宝钢特钢有限公司
BAOSTEEL SPECIAL METALS CO., LTD.
1269 Shuichan Road Shanghai 200940 China
地址：上海市宝山区水产路1269号
邮编：200940
电话 TEL：international-86-21-56679080
传真 FAX：international-86-21-56670867

宝钢特钢服务热线
Baosteel Special Metals Service Hotline
021-26032603
021-26648888

宝钢特钢电子商务
http://tc.baosteel.net.cn

国内贸易平台 Domestic

上海宝钢特殊金属材料有限公司
SHANGHAI BAOSTEEL SPECIAL METAL CO., LTD
电话：021-56113751
传真：021-56126525

上海宝钢浦东国际贸易有限公司
SHANGHAI BAOSTEEL PUDONG INTERNATIONAL TRADING CO., LTD
电话：021-36014655
传真：021-51266533

上海宝钢不锈钢贸易有限公司
SHANGHAI BAOSTEEL STEEL TRADING CO., LTD
电话：021-66933311
传真：021-66932879

广州宝钢南方贸易有限公司
GUANGZHOU BAOSTEEL SOUTHERN TRADING CO., LTD
电话：020-32219999
传真：020-32219555

武汉宝钢华中贸易有限公司
WUHAN BAOSTEEL CENTRAL CHINA TRADING CO., LTD
电话：027-84298900
传真：027-84298938

成都宝钢西部贸易有限公司
CHENGDU BAOSTEEL WESTERN TRADING CO., LTD
电话：028-85335388
传真：028-85335696

北京宝钢北方贸易有限公司
BEIJING BAOSTEEL NORTHERN TRADING CO., LTD
电话：021-56512000
传真：021-56512050

长春宝钢钢材贸易有限公司
CHANGCHUN BAOSTEEL STEEL TRADING CO., LTD
电话：0431-85888912
传真：0431-85889313

沈阳宝钢钢材配送有限公司
SHENYANG BAOSTEEL STEEL DISTRIBUTION CO., LTD
电话：024-62220699
传真：024-88210189

亚澳地区 Asia and Australia

宝和通商株式会社
HOWA TRADING CO., LTD.
TEL: 0081-3-3237-9121
FAX: 0081-3-3237-9123

宝和通商首尔事务所
HOWA TRADING CO., LTD., SEOUL OFFICE
TEL: 0082-2-5080893
FAX: 0082-2-5080891

宝钢澳大利亚贸易有限公司
BAO AUSTRALIA PTY LTD.
TEL: 0061-8-94810535
FAX: 0061-8-94810536

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

宝钢越南代表处
REPRESENTATIVE OFFICE IN VIETNAM
TEL: 0084-8-39100126
FAX: 0084-8-39100124

宝钢泰国代表处
REPRESENTATIVE OFFICE IN THAILAND
TEL: 0066-2-6543008
FAX: 0066-2-6543010

欧非地区 Europe and Africa

宝钢欧洲贸易公司
BAOSTEEL TRADING EUROPE GMBH
TEL: 0049-40-41994101
FAX: 0049-40-41994120

宝钢西班牙有限公司
BAOSTEEL ESPANA, S.L
TEL: 0034-93-4119325
FAX: 0034-93-4119330

宝钢中东代表处
BAOSTEEL MIDDLE EAST REPRESENTATIVE OFFICE
TEL: 00971-4-8810788
FAX: 00971-4-8810789

宝钢意大利钢材集散中心有限公司
BAOSTEEL ITALIA DISTRIBUTION CENTER SPA
TEL: 0039-010-530881
FAX: 0039-010-5308895

美洲地区 America

宝钢美洲贸易有限公司
BAOSTEEL AMERICA INC.
TEL: 001-201-4571144
FAX: 001-201-4570909

宝钢底特律代表处
REPRESENTATIVE OFFICE IN DETROIT
TEL: 001-248-2089918
FAX: 001-248-2080999

宝钢休斯顿代表处
REPRESENTATIVE OFFICE IN HOUSTON
TEL: 001-281-4847333
FAX: 001-281-4843655

宝钢洛杉矶代表处
REPRESENTATIVE OFFICE IN LOS ANGELES
TEL: 001-949-7526789
FAX: 001-949-7521234

宝钢里约代表处
BAOSTEEL DO BRAZIL LTDA.
TEL: 0055-21-25311363
FAX: 0055-21-25310298

2014.7月印刷于中国上海

BX1407A0101

合金板带产品 Alloys Plate And Sheet

宝钢特钢有限公司
BAOSTEEL SPECIAL METALS CO., LTD.

Alloys Plate And Sheet
合金板带产品

Product manual of special steel plate and sheet
合金板带产品手册

BAOSTEEL

宝 钢 文 化 Enterprise Culture

严 格 苛 求 的 精 神
Spirit of strictness and demanding

学 习 创 新 的 道 路
Road of study and innovation

争 创 一 流 的 目 标
Striving for first-class target

核 心 价 值 Core Value

诚 信 Good Faith

协 同 Cooperation

宝钢特钢
Baosteel Special Metals

宝钢集团是中国最大、最现代化的国有钢铁联合企业，主要生产高技术含量、高附加值钢铁精品，已形成普碳钢、不锈钢、特钢三大产品系列。2012年，宝钢完成钢产量4383万吨，利润总额104亿元，居世界钢铁行业第二位。2013年，宝钢连续第十年进入美国《财富》杂志评选的世界500强榜单，位列第222位，并连续当选为"全球最受赞赏的公司"。

宝钢特钢有限公司是宝钢集团全资子公司，位于上海市宝山区吴淞工业区内，前身为上海第五钢铁厂、上海钢铁研究所和上海浦钢公司，创建于1958年，是我国最早的军工用特殊钢生产基地之一，1998年并入宝钢集团。

宝钢特钢有限公司拥有特种冶金，不锈钢、结构钢、高合金钢长材，合金板带及钢管等多条现代化的生产线，形成了以耐蚀合金、钛及钛合金、高温合金、精密合金、特殊不锈钢、特种结构钢六大类战略产品为核心，聚焦于航空航天、能源电站及交通运输等国民经济关键行业的战略产品群。产品有板、管、棒、丝、盘园、带、饼、环及异型材，广泛应用于航天、航空、核电、汽车、机械、电站、电子仪表和石油化工等行业。

宝钢特钢一直致力于向前沿技术市场、知名大公司、行业领导者、具有社会影响力的客户提供优质服务和开展广泛的合作。按照宝钢集团的发展规划，宝钢特钢将打造成为高端的新材料研发和制造基地。

Baosteel Group is China's largest, most modern state-owned iron and steel enterprises, mainly the production of high technology content, high value-added steel products, has formed the common carbon steel, stainless steel, special steel three product series. In 2012, Baosteel steel production of 43830000 tons, a total profit of 10400000000 yuan, ranking second in world steel industry. In 2013, Baosteel for tenth consecutive years to enter the American "fortune" magazine of the world's top 500 list, ranked 222nd, and was elected as a "global Most Admired Companies".

Baosteel Special Metals Co., Ltd. is a wholly owned subsidiary of Baosteel Group, located in Shanghai City, Baoshan District Wusong Industrial Area, formerly known as Shanghai the fifth steel plant, Shanghai iron and Steel Research Institute and the Shanghai Pu steel company, founded in 1958, is China's earliest military use of special steel production base, in 1998 into the Baosteel group.

Baoshan Iron & Steel Co. Ltd. Special Steel Business Unit is located at the northeastern part of Shanghai, China. It grew out Shanghai No.5 Steel Co.(It consists of Shanghai No.5 Steel Works set up in 1958 and Shanghai Iron & Steel Research Institute) and special steel section of Shanghai No.3 Steel Works. It is one of the earliest special steel production bases in China. In 1998, it merged into Baosteel Group. In May 2005, the core assets of Shanghai No.5 Steel Co. was purchased by listed Baosteel, and it became Special Steel Branch of Baosteel.In April 2009, Baosteel set up Special Steel Business Unit with Special Steel Branch wholly affiliated to this Business Unit. With more than 50-year experience, Special Steel Business Unit possesses advanced production lines for special metallurgy,stainless steel, structural steel and high alloy long products,alloy plate & sheet and strip and seamless tube, etc. Forms of products cover bar, wire, plate & sheet, strip, seamless tube,forging, etc. The production system is formed with the dominant products as special metallurgy, stainless steel and structural steel. It focuses on applications in industries of aerospace & aviation, energy resources, automobile (transportation) and 4 key products i.e. tool & die steel, bearing steel, cold-roll & mandrel and stainless steel bar & wire.

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

产线简介
Production Lines

宝钢特钢供应能力与优势
Baosteel Special Metals Capabilities and Advantages

现代化的装备能力
Modern Production Facilities
完善的质量控制体系
Comprehensive Quality Assurance System
市场驱动的材料设计理念
Market-driven Design Concepts for Materials
差异化的产品服务
Differentiated Products and Services

特种金属及合金板带材生产线
Special metal and alloy plate and sheet Production line

特种金属及合金板带产线是宝钢"十一五"规划的重大建设工程，是宝钢特钢有限公司建设特钢精品基地的重要组成部分。该产线填补了我国在高端特钢板带产品生产领域空白，是具有国际化水准、国内唯一的专业的特殊钢板带材生产线。

该产线设计生产能力28万吨，主要目标产品为满足航空航天、船舶、核电、石油化工等国家重点行业的发展需要的特殊金属板带材，尤其是特殊合金中厚板以及大卷重冷轧材。本产线产品包括钛及钛合金、高温合金、耐蚀合金、精密合金、不锈钢和特种不锈钢，以及工模具钢、耐热钢、耐磨钢、低磁钢等板或卷，其产品规格为0.3～40mmx600～2500mm。本产线将提供多种交货状态的产品:热轧态、固溶酸洗态、抛丸酸洗态、退火酸洗态、冷轧态、冷轧退火酸洗态、冷轧光亮退火态等。

Plate and sheet line of special metal and alloy is an important project in the Baosteel "10-1.-5" plan and a main consisting part of special steel elaborate site. The line make up the shortage of top end special steel plate production in domestic market，it is the only one line for special steel plate production which with international level in domestic.

The capacity of the line is designed to be 280，000 tons，mainly aiming at producing special steel plates to meet the requirements of national key industries developing such as aero and planes，ships，nuclear and power，pesto and chemical industry，etc，especially the medium/thick special alloy plates and big coils of cold rolling strips. The main products of the line include titanium and Ti-alloy，super alloy，corrosion resist alloy，precise alloy，stainless steel and special stainless steel as well as tool and die steel，heat resist alloy，wearing resistant steel，non magnetic steel plate and sheet.

The products size is 0.3~40mmx600~2500mm. The line will provide products under different delivery conditions: hot rolling，pitting corrosion，shot blasting，annealing pickling，cold rolling，cold rolling picking，cold brightening annealing，etc.

