



# 金属复合材料

Metal Cladding Product

地址: 山西省太原市尖草坪2号  
Add: No. 2 Jiancaoping Taiyuan, Shanxi, P.R.China.  
邮编 (Post Code): 030003  
电话 (Tel): +86 (0) 351-3010545 3010673  
传真 (Fax): +86 (0) 351-3010545  
网址 (http): //www.tisco.com.cn  
**服务热线(Hotline): 800-806-1998**  
**400-653-1998**  
**股票代码(stock-code): 000825**



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

## 目录 Content

- 01 简介 Brief Introduction
- 03 工艺流程 Process Flow
- 04 装备优势 Advanced Equipment
- 06 研发能力 Research and Development
- 07 质量保证体系 Quality Assurance System
- 08 产品荣誉 Honors and Rewards
- 09 自主知识产权 Proprietary Intellectual Rights
- 10 产品系列 Product Series
- 11 产品性能 Product Properties
- 12 焊接指导 Welding Direction
- 14 特色产品 Idiomatical Product
- 16 产品标准 / 产品规格 Standard / Product Specification
- 17 产品应用 Products Application
- 18 包装/材质证明书 Package / Material certificate
- 19 服务承诺 The service Promise
- 20 联系方式 Contacting Manners of the Main Business Sections

### 企业使命

为全球消费者提供最精美的不锈钢产品

Enterprise Mission

Providing the Excellent Stainless Steel Products to Consumers

### 战略目标

建设全球最具竞争力的不锈钢企业

Strategic Target

Building TISCO into the Most Competitive Stainless Steel Producer 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 on 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

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



太原钢铁（集团）有限公司（简称太钢）是中国特大型钢铁联合企业和全球产销量最大、工艺技术装备水平最高、品种规格最全的不锈钢企业。经过70余年发展，已具备1000万吨以上钢、铁、材的生产能力，其中不锈钢产能达300万吨。2009年生产不锈钢248万吨，产量世界第一！

太钢是中国第一炉不锈钢、第一炉硅钢、第一张硅钢片的诞生地。拥有铁矿石等钢铁冶炼原料的采掘与加工、钢铁冶炼、钢铁材料压力加工、冶金设备及备品备件制造等方面先进技术和装备，主要产品有不锈钢、冷轧硅钢片（卷）、热连轧卷板、车轴钢、合金模具钢、军工钢等。产品广泛应用于石油化工、交通运输、建筑装饰、家用电器、医疗食品等行业及神舟系列飞船、嫦娥一号、“东风”系列火箭及核电站等高端领域，进入三峡水利、西气东输、奥运场馆及世博场馆等国家重点工程。2009年在国家认定的575所企业技术中心中，太钢技术中心排名第二，位钢铁行业首位。太钢拥有以不锈钢为核心的745项具有自主知识产权的核心技术，其中100多项达到国际先进水平。

太钢的发展战略是，加快建设全球最具竞争力的不锈钢企业，实现以不锈钢为主的品种、质量、成本、研发、节能、环保、效率、服务等各项指标达到国际一流水平，进而建设具有国际竞争力的大企业集团。

太钢复合材料厂现已具备年产复合板3万吨，有爆场5个，爆场面积1万平米，是目前国内生产规模最大、装备最齐全、工艺最先进的金属复合材料专业生产厂。金属复合材料是太钢的战略产品之一，其中以“不锈钢—钢”复合材料为主，并附带生产铜、铝、钛、镍等有色金属复合材料。

通过爆炸焊接及轧制的方式生产的金属复合板材，是集不同材料各自的优点于一身的新型金属材料，既能节约贵金属，又能降低制造成本，在国内外被广泛应用于石油、化工、水工、制盐、建筑装饰等行业。截止目前，太钢已为国内重点工程（如长江三峡水利枢纽工程、重庆万州百万吨真空制盐工程、青岛大炼油、福建大炼油、惠州大炼油、广西大炼油等国家重点石化工程、广州地铁铝—钢复合板等）和土耳其等涉外工程提供了大量的金属复合材料，受到用户的一致好评。

不锈钢复合板涉及的种类多，规格全，单张板幅达30m<sup>2</sup>，可实现一次爆炸复合率100%；质量体系完善、技术力量雄厚、生产装备齐全是太钢金属复合材料得以快速发展的根本保证。其中，双面不锈钢冷轧薄板（带）的规模生产以及不锈钢复合板国家标准的编制，填补了国内空白，满足了建筑装饰、石油化工等行业的需求，使不锈钢复合材料的发展迈上了新台阶。



Taiyuan Iron and Steel (Group) Co. Ltd. (TISCO) is one of the steel giants in China and, the largest stainless producer in the world in term of output and sales equipped with the most advanced facilities covering pretty wide product range. After over 70 years development TISCO has the capacity of 10 million tons of steel, which includes 3 million tons of stainless. The year of 2009 saw TISCO become No.1 stainless producer in the world with production of 2.48 million tons of stainless.

