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Hot-rolled Steel

热轧产品手册

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宝山钢铁股份有限公司
BAOSHAN IRON & STEEL CO., LTD.

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INTRODUCTION OF BAOSTEEL AND ITS HOT ROLLING LINES

宝钢及其热轧产线介绍

宝山钢铁股份有限公司（简称“宝钢股份”）是全球领先的现代化钢铁联合企业，是《财富》世界 500 强中国宝武钢铁集团有限公司的核心企业。宝钢股份以“成为全球最具竞争力的钢铁企业和最具投资价值的上市公司”为愿景，致力于为客户提供超值的产品和服务，为股东和社会创造最大价值，实现与相关利益主体的共同发展。

2000 年 2 月，宝钢股份由上海宝钢集团公司独家创立；同年 12 月，在上海证券交易所上市（证券代码：600019）。2017 年 2 月，完成换股吸收合并武钢股份后，宝钢股份拥有上海宝山、武汉青山、湛江东山、南京梅山等主要制造基地，在全球上市钢铁企业中粗钢产量排名第二、汽车板产量排名第一、取向硅钢产量排名第一，是全球碳钢品种最为齐全的钢铁企业之一。

宝钢股份坚持走“创新、协调、绿色、开放、共享”的发展之路，拥有享誉全球的品牌、世界一流的制造水平和服务能力。公司注重创新能力的培育，积极开发应用先进制造和节能环保技术，建立了覆盖全国、遍及世界的营销和加工服务网络。公司自主研发的新一代汽车高强钢、取向硅钢、高等级家电用钢、能源海工用钢、桥梁用钢等高端产品处于国际先进水平。

展望未来，宝钢股份将秉承和落实中国宝武“成为全球钢铁业引领者”的愿景和“共建高质量钢铁生态圈”的使命，坚持精品发展、绿色转型和智慧升级，深入探索钢铁企业与现代都市的共融共生之道，积极与员工、用户、投资者和社会公众共享企业发展所收获的丰硕成果，奋力书写新时代钢铁报国、钢铁强国的崭新篇章。

Baoshan Iron & Steel Co., Ltd. (hereinafter referred to as “Baosteel”), is a globally leading modernized integrated iron and steel company and the core enterprise of China Baowu Steel Group Corporation, which is listed in Fortune's Global 500. With a strategic objective to build itself into the most globally competitive iron and steel enterprise and a listed company with the greatest investment value, Baosteel devotes to providing prominent products and services to customers, creating best value for shareholders and the society, and achieving the joint development with stakeholders.

In February 2000, Baosteel was founded by Shanghai Baosteel Group Corporation , and was listed on Shanghai Stock Exchange (stock code: 600019) in December of the same year . In February 2017, Baosteel merged Wuhan Iron & Steel by absorption, which turns Baosteel into a company that owns such main manufacturing bases as Shanghai Baoshan, Wuhan Qingshan, Nanjing Meishan and Zhanjiang Dongshan. The company ranks 2nd in the crude steel production, 3rd in the automotive sheet output and 1st in the oriented electrical steel output among all the global listed steel companies. The company is also one of the global steel enterprises with the most complete carbon steel products.

Baosteel Co., Ltd. sticks to the development road of “innovation, coordination, green, openness and inclusiveness”, and possesses the world-renowned brands and the world first class manufacturing and service capability. The company attaches great emphasis to cultivating its innovation capacity, actively develops and deploys advanced technologies of manufacturing, energy-conservation and environmental protection, and has established the marketing, processing and service network with nationwide coverage and worldwide involvement. Its independently developed high-end products, such as the new generation high strength automotive steel, grain-oriented electrical steel, high grade steel for household appliances, steel for energy and marine engineering, steel for bridges, hot-rolled heavy rail and etc, all reached the world's advanced level.

Facing the future, Baosteel will inherit and carry out China Baowu's vision of “becoming a leader in global steel industry”and mission of “building a high-quality steel ecosphere”. Adhering to quality development, green transformation and intelligent upgrade, Baosteel thoroughly explores the joint growth of steel companies and modern cities, actively shares fruitful achievement with employees, customers, investors and the public, and courageously writes the new chapter of a stronger steel industry and steel country.

CORE BASE
BAOSTEEL IRON & STEEL CO., LTD.

[总部] 宝山钢铁股份有限公司

位于上海东北翼，是全球最大的长流程钢铁制造基地之一。年产钢能力超 1450 万吨。

Located in the north-east of shanghai, the Core Baosteel is one of the largest steel processing bases in the world. The annual capacity is more than 14.5 million tons.

2050 hot rolling mill

2050 热连轧产线

2050mm 热轧机组于 1989 年投入生产，设计年产量 450 万吨。主体设备由德国西马克、西门子等公司成套提供，包括四座大型步进式加热炉，四架带立辊的粗轧机，一台连杆切头飞剪，七架四辊式精轧机，三台地下液压卷取机等设备。2050 热轧生产品种有：低碳钢、结构钢板、汽车结构钢板、船体结构钢板、耐腐蚀结构钢板、机械结构钢板、压力容器用钢、管线用钢等。极限供货规格为厚度 1.2~25.4mm，宽度 600~1900mm。

2050 热轧配备了两条热处理产线，设计产能 20 万吨。其中完全自主研发的集约型热处理线为世界第一条全连续热轧热处理产线，设计产能 10 万吨，计划于 2022 年 5 月投产，产品具有优秀性能、板形和表面质量，主要应用于工程机械、商用车、防护等领域。供货规格为厚度 2.0-12.0mm，宽度 600-1900mm，长度 2000-14000mm。

Line 2050 is named by the length of the roller. It initialed its production in 1989. The designed capacity was 4.5 million tons per year.The main sets of the equipments were provided by SMS group and Siemens, etc., including 4 walking beam furnaces, 4 rough rolling mills with vertical rollers, 1 flying shear, 7 stand four-high finishing mill and 3 underground coiling machines. The main products from line 2050 cover low carbon steel, structure steel, automobile structural steel, marine steel, anti-corrosion steel, machinery steel,pressure vessel steel and pipe steel. For line 2050, the nominal thickness is from 1.2mm to 25.4mm. The nominal width is from 600mm to 1900m.

It is equipped with two heat treatment lines with the capacity of 0.2 million tons per year .The new independently-developed intensive and continuous heat treatment line is the first of its kind for hot rolled coils in the world with the capacity of 0.1 million tons per year,which came into operation in May 2022. The products are of good mechanical properties, well profiles and surface quality, serving the industries like engineering machinery,commercial vehicle, safeguarding and so on , with the nominal thickness ranging from 2.0mm to 12.0mm, the nominal width from 600mm to 1900m and the nominal length from 2000mm to 14000m.

1580 hot rolling mill

1580 热连轧产线

1580mm 热轧机组于 1996 年建成投产，设计年产量 280 万吨。主体设备由日本三菱引进。该设备采用了当时世界领先的定宽侧压机、边部加热器、PC 轧机等多项新技术。1580 的热轧产品主要供公司内冷轧原料使用，其余为热轧商品材。主要品种有热轧低碳钢、结构钢、钢管用带钢、机械结构用钢、汽车结构用钢、集装箱用钢、镀锡板用热轧钢卷等。极限供货规格为厚度 1.5~12.7mm，宽度 700~1430mm。

Hot rolling line 1580 went in to operation in 1996. The designed capacity was 2.8 million tons per year and reached 4.05 million tons in 2007. The main set of equipments were from Mitsubishi. The line adopted the advanced technologies at that time, such as fixed side pressure machine, edge heater and PC mill. Most of the coils from line 1580 are the raw material for cold-rolled product in Baosteel. The rest products are low carbon steel, structural steel, marine container steel, TMBP(tin mill black plate). For line 1580, the nominal thickness is from 1.5mm to 12.7mm. The nominal width is from 700mm to 1430mm.

1880 hot rolling mill

1880 热连轧产线

1880mm 热轧机组是宝钢“十一五”规划重要项目之一，于 2007 年 3 月正式投产，设计年产量 370 万吨。轧线主体机械设备为日本三菱日立 (MH) 设计，设备由宝菱重工提供。除生产常规产品外，机组具有快速冷却、低温卷取等技术使其可以生产高强钢和各类先进钢。极限供货规格为厚度 1.5~12.7mm，宽度 700~1730mm。

Hot rolling line 1880 is an important project for Baosteel during the eleventh five year plan in China. It went into operation in March,2007. The designed capacity is 3.7 million tons each year. The main equipment in the line was designed by Mitsubishi-Hitachi and provided by Gaoling Heavy&Industrial Machinery Co., Ltd. With the rapid cooling and low-temperature coiling technologies applied,this line is suitable for extreme high strength steel and advanced steel in addition to conventional products. The nominal thickness is from 1.5mm to 12.7mm. The nominal width is from 700mm to 1730mm.

WUHAN
IRON AND STEEL CO., LTD.
武汉钢铁有限公司

公司厂区坐落在武汉市东部、长江南岸，主要有线材、热轧型钢（含热轧重轨）、热轧卷板、热轧中厚板、冷轧卷板、镀锌板（含电镀锌）、镀锡板、冷轧取向和无取向硅钢片、彩涂钢板等各类钢铁品种。年产钢能力1507 万吨。

The company is located in the eastern of Wuhan and sits on the north side of Yangtze River,Main products contain HRC, HRP, CRC, HGI, EGI, PPGI, GO, NGO, Wire Rods, Sections (including rails), Tin plates and etc.The annual capacity is more than 15.07 million tons.

2250 hot rolling mill

2250 热连轧产线

2250 产线于 2003 年 3 月建成投产，该产线引进国外最先进的技术装备，拥有独特超快冷控制系统，配备有国际最先进的板形尺寸控制和表面检测系统。目前，年产钢材 450 万吨，产品以更宽、更厚、更高强度级别碳素钢、工程机械用钢、汽车用钢、石油天然气用钢、造船用钢为主，极限供货规格为厚度 1.5~25.4mm，宽度 900~2130mm。

The 2250 hot rolling line was put into operation in March 2003,it has introduced the most advanced technology and equipment abroad,and has a unique super fast cooling control system.It is equipped with the most advanced international plate-shape and size control and surface inspection system.At present,the annual output of steel is 4.5 million tons,and the major products include the wider,thicker and higher strength grade of carbon steel and other steel used for engineering machinery,automobile,gas pipeline and shipbuilding.The nominal thickness is from 1.5mm to 25.4mm. The nominal width is from 900mm to 2130mm.

1580 hot rolling mill

1580 热连轧产线

1580 产线于 2007 年底建成投产，拥有先进的板型控制和在线表面检测系统，年钢材产量 280 万吨。商品材品种主要有普通碳素结构钢、低合金结构钢和高耐候结构钢，产品规格以薄厚度、窄宽度为主。极限供货规格为厚度 1.8~6.0mm，宽度 780~1350mm。

The 1580 hot rolling line was put into operation at the end of 2007.It is equipped with the most advanced international plate-shape and size control and surface inspection system.The annual output of steel is 2.8 million tons.The main commodity steel products include common carbon structural steel,low alloy structural steel and high weather ablility structural steel. The products maily have thin and narrow specifications.The nominal thickness is from 1.8mm to 6.0mm. The nominal width is from 780mm to 1350mm.

