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板带处理专家  
Through Strip Processing Technology

黄石山力科技股份有限公司  
Sunny Technologies Incorporation Limited



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## 公司简介 Company Profile

### 企业愿景 Our Vision

以先进的板材处理技术和优质的服务,做全球知名的装备供应商。

To be worldwide known equipment supplier by our advanced strip processing technology and superior services

### 企业使命 Our Mission

以板材处理技术为核心,向国内外用户提供先进完善的板材系统解决方案。

Based on the strip processing technology, provide the advanced strip solution for customers at home and aboard.

### 企业核心价值观 Our Core Value

诚信、尊重、公平、多元。

Integrity, Respect, Fairness, Diversity

### 企业精神 Our Spirit

创新、团结、高效。

Innovation, Solidarity, High Efficiency

黄石山力科技股份有限公司,是一家集板带后处理为主营业务的金属深加工技术和装备供应商。自 2000 年成立至今,一直致力于金属板带生产的技术研发、技术服务和装备供应。

山力公司通过长期不懈的努力,已在带钢酸洗机组、带钢连续热镀(铝)锌机组、带钢彩色涂层机组、带钢连续退火机组、不锈钢板带退火机组、硅钢(电工钢)全工序处理机组等领域取得优异成绩,在国内外完成两百余项工程项目,获得六十三项专利技术、重大科技成果七项,山力公司还参与了相关行业产品国家标准的制定,承担了国家“火炬计划”项目,其中“厚带钢厚镀层连续热镀锌工艺关键技术和设备集成创新及产业化”于 2017 年荣获湖北省“科技进步一等奖”,山力公司的“涂镀层加工成套设备”被认定为湖北省名牌产品称号,并于 2017 年荣获黄石市“市长质量奖”。山力公司被认定为“国家高新技术企业”,山力商标被授予“中国驰名商标”。

山力公司本着“以人为本,科技为先、质量取胜、诚信经营”的方针,为客户提供先进的板材处理技术和优质的服务。

SUNNY Technologies Incorporation Limited is a metal processing technology and equipment supplier with strip post-processing as its main business. SUNNY was established in 2000 and devoted to the metal strip production technology research and development, technical services and equipment supply

Through the longtime unremitting efforts, SUNNY has achieved the outstanding results in Continuous Pickling Line, Continuous Galvanizing (Galvalume) Line, Color Coating Line, Continuous Annealing Line, Stainless Steel Annealing Line, Silicon (Electrical Steel) Whole Processing Line, and etc. SUNNY has built more than 200 projects domestic and overseas, obtained more than 63 patents and participated in establishing related industry product national standard, undertook project list in "China Torch Plan" (CTP, by China government). In 2017, SUNNY was honored to won the "First Prize of Science and Technology Progress" of Hubei Province in "Thick Strip Thick Coating Continuous Galvanizing Process Key Technology and Equipment Integration Innovation and Industrialization"; the "Coating and Plating Process Complete Equipment" was awarded as the Famous Brand in Hubei Province, and won the "Mayor Quality Prize" in Huangshi City. SUNNY has been awarded as "National Hi-tech Enterprise" by the Government. At the same time, SUNNY has been recognized as "Famous Trademark of China".

SUNNY persists in "People-oriented, Technology First, Quality Win, Reliable Credit" policy, to provide customers with advanced strip processing technology and quality service.

# 公司的发展历程

## 第一阶段,2000年—2004年,创始期

2000年4月6日创办了黄石山立工业炉工程技术有限公司  
2003年6月16日注册成立了武汉山力板带技术工程有限公司  
2003年9月9日成立了黄石山力科技发展有限公司  
2004年4月5日成立了黄石山力锌铝板带有限公司  
2004年12月1日成立黄石山力热工设备有限公司

## First stage, year 2000–2004, Initial period

April 6th,2000, established Sunny Industrial Furnace Co., Ltd.  
June 16th, 2003, established Sunny Strip Processing Technology Engineering Co., Ltd  
September 9th, 2003, established Sunny Strip Galvanizing and Coating Co., Ltd.  
April 5th,2004,establish Sunny Science and Technology Development Co., Ltd.  
December 1st, 2004, established Sunny Totem Thermal Equipment Co., Ltd.

## 第二阶段,2005年—2014年,发展期

2006年承揽了第一个海外项目印度尼西亚PT.K.W.M公司的技术改造工程  
2009年山力公司与湖北兴冶投资开发有限公司合作成立了黄石山力兴冶薄板有限公司  
2010年山力公司创国产镀铝锌生产线第一次成套技术出口  
2014年先进涂镀层技术和装备研发、系统集成基地竣工。

## The Second Stage, year 2005 to 2014, Development Period

In 2006, the first overseas reformation project with Indonesia PT.KWM company.  
In 2009, Sunny cooperate with Hubei Xing Ye Investment Development Co. Ltd to build Sunny Xingye Steel Strip Co., Ltd;  
In 2010, first complete set galvalume line turnkey project in overseas;  
In 2014, completed advanced coating processing technology and equipment R&D and system integrity base.

## 第三阶段,2015年—至今,转型发展期

2015年山力在国际竞标中,赢得了巴基斯坦最大钢企(国际钢铁公司)的高端镀锌机组。  
2016年成功开发了高磁感取向电工钢(HiB)成套工艺技术及装备,赢得市场赞誉。  
2017年荣获“黄石市市长质量奖”和“湖北省科技进步一等奖”。

## The Third Stage, Year 2015 to now, Transformation Development Period

In 2015, Sunny won the international bidding to build advanced level CGL for leading steel enterprise in Pakistan (ISL).  
In 2016, successfully developed complete set process technology and equipments of High Magnetic Induction Oriented Electrical steel (HiB), won great market recognition.  
On April, 2017, Sunny Honored to win the Huangshi City Mayor Quality Award and First Prize of Science and Technology Progress of Hubei Province



# 热镀锌 / 镀铝锌机组

Hot Dipped Galvanizing / Galvalume Line

热镀锌 / 镀铝锌是在带钢表面通过热浸镀方式覆盖一层锌或铝锌合金,具有较强的阴极保护性能,使其在工业、农业和建筑业等各个领域得到广泛应用,成为当今用途最为广泛的镀层产品。

山力公司先后承建国内外热镀锌 / 镀铝锌机组已超过两百条。



Hot galvanizing/ galvalume is coating one layer of zinc or sibley alloy on strip surface by hot dipping which has strong cathodic protection performance and has been widely used in manufacturing, agriculture, construction and others. It has become the most useful plating product nowadays. We have built up over two hundred hot dipped galvanizing/ galvalume lines in domestic and overseas.





