产 品 类 别
Product Classification

四辊可逆冷轧机组
Four-hi Reversible Cold Rolling Mill

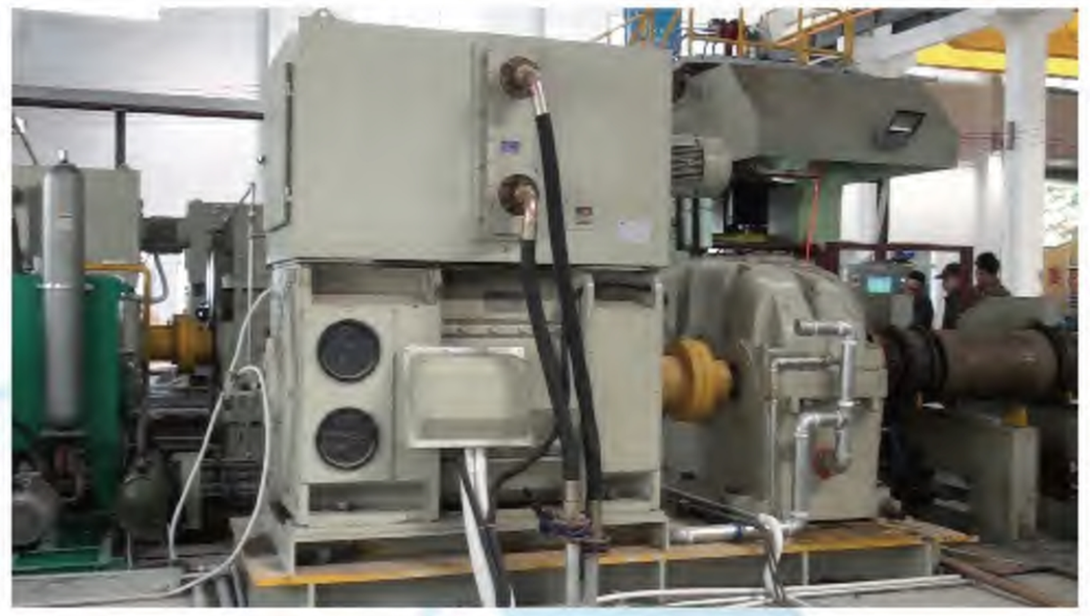
■ 生产线工艺参数 Technical Parameters

名称 Name	450 轧机 450mm CRM	500 轧机 500mm CRM	650 轧机 650mm CRM	750 轧机 750mm CRM	850 轧机 850mm CRM
型号 Type	ϕ140 ϕ450x450	ϕ140 ϕ500x500	ϕ150 ϕ600x650	ϕ160 ϕ630x750	ϕ165 ϕ720x850
坯料厚度 Input Thickness	2.0–3.0mm	2.0–3.0mm	2.0–3.0mm	2.0x3.0mm	2.0x3.0mm
成品厚度 Output Thickness	0.2–1.0mm	0.2–1.0mm	0.2–1.0mm	0.2–1.0mm	0.2–1.0mm
钢带宽度 Strip Width	250–380mm	300–420mm	400–560mm	500–670mm	600–750mm
传动方式 Transmission	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll
轧制力 Rolling Force	3000KN	4000KN	6000KN	7000KN	8000KN
轧制速度（米/秒） Rolling Speed(m/s)	1–6	1–6	1–6	1–6	1–6

■ 工艺流程图 Components

前卷取机（卸卷小车）→机前装置→四辊主机→机后装置→后卷取机（卸卷小车）。根据需要可配置开卷机，开头矫直机等设备。

Entry tension reel (unloading car) →front devices→four-high rolling mill→rear device→exit tension reel (unloading car) etc.Uncoiler and head straightening machine could be equipped as per user's needs.



