



太钢热连轧产品  
THE HOT ROLLED PRODUCTS OF TISCO

碳钢部分  
CARBON STEEL



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800-806-1998

2014年6月印制

太原钢铁(集团)有限公司  
Taiyuan Iron&Steel(Group)Co.,Ltd.

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### 企业使命

用不锈钢智慧创造卓越品质

Enterprise Mission

To Pursue Outstanding Quality with Innovative and Stainless Wisdom

### 战略目标

坚持做强主业、延伸发展、多元发展、绿色发展、和谐发展  
建设全球最具竞争力的不锈钢企业，成为国内一流、世界著名的大型企业集团

Strategic Target

Strengthen main business, Persist in extension development, diversified development, green development and harmonious development, Build the most competitive stainless steel enterprise in the world, To be a great enterprise group top-ranking in China and well known in the world

### 核心价值观

以人为本 用户至上 质量兴企 全面开放 不断创新

Core Values

Relying the People, Putting Customers' Needs First, Rejuvenating Enterprise through Quality, Fully Opening, Keeping Innovative

### 营销理念

为用户提供更全、更好、更快的解决方案  
在长期合作中实现共赢

Management Concept

Providing Customer with Better and Faster Solution Package to Realize Long-Term Win-Win Cooperation

## 太钢简介

### Brief on TISCO

太原钢铁（集团）有限公司（简称太钢，英文简称TISCO）始建于1934年，地处汾河之滨龙城太原。

太钢是集铁矿开采和钢铁生产、加工、配送、贸易为一体的特大型钢铁联合企业，也是目前全球最大、工艺技术装备水平最高、品种规格最全的不锈钢企业，具备年产1000万吨钢（其中400万吨不锈钢）的能力，营业收入连续七年超过1000亿元人民币。

太钢致力于不锈钢、特殊钢和高等级碳素钢的研究开发和生产加工，拥有雄厚的研发实力和可靠的质量保障能力。太钢技术中心在全国887家国家认定企业技术中心中排名第四。目前已形成了以不锈钢、冷轧硅钢、高强韧系列钢材为主的高效节能长寿型产品集群，重点产品批量进入石油、化工、造船、集装箱、铁路、汽车、城市轻轨、大型电站、“神舟”系列飞船等重点领域和新兴行业。铁路行业用钢、双相钢、耐热钢、车轴钢、9%Ni钢等20多个品种国内市场占有率第一。

“十二五”期间，太钢将以科学发展为主题，以转型发展为主线，以科技创新为动力，以能力建设为核心，以队伍建设为保障，全面推进“三个转变”，坚持做强主业、延伸发展、多元发展、绿色发展、和谐发展，建设全球最具竞争力的不锈钢企业，到2015年，营业收入达到2000亿元以上，成为国内一流、世界著名的大型企业集团。

Taiyuan Iron and Steel (Group) Co. Ltd. (TISCO), established in 1934, is situated in Taiyuan by the Fen River.

TISCO is a giant iron and steel complex which integrates mining, iron and steel production, processing, delivery and trade; is also the largest stainless steel producer in the world with the most advanced technologies and equipment and full range of products and specifications. Its annual production capacity is more than 10 million tons of steel, among it, 4 million ton of stainless steel. Its annual sales revenue is more than 100 billion yuan in the last seven years. TISCO focuses on the research, development, production and processing of stainless steel, special steel and high grade of carbon steel; has strong R&D strength and reliable quality assurance ability. TISCO Technology Center ranks the fourth in the 887 enterprise technology centers ratified by the State. TISCO produces a series of high efficiency, energy saving and long service life product clusters, such as stainless steel, cold rolled silicon steel, high strength and toughness steels. Its key products have been widely applied in the key and new industries of petroleum, chemical, shipbuilding, container, railway, automobile, city light rail, large scale power station, "Shenzhou" series spacecrafts etc. 20 steels, such as steels for railway industry, duplex stainless steel, heat resistance steel, axle steel and 9%Ni steel, keep the largest market share in China.

During the twelfth Five-Year Plan period, TISCO will take the technology innovation as the driving force, the capacity building as the core and the building of talent team as the guarantee; comprehensively promote "three-transformations"; insist on making the main business strong, the extension and further development, diversification development, green development and harmonious development under the guidance of scientific development and transformation development; and build itself into the most competitive stainless steel producer in the world. In the year of 2015, TISCO will become the domestic first class, internationally renowned large enterprise group with annual sales revenue of 200 billion yuan.



2250mm粗轧机

## 1549mm与2250mm热连轧生产线简介

### Introduction of 1549 mm and 2250 mm HSM

太钢热连轧厂于1994年8月8日投产，现拥有1549mm和2250mm两条热连轧生产线，具备700万吨以上年生产能力。主要产品品种有：碳结钢、优碳钢、低合金钢、不锈钢、硅钢等五大类产品。

1549mm热连轧是华北地区第一条热轧生产线，1994年8月8日全线过钢成功，2002年9月进行了全面技术改造。

2250mm热连轧项目是太钢新建150万吨不锈钢系统工程的关键项目与效益工程，工程建设周期21个月，于2006年6月29日一次过钢成功，轧制出第一卷钢。该项目包括一条热连轧生产线、一条平整生产线和一条横切生产线。主轧线及电气设备、平整线、横切线均从国外先进制造企业引进。

2250mm主轧线由四座步进式加热炉、一台可逆式粗轧机和带边部绝热装置的热卷箱、七架精轧机、层流冷却（预留快速冷却装置）、三台卷取机组成，年设计能力400万吨，其中碳钢200万吨，不锈钢200万吨。成品规格：厚度1.2~25.4mm，宽度900~2130mm；最大卷重40吨。横切线成品厚度5.0~25.4mm，宽度1000~2130mm，长度2000~16000mm。

2250mm热轧装备和控制系统代表了当今世界热连轧机组的最高技术水平，板形控制系统采用了最新的cvc+技术，装备有带边部绝热装置的热卷箱和预留有快速冷却装置，确保薄规格产品的良好板形和带钢性能的均匀性，同时满足多相、TRIP等特殊钢种的生产 and 开发需要。生产工艺上采用不锈钢和碳钢的混合轧制技术。2250mm热连轧生产线已成为世界上不锈钢产能最大、技术装备最先进的热轧生产线。

2250mm与1549mm两条热轧生产线通过品种组合、规格互补，不仅可生产冷成型用钢、结构钢、低合金钢、石油天然气管线输送用钢、造船用钢、汽车结构钢、锅炉与压力容器用钢、集装箱用钢、细晶粒用钢，而且可生产TRIP钢、双相钢、工程机械用钢、建筑结构用钢等高强度钢种，具有宽、厚、专、特、薄、全、广、优的产品竞争优势，可充分满足各行业用户的更高要求。

The Hot Strip Mill of TISCO was put into operation in Aug. 8, 1994. There are two hot rolling production lines—1549mm HSM and 2250mm HSM— with total capacity of 7 million tons l per year. The main products are carbon structure steel, quality carbon steel, low alloy steel, stainless steel and silicon steel.

1549 mm HSM is the first HSM in North China. It was put into operation in Aug. 8, 1994 and revamped in Sept. 2002.

2250 mm HSM is the key project in the 1.5 million tons new stainless steel production line project in TISCO. The first coil was successfully produced at June, 29, 2006. The main equipment of 2250 mm HSM includes one hot rolling production line, one skin pass mill and one cutting line.