#### 机组主要特色：

1. 机组型式：卧式,立式,立卧结合式
2. 处理规格 / 厚度：  
冷轧带 / min0.12mm, max2.5mm  
热轧带 / min1.5mm, max5mm
3. 宽度：  
min550mm, max1500mm
4. 机组工艺段速度：  
max200m/min (240m/min for GL)
4. 连续退火炉 / 炉型：卧式,立式,立卧结合式 (L型)  
加热方式：燃气无氧化加热 (NOF), 燃气辐射管加热 (RTF), 电辐射管及电阻带加热  
冷却方式：保护气体常规喷气冷却, 高氢高速喷气冷却  
喷流式陶瓷感应锌锅 (GL 带预熔锅)
5. 锌锅：
6. 气刀：单喷嘴先进气刀, 多腔式气刀
7. 光整机：  
300T-800T, 4 辊湿光整
8. 节能措施：  
高效辐射管助燃空气换热器, 烟道助燃空气换热器, 烟道热风和热水换热器, 热保护气体循环喷吹预热带钢, 无氧化加热前烟气热辐射预热带钢, 轻型纤维炉内衬

#### Line Main Properties :

1. Line Type : horizontal, vertical, combination of vertical and horizontal
2. Specification / Thickness : cold rolled strip / min. 0.12mm, max. 2.5mm  
hot rolled strip / min. 1.5mm, max. 5mm  
Width : min. 550mm, max. 1500mm
3. Speed in Process Section: max. 200m/min (240m/min for GL)
4. Continuous Annealing Furnace:  
Furnace Type: horizontal, vertical, combination of vertical and horizontal (L type)  
Heating Method: Gas non-oxidation heating (NOF), Gas radiant tube heating (RTF), Electric radiant tube and electric resistance tape heating  
Cooling Method: Shielding gas regular air jet cooling, rich hydrogen high speed air jet cooling
5. Zinc pot: jet flow ceramic induction zinc pot (GL line with pre-melting pot)
6. Air knife: single injection advanced air knife, multi-cavity air knife
7. Skin Pass Mill: 300T-800T, 4-roll wet skin pass
8. Energy saving method: high efficiency radiant tube combustion air heat exchanger, fume duct combustion air heat exchanger, fume duct hot air and hot water heat exchanger, hot shielding gas recycle injection pre-heating strip, fume heat radiant before non-oxidation heating pre-heating strip, light fiber furnace lining





## 普碳钢连续退火线

Plain Carbon Steel Continuous Annealing Line

连续退火机组主要针对冷轧带钢进行连续退火和时效处理，具有连续脱脂、退火还原、过时效、平整、拉矫、涂油等功能，使带钢获得要求的性能。可为电镀锌，电镀锡，建筑业，家电业以及汽车制造业提供原料。

山力公司先后在国内外承建近十条普碳钢连续退火线。

Continuous annealing line is mainly used for continuous annealing and aging treatment for cold rolled strip with functions of continuous degreasing, annealing reduction, over-aging, smoothing, tension leveling, oiling and others which can make strip obtain the required performance. It can offer raw material for electrogalvanizing, electrotinng, construction industry, household appliance industry and motor industry.

We have built up 10 plain carbon steel continuous annealing lines at home and abroad.

### 机组主要特色：

1. 机组型式：卧式,立式,立卧结合式
2. 处理规格\厚度：min0.15mm, max1.5mm ;  
宽度：min300mm, max1250mm
3. 机组工艺段速度：max200m/min
4. 产品级别：CQ,DQ,DDQ,EDDQ,SEDDQ,HSS,T3-T5
5. 连续退火炉\炉型：卧式,立式,立卧结合式(L型)  
加热方式：燃气无氧化加热(NOF), 燃气辐射管加热(RTF), 电辐射管及电阻带加热
6. 光整机：电加热的倾斜式过时效处理  
400T-800T, 4辊湿平整
7. 节能措施：高效辐射管助燃空气换热器, 烟道助燃空气换热器, 烟道热风和热水换热器, 热保护气体循环喷吹预热带钢, 无氧化加热前烟气热辐射预热带钢, 轻型纤维炉内衬