产品类别
Product Classification

六辊可逆轧机
Six-hi Reversible Cold Rolling Mill

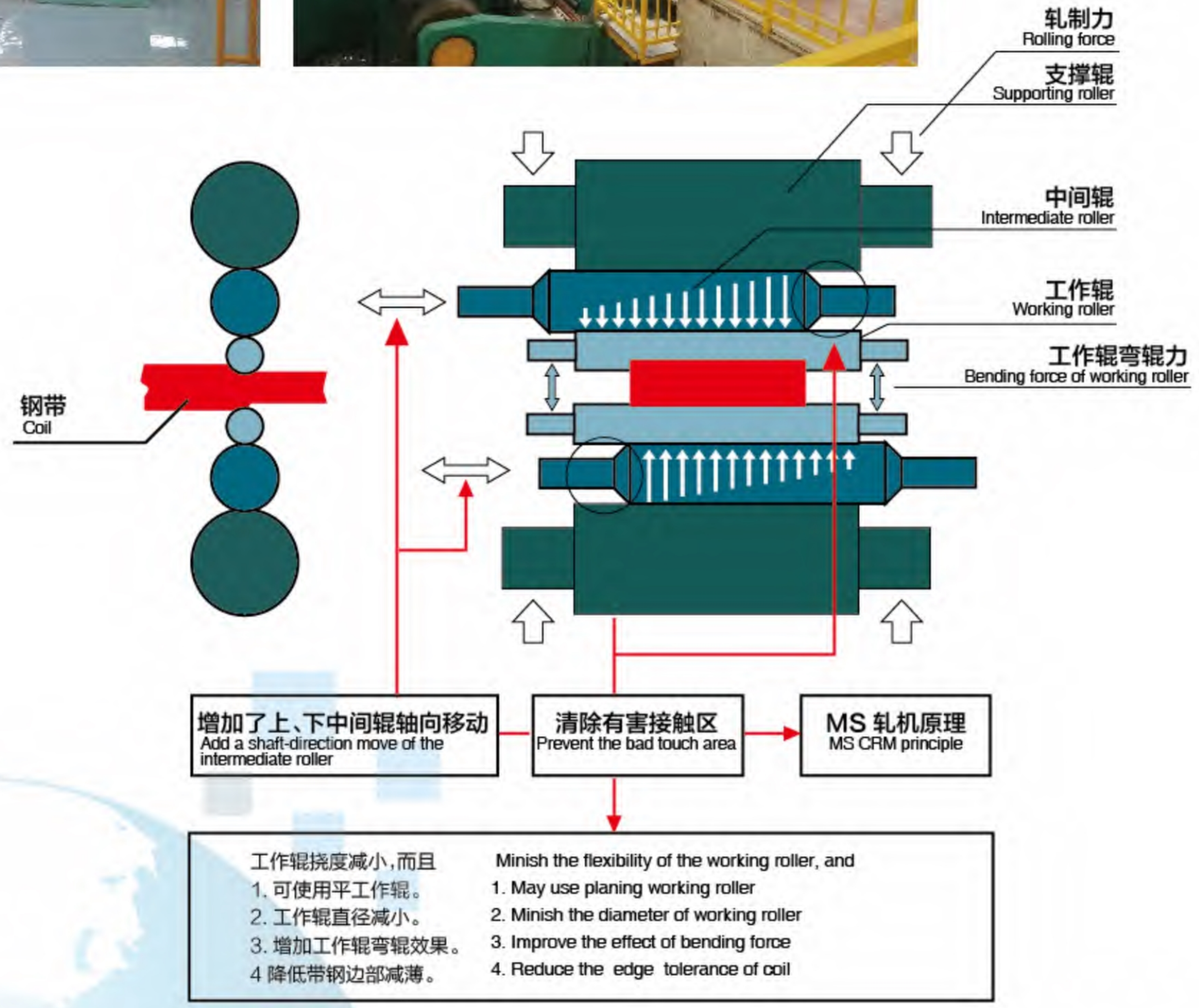
生产线工艺参数 Technical Parameters

	ϕ150 ϕ175 ϕ460x500	ϕ165 ϕ200 ϕ540x650	ϕ190 ϕ250 ϕ630x750	ϕ210 ϕ250 ϕ680x850	ϕ250 ϕ300 ϕ800x900	ϕ300 ϕ370 ϕ950x1050	ϕ330 ϕ370 ϕ1050x1250	ϕ400 ϕ450 ϕ1250x1450
坯料厚度 Input Thickness	2.0–3.0mm	1.0–2.5mm	1.0–3.5mm	1.0–3.5mm	2.0–4.0mm	2.0–4.0mm	2.0–4.0mm	2.0–4.0mm
成品厚度 Output Thickness	0.15–1.0mm	0.18–1.0mm	0.2–1.0mm	0.2–1.0mm	0.2–2.0mm	0.2–2.0mm	0.2–2.0mm	0.2–2.0mm
钢带宽度 Strip Width	300–420mm	400–560mm	500–670mm	600–780mm	700–900mm	650–950mm	700–1100mm	900–1250mm
传动方式 Transmission	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller	工作辊传动 Working roller
轧制力 Rolling Force	2800KN	3500KN	5000KN	5500KN	6500KN	10000KN	12000KN	15000KN
轧制速度(米/秒) Rolling Speed(m/s)	3–6	3–6	3–6	3–6	3–6	10	8–12	8–16

工艺流程图 Components

开卷机(上卷小车)→ 开头矫直机 → 前卷取机 →(卸卷小车)→ 机前装置 → 六辊主机 → 机后装置 →后卷取机(卸卷小车)→(助卷机)