特种金属合金板带产线汇集了现今世界上各种先进的冶炼(包括特种冶金)、浇铸、热加工、冷加工以及各种热处理装备。其中有：适应高合金浇注的垂直连铸、EB/PAM冷床炉、大轧制力粗轧机、四辊可逆式炉卷轧机、二十辊森吉米尔冷轧机以及全自动跟踪固溶淬火线、VCF炉、真空处理炉等设备。相应配备了各类先进的检测设备，以保证产品的性能。

特种合金板带产线还拥有独特的集成技术优势。其集中了企业多年从事钛及钛合金、高温合金、耐蚀合金、精密合金等特种金属材料的研发和制造的领先技术，能够为用户提供各种金属板带产品，并能帮助或与用户共同开发适用产品，满足用户的各种特殊要求。

Plate and sheet of special metal and alloy line has integrated multiple advanced equipments in the world for melting (including special metallurgy)，casting，heating/cooling equipments and different heat treatment equipments， such as: vertical caster for high alloy casting，EB/PAM，big force rolling mill，4 high reverse mill，20 high steckle mill and automatic tracing pickling quenching line，VCF，VAA，etc，together with various of advance detection device to assure to products quality.

Plate and sheet of special metal and alloy line is of the advantage of integrated technology. It combines advanced technique experience and from the longtime production and research of the special metal materials of titanium and Ti-alloy，super alloy，corrosion resist alloy etc，being able to provide different products，and help the customer to develop new products according to their special requirements.

Contents 目录

工艺流程 07
Process Flow

生产装备 14
Production Equipment

产品标准 23
Product standards

07

产品尺寸允许偏差 36
Product size tolerances

表面加工类型 41
Surface processing type

产品包装及标签 43
Packaging and labeling

36

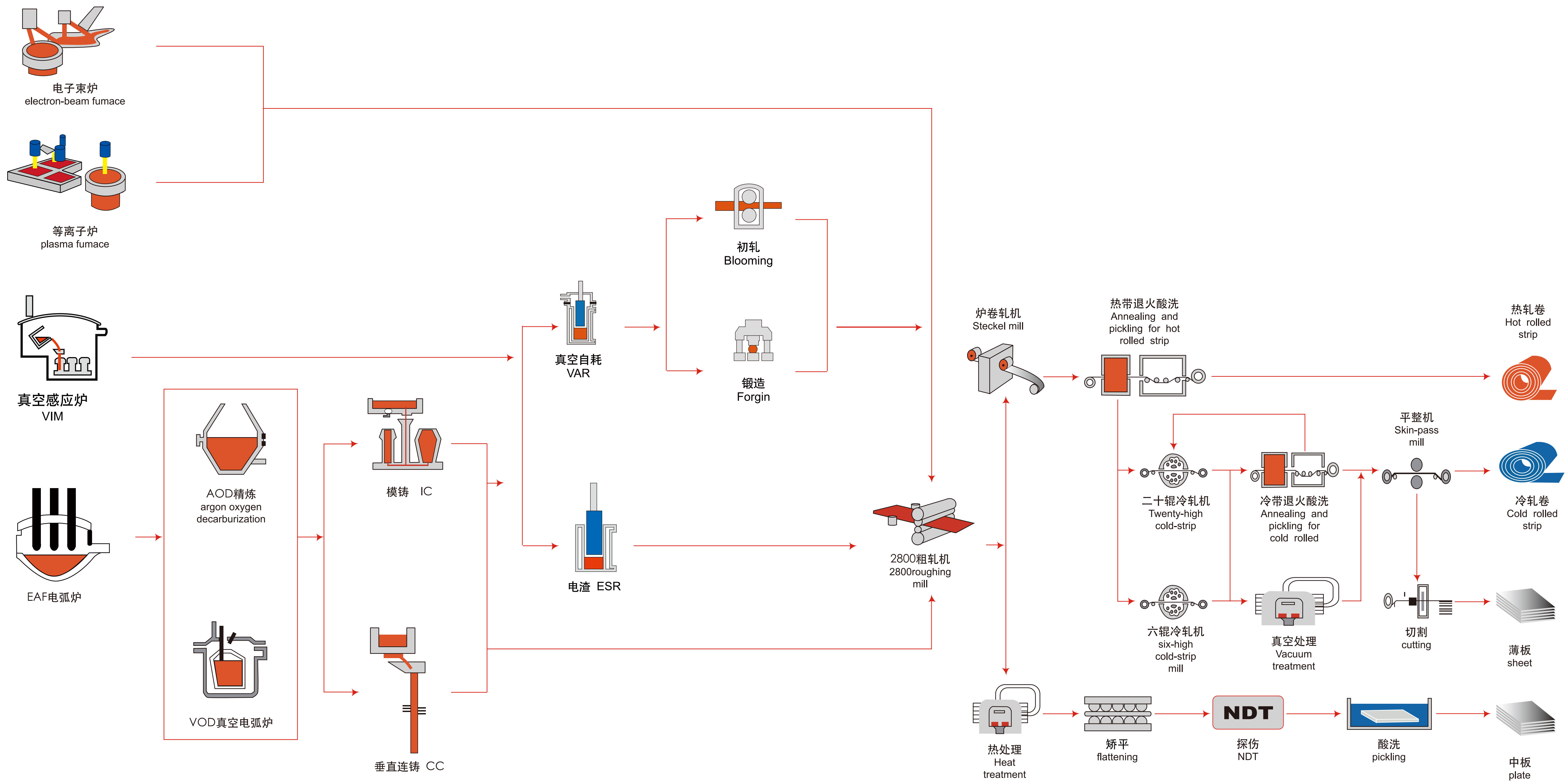
46

质量保证 46
Quality Assurance

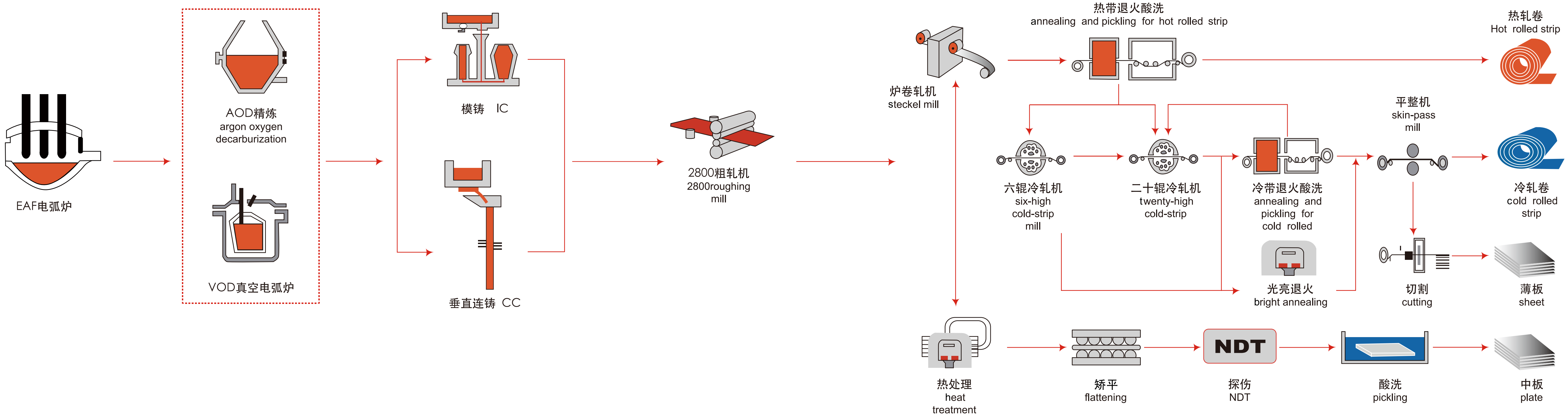
用户服务 52
Customer Service

工艺流程
Process Flow

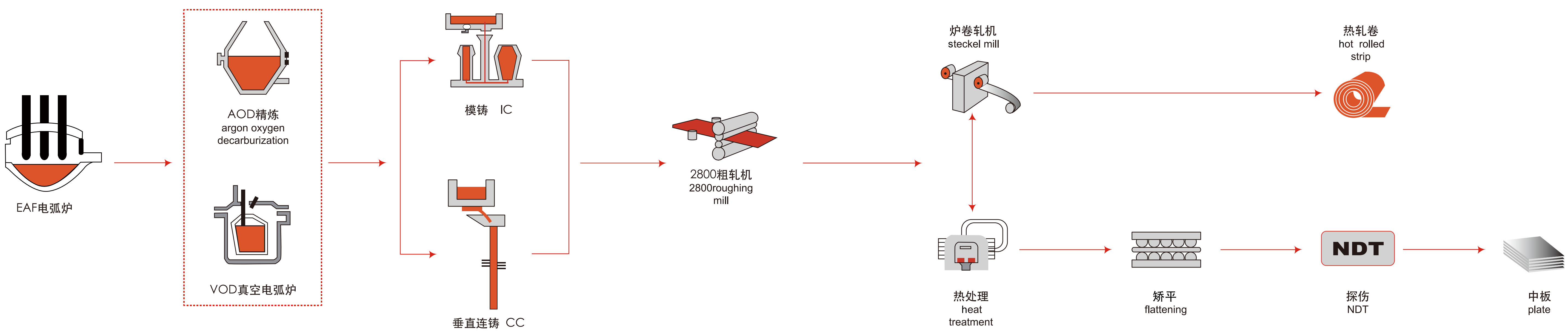
特种金属及合金板带—工艺流程
Special metal & alloy plate and sheet Process Flow



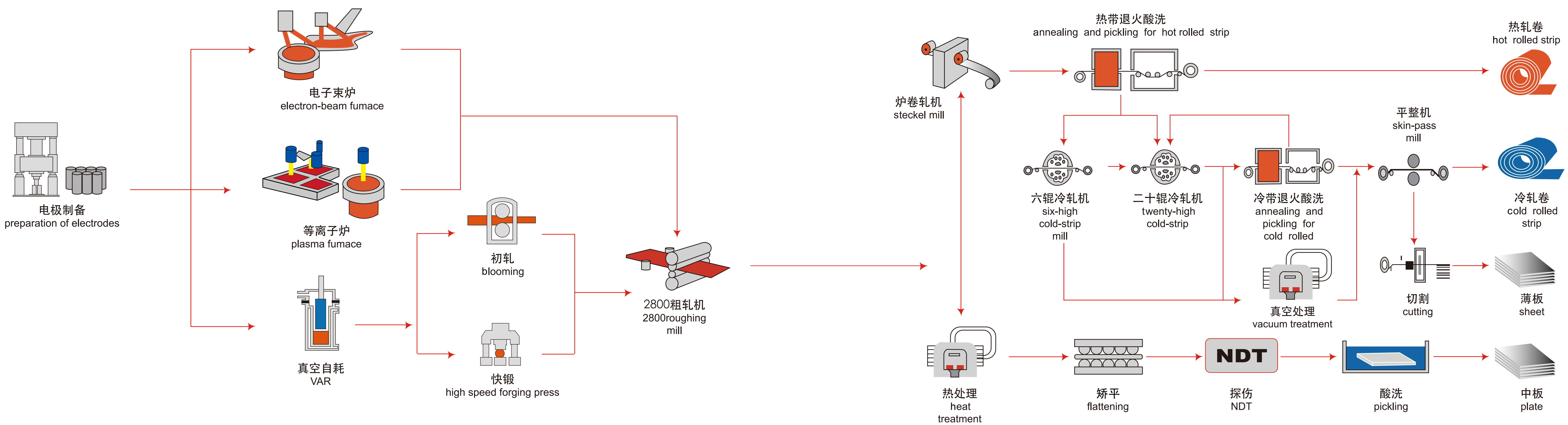
不锈钢工艺流程
Equipment-Process Flow for Stainless Steel Series Products