In TISCO came out the first heat of stainless steel and first heat of silicon steel as well as the first sheet of silicon in the history of China steel industry. TISCO is well equipped for mining and iron ore refining, iron and steel making, rolling and forging, metallurgical equipment and spare parts manufacturing. TISCO's products cover stainless steel of cold and hot rolling ,cold rolled silicon, hot rolled coil, axle steel, die steel and steel for military purpose etc. TISCO's products are widely used in petrochemical industry, transportation, construction decoration, home appliance, medical and food industry. TISCO's products can be also found in the national key projects such as Shenzhou spaceship, Chang'e-1 Moon Detector,Dongfeng rocket series and nuclear power,Three Gorges ,West-East natural gas transmission, and Olympic game facility as well as Shanghai world expos. In 2009TISCO technology centre ranked No.2 among the 575 state acknowledged enterprise technology institutions, and No.1 among the steel industry. TISCO owns 745 core patents in the field of stainless and over 100 patents are taken as the world class.

TISCO is aiming to become the most competitive stainless producer in the world, and achieve the first class stainless product in terms of product range, quality, cost, R&D, energy saving, environment protection, efficiency and service. For this goal TISCO is trying the first world class level and build itself into the world competitive large group company.

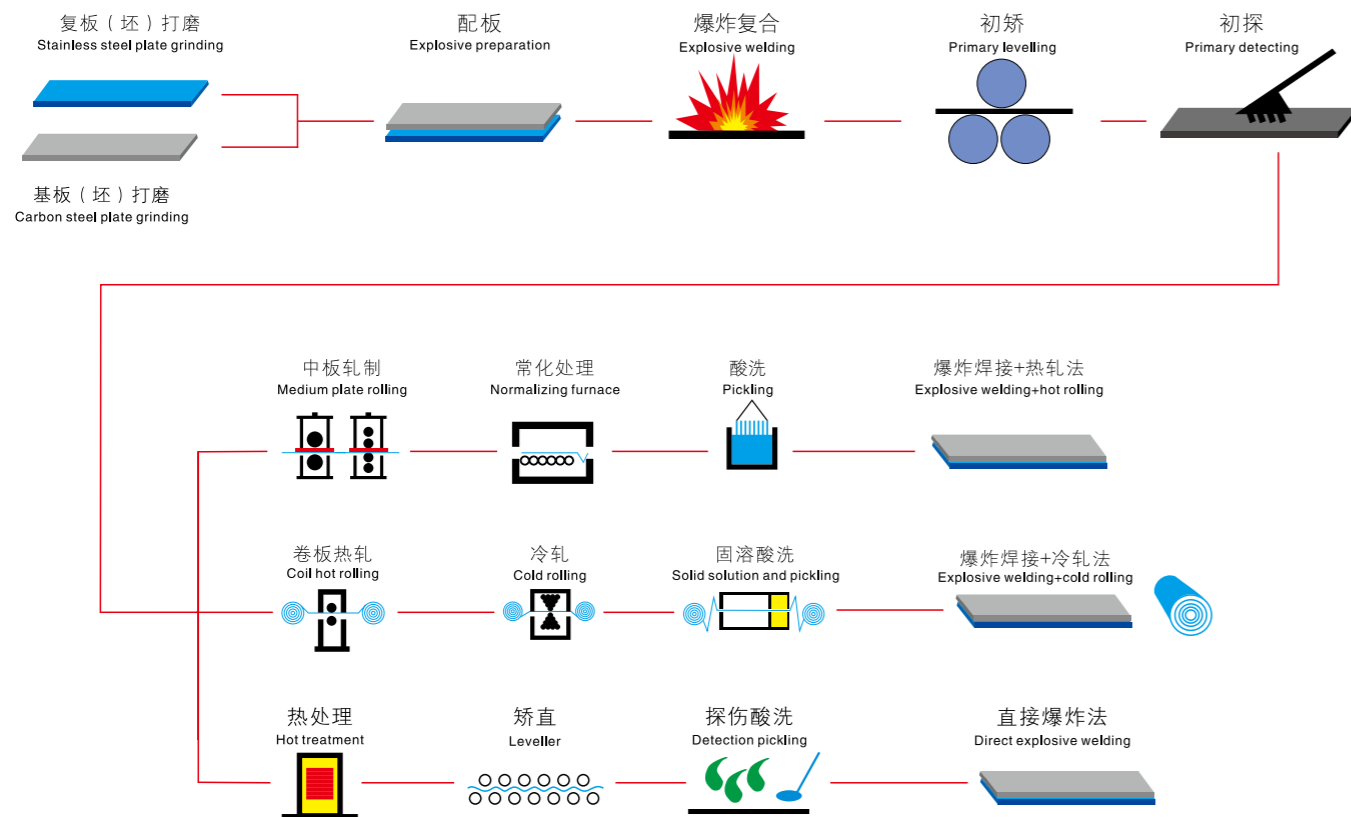
Taigang Clad Material Plant is a main producer of clad metal material at present with the large scale production, most complete equipment and most advanced process. It can produce 30,000 tons metal clad plate yearly. Clad metal material is one of strategic products of TISCO. And the main products are “stainless steel-steel” clad material with other nonferrous clad material such as copper, aluminum, titanium, nickel etc.