The designed annual capacity is 4 million tons, among it, 2 million tons of stainless steel and 2 million tons of carbon steel. The specification of the products are: thickness range 2.0~20.0 mm and width range 1000~2100mm for stainless steel; thickness range 1.2~25.4 mm and width range 1000~2130 mm for carbon steel, the maximum coil weight 40 tons. The product specification of the cutting line is thickness range 5.0~25.4mm, width range 1000~2130mm, length 2000~16000mm.

The equipment and control system of 2250mm HSM represents the most advanced world technological levels. The shape control system adopts the CVC+technology. It equips with coil box with edge heater, the location for quick cooling device is reserved, which can ensure good strip shape properties and uniform strip properties and meet the requirements for production and development of duplex steel and TRIP steel. The production process adopts mixed rolling of carbon steel and stainless steel. The 2250mm hot rolling production line became the most advanced technology and equipment in the world.

The product mix and specification of 2250mm HSM are widened. In order to further exploit its advantages, the wide, thick, special, many and best hot rolled products, it can produce wide range of steel grades such as high strength steel, cold forming steel, structure steel, low alloy steel, steel for transportation of oil and gas, shipbuilding steel, automobile steel, pressurized vessel steel, container steel, duplex steel, TRIP steel, ultra fine grained structural steel, weather proof steel for high buildings, and steel for construction machinery and equipment will be produced by the 2250mm HSM to fully meet.

## 主要装备介绍

### Main equipment introduction

#### 180吨顶底复吹转炉

- ▶ 采用顶底复吹方式，脱碳效率高；
- ▶ 钢质纯净，残余元素低，夹杂物含量少
- ▶ 成分控制精确。

#### 立式板坯连铸机

- ▶ 采用立式板坯连铸机，可实现夹杂物充分上浮，钢质纯净；
- ▶ 铸坯不经弯曲矫直，内部缺陷少；
- ▶ 结晶器配有非正弦液压振动和电磁涡流式液面控制装置及二冷采用自动配水等技术，铸坯组织均一、致密。

#### 加热炉

- ▶ 分段式步进梁；
- ▶ 汽化冷却；
- ▶ 最佳化燃烧控制模型。

#### 180t K-OBM converter

- ▶ Combined top and bottom blowing is adopted. The efficiency of decarbonization is high.
- ▶ The steel is cleaner, the residual element and inclusion in the steel is lower.
- ▶ The analysis of steel is accurate.

#### Vertical Continuous Casting Machine

- ▶ The slab is produced by vertical continuous casting machine which benefits the floatation of the inclusion and makes the steel cleaner.
- ▶ The strand does not pass through bending zone, which eliminates the internal defects.
- ▶ The mold is equipped with non-sinusoidal hydraulic vibrator, electromagnetic eddy current mold level control device and secondary cooling with automatic water control. The structure of the slab is uniform and dense.

#### Reheating Furnace

- ▶ Walking beam type reheating furnace
- ▶ Gasification cooling
- ▶ Optimized combustion control model.

#### 1549mm热连轧机机组

- ▶ 采用先进AWC、AGC控制系统，可获得高的尺寸精度；
- ▶ 采用先进液压弯辊、窜辊技术，配备有边部加热装置。

#### 1549mm Hot Strip Mill

- ▶ Advanced AWC and AGC control system is adopted. High accuracy of product sizes has been achieved.
- ▶ Advanced hydraulic roll bending and roll shifting is adopted, Edge heater is equipped with.

#### 2250mm 热连轧机组

- ▶ 2250mm 生产线装备和控制系统水平代表了当今世界传统热连轧机组的最高水平；
- ▶ 板形控制系统采用了最新的CVC<sup>+</sup>技术，压下系统采用液压AGC控制技术；
- ▶ 中间坯保温采用带边部绝热装置的热卷箱；
- ▶ 高效冷却装置。

#### 2250mm Hot Strip Mill

- ▶ The equipment and control system of 2250mm HSM represents the most advanced international technical level of the hot strip mill.
- ▶ The shape control system adopts the newest CVC<sup>+</sup> technology, screw down system adopts the hydraulic AGC system.
- ▶ The heat retention of the transfer bar adopts the coil box with edge heat shield.
- ▶ High efficiency cooling device.



4350高炉  
4350 blast furnace



180吨顶底复吹转炉  
180 ton top and bottom  
combined blown converter



RH精炼炉  
RH



双流连铸机  
Two-strand CCM



粗轧机  
Roughing mill



精轧机  
Finishing mill

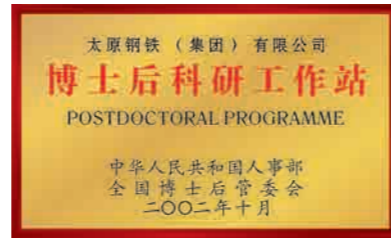
## 研发能力 R&D capacity



太钢技术中心  
TISCO Technology Centre



在国家认定的887家企业技术中心中，太钢技术中心排名第4位。  
TISCO Technology Centre ranks the 4th place out of 887 enterprise-based technology centres accredited nationwide.



## 质量检测 Quality inspection



透射电镜  
Transmission Electronic Microscope



电子拉伸试验机  
Electronic Tensile Tester

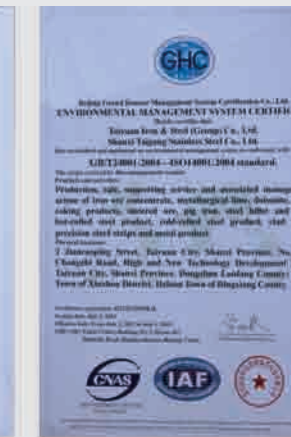


电液伺服疲劳试验机  
Electrohydraulic Servo Fatigue Testing Machine

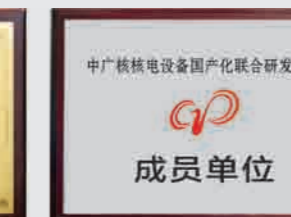


热模拟试验机  
Thermal Simulator

## 体系认证证书 System Certificate



## 企业荣誉 Honor & awards



## 尺寸精度、产品规格

### Dimensional accuracy and product specification

#### 尺寸精度 Dimensional accuracy

厚度精度	Thickness accuracy	±30 μ
宽度精度	Width accuracy	0~6.5mm
平直度	Flatness	25IU
凸度精度	Profile accuracy	±20 μ

#### 产品规格 Product specification

规格 Specification	热轧卷 Hot rolled coil	平整/分卷钢卷 Coil leveled/coil divided	横切钢板 Cutting-to-length sheet/plate
厚度 mm Thickness	1.2~25.4	平整 1.2~6.5 分卷 1.2~12.7 Coil leveled coil divided	5~25.4
宽度 mm Width	900~2130	1000~2130	1000~2130
卷重 t Coil weight	40 (max)	40 (max)	-
卷内径 mm Inside diameter	φ762	φ762	长度 2000~12000 Length
卷外径 mm Outside diameter	φ2150 (max)	φ2150 (max)	

#### 产品规格矩形图 (mm) Product specification table (mm)

厚度 Thickness \ 宽度 Width	900~1200	1200~1400	1400~1700	1700~1900	1900~2100
1.2~1.6				-----	-----
1.6~2.0					-----
2.0~2.5					
2.5~3.0					
3.0~5.0					
5.0~8.0					
8.0~12.0					
12.0~16.0					
16.0~20.0	-----				
20.0~25.4	-----	-----			