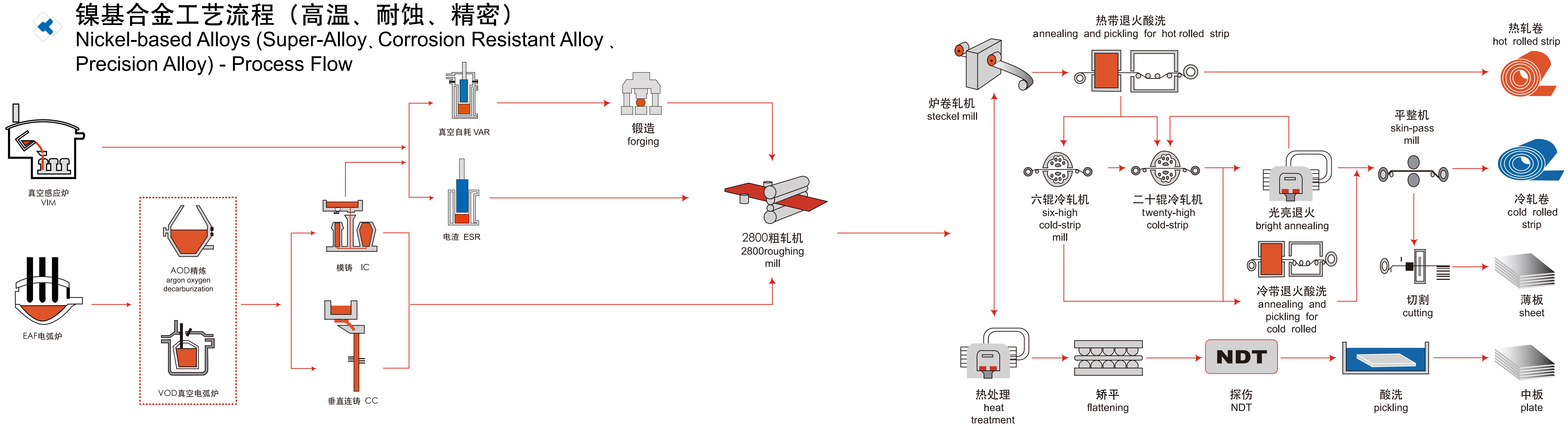
结构钢工艺流程
Equipment- Process Flow For Structural Steel Series Products



钛及钛合金工艺流程
Titanium and Titanium alloys - Process Flow



镍基合金工艺流程（高温、耐蚀、精密）
Nickel-based Alloys (Super-Alloy、Corrosion Resistant Alloy 、Precision Alloy) - Process Flow



生产装备
Production Equipment

冶炼装备及特点 Smelting Equipments & Features

炼钢垂直连铸
Melting and vertical casting

装备:

EAF、AOD、VOD/VD、LF、垂直连铸机

特点:

配备最新控制技术的垂直连铸机，采用立式布置，铸坯在整个凝固过程中均无弯曲、矫直变形，从而消除了固、液态界面的任何弯曲、矫直应力，满足高合金产品(镍基合金、特不锈)的连铸，实现产品组织和性能提升。

Equipments:

EAF, AOD.VOD/VD, LF vertical caster

Features:

the vertical caster with latest control technology is in stand statue, the ingot will not bend and/or deform for straightening in during solidification, and thus avoid any curving or straightening stress, as so to meet to continuous casting of high alloy products(nickel based alloy, special stainless steel), as well as the improvement of products microstructure and performance.

真空感应
vacuum induction melting

装备:

1t、6t、12t真空感应炉

主要产品:

镍基合金、耐蚀合金、精密合金

Equip:

1t,6t,12t VIM

Main products:

nickel based alloy,corrosion resistant alloy,and precise alloy

冶炼装备及特点
Smelting Equipments & Features

真空自耗
VAR

装备:
8t、10t真空自耗炉
主要产品:
镍基合金、 耐蚀合金、 钛及钛合金
装备特点:
熔速自动控制　氦冷却　短弧熔炼　熔滴脉冲控制

Equip:
8t,10t VAR
Main products:
nickel based alloy, corrosion resistant alloy,Ti and Ti alloy
Features:
automatic control of melting ration. H_2 cooling, short arc smelting, pulse control of drop

冷床炉特点：(EB/PAM)
1、制备超纯净产品:有效去除TiN,TiO_2等低密度夹杂（LDI）;有效捕获如W、Mo、Ta等高密度夹杂（HDI）;
2、合金的熔化、精炼和凝固过程分离并可单独控制;
3、高温液态金属在冷床炉中滞留时间长，过热度高，合金化均匀;
4、有效控制熔池深度和凝固速率，获得满意的铸态组织结构;
5、可熔铸各种截面形状(如扁形、圆等)的铸锭。

EB、PAM

Features:
1.manufacturethe super pure products remove the low desity inclusion(LDI) such as TiN,TiO_2 effectively; catch the high desity inclusion (HDI) such as W,Mo, and Ta effectively;
2.Melting,refinement,solicitation of alloy could be separately control
3.Long retain time of the high temperature metal liquid,high degree of superheat, even distribution of alloy
4.effective control of depth of melting pit and solidation rate for satisfied casting structure
5.different section shape achievable (flati¢round) of ingots

装备:
保护气氛电渣炉
主要产品:
高温合金、 耐蚀合金、 特殊不锈
装备特点:
熔速自动控制氩气保护

Equip:
PESR
Main products:
super alloy, corrosion resistant alloy, special stainless steel
Features:
automatic control of melting ration, argon protection

保护气氛电渣炉
PESR

炉卷装备及特点
Steckle Mill Heating Equipments

加热炉和补温炉装备:
步进梁式加热炉、室式加热炉、钛合金辊底式电加热炉、室式补温炉、炉卷轧机车间的卷取炉、钢板缓冷坑
heating furnace and boost furnace equipment:
Walking beam furnace, chamber furnace, electric roller furnace, boost furnace,coiler furnace, burial pit

步进炉
Walking beam furnace

室式炉
Chamber furnace

序号 No	名称 Name	内容及参数值 Detail and data
1	加热炉炉型 heating furn	步进梁式加热炉 Walking beam furnace
2	用途 purpose	特殊不锈钢、工模具钢、耐磨钢、耐热钢、低磁钢、普通不锈钢等 Special stainless，tool and die，corrosion resistant，low magnetic，normal stainless steel
3	板坯规格 Slab size	厚度80-250，宽度600~1600，长度1800~6000，最大板坯单重12.5吨 Thk:80-250mm,wid:600-1600mm;len:1800-6000;max singl. wei:12.5t

序号 No	名称 Name	内容及参数值 Detail and data
1	加热炉炉型 heating furn	室式加热炉 chamber furnace
2	用途 purpose	纯钛、高温合金、耐蚀合金、精密合金、特殊不锈钢、工模具钢 Pure Ti，Super alloy，corrosion resistant alloy，precise alloy，special stainless steel, tool and die steel
3	板坯规格 Slab size	EB锭(EB ingot): 400 x1200 x 4000mm 扁锭(Flat ingot): 150- 365 x 600-1300 x1500-2000mm 补温和超短坯(Boost and short slab): 30-200 x 600-2500 x 1200-4000mm

炉卷热轧加热设备
Steckle Mill Heating Equipments

室式补温炉
Chamber boost furnace

钛合金电加热辊底炉
electric roller furnace for Ti alloy

序号 No	名称 Name	内容及参数值 Detail and data
1	加热炉炉型 heating furn	室式补温炉 Chamber boost furnace
2	用途 purpose	中间坯轧制补温 Temperature Boosting of intermediate slab
3	加热钢种 Heating type	高温合金、耐蚀合金、精密合金 Super alloy, corrosion resistant alloy, precise alloy
4	板坯规格 Slab size	40-150 x 600-1300 x 2500-12000mm

序号 No	名称 Name	内容及参数值 Detail and data
1	加热炉炉型 heating furn	一端进出的电热辊底式加热炉 electric roller furnace
2	用途 purpose	钛合金坯料轧制前加热、补温 Heating and Boosting of Ti alloy slab before rolling
3	加热钢种 Heating type	钛及钛合金 Ti & TA
4	板坯规格 Slab size	30- 200 x 600- 2650 x 1500- 5000mm
5	标准板坯 Standard slab	加热(Heating): 200 x 1100x 2000mm; 补温(Boosting): 30 x 2000 x 5000mm

炉卷热轧加热设备
Steckle Mill Heating Equipments

粗轧
Roughing Mill

炉卷
Steckel Mill

2800mm四辊粗轧机 2800mm four-high roughing mill	四辊可逆，由机架装置，平衡装置，轧辊辊系装置，轧辊导卫护板与轧辊水冷及除磷装置、下辊抬升装置、阶梯垫下辊标高调整装置、机架辊、换辊装置等组成。 Four-high reversing,including stand,screwdown device,balancing device, roller system device, roller back plate and water cooling and descaler device, lower roll lifting device, step pad lower roller elevation adjustment device, stand Roller,roll exchanging devie
立辊轧机 Vertical Mill	下传动式，位于轧机间侧导板后，粗轧机后工作辊道前。用于将板坯宽度减少到要求的成品宽度而进一步提高收得率。 Bottom drive type, located behind side guide and in front of working roll behind roughing mill. It is used to reduce the width of billet to the required width of finished products ti improve the yielding rate.
炉卷轧机 Stefckel Mill	炉卷轧机为四辊可逆轧机，轧机配备HAGC系统、工作辊弯辊系统。两个工作辊单独传动。 It is four-high reversing mill and equipped with HAGC system.working roll bending system. The two working rolls drive separately.

炉卷热轧轧制设备
Steckle Mill Hot Rolling Equipments

连续固熔炉
Continuous Solution Furnance

淬火机
Quenching Machine

炉型(Fuenace type)	使用说明(instruction)
辊底式固溶热处理炉 Roller-hearth solutionizing furnace	带有淬火机; 炉子用途：不锈钢等产品的固溶处理 With quenching machine. Purpose: solutionizing treatment of SS products
室式高温固溶热处理炉 Batch type high temperature solutionizing furnace	炉子用途：高温合金、耐蚀合金、特种不锈钢的高温固溶处理 Purpose: high temperature solutionizing treatment of superalloy,corrosion-resistant alloy and special stainless steel
移罩式电加热退火炉 Bell type electrical heating annealing furnace	炉子用途：钛合金、特殊不锈钢、工模具钢的退火处理 Purpose: annealing treatment of TA,Special SS and tool and die steel
VCF炉 VCF furnace	炉子用途：用于钛合金板的真空退火平整 Purpose: Vacuum annealing leveling treatment of TA plate

炉卷热轧抛丸酸洗线
Steckel Mill Hot Rolling - shot blasting pickling line

整个酸洗线主要由上下料装置、抛丸机、酸洗、翻地机及标记装置等组成。

The whole picking line is made up of charging/discharging device,shot blaster,pickling unit,grinding unit,plate reversing machine and marking device.