The sheet billet continuous casting and rolling mill

薄板坯连铸连轧产线

薄板坯连铸连轧产线于 2008 年底建成投产，年钢材产量 250 万吨。薄板坯连铸连轧工艺全称是转炉 - 薄板坯连铸连轧工艺，简称 CSP，又称为紧凑式热带生产工艺，最大工艺特点是能耗低、流程短。产品主要包括碳素钢、中高碳钢、汽车用钢、集装箱用钢等；产品最大特点是厚度薄，可部分替代冷轧板。极限供货规格为厚度 1.2~12.7mm，宽度 1000~1600mm。

The sheet billet continuous casting and rolling mill was put into operation at the end of 2008,and the annual output of steel was 2.5 million tons.The full name is converter-sheet billet continuous casting and rolling process(abbreviated as CSP).The most remarkable process features are low energy consumption and short process. The products include carbon steel,medium and high carbon steel,automobile steel, container steel.The major feature of the product is the thin thickness,so it can partly replace the cold rolling plate. The nominal thickness is from 1.2mm to 12.7mm. The nominal width is from 1000mm to 1600mm.

SHANGHAI MEISHAN IRON & STEEL CO., LTD

上海梅山钢铁股份有限公司

上海梅山钢铁股份有限公司是宝钢股份公司控股的子公司,位于南京市西南郊。公司始建于 1969 年 4 月,经过四十多年的发展,已成为集炼焦、烧结、炼铁、炼钢、热轧、冷轧为一体的钢铁联合企业。

Shanghai Meishan Iron & Steel Co.,Ltd., a holding company of Baosteel Iron & Steel Co., Ltd., is located in the southwest suburb of Nanjing city. The company was founded in April 1969. It has become an iron and steel complex covering coking, sintering, iron making, steel making and hot rolling after more than 40 years development.

1422 hot rolling mill

1422 热连轧产线

1422mm 热连轧产线于 1994 年建成投产，经过多次技术改造，目前主体机械设备为西马克公司设计，采用美国 GE 公司计算机控制系统，年生产能力达到 350 万吨。产品包括冷成型用钢、结构用钢、汽车结构用钢、耐腐蚀结构用钢、石油天然气输送管用钢、直缝焊套管用钢、焊接气瓶用钢、花纹钢带等品种。极限供货规格为厚度 1.2~12.7mm，宽度 800~1300mm。

The hot rolling line 1422 went into operation in 1994. The main equipments were imported from NSC, and the control system was from AEG. After several modifications, the capacity of this line reached 3.5 million tons per year. The main products cover low carbon steel, structural steel, automobile steel, anti-corrosion steel, pipe steel, gas cylinder steel and checker plates. The nominal thickness is from 1.2mm to 12.7mm. The nominal width is from 800mm to 1300mm.

1780 hot rolling mill

1780 热连轧产线

1780mm 热连轧产线为宝钢股份自主集成项目，设计年产热轧钢卷 401.2 万吨，产品包括冷成型用钢、工程机械用钢、汽车结构用钢、结构用钢、刀模和锯片用钢、耐腐蚀结构用钢、石油天然气输送管用钢、花纹钢带等品种。极限供货规格为厚度 1.2~19mm，宽度 900~1630mm。

The hot rolling line 1780 is Baosteel independent integration project. The designed capacity of hot rolled coil is 4.012 million tons per year. The main products cover cold forming steel, engineering machinery steel, au-tomobile structural steel, structural steel, die-cutting and sawblade steel, anti-corrosion structural steel, steel for pipe line of petroleum and natural gas and checker strip. The nominal thickness is from 1.2mm to19mm. The nominal width is from 900mm to 1630mm.

ZHANJIANG IRON & STEEL CO., LTD

湛江钢铁有限公司

位于湛江东海岛东北侧。设计生产规模为年热轧钢卷 1070 万吨。

Located on the northeast side of Zhanjiang island. According to the overall planning of Zhanjiang iron & Steel Co.,Ltd, designed capacity is 10.70 million tons per year.

2250 hot rolling mill

2250 热连轧产线

2250mm 热连轧产线为宝钢股份自主集成项目，设计年产热轧钢卷 620 万吨，于 2016 年 1 月 15 日投入生产。产品包括低碳钢、普通结构钢、汽车结构钢、船板结构钢、耐腐蚀结构钢、工程机械用高强钢、管线用钢、气瓶钢等。极限供货规格为厚度 1.2~25.4mm，宽度 800~2100mm。极限供货规格为厚度 1.2~25.4mm，宽度 800~2100mm。

Line 2250 is Baosteel independent integration project, designed capacity is 6.2 million tons per year, put into production in January 15, 2016. The main products from line 2250 cover low carbon steel, structure steel, automobile structural steel, marine steel, anti-corrosion steel, machinery steel,pressure vessel steel and pipe steel. The nominal thickness is from 1.2mm to 25.4mm. The nominal width is from 800mm to 2100mm.

1780 hot rolling mill

1780 热连轧产线

1780mm 热连轧产线设计年产量 450 万吨，于 2021 年 7 月投入生产。产品包括低碳钢、普通结构钢、汽车结构钢、耐腐蚀结构钢、工程机械用高强钢、气瓶钢等。极限供货规格为厚度 1.2~12.7mm，宽度 720~1630mm。

The designed capacity of line 1780 is 4.5 million tons per year, put into production in July 2021.The main products cover low carbon steel, structure steel, automobile structural steel, anti-corrosion steel, machinery steel, and pressure vessel steel. The nominal thickness is from 1.2mm to 12.7mm. The nominal width is from 720mm to 1630mm.

HOT - ROLLED PRODUCTS

热轧产品

PRODUCT CATEGORY

热轧产品类别

宝钢热连轧产品具有强度高、韧性好，易于加工成型及良好的可焊接性等优良性能，被广泛应用于船舶、汽车、桥梁、建筑、机械、压力容器等制造行业。

With wide strength range, easy processability and excellent welding per-formance, the hot-rolled products of Meishan are widely used in various industries, such as marine, automobile, bridge, construction, machinery and pressure vessels.

结构用钢

产品广泛用于建筑结构、桥梁、船舶、铁路车辆、大型机械及其它结构件等。

Structrual Steel

Widely used in architecture, bridge construction, marine craft, railway locomotive heavy machine and other structural parts.

耐蚀用钢

产品供制造集装箱、铁道车辆、海港建筑等耐腐蚀结构件。

Anti-Corrosion Steel

Mainly used in anti-corrosion structural parts to make container, railway locomotive, oil der-rick and seaside construction.

汽车用钢

产品主要用于汽车大梁、横梁、车轮、传动轴管、桥壳等。

Steel for Automotive Structural Uses

Mainly used to make beam, crossing beam wheel, transmission axle tube and housing parts.

工程机械高强钢

产品广泛应用于工程机械、车辆结构、集装箱等制造行业。

Steel for Construction Machinery

Widely used in manufacture industries for en-gineering machine, automobile structure and container.

特殊钢

产品主要用于汽车零部件、刀模锯片、园林工具等。

Hot-rolled Special Steel

Suitable for automobile parts, saw, blade, garden tools.

耐磨钢

适用于重型卡车自卸车、垃圾收集车、混凝土搅拌车、工业风扇、料斗、碎料机、煤矿机 械、粮食机械、抓斗等。

Wear Resistant Steel

Developed for applications where high wear resistant performance is required, such as dumper, garbage vehicle, concrete mixer truck, industrial air fan, hopper, crusher, machinery for coal, grain, cement, grab bucket, etc.

装甲防护钢

产品适用于运钞车、装甲运兵车、押解车辆、贵宾车辆、 防盗门、银行柜台防护板、保险柜、盾牌、钢盔等。

Protection Steel

The steels can be used for applications where high ballistic performance is required, such as armored cars, armored personnel carriers, escort vehicles, VIP cars, security doors, bank counter shield, safety box, shields, helmet ,etc.

气瓶、容器及耐热结构

产品主要用于蒸汽锅炉设备、焊接气瓶及较高工作温度的压力容器和耐热结构件等。

Gas Cylinder Steel

Suitable for steam boiler equipments, welding cylinder and pressure vessel with high working temperature and heat resistant structure.

搪瓷用钢

产品供以干法和湿法搪瓷工艺进行搪瓷制造热水器内胆等用途。

Enameling Steel

Suitable for dry powder and wet enamel process to make inside liner of water heater.

船板

产品用于制作一般强度和高强度船体结构件。

Hull Structural Steel

Mainly used to high-strength hull make normal strength and structural parts.

磁轭钢

适用于制造水轮发电机组转子磁轭。

Rim Lamination Steel

Suitable for magnetic rim steel sheets for hydro turbine rotor.

管线用钢

该产品制成管道后广泛用于石油天然气等介质的输送。

Pipelines Steel

Mainly used to make spiral welded or straight welded pipe for petroleum or natural gas.

花纹钢带

花纹钢带是表面带有凸起花纹的钢带或钢板，具有防滑、耐磨功能，广泛地应用在建筑、船舶、交通运输和机械制造等行业中。

Checker Steel

Checker steels are steel plate or steel strip with bulge checker surface.With anti-slip and wear-resistant performance, they are widely used in architecture,marine craft,transportation and machine building.

冷轧压延

产品主要用于冷轧压延，例如轧硬、镀锡、镀锌和彩涂等。

Steel for Cold Rolling

This cold rolled steel is used in many cold rolled products, such as CR, MR, GI and color plates.

PRODUCT DELIVERY CONDITION
交货状态

热轧产品交货状态分为
The delivery condition for
Hot-rolled steels

卷状交货

直发卷

钢卷轧制之后未经其他处理，直接交货。

平整卷

轧制后的钢卷经过平整机组平整可以消除屈服平台，不容易出现腰折。同时平整时可以去除头尾和不良部分，改善表面和板形,调整卷重。平整卷最厚规格为 6.35mm。

分卷

轧制后的钢卷经过分卷机组矫直，去除头尾和不良部分，可以改善表面和板形。分卷时可以进行切边，也可以将大卷切分成数个小卷。分卷最厚规格为 12.7mm。

纵切卷

轧制后的钢卷经过纵切机组纵切，可以将一个卷分出几个较窄的钢卷。纵切最厚规格为 12.7mm。

In Coils

As Rolled

The coils will be delivered after rolling process without any other treatment.

Skin Passed

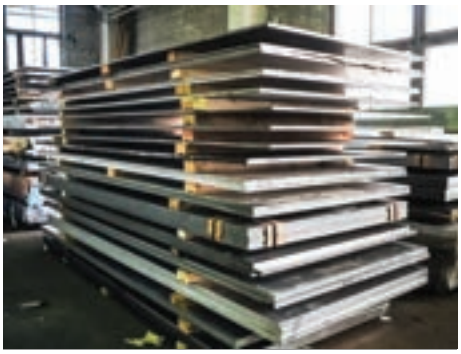
The rolled coils will be skin-passed in order to remove the yield point jog and avoid the stretcher strains. During the skin-pass process, the defective section of the coil, such as tongue or tail, will be cut off. The shape and surface quality of the coil will be improved. For the skin-passed coils, the maximum available thickness is 6.35mm.