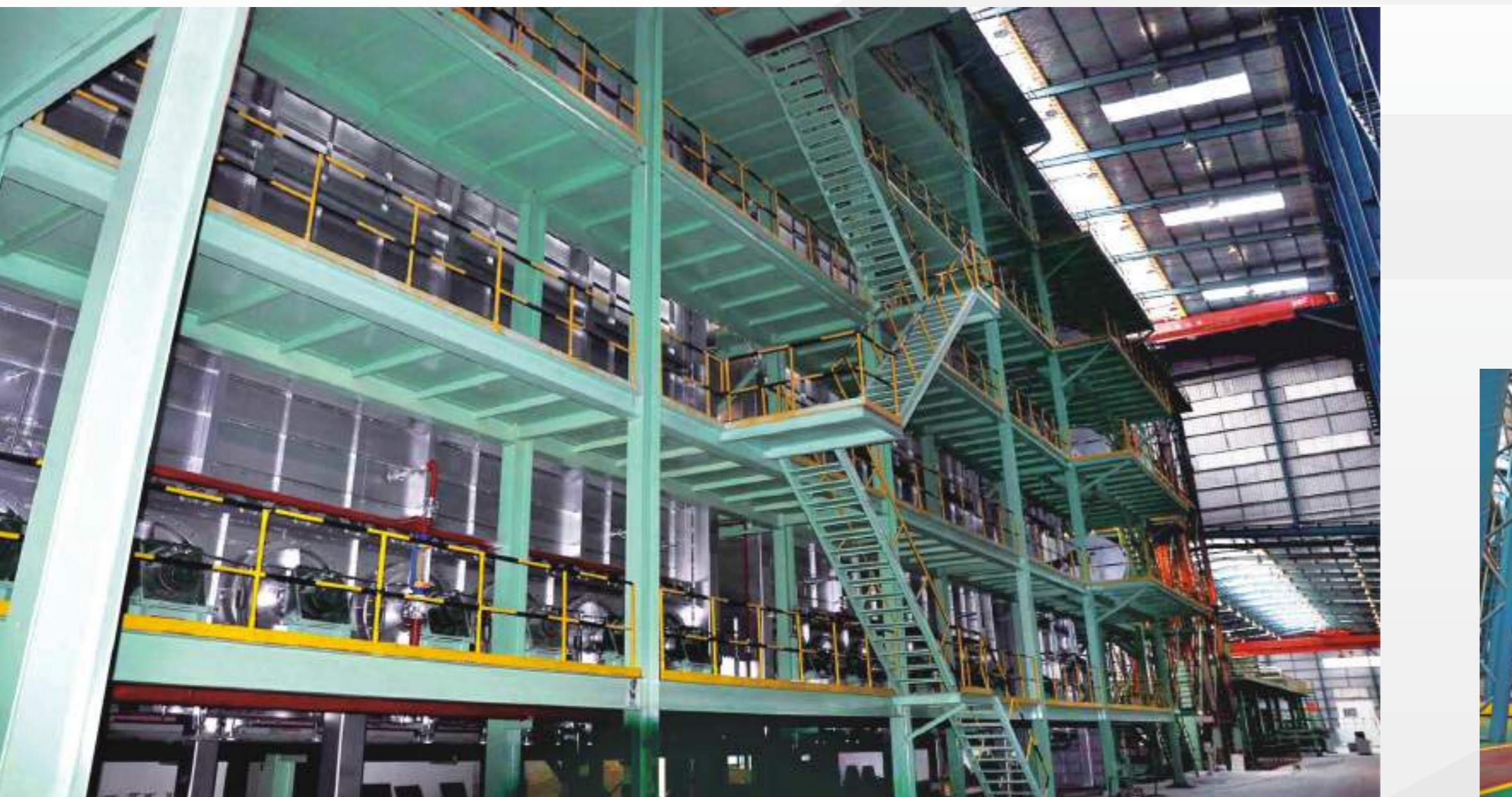


### Line Main Properties:

1. Line Type: horizontal, vertical, combination of vertical and horizontal
2. Specification: Thickness: min0.15mm, max1.5mm  
Width: min. 550mm, max. 1500mm
3. Speed in Process Section: max. 200m/min
4. Product Grade: CQ, DQ, DDQ, EDDQ, SEDDQ, HSS, T3-T5
5. Continuous Annealing Furnace:  
Furnace Type: horizontal, vertical, combination of vertical and horizontal (L type)  
Heating Method: Gas non-oxidation heating (NOF), Gas radiant tube heating (RTF), Electric radiant tube and electric resistance tape heating
6. Over-aging Method: Electric heating tilting type over-aging method
7. Skin Pass Mill: 400T-800T, 4-roll wet skin pass
8. Energy saving method: high efficiency radiant tube combustion air heat exchanger, fume duct combustion air heat exchanger, fume duct hot air and hot water heat exchanger, hot shielding gas recycle injection pre-heating strip, fume heat radiant before non-oxidation heating pre-heating strip, light fiber furnace lining

# 冷轧板连续退火、镀锌两用机组

Cold Rolled Plate Continuous Annealing and Galvanizing Line



## 原料状态为冷轧硬态钢卷：

钢种为：SPCC、SPCD、SPCE、IF

产品规格：带钢厚度 0.2~2.0mm

带钢宽度 :800~1500mm

钢卷内径 :Φ610mm 和 Φ508mm

钢卷外径 :最大 Φ2100mm ;最小 Φ800mm

钢卷重量 :最大 30T

Raw material :CRC,Full hard

Grade : SPCC、SPCD、SPCE、IF

Product spec.:

Thickness range: 0.2~2.0mm

Width range:800~1500mm

I.D: Φ610mm&Φ508mm

O.D.:max.Φ2100mm;min.Φ800mm

Coil weight: max.30t





## 彩涂机组 Color Coating Line

彩涂板是以冷轧钢板、镀锌钢板、铝合金板等为基板的油漆涂装产品,具有耐腐蚀性、装饰性等功能,可直接给建筑业,汽车制造业,家电业等提供原材料。山力公司先后承建国内外彩涂机组近二十条。

The color coating plate is mainly based on cold rolled plate, galvanized steel plate and aluminium alloy plate. This kind of plate has advantages of corrosion resistance and decoration, as well as directly providing raw material for construction industry, automobile manufacturing, electric and others. SUNNY has provided near 20 CCL lines over the world.