炉型(Fuenace type)	使用说明(instruction)
抛丸机概述 Brief introduction of shot blaster	选用先进、高效抛丸器，获得理想粗糙度的洁净表面，提高钢材的抗腐蚀能力 We use advanced shot blaster with high efficiency so that we can get clean surfaces with certain roughness.And the corrosion-resistant capacity of steel is improved
抛丸机处理钢种 Steel grade	钛及钛合金、高温合金、耐蚀合金、特殊不锈钢、工模具钢、耐磨钢、耐热钢、低磁钢和普通不锈钢等 Tantium Superalloy,corrosion-resistant alloy,special stainless steel, tool and die steel,anti-frication steel,non-magnetic steel and Normal stainless steel.
移罩式电加热退火炉 Bell type electrical heating annealing furnace	炉子用途：钛合金、特殊不锈钢、工模具钢的退火处理 Purpose: annealing treatment of TA,Special SS and tool and die steel
钢板规格 Specification of steel plate	厚度4-80mm; 宽度600- 2650mm;长度2000 - 8000mm Thickness:4-40mm; width: 600-2650mm; length: 2000-8000mm
酸洗工艺段组成 Compositon of picking processing line	预清洗段+硫酸酸洗段+硫酸水洗段+混酸酸洗段+混酸水洗+清洗段+烘干段 Pre-cleaning section+suiphuric acid pickling section+sulphuric acid water pickling section+mixed acid pickling section+cleaning section+dryer
酸洗处理钢种 Steel grade	钛及钛合金、高温合金、耐蚀合金、特殊不锈钢、普通不锈钢等 Ti and TA、Superalloy、corrosion-resistant alloy、special stainless steel、and normal stainless steel
钢板规格 Specification of steel plate	厚度4-80mm; 宽度600- 2650mm;长度2000 - 8000mm Thickness:4-40mm; width: 600-2650mm; length: 2000-8000mm

炉卷热轧装备特点
Steckel Mill Hot Rolling Equipment features

设备特点:

1、根据不同产品的工艺特性，采用不同的加热方式，生产钛合金采用电加热炉加热，保证其加热温度的精准控制。补温加热满足热加工性能较差的镍基合金的加工过程补温要求；

2、大轧制力和弯辊控制，可适用于变形抗力较大的镍基合金的生产精度；

3、炉卷轧机为四辊可逆式轧机位于两座热卷取炉之间，过程温度补偿，减少边裂；可适用于大卷重镍基合金、特殊不锈的生产，填补国内空白；

4、连续抛丸、酸洗，在线操作，表面质量可控；快速换酸应对铁、镍基合金、特不锈共线酸洗。

Equipment features:

1. According to different process properties, applying different heating means. Making use of electrial heating furnace to produce TA to guarantee the precised control of heating temperature. The temperature compensation feature can meet the temperature compensation requirement of nickel-based alloy that has poor heat process property during process.

2. The feature of huge rolling force and roll bending control is applicable to the production precison of nickel-based alloy which has relatively big deformation resistance.

3. The steckel mill is four-high reversing mill between the two hot coiling furnaces. Temperature compensation during processing and reducing edge crack is suitable to production of heavy coil of nickel-based alloy and special stainless steel,which is the first of its kind in China.

4. Continuous shot blasting, pickling,on-line operating, surface quality controllable; acid changing at high speed to realize coline pickling of TA, nickel-based alloy and special stainless steel.

Equipment
Products

产品标准
Product standards

特种金属及合金板带产品大纲
Product Mix

表(table)：1

序号 No	产品大类 Type	执行标准 Standard	代表钢种 Steel Grade	产品规格厚×宽×长（mm） Size
1	钛及钛合金 Ti and Ti alloy	GB/T 3621-2007、ASTM B265-06a、GB/T 3622-1994、AMS 2242F	CP-Ti：TA1、TA2、TA3、GR1、GR2、GR3、GR4、α、α+β、β、TA10	热轧板(hp)：4.0～40×600～2650×2000～8000 冷轧板(cp)：0.5～4.0×600～1250×1000～5000 冷轧卷(cc)：0.5～4.0×600～1250
			β型：TB5	热轧板(hp)：4.0～40×600～2650×2000～8000
			α+β型：TC3、TC4、GR5	
		GB/T 3621-2007、ASTM B265、GB/T 6612、GJB 2505、企业标准	α型：TA5、TA6、TA7、TA9、TA15、STi80	热轧板(hp)：4.0～40×600～2650×2000～8000
2	高温合金 super alloy	GJB 1952-1994、GJB 3318-1998、GB/T 14995-1994	铁基：GH1140、GH2132、GH 1015、GH 1131、GH2135、GH2150、GH2302、GH2696	热轧板(hp)：4.0～40×600～2650×2000～8000
		GJB1952-1994、GJB 3318-1998、GB/T 14996-1994、HB6571、HB5465	镍基：GH3030、GH3039、GH3044、GH3128、GH4099、GH4145、GH4169	冷轧板(cp)：0.5～3.0×600～1250×1000～4000 冷轧卷(cc)：0.5～3.0×～1250×L
3	耐蚀合金 corrosion resistant alloy	ASTM B333-03	Hastelloy B2 、Hastelloy B3；	热轧板(hp)： 4.5～20×600～2650×2000～8000； 冷轧板(cp)：0.5~4.0×600~1250×1000～5000 冷轧卷(cc)：0.5～4.0×600～1250
		ASTM B575-04	Hastelloy C4、Hastelloy C22、Hastelloy C-2000、Hastelloy C-276	
		ASTM B127-05	Monel 400/UNS N04400	
		ASTM B409-01	Incoloy 800、Incoloy800H、Incoloy800HT	
		ASTM B168-01	Inconel 600/UNS N06600、Inconel 601/UNS N06601、UNS N06603、UNS N06690、UNS N06693、UNS N06025、UNS N06045、UNS N06617	
		ASTM B443-05	Inconel 625/UNS N06625、UNS N06219	
4	精密合金 precise alloy	GB/T 4461-2007	5J1306A、5J1309A、5J1411A、5J1417A、5J1325A、5J1433A、5J1440A、5J1306B、5J1433A、5J1306B、5J1309B、5J1411B、5J1417B、5J1325B、5J1433B、5J1440B、5J11、5J14、5J16、5J17、5J18、5J19、5J23、5J25、5J14140、RSN210	冷轧带(cs)：0.05～0.3×～200

表(table)：2

序号 No	产品大类 Type	执行标准 Standard	代表钢种 Steel Grade	产品规格厚×宽×长（mm） Size
4	精密合金 precise alloy	YB/T 5261-93	2J83、2J84、2J85	冷轧带(cs)：0.05～4.0×～200
		企业标准	MH-80Mo5	冷轧带(cs)：0.05～0.3×～200
		YB/T 5135-1993、YB/T 5256-1993、YB/T 5253-1993	3J1、3J9、3J21、3J22、3J53	冷轧带(cs)：0.3～4.0×～1250
		GB/T 14986-2008、GBn198-88	1J51、1J50、1J79、1J85	冷轧带(cs)：0.05～0.3×～200 冷轧卷(cc)：0. 5～4.0×600～1250
		YB/T 5254-1993	3J53、3J58、改型3J58、3J59B、3J63、3J53A	0.05～0.3×～250×L
		GB/T14986-2008	1J30、1J31、1J32、1J33、1J38	冷轧带(cs)：0.05～4.0×～200
		YB/T 5241-2005、YB/T 5234-2005、YB/T 5235-2005、YB/T 5236-2005、YB/T 5238-2005、YB/T 5240-2005、企业标准	426A、4J28、4J29、4J33、4J34、4J24A、4J43、4J44、4J45、4J49、4J50、4J58	冷轧带(cs)：0.05～4.0×～200 冷轧卷(cc)：0. 5～4.0×600～1250
		YB/T 5241-2005	4J32、4J36、4J38、4J40	
5	普通及特殊不锈钢 normal and special stainless steel	ASTM A240/240M-06b	304、321、304H、316H、316L、317L、S31803、S32101、S32205、S32304	热轧板(hp)：4～40×600～2500×2000～8000 热轧卷/酸洗白卷(hc/hpc)： 2.5～5×600～1300×L 冷轧板(cp)：0.5～3.0×600～1250×1000～5000 冷轧卷(cc)：0.5～4.0×600～1250×L
		GB/T 4234-2003、ASTM F139-03	00Cr18Ni14Mo3（N）、00Cr18Ni14Mo3、00Cr18Ni15Mo3N	
		企业标准	0Cr18Ni16Mo5、00Cr18Ni4Mo2Cu2	
		GB/T 4237-2007 、GB/T 4238-2007 、YB/T 5090-1993	17-7PH、PH15-7Mo、17-4PH、AM350 6Cr13（Mo）、8Cr16、9Cr13（Mo）、7Cr17（Mo）	热轧板(hp)：4～40×600～2500×2000～8000 热轧卷/酸洗白卷(hc/hpc)： 2.5～5×600～1300×L
		YB/T 5310-2006、ASTM A693-06、	SUS301、SUS301L、1Cr17Ni、7321-0Cr18Ni10Ti、316Ti-0Cr18Ni12Mo2Ti、	
		企业标准	SUS316-06Cr17Ni12Mo2、SUS316L-022Cr17Ni12Mo2、SUS309S-06Cr23Ni13、SUS310S-06Cr25Ni20	冷轧板(cp)：0.5～3.0×600～1250×1000～5000 冷轧卷(cc)：0.5～3.0×～1250×L
		GB/T 3280-2007	1Cr21Ni5Ti、00Cr18Ni5Mo3Si2、1Cr18Ni11Si4AlTi、0Cr26Ni5Mo2	冷轧板(cp)：0.5～3.0×600～1250×1000～4000 冷轧卷(cc)：0.5～3.0×～1250×L

特种金属及合金板带产品大纲 Product Mix

表(table)：3

序号 No	产品大类 Type	执行标准 Standard	代表钢种 Steel Grade	产品规格厚×宽×长（mm） Size
6	工模具钢 tool and die steel	GB/T 3278-2001	T10A	热轧板(hp)：4～80×600～2650×2000～8000
		YB/T 107-1997、企业标准	SW718、S55C、S50C	
		DIN17350	1.2738	
		GB/T 1299-2000、ASTM A 686	H13、9SiCr、Cr12MoV、Cr06	
		企业标准	T10CrV	
7	耐磨钢 wearing resistant steel	企业标准	20Cr5Cu、BTW1、Mn13	热轧板(hp)：4～40×600～2650×2000～8000
8	耐热钢 heat resistant steel	企业标准	1Cr5Mo、1Cr6Si2Mo	热轧板(hp)：4～40×600～2650×2000～8000
9	低磁钢 low magnetic steel	企业标准	20Mn23AlV	热轧板(hp)：4～40×600～2650×2000～8000

注：1）热轧及酸洗白卷最大单重：16吨
2）冷轧卷最大单重：16吨
Note: 1.max sigl weight of hot /pickling coil: 16t
2.max sigl weight of cold coil: 16t

热轧板(HP) — hot mill plate
热轧卷(HC) — hot mill coil
酸洗白卷(HPC) — hot mill pickling coil

冷轧带(CS) — cold mill sheet
冷轧卷(CC) — cold mill coil
冷轧板(CP) — cold mill plate

产品标准 Product Standard

质量控制执行各类产品企业协议标准，也可以执行GB/T、GJB、ASTM、AMS、JIS、DIN等标准。

Quality control implement various product enterprise agreement standard, also can enforce the GB/T, GJB, ASTM, AMS, JIS, DIN standards.