Cut-coil

The rolled coils will be leveled and the defective section will be removed. The coil can be delivered cut-edge if needed. For the cut-coil, the maximum thickness is 12.7mm.

Slitted Coil

The rolled coil can be sliced into several individual coils after the slitting process. The maximum thickness is 12.7mm for the slitted coils.

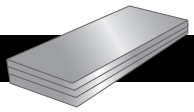


板状交货

轧制后的钢卷切板，并经过多道次的平整和矫直或进一步热处理，以及细致的检查与剔除缺陷，因而具有更好的板形与表面质量。钢板可以毛边交货，也可以切边交货。

板状交货的钢材可以选择两种包装方式。一是普通包装，钢板表面裸露，通过捆带捆扎；另一种是盒式包装，钢板用防锈纸包裹，侧面、顶面用侧护板和上盖板保护，底下装有垫木和托架。如果用户对钢板的表面质量有很高要求，请选择盒式包装，以避免运输仓储过程中造成生锈、划伤等缺陷。

In Sheets



The rolled coil will be skin-passed, leveled and cut into sheets. The sheets will heat treat according to user needs. Due to the careful inspection and removal of the defect, the final product will have a good shape and surface quality. The edge condition of the sheets could be mill edge or cut edge.

There are 2 package ways for the sheets. One is normal package, the sheets will be fastened by steel tapes without wrapping. The other is box package. The sheets will be wrapped in oilpaper and protected by boards from the sides and top direction. Stow-wood and tray will be fastened under the sheets. In order to avoid the rust and scratch during transport and storage, it's better to choose the box package.

The in sheet delivery condition is not available for Zhanjiang steel business unit and Meishan for they do not have cutting edge line. But Meishan steel has been achieved outside the processing, to provide a sheet.

NOMINAL WEIGHT
产品重量

热轧产品的重量
The nominal weight for
Hot-rolled steels

卷状交货

对于钢卷，重量按照实际重量计算，单个钢卷由于各个机组的生产状况不同，其可供重量范围也不同。一般随着订货宽度的增加，直发卷的可供重量也会增加，有如下经验公式：

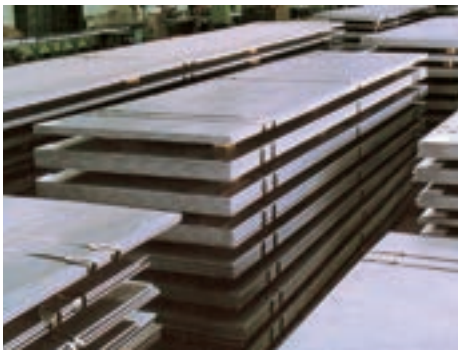
In Coils

The nominal weight of the coils is as weighted. For the as-rolled coils, the weight range differs according to the lines. The available weight increases when the width increases. The available weight is listed as following:

宽度单位：米
Width: meter

生产单元 Production Unit	直发卷可供重量（吨）	
	最小 Min	最大 Max
总部 Baosteel	15.5 × 宽度 / width	23 × 宽度 / width
梅钢 Meishan	13 × 宽度 / width	20 × 宽度 / width
湛钢 Zhanjiang Iron & Steel	15.5 × 宽度 / width	23 × 宽度 / width
武钢 Wuhan Iron and Steel Co., Ltd.	15.5 × 宽度 / width	23 × 宽度 / width

平整卷或分卷交货时由于可以将钢卷切分成多个钢卷，因此最小卷重可以是 5 吨。
The minimum weight of the cut-coil or skin-passed coils is 5 ton as the coils could be cut into several small coils.



板状交货

对于钢板，4mm 以下只能按照实际重量计重，4mm 以上可以选择按照实际重量交货或者理论重量交货。

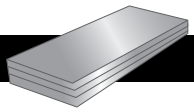
钢板理论重量计算公式一般如下:

钢板理论重量（吨）= 宽度 × 长度 × 厚度 ×7.85 × 钢板张数

其中宽度、长度、厚度单位为米，重量单位为吨。更多信息可参照 GB/T 709.

板状交货最大重量为 10 吨。

In Sheets



For thickness below 4mm, the weight of the sheet could be as weighted. For thickness above 4mm, the weight of the sheets could be as weighted or as theory.

The theory weight is calculated as the following formula:

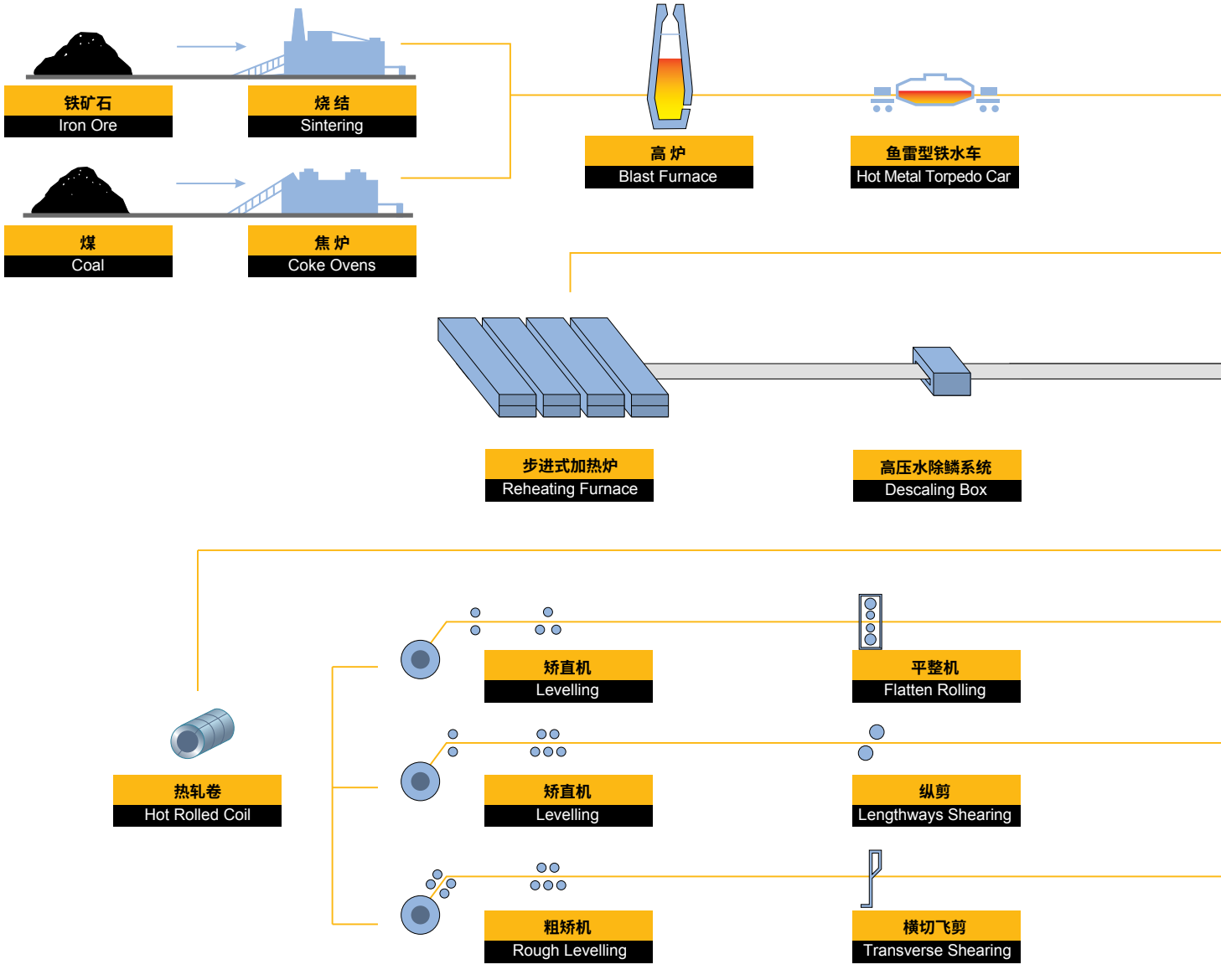
Theory weight(ton)=width×length×thickness×7.85×number of sheets

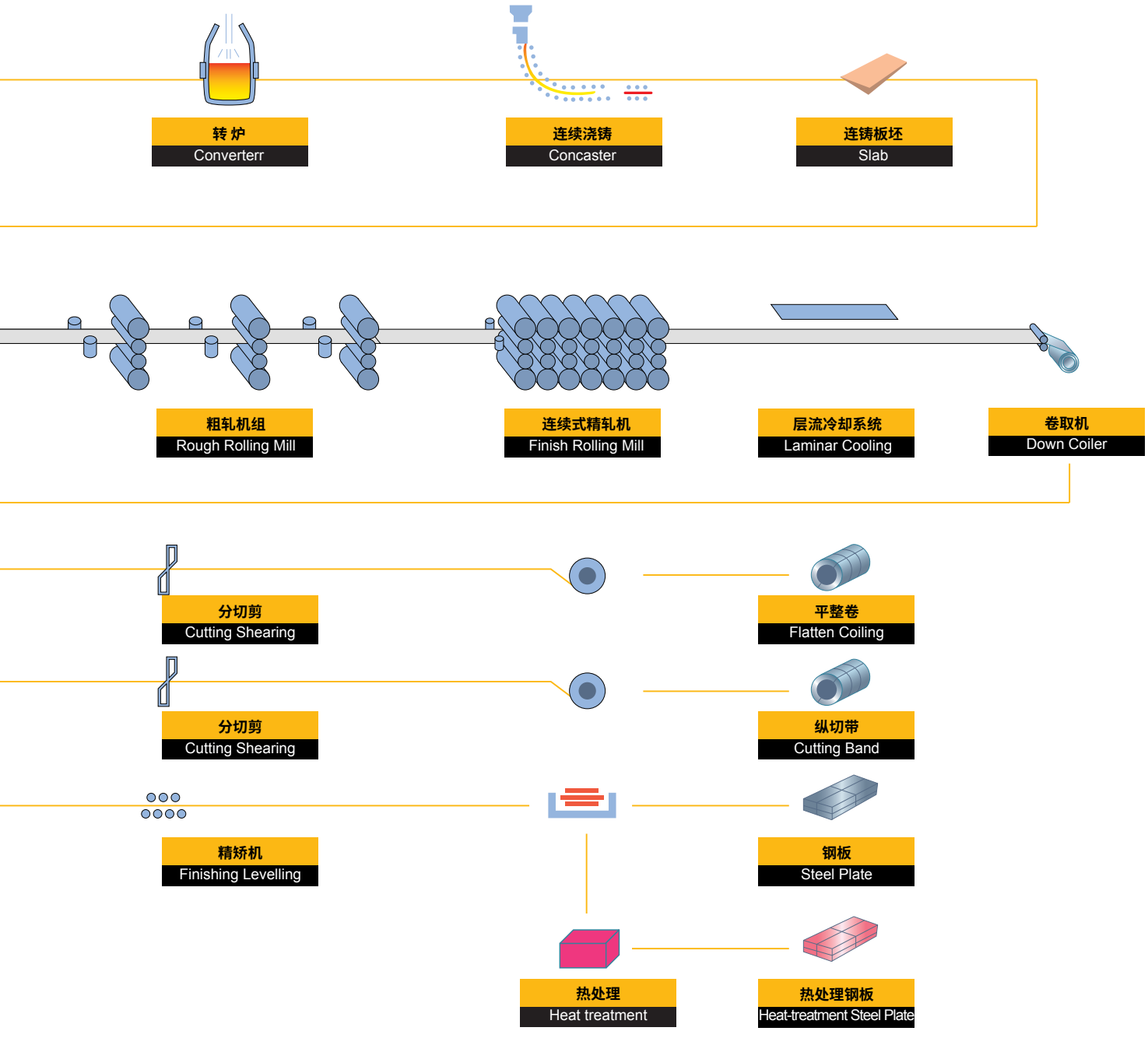
The unit of width, length and thickness is meter. For more information, please refer to GB/T 709.