### 机组主要特色 :

1. 机组型式 : 二涂二烘、三涂三烘
2. 产品级别 : 建材板, 装饰板, 家电板
3. 涂层 / 种类 : 环氧树脂、聚氨酯、聚酯、聚丙烯、聚偏氟乙烯、硅改性聚酯  
干膜总厚度 : min:23 μ m, max70 μ m
4. 其它处理 : 压花、印花、热覆膜、冷覆膜
5. 涂层机 : 双涂头两辊式 (用于初涂), 三辊式 (用于精涂正面), 两辊式 (用于精涂背面)
6. 节能措施 : 热风循环利用, 轻型纤维炉内衬 ; TIC 后的排烟道设置废气、空气和水换热器  
用于机组烘烤供热和清洗液供热或直接用焚烧后热烟气为烘烤炉供热 RTO  
和 CIU 后的排烟道设置热水换热器用于清洗液供热

### Line Main Properties:

1. Line Type: two coating and two baking, three coating and three baking
2. Product Grade: construction plate, decoration plate and household appliance plate
3. Coating: Type: epoxy resin, polyurethane, polyester, polypropylene, polyvinyl fluoride, silicon modified polyester Dry film total thickness: min:23 μ m, max70 μ m
4. Other treatment: printing, hot laminating, cold laminating
5. Chemical Coater: dual-head two-roll type (used in prime coating), three-roll type (used in finish coating front side), two-roll type (used in finish coating back side)
6. Energy saving method: cyclic utilization of hot air; light fiber furnace lining; fume duct behind TIC is equipped with exhaust gas, air and water heat-exchanger, which is used for line baking, heat supply and cleaning solution heat supply, or directly use heat exhaust gas after incineration to supply heat for baking furnace; fume duct behind RTO and CIU is equipped with hot water heat-exchanger for cleaning solution heat supply

## 高效电工钢(硅钢) 连续处理机组

High Efficiency Electrical Steel ( Silicon Steel )  
Continuous Treatment line

用于生产各种牌号的无取向冷轧硅钢以及一般取向  
硅钢( CGO )和高磁感取向硅钢( HiB ), 为生产各  
类电机和变压器提供原料。

至今已承建冷轧无取向硅钢连续退火机组近二十  
条, 承建冷轧取向硅钢连续处理机组二项( 5 条 )。

Used to produce different kinds of branded non-oriented cold rolled silicon steel (CGO) and high magnetic oriented silicon steel (HiB), provide the raw material for producing the different type of motor and transformer.

Now we have contracted to build almost 20 cold rolled non-oriented silicon steel continuous annealing lines, 5 cold rolled oriented silicon steel continuous treatment lines .





#### 机组主要特色：

- 1、机组类型：常化酸洗机组,脱碳退火及涂绝缘层机组, 脱碳退火渗氮及涂氧化镁机组, 涂绝缘层及热平整机组
- 2、产品级别：无取向 :高中低牌号 / 取向 :CGO、HiB
- 3、涂层 \ 种类：绝缘涂层, 氧化镁涂层
- 4、常化退火设备：冷却方式 :空气管冷却, 汽雾冷却, 空气 喷气冷却, 水喷淋冷却  
节能措施 :高效辐射管助燃空气换热器, 烟道助燃空气换热器, 烟道热风和热水换热器, 无氧化加热前烟气热辐射预热带钢, 轻型纤维炉内衬
- 5、连续退火炉 :脱碳方式 : 加湿氮氢混合气体脱碳  
渗氮方式 : 低温渗氮节能措施 :高效辐射管助燃空气换热器, 烟道助燃空气换热器, 烟道热风和热水换热器, 无氧化加热前烟气热辐射预热带钢, 轻型纤维炉内衬
- 6、涂层机 : 两辊式 ( 特殊刻槽衬胶辊 )
- 7、去氧化镁清洗设备方式 : 化学清洗与热水清洗相结合

#### Line Main Properties:

- 1.Line Type: Normal pickling Line, Decarburized Annealing and Paint Insulation layer Line, Decarburized Annealing Nitriding and Coating Magnesium Oxide Line.
- 2.Product Degree: Non-oriented: high, middle and low; oriented: CGO, HiB
- 3.Coating Type: Insulation coating, Magnesium coating
- 4.Normal Annealing Equipment:  
Cooling Method: Air Tube Cooling, Air-vapor Cooling, Air Jet Cooling, Water Spray Cooling.  
Energy Saving Method: High efficiency radiant tube combustion air heat exchanger, fume duct combustion air heat exchanger, fume duct hot air and hot water heat exchanger, hot shielding gas recycle injection pre-heating strip, fume heat radiant before non-oxidation heating pre-heating strip, light fiber furnace lining.
- 5.Continuous Annealing Furnace:  
Decarburization Method: Wet Nitrogen and Hydrogen Mixed Gas Decarburization  
Nitriding Method: Low Temperature Nitriding  
Energy Saving Method: High efficiency radiant tube combustion air heat exchanger, fume duct combustion air heat exchanger, fume duct hot air and hot water heat exchanger, hot shielding gas recycle injection pre-heating strip, fume heat radiant before non-oxidation heating pre-heating strip, light fiber furnace lining.
- 6.Chemical Coater: Two Rollers( Special Grooved Rubber Roller)
7. Remove Magnesium Oxide Cleaning Equipment Operation Theory: Chemical Cleaning Combined with Water Cleaning



# 碳钢酸洗机组

## Carbon Steel Pickling Line

酸洗机组的主要作用是借助于机械和化学的作用，把热轧的带钢钢卷表面氧化铁皮及污垢去掉，得到表面清洁的带钢。可分为连续退火酸洗机组和推拉式酸洗机组。山力公司已先后承建国内外多条酸洗机组。



### 机组主要特色：

1. 推拉式酸洗采用先进的浅槽紊流式酸洗工艺,酸洗时间短,酸洗效率高。
2. 推拉式酸洗共分 6 段。每段有单独的外部加热系统和酸循环系统,通过调整每个酸洗段的温度获得最佳的酸洗效果。
3. 连续酸洗采用具有显著优点的紊流浅槽酸洗工艺,酸槽内液面高度仅 150mm,酸槽盖分内盖和外盖,不仅可以减少酸液的挥发,而且提高酸液紊流度。
4. 连续酸洗机组设有三段酸洗槽,每段酸洗槽有单独的外部加热系统和酸循环系统,通过调节每个酸洗槽的温度、浓度以及紊流度而获得最佳的酸洗效果。
5. 采用五级逆流串级漂洗系统,仅需少量漂洗水。通过最后漂洗段中电导率的准确控制保证带钢表面清洗质量。
6. 连续酸洗机组设置 800 吨轧制力的平整机,可有效提高产品表面质量、改善带钢板型缺陷,并部分消除屈服平台,显著提高产品市场竞争力。
7. 连续酸洗采用技术可靠、运行稳定的双头回转塔式圆盘剪,剪刃开口度、重叠量、侧隙等可以实现自动调节。