The metal clad plate bonded through explosive welding and rolling is a new type of material with the advantages of various material, which enable expensive metal saving and reduction of production cost. This allows wide application in petroleum, chemical industry, water conservancy, salt refining and building decoration. Up to now, the plant has supplied a great deal of clad metal material to many domestic major projects, such as Three Gorges Project of Yangtze River, Wanzhou Vacuum Salt Refining Project of Chongqing, Qingdao large scale petroleum project, Fujian large scale petroleum project, Huizhou large scale petroleum project, Guangxi large scale petroleum project and Guangzhou Subway Clad aluminum etc. it also supplied metal clad material for overseas projects. It gains good evaluation from these customers.

Stainless steel clad plate has many types, various dimensions, an area of 30m<sup>2</sup> of one piece plate, 100% cladding with one explosion. Perfect quality system control, rich technology strength, integrated equipment ensure the Taigang Clad Metal Material Plant developed rapidly. The scale production of dual-sides stainless steel cold roller sheet (strip) and the complication of the stainless steel clad plate standard filled the blank in China, while satisfied the demands of architecture decoration, petroleum and chemical industry and made the development of stainless steel clad material stepped up to a new stage.

## 工艺流程 >>>

### Process Flow



## 装备优势 >>>

### Advanced Equipment

#### 宽幅中厚板轧机 Broad Medium Plate Mill

- 不锈钢中厚板最大宽度3000mm、最大厚度100mm;
- 配备有先进的AGC自动控制系统，产品尺寸精度高板形好。

Stainless steel medium plate with max. width of 3000mm and max. thickness of 100mm.  
Equipped with the advanced AGC automatic control system, its products have high accuracy dimension and good flatness.



#### 连续喷淋式酸洗机 Continuous Pickling Line for Medium Plates

- 国内第一条不锈钢中板连续喷淋酸洗线酸洗，减少表面擦划伤源，保证表面色泽均匀。

By continuous spraying and pickling the stainless steel medium plates, scratch sources are minimized. China's first this line secures the surface colour uniformity.



#### 中厚板连续常化处理线 Continuous Normalizing Line for Medium Plates

- 50m连续常化炉温度控制精度高，炉后无约束核沸腾淬火机可实现不锈钢快速冷却 (>25°C/S)

The temperature control of the 50m continuous normalizing furnace is precise and the unconfined-nucleus rimming quencher make the stainless steel plate fast cool down. (The cooling speed >25°C/s).



## 装备优势 >>>

### Advanced Equipment



森吉米尔冷轧机  
Sendzimir cold-rolling mill

- 是世界上最先进的冷轧机。具有厚度、板形自动控制装置，产品精度高、板形优良、同板差小。

The most advanced cold-rolling mill in the world equipped with AGC AFC, its products have high accuracy, excellent flatness and small thickness tolerance.



全天候爆炸现场  
All-weather Explosion Area

- 爆炸方法先进，可以实现全天候作业，缩短交货期。

The advanced explosive method can be applied at all weather conditions to shorten the delivery time.



复合板矫直机  
Cladding Plate Leveller

- 矫直能力强，可以矫直满足各种规格的复合板。
- 装备先进对产品无损伤可以保证产品表面质量。

Strong levelling to satisfy cladding plate of all specifications. Advanced equipment does no harm to products to secure the surface quality.

## 研发能力 >>>

### Research and Development



国家级实验室  
National Level Laboratory



在国家认定的575家企业技术中心中，太钢技术中心排名第2位。

Tisco technology center ranks 2th place among enterprise-based 575 technology centers accredited by the state



扫描电镜  
Scanning Electron Microscope



透射电镜  
Transition Electron Microscope



热模拟试验机  
Thermal Simulating Tester



全自动电子拉伸试验机  
Automatic electronic tensile tester

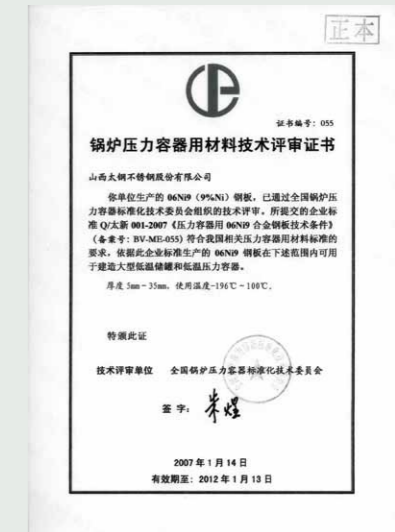
## 质量保证体系 >>>

### Quality Assurance System



## 产品荣誉 >>>

### Honors and Rewards



## 自主知识产权 >>>

### Proprietary Intellectual Rights

- 《高质量不锈钢板材技术开发》和《含氮不锈钢工艺及品种开发》两项成果获国家科技进步二等奖
- 《AOD炉炉龄、工艺技术开发》等三项成果获山西省科技进步一、二等奖
- 《太钢含氮不锈钢研制》等九项成果获冶金科学技术一、二、三等奖
- 《双相不锈钢复合板》等六项分别获国家重点新产品奖、山西省优秀新产品奖
- 不锈钢2B板被科技部认定为国家高新技术产品
- 《AOD炉用氮气进行氮合金化工艺》《VOD冶炼不锈钢高碳区脱氮方法》等专利86项