可供钢种及规格 Steel Grade and Size

钛及钛合金 Ti and Ti alloy

钢种大类 Type	牌号 Trademark	日标 JIS	美标 ANSI	俄罗斯 Russia	钢种大类 Type	牌号 Trademark	日标 JIS	美标 ANSI	俄罗斯 Russia
纯钛 Ti	TA1	JIS CLASS1	GR1	BT1－0	钛合金 TA	TA7	–	GR6	BT5－1
	TA2	JIS CLASS2	GR2	–		TA10	–	GR12	–
	TA3	JIS CLASS3	GR3	–		TA9	–	GR7	–
	TA4	JIS CLASS4	GR4			TA15	–	–	BT20
钛合金 TA	TB2	–	–	–		STi80	–	–	–
	TB5	–	–	–		TC3	–	GR23	–
	TA5	–	–	–		TC4	–	GR5	BT6
	TA6	–	–	BT5					

耐蚀合金 Corrosion Resistant Alloy

钢种类别 Type	牌号trademark				
	国标GB	美标ASTM	美标UNS	日标JIS	德国DIN
耐蚀Hastelloy合金 Corrosion Resistant - Hastelloy	NS322	Hastelloy B2	N10665	–	NiMo28
	–	Hastelloy B3	–	–	–
	NS335	Hastelloy C4	N06455	–	NiMo16Cr16Ti
	–	Hastelloy C22	–	–	–
	NS333	Hastelloy C276	N10276	–	NiMo16Cr15W
	–	Hastelloy C2000	–	–	–
	–	Hastelloy G30	–	–	–
	–	Hastelloy D205	–	–	–
	–	Hastelloy S	–	–	–
	–	Hastelloy X	–	–	–
	–	Hastelloy G35	–	–	–
耐蚀Monel合金 Corrosion Resistant -Monel	–	Monel400	–	–	–
耐蚀Inconel合金 Corrosion Resistant -Inconel	NS312	Inconel 600	N06600	NCF600	NiCr15Fe
	–	Inconel 601	–	–	
	NS336	Inconel 625	N06625	NCF625	NiCr22Mo9Nb
耐蚀Incoloy合金 Corrosion Resistant -Incoloy	NS111	Incoloy 800	N08800	NCF800	X10 NiCrAlTi32-20
	NS112	Incoloy 800H	N08810	–	X10 NiCrAlTi32-20
	–	Incoloy 800HT	–	–	–

产品标准 Product Standard

高温合金 Super Alloy

钢种 Type	牌号 Trademark									
	中国China		日本Japan	美国America		德国Germany		法国France	俄罗斯 Russia	英国Uk
	新牌号 Grade	旧牌号 Grade	JIS	商业牌号 Commercial Grade	AMS/SAE	DIN	W-Nr	NF	TOCT	DS/DTD
铁基高温合金 Fe-based Super Alloy	GH1140	GH140								
	GH2132	–	GH132	A286	AMSS525、5731；SAEHEV7	X5NiCr Ti26-15	1.4980 (1.4944)	Z6NCT25	ЭП786	DTD5026 ATVSMo
	GH1015	GH15	–	–	–	–	–	–	–	–
	GH1131	GH131	–	–	–	–	–	–	ЭП126	–
	GH2135	GH135	–	–	–	–	–	–	ЭП437	–
	GH2150		–	–	–	–	–	–	ЭП718	–
	GH2302	GH302	–	–	–	–	–	–	ЭП617	–
	GH2696		–	–	–	–	–	–	ЭП33	–
镍基高温合金 Nickel-based Super Alloy	GH3030	GH30	–	–	–	–	–	ATGR；NC20T	ЭП435	HR5;DTD703B; N203、N403
	GH3039	GH39	–	–	–	–	–	–	ЭП602	–
	GH3044	GH44	–	–	–	–	–	–	ЭП868	–
	GH3128	GH128	–	–	–	–	–	–		–
	GH4099	–	–	–	–	–	–	–	ЭП693	–
	GH4145	GH145	NCF750B	InconelX -750	AMSS5542、5567	NiCr15Fe 7TiAl	2.4669	ATGF;NC15 FeTNbA	ЭП974	InconelX-750
	GH4169	GH169	–	Inconel718	AMSS5596、5662, SAEXEV-1	NiCr19 NbMo	2.4668	ATGC1; NC19FeNb		Inconel18

普通和特殊不锈钢 Normal and Special Stainless Steel

表(table)：1

钢种大类 Type	牌号Trademark	国标GB 2007版牌号 2007 trademark	国标GB 1992版牌号 1992 trademark	日标 JIS	美标 ANSI	欧标 EN
双相不锈钢 Duplex Stainless Steel	00Cr23Ni4MoCrN	00Cr23Ni4MoCrN	00Cr23Ni4MoCrN	–	S32304	1.4362
	00Cr25Ni7Mo3N	00Cr25Ni7Mo3N	00Cr25Ni7Mo3N	–	S32750	1.4507
	S32101	–	–	–	S32101	–
	00Cr22Ni5Mo3N	00Cr22Ni5Mo3N	00Cr22Ni5Mo3N	–	S31803 S32205	–
	00Cr18Ni5Mo3Si2	022Cr19Ni5Mo3Si2	00Cr18Ni5Mo3Si2	SUS329J3L		1.4417
	0Cr26Ni5Mo2	0Cr26Ni5Mo2	–	SUS329J1	S32900	1.4477
	2205/S32205/ 022Cr22Ni6Mo3N	022Cr22Ni5Mo3N	00Cr22Ni5Mo3N	–	S32750	1.4462
	724L	–	–	–	–	–
	1Cr18Mn10Ni5Mo3N	1Cr18Mn10Ni5Mo3N	–	–	–	–
	0Cr17Mo14Mo2N	0Cr17Mo14Mo2N	–	–	–	–
	1Cr21Ni5Ti	12Cr21Ni5Ti	1Cr21Ni5Ti	–	–	–
	0Cr21Ni5Ti	0Cr21Ni5Ti	–	–	–	–
	00Cr18Ni6Mo3Si2Nb	00Cr18Ni6Mo3Si2Nb	–	–	–	–
	00Cr26Ni7Mo2Ti	00Cr26Ni7Mo2Ti	–	–	–	–
	00Cr25Ni7Mo3WCuN	00Cr25Ni7Mo3WCuN	–	–	–	–
	1Cr18Ni11Si4AlTi	1Cr18Ni11Si4AlTi	–	–	–	–
铁素体不锈钢 Ferritic Stainless Steel	00Cr30Mo2	00Cr30Mo2	00Cr30Mo2	SUS447J1	–	–
	00Cr26Mo1	00Cr26Mo1	–	–	–	–
	00Cr25Ni4Mo4Ti	00Cr25Ni4Mo4Ti	–	–	–	–
	00Cr29Mo4Ni2	00Cr29Mo4Ni2	–	–	—	–
	SUS410L	022Cr12	00Cr12	SUS410L	–	–
	SUS409L	022Cr11Ti	–	SUS409L	–	1.4512
	SUS444	019Cr19Mo2NbTi	00Cr18Mo2	SUS444	444	1.4521
	SUS430	10Cr17	1Cr17	SUS430	430	1.4016
	10Cr17Mo	10Cr17Mo	1Cr17Mo	SUS430L	–	–
	022Cr17Ti	022Cr17Ti	00Cr17	SUS430LX	–	–
	022Cr11NbTi	022Cr11NbTi	–	–	–	–
	022Cr12Ni	022Cr12Ni	–	–	–	–
	019Cr18MoTi	019Cr18MoTi	–	–	–	–
	022Cr18NbTi	022Cr18NbTi	–	–	–	–

产品标准 Product standard

普通和特殊不锈钢 Normal and Special Stainless Steel

表(table)：2

钢种大类 Type	牌号Trademark	国标GB 2007版牌号 2007 Trademark	国标GB 1992版牌号 1992 Trademark	日标 JIS	美标 ANSI	欧标 EN
马氏体不锈钢 Martensite stainless steel	2205/S32205/00Cr22Ni5 Mo3N022Cr22Ni6Mo3N	022Cr22Ni5Mo3N	00Cr22Ni5Mo3N	–	S32750	1.4462
	724L	–	–	–	–	–
	1Cr18Mn10Ni5Mo3N	1Cr18Mn10Ni5Mo3N	–	–	–	–
	0Cr17Mo14Mo2N	0Cr17Mo14Mo2N	–	–	–	–
	1Cr21Ni5Ti	12Cr21Ni5Ti	1Cr21Ni5Ti	–	–	–
	0Cr21Ni5Ti	0Cr21Ni5Ti	–	–	–	–
	00Cr18Ni5Mo3Si2	022Cr19Ni5Mo3Si2N	00Cr18Ni5Mo3Si2	SUS329JI	S31803	1.4462
	00Cr18Ni6Mo3Si2Nb	00Cr18Ni6Mo3Si2Nb	–	–	–	–
	00Cr26Ni7Mo2Ti	00Cr26Ni7Mo2Ti	–	–	–	–
	00Cr25Ni7Mo3WCuN	00Cr25Ni7Mo3WCuN	–	–	–	–
	0Cr26Ni5Mo2	0Cr26Ni5Mo2	00Cr30Mo2	SUS329J3L	S32900	1.4477
	1Cr18Ni11Si4AlTi	1Cr18Ni11Si4AlTi	–	–	–	–
奥式体不锈钢 Austenitic Stainless Steel	0Cr20Ni26Mo2Cu2（RS-2）	0Cr20Ni26Mo2Cu2（RS-2）	–	–	–	–
	00Cr25Ni22Mo2N	00Cr25Ni22Mo2N	–	–	–	–
	00Cr20Ni25Mo4.5Cu	00Cr20Ni25Mo4.5Cu	–	–	–	–
	00Cr18Ni14Mo3（N）	00Cr18Ni14Mo3（N）	–	–	—	–
	00Cr18Ni14Mo3	00Cr18Ni14Mo3	–	–	–	–
	00Cr18Ni15Mo3N	00Cr18Ni15Mo3N	–	–	–	–
	12Cr17Ni17	12Cr17Ni17	1Cr17Ni17	SUS301	301	1.4319
	SUS301L	–	00Cr17Ni17	SUS301L	301L	–
	SUS304	06Cr18Ni9	0Cr18Ni9	SUS304	304	1.4301
	SUS321	06Cr18Ni10Ti	0Cr18Ni10Ti	SUS321	321	1.4541
	316Ti	06Cr18Ni12Mo2Ti	0Cr18Ni12Mo2Ti	SUS316Ti	316Ti	–
	316	06Cr17Ni12Mo2	0Cr17Ni12Mo2	SUS316	316	1.4401
	316L	022Cr17Ni12Mo2	00Cr17Ni12Mo2	SUS316L	316L	1.4404
	309S	06Cr23Ni13	0Cr23Ni13	SUS309S	309S	1.4833
	310S	06Cr25Ni20	0Cr25Ni20	SUS310S	310S	1.4845
沉淀硬化不锈钢 Precipitation hardened stainless steel	17-7PH	07Cr17Ni7Al	0Cr17Ni7Al	–	17-7PH	–
	PH15-7Mo	07Cr15Ni7Mo2Al	0Cr15Ni7Mo2Al	–	PH15-7Mo	–
	PH13-8Mo	04Cr18Ni8Mo2Al	–	–	PH13-8Mo	–
	17-4PH	05Cr17Ni4Cu4Nb	0Cr17Ni4Cu4Nb	–	17-4PH	–
	15-5PH	0Cr15Ni5Cu4Nb	–	–	15-5PH	–
	AM350	–	–	–	AM350	–

