



# 冷轧无取向硅钢

Cold Rolled Non-Oriented Silicon Steel

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

# 序 / Foreword

本产品说明书包含太钢冷轧无取向硅钢主要牌号基本性能，供用户参考使用。

太钢保证性能良好的冷轧无取向硅钢的稳定供应，并可以通过协商，满足用户的特别需求。

在多年生产经验的基础上，太钢将全面开展冷轧硅钢的研究工作，开发出更新、更好的冷轧硅钢产品，以适应并带动不断发展的市场需求。

This product description recapitulates basic performance in regard to cold-rolled non-oriented silicon steel of main grades produced by TISCO for customer's reference.

TISCO guarantees steady supply of high quality cold-rolled non-grain oriented silicon steel and remains open to confer with customers to the satisfaction of their specific requirements.

Based on years' producing experience TISCO will resume full activities in research and development of the newer and better cold-rolled silicon steel product, to respond to and promote the ever-changing market demand.



## 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

建设国内一流 世界著名的大型企业集团

Strategic Target

To build TISCO into the large scale enterprise of first class in China and renowned 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





## 公司简介 / Company Profile

太钢是全球不锈钢行业领军企业。始建于1934年，长期坚持特钢发展方向，曾生产出我国第一炉不锈钢、第一张热轧硅钢片、第一块电磁纯铁，现拥有国际一流水平的以铁水为主原料的冶炼—精炼—连铸—热轧—冷轧全流程不锈钢生产线，建成国家级技术中心、先进不锈钢材料国家重点实验室等科技创新平台，具备年产1200万吨钢（其中450万吨不锈钢）的能力，可生产高品质冷轧卷板、热轧卷板、热轧中厚板、复合钢板、棒材、线材、无缝管、焊管、精密带钢、大型铸件等各类碳钢和不锈钢系列产品，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，实现了不锈钢品种规格的全覆盖，是全球品种规格最全的不锈钢企业。

太钢坚持以新制胜，重点产品批量应用于石油、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，20多个品种国内市场占有率第一，30多个品种成功替代进口，笔尖钢、高锰高氮不锈钢、AP1000第三代核电用挤压不锈钢C型钢等新产品满足市场急需，为我国关键材料的国产化发挥着重要作用。不锈钢材出口量保持国内第一。

近年来，太钢获得“中国工业大奖”、“首届中国政府质量奖提名奖”、“全国质量奖”、“全国循环经济先进单位”、“全国自主创新十强”、“国家技术创新示范企业”、“全国最具社会责任感企业”、“全国模范劳动关系和谐企业”、“全国企业文化建设先进单位”、“全国绿化模范单位”等多项荣誉。

2014年，太钢100万吨冷轧硅钢生产线正式投产，自此太钢具有年产140万吨冷轧无取向硅钢生产能力。

TISCO is a super iron and steel giant as well as an leading enterprise in global stainless steel industry. TISCO was founded in 1934. It has been developing special steel as its trend, where the first ladle of stainless steel, the first piece of hot-rolled silicon steel and the first bulk of electromagnetic pure iron in China were produced. Today, TISCO has full process stainless steel production lines of international first class, i.e. smelting (with hot metal as raw material)—refining—continuous casting—hot rolling—cold rolling. Moreover, it has built its own S&T and innovation platform such as national level Technology Center, National Key Laboratory of advanced stainless steel materials and etc.

TISCO has an annual capacity of 12 million tons (of which 4.5 million tons are stainless steel). It can produce various carbon steel and stainless steel series products, including high quality cold-rolled coil/plate, hot-rolled coil/plate, hot-rolled medium plate, composite steel, rod, wire, seamless tube, welding tube, precise strip, heavy casting and etc. It has several product clusters like stainless steel, silicon steel and high strength high ductility series that feature higher performance, energy efficiency and longer service life, which helps TISCO a stainless steel producer with the fullest range of grades and specifications of products worldwide.

TISCO insists on the strategy of "winning by new product". Some of its key products have been used in petroleum, chemical, shipbuilding, container, railway, automobile, urban light rail, power generation, "Shenzhou" series spacecrafts and other key sectors and emerging industries. Over 20 steel grades take biggest market share in China. More than 30 varieties have replaced the imported counterparts successfully, of which pen tip steel, high-Mn high-N stainless steel and AP1000 third generation extrusion C type stainless steel for nuclear power satisfied the urgent demands of the markets, contributing significantly to the domestication of key materials. Tisco topped the list of stainless steel exporters of China.

In recent years, the company has been granted "China Grand Awards for Industry" and "National Quality Reward", and nominated the first "Quality Prize Awarded by Chinese Government". Besides, it was honored the titles of "National Leading Company in Circular Economy", "China Top 10 in Innovation", "National Demonstration for Technology Innovation", "Enterprises being most Socially Responsible in China", "National Model with Harmonious Labor Relations", "National Leading Enterprises in Company Culture and Ethics Development", "National Model for Landscaping", and etc.

In 2014, a cold rolled non-grain oriented silicon steel production line with annual production capacity of 1 million ton was built and run in TISCO, and then, its annual production capacity of cold rolled non-grain oriented silicon steel is 1.4 million tons.