## 重要产品类别、特点、代表钢号及用途

### Main product type, property, typical steel grade and use

产品类别 Product type	产品特点 Product property	代表牌号 Typical grade	用途说明 Application
钢结构 Structural steel	保证力学性能及工艺性能，具有良好的焊接性能，适用于简单加工后经焊接或铆接制造的结构件。 Guarantee of mechanical property and fabrication property, having good welding property for structure made by rivet and welding after simply marching.	Q195-Q275, Q345, SS400, ST37-2	用于建筑结构、桥梁、船舶、工程与农用机械一般结构件 For architecture, bridge, ship, project and agricultural mechanism structure.
冷成型用钢 Cold forming steel	具有足够的延展性，适用于冲压成型及复杂变形加工的零部件。 Having more ductility than normal one for element machined by pressing forming and complicated deforming.	SPHC、SPHD、SPHE、Q195LD、TIF、MR、SAE1006	用于加工齿轮、电气仪表箱、汽车缓冲器、压缩机组、滤油器等 For gear, electric meter box, and juck cover, Matching vehicle buffer, compressor and oil filter.
汽车结构用钢 Automobile structural steel	保证力学性能及工艺性能，具有良好的焊接性能，除强度外还要求更高的伸长率值等，以保证具有良好的加工成型性能，对表面质量及尺寸公差要求严格。 Guarantee of mechanical property and fabrication property, having good weldig property besides higher tensibility value to ensure good marching processability, having strict requirement of surface quality and dimensional tolerance.	QSTE3407M-QSTE700TM SAPA440 T330CLT400CL T420CLT500CL T510L, T610L, T700L, TQK510TQK590 T700Th800 Dp600 T440QZ T700QZ	用于生产汽车大梁、横梁、车轮、传动轴、轿车底盘零件等 For matching beam of vehicle, crossbeam, wheel, driving shaft and car chase.
管线用钢 Pipeline steel	要求低碳含量，低碳当量、高纯度和低夹杂，具有良好的综合力学性能，低温韧性及焊接性。 Requirement of low carbon content, low carbon equivalent weight, high purity and low impurity, having good general mechanical property, low temperature toughness and welding property.	X52, X56, X60, X65, X70, X80, J55	按照API5L生产的石油天然气输送用管线钢卷，用于制造螺旋钢管和直缝电阻焊钢管 Pipeline steel coil for and natural gas, according to API5L; fusing for making spiral welding steel pipe and transversal joint resistance welding steel pipe.
耐候钢 Weathering steel	保证力学性能及工艺性能，具有良好的焊接性能及耐大气腐蚀或耐海水腐蚀及耐硫酸腐蚀性。 Guarantee of mechanical property and fabrication property, having good weldig property, atmospheric corrosion prevention sea water corrosion prevention and sulphuric corrosion prevention.	09CuPTiReA, 09CuPCrNiA, SPA-H, Q450NQR1	用于制造海运集装箱、铁路车辆、铁路集装箱、石油井架、化工机械等要求耐蚀构件 For making shipping container, railway rolling stock, railway container, oil derrick chemical industry mechanism with requirement of corrosion prevention.

## 重要产品类别、特点、代表钢号及用途

### Main product type, property, typical steel grade and use

产品类别 Product type	产品特点 Product property	代表牌号 Typical grade	用途说明 Application
气瓶钢及 压力容器用钢 Pressure vessels steel	除具有良好的力学性能及工艺性能可焊接性能外,还对钢板材质、厚度均匀性及钢的内在质量有严格的要求,以保证高压状态下使用安全可靠。 Besides good mechanical property, fabrication property and weld ability, strict requirement of steel plate quality, thickness uniformity and internal quality, of steel to ensure safety and credibility under high pressure.	HP295、Q245R HP345、Q345R	主要用于液化石油气钢瓶,及其它锅炉压力容器制作 Mainly for liquefied petroleum air steel cylinder and boiler pressure container.
船体结构用钢 Shipbuilding plate	保证良好的力学性能(强度、伸长率、冲击韧性等)并具有良好的焊接性能及加工成形性能,尺寸公差要求严格。 Guarantee of good mechanical property (strength, tensibility, and impact toughness) having good welding property with strict dimensional tolerance	A,B,D,A32, A36.D32.D36	用于制造远洋、沿海、内河航区船舶船体用钢,按各国船级社规范要求供货 For ocean, coastal and inland river ship body; deliver according to specification of all sorts of, classification society in different countries
工程机械用钢 Project mechanism steel	具有高强度、高韧性及良好的焊接性能和抗疲劳性能。 High strength, high tenacity and well welding performance and antifatigue performance.	T520JJ、T750GJ、 DB685、Db785 TQ460MC-TQ960MC S335MC-S700MC	用于汽车起重机、混凝土泵车、混凝土搅拌罐、挖掘机、推土机等工程机械、ATM柜员机等 Mainly for automobile crane, concrete truck, excavator bulldozer, project mechanism, etc.
花纹板 Diamond plate	豆形饱满圆滑、美观大方,豆局适中;(最薄2.35mm) Fabiform with adequate height is fu smooth and looks well.	09CuP, H-Q195 -Q295A/B,	主要用于汽车、船舶、厂房各种台架的防滑部位 Mainly for vehicle, ship, workshop and all sores of disliking parts of bench

## 执行标准

### Standards Used for Products

#### 常用标准代号名称 Common Standards

标准代号 Code	中文名称 Designation in Chinese	中文名称 Designation in English
AIS	美国钢铁协会	American Iron & Steel Institute
ANS	美国国家标准协会	American National Standards Institute
AP	美国石油协会	American Petroleum Institute
ASME	美国机械工程师协会	American Society of Mechanical Engineers
ASTM	美国材料试验	American Society for Testing & Material
BS	英国国家标准	British Standard
DIN	德国工业标准	Deutsche Industrie-Normen
GB	中国国家标准	Chinese National Standards
ISO	国际标准化组织	International Organization for Standardization
JIS	日本工业标准	Japanese Industrial Standard
SAE	美国汽车工程师协会	Society of Automotive Engineers
SEW	德国钢铁工程师协会标准	STAHL-ELSEN-WERKSTOFFBLATT
ABS	美国船级社	American Bureau of Shipping
BV	法国船级社	Bureau Veritas
CCS	中国船级社	China Classification Society
GL	德国劳氏船级社	Germanischer Lloyd
LR	英国劳氏船级社	Lloyd's Register of Shipping
NK	日本海事协会	Nippon Kaiji Kyokai
DnV	挪威船级社	Det Norske Veritas
RINA	意大利船级社	Registro Italiano Navale
KR	韩国船级社	Korean Register

主要代表性产品化学成分、力学性能及工艺性能

**Chemical composition, mechanical properties and processing properties of main typical products**

管线钢 Pipe line steel

国家标准 GB

标准 Standard applisd	牌号 Steel grade	说明 Expianation
GB/T9711 .2-1999	S210, S245, S290, S320, S360 S390, S415, S450, S485, S555	石油天然气输送管用高韧性热轧宽带钢 High toughness hot rolled coils for oil and gas transimtion
G B/T14164-2005	L210, L245, L290, L320, L360 L390, L415, L450, L485, L555	石油天然气输送管用高韧性热轧宽带钢 High toughness hot rolled coils for oil and gas transimtion

API标准 API standard applied

标准 Standard applisd	牌号 Steel grade	说明 Expianation
AP15L	A, B, X42, X46, X52, X56 X60, X65, X70, X80	石油天然气输送管用高韧性热轧宽带钢 High toughness hot rolled coils for oil and gas transimtion
API 5CT	J55, M65, N80, K55	直缝焊套管用钢 Fransersal joint resistance welding steel pipe