精密合金Precise Alloy

钢种大类 TYPE	钢种系列 senes	牌号trademark
精密合金 precise alloy	低膨胀合金Low Expancling Alloy	4J32、4J36、4J38、4J40
	定膨胀合金Fixed Expancling Alloy	426A、4J28、4J29、4J33、4J34、4J24A、4J43、4J44、4J45、4J49、4J50、4J58
	恒弹性合金Constaif Elastic Alloy	3J53、3J58、改型3J58、3J59B、3J63、3J53A
	软磁合金Soft Magnetic Alloy	1J30、1J31、1J32、1J33、1J38
	永磁合金Permanenf Magnetic Alloy	2J83、2J84、2J85
	弹性元件用合金Alloy for Elastic Elements	3J1、3J9、3J21、3J22、3J53
	电阻系列热金属 Resisfance Sevies Hot Metal	5J1306A、5J1309A、5J1411A、5J1417A、5J1325A、5J1433A、5J1440A、5J1306B、5J1433A、5J1306B、5J1309B、5J1411B、5J1417B、5J1325B、5J1433B、5J1440B
	热敏感双金属Thermal Sensing Bimetal	5J11、5J14、5J16、5J17、5J18、5J19、5J23、5J25、5J14140、RSN210
	矩磁合金Rectangular Hystersis Alloy	1J51

工模具钢、耐热、耐磨钢及低磁钢 Tool and Die Steel, Heat Resistant Steel, Wearing Resistant Steel & Low Magnetic Steel

钢种大类 Type	牌号 Trademark
工模具钢Tool and Die Steel	T10CrV、T10A、Cr06 、9SiCr 、H13、S55C 、S50C、SW718、Cr12MoV
耐热钢Heat Resistant Steel	1Cr5Mo、1Cr6Si2Mo
耐磨钢Wearing Resistant Steel	20Cr5Cu、BTW1、Mn13
低磁钢Low Magnetic Steel	20Mn23AlV

产品标准 Product standard

热轧产品 Hot rolled product

钛及钛合金钢板 Ti and Ti alloy

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√		
5.00＜t≤6.00	√		
6.00＜t≤8.00	√	√	
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√

纯钛热轧卷 Pure Ti hot rolled plate

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤950	950＜W≤1200	1200＜W≤1300
2.50＜t≤3.00			
3.00＜t≤4.00	√	√	√
4.00＜t≤5.00	√	√	√
5.00＜t≤6.00	√	√	√

高温合金钢板 Super alloy plate

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.50≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√

高温合金钢卷 Super alloy coil

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤950	950＜W≤1200	1200＜W≤1300
4.50＜t≤7.00	√	√	√

镍基耐蚀合金钢板 Nickel based corrosion resistant plate

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√

镍基耐蚀合金钢卷 Nickel based corrosion resistant coil

表示生产规格 √ stand for production specification

厚度/mm \ 宽度/mm	600≤W≤950	950＜W≤1200	1200＜W≤1300
4.00＜t≤7.00	√	√	√

产品标准 Product standard

特殊不锈钢板 Special stainless steel plate

表示生产规格 √
stand for production specification

宽度/mm 厚度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√

特殊不锈钢钢卷 Special stainless steel coil

表示生产规格 √
stand for production specification

宽度/mm 厚度/mm	600≤W≤950	950＜W≤1200	1200＜W≤1300
2.50＜t≤5.00	√	√	√

普通不锈钢钢板 Normal Stainless steel plate

表示生产规格 √
stand for production specification

宽度/mm 厚度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√

工模具钢钢板 TooL and die steel plate

表示生产规格 √
stand for production specification

宽度/mm 厚度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√
40.00＜t≤80.00	√	√	√

耐磨、耐热钢及低磁钢 Heat Resistant Steel, Wearing Resistant Steel & Low Magnetic Steel

表示生产规格 √
stand for production specification

宽度/mm 厚度/mm	600≤W≤1300	1300＜W≤2000	2000＜W≤2500
4.00≤t≤5.00	√	√	
5.00＜t≤6.00	√	√	√
6.00＜t≤8.00	√	√	√
8.00＜t≤10.00	√	√	√
10.00＜t≤13.00	√	√	√
13.00＜t≤16.00	√	√	√
16.00＜t≤20.00	√	√	√
20.00＜t≤40.00	√	√	√

产品尺寸允许偏差

Product size tolerances

产品尺寸允许偏差 Product size tolerances

下述为国标GB/T 709《热轧钢板和钢带的尺寸、外形、重量及允许偏差》和GB/T 708《冷轧钢板和钢带的尺寸、外形、重量及允许偏差》规定的偏差要求，也可按其它国标、美标、日标、德标等相关标准执行，或根据用户需求协商确定。

Following is the requirements on tolerance of G/BT 709, other requirements related to other GB, JIS, ANSI, DIN is acceptable, or could be fixed by mutual negotiation

热轧产品 Hot rolled product

厚度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006 N类 (Type)

名义厚度 Nominal thickness	宽度范围Width range		
	600≤W≤1500	1500＜W≤2500	2500＜W≤2650
4.00≤t≤5.00	-0.35～+0.55	-0.40～+0.70	-0.45～+0.85
5.00＜t≤8.00	-0.35～+0.65	-0.45～+0.75	-0.55～+0.95
8.00＜t≤15.00	-0.40～+0.70	-0.45～+0.85	-0.55～+1.05
15.00＜t≤25.00	-0.45～+0.85	-0.50～+1.00	-0.65～+1.15
25.00＜t≤40.00	-0.50～+0.90	-0.55～+1.05	-0.70～+1.30
40.00＜t≤60.00	-0.55～+1.05	-0.60～+1.20	-1.05～+1.45
60.00＜t≤80.00	-0.60～+1.20	-0.70～+1.50	-0.85～+1.75

厚度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006 B类 (Type)

名义厚度 Nominal thickness	宽度范围Width range		
	600≤W≤1500	1500＜W≤2500	2500＜W≤2650
4.00≤t≤5.00	-0.30～+0.60	-0.30～+0.80	-0.30～+1.00
5.00＜t≤8.00	-0.30～+0.70	-0.30～+0.90	-0.30～+1.20
8.00＜t≤15.00	-0.30～+0.80	-0.30～+1.00	-0.30～+1.30
15.00＜t≤25.00	-0.30～+1.00	-0.30～+1.20	-0.30～+1.50
25.00＜t≤40.00	-0.30～+1.10	-0.30～+1.30	-0.30～+1.70
40.00＜t≤60.00	-0.30～+1.30	-0.30～+1.50	-0.30～+1.90
60.00＜t≤80.00	-0.30～+1.50	-0.30～+1.80	-0.30～+2.30

厚度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006 C类 (Type)

名义厚度 Nominal thickness	宽度范围Width range		
	600≤W≤1500	1500＜W≤2500	2500＜W≤2650
4.00≤t≤5.00	-0.00～+0.90	-0.00～+1.10	-0.00～+1.30
5.00＜t≤8.00	-0.00～+1.00	-0.00～+1.20	-0.00～+1.50
8.00＜t≤15.00	-0.00～+1.10	-0.00～+1.30	-0.00～+1.60
15.00＜t≤25.00	-0.00～+1.30	-0.00～+1.50	-0.00～+1.80
25.00＜t≤40.00	-0.00～+1.40	-0.00～+1.60	-0.00～+2.00
40.00＜t≤60.00	-0.00～+1.60	-0.00～+1.80	-0.00～+2.20
60.00＜t≤80.00	-0.00～+1.80	-0.00～+2.20	-0.00～+2.60

产品尺寸允许偏差 Product size tolerances

厚度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-1988

较高轧制精度 high rolling precision

名义厚度 Nominal thickness	宽度范围Width range				
	600≤W≤750	750<W≤1000	1000<W≤1500	1500≤W≤2000	2000<W≤2300
t=4.00	±0.21	±0.22	±0.24	±0.28	±0.33
4.00<t≤5.50	-0.30～+0.10	-0.30～+0.15	-0.40～+0.10	-0.40～+0.20	-0.40～+0.25
5.50<t≤7.50	-0.50～+0.20	-0.60～+0.20	-0.60～+0.25	-0.60～+0.40	-0.60～+0.45
7.50<t≤10.00	-0.70～+0.10	-0.70～+0.10	-0.70～+0.20	-0.70～+0.20	-0.70～+0.25
10.00<t≤13.00	-0.70～+0.10	-0.70～+0.10	-0.70～+0.20	-0.70～+0.30	-0.70～+0.35
	1000<W≤1200	1200<W≤1500	1500<W≤1700	1700<W≤1800	1800<W≤2000
13.00<t≤25.00	-0.80～+0.20	-0.80～+0.20	-0.80～+0.30	-0.80～+0.40	-0.80～+0.60
25.00<t≤30.00	-0.90～+0.20	-0.90～+0.20	-0.90～+0.30	-0.90～+0.40	-0.90～+0.60
30.00<t≤34.00	-1.00～+0.20	-1.00～+0.30	-1.00～+0.30	-1.00～+0.40	-1.00～+0.60
34.00<t≤40.00	-1.10～+0.30	-1.10～+0.40	-1.10～+0.50	-1.10～+0.60	-1.10～+0.70
40.00<t≤50.00	-1.20～+0.40	-1.20～+0.50	-1.20～+0.60	-1.20～+0.70	-1.20～+0.80
50.00<t≤60.00	-1.30～+0.60	-1.30～+0.70	-1.30～+0.80	-1.30～+0.90	-1.30～+1.00
60.00<t≤80.00	-	-	-1.80～+1.00	-1.80～+1.00	-1.80～+1.00
	1800<W≤2300	2300<W≤2500	2500<W≤2600	2600<W≤2650	
	-0.80～+0.80	-0.80～+0.80	-0.80～+1.00	-0.80～+1.10	
	-0.90～+0.80	-0.90～+0.90	-0.90～+1.00	-0.90～+1.10	
	-1.00～+0.80	-1.00～+0.90	-1.00～+1.00	-1.00～+1.20	
	-1.10～+0.90	-1.10～+1.00	-1.10～+1.10	-1.10～+1.30	
	-1.20～+1.00	-1.20～+1.10	-1.20～+1.20	-1.20～+1.40	
	-1.30～+1.10	-1.30～+1.10	-1.30～+1.20	-1.30～+1.30	
	-1.80～+1.00	-1.80～+1.10	-1.80～+1.20	-1.80～+1.30	