Pay-off reel (loading car) →head straightening unit→entry tension reel (unloading car) →front devices→six roller master mill→rear device→exit tension reel (unloading car) →(auxiliary coiler)



产 品 类 别
Product Classification

偏八辊轧机
MKW 8-hi Cold Rolling Mill

■ 用途及特点 Features and Applications

1. 偏八辊轧机是由支承辊传动，工作辊偏离支承辊中心安装，这样工作辊直径的减小既不受扭矩的限制，也不受水平弯曲的影响，因此工作辊直径可以很小，一般为四辊轧机工作辊直径的一半，这样偏八辊轧机可以像多辊轧机一样满足轧薄和轧制难变形产品的要求；
2. 偏八辊轧机也四辊轧机相比，轧制力只需要四辊轧机的一半；
3. 偏八辊轧机具有刚性较大的辊系结构和辊形调整装置，从而可以轧制出厚度偏差较小和板形平直的带钢。

1.MKW 8-hi cold rolling mill is transmitted by back-up roller. The working roller is installed deviate from the centre of the back-up roller. Thus the reduction of the diameter of the working roller cannot influence by the torque and the straightness. Frequently the diameter of working roller of MKW CRM is half of that of 4-hi CRM;

2.Compared to 4-hi CRM, the rolling force of MKW CRM is half;

3.MKW CRM equipped with high rigidity roll structure and roll shape adjustment to roll the strip with minimum tolerance and good flatness.