机械性能 Mechanical property

牌号 Steel grade	成品厚度 Thickness ( mm )	机械性能 Mechanical properties			其它性能 Other properties				
		屈服强度 Yield Strength ( MPa )	抗拉强度 Tensile Strength ( MPa )	延伸率 Enlongation ≥%	冲击功 ≥J	纤维断面率 Shear area%	180° 冷弯实验 Cold bend test	落锤实验 DWTT	
B	5-25.4	245-445	415-755	21	40	协商约定 Consult	d=2a	—	
X42	5-25.4	290-495	415-755	21	42				
X46	5-25.4	320- 525	435-755	20					
X52	5-24.0	360- 530	460-755	19					
X56	5-24.0	390- 545	490-755	18					
X60	5-24.0	415- 565	520-755	17	47				
X65	5-24.0	450- 600	535-755	17					
X70	5-22.0	485-620	570-755	16	63				协商约定 Consult
X80	5-19.0	555- 690	625-825	15	96				

化学成分, %Chemical compositon , %

牌号 Steel grade	化学成分 ( 最大含量 ) Chemical Composition ( Max ) %											Ceq%
	C	Si	Mn	P	S	Nb	V	Ti	Mo	Ai	Nb+V+Ti	
B	0.16	0.45	1.5	0.025	0.015	0.04	0.04	—	—	0.06	—	0.40
X42	0.16	0.45	1.5	0.025	0.015	0.04	0.04	—	—	0.06	—	0.40
X46	0.16	0.45	1.5	0.025	0.015	0.04	0.04	—	—	0.06	—	0.40
X52	0.16	0.45	1.6	0.025	0.015	0.05	0.05	0.04	—	0.06	—	0.41
X56	0.16	0.45	1.6	0.025	0.015	0.05	0.05	0.04	—	0.06	—	0.41
X60	0.16	0.45	1.6	0.025	0.015	0.05	0.08	0.06	0.3	0.06	0.15	0.42
X65	0.16	0.45	1.6	0.025	0.015	0.06	0.1	0.06	0.3	0.06	0.15	0.43
X70	0.16	0.45	1.7	0.025	0.015	0.06	0.1	0.06	0.3	0.06	0.15	0.43
X80	0.16	0.45	1.8	0.025	0.015	0.06	0.1	0.06	0.3	0.06	0.15	协议 Consult



## 主要代表性产品化学成分、力学性能及工艺性能

### Chemical composition, mechanical properties and processing properties of main typical products

#### 汽车结构用钢 Automobile structural steel

#### 机械性能 Mechanical property

牌 号 Steel grade	成品厚度 Thickness ( mm )	Rel, Mpa		Rm, Mpa	A, %	180° ,冷弯 Bedding test	
T420L	3.0-6.0X980-2000	≥305		420-540	≥25	d=0.5a	Q/TB3805-2007
T510L	3.0-8.0X 980-2000	≥355		510-610	≥24	d=0.5a	Q/TB3805-2007
	> 8.0-12. 5X870-2000	≥355		480-610	≥21		Q/TB3019-2007
T610L	3.0-10.0XI000-2100	≥500		550-700	≥18	d=1a	Q/TX3287-2007
T700L	3.0-10. 0XI000-1800	≥600		700-850	≥16	d=2a	Q/太新061-2010
T750L	3.0-8. 0XI000-1800	≥700		750-950	≥15	d=1.5a	Q/太新049-2009
T330CL	3.0-10.0	≥205		330-470	≥26	d=1a	Q/TX3193-2006
T400CL	1.5-16.0X870-2130	<6.0	≥255	400-510	≥28	d=1a	Q/太新074-2008
		≥6.0<10.0	≥235	390-500	≥26	d=2a	
		≥10.0≤16.0	≥220	380-480	≥24	d=2a	
T420CL	5.0-16.0X1000-2100	≥290		5.0-10.0 410-520	≥26	d=1a	Q/TX3285-2007
				10.0-16.0 410-520	≥24	d=0.5a	
T500CL	5.0-16.0X1000-2130	≥380		5.0-10.0 490-650	≥23	d=2a	Q/太新073-2011
				10.8-16.0 470-630	≥22	d=2a	
DP540	3.0-12.0XI000-1550	≥295		≥540	≥25	d=1a	Q/太新027-2011
Dp600	3.2-6.0XI000-1550	330-470		580-700	≥24	d=0.5a	Q/太新034-2010
440QZ	2.5-6.0	≥320		440-570	≥15	d=1a	Q/TB3803-2007
480QZ	3.0-8.0	≥355		480-580	≥21	d=1a	Q/TB3020-2007
T700QZ	3.0-6.0X1000-1800	≥650		700-900	≥15	d=1.5a	Q/太新019-2010
T750QZ		≥750		750-950	≥14	d=1.5a	
TQK510	3.0-20. 0XI000-2130	3.0-8.0	≥355	510-610	≥24	d=0.5a	Q/太新078-2008
		>8.0-16.0	≥345	480-610	≥20	d=1a	
		>16.0-20.0	≥345	460-580	≥18	d=1a	
TQK590	10.0-16.0XI000-2100	10.0-13.0	≥470	590-715	≥18	d=1a	C)/太新094-2009
		>13.0-16.0	≥440	550-700	≥16		
T700	6.0-16.0X1350-1800	6.0-10.0	≥625	≥700	≥17	d=2a	Q/TX3257-2007
		>10.0-16.0	≥590	≥700	≥15		
TH850	3.0-16.0X1350-1800	3.0-8.0	≥700	750-950	≥12	d=2a	Q/TX3257-2007
		>8.0-16.0	≥680	750-950	≥12		

注: 1、A为试样厚度, d为弯心直径, b为冷弯试样的宽度。  
2、表中所列拉伸、冷弯试验规定值适用于纵向试样。  
3、440QZ、480QZ两个牌号还应保证Rel/Rms0.90。

Notes: 1、"A" means cold bending width, "d" means bending diameter, and "b" meas sampling thickness.  
2、The specified value for tensile test in list in list is suitable for logitudind sampling, and value for cold bending is suitable for lateral sampling  
3、440QZ、480QZ should insure Rel/Rm -0.90

#### 化学成分, % Chemical composition, %

牌 号 Steel grade	C	Si	Mn	P	S	Ti	Nb	V	Mo	Al	Cr
	≤0.12	≤0.50	≤1.20	≤0.030	≤0.025	-	≤0.04			-	
	≤0.16	≤0.50	≤1.16	≤0.030	≤0.025	-	≤0.06			-	
	≤0.12	≤0.50	≤1.70	≤0.030	≤0.025	≤0.22	≤0.09	≤0.10		≥0.015	
	≤0.12	≤0.50	≤2.00	≤0.020	≤0.010	-	-			≥0.015	
	≤0.12	≤0.60	≤2.10	≤0.025	≤0.010	≤0.15	≤0.09	≤0.22		≥0.015	
	≤0.08	≤0.10	≤0.50	≤0.030	≤0.015	-	-			≥0.020	
	≤0.12	≤0.25	≤1.20	≤0.030	≤0.020	-	-			≥0.020	
	≤0.12	≤0.30	≤1.20	≤0.030	≤0.020	-	≤0.030			≥0.020	
	≤0.16	≤0.50	≤1.70	≤0.030	≤0.025	-	≤0.06			≥0.020	
	≤0.12	≤0.60	≤1.70	≤0.080	≤0.020						0.7
	≤0.12	≤0.60	≤1.70	≤0.080	≤0.020						0.7
	≤0.12	≤0.50	≤1.30	≤0.030	≤0.025	-	≤0.04			-	
	≤0.16	≤0.20	≤1.50	≤0.020	≤0.015	-	≤0.04			-	
	≤0.10	≤0.15	≤2.10	≤0.025	≤0.010	≤0.15	≤0.090	≤0.20	≤0.50	≥0.015	
	≤0.16	≤0.50	≤1.60	≤0.030	≤0.025	-	≤0.060			-	
	≤0.12	≤0.50	≤1.70	≤0.030	≤0.025	≤0.22	≤0.090	≤0.10		≥0.015	
	≤0.12	≤0.50	≤2.00	≤0.020	≤0.010	≤0.15	≤0.090	≤0.20	≤0.50	≥0.015	
	≤0.12	≤0.40	≤2.10	≤0.020	≤0.010	≤0.15	≤0.090	≤0.20	≤0.50	≥0.015	

