钢或合金。

主要产品

钢种:优质碳素结构钢,高速工具钢,不锈钢,耐热钢,高温合金等。

钢材: $\phi 80-200$ 毫米锻制棒材, $\phi 260-550$ 毫米 $\times 65-260$ 毫米锻制饼材, $\phi 360-900$ 毫米 $\times \phi 200-600$ 毫米 $\times 100-250$ 毫米环形锻件, $\phi 20-120$ 毫米热轧棒材,4.5—8.5毫米 $\times 480-900$ 毫米 $\times \leq 1,400$ 毫米热轧板材,0.5—4.0毫米 $\times 600-1,000$ 毫米 $\times 1,000-2,000$ 毫米冷轧薄板。1Cr18Ni9Ti冷轧薄板和GH140冷轧薄板获冶金部优质产品称号。

长城钢厂四分厂

地址:中国四川省江油县武都
电话:长城钢厂总厂转四分厂308
电报:6924

概况

该厂是各分厂中规模最大的一个,占地2,185亩,下设炼钢、初轧、复合小型、热带、冷带和挤压六个主要生产车间。中心试验室在不断扩大和完善中。现有

product mix and continuously increased the output of various alloy steels and stainless steels aiming at meeting the needs of the development of the national economy. The plant occupies an area of over 40,000 square meters, possessing 4 principle production shops for steelmaking, forging, rolling and sheet rolling, and a central laboratory with complete inspection equipments. The plant has about 3,500 employees, among which over 2,240 are workers, 275 engineers and 880 administrative and service personnel.

Main Plants

Steelmaking: 2 electric arc furnaces, 5 ton and 15 ton capacity respectively; 5 electroslag furnaces of 0.5-2.5 ton capacity; one 3/5 ton non-vacuum induction furnace; 2 vacuum induction furnaces of 5 ton and 3,000 lb. capacity; one 7-ton vacuum consumable electrode remelting furnace; one 200 kw and one 1,200 kw electron beam furnaces. Forging and Fabricating: One 3-ton steam hammer; two 2,000-ton rapid presses; one 3-high rolling mill with 3stands, $\phi 650$ mm; one 3-high rolling mill with 4 stands, $\phi 400$ mm; 3-high Lauth mill; one 2-high pullover mill; two 4-high cold sheet mills.

Procedure

Electric arc furnace for producing ordinary steels for common use;

Electric arc furnace—electroslag remelting furnace for producing stainless steels and low grade super alloys;

Non-vacuum induction furnace (vacuum induction furnace)—electroslag remelting furnace (vacuum consumable electrode melting furnace) for producing steels and alloys used for aviation, astronavigation and atomic energy industries.

Main Products

Steel grades: high quality carbon structural steels, high speed tool steels, stainless steels, heat resistant steels, super alloys etc.

Specifications: forged bars, $\phi 80-200$ mm; forged disks, $\phi 260-550$ mm $\times 65-260$ mm; ring forgings, $\phi 360-900$ mm $\times 200-600$ mm $\times 100-250$ mm; hot-rolled bars, $\phi 20-120$ mm; hot-rolled plates, 4.5-8.5mm $\times 480-900$ mm $\times \leq 1,400$ mm; cold-rolled sheets, 0.5-4.0mm $\times 600$ mm-1,000mm $\times 1,000-2,000$ mm. 1Cr18Ni9Ti cold rolled sheets and GH140 cold rolled sheets have been entitled "Quality Product" by the Ministry of Metallurgical Industry.

NO.4 Plant of Changcheng Steel Works

Address: Wudu, Jiangyou County, Sichuan, China
Tel: Extension 308 via the exchange of Changcheng Steel Works
Cable: 6924 Jiangyou

General

No.4 Plant is the largest one of the four plants, occupying an area of 146 hectares. It consists of 6 main production shops namely steelmaking, blooming, compound light section, hot strip, cold strip and extrusion. The central laboratory is now

职工8,000余人, 其中工人5,800余人, 工程技术人员400人, 管理和服务人员1,560人。

主要设备

炼钢: 10—30吨(出钢量)电弧炉5座, 2.5吨电渣炉2座。加工: ϕ 825毫米2辊可逆式初轧机和精轧机, ϕ 550毫米 \times 4/ ϕ 400—280毫米 \times 9/ ϕ 320—280毫米 \times 8复合中小型半连续轧机机组, 3.5—50吨冷拔机, ϕ 750毫米立轧机, ϕ 660 \times 700毫米2辊粗轧机, ϕ 400/ ϕ 800 \times 700毫米4辊热轧机, 200/550 \times 600毫米4辊可逆式冷带粗、精轧机, 3,150吨卧式热挤压机——1,000吨立式穿孔机——18机架张力减径机无缝钢管生产线。

工艺流程

电弧炉冶炼, 用于生产一般用钢;

电弧炉熔炼——喷粉(倒包)工艺, 用于生产不锈钢;