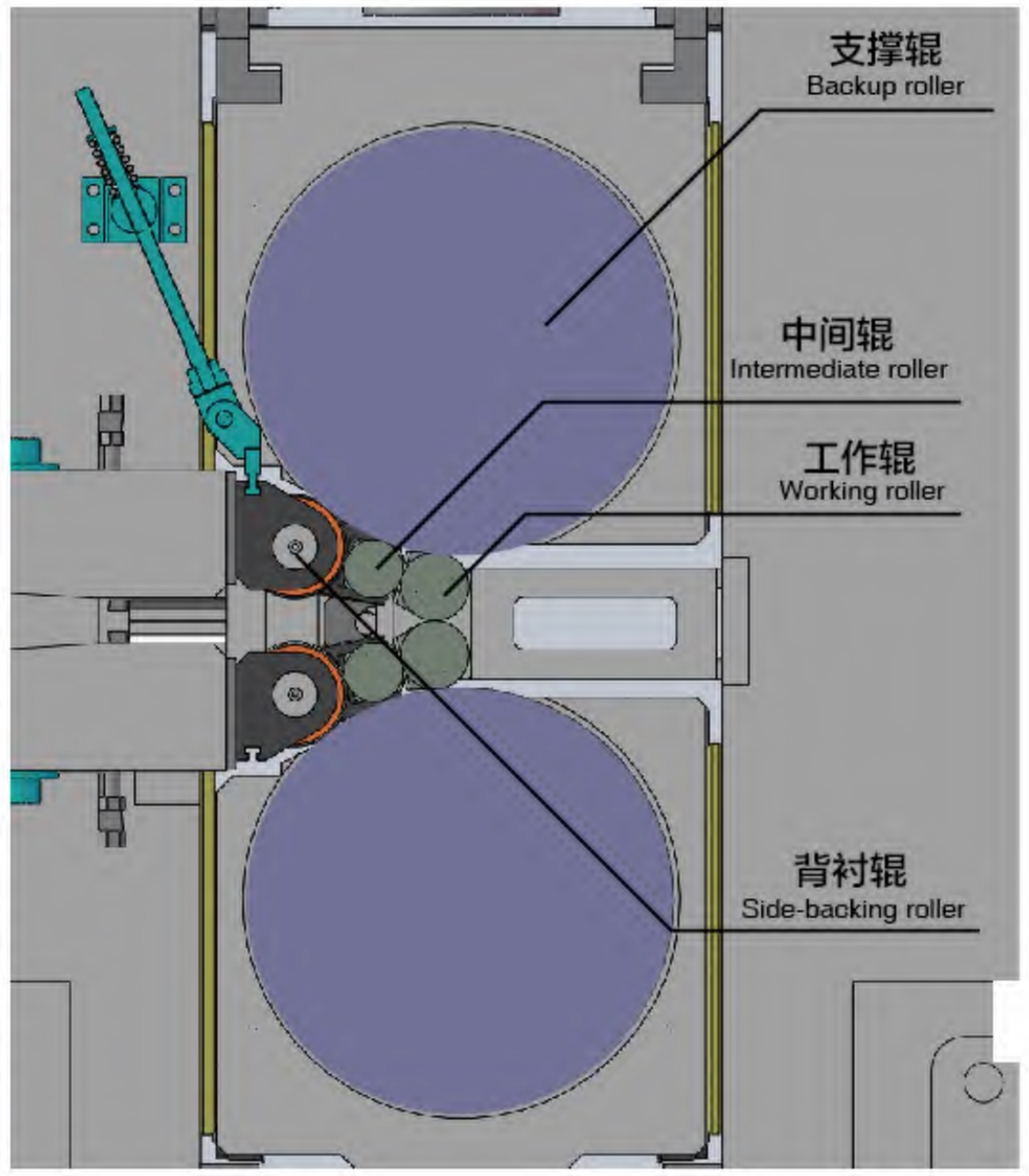
■ 工艺流程图 Components

开卷机（上卷小车）→ 开头矫直机 → 前卷取机 →（卸卷小车）→ 机前装置 → 六辊主机 → 机后装置 →后卷取机（卸卷小车）→（助卷机）

Pay-off reel (loading car) →head straightening unit→entry tension reel (unloading car) →front devices→six roller master mill→rear device→exit tension reel (unloading car) →(auxiliary coiler)

■ 生产线工艺参数 Technical Parameters

名称 Name	500 轧机 500mm CRM	650 轧机 650mm CRM	750 轧机 750mm CRM	850 轧机 850mm CRM	1150 轧机 1150mm CRM	1450 轧机 1150mm CRM
坯料厚度 Input Thickness	0.6–1.2mm	0.6–1.2mm	0.6–1.2mm	0.6–1.2mm	1.0–2.5mm	1.0–2.5mm
成品厚度 Output Thickness	0.1–0.3mm	0.15–0.3mm	0.15–0.3mm	0.15–0.3mm	0.2–0.6mm	0.2–0.6mm
钢带宽度 Strip Width	300–420mm	400–580mm	500–670mm	600–750mm	850–1000mm	1000–1250mm
传动方式 Transmission	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll	支承辊传动 Back–up roll
轧制力 Rolling Force	3000KN	7000KN	8000KN	9000KN	12000KN	16000KN
轧制速度（米/秒） Rolling Speed(m/s)	3–5	3–5	3–5	3–5	3–4	3–4



产 品 类 别
Product Classification

二十辊轧机
20-hi Cold Rolling Mill

■ 用途及特点 Features and Applications

1. 具有整体铸造机架 刚度大 轧制力呈放射状作用在机架的各个截面上。
2. 工作辊小 道次压下率和总压下率大。
3. 塔形辊系 多支点梁支承辊机构 轧机刚度大 轧辊的挠曲变形小 轧制成品板形好、精度高。
4. 轧机体积小 质量轻、轧机质量约为同规格其他类型轧机的二分之一。
5. 制造精度高、机架上 8 个梅花状通孔制造精度的保证是制造的关键点。

1.With whole cast frame,high rigid,rolling pressure radiate on the various section of the frame.