## 冷轧无取向硅钢简介

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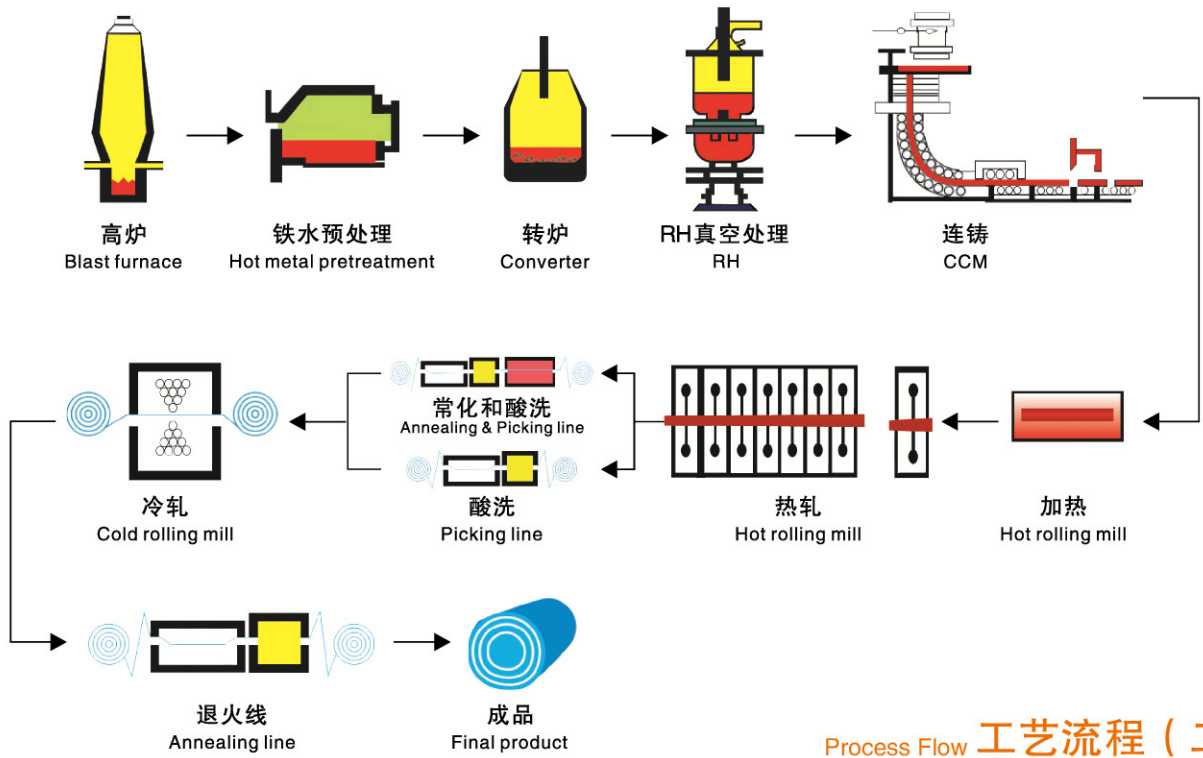
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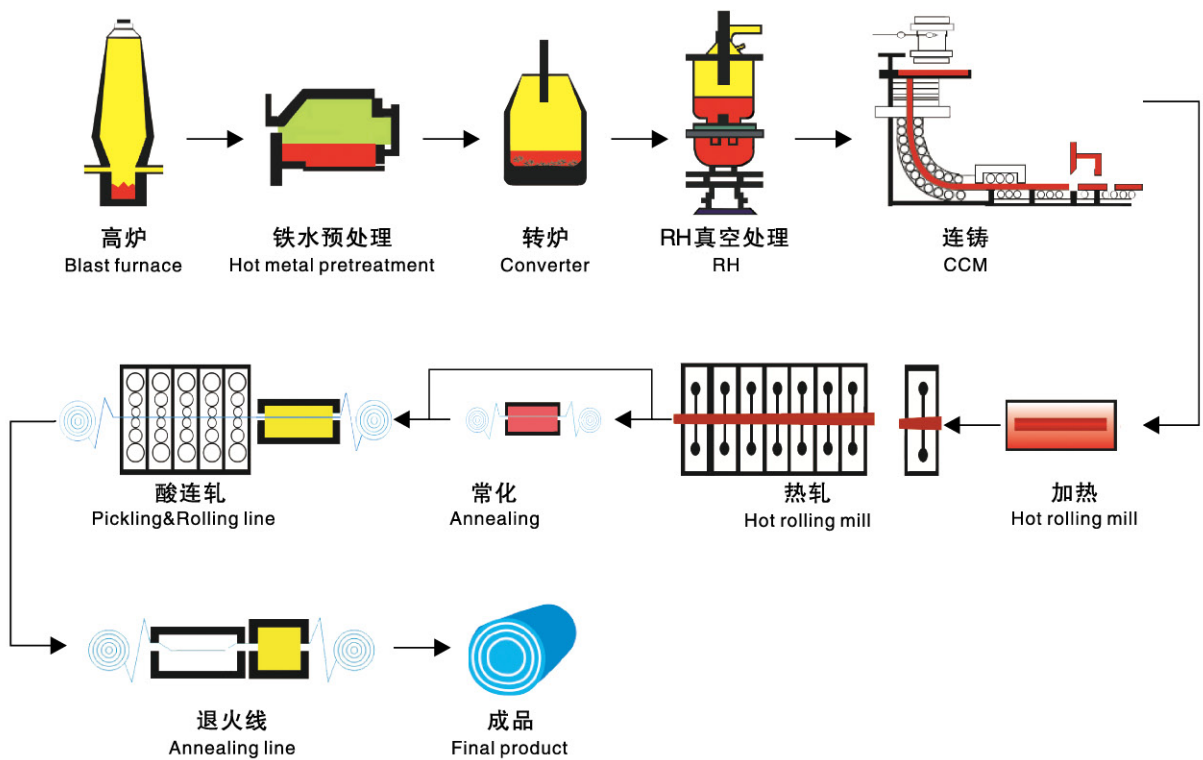
- 1954 年** ● 太钢与冶金部钢铁研究院合作生产出中国第一张热轧硅钢片。  
The first sheet of hot rolled silicon steel was produced by TISCO, in cooperation with Iron & Steel Research Institute of China Ministry of Metallurgical Industry.
- 1959 年** ● 太钢自主开发了冷轧晶粒取向硅钢生产工艺技术，实现了冷轧晶粒取向硅钢及无取向硅钢产品的批量生产。  
TISCO developed the cold rolled grain oriented silicon steel production technology of its own proprietary and put it in use for producing in both grain oriented and non-grain oriented silicon steel product.
- 1998 年** ● 太钢自主设计和开发的冷轧无取向硅钢生产线建成投产，成为国内唯一未引进国外专利技术而自主开发的冷轧硅钢生产企业。  
A cold-rolled non-grain oriented silicon steel production line, developed and designed by TISCO, was built and run in 1998, singling TISCO out as the only one in China producing cold rolled silicon steel with technology developed wholly by its own rather than relying on imported patented technology.
- 2004 年** ● 太钢响应国家“以冷代热”的号召停止了热轧硅钢的生产。  
TISCO suspended the production of hot rolled silicon steel in response to the state guideline "to replace hot rolling with cold rolling process".
- 2010 年** ● 太钢超高牌号无取向硅钢生产技术取得突破性进展，高牌号无取向硅钢市场占有率第一。  
TISCO maintained the largest market share of high grade silicon steel in China after many production technology breakthroughs.
- 2014 年** ● 太钢 100 万吨冷轧硅钢生产线正式投产后，太钢具有年产 140 万吨冷轧无取向硅钢的生产能力。  
A cold rolled non-grain oriented silicon steel production line with annual production capacity of 1 million tons was built and run in TISCO. and then, its annual production capacity of cold rolled non-grain oriented silicon steel is 1.4 million tons.