The maximum weight of a steel sheets package is 10 ton.

PRODUCTION FLOW CHART

热轧工艺流程




转 炉
Converterr
连续浇铸
Concaster
连铸板坯
Slab
粗轧机组
Rough Rolling Mill
连续式精轧机
Finish Rolling Mill
层流冷却系统
Laminar Cooling
卷取机
Down Coiler
分切剪
Cutting Shearing
平整卷
Flatten Coiling
分切剪
Cutting Shearing
纵切带
Cutting Band
精矫机
Finishing Levelling
钢板
Steel Plate
热处理
Heat treatment
热处理钢板
Heat-treatment Steel Plate

STRUCTRUAL STEEL
结构用钢

结构用钢一般具有较高的强度与较好的成型性能，通常经过简单的加工后承受外部的载荷。宝钢的结构钢产品具有性能可靠成形能力好焊接性能优的特点，其产品主要参照日标与欧标进行供货，被广泛应用在各个行业。

产品广泛用于建筑结构、船舶、铁路车辆、管道大型机械及其它结构件等。按照其用途可以将结构钢分为普通结构钢、焊接结构钢、钢管用钢、建筑结构用钢等几类。

宝钢生产的结构用钢钢质纯净偏析与夹杂物控制好受到行业的欢迎。

General structral steel has high strength and good formablilty. It can afford heavy load after common machining. The structure steel of Baosteel has reliable mechanical property, good formability and excellent welding performance, which is widely used in various industries.

Widely used in architecture, bridge construction, marine craft, railway locomotive heavy machine and other structural parts.

Structure steel can be classified as normal structure steel, welding structure steel, pipe steel and building structure.

Baosteel has produced the structure steel with pure composition, good control of segregation and inclusion. The product is welcomed in many industries.

普通结构 Normal Structure Steel

Q/BQB 303	JIS G 3101	GB/T 912, GB/T 3274 GB/T 710, GB/T 711	备注 Remarks
SS330	SS330	Q195 / Q215A / Q215B / 10	SS400: Rm≥400MPa
SS400	SS400	Q235A	Q235A: Re≥235MPa
SS490	SS490	Q275A	
SS540	SS540	Q420A	

Q/BQB 303	EN 10025-2	GB/T 912, GB/T 3274	备注 Remarks
S185	S185	Q195, Q215A	S235J2:
S235JR	S235JR	Q235B	Re≥235MPa,
S235J0	S235J0	Q235C	纵向冲击
S235J2	S235J2	Q235D	JR: 27J@+20℃
S275JR	S275JR	Q275B	J0: 27J@ 0℃
S275J0	S275J0	Q275C	J2: 27J@-20℃
S275J2	S275J2	Q275D	K2: 40J@-20℃
E295	E295	Q345A	
S355JR	S355JR	Q345B	
S355J0	S355J0	Q345C	
S355J2	S355J2	Q345D	
S355K2	S355K2	Q345E	
StE255	-	Q235C, Q235D	St255: Re≥255MPa,
StE285	S275N	Q275C, Q275D	N: 40J@-20℃或 27J@-30℃
StE355	S355N	Q345C, Q345D	NL: 27J@-50℃

焊接结构用 Welding Structure Steel

Q/BQB 303	EN 10025-2	GB/T 912, GB/T 3274	备注 Remarks
SM400A	SM400A	Q235A, Q235B	SM400C:
SM400B	SM400B	Q235C	Rm≥400MPa,
SM400C	SM400C	Q235D	47J@0℃
SM490A	SM490A	Q345A, Q345B	
SM490B	SM490B	Q345C	
SM490C	SM490C	Q345D	
SM490YA	SM490YA	Q390B	
SM490YB	SM490YB	Q390C	
SM520B	SM520B	Q420A, Q420B	
SM520C	SM520C	Q420C	
SM570, BSM590	SM570	Q460C, Q460D	BSM590: Rm≥590Mpa, 47J@-5℃

钢管用 Pipe Steel

Q/BQB 303	JIS G 3132	GB/T 912, GB/T 3274 GB/T 710, GB/T 711
SPHT1	SPHT1	08
SPHT2	SPHT2	15, Q215
SPHT3	SPHT3	Q275A
SPHT4	SPHT4	Q390A

建筑结构用 Building Structure Steel

Q/BQB 303	JIS G 3136	GB/T 19879	备注 Remarks
SN400A	SN400A	-	SN400B:
SN400B	SN400B	Q235GJ-C	Rm≥400MPa,
SN490B	SN490B	Q345GJ-C	27J@0℃

注：Rm–抗拉强度；Re–屈服强度。
Remarks: Rm-Tensile strength; Re-Yield strength.

STEEL FOR AUTOMOTIVE STRUCTURAL USES

汽车用钢

宝钢的汽车结构用热连轧钢具有较高的强度、良好的成型能力和焊接能力、较高的尺寸精度和表面质量，在各汽车及零部件厂家得到广泛应用生产各类汽车结构部件如车梁、车轮等。

The hot-rolled automobile structural steels of Baosteel are featured with high strength, excellent forming and welding performance and high dimension accuracy and surface quality. They are widely used in many automobile manufacturers to make automobile structure parts, such as vehicle beams and wheels.

汽车结构用钢

热轧汽车结构钢具有高强度、高塑性、优良的低温冲击韧性、高的疲劳性能、优良的焊接性能、以及良好的冷加工性能，适用于冲压、辊压或折弯等工艺，广泛应用于汽车结构件、汽车底盘等。

Automobile Structural Steel

Baosteel's high strength low alloy steel has high strength, good ductility, high toughness in low temperature, high fatigue resistance and good welding performance. With good cold forming performance, theses steels are suitable for drawing and roll forming.

Q/BQB 310	相似牌号与标准 Similar Grades and Standards	用途 Application
SAPH310, SAPH370 SAPH400, SAPH440 SPFH540, SPFH590	**JIS, G3113, JISG3134:** SAPH310, SAPH370 SAPH400, SAPH440 SPFH540, SPFH590	用于要求成型加工性能的汽车构架、车轮等汽车结构件 Suitable for automobile structural components that requires good formability, such as chassis parts
QStE340TM QStE380TM QStE420TM QStE460TM QStE500TM	**SEW 092-95:** QStE360TM, QStE380TM QStE420TM, QStE460TM QStE500TM **EN 10149-2:** S355MC, S420MC, S460MC, S500MC	用于要求良好的冷成型性能并有较高强度要求的汽车结构件 Suitable for automobile structural components that requires good formability and strength
QStE550TM QStE600TM QStE650TM QStE700TM	**SEW 092-95:** QStE550TM, QStE600TM QStE650TM, QStE700TM **EN 10149-2:** S550MC, S600MC, S650MC, S700MC	具有良好的冷成型性能的高强度钢材，用于生产高强汽车结构等，帮助车辆减重 High strength steel with good formability, suitable to make high strength truck beams to reduce weigth

商用车大梁用钢

从成形方式来区分，商用车大梁主要有：冲压大梁、辊压大梁、以及焊接大梁。冲压及辊压大梁以冷变形为主，对大梁钢板的成形性要求较高；焊接大梁以焊接加工为主，对大梁钢板的焊接性要求较高。

Commercial Vehicles Beam Steels

From the forming methods, commercial vehicles beams can be divided into stamping beam, rolling beam, and welding beam. For stamping beam and rolling beam, the steels should have high cold forming performance. For welding beam, the steels should show good weldability.

分类 Classification	强度级别 Level, MPa	典型牌号 Typical grades	拉伸试验（横向） Tensile Test			弯曲试验 Diameter for bending test	加工方式
			屈服强度 ReH, MPa	抗拉强度 Rm, MPa	断后伸长率 %		
普通大梁钢 Common beam steel	355	B510L	≥355	510-630	≥24	D=0.5a, 180°	冲 / 辊压大梁
高强大梁钢 High strength beam steel	500	B550L QStE500TM	≥500	550-700	≥17	D=1a, 180°	冲 / 辊压大梁
	550	B600L QStE550TM	≥550	600~760	≥16	D=1.5a, 180°	冲 / 辊压大梁
	600	B650L QStE600TM	≥600	650~820	≥15	D=1.5a, 180°	冲 / 辊压大梁
	650	B700L QStE650TM	≥650	700~880	≥14	D=2a, 180°	冲 / 辊压大梁
	700	B750L QStE700TM	≥700	750~950	≥14	D=2a, 180°	冲 / 辊压大梁
		B750LD	≥700	750~950	≥13	D=2a, 90°	焊接大梁
超高强大梁钢 Ultra high strength beam steel	960	B980LE	≥960	≥980	≥10	D=5a, 90°	焊接大梁

车轮用高强度钢

车轮用钢一般有常规车轮用钢和双相钢。常规车轮用钢具有良好的冷成型性能，用于制造汽车滚型车轮轮辋及轮辐。双相钢（DP）的显微组织主要为铁素体和马氏体、马氏体组织以岛状弥散分布在铁素体基体上。双相钢无时效，具有低的屈强比和较高的加工硬化指数以及烘烤硬化值，是结构类零件首选材料之一。

Hot-Rolled High Strength Wheel Steel

Wheel steel is generally used for conventional wheel steel and dual phase steel. With good cold forming properties,suitable for wheel rims and disks.The microstructure of dual phase steel (DP) is mainly ferrite and martensite,martensite island disperses in the ferrite matrix.Dual phase steel has no aging effect.With low yield ratio,high work-hardening index and bake-hardening value,dual phase steel is a preferred material for structural parts.