2.With small working roll diameter,large pressure rate of rolling routes and total pressure rate .

3.With pagoda shape roll assembly,structure of various section support back up roll,high rigid,less deformation and products with good plate shape and high precision.

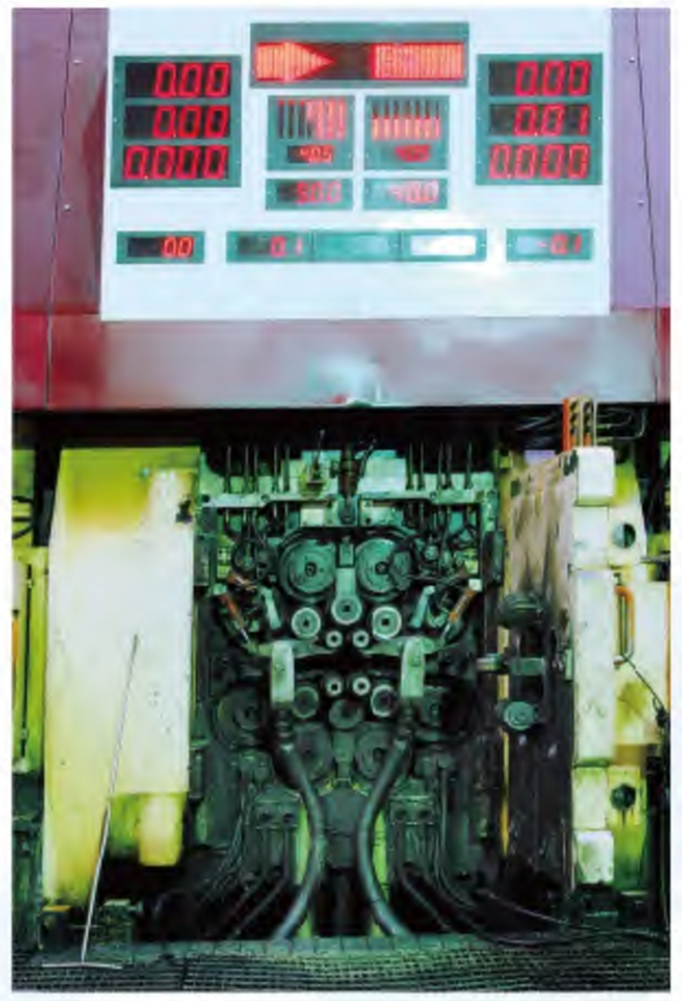
4.Small volume,light weight. It's only 1/2 of the other same type rolling machines.

5.High precision,the guarantee of manufacturing precision of 8 plum blossom shape channels on the frame is the key of the product.

■ 工艺流程图 Components

上料鞍座→开卷机→前张力辊→送料板→机前夹送辊→测厚仪→真空除油→对中装置→主轧机→真空除油→测厚仪→剪刀→后张力辊→后夹送辊→卷取机

Charging saddle→uncoiler→left tension roll→feeding plate→front pinch roll→thickness gauge→vacuum degreasing→centering device→rolling mill→vacuum degreasing→thickness gauge→shear→right tension roll →post pinch roll→coiler



产 品 类 别
Product Classification

连轧机组
Tandem Mill

■ 用途及特点 Features and Applications

1 连轧机组与单机架相比，生产效率更高，产品质量高，适合于高产量及单一产品的生产。连轧机组分为：二连轧、三连轧、四连轧、五连轧、六连轧机组。

2 工艺流程：上料小车→开卷机→矫直送料机组→液压剪→焊接平台→落地式活套→进料口工艺平台→1号机架→2 号机架→3 号机架→4 号机架→5 号机架→出料口工艺平台→收卷机组→卸料小车

1.Compared to single stand cold rolling mill, Tanderm mill has the advantage of high efficiency and good quality, is usually for producing high production and single size strip. The tanderm mill includes: 2 stands, 3 stands, 4 stands, 5 stands and 6 stands.