注: 牌号T610L除含Nb和或Ti外, 此外还可以加V, 但这三种元素之和不得超过0.22%  
Notes: For T610L,the supplier can select the content of Nb and Ti, as well asV.but the total content of the three elements should be less than 0.22%

## 主要代表性产品化学成分、力学性能及工艺性能

### Chemical composition, mechanical properties and processing properties of main typical products

#### 船体结构用钢 Shipbuilding plate

钢类 Steel grade	牌号 Steel grade	规格 (mm) Specification		标准 Standard applisd	备注 Standard applisd
		厚度 Thickness	宽度 Width		
船板 Shipbuilding plate	A、B、D	≥3.0-3.5	1000-2000	GB712-2000 CGS规范 KR规范 GL规范 BV规范 ABS规范 DNV规范 NK规范 RINA规范 LR规范	已通过CCS、LR、BV、ABS、GL、DNV、KR、NK、RINA船级社认证  We have passed the shipbuilding class certificate of ccs GL LR BV. ABS. DNV.KR. NK. RINA now.
		3.5-24	1000-2130		
	AH32、AH36 DH32、DH36	≥3.0-3.5	1000-2000		
		3.5-24	1000-2130		

备注：①按理论计重交货。

②CCS认证A、B、D最薄厚度可至2.0mm

牌号：A、B、D

Steel grade: A. B. D

规格：3~24x1500~2130x6000~16000mm

Specification: 3~24 x 1500~2130 x 6000~16000mm

#### 机械性能 Machinical property

牌号 Steel grade	屈服强度 Mpa, ≥ Yield strenghen	抗拉强度 Mpa Tensile strenghen	延伸率 %, ≥ Enlogation	冲击功AKv, J, ≥ Impact energy		
				试验温度℃ Test temperature	≤50mm	
					纵向 Longitudunal	横向 Transverse
A	235	400-520	22	20	—	—
B				0	27	20
C				-20	27	20

#### 化学成分, % Chemical compesition, %

牌号 Steel grade	C	Si	Mn	P	S	Als
A	≤0.21%	≤0.50%	≥2.5C	≤0.035%	≤0.035%	—
B		≤0.35%	0.80~1.20%			—
C			0.60~1.20%			≥0.015%

● 牌号：A32、A36、D32、D36

● Steel grade: A32、A36、D32、D36

● 规格：3~24X1500~2130X6000~16000mm

● Specification: 3~24X1500~2130X6000~16000mm

#### 机械性能 Machinical property

牌号 Steel grade	屈服强度 Mpa, ≥ Yield strenghen	抗拉强度 Mpa Tensile strenghen	延伸率 %, ≥ Enlogation	冲击功AKv, J, ≥ Impact energy			冷弯 Cold bend
				试验温度℃ Test temperature	≤50mm		
					纵向 Longitudunal	横向 Transverse	
A32	315	440 ~ 570	22	0	40	27	d=3a
D32				-20			
A36	355	490 ~ 630	21	0	40	27	
D36				-20			

#### 化学成分, % The chemical composition, %

牌号 Steel grade	C	Si	Mn	P	S	Als	Nb	V	Ti	Cr	Ni
A32、A36 D32、D36	≤0.18%	≤0.50%	0.90 ~ 1.60%	≤0.035%	≤0.035%	≥0.015%	0.02~0.05%	0.05~0.10%	≤0.02%	≤0.02%	≤0.40%



主要代表性产品化学成分、力学性能及工艺性能

**Chemical composition, mechanical properties and processing properties of main typical products**

● 耐候钢 Weather-Proof steel(sheet/stip for container)

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mecganical property					化学成分% Chemical composition %										
		屈服强度 MPa Yield strength	抗拉强度 MPa Tensile strength	伸长率% Elongation rate	180° 冷弯 Cold bending	V型冲击 V type impactt 试验温度 ℃ Test temperature	冲击功 J Impact power	C≤	Si	Mn	P	S≤	Cu	Cr	Ni	Ti	Re
09CuP TiRe-A	3.0-≤6 >6-14.0	295	390	≥24	d=a d=2a	-40℃	21	0.12	0.20-0.40	0.25-0.55	0.06-0.12	0.020	0.25-0.50	-	-	≤0.03	0.010-0.040
09CuP CrNi-A	3.0-≤6 >6-14.0	345	480	≥24	d=a d=2a	-	-	0.12	0.25-0.75	0.20-0.50	0.06-0.12	0.020	0.25-0.50	0.30-1.25	0.12-0.65	-	-
SPA-H	1.4-≤6 >6-12.0	345 355	480 490	A50≥22 A200≥15	B=35mm, d=3a B=35mm, d=3a	-	-	0.12	0.25-0.75	0.20-0.50	0.07-0.15	0.040	0.25-0.60	0.30-1.25	≤0.65	-	-
Q450N QR1	4.0-≤6 >6-14 >14-20	450	550	≥22 ≥20 ≥19	d=a d=2a d=3a	-40℃	60	0.12	≤0.75	≤1.50	≤0.025	0.008	0.20-0.55	0.30-1.25	0.12-0.65	-	-

● 锅炉与压力容器用钢(含耐热钢) Welding gas-bottle steel and pressure vessels steel( High-temperature steel)

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mecganical property					化学成分% Chemical composition %											标准 Standard
		屈服强度 MPa Yield strength	抗拉强度 MPa Tensile strength	伸长率% Elongation rate	180° 冷弯 Cold bending	V型冲击 V type impactt 试验温度 ℃ Test temperature	冲击功 J Impact power	C≤	Si≤	Mn≤	P≤	S≤	Al≥	其他 Others				
Hp235	2.0-10.0	235	380-500	28	d=1.5a	常温	27	0.16	0.10	0.80	0.025	0.015	0.015					
Hp265	2.0-10.0	265	410-520	27	d=1.5a	常温	27	0.18	0.10	0.80	0.025	0.015	0.015					
Hp295	2.0-10.0	295	440-560	26	d=2a	常温	27	0.18	0.10	1.00	0.025	0.015	0.015					
Hp325	3.0-20.0	325	490-600	21	d=2a	常温	27	0.20	0.35	1.50	0.025	0.015	0.015					
Hp345	6.0-20.0	345	510-620	20	d=2a	常温	27	0.20	0.35	1.50	0.025	0.015	0.015					
Q345R	6.0-16.0	345	510-640	21	d=2a	-	34	0.20	0.55	1.20-1.60	0.025	0.015	-					
Q245R	6.0-≤16.0	245	400-520	25	d=1.5a	常温	31	0.20	0.35	0.50-1.00	0.025	0.015	-					
15CrMo	2.75-18.0	295	450-590	19	d=3a	-	-	0.12-0.18	0.15-0.40	0.40-0.70	0.025	0.030	-	Cr,Mo,V				
12Cr1MoV	2.75-18.0	245	440	19	d=2a	-	-	0.08-0.15	0.17-0.37	0.40-0.70	0.030	0.020	-	Cr,Mo,V				
1Cr3Si2Mo	3.0-10.0	-	490	18	-	-	-	0.15	1.5-2.0	0.70	0.035	0.030	-	Cr,Mo,V				