《Technical Development on High-quality Stainless Steel Plates》and 《Nitrogen-containing Stainless Steel Technology and Products Development》 are awarded the second prizes of National Science & Technology Progress Reward.  
 《AOD Campaign, Process and Technological Development》 and other two are honored as the first and second prizes of Shanxi Province Science & Technology Progress Reward.  
 《Research and Development of Nitrogen -containing Stainless Steel in TISCO》 and other eight are honored the first, second and third prizes respectively of Metallurgical Science & Technology Rewards.  
 《Clad Plates of Duplex Stainless Steel》 and other five are honored the New Products Reward of National Key Projects and Excellent Reward of New Products of Shanxi Province respectively.  
 Stainless steel 2B plates are rated by Science & Technology Ministry as the National Hi & New-tech Products.  
 《Nitrogen Alloying Process with AOD-used Nitrogen》《De-nitrogenization Process in the High Carbon Zones of VOD Smelting Stainless Steel》 and so on in total of 86 items are awarded as the patents.



## 产品系列 >>>

### Product Serials

品种 Variety	牌号 Grade	主要用途 Main use
复层 Stainless steel Cladding	0Cr18Ni9(304)	适用于制造化工、化肥、石油、印染、原子能等领域的工业设备、容器、管道、热交换器等。 Suitable for the manufacturing of industrial equipments, vessels, piping, heat exchanger, etc. as in domains of chemical, fertilizer, petroleum, dyeing, etc.
	0Cr19Ni9N(304N)	
	00Cr19Ni10(304L)	
	1Cr18Ni9Ti/0Cr18Ni10Ti(321)	
	00Cr17Ni12Mo2(316L)	
	00Cr19Ni13Mo3(317L)	适用于锅炉、金属镁等行业的设备制造。 suitable for the equipments manufacturing in the fields of boiler, metal magnesium, etc.
	0Cr13 ( 410S )	主要用于耐水蒸汽、碳酸氢氨母液、热的含硫石油腐蚀的部件和设备（如延迟焦化的焦碳塔）。 Mainly used for the part and the equipment as anti-steam, (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> mother liquid, hot corrosive S-contained oil(such as delayed coking coke tower).
	0Cr13Al(405)	
	00Cr18Mo2(444)	适用于耐热设备的制作。 suitable for manufacturing of heat-resisting equipment.
	00Cr18Ni5Mo3Si2(3Re60)	耐氯化物应力腐蚀性能好，耐磨性好，用于水利、石化领域的反应器、热交换器、冷凝器以及造船部件的制作。 Good property to resist chloride stress, good abrasive resistant property in the manufacturing of reactor, heat exchanger, condenser as well as shipbuilding parts in the industries of hydro, petroleum, etc.
00Cr22Ni5Mo3N(UNS S31803)		
00Cr25Ni7Mo4N(S32750)	用于耐SO <sub>2</sub> 腐蚀的焦化脱硫设备 Used for anti-SO <sub>2</sub> corrosion equipment of Coking plant.	
有色金属Al、Cu、Ti、Ni等 Non-ferrous metal Al、Cu、Ti、Ni, etc.	用于烟气脱硫FGD领域的Ti-钢复合板，轨道交通直流电机感应板的Al-钢、Cu-钢复合板 Used for Ti-steel cladding plate in fume De-S FGD domain, DC motor induction plate as al-steel, Cu-steel cladding plate in track transportation.	
基层 Bottom Plate	Q235系列、Q345系列、08Al、Q345R、15CrMo(R)、14Cr1MoR、Q245R等 Q235 serials, Q345 serials, 08Al, Q345R, 15CrMo(R), 14Cr1MoR, Q245R, etc.	

## 产品性能 >>>

### Product Performance

#### 耐腐蚀性能

Anti-corrosion property

涵盖了铁素体、奥氏体、双相不锈钢的耐晶界腐蚀、耐应力腐蚀、耐点蚀等性能。

It has incorporated the properties of ferrite, austenitic, duplex stainless steel, such as anti-intercrystalline corrosion, anti-stress corrosion, anti-pitting corrosion, etc.