Process Flow / 工艺流程

Process Flow 工艺流程 (一)



Process Flow 工艺流程 (二)



## 设备优势 / Equipment Advantage

### 冷轧硅钢新设备 New equipment for cold rolled silicon steel

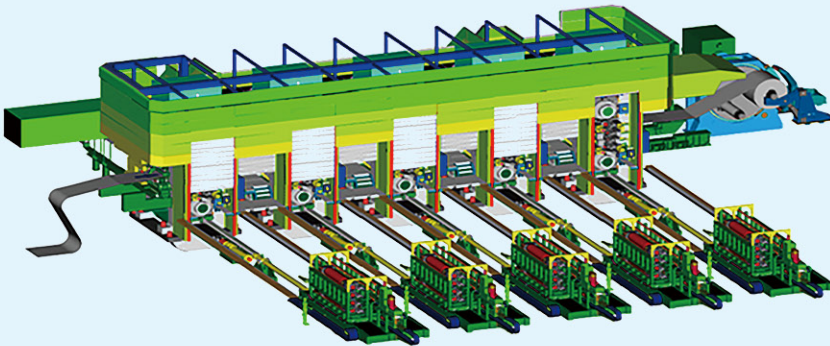
1450 酸洗 – 冷连轧机组采用日本三菱技术，西门子控制系统，酸洗速度最高可达 200m/min，轧制速度最高可达 1200m/min，卷取速度最大可达 1260m/min。

TISCO's new acid pickling–rolling mill integral unit(1450mm) is designed by MITSUBISHI and uses SIEMENS controlling system ,with the max pickling speed up to 200m/min,the max rolling speed up to 1200m/min and the max coiling speed up to 1260m/min.

1450 酸洗 – 冷连轧机组配套有四条联系退火涂层机组，并采用国际先进涂层技术，具有涂层控制精度高、涂层厚度均匀等特点。Four continuous annealing –coating lines following the acid pickling–rolling mill integral unit(1450mm)equipped with world advanced coating technology,which can make the coating more accurate and uniform.