细晶钢 Fine grain steel

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mecganical property					化学成分% Chemical composition %									
		屈服强度 MPa Yield strength	抗拉强度 MPa Tensile strength	伸长率% Elongation rate		180° 冷弯 Cold bending	C≤	Si	Mn	P	S≤	Al	其它 Others			
TQ340	2.0-20.0	355	510-610	25	25	d=0.5a	0.12	0.30	1.30	0.020	0.020	0.015	Nb含量按定 量加入25kg。 Add25kgNb			
TQ380	2.0-20.0	380	450-590	24	24	d=0.5a	0.17	0.30	1.30	0.020	0.020	0.015	Nb含量按定 量加入20kg。 Add20kgNb			
TQ420	2.0-20.0	420	480-620	20	20	d=0.5a	0.15	0.04	1.50	0.020	0.020	0.015	Nb含量按定 量加入10kg。 Add10kgNb			
TQ460	2.0-20.0	460	520-670	14	19	d=a	0.12	0.50	1.60	0.030	0.025	0.015	Nb≤0.09			
TQ500	2.0-20.0	500	550-700	12	17	d=a	0.12	0.50	1.80	0.020	0.020	0.015	Nb≤0.09			
TQ550	2.0-20.0	550	600-750	11	15	d=1.5a	0.12	0.50	1.80	0.020	0.015	0.015	Nb≤0.09 Ti≤0.22			

注: 1、≤6.0mm厚不做冲击试验;  
2、d=弯心直径, a=试样厚度。  
Note: 1, ≤ 6.0mm thick non impact test;  
2, d= the bending center diameter, a= thickness of specimen.



## 主要代表性产品化学成分、力学性能及工艺性能

### Chemical composition, mechanical properties and processing properties of main typical products

#### ● 冷轧用料 Hot rolled coils for cold rolling

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mecanical property				化学成分% Chemical composition %									
		Rel, MPa	Rm, MPa	A, %	180° 冷弯 Cold bending	C	Si	Mn	P	S	Al	Ni	Cr	Cu	其它 Others
Q195L	1.8-16	≥195	≥315	≥33	d=0完好 Intact	≤0.08	0.10-0.20	0.25-0.50	≤0.045	≤0.050	-	-	-	-	-
Q195LD	1.8-16	≥195	≥315	≥33	d=0完好 Intact	≤0.08	≤0.12	0.25-0.50	≤0.045	≤0.050	-	-	-	-	-
08AL	1.2-25.4	≥195	≥325	≥33	d=0完好 Intact	0.08-0.12	≤0.03	0.25-0.65	≤0.035	≤0.035	0.02-0.07	≤0.25	≤0.10	≤0.25	-
SPHC	1.2-12.7	≥185	≥270	≥31	d=0完好 Intact	≤0.15	≤0.05	≤0.60	≤0.035	≤0.035	≥0.01	-	-	-	-
SAE1006	1.5-6	≥180	≥270	≥30	d=0完好 Intact	≤0.06	≤0.03	≤0.40	≤0.030	≤0.020	0.02-0.07	-	-	-	-
TIF1	3-25.4	≤310	≤400	≥40	d=0完好 Intact	≤0.005	≤0.03	0.10-0.20	≤0.015	≤0.015	0.02-0.06	-	-	-	Ti0.045-0.070
TIF2	3-25.4	≤310	≤400	≥40	d=0完好 Intact	≤0.005	≤0.03	0.10-0.20	≤0.015	≤0.015	0.02-0.06	-	-	-	Nb0.020
MR-1	2-5	无要求 No requirement	>30	>30	d=0完好 Intact	0.05-0.08	≤0.03	0.3-0.5	≤0.02	≤0.015	0.03-0.07	-	-	-	-
MR-2	2-5	无要求 No requirement	>30	>30	d=0完好 Intact	0.07-0.10	≤0.03	0.35-0.45	≤0.02	≤0.015	0.03-0.07	-	-	-	-
MR-3	2-5	无要求 No requirement	>30	>30	d=0完好 Intact	0.08-0.11	≤0.03	0.45-0.55	≤0.02	≤0.015	0.03-0.07	-	-	-	-
MR-4	2-5	无要求 No requirement	>30	>30	d=0完好 Intact	0.045-0.065	≤0.03	0.25-0.35	≤0.02	≤0.015	0.03-0.07	-	-	-	-
SPHD	1.5-6	≥180	≥270	≥30	d=0完好 Intact	≤0.06	≤0.03	≤0.40	≤0.03	≤0.02	0.015-0.07	-	-	-	-
SPHE	1.5-6	≥160	≥250	≥32	d=0完好 Intact	≤0.03	≤0.03	0.10-0.30	≤0.03	≤0.02	0.015-0.07	-	-	-	-

#### ● 高强度电力塔架镀锌用结构钢

#### High strength steel for engineering machine

化学成分% Chemical composition %

牌号 Steel grade	化学成分% Chemical composition %						
	C	Si	Mn	P	S	Ai	Nb
ASTM A572 Gr65	≤0.23	≤0.04	≤1.65	≤0.020	≤0.020	≤0.015	≤0.09
ASTM A572 Gr50	≤0.23	≤0.04	≤1.65	≤0.020	≤0.020	≤0.015	≤0.09

注：生产厂根据需要，可添加V、Ti、Mo等微量合金元素。  
Note: According to the special need, add V, Ti, Mo etc. microelement

机械性能 Machinical property

牌号 Steel grade	Rel, MPa	Rm, MPa	A, %	180° 弯曲, d=弯心直径, a=试样厚度 180° bending, d=bending diameter, a=sampling thickness	纵向V型冲击试验 (J) Longitudinal V type impact energy
			Lo=50mm		
ASTM A572 Gr65	≥450	≥550	≥17	d=2a	≥34 (-30°C)
ASTM A572 Gr50	≥350	≥450	≥22	d=2a	≥34 (-20°C)
Q420B	≥420	520 ~ 680	≥19	d=2a	≥34 (-20°C)



## 主要代表性产品化学成分、力学性能及工艺性能

### Chemical composition, mechanical properties and processing properties of main typical products

#### ● 工程机械用高强钢 (Q/太新011-2008) High strength steel for engineering machine

化学成分% Chemical composition %

牌号 Steel grade	C	Si	Mn	P	S	Nb	V	Ti	B	Al
	≤									≥
TQ460MC	0.12	0.50	1.60	0.025	0.015	0.09	0.09	0.15	\	0.015
TQ500MC	0.12	0.50	1.70	0.025	0.015	0.09	0.09	0.15	\	0.015
TQ550MC	0.12	0.50	1.80	0.025	0.015	0.09	0.09	0.15	\	0.015
TQ600MC	0.12	0.50	1.90	0.025	0.015	0.09	0.09	0.15	\	0.015
TQ650MC	0.18	0.50		0.025	0.015	0.09	0.09	0.15	\	0.015
TQ700MC	0.18	0.50	2.00	0.025	0.015	0.09	0.09	0.15	0.002	0.015
TQ900MC	0.18	0.50	2.10	0.025	0.015	0.09	0.09	0.15	0.002	0.015
TQ960MC	0.18	0.50	2.20	0.025	0.015	0.09	0.09	0.15	0.002	0.015