电弧炉熔炼——电渣炉重熔, 用于生产纯洁度要求较高的钢。

主要产品

钢种: 优质碳素结构钢, 合金结构钢, 碳素工具钢, 弹簧钢, 滚珠轴承钢, 不锈钢, 耐热钢等。

钢材: ϕ 12—275毫米热轧棒材, ϕ 6—24毫米热轧盘条, ϕ 4—22毫米冷拔盘条(直条 ϕ 7—40毫米), 3.5—20毫米 \times 310—550毫米 \times 1.2—6毫米热轧窄钢板, ϕ 80—194毫米 \times 4—8毫米热挤压无缝管(厚壁管壁厚可达40—50毫米), 80—500毫米 \times 0.3—3毫米冷轧钢带。

山西省长治钢铁厂

地址: 中国山西省长治市

电话: 山西长治钢铁厂2938

电报: 山西1105

概况

长治钢铁厂位于山西省长治市北郊, 建于1947年, 原名为故县铁厂, 后改为长治钢铁厂。1958年扩建后, 生产规模和产品品种有了较大的发展, 到目前为止, 该厂包括矿山、烧结、焦化、耐火材料、炼铁、炼钢(氧气顶吹转炉和电炉)、中型轧钢、小型轧钢、无缝钢管、热轧钢带(行星轧机)、冷轧钢带、冷拔材、锻材等主要生产分厂和运

being expanded and perfected. The plant employs more than 8,000 people, among which over 5,800 are workers, 400 engineers and 1,560 administrative and service personnel.

Main Plants

Steelmaking: five electric arc furnaces of 10-30 ton capacity; two electroslag furnaces of 2.5-ton. Fabricating: 2-high reversing blooming mill and finishing mill, ϕ 825mm; semi-continuous compound medium-light section mill, 4 stands with ϕ 550mm, 9 stands with diameter 400-280mm and 8 stands with ϕ 320-280mm; 3.5-50 ton cold drawing machines, edging mill with ϕ 750mm; 2-high roughing mill ϕ 660 \times 700mm; 4-high hot rolling mill diameter ϕ 400/ ϕ 800 \times 700mm; 4-high reversing cold strip roughing and finishing mill, ϕ 200/500 \times 600mm; seamless tube line with 3150 ton horizontal hot extruder—1,000-ton vertical piercer—18-stands tension reducing mill.

Procedure

Electric arc furnace for producing steels for common use;

Electric arc furnace—powder injection (ladle to ladle) process for producing stainless steels;

Electric arc furnace—electroslag remelting furnace for producing steels of relatively high purity.

Main Products:

Steel grades: quality carbon structural steel, alloy structural steels, carbon tool steels, spring steels, ball bearing steels, stainless steels, heat resistant steels etc.

Specifications: hot-rolled bars, ϕ 12-275mm; hot-rolled rod coils, ϕ 6-24mm; cold-drawn rod coils, ϕ 4-22mm; cold-drawn straight bars, ϕ 7-40mm; hot-rolled narrow strips and plates, thickness 3.5-20mm, width 310-550mm, length 1.2-6mm; hot-extruded seamless tubes, outside dia. 80-194mm, inside dia. 4-8mm, the wall thickness of thick walled tube is up to 40-50mm; cold-rolled strips, width 80-500mm, thickness 0.3-3mm.

Changzhi Iron and Steel Works

Address: Changzhi City, Shanxi Province, China

Tel: 2938

Cable: 1105, Shanxi

General

The Changzhi Iron and Steel Works, formerly named Guxian Iron Works, is situated in northern suburb of Changzhi City. It was established in 1947. Since 1958, through extension the production capacity and varieties have been greatly increased. Up to now, the major production units are mining, sintering, coking, refractory materials, iron making, steel making (LD converter, electric furnace), medium section and merchant bar rolling mills, seamless tube mill, hot strip mill (planetary rolling mill), cold strip mill, cold-drawing bench and

输、动力、机修、制氧等辅助生产单位，以及钢铁研究所和计控室，职工1,300余人。

主要设备及工艺流程

长治钢厂下属的第二炼钢分厂以生产优质碳素钢和合金结构钢为主，还生产部分合金工具钢。采用模铸，一部分钢锭锻制成材，另一部分由中型轧机开坯，方坯经小型轧机轧成棒材或再经冷拔加工成材，扁坯经行星轧机及带钢冷轧机轧成冷轧带材。

炼钢：2座15吨（出钢量）电弧炉（4—6万吨/年），铸成630公斤方锭。

轧钢： $\phi 650$ 毫米 $\times 1/\phi 500$ 毫米 $\times 3$ 开坯或成材（23—25万吨）；小型轧机 $\phi 400$ 毫米 $\times 2/\phi 300$ 毫米 $\times 5$ 成材（7万吨）； $\phi 300$ 毫米行星轧机1台（2万吨/年）；4辊式带钢冷轧机，辊长380毫米，辊径190毫米/430毫米1套（500吨/年）；20吨双链棒材冷拔机1台（3,000吨/年）； $\phi 76$ 米自动轧管机组1套，配15吨及40吨单链钢管冷拔机各1台，20吨双链钢管冷拔机2台及连续式辊底退火炉等（1万吨）。