### Line Main Properties:

- 1.Push-pull pickling adopts advanced shallow turbuleimmernt pickling process, with short pickling time and high pickling efficiency. Push-pull pickling can be divided into six sections, each section has its own outer heating and pickling system, through adjusting the temperature of every pickling sections to achieve the best pickling effect.
- 2.Continuous pickling adopts turbulent shallow pickling process with extinct advantages. The liquid height inside the acid tank is just 150mm, the inner and outer cover of the acid tanks, all can reduce the evaporation and improve the turbulence speed of the acid liquid.
- 3.Continuous pickling line has three acid tanks, each of them has separated outer heating system and acid recycled system. Through adjusting the temperature, concentration and the turbulence speed of every acid tank to achieve the best acid effect.
- 4.Using five-stage counter follow cascade rinse system, only need few rinsing water. Though controlling the accuracy of the conductivity in the last rinsing section to ensure the rinse quality of the strip surface.
- 5.Continuous pickling line has set 800t rolled skin pass mill to improve the defects of the strip shape and the quality of the strip surface, as well as eliminate part of the yield platform, and improve the product competitiveness.
6. Continuous pickling adopt reliable technical, stable running double head rotate tower side trimmer, the open degree of the shear blade, overlap amount, side seam can be adjusted automatically.

# 不锈钢连续退火酸洗机组

## Stainless Steel Continuous Annealing Pickling Line

不锈钢连续退火酸洗机组是对各种不锈钢进行退火和酸洗处理,以获得要求的机械性能和表面要求,主要分为热轧不锈钢退火酸洗机组、冷轧不锈钢退火酸洗机组和冷轧不锈钢光亮退火机组。

山力公司先后承建国内外十条。

Stainless steel continuous annealing pickling line is designed to process annealing and pickling towards stainless steel, to get the mechanical properties and surface effect as required. The line is divided into hot rolled stainless steel annealing pickling line, cold rolled stainless steel annealing pickling line and cold rolled stainless steel bright annealing line.

Sunny has been designing and constructing over 10 lines overseas in the last few years.



### 机组主要特色：

1. 焊机  
焊接工艺 :剪切→对接→焊接→冲孔→挖边  
出入口均设有带钢自动对中装置  
夹紧装置受力均匀压力可调,并具有纵向横向移动功能  
具有带钢搭接角度补偿功能
2. 高压热水刷洗和冲洗,水温为 ~80°C ,并设有冲洗热水的循环系统,脱脂后保证带钢表面清洁,满足后续工艺生产的要求。
3. 退火炉预热段主要是利用加热炉的废气进行带钢的预热,以便提高炉子的热效率,节约能源。
4. 酸洗 :采用中性盐电解酸洗 + 混酸酸洗工艺,保证酸洗质量。

### Line Main Properties:

- 1.Welder  
Welding Process: cutting → lapping → welding → punching → scrapping  
With auto strip CPC at the entry and exit section  
Bridle units forced uniformly, the pressure can be adjusted; also with function of move transversely and lengthways.  
With strip lapping angle compensation function.
- 2.High pressure hot water brush and rinse, the temperature is about 80°C . And it has recycled hot water rinse system, which can keep the strip surface clean after degreasing, and meet the production requirement of the follow-up process.
- 3.Annealing furnace preheating section mainly use the furnace waste gas to heat the strip, thus can improve the heat efficiency of the furnace, as well as save energy.
- 5、Pickling: Adopt neutral salt electrolysis pickling + mixed acid pickling progress, ensure the pickling quality.