### 冷硅新线设备能力 Cold silicon new line equipment capacity



酸洗轧机联合机组一条 Pickling–rolling line 1 unit	100 万吨 / 年 one million tons per year
硅钢连续退火机组四条 Silicon steel continuous annealing 4 unit	25 万吨 / 年条 four quarter million tons/year
硅钢重卷机组四条 Rewinding unit 4 line	25 万吨 / 年条 four quarter million tons/year
全自动包装机组二条 Fully automatic packaging unit 2 unit	50 万吨 / 年条 500,000 tons/year

- 1450 酸洗 – 冷连轧机组具有最先进的拉矫机和横向串辊等技术，因而可提供板型及同板差更加优异的产品。  
Tisco's pickling–rolling unit(1450mm) has the the most advanced technology such as drawing machine and horizontal crosstalk, so we can supply the products with better flatness and minimum plate difference.
- 连续退火涂层机组采用最先进的脉冲控温技术，并增加了带钢漂浮器，使产品电磁性能和带钢表面更加优异。  
The continuous annealing coating unit adopts the most advanced pulse control temperature technology, and increases the steel floater, which makes the electromagnetic properties and the surface of the strip more excellent.
- 重卷包装机组具备切分能力，可按照用户最佳板宽要求定尺交货。  
The rewinding packing unit has the ability of cutting, which can be delivered according to the user's width demand.



## R & D Advantage / 研发优势

### TISCO Technology Center 太钢技术中心



1996年，经国家经贸委、国家税务总局、海关总署等部委批准成立国家认定企业技术中心。

In 1996, the national economic and trade commission, the state administration of taxation, and the general administration of customs approved the establishment of the national identification enterprise technology center.

2011年，在国家认定的企业技术中心中，太钢技术中心排名第2位，行业排名第一。

In 2011, Tisco was ranked no. 2 in the national center for corporate technology, ranking first in the industry.

2014年，太原钢铁（集团）有限公司成为冶金行业中唯一获得“中国工业大奖”的企业，彰显强劲的科技创新能力。

In 2014, taiyuan iron and steel (group) co., LTD. became the only enterprise in the metallurgical industry to receive the "China industry award", demonstrating strong scientific and technological innovation.



### Silicon Steel Industry Chain Technology Innovation Platform 硅钢产业链技术创新平台

合作项目名称 Project name	合作单位 Cooperation enterprise
高效压缩机材料合作开发 High efficiency compressor material cooperation and development	恩布拉科雪花压缩机有限公司 Enbraco snowflake compressor co., LTD
高速动车用硅钢片国产化 CRH silicon steel Localization	中车永济电机有限公司 CRRC YONGJI ELECTRIC CO.,LTD

● 以硅钢产品为主线，与重点用户建立技术创新合作平台，实现产品的开发、应用与改进等方面与用户无缝对接，为用户提供从材料技术到使用技术的一体化解决方案。

Taking the Silicon steel products as the main line, Tisco establish technology innovation cooperation platform with key users to implement product development, application and improvement, which implements the seamless cooperation with customers, and provide customers with from material to use technology integration solutions.

● 通过材料技术和使用技术的密切结合，引领公司产品和技术的发展和改进，全面满足用户应用需求。

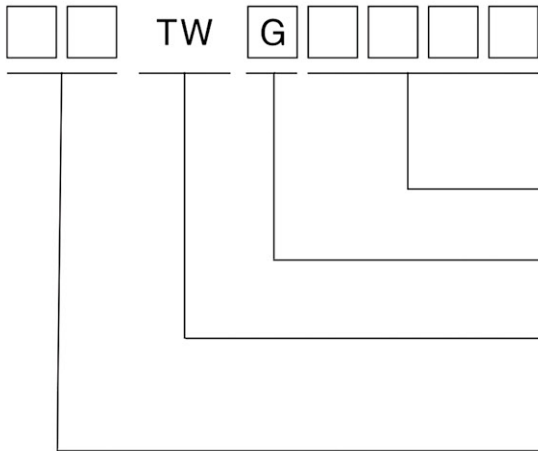
Through the close combination of material technology and application technology, we will lead the development and improvement of company's products and technologies, and fully meet the needs of customers.

# 牌号和绝缘涂层 / Grade and Coating

## 牌号介绍 Grade Profile

为了区别于 GB/T2521 的同类产品牌号，本标准中的各符号含义表述如下。

To be distinguished from the grade in GB/T2521, the steel grade designation is described as follows.



- ▶ 表示比总损耗保证值的 100 倍 /100 times of core loss guaranteed value
- ▶ G- 高效型 /G-high induction type
- ▶ T- 太原钢铁(集团)有限公司, W- 无取向磁性钢带(片)  
T-TISCO, W-non-oriented silicon steel
- ▶ 表示公称厚度 (mm) 的 100 倍  
100 times of nominal thickness (mm)

注：太钢可根据用户对磁性能、尺寸规格等方面的特殊需求，开发生产个性化产品，并可针对各行业用户提供专供牌号。  
Note: TISCO provide personalized and special grade products customers based on the special magnetic properties and dimensions of products.

### 示例 Example:

35TW300：表示厚度为 0.35mm、最大比总损耗为 2.5W/kg 的无取向硅钢；

35TW300: Represents a non-oriented silicon steel having a thickness of 0.35 mm and a maximum Specific loss of 2.5W/kg.

50TWG470：表示厚度为 0.5mm、最大比总损耗为 4.7W/kg 的高磁感无取向硅钢； T50RL01、50TW800R 等专供牌号。

50TWG470: Represents a high magnetic polarization non-oriented silicon steel having a thickness of 0.50 mm and a maximum Specific loss of 4.7W/kg. And T50RL01、50TW800R etc. special supply grade.