锻钢：3吨蒸汽锤2台，1吨蒸汽锤1台（4000吨）。

产品

名称	规格（毫米）
热轧钢坯	60 \times 60 65 \times 65
	75 \times 75 80 \times 80
热轧圆钢	$\phi 14-28$
热轧钢带	115—130 \times 3.25—4
	150—170 \times 3.25—4
冷轧钢带	40—120 \times 0.5—1.2
	115—160 \times 0.5—1.2
	105—160 \times 0.4—0.8
	105 \times 0.8
冷拔材	$\phi 10-28$
无缝钢管	$\phi 15-25 \times 2-5$
一般钢管	$\phi 26-42 \times 2-8$
	$\phi 43-65 \times 2-8$
	$\phi 16-25 \times 2-6$
锅炉管	$\phi 26-42 \times 2-8$
	$\phi 43-65 \times 2-8$
薄壁管	$\phi 10-20 \times 1.0-1.5$
	$\phi 21-42 \times 1.0-1.5$

steel forging, etc. There are also several departments such as transportation office, power house, maintenance shop, oxygen production shop. In addition, there is an Iron and Steel Research Institute and a computer centre. Now, there are more than 13,000 workers and staff members.

Main Plants and Procedure

The No.2 steelmaking factory produces high-quality carbon steels, alloy structural steels and some alloy tool steels. By mould casting, a part of steel ingots are forged into steel products and the other ingots are rolled into billets by medium section rolling mill, then the billets are rolled into rods by merchant mill or processed into other products through cold drawing bench. The slabs are rolled into cold-rolled strips by the planetary rolling mill and cold rolling mill.

Steelmaking shop: two 15-ton electric arc furnaces which produce steel ingots of 630 kg with annual capacity of 40,000-60,000 tons.

Rolling mills: There are $\phi 650\text{mm} \times 1/\phi 500 \times 3$ cogging mill, with annual capacity of 230,000-250,000 tons; $\phi 400\text{mm} \times 2/300\text{mm} \times 5$ merchant bar billet mill, with annual capacity of 70,000 tons; $\phi 300\text{mm}$ planetary rolling mill with annual capacity of 20,000 tons; four high cold strip mill, with 380mm roll length, 190mm/430mm diameter, and annual capacity of 500 tons; one 20-ton double-chain cold-drawing bench with annual capacity of 3,000 tons; one $\phi 76\text{mm}$ automatic tube mill, provided with one 15-ton and one 40-ton single-chain steel tube cold-drawing bench and two 20-ton double-chain steel tube cold drawing benches as well as a roller hearth continuous annealing furnace.

Forging shop: two 3-ton steam hammers and one 1-ton steam hammer with annual capacity of 4,000 tons.

Products

Product	sizes	m/m
hot-rolled billet	60 x 60	65 x 65
	75 x 75	80 x 80
hot rolled rod steel	$\phi 14-28$	
hot rolled strip steel	115-130 x 3.25-4	
	150-170 x 3.25-4	
cold-rolled strip steel	40-120 x 0.5-1.2	
	115-160 x 0.5-1.2	
	105-160 x 0.4-0.8	
	105 x 0.6	
cold-drawn steel product	$\phi 10-28$	
seamless steel tube	$\phi 15-25 \times 2-5$	
The plain steel tube	$\phi 26-42 \times 2-8$	
	$\phi 43-65 \times 2-8$	
	$\phi 16-25 \times 2-6$	
boiler tube	$\phi 26-42 \times 2-8$	
	$\phi 43-65 \times 2-8$	
	$\phi 10-20 \times 1.0-1.5$	
The thin wall tube	$\phi 21-42 \times 1.0-1.5$	

φ 46—51 × 1.5

备注：按国家标准交货，也可订特殊协议。

成都冶金实验厂

地址：中国成都市二环路北段二号

电话：32201 电报：成都0040

概况

成都冶金实验厂建于1958年，占地面积240,000平方米，隶属于四川省冶金工业厅，定名为成都黑色冶金试验厂。1965年冶金工业部钢铁研究总院接收该厂，作为新工艺、新产品的试验工厂，正式命名为成都冶金实验厂，1970年由冶金部下放给四川省，转为生产厂。建厂二十六年来，生产和建设不断发展，已成为初具规模的小型特殊钢厂，1983年底，全厂职工2,500余人，现有炼钢、锻造、开坯、冷拉五个主要生产车间及机修、动力、供销、运输、检验和中心实验室等辅助部门。

主要设备

炼钢：现有3座5吨电弧炉。

加工：锻造车间有3吨、1吨蒸汽锤各1台，年生产能力为1万吨；开坯车间有φ 500 × 2轧机一套；小型轧钢车间有φ 300 × 2 / φ 250 × 5轧机一套；冷拉车间有15吨冷拉机2台；同时还有1-650、1-560、4-550、6-300拉丝机，生产高强度钢丝。

产品

碳素结构钢、合金结构钢、碳素工具钢、合金工具钢和高速工具钢等各类钢种。成品钢材有10—28毫米的热轧圆钢。φ 12—15毫米螺纹钢。6—18 × 30—70毫米弹簧扁钢。φ 8—20毫米冷拔材和φ 2.0—5.5毫米高强度钢丝等70多个规格。工厂各类产品检测准确可靠，主要性能指标均达到和超过冶金部和国家标准。

该厂近期规划是：1)把钢产量增加到年产10万吨钢；2)采用吹氩、连铸工艺和微型计算机等新技术；3)φ 400毫米 × 1 / φ 300毫米 × 5棒材轧机投产；4)建成年产2万吨冷拔管的生产车间。

φ 46-51 x 1.5

Remarks: products can be supplied according to the State Standards PRC or special agreements.