常规车轮用钢牌号 Dual Phase Steel Grades

牌号 Steel Grades	拉伸试验 Tensile Testing			1800 弯曲试验 b D －弯曲压头直径 a －试样厚度
	下屈服强度 R_{eL} / MPa	抗拉强度 R_m / MPa	断后伸长率 d % $L_0=5.65\sqrt{S_0}$	
B330CL	≥225	330~430	≥ 34	D=0a
B380CL	≥235	380~480	≥30	D=0.5a
B420CL	≥290	420~520	≥28	D=0.5a
B450CL	350~510	450~570	≥27	D=0.5a
B500CL	400~530	500~620	≥26	D=1a
B530CL	430~560	530~650	≥24	D=1a
B550CL	450~580	550~680	≥23	D=1a
B600CL	500~630	600~750	≥22	D=1.5a
B650CL	550~680	650~800	≥20	D=1.5a

双相钢供货牌号 Dual Phase Steel Grades

牌号 Steel Grades	拉伸试验 Tensile Testing			
	下屈服强度 R_{eL} / MPa	抗拉强度 R_m / MPa	断后伸长率 d % L_0=80mm, b=20mm	断后伸长率 d % L_0=50mm, b=25mm
BR330/580DP	330~450	580~700	≥19	≥22
BR450/780DP	450~610	780~900	≥14	≥16

车桥用钢

宝钢采用先进技术开发了桥壳系列产品，包括冷冲压桥壳用钢、热成型桥壳用钢，主要用于重卡桥壳高强减重。

Hot-Rolled Axle Housing Special Steels

Baosteel has a series of automobile axle housing steel with advanced technology, such as cold stamping axle housing steel and hot stamping axle housing steel, used for reduce weight of commercial vehicle.

冷冲压桥壳用钢牌号 Dual Phase Steel Grades

牌号 Steel Grades	拉伸试验 Tensile Testing			1800 弯曲试验 b D —弯曲压头直径 a —试样厚度
	下屈服强度 R_{eL} / MPa	抗拉强度 R_m / MPa	断后伸长率 d % $L_0=5.65\sqrt{S_0}$	
B440QK	≥295	440~570	≥24	D=1a
B510QK	≥345	510~630	≥24	D=1.5a
B550QK	≥460	550~720	≥20	D=2a
B600QK	≥500	600~760	≥17	D=2a

热成型桥壳用钢牌号 Dual Phase Steel Grades

牌号 Steel Grades	拉伸试验 Tensile Testing			1800 弯曲试验 b D —弯曲压头直径 a —试样厚度
	下屈服强度 R_{eL} / MPa	抗拉强度 R_m / MPa	断后伸长率 d % $L_0=5.65\sqrt{S_0}$	
B440HQK	≥295	440~570	≥24	D=1a
B510HQK	≥345	510~630	≥24	D=1.5a
B550HQK	≥460	550~720	≥20	D=2a
B600HQK	≥500	600~760	≥17	D=2a
B1000HQK	≥900	≥1000	≥8	/

改装车专用钢

针对改装车行业产品多元化、个性化特点，宝钢针对性地开发改装车专用钢产品。

Special Steel For Semi-Trailer

Because of the diversified and personalized characteristics of products in the semi-trailer trade, Baosteel has developed special steel products.

牌号 Steel Grades	拉伸试验 Tensile Testing			用途
	下屈服强度 R_{eL} / MPa	抗拉强度 R_m / MPa	断后伸长率 d % $L_0=5.65\sqrt{S_0}$	
BST700X	≥620	≥700	≥14	改装车上装
BST750X	≥680	≥750	≥13	改装车上装
BST850X	≥780	≥850	≥12	改装车上装
BST700L	≥650	≥700	≥15	改装车焊接大梁
B750LD	≥700	≥750	≥14	改装车焊接大梁
BST1000L	≥950	≥1000	≥8	改装车焊接大梁

HOT-ROLLED SPECIAL STEEL

特殊钢

宝钢热轧特殊钢的开发已经经历了十几年的时间，从最初的低碳钢逐步向高碳钢发展，合金含量也逐步提高，相继开发了刀模锯片、精冲用钢、耐热结构钢、弹簧钢等系列产品。产品广泛应用于锯片基体制造、汽车零部件、工程机械、锅炉、化工能源等领域。目前，宝钢已经形成了品种丰富，种类齐全的热轧特殊钢，极大满足了用户的需求。

Baosteel started the development of hot rolled specialsteels (BT steels) more than 10 years ago. We have developed various products, from low carbon steel to high carbon or high alloy steel. We have developed saw steel, fine-blanking steel, heatresistant structure steel, spring steel etc. Hot-rolled special steel has a wide range of applications, they are used in saw manufacturing, automobile parts, engineering machinery, boilers, chemical energy and other fields. At presently, Baosteel formed a full range of hot-rolled special steel, and greatly meet the needs of our customers.

碳素结构钢

各类机械零部件，包括汽车零部件、链条、摩擦片及供冷轧使用的各类钢卷。

碳素工具钢

锯片、刀具、农业机械零部件及供冷轧使用的钢卷。

合金结构钢

各类汽车零部件，链条、座椅调节机构、离合器弹簧膜片，以及供冷轧使用的钢卷。

合金工具钢

刀具、锯片，以及供冷轧使用的钢卷。

弹簧钢

各类收卷装置中的弹性元件及供冷轧使用的钢卷。

其他特殊用途

轴承钢、渗氮钢及供冷轧使用的钢卷。

Carbon Steel for Machine Structure

Various type of mechanical parts, including automobile parts, chain, friction plate and used for cold-rolled.

Carbon Tool Steel

Saw, blade, knife, agricultural machine parts and for cold-rolled use.

Alloy Steel for Structural Use

Various type of automobile parts, chain, seat adjustment systems, clutch plates and used for cold-rolled.

Alloy Tool Steel

Cutlery, saw, circular saws and for cold-rolled steel strip.

Spring Steel

Various elastic parts in winding apparatus and for cold-rolled steel strip.

Other Types

Steel for bearing steel nitriding steel and for cold-rolled steel strip, etc.

类别 Types	主要牌号 Steel Grade
碳素结构钢 Carbon Steel for Machine Structure	BJS15C, BJS20C, BJS55C, C10, C15, S10C, S15C, S20C, S30C, S35C, S45C, S50C, S55C, SAE1018, SAE1020, SAE1022, SAE1035, SAE1045, SAE1050, SAE1055, 40Mn, 45Mn, 50
碳素工具钢 Carbon Tool Steel	SAE1070, SAE1078, SK85(SK5), SK95, SAE1095
合金结构钢 Alloy Steel for Structural Use	C60E, C60-T1, C60-T2, 65Mn, 65Mn-Cr, C67S, C75S, 15Cr, 20Cr, 40Cr, 15CrMo, 20CrMo, 30CrMo, 35CrMo, 34CrMo4, 42CrMo4, SNCM220, SCM415, SCM435, 20MnB5, 22MnB5, 26MnB5, 38MnB5, 27MnCrB5-2, 40MnB, S28CB, 16MnCr5, 20MnCrS5, 20CrMnTi, 40CrMn, 50Mn2V
合金工具钢 Alloy Tool Steel	75Cr1, 8CrV (80CrV2), SAE 8660 MOD, SKS51, X32CrMoV4-1
弹簧钢 Spring Steel	50CrV4 (51CrV4), 50CrVA, 58CrV4, SUP6, SUP10, 60Si2MnA
轴承钢 Bearing Steel	GCr15

ANTI-CORROSION STEEL
耐蚀用钢

产品分为铁路用、集装箱用和海洋结构用等，主要用于制造集装箱、铁道车辆、海港建筑、石油井架等耐腐蚀结构件。也用于抗含硫烟气腐蚀的耐酸用途，制作省煤器、热交换器、空气预热器等。

宝钢利用自身装备和技术力量，在国内率先研制成功了 BC 系列（薄规格）、EW 系列和耐海水腐蚀的热轧高强耐候钢，具有高强度、高耐候、易焊接、易折弯等特点，广泛应用于集装箱、车辆、建筑、塔架等结构件。

Mainly used in anti-corrosion structural parts to make container, railway locomotive, oil der-rick and seaside construction.also used in sulfuric acid corrosion-resistant structural parts that is generally used to manufacture economizers, heat exchangers and air preheaters, etc.

With advanced equipments and high technology foundation, Baosteel successfully developed the high strength corrosion resistance steels (BC series steels) in China. The BC series steels have such advantages as high strength, good corrosion resistance, excellent welding performance, easy for cold forming. Besides, property, quality and machining of these products arew outstanding. These series of products are widely used containers, vehicles, buildings, towers construction parts. m marine and other.

	宝钢 Baosteel	TB/T 1979	GB/T 4171	备注 Remarks
铁路用 Railway	Q235NH Q295NH	- -	Q235NH Q295NH	
	Q295NQR2 09CuPCrNi-B	Q295NQR2(2014 版) 09CuPCrNi-B(2003 版)	Q295GNH	
	Q355NH	-	Q355NH	
	Q345NQR2 09CuPCrNi-A	Q345NQR2(2014 版) 09CuPCrNi-A(2003 版)	Q355GNH	Q345NQR2: Re≥345MPa, 2 表示 Cu, P(Cr, Ni, RE) 类
	Q415NH Q460NH Q500NH Q550NH	- - - -	Q415NH Q460NH Q500NH Q550NH	
	S350EW S450EW	Q350EWR1 Q450EWR1	- -	S350EW: Re≥350MPa
	Q400NQR1 Q450NQR1 Q500NQR1 Q550NQR1	Q400NQR1 Q450NQR1 Q500NQR1 Q550NQR1	- - - -	Q500NQR1: Re≥500MPa, 1 表示 Cu, Cr, Ni 类

注：Rm–抗拉强度；Re–屈服强度。
Remarks: Rm-Tensile strength; Re-Yield strength.

	宝钢 Baosteel	GB/T 4171	备注 Remarks
集装箱用 Container		Q235NH Q295NH Q295GNH Q355NH Q355GNH Q415NH Q460NH Q500NH Q550NH	
	B480GNQR B550GNQR B600GNQR	- - -	B600GNQR: Rm≥600MPa
	Q700NQR1	-	Q700NQR1: ReL≥700MPa
	BC450 BC550 BC600 BC700	- - - -	宝钢二代箱板 BC550: ReH≥550MPa
海洋结构用 Marine Structure	Q345C-NHY3	-	耐海水腐蚀钢 Corrosion resistant steel
	A690M	-	钢板桩用耐海水腐蚀钢 Corrosion resistant steel for steel sheet pile
耐硫酸 露点腐蚀钢	09CrCuSb	-	Rm≥390MPa
	BNS440	-	Rm≥440MPa

STEEL FOR CONSTRUCTION MACHINERY

工程机械高强钢

宝钢于 2002 年在国内率先开始高强度热轧结构钢板卷产品开发，已形成屈服强度 600MPa-1300MPa 级别的 BS 系列超高强钢产品。该系列高强结构钢采用宝钢先进的炼钢、轧制以及热处理工艺，产品不仅具有超高的强度，而且具有良好的低温韧性、可焊接性和冷成形性能。该系列产品性能稳定均匀，板形、表面等质量良好。

该系列产品可广泛应用于起重机、泵车等工程机械及半挂车辆结构等制造行业。

High strength steel (HSS) for construction machinery was first developed in China by Baosteel in 2002. Now 600MPa-1300MPa grade of BS series of HSS and UHSS products have been available. These products are manufactured with advanced steel making, rolling, and heat treatment processes. They have stable and excellent properties such as ultra high strength, good toughness at low temperature, good welding performance and cold formability. This series of products have stable performances,good plate shape and excellent surface quality.