#### 高的界面结合强度

High interface bonding strength

以 (3+8) mm 0Cr18Ni9+Q235复合板为例, 性能如下:

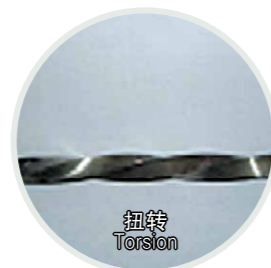
Take (3+8) mm 0Cr18Ni9+Q235 cladding plate as an example:

	R <sub>PO.2</sub> (MPa)	R <sub>m</sub> (MPa)	A (%)	A <sub>kv</sub> (J)	τ (MPa)	晶腐 Intercrystalline corrosion	弯曲 (d=3a, 180°) Bending	
标准 Standard	≥235	≥300	≥26	≥27	≥210	合格 Accepted	内弯 Internl bending	外弯 Externl bending
实测 Actural	300	485	40	68-66-68	350/360	合格 Accepted	完好 Perfect	完好 Perfect

#### 太钢不锈钢复合板典型产品性能

Main Properties of Stainless Steel Clad Plate of TISCO

典型钢种 Typical steel grade	厚度 (mm) Thickness	R <sub>p</sub> (MPa)	R <sub>m</sub> (MPa)	A (%)	τ <sub>b</sub> (MPa)	A <sub>kv</sub> (J)	弯曲180° Bending 180°	复层晶腐 Clad intergranular corrosion
00Cr22Ni5Mo3N+Q345C	4+20	355	525	27	350/360	82-74-82	完好 Well	--
0Cr18Ni9+Q235A	3+8	300	485	40	345/425	69-66-68		合格 OK
0Cr18Ni10Ti+15CrMoR	3+12	410	530	30	395/405	142-136-136		合格 OK
316L+16MnR	3+20	345	510	29	380/400	85-90-70		合格 OK
0Cr13Al+20R	3+16	265	435	30	320/355	46-62-73		--



## 焊接指导 >>>

### Welding direction

#### 焊接要点

Welding Notes

- 复层焊接为保证焊接质量, 要用小直径焊条多道焊, 对焊层的堆焊高度要控制最小;
- 复层焊接时必须彻底清除过渡层溶渣及其他表面附着物, 层间温度控制在60℃以下;
- 要注意引弧和熄弧的质量, 收弧应将弧坑填满, 多层焊时的层间接头应错开;
- 焊基层第1层时, 需特别注意不得将低合金金属沉积到复层上;
- 过渡层熔敷金属必须盖满钢层1.5-2.5mm, 并盖过不锈钢与碳钢交界面0.5-1.5mm;
- 过渡层第1遍焊接要采用小参数、反极性、直道多道焊, 降低对复层的稀释。

To guarantee the welding quality of cladding, smaller diameter welding rod should be applied by multi-layer of welding seam, while the seam height should be kept minimum.

Welding on cladding, the flux and other surface attachment must be removed, the interlayer temperature shall be controlled under 60°C. More notice shall be taken on welding start and stop. The end of welding should fill up the welding pit, multi-layer welding seams should be staggered.

While welding the first layer on bottom plate, special attention should be taken to avoid low alloy metal settled on cladding. 1.5-2.5mm of transition layer melting metal must be paved along the plate, while surpassing the interface by 0.5-1.5mm between stainless steel and carbon steel.

The first welding seam of transition layer should adopt smaller parameters, anti-polarity, straight and multi-welding seams to reduce the dilution to cladding.

#### 焊材选择

Welding Material Choices

牌号 Grade	厚度 mm Thk.	焊材选择 Welding Material Choices		
		复层 Cladding	过渡层 Transition Layer	基层 Bottom Plate
304+Q235A	2+8	A132	A302	E4315
316L+16MnR	3+10	A022	A042	E5015
0Cr13+20R	3+24	A132	A302	E5515
2205+Q345C	3+16	E2209	A042	E5015



焊接试样  
Welding Test Specimen



焊接性能

Welding Performance

焊接性能（以00Cr22Ni5Mo3N+Q345C不锈钢复合板为主）

00Cr22Ni5Mo3N+Q345C Stainless steel compound board welding performance

拉力试验 Tensile Test	合格指标 Index for Qualification	试验结果 Test Result			结果判定 Conclusion
	470~630(MPa)	495-545(MPa)	母材 Bed Material		
弯曲试验 Bending Test	合格指标 Index for Qualification	面弯 Surface Bending	背弯 Back Bending	侧弯 Side Bending	合格 Accepted
	面弯150° Surface Bending 150°	150°	80°	80°	
	背弯80° back Bending 80°	完好 Perfect	完好 Perfect	完好 Perfect	
	侧弯80° Side Bending 80°	完好 Perfect	完好 Perfect	完好 Perfect	
冲击试验 Impact Test	合格指标 Index for Qualification	缺口位置 Gap Position	Ak <sub>v</sub> (J)		合格 Accepted
	≥34(0°C)	焊缝 Welding Seam	132-125-112		
		热影响区 Thermal Influential Zone	106-90-93		
		母材 Bed Material	130-141-140		
复层铁素体含量 Ferrite Content in Cladding	一般≤50% Usu. ≤50%	焊缝 Welding Seam	28.20%		合格 Accepted
	一般≤70% Usu. ≤70%	热影响区 Thermal Influential Zone	58.50%		