厚度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-1988

普通精度 normal precision

名义厚度 Nominal thickness	宽度范围Width range				
	600≤W≤750	750<W≤1000	1000<W≤1500	1500≤W≤2000	2000<W≤2300
t=4.00	±0.23	±0.26	±0.28	±0.28	±0.33
4.00<t≤5.50	-0.40～+0.20	-0.40～+0.30	-0.50～+0.30	-0.50～+0.40	-0.50～+0.45
5.50<t≤7.50	-0.50～+0.20	-0.50～+0.20	-0.60～+0.25	-0.60～+0.40	-0.60～+0.45
7.50<t≤10.00	-0.80～+0.20	-0.80～+0.20	-0.80～+0.30	-0.80～+0.35	-0.80～+0.45
10.00<t≤13.00	-0.80～+0.20	-0.80～+0.20	-0.80～+0.30	-0.80～+0.40	-0.80～+0.50
13.00<t≤25.00	-0.80～+0.20	-0.80～+0.20	-0.80～+0.30	-0.80～+0.40	-0.80～+0.60
	2300<W≤2500	2500<W≤2600	2600<W≤2650		
	–	–	–		
	–	–	–		
	–	–	–		
	-0.80～+0.60	-0.80～+0.60	-0.80～+0.60		
	-0.80～+0.70	-0.80～+0.70	-0.80～+0.70		
	-0.80～+0.80	-0.80～+1.00	-0.80～+1.10		
	1000<W≤1200	1200<W≤1500	1500<W≤1700	1700<W≤1800	1800<W≤2000
25.00<t≤30.00	-0.90～+0.20	-0.90～+0.20	-0.90～+0.30	-0.90～+0.40	-0.90～+0.60
30.00<t≤34.00	-1.00～+0.20	-1.00～+0.30	-1.00～+0.30	-1.00～+0.40	-1.00～+0.60
34.00<t≤40.00	-1.10～+0.30	-1.10～+0.40	-1.10～+0.50	-1.10～+0.60	-1.10～+0.70
40.00<t≤50.00	-1.20～+0.40	-1.20～+0.50	-1.20～+0.60	-1.20～+0.70	-1.20～+0.80
50.00<t≤60.00	-1.30～+0.60	-1.30～+0.70	-1.30～+0.80	-1.30～+0.90	-1.30～+1.00
60.00<t≤80.00	-	-	-1.80～+1.00	-1.80～+1.00	-1.80～+1.00
	1800<W≤2300	2300<W≤2500	2500<W≤2600	2600<W≤2650	
	-0.90～+0.80	-0.90～+0.90	-0.90～+1.00	-0.90～+1.10	
	-1.00～+0.80	-1.00～+0.90	-1.00～+1.00	-1.00～+1.20	
	-1.10～+0.90	-1.10～+1.00	-1.10～+1.10	-1.10～+1.30	
	-1.20～+1.00	-1.20～+1.10	-1.20～+1.20	-1.20～+1.40	
	-1.30～+1.10	-1.30～+1.10	-1.30～+1.20	-1.30～+1.30	
	-1.80～+1.00	-1.80～+1.10	-1.80～+1.20	-1.80～+1.30	
	-1.80～+1.00	-1.80～+1.10	-1.80～+1.20	-1.80～+1.30	

产品尺寸允许偏差 Product size tolerances

宽度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006

切边单轧钢板 trimmed single rolled plate

宽度范围(w) / 厚度范围(t)	600≤W≤1500	1500＜W≤2000	2000＜W≤2500
2.50＜t≤5.00	0.00～+10.00	0.00～+15.00	0.00～+15.00
16.00＜t≤40.00	0.00～+20.00	0.00～+20.00	0.00～+25.00

宽度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006

不切边钢带板（包括连轧钢板） steel strip (incl. continuous rolling plate)

宽度范围(w) / 厚度范围(t)	600≤W≤1500	1500＜W≤2000
4.00＜t≤40.00	0.00～+20.00	0.00～+25.00

宽度允许偏差（单位：毫米） Thickness toleranle (unit:mm) GB/T 709-2006

切边钢带板（包括连轧钢板） trimmed steel strip (incl. continuous rolling plate)

宽度范围(w) / 厚度范围(t)	600≤W≤1200	1200＜W≤1500	1500＜W≤2500
4.00＜t≤40.00	0.00～+3.00	0.00～+5.00	0.00～+6.00

表面加工类型
Surface working type

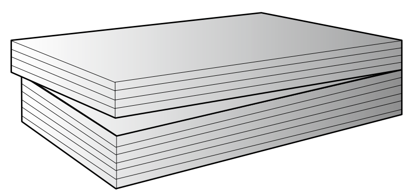
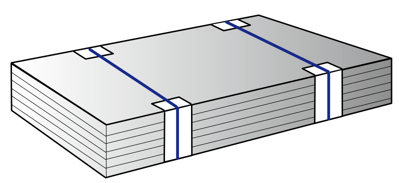
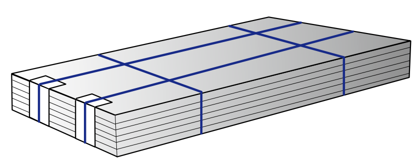
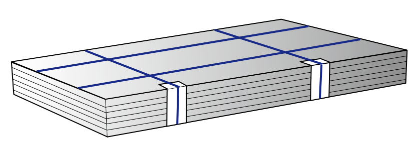
表面加工类型 Surface working type

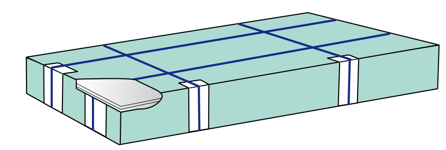
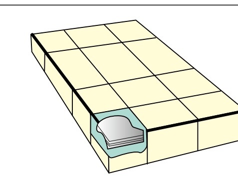
表面加工名称 name	特征及用途 Feature and purpose
1U	热轧、不热处理、不去氧化皮。 Hot formed，not heat treated，not descaled
1C	热轧、热处理、不去氧化皮。 Hot formed heat treated，not descaled
1E	热轧、热处理、机械去除氧化皮。 Hot formed，heat treated mechanically descaled
1D	热轧、热处理、酸洗，允许有局部研磨痕迹。 Hot formed，heat treated pickled，coated (optional)
NO 1	热轧、退火、酸洗。 Hot formed annealed pickled
NO.2E	热轧黑皮卷经轧制、退火、破鳞、喷丸、酸洗处理。 Casting skin coils after hot rolled，anneal，descaled，blasted，pickled
NO.2D	冷轧、退火、酸洗，无光泽冷轧产品。 Cold formed annealed pickle，matted
NO.2B	NO.2D表面再经过调质轧制后的产品，光泽度和平坦度优于NO.2D产品。 Products of 20 after heat refined，less glossiness and flatness than 20
BA	冷轧、光亮退火、平整，表面光泽度极好，有很高的反射率。 Cold-rolled，bright annealed，Smooth，bright，reflective
TR	冷作硬化处理。对退火除鳞获光亮退火的钢板进行足够的冷作硬化处理，大大提高强度水平。 Cold hardening of Status，intensity greatly increased
毛面 Matt side	NO.2D或NO.2B表面经毛面辊适度轧制而成，具有亚光表面。 Surface of 20 or 2B after finishing of dull roll，honed surface

产品包装及标签
packaging and mark

产品尺寸允许偏差 Product size tolerances

热轧钢板 Hot rolled plates

类型 No	热轧钢板包装方式 Package	图示 Drw	适用品种 Type
1	1）钢板裸露不捆扎 Nude,no bundle	 图1	热轧厚钢板 HHP
2	1）钢板裸露捆扎 Nude,bundle 2）A种（图2）：无垫木或托架； B种（图3）：设置纵向垫木或托架； C种（图4）：设置横向垫木或托架。 A:(drw.2)no stow wood or supports B:(drw.3) stow wood or supports at longitude C:(drw. 4) stow wood or supports at transverse 3）捆扎道数： A种：横向捆扎不少于2道； B种和C种：纵向和横向捆扎各不少于2道或视垫木数和托架确定捆扎道数。 bundle times A: no less than2 times at transverse B/C: no less than 2 times at transversel/ longitude, or fixed by numbers of stow woods and/supports	 图2  图3  图4	A种：热轧厚钢板、热轧薄钢板； A:HHP、HTP B、C种：热轧薄钢板。 B/C:HTP

类型 No	热轧钢板包装方式 package	图示 Drw	适用品种 type
3	1）钢板用气相防锈纸捆扎； Wrap with volatile rust preventive paper 2）设置横向垫木，用其加塑料带捆扎； stow wood at longitude,bundle with plastic tape volatile rust preventive paper. 3）钢板纵向边部钢带与气相防锈纸接触处用护角隔离，钢卡与气相防锈纸接触处用钢卡片隔离； banket within touch of longitudinal plate and steel cards inserts between the nail clips and the plates. 4）纵向和横向捆扎各不少于2道。 B/C: no less than 2 times either at transverse and longitude	 图5	热轧薄板 HTP
2	1）钢板用牛皮纸和塑料薄膜等。且有包装箱的包装 wrap with Kraft paper and plastic membrane inside packing container	 图6	热轧薄板 HTP

热轧产品标签

1）包装标识采用每张板贴侧签及每包钢板贴标签的方式；

2）每包钢板再外包装气相防锈纸上纵向两边粘贴标签，每包钢板外贴两张标签，每包钢板内部最上面钢板头、尾贴标签，每包钢板挂标牌两个；

3）在标签上标识的内容按需要应包括：执行标准、生产许可证、钢号、轧制计划号、炉号、规格、重量、配车号、件号、生产日期等。标牌上标识的内容包括：执行标准、生产许可证、轧制计划号、炉号、厚度、重量、块数、生产日期等。