## 其它各类机组

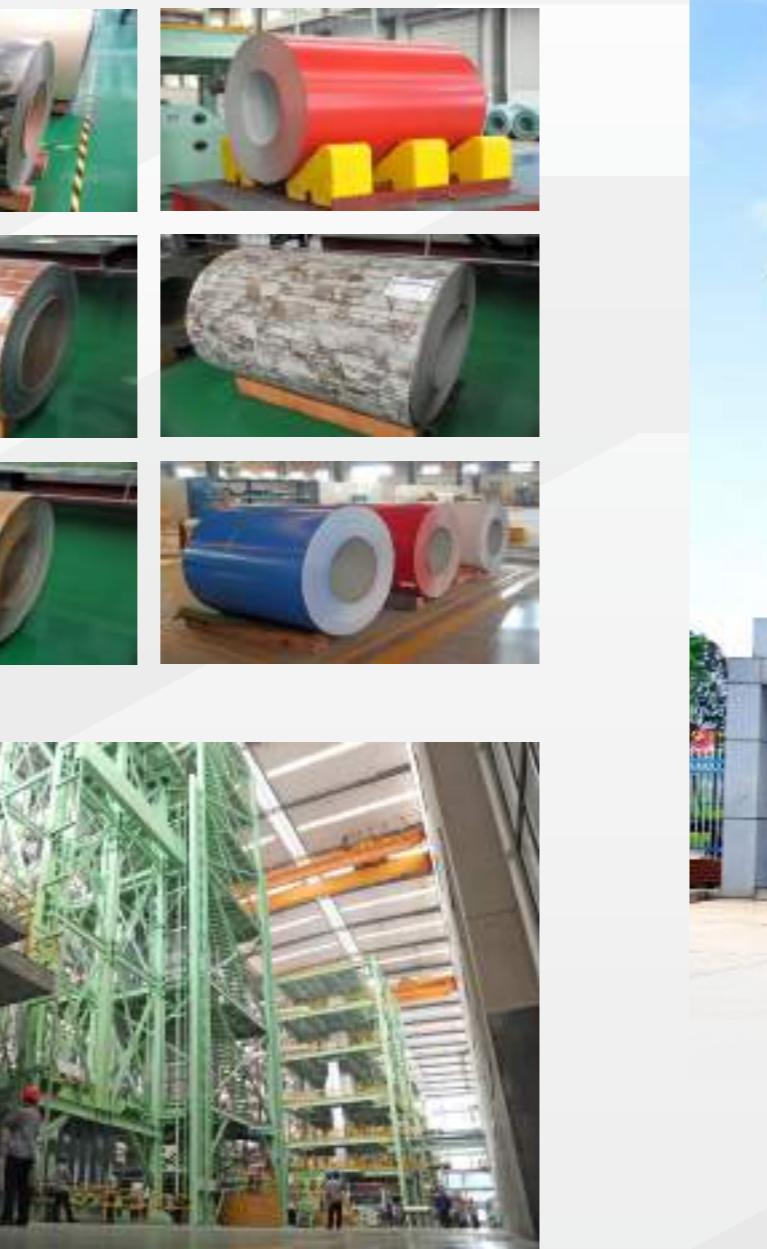
### Other Types of Lines

拉矫线,脱脂线、重卷线等机组  
Tension Leveling Line, Degreasing Line, Re-coiling Line



# 山东冠洲股份有限公司

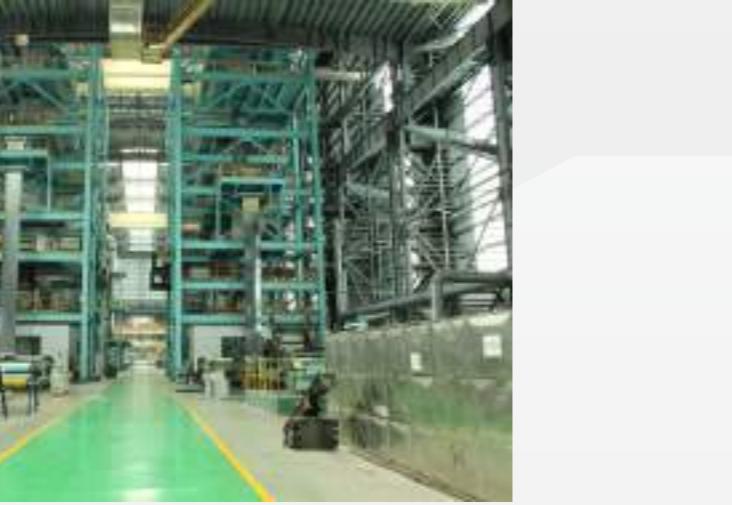
SHANDONG GUANZHOU CO.,LTD



黄石山力兴冶薄板有限公司  
HUANGSHI SUNNY XINGYE STRIP CO.,LTD

**海宁联鑫板材科技有限公司**

ZHEJIANG LIANXIN GROUP CO.,LTD



**鞍山神龙腾达工贸有限公司**

ANSHAN SHENLONGTENGDA INDUSTRY&TRADING CO.,LTD





福建宏旺实业有限公司  
FUJIAN HONGWANG CO.,LTD



International Steels Limited  
国际钢铁有限公司(巴基斯坦)

International Steels Limited  
International Steels Limited

# 单体设备

Single Equipment

开收卷机  
Payoff / Tension Reel



开收卷机  
Payoff / Tension Reel



立式炉  
Vertical Furnace



卧式炉  
Horizontal Furnace



焊机  
Welder



立式涂机  
Vertical Coating Machine



卧式涂机  
Horizontal Coating Machine



破鳞机  
Scale Breaker



破鳞机  
Scale Breaker



拉矫机  
Tension Leveler



两弯两矫拉弯矫直机  
Two-bend Two-level  
Tension Leveler



圆盘剪  
Side Trimmer



圆盘剪(双刀头)  
Side Trimmer ( Double Knife Head )