## Typical Magnetic Properties / 磁性能典型值

### 0.35 mm Series Products 0.35mm 系列产品

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)				磁极化强度 Magnetic polarization(T)	
		P1.0/50	P1.5/50	P1.0/60	P1.5/60	J2500	J5000
35TW210	7.60	0.85	2.09	1.08	2.65	1.57	1.66
35TW230	7.60	0.87	2.19	1.10	2.77	1.57	1.66
35TW250	7.60	0.98	2.22	1.26	2.85	1.55	1.64
35TW270	7.65	1.01	2.39	1.29	3.07	1.56	1.65
35TW300	7.65	1.06	2.50	1.33	3.14	1.56	1.66
35TW360	7.65	1.07	2.65	1.35	3.34	1.58	1.67
35TW440	7.70	1.25	2.80	1.57	3.50	1.59	1.69

太钢 0.35mm 厚度规格产品覆盖从中低牌号到高牌号的全部牌号，并可稳定生产国际标准最高牌号 35TW210。

TISCO produces products of 0.35 thickness that cover all grades from low to high, and offers a stable production of the highest international standard 35TW210.

### 0.50 mm Series Products 0.50mm 系列产品

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)				磁极化强度 Magnetic polarization(T)	
		P <sub>1.0/50</sub>	P <sub>1.5/50</sub>	P <sub>1.0/60</sub>	P <sub>1.5/60</sub>	J <sub>2500</sub>	J <sub>5000</sub>
50TW250	7.60	0.96	2.32	1.24	2.95	1.55	1.65
50TW270	7.60	1.03	2.40	1.31	3.06	1.55	1.65
50TW290	7.60	1.11	2.61	1.43	3.35	1.57	1.66
50TW310	7.65	1.18	2.71	1.51	3.47	1.58	1.67
50TW350	7.65	1.19	2.74	1.52	3.50	1.59	1.68
50TW400	7.70	1.32	3.02	1.69	3.87	1.60	1.69
50TW470	7.70	1.64	3.64	2.09	4.64	1.58	1.67
50TW600	7.75	1.75	3.84	2.25	4.95	1.60	1.69
50TW800	7.80	2.01	4.20	2.57	5.38	1.65	1.73
50TW1000	7.85	2.39	4.93	2.96	6.31	1.65	1.74
50TW1300	7.85	2.41	5.43	3.04	6.94	1.66	1.75

太钢可稳定生产 50TW250 及以下所有牌号冷轧无取向硅钢。

TISCO offers a stable production of cold-rolled non-oriented silicon steel in grade 50TW250 and all grades below that.

### 0.65 mm Series Products 0.65mm 系列产品

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)				磁极化强度 Magnetic polarization(T)	
		P <sub>1.0/50</sub>	P <sub>1.5/50</sub>	P <sub>1.0/60</sub>	P <sub>1.5/60</sub>	J <sub>2500</sub>	J <sub>5000</sub>
65TW400	7.65	1.65	3.70	2.15	4.85	1.59	1.68
65TW470	7.65	1.71	3.84	2.23	5.03	1.6	1.70
65TW530	7.70	1.88	4.12	2.46	5.40	1.62	1.71
65TW600	7.75	2.05	4.51	2.62	5.76	1.61	1.70

### Efficient series of products 高效系列产品

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)				磁极化强度 Magnetic polarization(T)	
		P <sub>1.0/50</sub>	P <sub>1.5/50</sub>	P <sub>1.0/60</sub>	P <sub>1.5/60</sub>	J <sub>2500</sub>	J <sub>5000</sub>
35TWG230	7.65	0.90	2.13	1.15	2.73	1.58	1.68
35TWG250	7.65	1.02	2.31	1.31	2.96	1.59	1.68
35TWG300	7.70	1.08	2.39	1.38	3.06	1.61	1.71
50TWG470	7.75	1.33	3.01	1.73	3.94	1.63	1.73
50TWG600	7.75	1.48	3.35	1.90	4.35	1.64	1.73
50TWG800	7.80	1.87	4.10	2.40	5.27	1.67	1.75

# 产品规格及尺寸偏差 / Dimensions and Size Tolerance

## 产品规格 Dimensions

公称厚度 Thickness (mm)	宽度 Width (mm)	钢卷内径 Coil inner diameter (mm)	钢卷外径 Coil outer diameter (mm)
0.35/0.50/0.65	70 ~ 1270	510	810 ~ 1750

## 产品允许偏差 Size tolerance

宽度 Width (mm)	公称厚度 Thickness (mm)	厚度允许偏差 Thickness tolerance (mm)		横向厚度差 Traverse thickness deviation (mm)		宽度偏差 Width tolerance (mm)
		标准值 Standard	典型值 Typical	标准值 Standard	典型值 Typical	
>600	0.35	± 0.025	± 0.010	≤ 0.020	≤ 0.010	1.5
	0.50	± 0.035	± 0.010	≤ 0.020	≤ 0.010	
	0.65	± 0.040	± 0.010	≤ 0.030	≤ 0.015	0

注：1. 上述宽度偏差适用于切边材料，不切边材料宽度偏差执行供需双方协议；

2. 上述厚度偏差是指钢板中心与距边部 15mm 的厚度差。

Note: 1. The values of width tolerance above are applicable to the material with slitting edge, while the values of width tolerance to the material with mill edge should be negotiated by each side.

2. The values of traverse thickness deviation above are the thickness difference between the sheet center and the point, 15mm away from the edge.