Products Marking

1). Side tag on each plate,and one label on each bundle

2). Tag on both longitudinal sides outside volatile rust preventive paper. 2 labels on each package, tags on head and tail of the top plate inside each package,2 index tag with each package

3). texture on the tag including: standard, production certificates,trademark,heat number,size, weight, transportation no.piece no. date of manufacture,etc.Texture on the index tag including: standard,production certificates,heat number, thickness,weight, quantity. Date of manufac

质量保证
Quality Guarantee

质量认证 Quality certificates

- 宝钢特钢从1995年开始逐步按照ISO9001、AS9100B、GJB9001A、HAF003、ISO/TS16949标准以及顾客的特殊要求，建立航空航天、军工、核电及汽车质量管理体系，并形成一整套质量体系文件。
- 宝钢特钢确定并运行的质量体系过程共有21个，包括：管理策划过程、管理评审过程、内部审核过程、纠正预防措施改进过程、数据分析和利用过程、顾客满意度监视和测量过程、需求识别和评审过程、设计和开发过程、生产过程、交付过程、服务过程、生产计划过程、设备和工装管理过程、文件管理过程、人力资源管理过程、采购和供方管理过程、产品防护过程、检验和试验管理过程、测量设备管理过程、标识和可追溯性管理过程、不合格品控制过程。
- 宝钢特钢通过制定和落实质量目标、定期开展内部质量审核和管理评审等，持续改进质量体系。
- 宝钢特钢的各类质量体系均通过了第三方的认证。

- Since 1995, Baosteel has established aviation and aerospace, military, nuclear and automotive quality management system and formed a complete set of quality system documents in accordance with ISO9001, AS9100B, GJB9001A, HAF003, ISO/TS16949 standard and specific requirements of customer
- Baosteel also determines and runs a quality system which has totally 21 processes,including: Management planning process, management review process, internal checking process, corrective and preventive measures to improve the process, data analysis and use processes, customer satisfaction monitoring and measurement process, needs identification and assessment process, the design and development process, production process, delivery process, service process, production planning process, equipment and tooling management processes, document management process, human resource management processes, procurement and supplier management processes, product protection, process, inspection and test management processes, measuring equipment management processes, identification and traceability management process and nonconforming product control process.
- Through the development and implementation of quality objectives, regularly carrying out internal quality checking and management reviews, etc., Baosteel continues to improve the quality system
- All kinds of quality system had gotton certificates given by the third-party.


认 证 证 书
宝钢特钢有限公司


Certificate of Approval
Baosteel Special Metals Co., Ltd.

航空航天质量体系认证
Aerospace Quality System Certification

质量认证 Quality certificates


中国质量认证中心
ISO9001:2008质量管理体系认证
China Quality Certification Center ISO9001: 2008 quality management system certification


中国合格评定国家认可委员会
ISO/IEC 17025:2005实验室认可证书
CNAS ISO/IEC 17025：2005 laboratory accreditation certificate


北京国金恒信管理体系
BG/T19001-2008—ISO 9001:2008质量管理体系认证
GHC BG/T19001-2008—ISO 9001：2008 quality management system certification


中启计量体系认证中心
ISO 10012:2003测量管理体系认证
Certificate of conformity for measurement management systems, ISO 10012:2003

质量检测
Quality Inspection

化学检测 Chemical examination


电感耦合等离子体发射光谱仪
ICP


AA300火焰原子吸收光谱仪
AA300 FAES


AA600石墨炉原子吸收光谱仪
AA600 Graphite Furnace Atomic Absorption Spectrophotometer


EMIA-820V 红外碳硫分析仪
EMIA-820V CS Analyzer


EMGA-620W氧氮联测仪
EMGA-620W Oxygen and Nitrogen comparison Analyzer


ARL4460光电直读光谱仪
ARL4460 OES

物理检测 Physical examination


50吨万能试验机
50t universal tester


高温拉力机
Hyperthermia tensile machine


硬度计
Sclerometer


疲劳试验
Fatigue test


微机控制摆锤式冲击试验机
Pendulum impact testing machine with micro computer control


电子蠕变试验机
Creep testing machine

质量检测
Quality examination

金相分析 Metallographic Analysis

金相图像分析系统
Metallographic Analysis system

大型金相显微镜
Large metallscope

金相自动磨样机
Metallographic microsection machine

用户服务
Customer Service

技术支撑
Technical support

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

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

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

产销研一体化小组
由宝钢特钢制造、销售、研发等各单元的骨干力量组成，以专业的团队方式解决用户使用及生产、研发方面的问题，提高宝钢特钢产品的市场竞争力。

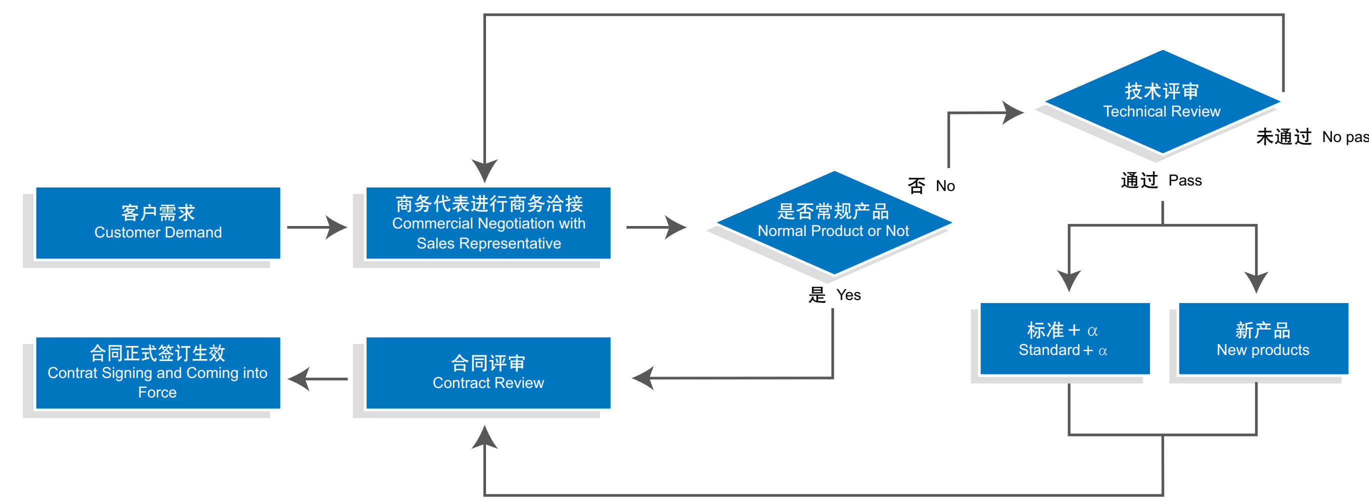
Sales representative
Technical contact person, to provide customer service concerning products advisory, order placing, logistic tracing, loan and accounts, objection handling, operation guide etc.

Production engineer
Senior engineers from special steel division, to provide technical support concerning production and quality design; onsite service available if necessary

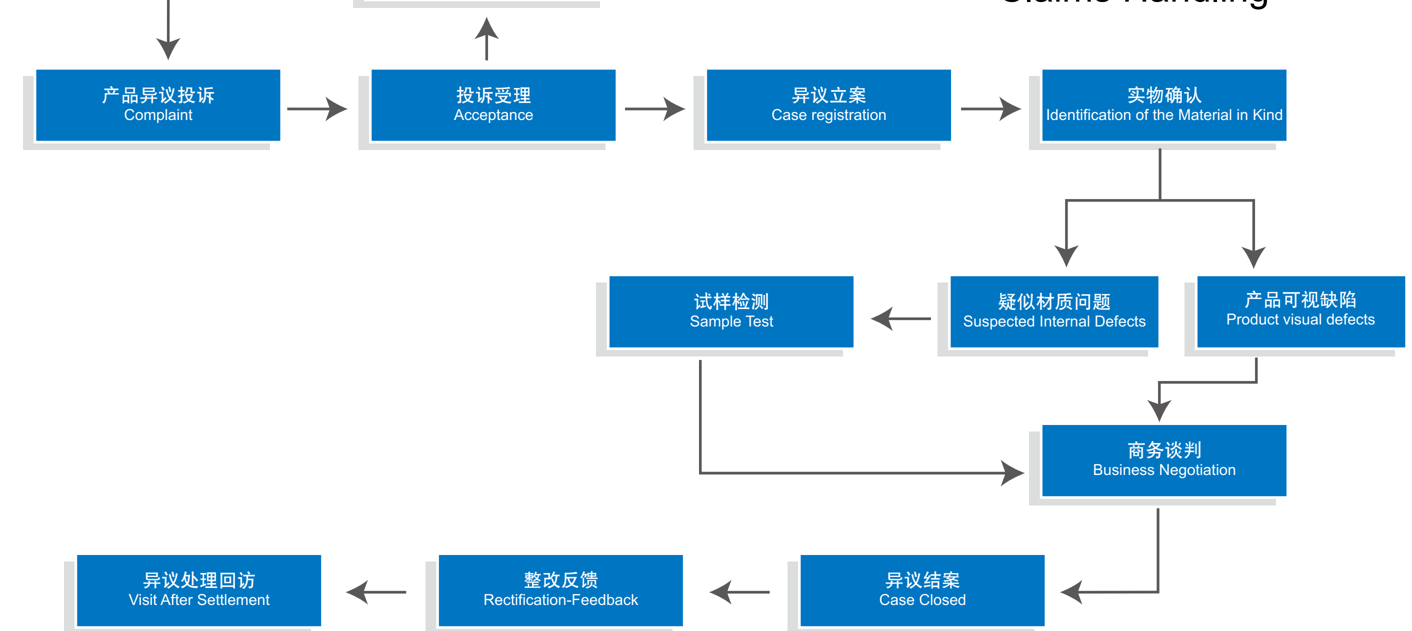
Technique experts and chief engineer
Researching on developing of new products to meet the requirements of the market; provide post service such as inspection, corrosion test, welding, heat treatment etc.

Production, sales, research team (PSRT)
Consist of people from different departments of Production, sales, research; the team is to solve the problems of the customers on using, production and researching.

合同签订流程
Procedure of Contract Signig



异议处理
Claims Handling



环境方针 Environment Policy

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

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

环境目标 Environment Objective

推行清洁生产审计，建设“绿色特钢”，实现“世界一流清洁钢铁企业”。

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

BUREAU VERITAS Certification

认 证 证 书

宝钢特钢有限公司

BUREAU VERITAS CERTIFICATION

OHSAS 18001:2007

BUREAU VERITAS Certification

Certification

BAOSTEEL SPECIAL METALS CO.,LTD.

OHSAS18001:2007

OHSAS 18001:2007 职业健康和安全管理体系

OHSAS 18001:2007 Certification

BUREAU VERITAS Certification

宝钢特钢有限公司

BUREAU VERITAS CERTIFICATION

ISO 14001:2004

BUREAU VERITAS Certification

BAOSTEEL SPECIAL METALS CO.,LTD.

ISO 14001:2004

ISO 14001:2004 环境体系认证证书

ISO 14001:2004 Certification