Chengdu Metallurgical Experimental Plant

Address: No.2 Erhuan Road (North Section), Chengdu, Sichuan, China

Tel: 32201

Cable: 0040, Chengdu

General

This plant was established in 1958 by name of Chengdu Ferrous Metallurgical Pilot Plant, which was a subordinate unit of Sichuan Provincial Metallurgical Bureau. It covers an area of 240,000 m². In 1965, the plant was taken over by Central Iron and Steel Research Institute as its own pilot plant for scientific research in new production and technology. Since 1970, it was again turned over to Sichuan Province as a local steel plant. Through the effort of 26 years continuous development and innovation, the plant has become a new standard mini-special steel complex. At the end of 1983, there are more than 2,500 staffs and workers employed in the plant's steelmaking shop, cogging mill, bar mill, forging shop and cold drawing shop, as well as several auxiliary departments, such as maintenance service, power house, transportation, supply and marketing office, as well as inspection and laboratory centre.

Main Plants

Steelmaking shop: three 5-ton electric arc furnaces.

Forging shop: two steam hammers of 3-ton and 1-ton each (annual capacity of 10,000 tons). Cogging mill: one ø500mm x 2 rolling mill. Medium section mill: one ø300mm x 2/250mm x 5 rolling mill. Cold drawing shop: two 15-ton cold drawing machines, there are 1-650, 1-560, 4-550, 6-300 steel wire drawing machines for high strength steel wires.

Products

The main products of the plant are carbon structural steels, alloy structural steels, carbon tool steels, alloy tool steels as well as high speed tool steels. Finished steel products are ø10-28mm hot-rolled round bars, ø12-15mm reinforced bars, 6-18mm x 30-70mm spring steel flats, ø8-20mm cold-drawn steel products and ø2.0-5.5mm high strength steel wires, etc. The inspection of different products is accurate and reliable, the technical specifications of the products are in conformity with the standards issued by the state and that by the Ministry of Metallurgical Industry.

Production plan for the near future: 1) The annual capacity of steel production will be increased up to 100,000 tons; 2) To adopt new technology of argon stirring, continuous casting as well as production control with micro-computers; 3) To put 400mm x 1/300mm x 5 bar mill in operation; 4) To establish a new production shop for piercing mill and cold sink drawing steel pipes with annual capacity of 20,000 tons.

重庆铁合金厂

地址：中国四川省重庆市长寿县羊角堡

电话：长寿县 4581

电报：长寿县 3550

概况

重庆铁合金厂的前身是由原中国煤气工业公司、恒昌电化厂、渝光电熔厂、渝鑫钢铁厂、中国电化厂和华新电气公司等六家私营企业在1954年合营后而成立的重庆川江电冶厂。该厂于1966年更名为现在的重庆铁合金厂。合营前以生产电石为主，兼产少量硅铁和锰铁。合营后经过扩建和改建，以生产铁合金为主。现正根据钢铁工业发展的需要，进行重大技术改造，铬质合金产品将增加中、低、微碳铬合金，近两年内铁合金粉剂将投产。待改造项目完成后将为用户提供更多更好的铁合金产品。

全厂现有硅铁、含铬合金、硅钙、锰系合金等四个主要生产车间（各车间均配有原料加工处理、供水和供电系统），机修、采矿、包装等三个辅助车间和一个科研所；另有职工医院和子弟学校等部门。全厂现有职工2,500人，是重庆市的中型冶金企业。

主要设备

配套完整的矿热炉11台，其变压器总容量为3.8万千伏安。各台变压器均采用强油冷却，电极压放采用液压装置。原料经机械连续加工，产品采用钢包锭模浇铸。电炉配有负压反吹风布袋除尘器，其收尘率达96%以上，可以有效地防止空气污染。

产品

主要品种有硅铁、硅钙合金、硅锰合金、硅铬合金、金属硅、中碳锰铁、碳素锰铁和碳素铬铁等10个。其中硅铁占铁合金产量的75%，含铝量小于2%，还可根据用户需要生产不同规格的特种硅铁。产品外观和化学成分均不低于部颁标准或国家标准；化工产品有发气量高的优质电石。产品远销东欧和日本，在国内外享有声誉。

Chongqing Ferroalloy Works

Address: Yangjuebao, Changshou County, Sichuan Province, China

Tel: 4581, Changshou County

Cable: 3550, Changshou County

General

Chongqing Ferroalloy Works was originally named Chuanjiang Electro-Metallurgical Works, which was established in 1954 by merging six private factories: China Gas Industry Corporation, Henchang Electro-Chemical Works, Yuguan Electro-Smelting Works, Yuxin Iron and Steel Works, China Electro-Chemical Works, Huaxin Electric Corporation. It was named Chongqing Ferroalloy Works in 1966. Before merging the majority of products was calcium carbide and a small amount of ferroalloys such as ferrosilicon, ferromanganese. Being re-built and enlarged through investments from the state, the works turned to take ferroalloys as the major products. Considerable technical renovations are carried out to meet the demands for the development of iron and steel industry. Medium, low and very low carbon chromium alloys will be added. Ferroalloy powder will be put into production within two years. More ferroalloy products with better quality will be offered to the customers after the completion of the renovation project.