特色产品 >>>

Idiomatical Product

冷轧复合卷板

Cold Rolling Cladding Coils

利用“爆炸+轧制法”开发的冷轧双面复合卷板，在民用领域具有广阔应用前景。突出优点是：

the cold rolling duoclad developed by "explosive+rolling method" has broad application prospect in civil domain. The prominent advantages are as following:



◆ 性能 Performance

序号 No	材质 Material	规格 Dimension	屈服强度 Yield intensity	抗拉强度 Draw resistant intensity	伸长率 Elongation ratio d=2a,a=180°	弯曲 Bend cupping	杯突值 Test figure
1	304+08Al+304	1.0	310	460	60.0	合格 OK	10.2
2	304+08Al+304	1.0	300	445	55.5		10.3
3	304+08Al+304	1.2	280	440	58.0		10.2
4	304+08Al+304	1.2	300	450	56.0		10.1
5	304+08Al+304	1.5	290	440	56.0		10.0

◆ 特点

- 1、爆炸——轧制法双重复合工艺使基复材之间形成原子结合。
- 2、层间剪切强度约，远远大于高分子粘结法的80MPa。
- 3、可承受反复弯曲、剪切、冲孔等加工而绝无分层开裂。
- 4、基层采用深冲钢，使之可承受大的变形、深拉伸工艺。
- 5、较纯不锈钢加工硬化率低，较碳钢对介质的污染小，导热系数高。

◆ Specialty

1. Explosion-rolling process is a dual complex process, it makes atom integration among basic cladding materials.
2. Interbedded cutting intensity approx. 400MPa, much more higher than 80MPa using polymer Bonding Method.
3. Bearing repeating bending, cutting, boring without any lamination or crazing.
4. Basic liner used deep drawing steel, it can bear strong deformation and deep drawing treatment.
5. Pure stainless steel has low treatment hardening rate, high thermal transmission factor. It's intensity large than aluminum material.

◆ 用途：轻工、食品、炊具、建筑、装饰、焊管、门窗幕墙等行业。

Usage: light industry, grocery, kitchen, con-struction, decorating, welding pipe, door, window and etc.

## 有色金属复合板

Non-ferro Metal Cladding Plate

我公司还可生产Ti-钢，铝-钢复合材料，广泛应用于发电烟气脱硫、地铁感应板等领域。

TISCO can also produces Ti-steel, Al-steel cladding material, which are widely used in De-s FGD domain of power plant, subway.

### ◆ Ti-钢复合材料

Ti-Steel clad material

Ti-钢复合板是发电烟气脱硫FGD设备制作的理想选材。

Ti-steel cladding plate is the ideal selection for FGD fume desulphurization equipment in generate plant.

### ◆ 铝-钢复合材料

Al-Steel clad material



铝-钢复合材料具有钢的高强度，又具有铝的优良导电、导磁等物理性能。我厂为国内首家采用直线电机车辆技术的广州地铁4号线提供全部铝-钢感应板100多公里，外观及使用性能受到制造厂和日方代表的肯定。

使用铝钢复合板的电机具有如下性能：启动、制动，驱动能力增强；提速快；电机分解，车体重量减轻，车体距轨道高度减少；转弯半径减小，减少工程的施工量，成本降低。

100 kilometers Al-steel inductive plate were supplied for Guangzhou No.4 Subway project, its appearance and performance gained affirmation from manufacture are and Japanese supervisors.

Electric motor using Al-steel clad material have the performance as follows: Simultaneously starting and braking, driving force enhanced; Fast acceleration; separated electric motor, vehicle weight reduced, the gap between wagon and track reduced; Less construction by smaller turning radius, leading to lower cost.



## 产品标准 >>>

### Standard / Specification

#### ■ 金属复合板产品标准

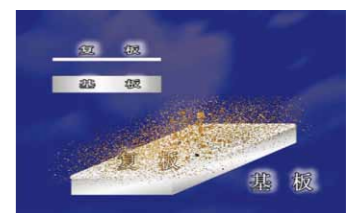
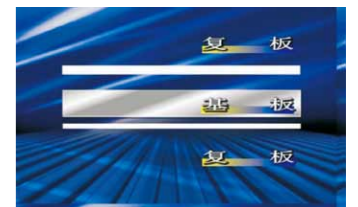
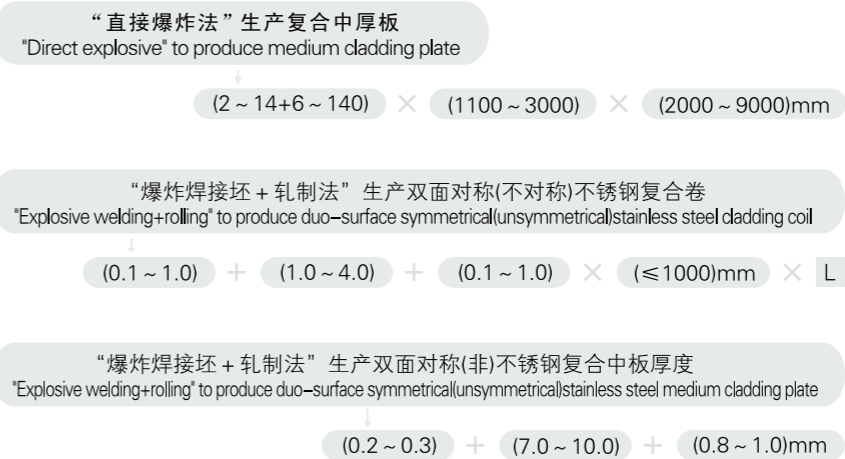
- 《GB/T8165-2008 不锈钢复合钢板和钢带》
- 《JB4733-1996 压力容器用爆炸不锈钢复合钢板》
- 《GB/T13148-91 不锈钢复合钢板焊接技术条件》
- 《GB/T6396-1995 复合钢板力学及工艺性能试验方法》
- 《GB8547-87 钛-钢复合板》
- 《GB13238-91 铜钢复合钢板》