机械性能 Machinical property

牌号 Steelgrade	质量等级 Qualitygrade	Rel( Reh ),MPa	Rm,MPa	A <sub>5</sub> %	冷弯180° Cold bending		冲击功Ak <sub>v</sub> ,J Impact energy	
					a≤6mm	a > 6mm		
TQ460MC	C	≥460	590-750	≥18	d=1.5a	d=2a	0℃	
	D				d=1.5a	d=2a	-20℃	
	E				d=1.5a	d=2a	-40℃	
TQ500MC	C	≥500	610-770	≥17	d=1.5a	d=2a	0℃	
	D				d=1.5a	d=2a	-20℃	
	E				d=1.5a	d=2a	-40℃	
TQ550MC	C	≥550	670-830	≥17	d=1.5a	d=2a	0℃	≥40
	D				d=1.5a	d=2a	-20℃	≥40
	E				d=1.5a	d=2a	-40℃	≥27
TQ600MC	C	≥600	690-850	≥17	d=1.5a	d=2a	0℃	≥40
	D				d=1.5a	d=2a	-20℃	≥40
	E				d=1.5a	d=2a	-40℃	≥27
TQ650MC	C	≥650	700-880	≥15	d=1.5a	d=2a	0℃	≥40
	D				d=1.5a	d=2a	-20℃	≥40
	E				d=1.5a	d=2a	-40℃	≥27
TQ700MC	C	≥700	780-930	≥14	d=1.5a	d=2a	0℃	≥40
	D				d=1.5a	d=2a	-20℃	≥40
	E				d=1.5a	d=2a	-40℃	≥27
TQ900MC	C	≥900	940-1100	≥12	d=3a	d=4a	0℃	≥40
	D				d=3a	d=4a	-20℃	≥40
	E				d=3a	d=4a	-40℃	≥27
TQ960MC	C	≥960	980-1150	≥12	d=3a	d=4a	0℃	≥40
	D				d=3a	d=4a	-20℃	≥40
	E				d=3a	d=4a	-40℃	≥27

## 主要代表性产品化学成分、力学性能及工艺性能

### Chemical composition, mechanical properties and processing properties of main typical products

#### 工程机械用钢 Project mechanism steel

牌号 Steel grade	力学性能 Mechanical property					化学成分 Chemical composition %									
	屈服强度 Mpa ≥ Yield strength	抗拉强度 Mpa ≥ Tensile strength	A, %		180° 冷弯 Cold bending	V型冲击 V type impact		C ≤	Si ≤	Mn ≤	P ≤	S ≤	Al ≥	Nb ≤	Ti ≤
			Lo=80mm	Lo=8.65√ <sub>R<sub>m</sub></sub>		试验温度 ℃ Test temperature	冲击功 ≥J Impact power								
			厚度 <3.0mm Thickness	厚度 ≥3.0mm Thickness											
S355MC	430 ~ 550	≥355	≥19	≥20	d=0.5a	常温	≥27	≤0.12	≤0.50	≤1.50	≤0.025	≤0.020	≥0.015	≤0.09	≤0.15
S420MC	480 ~ 620	≥420	≥16	≥19	d=0.5a	常温	≥27	≤0.12	≤0.50	≤1.60	≤0.025	≤0.015	≥0.015	≤0.09	≤0.15
S460MC	520 ~ 670	≥460	≥14	≥17	d=1a	常温	≥27	≤0.12	≤0.50	≤1.60	≤0.025	≤0.015	≥0.015	≤0.09	≤0.15
S500MC	550 ~ 700	≥500	≥12	≥14	d=1a	常温	≥27	≤0.12	≤0.50	≤1.70	≤0.025	≤0.015	≥0.015	≤0.09	≤0.15
S550MC	600 ~ 760	≥550	≥12	≥14	d=1.5a	常温	≥27	≤0.12	≤0.50	≤1.80	≤0.025	≤0.015	≥0.015	≤0.09	≤0.15
S600MC	650 ~ 820	≥600	≥11	≥13	d=1.5a	常温	≥27	≤0.12	≤0.50	≤1.90	≤0.025	≤0.015	≥0.015	≤0.09	≤0.22
S700MC	750 ~ 950	≥700	≥11	≥12	d=2.5a	-20℃	≥27	≤0.12	≤0.50	≤2.10	≤0.025	≤0.015	≥0.015	≤0.09	≤0.22

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mechanical property				化学成分 % Chemical composition %							
		屈服强度 MPa ≥ Yield strength	抗拉强度 MPa ≥ Tensile strength	伸长率 % ≥ Elongation rate	180° 冷弯 Cold bending	C ≤	Si ≤	Mn ≤	P ≤	S ≤	Cu ≤	Ti ≤	其他 Other
		4≤t<6	≥620	≥750	≥16	d=3a	≤0.2	0.1-0.5	1.0-1.8	≤0.02	≤0.01	---	0.20
T520JJ	3.0-8.0	365	≥520	20	d=2a	0.20	0.55	1.60	0.030	0.020	0.2-0.45	-	---
T750GJ	6≤t≤12	≥600	≥725	≥16	d=3a								

牌号 Steel grade	成品厚度 mm Finished product thickness	力学性能 Mechanical property					化学成分 % Chemical composition %										
		Rel (0.2) MPa	Rm MPa	A%	180° 冷弯 Cold bending	V型冲击 V type impact		C ≤	Si ≤	Mn	P ≤	S ≤	Cu ≤	Nb ≤	Ni ≤	Mo ≤	B ≤
						试验温度 ℃ Test temperature	冲击功 ≥J Impact power										
						厚度 <3.0mm Thickness	厚度 ≥3.0mm Thickness										
DB685	3-14	≥590	670~830	≥15	完好	-40	≥47	0.08	0.50	1.30~1.90	0.025	0.015	0.60	0.08	0.50	0.35	0.003
DB785	3-14	≥690	670~940	≥14	完好	-40	≥27	0.1	0.50	1.20~1.60	0.02	0.01	0.50	0.025~0.06	1.0	0.6	0.003

#### 化学成分, % Chemical composition, %

牌号 Steel grade	C	Si	Mn	P	S	Ti	Nb	Al
QSTE340TM	≤0.12	≤0.12	≤1.30	≤0.03	≤0.025	≤0.22	≤0.9	≥0.015
QSTE380TM			≤1.40					
QSTE470TM			≤1.50					
QSTE460TM			≤1.60					
QSTE500TM			≤1.70					

#### 机械性能 Mechanical property

牌号 Steel grade	ReL, Mpa	Rm, Mpa	A%	冷弯 180°C b≥20mm Cold bend
QSTE340TM	≤340	420-540	≥25	d=0.5a
QSTE380TM	≤380	450-590	≥23	
QSTE470TM	≤420	480-620	≥21	
QSTE460TM	≤460	520-670	≥19	d=1a
QSTE500TM	≤500	550-700	≥17	