There are four major production shops in this works, producing ferro-silicon, chromium alloys, calcium-silicon and manganese series alloys, each shop has its own material preparation, water and power supply. There are three auxiliary shops for maintenance, packing and mining. Besides, a research institute, a hospital and a school are also provided. With totally 2,500 workers and staffs, the factory is now a medium-sized metallurgical enterprise in Chongqing.

Main Plants

Altogether the works installed eleven well-equipped submerged arc furnaces with transformer capacity of 38 MVA. The transformers are forced-oil-cooled. The clamping and slipping of electrodes are driven by hydraulic mechanism. The materials are stored for use after being treated by machines continuously. Ingot teeming is adopted. For environmental protection, all the furnaces are equipped with bag precipitators cleaned by negative pressure reverse air flow. The percentage of dust collected is over 96%.

Products

There are ten kinds of products: ferrosilicon, calciumsilicon, manganesilicon, chromesilicon, metallic silicon, medium-carbon ferro-manganese, carbon ferro-manganese and carbon ferro-chrome. The majority of products is 75%-ferrosilicon, with aluminium content under 2%. Besides, a great variety of special ferrosilicons can be produced as required by the customers. The physical and the chemical

properties of products meet the standards issued by the state or the Ministry of Metallurgical Industry. The chemical products of this works are calcium carbide of good quality with high gas generating capacity, and is exported to Eastern Europe and Japan. It has enjoyed a high reputation at home and abroad.

重庆特殊钢厂

地址：中国四川省重庆市
电话：661961 电报：重庆0500

概况

重庆特殊钢厂建于1937年，现占地3.15平方公里。拥有炼钢、锻造、轧钢、冷拉、钢丝、钢带、中板、热轧和冷轧薄板、铸造和耐火材料等18个生产车间。设有特钢研究所和精密合金研究所。该厂生产经验丰富，技术力量雄厚，能正常生产500个牌号，2,732个品种的特殊钢（包括精密合金）产品，是冶金部重点特殊钢厂之一。

主要设备

炼钢设备：11座5—20吨电弧炉；4座50—1,000公斤常压及真空感应炉；1台15吨VOD/VHD精炼设备；1套10吨真空脱气装置；5座0.5—2吨电渣炉。

轧钢设备：3台 ϕ 750毫米、 ϕ 600毫米、 ϕ 500毫米开坯机；1套 ϕ 430/ ϕ 350毫米中型材轧机；2台 ϕ 250毫米小型材轧机；2台3机架 ϕ 650 \times 1,230毫米中板轧机；4台 ϕ 760 \times 1,200毫米薄板轧机；1台4辊 ϕ 400/ ϕ 850 \times 1,200毫米薄板冷轧机；6台4辊 ϕ 200/ ϕ 460 \times 570毫米— ϕ 80/ ϕ 170 \times 270毫米带钢冷轧机；2台 ϕ 800 \times 1,200毫米、 ϕ 760 \times 1,200毫米冷、热轧钢板平整机；1台4辊 ϕ 300/ ϕ 540 \times 650毫米可逆带钢热轧机；5台2辊 ϕ 215 \times 212毫米、 ϕ 215 \times 260毫米和4辊 ϕ 80/ ϕ 180 \times 270毫米带钢冷轧机及1台12辊 ϕ 38 \times ϕ 50 \times ϕ 65 \times 350毫米带钢冷轧机。

锻造设备：3台2—5吨空气与蒸汽锻锤；1台800吨GFM精锻机。

冷拔设备：4台棒材冷拔机；8台钢丝冷拔机。

其它设备：步进式加热炉，保护气氛热处理炉等。

Chongqing Special Steel Works

Address: Chongqing City, Sichuan Province, China
Tel: 661961 Cable: 0500 Chongqing

General

It was built in 1937, and is one of the major special steel producers under the Ministry of Metallurgical Industry. The works has 18 production units: steelmaking, forging, rolling, cold-drawn, wire, strip, plate, hot and cold sheet rolling, casting, refractory etc. It occupies 3.15 sq. km. and has a Special Steel Research Institute and a Precision Alloy Research Institute. The works has rich practical experience in production and is staffed with competent technical personnel, normally producing special steel products covering 500 steel grades including 2,732 specifications (also precision alloys).

Main Plants

Steelmaking plants: Eleven 5-20-ton electric arc furnaces; four 50-1,000-kg atmosphere and vacuum induction furnaces; one 15-ton VOD/VHD refining plant; one 10-ton vacuum degassing device; five 0.5-2-ton electroslag furnaces.