## Application of Product / 产品应用领域

应用领域 Application		常规产品 Conventional			高效产品 High induction	
		210~400	440~700	800~1300	230~470	600~800
旋转器 Rotator	大型电机 Big motors	☆				
	中型电机 Medium motors	☆	☆		☆	
	压缩机电机 Compressor motors	☆	☆	☆	☆	☆
	通用电机 Universal motors	☆	☆	☆	☆	☆
	小型精密电机 Precise micro motors	☆	☆	☆	☆	
	电动汽车用电机 EV's motors	☆			☆	
静止器 Static device	高频工作电机 Dither motors	☆			☆	
	小型电源变压器 Mini power transformers	☆	☆	☆	☆	☆
	仪器用变压器 Instrument transformers	☆				
	电抗器及磁放大器 Reactor & magnetism magnifiers	☆				
	电源开关 Power switches	☆				
	焊接用变压器 Welding transformers		☆	☆		☆
	稳压器 Voltage stabilizers	☆	☆	☆	☆	☆
	磁性密封器 Magnetic sealers	☆	☆			
	加速器用电磁器 Accelerator electromagnets		☆		☆	



## 商业合作伙伴 / Commercial Cooperation

行业 Industry	合作伙伴 Business cooperation		
发电设备 Power equipment	 上海电气 SHANGHAI ELECTRIC	 哈电集团 HARBIN ELECTRIC GROUP COMPANY LIMITED	 DEC 东方电气 DONGFANG ELECTRIC
家 电 Household appliance	 美的 Midea	 GREE	 Haier
	 embraco POWER IN. CHANGE ON.	 jiaxipera	 ZANUSSI Electrolux
大型电动机 Big motors	 XEMC	 ABB	 南阳防爆集团股份有限公司 NANYANG EXPLOSION PROTECTION GROUP CO.,LTD
中小型电机 Medium & Small motors	 SIEMENS	 信 质	 HBMOTOR 河北电机

## 应用领域 / Application



## Outstanding Performance / 业绩

### Ultra high grade silicon steel used High efficiency compressor 高效压缩机用超高牌号硅钢

随着国家节能减排政策的实施，极高效压缩机成为研发重点。太钢在国内首家实现极高效压缩机用硅钢片，成功替代进口，并实现批量应用。

With the implementation of the national energy conservation and emission reduction policies, the high efficiency compressor has become the focus of research and development. Tisco is the first in China to implement extremely high efficiency compressor in silicon steel sheet, successfully replace the import, and realize the batch application.

### The Three Gorges 700MW scale water turbine silicon steel 三峡 700MW 级大型水轮发电机组用硅钢

目前太钢已成功开发满足《三峡工程用 700MW 级水轮发电机用无取向硅钢 50W250、50W270 技术规范》的要求的三峡机组用 50TW250 产品，并通过三峡建设委员会的认证。

Now Tisco has successfully developed to meet 《the three gorges project by the level of 700 mw turbine generator with 50 w250 without oriented silicon steel, 50 w270 technical specification》 of the requirements of the three gorges units with 50 tw250 products, and passed the certification of the three gorges construction committee.

### CRH silicon steel 高速动车电机用硅钢

目前国内高速动车制造技术主要引进西门子和阿尔斯通技术，所以硅钢片全部进口。为改变这一局面，太钢与开发高铁电机用硅钢，已通过认证，并实现批量供货。

At present, domestic CRH manufacturing technology mainly introduces Siemens and Alstom technology, so all the silicon steel plates are imported. In order to change this situation, Tisco has developed CRH silicon steel and has been certified and delivered in batches.

### Electric cars silicon steel 电动汽车用硅钢

电动汽车和混合动力汽车是汽车发展的重要方向之一，其核心部件为汽车电机，由于其频率高、转速快，其要求高磁性能的同时具有高的强度。目前太钢与日本本田公司进行了合作开发，已通过其 A 类认证，具备批量供应条件。

Electric cars and hybrid vehicles is one of the important development direction of automobile, its core components for the automotive motor, due to its high frequency and fast speed, the requirement of high magnetic high intensity at the same time. At present, Tisco has cooperated with the Japanese Honda company, which has been approved by the class A and has the batch supply condition.

### Maglev high-speed motor developed with 20TWH1500 磁悬浮高速电机用 20TWH1500 开发

高速电机要求高频下具有较低的铁损，因此需硅钢片具有较薄的规格，厚度仅 0.2mm，且尺寸精度要求极其严格，主要以进口为主，太钢发挥精带生产优势，开发成功该产品，并成功实现高速电机的应用。

The requirement of high-speed motor under high frequency has a low iron loss, therefore it needs to have thinner specifications, silicon steel sheet thickness is only 0.2 mm, and the dimension accuracy requirement is very strict, which mainly depends imports, With the advantages of fine manufacturing, Tisco developed the product successfully, and successfully implemented the application of high speed motor.