These products have been widely used in vehicles and engineering machinery such as cranes, pump trucks.

	宝钢 Baosteel	EN10149-2	EN10025-6	SSAB
高强结构钢 High Strength Steel	BS600MC	S600MC	/	Domex600MC
	BS600MCK2	S600MC	/	Domex600MCD
	BS700MC	S700MC	/	Domex700MC
	BS700MCK2	S700MC	/	Domex700MCD
	BS700MCJ4	S700MC	/	Domex700MCE
	BS700D	/	S690QL	Weldox700D
	BS700E	/	S690QL	Weldox700E

	宝钢 Baosteel	EN10149-2	EN10025-6	SSAB
超高强结构钢 Ultra-high Strength Steel	BS900D	/	S890QL	Weldox900D
	BS900E	/	S890QL	Weldox900E
	BS960D	/	/	Weldox960D
	BS960E	/	/	Weldox960E
	BS1100D	/	/	Welddox1100D
	BS1100E	/	/	Weldox1100E
	BS1300E	/	/	Weldox1300E

BS960E 产品典型力学性能　BS960E Typical Mechanical Properties

牌号 Steel Grade	厚度 Thickness mm	拉伸试验 Tensile Test				冷弯试验 Bending Test			-40°C冲击
		方向 Direction	Rp0.2 MPa	Rm, MPa	A%	D/A	角度 Angle	结果 Result	AKV, J 10×10×55
BS960E	8.5	纵向 L	1018	1040	14	5	90	合格	110
		横向 T	1019	1045	14	5	90	合格	86
BS960E	5.5	纵向 L	1020	1053	13	5	90	合格	102
		横向 T	1025	1059	14	5	90	合格	83

PROTECTION STEEL
装甲防护钢

宝钢依靠自身装备水平和技术力量，在国内率先研制成功 BP 系列 高性能装甲防护钢，厚度范围为 2-12mm。该产品采用热轧卷板 作为基板进行热处理，抗枪弹性能优越，抗破坏性冲击能力强，性能均匀稳定，板形和表面质量好。

本系列产品适用于运钞车、装甲运兵车、押解车辆、贵宾车辆、 防盗门、银行柜台防护板、保险柜、盾牌、钢盔等。

Baosteel protection(BP) steels with 2 to 12mm in thickness were first developed at Baosteel in China by employing Baosteel's own equipments and Technologies. The steels were heat treated with hot rolled plates to gain excellent ballistic performance, uniform property, good shape and surface quality.

The steels can be used for applications where high ballistic performance is required, such as armored cars, armored personnel carriers, escort vehicles, VIP cars, security doors, bank counter shield, strongbox, shields, helmet, etc.

装甲防护钢参照的主要标准有：

欧盟 EN1065、北约 Stand 4569、GA 164-2005、GA 668-2006、GJB 1694A-2000、GJB 3166-1988 和 GJB 59.18-1988 等，产品厚度规格 2-12mm。

Main Criteria:

European Union: EN1065, NATO: Stand 4569, GA 164-2005, GA 668-2006, GJB 1694A-2000, GJB 3166-1988 and GJB 59.18-1988 etc., thickness: 2-12mm.

牌号 Steel Grade	厚度 Thickness mm	拉伸试验 Tensile Testing			布氏硬度 Brinell Hardness	90°冷弯 Bending	典型力学性能		
		屈服强度 ReH, Mpa	抗拉强度 Rm, Mpa	伸长率 A, %	HBW	弯心直径 Bending Diameter	RE, MPa	Rm, MPa	A, %
B900FD	2-12	≥700	≥900	≥10	-	d = 3a	840	967	19
BP440	2-12	≥1100	≥1250	≥8	420-480	-	1227	1490	10
BP500	2-12	≥1250	≥1450	≥6	470-540	-	1420	1680	8
BP600	2-12	≥1450	≥1750	≥6	570-640	-	1530	1850	7

注：1. 拉伸试验采用横向试样，即试样长轴的方向垂直于轧制方向。
2. 冲击试验采用纵向 V 型缺口夏比试样， 表列冲击值对应 10×10×55mm 标准试样，若采用 5mm、7.5mm 小试样， 表中冲击值等比例减小。
3. 冷弯试验采用横向试样，d ＝弯心直径，a ＝钢板厚度。

1 Transversal specimen is adopted in tensile test, thus the long axis of specimen is vertical to rolling direction.
2 Longitudinal specimen is used in impact test, and the impact value is obtained from standard specimen(10×10×55mm); The impact value shall be reduced with equal proportion if the smaller sized specimen is used, such as 5mm, 7.5mm.
3 Transversal specimen is used in bending test. d=bending diameter, a=plate thickness。

装甲防护钢典型防护性能及力学性能 Typical Protection Performance and Mechanical Properties

钢种 Steel	厚度 Typical Thickness mm	攻击武器 Gun+ Projectile	参考标准	弹速 Striking Velocity m/s	距离 m
B900FD	2.85	79 式微型冲锋枪 钢芯弹	GA 164	515±10	10
BP440	6.5	53 式 7.62mm 测速工作枪 钢芯弹	GJB 59.18	828	100
BP500	2.3	79 式微型冲锋枪 钢芯弹	GA 164	515±10	10
	4.1 4.3	56 式 7.62mm 冲锋枪 56 式普通弹	GA 164	730	15
	4.8	53 式 7.62mm 弹道枪 53 式 7.62mm 普通弹	GJB 59.18	820	10
	6.5	FB6 5.56×45mm SS109	EN1065	940	10
BP600	7.0	95 式 5.8mm 自动步枪 5.8mm 步枪弹	Stand 4569	930	10

RIM LAMINATION STEEL

磁轭钢

磁轭钢具有较高强度与良好的表面质量，并具有激光切割前后板型好的特点，适用于制造水轮发电机组转子磁轭的热轧钢板及钢带。

Rim Lamination Steel has good surface quality and high strength, and has the characteristics of good shape before and after laser cutting,are applicable to magnetic rim steel sheets for hydro turbine rotor.

供货标准、牌号
Reference List of Steel Grades

Q/BQB 381	EN 10149-2	EN 10265	东电协议	哈电协议
B250TG180	/	250-...-TG180	DCR235	HD235C
B350TG179	S355MC	350-...-TG179	DCR345	HD345C
B450TG179	S460MC	450-...-TG179	DCR450	HD450C
B500TG179	S500MC	500-...-TG179	DCR500	HD500C
B550TG178	S550MC	550-...-TG178	DCR550	HD550C
B600TG178	S600MC	600-...-TG178	DCR600	HD600C
B650TG178	S650MC	650-...-TG178	DCR650	HD650C
B700TG178	S700MC	700-...-TG178	DCR700	HD700C
B750TG178	/	/	DCR750	HD750C

注: 除企标外牌号均为协议订货。

力学性能 Mechanical Properties

牌号 Steel Grades	拉伸试验 Tensile Testing			180°弯曲试验 180° Bending Diameter
	屈服强度 MPa Yield Strength	抗拉强度 MPa Tensile Strength	断后伸长率 A80mm, % Elongation	
B250TG180	≥250	≥350	≥26	D=2a
B350TG179	≥350	≥490	≥18	D=2a
B450TG179	≥450	≥550	≥17	D=2a
B500TG179	≥500	≥600	≥14	D=2a
B550TG178	≥550	≥650	≥14	D=2a
B600TG178	≥600	≥650	≥14	D=2a
B650TG178	≥650	≥700	≥14	D=2a
B700TG178	≥700	≥750	≥14	D=2a
B750TG178	≥750	≥800	≥14	D=2a

磁性能 Magnetic Energy

牌号 Steel Grades	理论密度 kg/m³ Theoretical Density	磁感应强度 T Magnetic Induction Intensity	
		B_{50}	B_{150}
B250TG180	7.85	≥1.60	≥1.80
B350TG179		≥1.55	≥1.79
B450TG179		≥1.54	≥1.79
B500TG179		≥1.53	≥1.79
B550TG178		≥1.52	≥1.78
B600TG178		≥1.50	≥1.78
B650TG178		≥1.50	≥1.78
B700TG178		≥1.50	≥1.78
B750TG178		≥1.50	≥1.78

ENAMELING STEEL

搪瓷用钢

搪瓷钢具有较高强度与延伸率，因此具有成型性能好的特点，易于被加工成需要的形状。同时材料有着较好的表面，与釉料的粘附牢固，特殊的成分也使它具有优秀的抗鳞爆能力。该材料适合干法和湿法搪瓷工艺，被广泛用于搪瓷行业，特别是生产热水器内胆。

With good strength and high elongation,the enameling steel has a good formability and can be easily formed into the required shape. It also has high surface quality, good adhesion with frits, and the unique composition can prevent fishscaling.Meishan's enameling steel is suitable for wet or dry application process and widely used in enamel industries, especially to make the inner pot of water heater.

供货标准、牌号
Reference List of Steel Grades

标准 Standard	牌号 Grades
BZJ 308-2009	BTC210R
	BTC245R
	BTC330R
	BTC360R

化学成分 (%)
Chemical Composition (Ladle Analysis)

牌号 Grades	c	si	Mn	P	S	ALT
BTC210R	≤0.12	≤0.05	≤0.70	≤0.035	≤0.035	≥0.010
BTC245R	≤0.12	≤0.05	≤0.70	≤0.035	≤0.035	≥0.010
BTC330R	≤0.16	≤0.05	≤0.90	≤0.035	≤0.035	≥0.010
BTC360R	≤0.16	≤0.05	≤0.90	≤0.035	≤0.035	≥0.010
BTC500S	≤0.17	≤0.35	≤2.0	≤0.025	≤0.05	≥0.010

力学性能 Mechanical Properties

牌号 Grades	拉伸试验（纵向） Tensile Test (longitudinal) L0=50mm,b=12.5mm		
	下屈服强度 MPa Lower Yield Strength	抗拉强度 MPa Tensile Strength	伸长率 % Elongation After Fracture
BTC210R	≥210	≥300	≥28
BTC245R	≥245	≥340	≥26
BTC330R	厚度 thickness<1.60mm: ≥290 厚度 thickness≥1.60mm: ≥330	≥400	≥22
BTC360R	≥360	≥440	≥22
BTC500S	≥500	≥600	≥15

WEAR RESISTANT STEEL

耐磨钢

宝钢利用自身装备水平和技术力量，在国内率先研制成功高性能薄规格 BW 系列热轧耐磨钢，厚度范围为 2-12mm，主要特征是采用热轧板作为基板进行热处理，规格薄，板形好，具有高耐磨、高韧性、抗冲击、易焊接、易成形等特点，产品性能和质量稳定。

本系列产品适用于重型卡车自卸车、垃圾收集车、混凝土搅拌车、工业风扇、料斗、碎料机、煤矿机 械、粮食机械、抓斗等。

Baosteel wear resistant steel(BW) with 2 to 12mm in thickness was first developed in China by employing Baosteel's own equipments and long-term accumulated technology in production. BW steels are produced from processes of hot rolling, cutting into length and heat treating. The products are characterized with small thickness, good flatness, outstanding wear resistance, excellent toughness, good weldability, good machinablility, consistent property and quality. BW steels are developed for applications where high wear resistant performance is required, such as dumper, garbage vehicle, concrete mixer truck, industrial air fan, hopper, crusher, machinery for coal, grain, cement, grab bucket, etc.