Rolling mills: Three ϕ 750, ϕ 600, ϕ 500 blooming mills; one ϕ 430/ ϕ 350 medium section; two ϕ 250 bar; two 3-stand ϕ 650 \times 1,230 plate; four ϕ 760 \times 1,200 sheet; one 4-high ϕ 400/ ϕ 850 \times 1,200 cold sheet; six 4-high ϕ 200/ ϕ 460 \times 570- ϕ 80/ ϕ 170 \times 270 cold strip; two ϕ 800 \times 1,200, ϕ 760 \times 1,200 cold and hot temper mill for plate; one 4-high ϕ 300/ ϕ 540 \times 650 reversing hot strip; five 2-high ϕ 215 \times 212, ϕ 215 \times 260 and 4-high ϕ 80/ ϕ 180 \times 270 cold strip; one 12-high ϕ 38/ ϕ 50/ ϕ 65 \times 350 cold strip (all units mentioned above in millimeter).

Forging plants: Three 2-5-ton air and steam hammers; one 800-ton GFM precision forging machine.

Cold drawing plants: Four bar cold drawing benches; eight cold wire-drawing blocks.

Other plants: Walking beam heating furnaces; protective atmosphere heat-treating furnaces, etc.

Procedure

In accordance with steel grade and applications, atmosphere and vacuum induction furnace, electric arc furnace or secondary refining (such as vacuum degassing, VOD/VHD refining and electro-slag remelting), are adopted in production processes. The maximum ingot weighs 2.5 tons.

Products

High-quality carbon steels, alloy structural steels, spring steels, bearing steels, stainless and heat-resistant steels, alloy

工艺流程

根据钢种与用途,采用真空感应炉,非真空感应炉或电弧炉一次熔炼,或再经真空脱气、VOD/VHD精炼和电渣重熔生产。最大钢锭2.5吨。

产品

优质碳素钢、合金结构钢、弹簧钢、轴承钢、不锈钢、耐热钢、合金工具钢与模具钢、高速钢和精密合金,规格如下:

热轧材—— $\phi 12-75$ 毫米;方钢和六角钢12—55毫米;大中型弹簧扁钢;梯形弹簧钢。锻材—— $\phi 80-220$ 毫米(高速钢 $\phi 60-130$ 毫米)。冷拔材—— $\phi 8-45$ 毫米;六角钢8—41毫米;梯形弹簧钢。中、薄钢板——热轧板1.0—10.0毫米 $\times 710-1,000$ 毫米 $\times 1,500-2,000$ 毫米(高速钢薄板厚1.5—8.0毫米);冷轧板厚0.8—4.0毫米。冷拔钢丝—— $\phi 2-7.5$ 毫米(不锈钢和精密合金 $\phi 0.10-6.0$ 毫米)。冷轧钢带——0.2—2.0毫米 $\times 32-100$ 毫米(不锈钢和精密合金0.10—2毫米 $\times <400$ 毫米)。

大连钢厂

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概况

大连钢厂是中国主要的综合性特殊钢厂之一。原名大连钢铁工厂,建于1948年10月。三十多年来,逐步提高特殊钢的生产能力。在五十年代至六十年代,新建炼钢车间,650轧机、热轧薄板车间和精密合金车间,并扩建了炼钢车间。

七十年代以来,又增建 $\phi 76$ 毫米无缝钢管车间,二炼钢车间,四辊可逆式冷轧薄板轧机等。1978年,又试制成功我国第一台VOD装置。目前,该厂职工13,700多人。

该厂是一个高速钢生产具有专业化特色、钢丝生产占有技术优势和产品适应性广泛的综合性特殊钢厂。

全厂由生产技术、经营财务、人事

tool and die steels, high-speed steels and precision alloys, the specifications as follows:

Hot rolled steels—round 12 to 75 mm; square and hexagon 12 to 55mm; large and medium spring flats; trapezium spring. Forgings—round 80 to 220 mm (high-speed steel round 60 to 130 mm). Cold drawn bars—round 8 to 45 mm; hexagon 8 to 41 mm; trapezium spring steels. Sheets and plates—hot rolled plate 1.0 to 10.0 mm $\times 710$ to 1,000 mm $\times 1,500$ to 2,000 mm (high-speed steel sheet 1.5 to 8.0 mm thick); cold rolled sheets 0.8 to 4.0 mm thick. Cold drawn wire—round 2 to 7.5 mm (stainless steels and precision alloy wires round 0.10 to 6.0 mm). Cold rolled strips—0.2 to 2.0 mm $\times 32$ to 100 mm (stainless steel and precision alloy strips 0.10 to 2 mm $\times 400$ mm max.).

Dalian Steel Plant

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General

Dalian Steel Plant is one of the major comprehensive special steel plants in China. It was set up in October 1948, with the original name Dalian Iron and Steel Works. Since the establishment of the People's Republic of China, the producing capacity of special steels in the plant has progressively increased. In the 50's and 60's, a new steelmaking shop, a $\phi 650$ mm rolling mill, a hot sheet rolling mill and a precious alloy workshop were successively set up. The existing steelmaking shop then was also enlarged.