#### ■ Metal cladding plate standards

- GB/T8165-1997 Stainless Steel Cladding Plate and Strip
- JB/4733-1996 Explosive Stainless Steel Cladding Plate for Pressurized Vessel
- GB/T17102-1997 Stainless Steel Using Cold Rolling Sheet and Strip
- GB/T13148-91 Technical Conditions of Stainless Steel Cladding Plate Welding
- GB/T6396-1995 Test Method for Mechanics and Process Performance of Cladding Plate
- GB/T8547-87 Ti-Steel Cladding Plate
- GB13238-91 Cu-Steel Cladding Plate

## 产品规格 >>>

### Product Specification



## 产品应用 >>>

### Product Application



## 包装 >>>

### Package



- 中板包装采用防水材料，加装支架防止钢板变形。  
Medium plate package with water-proof material, strengthened frame to prevent plate from deformation.

- 采用防水、防潮材料
- 采用护板、垫片，防止磕碰
- 横、纵打捆，防止钢卷松卷及层间擦伤

Employment of waterproof and damp-proof materials.  
Damage avoided with protecting plank and shim.  
Coil loosening and scratching prevented as a result of vertical and horizontal tying up between coil layers.



## 材质证明书 >>>

Material Certificate

山西太原不锈钢有限公司 产品质量证明书  
SHANXI TAIYUAN STAINLESS STEEL CO., LTD. INSPECTION CERTIFICATE

山西太原不锈钢有限公司 邮编 030003  
NO. 2 Jincheng, Taiyuan, Shanxi, P.R. China  
030003 TAIYUAN, CHINA  
TEL: (0351) 2613289  
FAX: (0351) 2613616

收货单位 CUSTOMER	产品名称 PRODUCT	证书号 CERTIFICATE NO.	0000
订购单位 PURCHASER	客户编号 CUSTOMER NO.	合同号 CONTRACT NO.	
标准 SPECIFICATION	发布日期 DATE OF ISSUE	有效日期 DATE OF EXPIRE	
	许可证号 LICENSE NO.	客户编号 CUSTOMER NO.	

序号 NO.	牌号 GRADE	规格 SIZE	重量 WEIGHT	化学成分 CHEMICAL COMPOSITION %											力学性能 MECHANICAL PROPERTIES			其他 REMARKS			
				C	Si	Mn	P	S	Cr	Ni	Cu	Al	Mo	Ti	TS	YS	EL		HRB	HV	HBW
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

备注  
REMARKS: 1. 本证书修改无效。  
2. 本厂一律为法定计量单位。  
3. 本厂产品均符合GB4852标准。  
4. 用户对产品有特殊要求，请在本厂合同号、证书号、及牌号、炉号、炉号、规格、数量等。

注  
NOTES: 本产品已按上述要求进行制造和检验，其结果符合标准，特此证明。

会签者 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION. 王志强

审核者 王志强

## 服务承诺 >>>

### The Service Promise

- 为客户提供特定的成份、性能、规格设计。
  - 为客户在选材和加工工艺方面提供技术支持。
  - 交货准确及时。
  - 对客户异议，在24小时内答复。
- 
- To provide customerized products.
  - Technical support to customers in material selection and fabrication.
  - Accurate and prompt delivery.
  - Response to customer's claim within 24 hours.