牌号含义 Specification	
BW300TP	
B: Baosteel	宝钢
W: Wear-resistance	耐磨钢
300	布氏硬度
TP	易成形

力学性能 Mechanical Properties

牌号 Steel Grade	厚度 Thickness mm	拉伸试验（横向） Tensile Test			布氏硬度 Brinell Hardness	冲击试验 Impact Test	90°弯曲试验 Bending
		屈服强度 ReH, MPa	抗拉强度 Rm, MPa	伸长率 A50mm,%	HBW	冲击值 (-40℃) KV2,J	弯心直径 Bending Diameter
BW300	3 - 12	≥850	≥1000	≥10	300±30	≥ 20	d=5a
BW400	3 - 12	≥960	≥1200	≥8	400±30	≥ 20	d=6a
BW450	3 - 12	≥1100	≥1300	≥7	450±30	≥ 20	d=7a
BW500	3 - 12	-	-	-	500±30	≥ 20	d=8a
BW600	3 - 12	-	-	-	600±30	≥ 20	d=8a
BW300TP	3 - 12	≥550	≥950	≥8	350±50	≥ 20	d=6a

注：1. 拉伸试验采用横向试样，即试样长轴的方向垂直于轧制方向；参照国内外标准，BW500 不做拉伸试验。
2. 冲击试验采用纵向 V 型缺口夏比试样， 表列冲击值对应 10×10×55mm 标准试样，若采用 5mm、7.5mm 小试样，表中冲击值等比例减小。
3. 冷弯试验采用横向试样，d =弯心直径，a =钢板厚度。

1 Transversal specimen is adopted in tensile test, thus the long axis of specimen is vertical to rolling direction.
2 Longitudinal specimen is used in impact test, and the impact value is obtained from standard specimen(10×10×55mm); The impact value shall be reduced with equal proportion if the smaller sized specimen is used, such as 5mm, 7.5mm.
3 Transversal specimen is used in bending test. d=bending diameter, a=plate thickness.

PIPELINES STEEL
管线用钢

宝钢管线钢产品化学成分稳定、性能稳定、板形、表面质量精良。可广泛应用于石油、天然气长输管道工程和煤浆、矿浆等浆体输送的管道工程。

Baosteel's pipeline steels have stable chemical composition and perfomances, good excellent plate shape and surface quality. These products have been widely used in oil, natural gas pipeline engineering and coal slurry, pulp and slurry transportation pipeline engineering.

非耐蚀性油气介质输送管线管用钢 Oil and Gas Pipeline for Non-Sour

API 5L		GB/T9711		GB/T14164	
PSL1	PSL2	PSL1	PSL2	1 类（PSL1）	2 类（PSL2）
L245 或 B	L245M 或 BM	L245 或 B	L245M 或 BM	S245	S245
L290 或 X42	L290M 或 X42M	L290 或 X42	L290M 或 X42M	S290	S290
L320 或 X46	L320M 或 X46M	L320 或 X46	L320M 或 X46M	S320	S320
L360 或 X52	L360M 或 X52M	L360 或 X52	L360M 或 X52M	S360	S360
L390 或 X56	L390M 或 X56M	L390 或 X56	L390M 或 X56M	S390	S390
L415 或 X60	L415M 或 X60M	L415 或 X60	L415M 或 X60M	S415	S415
L450 或 X65	L450M 或 X65M	L450 或 X65	L450M 或 X65M	S450	S450
L485 或 X70	L485M 或 X70M	L485 或 X70	L485M 或 X70M	S485	S485
	L555M 或 X80M		L555M 或 X80M		S555

抗氢致裂纹管线管用钢 Hydrogen Induced Resistant Line Pipe

API 5L	GB/T9711	Q/BQB
L245MS 或 BMS	L245MS 或 BMS	
L290MS 或 X42MS	L290MS 或 X42MS	
L320MS 或 X46MS	L320MS 或 X46MS	
L360MS 或 X52MS	L360MS 或 X52MS	BX52H
L390MS 或 X56MS	L390MS 或 X56MS	
L415MS 或 X60MS	L415MS 或 X60MS	BX60H
L450MS 或 X65MS	L450MS 或 X65MS	BX65H
L485MS 或 X70MS	L485MS 或 X70MS	

GAS CYLINDER STEEL

气瓶、容器及耐热结构

宝钢此列产品具有良好的力学性能、可焊接和加工性能，以保证产品在高压状态下使用安全、可靠。分为气瓶、锅炉容器用和耐热结构用，主要应用于石油、化工、电站、锅炉等行业。

With good mechanical properties, welding and machining performance, can guarantee products safe and reliable in high pressure condition. Suitable for gas cylinder, press vessel and heat resistant structure, mainly used in petroleum, chemical, power plants, boilers and other industries.

用途 Application	标准 Standard			备注 Remarks
	GB 713	EN10028-2	ASME SA-516/SA-516M	
锅炉容器用 Press Vessel	- Q245R - Q345R	P235GH P265GH P295GH P355GH	SA516GR55 SA516GR60 SA516GR65 SA516GR70	用于制造锅炉、容器的筒体、封头和设备支撑件。
	GB 6653			
焊接气瓶用 Gas Cylinder	- - HP235 HP265 HP295 HP325 HP345			用于制造液氯，液氨等各类低压钢质焊接气瓶。
	Q/BQB 351			
耐热结构用 Heat Resistant Structure	12Cr1MoV 15CrMo			耐热结构件。不能用于温度大于 530°C或腐蚀的结构件，也不能用作锅炉及压力容器。

HULL STRUCTURAL STEEL

船板

宝钢生产的船舶用热连轧钢板具有板形良好，尺寸精度高，焊接性能好，冲击性能高的特点。产品控制体系完备，产品通过中国船级社(CCS)、挪威船级社(DNV)、德国劳氏船级社(GL)、美国船级社(ABS)、英国劳氏船级社(RL)、法国船级社(BV)、意大利船级社(RINA)、韩国船级社(KR)、日本海事协会(NK)的认证，被各大造船厂使用。

The hot-rolled hull structural steel from Baosteel has the feature of good shape, precise size tolerance, good weldablity and impact performance. The products have passed the main classification societies in the world, such as CCS, DNV, GL, ABS, LR, BV, RINA, KR AND NK. The hot-rolled hull structural steel of Baosteel is widely used in the ship manufacturing industry.

用途 Application	钢级 Grade	可供规格 Delivery Gauge	船级社 Classification Society
普通船板 Normal Strength Hull Structural Steel	A, B, D	厚度 (Thickness) ≤25.4mm 宽度 (Width) ≤2100mm	ABS BV CCS DNV GL KR LR NK RINA
高强船板 High Strength Hull Structural Steel	AH32, AH36	厚度 (Thickness) ≤25.4mm 宽度 (Width) ≤2100mm	

CHECKER STEEL

花纹钢带

其牌号主要通过代表花纹的“H”与引用标准（GB/T700、JIS G3131 等）中的牌号组合而成，主要用于建筑结构使用。

The grades are initialed with "H" and followed by the grades in other cited standards such as GB/T 700, JIS G3131 and etc. The product is widely used in construction industries

力学性能（供参考） **Mechanical Properties (Only Referenced)**

牌号 Steel Grades	拉伸试验（纵向） Tensile Test (Longitudinal)	
	下屈服强度 MPa Lower Yield Strength	抗拉强度 MPa Tensile Strength
H-Q195(P)	≥195	≥270
H-Q235(P)	≥235	≥320

STEEL FOR COLD ROLLING

冷轧压延

冷成型用热连轧钢按照其用途可以分为一般用、冲压用、深冲用和超深冲用。

The hot-rolled cold forming steel could be classified into commercial quality(CQ), drawing quality(DQ), deep drawing quality(DDQ) and extradeep drawing quality(EDDQ) by its intended application.

用途 Application	特点 Feature	牌号 Grades
一般用 Commercial Use	具有较好的延展性，适合于简单的成型，弯曲或焊接工艺 With better ductility, these steel are applied to simple forming, blending or welding.	DD11, SPHC
冲压用 Drawing	具有比一般用级别更大的延展性，适合于制造深冲压成型及复杂变形的零部件 With more ductility than commercial use steels, they are applied to manufacture parts through drawing and relatively complicated forming.	DD12, SPHD
深冲用 Deep Drawing	具有比冲压级别更大的延展性，适合于制造深冲压成型及复杂变形的零部件 With more ductility than drawing steel,they are applied to manufacture parts through deep drawing and complicated forming.	DD13, SPHE
超深冲用 Extra-deep Drawing	具有比冲压级别更大的延展性，适合于制造深冲压成型及复杂变形的零部件 With more ductility than deep drawing steel,they are applied to manufacture parts through extradeep drawing and more complicated forming.	BRC1, BRC2, BRC3

Q/BQB 302	DIN1614-2	SAE J403	EN10111	JIS G 3131	GB 710 GB 711
DD11 SPHC	StW22	SAE 1006	DD11	SPHC	08
DD12 SPHD	RRStW23		DD12	SPHD	08 或 08Al
DD13 SPHE	StW24		DD13	SPHE	08Al
DD14 SPHF			DD14	SPHF	
BRC1, BRC2, BRC3			DD14	SPHF	

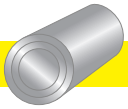
MR 系列 IF 系列	执行技术协议 According to Technological Agreement

PACKING & MARKING

包装和标识

包装 PACKING

卷包装 Coil Packing



图示	适用范围	代码
图 1	适用于普通包装的热轧钢带。	默认空白
图 2	适用于特殊包装的热轧钢带，经供需双方协商同意时采用。	51
图 3	适用于热轧纵切钢带，纵切成≥ 3 卷的组合包装。	60
图 4	适用于热轧纵切钢带，纵切成 2 卷的单独包装。	61
	封闭包装，适用于表面要求高的钢卷，可协商	

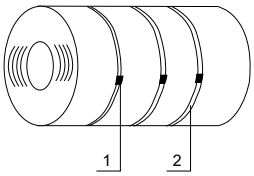


图 1

1 －锁扣　2 －捆带

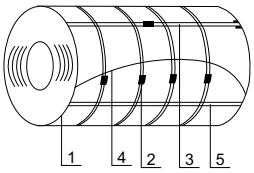


图 2

1 －护角　2 －锁扣　3 －捆带
4 －带尾　5 －夹具

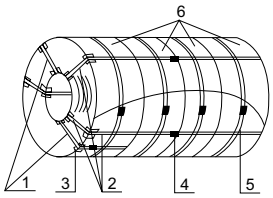


图 3

1 －小卷径向捆带　2 －组合打捆径向捆带
3 －护角　4 －锁扣　5 －小卷周向捆带
6 －小卷

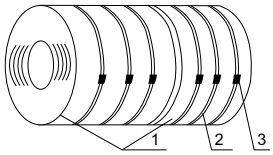
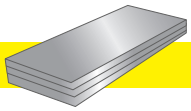


图 4

1 －小卷　2 －捆带
3 －锁扣

板包装 Plate Packing



图示	适用范围	代码
图 5	适用于普通包装要求的钢板。	70
图 6	适用于特殊包装（盒式包装）要求的钢板。	71
	对特殊盒式包装要求可协商	

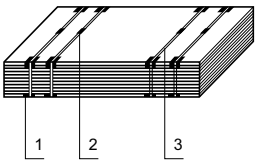


图 5

1 －护角　2 －锁扣　3 －捆带

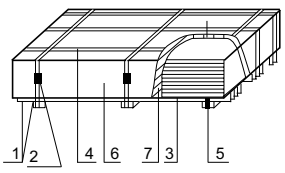


图 6

1 －垫木或托架　2 －锁扣　3 －钢板　4 －捆带
5 －上盖板　6 －侧护板　7 －防锈纸

标识 MARKING

钢卷标签：钢卷内圈两侧的离带钢边部≥ 30mm 处各贴成品标签一张，对特殊用户要求，可以内外圈各贴一张标签。

Coil Marking: The steel coil on both sides of the inner ring from the strip edge is larger than 30mm at the paste product a label. For special user requirements, can be inside and outside the circle of a label.