Since the 70's, a $\phi 76$ mm seamless tube rolling mill, the No.2 steelmaking shop, a reversing 4-high sheet cold-rolling mill etc. have been built and a VOD set, the first in our country, was installed in 1978. The plant now has 13,700 employees.

The plant features in production of high speed tool steels, dominant position of wire production technology and its products has wide adaptability to the requirements of customers.

The plant consists of the following five departments:

培训、设备管理和行政福利五大系统构成。主要生产车间：一炼钢、二炼钢、锻钢、750毫米初轧、一轧、二轧、三轧、钢丝、钢管、薄板、耐火和金属制品等。另外，设有特钢研究所、精密合金研究所、计量控制研究所及中心实验室。主要辅助车间：铸钢、机械、安装、电力、制氧、煤气、水汽、原材料和运输等。

主要设备

电弧炉10座、蒸汽锤7台、轧钢机9座以及VOD精炼装置、钢液真空脱气设备、真空感应炉、电渣炉、精锻机、薄板及钢管冷轧机、多辊钢带轧机、各种滑动和无滑动拔丝机、真空热处理炉及可控气氛热处理等工艺装备。

工艺流程

电炉炼钢(包括精炼和真空处理)——模铸——锻造或初轧开坯——轧制、热处理、精整

——棒材、管材、薄板、带材
——冷拔、热处理、精整——丝材、管材。

产品

钢种：高速工具钢、不锈钢、轴承钢、特殊合金、弹簧钢、合金结构钢、合金工具钢、碳素结构钢、碳素工具钢和硅钢。

上述钢种可生产小型材、管、板、棒材精密合金带及优质钢丝。

规格：锻材 ϕ 60—350毫米；大型轧材 ϕ 80—130毫米；中型轧材 ϕ 21—75毫米；小型轧材 ϕ 8—20毫米；线材 ϕ 8—16毫米；薄板1—4×760×1600—2000毫米；无缝管 ϕ 25— ϕ 108×0.3—8毫米；冷轧管0.02—3× ϕ 20—450毫米；冷拉丝 ϕ 0.009— ϕ 12毫米。

该厂产品供应国内29个省市、约2900多个机械、冶金、轻工、交通和能源工业部门，并向美国、菲律宾、印度和孟加拉国出口。

production technology, sales and finance, personnel training, equipment and maintenance, administration and welfare.

The main workshops are the No.1 and No.2 steelmaking shops, the forging shop, the ϕ 750mm blooming mill, the No.1, No.2 and No.3 rolling mills, the wire drawing workshop, the seamless tube rolling mill, the sheet rolling mill, the refractory workshop etc. A Special Steel Research Institute, a Precious Alloy Laboratory, a Measuring and Research Control Institute as well as a central laboratory were also set up in this plant. The major auxiliary workshops are foundry, machinery, installation, power, oxygen plant, gas, steam, raw materials and transportation etc.

Main Plants

The main equipments include 10 electric arc furnaces, 7 steam hammers, 9 rolling mills, a vacuum degassing set, a VOD set, the vacuum induction furnaces, the electroslag remelting furnaces, a precision forging machine, the cold sheet rolling mill, the tube rolling mill, the strip cluster mill, various slip and nonslip wire drawing machines, the vacuum and atmosphere-controlled heat treatment furnaces etc.

Procedure

Electric arc furnace melting (including VOD and vacuum degassing) — ingot teeming — forging or blooming — rolling — heat treatment — finishing — [bars, tubes, sheets, strips cold-drawing—heat-treatment, finishing — wires, tubes.

Products

The steel grades are as follows: High speed tool steels, stainless steels, bearing steels, special alloys, spring steels, alloy structural steels, alloy tool steels, carbon structural steels, carbon tool steels and silicon steels.

The steels can be processed into bars, tubes, sheets, rods, precious alloys and high quality wires etc. with specifications as follows:

forged bars: dia. 60-350 mm

rolled bars: dia. 80-130 mm

dia. 21-75 mm

dia. 8-20 mm

wire rods: dia. 8-16 mm

sheets: (1-4) × 760 × (1,600-2,000) mm

seamless tubes: dia. 25-108 wall thickness 0.3-8 mm

cold-rolled tubes: dia. (0.02-3) × (20-450) mm

cold drawn wires: dia. 0.009-12 mm

The products are supplied to customers at home, about 2,900 factories of machine building, metallurgical, light, transportation and energy industries, in 29 provinces and municipalities and also well sold to USA, Philippines, India and Bengal.