### Excellent machining performance of winding motor silicon steel 优良加工性能的缠绕电机用硅钢

电梯、电动自行车用缠绕式电机所用硅钢片，一般要求较高的磁感和低的铁损，以保证其效率和扭矩，但由于需进行缠绕叠装，导致磁轭部位易开裂。根据行业需求，太钢采用特殊处理技术，开发了专供系列产品，投放市场，非常受欢迎。

Silicon steel used in the winding machine for the Elevator electric vehicles, It generally requires a higher magnetic sense and low iron loss to ensure its efficiency and torque, but because of the need to wrap around, the magnetic yoke is prone to cracking. According to the demand of the industry, Tisco adopts special treatment technology, develops the special supply series products, launches the market, is very popular.

# 新能源电动汽车用冷轧无取向硅钢

Cold-rolled unoriented silicon steel for new energy electric car

## 0.35mmTWG 系列产品 0.35 mm TWG Series Products

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)		磁极化强度 Magnetic polarization(T)		屈服强度 ( MPa )
		P <sub>1.0/50</sub>	P <sub>1.5/50</sub>	J <sub>2500</sub>	J <sub>5000</sub>	
35TWG230	7.65	0.90	2.13	1.58	1.68	400
35TWG250	7.65	1.02	2.31	1.59	1.68	370
35TWG300	7.70	1.08	2.39	1.61	1.71	335

35TWG:0.35mm 高扭矩系列

35TWG:0.35mm High torque series

## 0.35mmTWV 系列产品 0.35 mm TWV Series Products

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)			磁极化强度 Magnetic polarization(T)	屈服强度 ( MPa )
		P <sub>1.0/50</sub>	P <sub>1.5/50</sub>	P <sub>1.0/400</sub>	J <sub>5000</sub>	
35TWV1700	7.60	0.90	2.13	15.00	1.65	440
35TWV1900	7.65	1.02	2.30	17.00	1.67	410

35TWV:0.35mm 高转速系列

35TWV:0.35mm High speed series

## 极薄带 TWG 系列 ( 厚度 ≤ 0.30mm) Ultra-thin Steel strip TWG

牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)	磁极化强度 Magnetic polarization(T)	屈服强度 ( MPa )
		P <sub>1.0/400</sub>	J <sub>5000</sub>	ReL
30TWG1500	7.65	14.5	1.67	390
27TWG1400	7.65	13.5	1.66	370
20TWG1500	7.65	12.5	1.65	350
20TWG1200	7.65	11.0	1.64	360

## 极薄带 TWV 系列 ( 厚度 ≤ 0.30mm) Ultra-thin Steel strip TWV

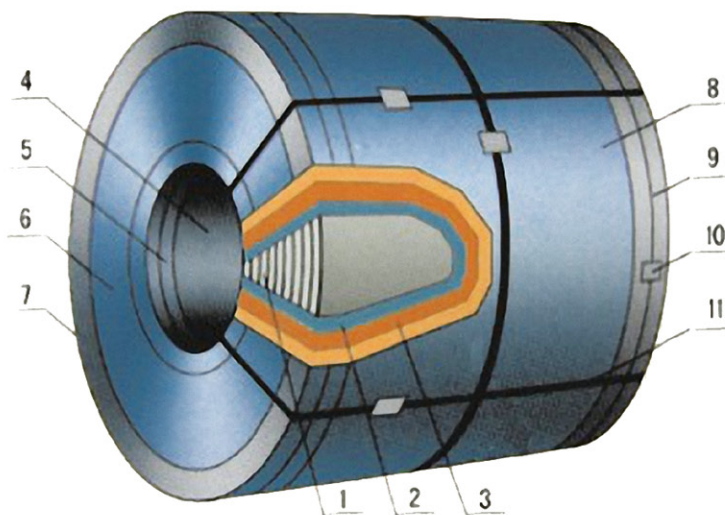
牌号 Grade	测磁密度 Density ( kg/dm <sup>3</sup> )	比总损耗 Specific total loss(W/kg)	磁极化强度 Magnetic polarization(T)	屈服强度 ( MPa )
		P <sub>1.0/400</sub>	J <sub>5000</sub>	ReL
30TWV1500	7.60	14.0	1.65	440
27TWV1400	7.60	13.0	1.63	430
20TWV1200	7.60	10.5	1.62	420