钢板标签：距钢板长度方向端部 200~400m 和紧贴钢板边部粘贴一张成品标签，在靠近钢板贴成品标签的一根捆带上再捆扎一张成品标签。

Plate Marking: 200~400m and close to the edge of the steel plate to the end of the direction, in close to the end of a piece of the label affixed to the end of a bundle of a Zhang Chengpin label.

SELECTING OF STEEL
选材

选用钢材时需要考虑到两个因素，一方面是材料的可加工性，另一方面是材料的使用性能。通常在加工时我们希望材料的强度低、延伸率好，以便于切割、冲压、成形；而在使用时，我们希望材料的强度高、冲击性能好，能够承受苛刻的使用条件。为此我们要根据材料的力学性能来作出判断。

We shall take the following two factors into consideration when selecting steel, the one is the machinability of the steel, the other is the service character During the processing, we hope the steel has a low strength and high elongation, which make it easy to cut, stamp or form. But in the service of steel, we hope it has high strength, good impact performance to suffer extreme service condition. For these two reasons, we should select suitable steel from its mechanical properties.

力学性能测试中主要的指标

屈服强度

是指材料开始产生塑性变形时所对应的应力。在屈服点之前材料的变形是弹性的，当外加应力去除之后就会回复原来的形状。当应力超过屈服点后，部分变形就留为不能回复的永久变形。

抗拉强度

是指试样拉伸时，在拉断前所承受的最大应力值。通常抗拉强度对应的是发生缩颈时的应力。

伸长率

又名断后伸长率，是指试样在拉断后，其标距部分所增加的长度与原标距长度的百分比。伸长率越大，则材料在受力破坏前可以经受的永久变形越大，成形性能也就越好。

屈服强度、抗拉强度、延伸率一般通过拉伸试验来进行测量。

Mainly, Mechanical Properties Include

Yield Strength

The yield strength or yield point of a material is defined in engineering and materials science as the stress at which a material begins to deform plastically. Prior to the yield point the material will deform elastically and will return to its original shape when the applied stress is removed. Once the yield point is passed some fraction of the deformation will be permanent and non-reversible.

Tensile Strength

Tensile strength is indicated by the maximum stress before the break of a specimen. In general, it indicates when necking will occur.

Elongation

Elongation, or percent elongation at break, is defined as the change in gauge length after break per unit of the original gauge length. A high elongation means the material can stand great permanent deformation before break, or high deformability.

The parameter yield strength, tensile strength, elongation are measured by tensile test.

力学性能测试中主要的指标

冲击功

是指在冲击试验时，试样在冲击下折断时所吸收的功。单位为焦耳(J)冲击功显示了材料对冲击负荷的抵抗能力。它通过夏比 V 型冲击试验测量。

如果材料在加工过程中还需要使用焊接，那就要考虑到材料的焊接性能。

焊接

对于钢材而言，焊接是将独立的钢材结合在一起的工艺，焊接部位通常需融熔在一起，之后凝固形成强力的结合，比如电弧焊、气体焊、电阻焊。

可焊性

又称结合能力，对于材料而言是指他们被焊接在一起的能力。大部分钢材都是可焊的，但其中一些更容易。而这个性质对于焊接质量和工艺选择都有很大的影响。

碳当量

在焊接中，碳当量 (CE) 用来衡量钢材的可焊性。碳当量公式显示了不同合金对于焊接影响的程度太小。高的碳含量和合金元素，如锰、铬、硅、钼、铜、镍，都会增加钢材的硬度，降低它的可焊性。碳当量通常推荐以下公式计算：

$$ce = c + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

Mainly, Mechanical Properties Include

Impact Energy

Impact energy, is determined by the energy absorbed by the specimen during fracture in the impact test. It is measured in units of joules. Impact energy indicates material's resistance to impact load. It is tested by charpy V-notch test.

If welding is required during the process, we should consider the welding performance of the steel.

Welding

For the steel, welding is a fabrication to combine different pieces of steel together. In the welding, normally the binding sites melt together and cool to form a strong joint, such as electric arc welding, gas welding and electric resistance welding.

Weldablilty

Weldability, also known as joinability, of a material refers to its ability to be welded. Most steels can be welded, but some are easier to weld than others. It greatly influences weld quality and is an important factor in choosing which welding process to use.

Carbon Equivalenc

In welding, Carbon Equivalenc(CE) is used to indicate the weldability of a steel. The CE formula shows the different influence of an alloy to weldability. Higher concentrations of carbon and other alloying elements such as manganese, chromium, silicon, molybdenum, vanadium, copper, and nickel tend to increase hardness and decrease weldability.

The formula of CE is recommended as:

$$ce = c + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

TRANSPORTATION AND STORAGE
运输及仓储

在钢材的运输和仓储过程中需要注意以下这些环节

吊装

钢卷、钢板在吊装的时候建议使用专门的吊具。仅仅使用钢丝绳时容易滑动造成危险，同时也容易压伤、划伤钢材，造成缺陷。

堆垛

钢卷在堆放的时候，建议在下面铺设保护材料，如橡胶板等，避免钢卷表面压伤。钢板堆放时须使用垫木，垫木应当有相同的高度，同时彼此距离相等、合适，使钢板的重量能够均匀分布，避免造成板形问题。

存放

钢材推荐存放在室内，如果室外存放时应该覆盖雨布。在室内存放时，应该注意监控室内的湿度与温度，避免因为气温与湿度的急剧变化造成“结露”现象。

During the Transportation and Storage We Should Pay Attention to These Aspects

Hoisting

Suitable lift appliance is recommended in the hoisting of steel coils or plates. Using the ware rope only, it is easy to hurt the coils or plates and cause some accident in case of sliding.

Stacking

When stacking coils, it is recommended to put some protective pads under it to prevent denting. For the plates, skids of same height is required to put under the plates at suitable position to share the weight and prevent the shape problem.

Storage

Steel is recommended to store indoors to prevent rusting. If it is stored outdoors, tarp is required. In the indoor storage, the temperature and humidity should be investigated. The rapid changing of them may cause dews condensating on the surface of the steel.

DECOIL AND CUT OF STEEL

钢材开卷与剪切

开卷

钢卷开卷时候注意安全。开卷时，特别是对高强度钢材开卷时，操作人员请不要站在钢卷的正面，避免钢带弹出造成人员伤害。开卷时，最好使用具有张力系统的开卷机以避免钢卷表面的划伤。

切边

钢材切边或分条时需要选择合适的设备。使用圆盘剪时，圆盘剪应当具有足够的硬度，避免使用时过快磨损影响切边的质量。正常钢材断面应当由明显的光亮带和剪切带。

Decoiling

During the decoil process, please pay attention to safety. Decoiling the steel, especially the high strength steel, the operator should not stand in front of the coil, which may spring out and hurt people. Decoiler with tension system is recommended to avoid the scratching.

Edge Cutting

Suitable equipment is need to cut or slit the steel. For the disc shear, it should have enough hardness to avoid wearing out and influencing the edge quality. A normal section of the steel consists of separate and clear shearing zone and tearing zone.

THE RE-SAMPLING

钢材的重取样

如果在使用中对于钢材的性能存在疑问，请联络我们的服务人员。对于材料的性能可以通过再次取样检验的方式进行确认。取样时，为了使样品具有代表性，其位置应当位于钢板或钢带宽度的 1/4 处。对于卷状交货的产品,应当在离开头部效应后进行取样。样品的大小为 450mm*450mm，其表面应带标记钢材的轧制方向。

In case of any suspect with the steel, please contact Baosteel's service people. A retest may be carried out to investigate the quality. During the re-sample, the re-sample plate should be cut off in one forth of the width of the plate or sheet. For the coils, the retest should be carried out after cutting of an additional sufficient longitudinal section to remove the coil end effect. The size of the re-sample plate is suggested to be 450mm x 450mm to meet the size requirement of most test. The direction of rolling should be marked on the plate.

宝山钢铁股份有限公司
http://www.baosteel.com

BAOSHAN IRON & STEEL CO., LTD.
http://www.baosteel.com

热轧销售部
Hot Rolled Sheet Sales Department
地址:上海宝山漠河路151号
邮编:201999
电话:021-26641191
传真:021-26645077

宝钢服务热线
Baosteel Service Hot-line
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http://www.ibaosteel.com

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传真:020-32219555

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传真:010-56512199

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传真:028-85335680

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沈阳宝钢东北贸易有限公司
电话:024-31391158
传真:024-31391160

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东北亚及澳洲大区 Northeast Asia and Oceania Region

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TEL: 00886-7-3356606
FAX: 00886-7-3356609

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TEL: 0061-03-96636830
FAX: 0061-03-96636835

东南亚及南亚大区 South East Asia and South Asia Region

宝钢新加坡贸易有限公司
BAOSTEEL SINGAPORE PTE LTD.
TEL: 0065-63336818
FAX: 0065-63336819

宝新越南代表处
VIETNAM OFFICE
TEL: 0084-8-9100126
FAX: 0084-8-9100124

宝新泰国代表处
THAILAND OFFICE
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FAX: 0066-2-2348989

宝新河内代表处
HANOI OFFICE
TEL: 0084-24-62694200
FAX: 0084-24-62691392

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FAX: 0062-21-3040 8583

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BAOSTEEL INDIA COMPANY PRIVATE LTD. (SANAND STEEL SERVICE CENTER)
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FAX: 0091-22-30071777

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FAX: 001-201-3073358

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FAX: 001-905-7315883

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FAX: 0052-55-55319506-201

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TEL: 507-382-5225

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FAX: 001-403-7315883

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