碎边剪  
Edge Chop Shear



双刀头碎边圆盘剪  
Double-head Edge  
Chop Side Trimmer



# 备品备件

Spare Parts

W型辐射管  
W-radiant tube



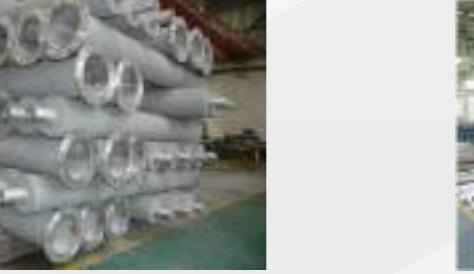
滑块  
Slide Block



翅片管换热器  
Finned Tube Heat Exchanger



I型辐射管  
I-type Radiant Tube



轴套衬套  
Bush and Sleeve



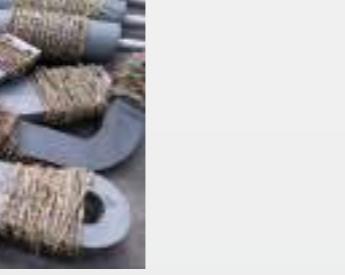
RJC 换热器  
RJC Heat exchanger



U型辐射管  
U- Radiant Tube



支臂  
Support Arm



炉辊  
Hearth Roll



氯丁胶转向辊  
Rubber Turning Roll



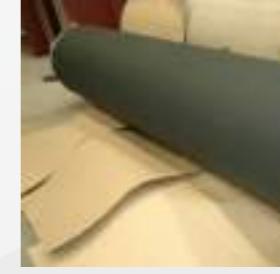
托辊  
Support Roll



大炉辊  
Big Hearth Roll



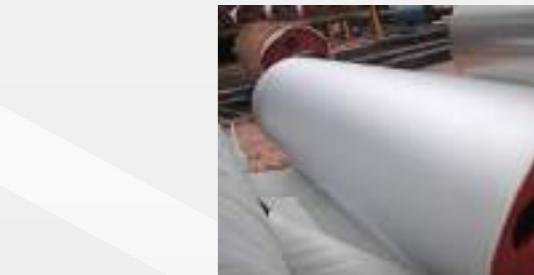
聚氨酯辊  
PU Roll



水淬辊  
Water Quenching Roll



镀铬辊  
Chromed Roll



汲料辊  
Pick Up Roll



张力辊  
Bridle Roll



# 山力股份部分工程案例

Part of Engineering Projects of Sunny

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
连续热镀锌机组 ( 建材 ) continuous hot dipped galvanizing line	安阳神龙腾达新材料科技有限公司 Anyang Shenlongtengda New Materials Technologies Co., Ltd	卧式 Horizontal	(0.2-1.0)x(800-1250)	25	200
	巴基斯坦 ASML Aisha Steel Mills Limited	卧式 Horizontal	(0.25 ~ 2.3)x ( 650~1270 )	25	180
	俄罗斯联合新材料股份有限公司 Russian New Material Co. Ltd	卧式 Horizontal	(0.2-1.0)x(800-1250)	25	180
	天津海钢板材有限公司 Tianjin Haigang Steel Coil Co., Ltd	卧式 Horizontal	(0.35 ~ 1.2)x850	22	160
	天津海钢板材有限公司 Tianjin Haigang Steel Coil Co., Ltd	卧式 Horizontal	(1.0 ~ 4.0)x850	16.5	50
	巴基斯坦 ISL International Steel Mills Limited	卧式 Horizontal	(0.3 ~ 2.0)x(650 ~ 1300)	25	160
	山东冠洲鼎鑫板材科技有限公司 Guanzhou Dingxin Sheet Materials Science and Technology Co., Ltd	卧式 Horizontal	(0.70 ~ 5.0)x(750 ~ 1500)	40	90
	霸州市胜芳万路建材有限公司 Bazhou Shengfang Wanlu Building Materials Co., Ltd	立式 Vertical	(0.20 ~ 1.2)x(800 ~ 1250)	25	200
	印度尼西亚 PT.X PT. X	卧式 Horizontal	(0.18 ~ 1.0)x(800 ~ 1250)	12	150
	武钢鄂钢公司 Wuhan Iron & Steel Group Echeng Iron & Steel Co., Ltd	立式 Vertical	(0.3 ~ 1.2)x(800 ~ 1350)	25	180

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
连续热镀锌机组 ( 家电 ) Continuous Hot Galvanizing Line (Appliance)	浙江协和首信钢业有限公司 Zhejiang Concord Sheet Steel Science and Technology Co., Ltd	立式 Vertical	(0.3-1.6)x(800-1280)	25	150
	黄石山力兴冶薄板有限公司 Huangshi Sunny Xingye Strip Co., Ltd	立式 Vertical	( 0.25 ~ 1.5 ) x ( 800 ~ 1250 )	25	160
	山东冠洲鼎鑫板材有限公司 Guanzhou Dingxin Sheet Materials Science and Technology Co., Ltd	立式 Vertical	(0.25 ~ 2.0)x(800 ~ 1350)	30	160/60
	浙江新永丰钢业有限公司 Yong Feng Sheet Industrial Co., Ltd	立式 Vertical	(0.25-1.2mm )x(800-1320mm)	32	160
	海宁联鑫板材料科技有限公司 Haining Lianxin Sheet Technology Co., Ltd	立式 Vertical	(0.25 ~ 1.5)x(800 ~ 1250)	25	160
连续热镀锌(GL)机组 Continuous Hot Galvalume Line	孟加拉 KSML KARNAFULLY STEEL MILLS LTD	卧式 Horizontal	(0.1 ~ 0.8)x(600 ~ 1250)	9	140
	鞍山神龙腾达工贸有限公司 Anshan Shenlong Tengda Industrial &Trading Co., Ltd	卧式 Horizontal	(0.15-0.4)x(600-1000)	15	240
	浙江协和首信钢业有限公司 Zhejiang Concord Sheet Steel Science and Technology Co.,Ltd	卧式 Horizontal	(0.2-1.2)x(800-1280)	20	160
	山东星瀚材料股份有限公司 Shandong Xinghan Material Corporation	L 式 L Type	(0.5~2.5)x(700~1250)	45	180

# 山力股份部分工程案例

Part of Engineering Projects of Sunny

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
连续彩涂(CCL)机组 Continuous Color Coating Line	山东冠洲股份有限公司 Shandong Guanzhou Co., Ltd..	卧式 Horizontal	(0.2 ~ 1.2)x(800 ~ 1250)	20	150
	山东航隆板材有限公司 Shandong Hanglong Sheet Co., Ltd	卧式 Horizontal	(0.18 ~ 0.6)x(800 ~ 1050)	15	160
	海宁联鑫板材料科技有限公司 Haining Lianxin Sheet Technology Co., Ltd	卧式 Horizontal	(0.25 ~ 1.2)x(800 ~ 1250)	20	150
推拉式酸洗机组 Push and Pull Pickling Line	孟加拉 KSML KARNAFULLY STEEL MILLS LTD	卧式 Horizontal	(0.125 ~ 0.6)x(600 ~ 1250)	5	60
	浙江联鑫板材科技有限公司 Zhejiang Lianxin Group Co., Ltd	卧式 Horizontal	(0.2 ~ 1.2)x(900 ~ 1250)	12	100
	山东冠洲鼎鑫板材科技有限公司 Guanzhou Dingxin Sheet Materials Science and Technology Co., Ltd	卧式 Horizontal	(0.15 ~ 1.2)x(700 ~ 1350)	12.5	100
推拉式酸洗机组 Push and Pull Pickling Line	巴基斯坦 ASML Aisha Steel Mills Limited	卧式 Horizontal	(1.8 ~ 4.5)x(800 ~ 1350)	50	100
	台湾尚承钢铁股份有限公司 Shang Chen Steel Co., Ltd	卧式 Horizontal	(1.0 ~ 6.0)x(700 ~ 1580)	45	90
	无锡西城特种薄板有限公司 Wuxi Xicheng Special Sheet Co.,Ltd	卧式 Horizontal	(1.8 ~ 4.5)x(800 ~ 1350)	50	100