## Packing and Label / 包装和标签

### Packing 包装

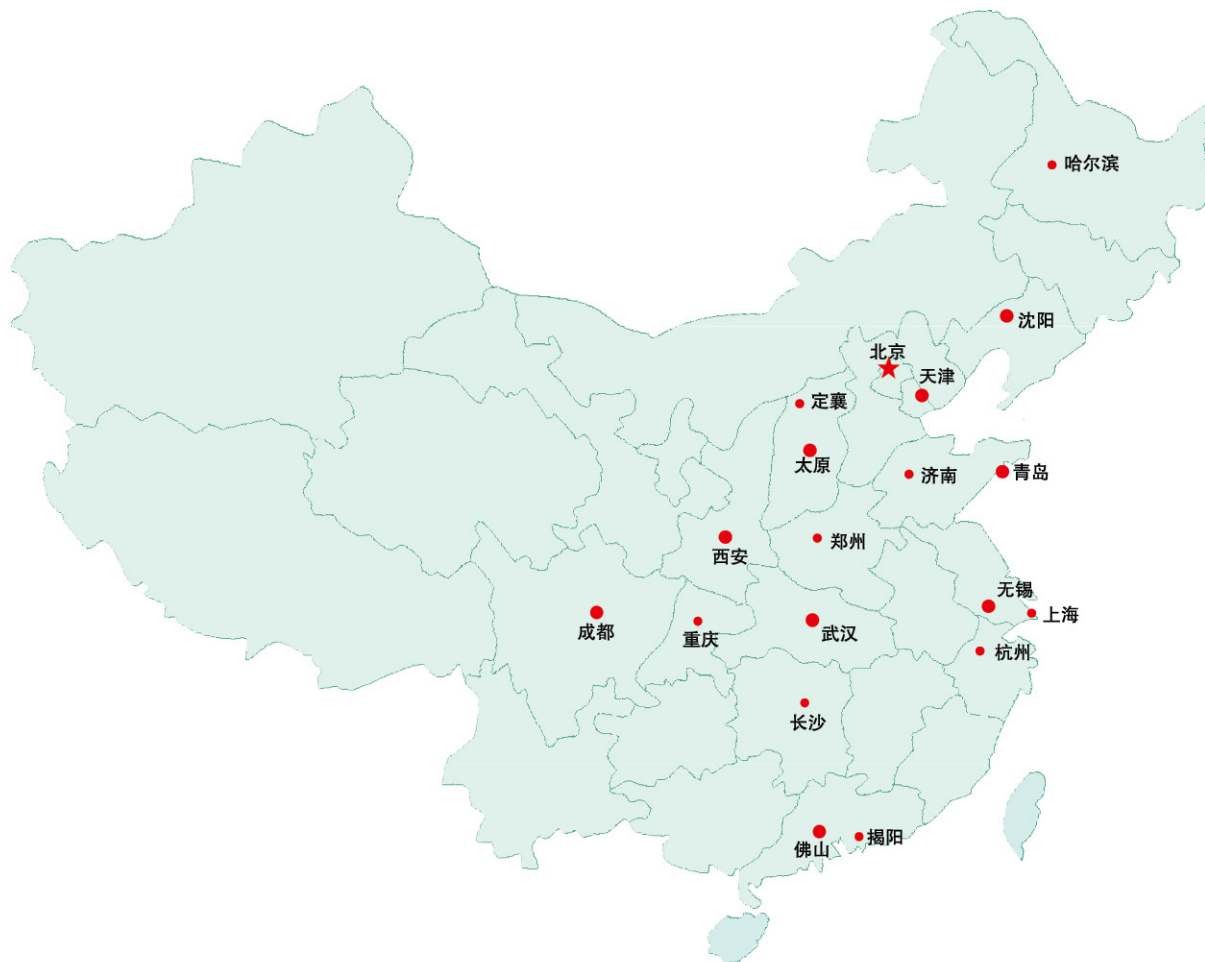
- 1、成品钢带 Steel coil
- 2、气相防锈纸 Anti-rust paper
- 3、塑料薄膜 Plastic film
- 4、内衬板 Inner lining pad
- 5、内护角钢圈 Inner angle guard
- 6、端部圆护板 End corner guard
- 7、外护角钢圈 External corner guard
- 8、外护板 External guard
- 9、横捆带 Circunferential banding strip
- 10、锁扣 Lock
- 11、纵捆带 Radial banding strip



### Label 标签

	<b>山西太钢不锈钢股份有限公司</b> SHANXI TAIGANG STAINLESS STEEL CO. LTD	 小心轻放  防潮 	
牌号 Grade		标准 Standard	
批次号 Batch No.		毛重 Gross Weight	
规格 Size		净重 Net Weight	
涂层种类 Coating Type		生产日期 Product Date	
接带点 Weld. P.		检查员 Inspector	

## 太钢营销网络布局图 / Marketing network of TISCO



## 服务承诺 / Service Commitments

- ▶ 为客户提供个性化成分、性能、包装、卷重和质保书的设计  
To provide consumers with the personalized designs on composition, properties, packing, weight and quality certificate
- ▶ 选材和加工工艺等方面为客户提供技术支持  
Technical support to customers in material selection and fabrication
- ▶ 确保准确及时交货  
Accurate and timely delivery
- ▶ 24小时内回复客户提出的异议  
Respond to claim of customers in 24 hours



## Contacting Information / 联系方式

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	海外贸易 Overseas trade	0351-2138522/2138409/2138446/2138523 传真: 0351-2134418	tgyhwb@tisco.com.cn yuguang@tisco.com.cn zhangteng@tisco.com.cn
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	北京太钢销售有限公司 Beijing TISCO sales Co.,Ltd.	北京 Beijing 电话(Tel) 86-10-64441368/64441370 传真(Fax) 86-10-64441369
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	沈阳沈水太钢不锈钢销售有限公司 Shenyang shenshui TISCO stainless steel Sales Co.,Ltd.	沈阳 Shenyang 电话(Tel) 024-29874080
	哈尔滨太钢销售有限公司 Haerbin TISCO sales Co.,Ltd	哈尔滨 Haerbin 电话(Tel) 86-451-55185321 传真(Fax) 0451-55185321
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	长沙太钢销售有限公司 Changsha TISCO sales Co.,Ltd.	长沙 Changsha 电话(Tel) 86-731-85592703/85592753 传真(Fax) 86-731-85598305
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800-806-1998

股票代码 ( Stock code ) : 000825



太钢集团公众微信号

TISCO public micro signal

TISCO-SX