太钢加工配送营销网络布局图  
Marketing network of TISCO service centers



- 太钢本部加工配送中心 TISCO home-based service center
- 已建成的加工配送中心 Service center in operation
- 在建中的加工配送中心 Service center under construction
- 规划建立的加工配送中心 Service center under planning

## 主要业务部门联系方式 >>>

### Contacting Manners of the Main Business Sections

股份公司主要业务部门 Main business department of Co.,Ltd	业务功能 Functions	联系电话 Telephone	E-mail
营销部 Marketing Department	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	电话 TEL +86 (0)351-3010545 传真 FAX +86 (0)351-3010545	tgxsc@tisco.com.cn tgjszxbxg@tisco.com.cn tgbxjs@tisco.com.cn
复合材料厂 Sales Division of Clad Material Plant	技术咨询服 Technical consultation service	电话 +86 (0)350-6512675 TEL +86 (0)350-6512512	tgfhclc1840@sina.com

### 国际分公司联系方式 Contacting manners of international trading Co.,Ltd.

太钢国贸(美国)有限公司 Taigang International Trading (USA) Co., Ltd.	美国 USA	电话 (Tel) 001-4124340607	传真 (Fax) 001-4124340608
太钢国贸(香港)有限公司 Taigang International Trading (Hongkong) Co., Ltd.	香港 Hongkong	电话 (Tel) +0852-28271686	传真 (Fax) +0852-28271300
太钢欧洲有限公司 Taigang Europe Co., Ltd.	德国 Germany	电话 (Tel) +49(0)2154-81690	传真 (Fax) +049-2154-816911

### 国内分公司联系方式 Contacting manners of deomestic trading Co.,Ltd

公司名称 Branch Name	地址 Address	通讯方式 Telephone & Fax
太钢华北区销售公司 TISCO sales company in North China	天津太钢销售有限公司 Tianjin TISCO Sales Co. Ltd. 北京太钢销售有限公司 Beijing TISCO Sales Co. Ltd. 太钢现货销售有限公司 Spot Sales company Ltd. of TISCO 郑州太钢销售有限公司 Zhengzhou TISCO Sales Co. Ltd.	天津 北京 太原 郑州 电话 (Tel) 022-24308105 电话 (Tel) 010-64441368 电话 (Tel) 0351-3096390 电话 (Tel) 0371-60805079 传真 (Fax) 022-24308103 传真 (Fax) 010-64441369 传真 (Fax) 0351-3090556 传真 (Fax) 0371-60805085
太钢东北区销售公司 TISCO sales company in Northeast of China	辽宁太钢销售有限公司 Liaoning TISCO Sales Co. Ltd. 哈尔滨太钢销售有限公司 Haerbin TISCO Sales Co. Ltd. 沈阳沈太钢不锈钢销售有限公司 Haerbin TISCO Sales Co. Ltd.	沈阳 哈尔滨 沈阳 电话 (Tel) 024-24232050 电话 (Tel) 0451-87905777 电话 (Tel) 024-24232051 传真 (Fax) 024-24231216 传真 (Fax) 0451-55185321 传真 (Fax) 024-24231216
太钢华东区销售公司 TISCO sales company in East China	无锡太钢销售有限公司 Wuxi TISCO Sales Co. Ltd. 上海太钢销售有限公司 Shanghai TISCO Sales Co. Ltd. 杭州太钢销售有限公司 Hangzhou TISCO Sales Co. Ltd.	无锡 上海 杭州 电话 (Tel) 0510-82407713 电话 (Tel) 021-61808397 电话 (Tel) 0571-85067265 传真 (Fax) 0510-82441187 传真 (Fax) 021-61808397 传真 (Fax) 0571-85061958
太钢山东区销售公司 TISCO sales company in Shandong	青岛太钢销售有限公司 Qingdao TISCO Sales Co. Ltd. 济南太钢销售有限公司 Jinan TISCO Sales Co. Ltd.	青岛 济南 电话 (Tel) 0532-81101847 电话 (Tel) 0531-82638400 传真 (Fax) 0532-87734798 传真 (Fax) 0531-82638411
太钢华中区销售公司 TISCO sales company in Central China	武汉太钢销售有限公司 Wuhan TISCO Sales Co. Ltd. 长沙太钢销售有限公司 Changsha TISCO Sales Co. Ltd.	武汉 长沙 电话 (Tel) 027-85615300 电话 (Tel) 0731-85592703 传真 (Fax) 027-85615311 传真 (Fax) 0731-85598305
太钢华南区销售公司 TISCO sales company in South China	佛山市太钢不锈钢销售有限公司 Foshan TISCO Stainless Steel Sales Co. Ltd. 揭阳太钢销售有限公司 Jieyang TISCO Sales Co. Ltd.	佛山 揭阳 电话 (Tel) 0757-83315711 电话 (Tel) 0663-8766018 传真 (Fax) 0757-83315718 传真 (Fax) 0663-8766048
太钢西南区销售公司 TISCO sales company in Southwest of China	成都太钢销售有限公司 Chengdu TISCO Sales Co. Ltd. 重庆太钢销售有限公司 Chongqing TISCO Sales Co. Ltd.	成都 重庆 电话 (Tel) 028-87604342 电话 (Tel) 023-68154181 传真 (Fax) 028-87612940 传真 (Fax) 023-68400789
太钢西北区销售公司 TISCO sales company in Northwest of China	西安太钢销售有限公司 Xi'an TISCO Sales Co. Ltd.	西安 电话 (Tel) 029-86231507 传真 (Fax) 029-86231506