大冶钢厂

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Daye Steel Works

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概况

大冶钢厂是具有94年历史的中国最老的钢铁企业，它的前身是汉冶萍煤铁厂矿有限公司的大冶铁厂。五十年代以来，大冶钢厂不断发展和改进冶炼工艺和后道工序，采用了电炉、平炉混合炼钢，平炉钢水RH真空脱气处理，电炉钢水实行VAD/VOD炉外真空脱气精炼，喷射冶金，冷拉材氮气保护热处理，在线超声波无损检测，并配备了电子显微镜、电子探针、扫描电子显微镜、直读光谱、快速碳硫联合测定仪等测试设备。目前能正常生产和提供的产品有碳素钢、合金钢、弹簧钢、工具钢、高速钢以及高温合金等680多个钢号的棒、管、丝材和锻、铸件等品种。这些产品质量稳定并享有较高信誉。近几年内，该厂的热轧单面双槽弹簧扁钢荣获国家质量奖的银质奖，10号和20号圆钢管坯，18-20CrMnTi齿轮用圆钢，航空压气机盘用圆钢，GH36圆饼锻件，真空脱气铬轴承钢热轧中型材，齿轮用25MnTiBxt圆钢等荣获冶金工业部质量奖，GCr15高碳铬轴承钢热轧材，G20CrNi2MoA渗碳轴承钢，GH36高温合金，30CrMnSiA ϕ 200压气机盘用料等均荣获湖北省质量奖。

主要设备

90吨平炉，5—24吨电弧炉，1.2—2.5吨电渣重熔炉，200—430公斤的真空及非真空感应炉，VAD炉， ϕ 850毫米开坯机， ϕ 500毫米中型材轧机， ϕ 300—430毫米小型材轧机， ϕ 76毫米无缝钢管机组，1—5吨蒸汽锤以及冷拉钢丝机组等。

产品

碳素结构钢：热轧材有10—130毫米圆，12—85毫米方和12—45毫米六角；锻材有55—250毫米圆或方；冷拉棒材有8—40毫米圆；冷拉丝有1—6毫米圆；冷拉管有外径5—60毫米，壁厚0.5—5毫米。

合金结构钢：热轧材有10—130毫米圆和12—85毫米方；锻材有55—250毫米圆和55—230毫米圆和55—230毫米方；锻造盘和环件外径至500毫米；冷拉棒8—40毫米圆；冷拉丝1—6毫米圆；冷拉管外径5—60毫米，壁厚0.5—5毫米。

General

Daye Steel Works is the oldest iron and steel enterprise in China. It was formerly a branch of Han-Ye-Ping Coal and Iron Co. Ltd., and has a long history of 94 years. Since the fifties of the present century, Daye Steel Works has continuously developed the steelmaking practices and downstream processes including electric arc furnace-open hearth mixing melting process, open hearth +RH vacuum degassing process, electric arc furnace + VAD/VOD vacuum degassing process, injection steelmaking, the nitrogen atmosphere annealing of cold-drawn rods, in-line ultrasonic non-destructive inspection etc. In the laboratory, there are various kinds of advanced equipments such as electron probe microanalyser, electron microscope, scanning electron microscope, direct reading spectrometer, rapid carbon and sulphur analysis equipment and so on. Today, more than 680 different steel grades including carbon, alloy, spring, tool, high speed steels, and superalloys are regularly produced and supplied in bars, wire rods, tubes, forgings and castings. These products have a good reputation for their quality. In recent years, hot-rolled one-side double-grooved flat steel won the National Silver Medal; tube rounds of grade 10[#] and 20[#], 18-20 CrMnTi rounds for gear, rounds for aircraft compressor disk, GH36 round-cake shaped forging, hot-rolled medium sized shape products of vacuum-degassed Cr bearing steel, 25MnTiBxt round steel for gear etc. won prizes from the Ministry of Metallurgical Industry; GCr15 hot-rolled products of high-carbon Cr bearing steel, G20CrNi2MoA carburized bearing steel, GH36 superalloy and 30CrMnSiA for ϕ 200mm compressor disk etc. also won quality prizes from Hubei provincial government.

Main Plants

90-ton open hearth furnaces, 5 to 24-ton electric arc furnaces, 1.2 to 2.5-ton electro-slag remelting units, 200 to 430 kg vacuum and atmosphere melting induction furnaces, VAD unit; ϕ 850mm billet mill, ϕ 500mm medium section mill, 300 to 430mm light section mills; 76 mm seamless steel tube mill; 1 to 5-ton steam hammers; wire-drawing machines.

Products

Carbon structural steels: Hot-rolled round bars 10 to 130 mm, squares 12 to 85 mm, hexagons 12 to 45 mm, Forged round or square bars 55 to 250 mm; Cold-drawn round bars 8 to 40 mm; Cold-drawn round wires 1 to 6 mm; Cold-drawn tubes 5 to 60mm out. dia. by 1/2 to 5 mm wall thickness.

Alloy structural steels: Hot-rolled round bars 10 to 130 mm, squares 12 to 85 mm; Forged round bars 55 to 250 mm, squares 55 to 230 mm; Forged disks and rings, up to 500 mm out. dia.; Cold-drawn round bars 8 to 40 mm; Cold-drawn round wires 1 to 6 mm; Cold-drawn tubes 5 to 60 mm out. dia. by 1/2 to 5 mm wall thickness.

Carbon tool steels: Hot-rolled round bars 10 to 130 mm; squares 12 to 85 mm, hexagons 12 to 45 mm; Forged round bars 55 to 230 mm, squares 55 to 220 mm; Cold-drawn round bars 8 to 30 mm.