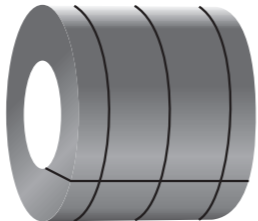
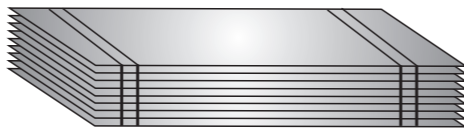
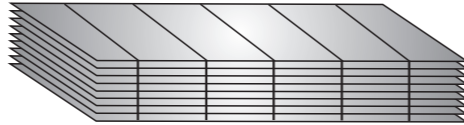


#### 锯片用钢 Steel for saw

牌号 Steel grade	规格 Specification	化学成分 % Chemical composition, %								
		C	Mn	P	S	V	Al	Cr	Ni	Cu
50Mn2V	1.5-12X1000-2130	0.48-0.56	1.4-1.8	≤0.035	≤0.035	0.08-0.16	0.015-0.06	≤0.25	≤0.25	≤0.25

#### 化学成分, % Chemical composition, %

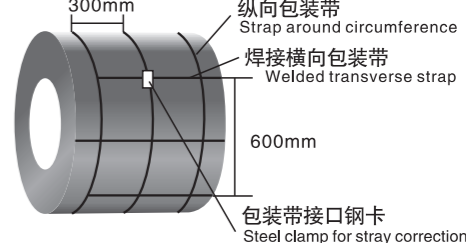
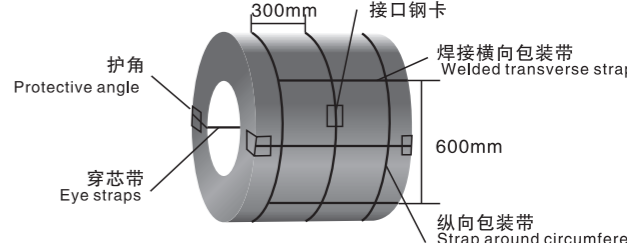
牌号 Steel grade	规格 Specification	化学成分 % Chemical composition, %					
		C	Si	Mn	P	S	Cr
75Cr1	3-10x1000-2130	0.6-0.8	0.2-0.5	0.6-0.9	≤0.030	≤0.030	0.25-0.6
8CrV	3-10x1000-2130	0.75-0.85	0.2-0.55	0.3-0.6	≤0.030	≤0.025	0.3-0.7

2250直发卷、平整卷和卷切板包装  
2250commoncial coil、Coilleveled and Cutting plate packing

方案号 Number	类型 Type	说明 Application	图示 For example
1	碳钢商品材直发卷 Commercial coil	1、三条周向捆带均匀分布，捆带间距400mm。 2、卷重≤10吨时打一条穿心带，带间护加护角。卷重>10吨时不打穿心带。 1、3 straps of even distribution around the circumference distance of straps is 400 mm. 2、Weight of coil ≤ 10ton,one eye strapping without protection anglewelgh of coil>10ton with out eye strapping.	
2	平整卷 重卷卷 Coil leveled coil recoiled	1、宽度(B)≤1600mm时，三条捆带；B>1600mm时四条捆带。 2、卷重≤10吨时打一条穿心带，不加护角。卷重>10吨时不打穿心带。 1、Breath ≤ 1600mm, 3 straps B > 1600mm,4straps. 2、Weight of coil ≤ 10ton,one eye struping without protection anglewleight of coil>10 ton with out eye strapping.	
3	碳钢卷切板， 长度<6000mm Cutting plate of carbon steel length < 6000mm.	两组捆带分别捆扎两端，两边捆带距两头300mm，捆带间距200mm。 Strapping separately on double end with two groups of strap distance between straps and head of plate is 300mm distance of straps is 200mm.	
4	碳钢卷切板， 长度≥6000mm Cutting plate of carbon steel length < 6000mm.	每1m~1.5m一条捆带，均匀分布。 Even strap distribution at intervals of 1m-1.5m	
5	平行四边形、梯形卷切板 Parallelogram and echelon plate cut	用两组捆带分别捆扎两端，两边捆带距最近端点300mm,组内捆带间距200mm。 Strapping separately on double end with two groups of strap distance between straps on both sides and nearest end is 300mm distance of straps of group is 200m.	

产品包装  
Product package

1549钢卷包装 1549mm coil packing

钢带卷类型 Types of strip	捆扎道次 Strapping times		横切板的喷字与冲字 Marking and punching of Plate
	径向 Radial direction	周向 Circumference direction	图示 For example
一般产品 >2.50mm Normal product >2.50mm		≥3	周向捆扎3条网式包装带，周向带间隔300mm，横向包装带间隔600mm。 3 network pattern packing straps around circumference 300mm distance between each strap around circumference 600mm distance between each strap on the transverse direction. 
集装箱板 及薄规格产品 ≤2.50 mm Container plate and thin plate specification	≥2	≥3	周向捆扎3条网式包装带；径向捆扎2条穿芯包装带；打径向包装带时在钢卷角部垫护角。 3 network pattern packing straps around circumference 2 eye packing straps on radial direction fill up protection angle. 
品种钢 Special steel	≥6	≥3	周向捆扎3条网式包装带；径向捆扎6条穿芯包装带；固定内外圈加衬的镀锌铁皮防护卡圈。 3 network pattern packing staps around circumference 6 eye packing straps on radial direction; fixing lining galvanization locking ring inside and outside.

服务承诺  
The service promise

- ▶ 为客户提供个性化成份、性能、包装、卷重、质保书的设计。
- ▶ 交货准确及时：交货期不超过30天。
- ▶ 技术服务：为用户在合理选材及其加工、焊接工艺和使用环境等个性化需求方面提供技术支持。
- ▶ 对客户投诉，在24小时内答复，一周内结案。

- ▶ Provide for consumers with the individual designs for composition, properties, package and the quality certificate.
- ▶ Delivery in time: delivery periods will never exceed 30 days.
- ▶ Technical service: offering users' special requirement for selecting materials, processing, welding technology and application environment etc.
- ▶ Answering consumer' s complains within 24hr. and ending a case within a week.

## 产品应用 Product application



集装箱行业 Container industry



铁路车辆 Railway cars



天然气管线 Gas pipe line



电站锅炉 Power plant boiler



建筑行业  
Building structure industry



风电 Wind power



石化行业 Oil and chemical industry



绿色免酸洗钢用于汽车行业  
Green free pickling steel for automobile industry



工程机械 Engineering machinery industry

## 主要业务部门联系方式

主要业务部门 Main business department	业务功能 Functions	联系电话 Telephone	E-mail
太钢营销部 Marketing & sales department of TISCO	合同管理、订货、异议、 投诉受理及出口贸易 Contract and order management Complaint and claim handing Exports business	0351-3013905 3012277 3018888-8206 400-653-1998 800-806-1998	tghwb@tisco.com.cn
技术中心 Technology Center	专家服务系统 Expert Service System	0351-3019442	fupm@tisco.com.cn

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	北京 Beijing	电话 (Tel) 010-64441368 传真 (Fax) 010-64441369
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	沈阳 Shenyang	电话 (Tel) 024-24232051 传真 (Fax) 024-24231216
	哈尔滨 Haerbin	电话 (Tel) 0471-87905777 传真 (Fax) 0471-55185321
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	上海 Shanghai	电话 (Tel) 021-61808397 传真 (Fax) 021-61808397
	杭州 Hangzhou	电话 (Tel) 0571-85067265 传真 (Fax) 0571-85061958
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	郑州 Zhengzhou	电话 (Tel) 0371-60805079 传真 (Fax) 0371-60805085