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
连续酸洗机组 Continuous Pickling Line	巴基斯坦 ISL International Steels Limited	卧式 Horizontal	(1.5 ~ 4.0)x(800 ~ 1380)	120	120
	黄石山力兴冶薄板有限公司 Huangshi Sunny Xingye Strip Co., Ltd	卧式 Horizontal	(1.5 ~ 4.0)x(800 ~ 1380)	120	120
无取向电工钢连续脱碳退火涂层机组 Non-oriented Electrical Steel Continuous Decarburizing Annealing Coating Line	中山市中圣金属板带科技有限公司 Zhongshan Zhongsheng Metal Sheet Technology Co., Ltd	卧式 Horizontal	(0.35 ~ 0.65)x(800 ~ 1250)	25	135
	攀钢四川瑞致电工钢有限公司 Panzhihua Iron&Steel Sichuan Ruzhi Electrical Steel Co., Ltd	卧式 Horizontal	(0.35 ~ 0.65)x(900 ~ 1255)	20	135
	黄石山力兴冶薄板有限公司 Huangshi Sunny Xingye Strip Co., Ltd	卧式 Horizontal	(0.35 ~ 0.65)x(1000 ~ 1250)	20	135
	江阴永利新型包装材料有限公司 Jiangyin Yongli New Packing Material Co., Ltd	卧式 Horizontal	(0.35 ~ 0.65)x(600 ~ 1000)	15	140
	宁波盈展精密薄板有限公司 Ningbo Ying Zhan precision sheet Co., Ltd.	卧式 Horizontal	0.265x(800 ~ 1230)	8.53	100
取向硅钢连续脱碳退火及氧化镁涂层机组 Oriented Silicon Steel Decarbonization Annealing and Magnesium Oxide Coating Line	重庆望变电气(集团)股份有限公司 Chongqin Wangbian Electric(Group) Corp., Ltd	卧式 Horizontal	0.265x(800 ~ 1100)	5.5498	65

# 山力股份部分工程案例

Part of Engineering Projects of Sunny

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
取向硅钢涂绝缘层及热平整机组 Oriented Silicon Steel Coating Insulation and Hot Leveling Line	宁波盈展精密薄板有限公司 Ningbo Ying Zhan precision sheet Co., Ltd.	卧式 Horizontal	0.265x(800 ~ 1230)	8.45	90
	重庆望变电气(集团)股份有限公司 Chongqin Wangbian Electric(Group) Corp., Ltd	卧式 Horizontal	(0.23~0.35)x(800~1100)	5.5	65
取向硅钢常化酸洗机组 Oriented Silicon Steel Normalization Pickling Line	重庆望变电气(集团)股份有限公司 Chongqin Wangbian Electric(Group) Corp., Ltd	卧式 Horizontal	(2.2~2.3)x(800~1150)	6.25	10
200/300 系冷轧不锈钢连续退火酸洗机组 200/300 Cold Rolled Stainless Steel Continuous Annealing Pickling Line	句容中圣金属板带科技有限公司 Jurong Zhongsheng Technology Co., Ltd	卧式 Horizontal	(0.2 ~ 2.0)x(850 ~ 1300)	20	100
	福建宏旺实业有限公司 Fujian Hong Wang Industrial Co., Ltd	卧式 Horizontal	(0.2 ~ 3.0)×(800 ~ 1250)	67	220
	福建宏旺实业有限公司 Fujian Hong Wang Industrial Co., Ltd	卧式 Horizontal	(1.1 ~ 3.0)×(800 ~ 1250)	70	150
	中山市中圣金属板带科技有限公司 Zhongshan Zhongsheng Metal Sheet Technology Co., Ltd	卧式 Horizontal	(0.3 ~ 2.0)x(800 ~ 1250)	15	80
连续退火机组 Continuous Annealing Line	黄石山力兴冶薄板有限公司 Huangshi Sunny Xingye Strip Co., Ltd	立式 Vertical	( 0.25 ~ 1.5 ) × ( 800 ~ 1250 )	25	160

机组名称 Line Designation	用户 Customer	炉型 Furnace Type	带钢规格 : 厚×宽 mm Strip Spec: Thickness x Width	产量 Capacity $\times 10^4$ TPY	速度 Speed mpm
	无锡新大中薄板有限公司 Wuxi Xindazhong Steel Sheet Co.,Ltd	立式 Vertical	(0.18 ~ 0.32)x(800 ~ 1000)	7	100
	宝钢南方高明基业冷轧钢板有限公司 Baosteel Southern Gaoming Foundation Cold Rolled Steel heet Co., Ltd	立式 Vertical	(0.25 ~ 1.2)x(600 ~ 1250)	15	120
连续带钢电解脱脂机 Continuous Strip Electrolysis Degreasing Line	武钢集团江北钢材有限公司 Wuhan Iron & Steel River North Group Co., Ltd	\	(0.08 ~ 1.0)x(200 ~ 850)	9	260
钛卷剪板机组 Titanium Coil Shearing Line	湖南湘投金天钛金属有限公司 Hunan Xiangtou Goldsky New Material Co., Ltd	\	( 2.0 ~ 4.0 ) x ( 950 ~ 1300 )	1.7	15
钛卷准备机组 Titanium Coil Preparation Line	湖南湘投金天钛金属有限公司 Hunan Xiangtou Goldsky New Material Co., Ltd	\	( 2.0 ~ 4.0 ) x ( 950 ~ 1300 )	1.1	3.75
钛卷脱脂机组 Titanium Coil Degreasing Line	湖南湘投金天钛金属有限公司 Hunan Xiangtou Goldsky New Material Co., Ltd	\	( 2.0 ~ 4.0 ) x ( 1000 ~ 1300 )	10.55	30

注 : 黄石山力科技股份有限公司从 2000 年至今已承建各类机组 200 余条 , 以上仅为各类机组部分代表性企业及生产线。  
Kindly please be acknowledged that from year 2000 till now we have supplied more than 200 projects of all kinds of steel processing lines, above listed are part of reference ones.



山有其本  
力有其源

以先进的板材处理技术和优质的服务，  
做全球知名的装备供应商

To be worldwide known equipment supplier by our advanced strip processing technology and  
superior services