2. Components:

Charging wagon→uncoiler→straightening unit →hydraulic shear→ welding platform → floor type looper→ input side processing platform→ stand 1→ stand 2 → stand 3→ stand 4 → stand 5→ output side processing platform→ coiler → unloading car

■ 生产线工艺参数 Technical Parameters

参数 / 机组 Item	三机架 Three Stands	四机架 Four Stands	五机架 Five Stands
原料厚度 Input Thickness	2.0 ~ 3.0mm	2.0 ~ 4.0mm	2.75 ~ 4.0mm
成品厚度 Output Thickness	0.6 ~ 1.2mm	0.5 ~ 1.2mm	0.5 ~ 1.2mm
最大轧制速度 Max Rolling Speed	240m/min	300m/min	300m/min

产品类别
Product Classification

850 不锈钢六辊六连轧机组
850 Stainless Steel 6-hi Six Stands Tandem Mill

■ 用途及特点 Features and Applications

1. 连轧机组与单机架相比，生产效率更高，产品质量更高，适合于高产量及单一产品的生产；

   Compared to single stand cold rolling mill, tandem mill has the advantage of high efficiency and good quality, and usually applied producing high production and single size coil,.

2. 主轧机辊系采用六辊设计，具有液压弯辊装置和中间辊横移装置，能迅速调整轧辊的凸度，改变轧辊间接触压力分布，消除有害接触区，达到控制板型和凸度的目的；

   The main mill is designed as six roller assembly. The hydraulic bending devices and middle roller horizontal moving installations can fast regulate the rollers' gibbous degree to change the distribution of the touching pressure between rollers in order to eliminate the harmful touching areas of rollers which aims to control the plate shape and gibbous degress.

3. 采用双开卷，双收卷，卧式活套设计，并配备激光焊机，大幅提供轧制速度，并防止带钢表面擦伤。

   Double decoiler, double coiler, horizontal storage loop and laser welding machine is equipped within this line to improve the rolling speed and prevent the damage of the coil surface.

■ 工艺流程图 Components

1# 上卷小车→1# 开卷机→1# 夹送矫直机→1# 单层液压剪→1# 转向夹送辊→2# 上卷小车→2# 开卷机→2# 夹送矫直机→2# 单层液压剪→焊机前夹送辊→激光焊机（用户自配）→张力辊 1、2→两弯两矫拉矫机→张力辊 3、4→水平活套入口纠偏辊组→入口水平活套→水平活套中间纠偏辊组 2 组→水平活套出口纠偏辊组 1 组→水平活套出口张力辊 5、6→1# 轧机入口装置→1-6# 六辊轧机→6# 轧机出口平台→夹送辊→飞剪→1# 转向夹送辊→1# 卷取机（配助卷器）→1# 卸卷小车→2# 转向夹送辊→2# 卷取机（配助卷器）→2# 卸卷小车。

No.1 Loading car→No.1 Decoiler→No.1 Pinch-straighten Machine→No.1Hydraulic shear→No.2 Loading car→No.2 Decoiler→No.2 Pinch-straighten Machine→No.2Hydraulic shear→Pinch Roller No.1&2→Laser Welder→Tension Roller No.1&2→Tension Leveler→Tension Roller No.3&4→Loop Entrance rectify Roller→Horizontal Storage Loop→Inside Loop rectify Roller(2 sets) →Loop Exit rectify Roller→Loop Exit Tension Roller No.5&6→Entering Device for Stand 1→Stand 1 to 6 Main Mill→Output Platform→Pinch Roller→Fly Shear Cutter→No.1 Steering-pinch Roller→No.1 Coiler(belt wrapper) →No.1 Unloading car→No.2 Steering-pinch Roller→No.2 Coiler(belt wrapper) →No.2 Unloading car

产 品 类 别
Product Classification

平整机组
Skin Pass Mill

■ 用途及特点 Features and Applications

平整机组适用于退火后冷轧带钢的平整，其主要目的是提高带钢机械性能，增加带钢表面硬度、强度和弹性、使带钢具有较好的深冲性能，较好的板型和表面光洁度。

平整机组分为四辊平整和二辊平整。平整机根据客户的工艺要求，前后增加 S 辊机组，和拉矫机组。电气控制系统可实现恒延伸率，恒轧制力、恒辊缝、恒张力等平整工艺。

It consists of two series of two rollers and four rollers.It is used for leveling the annealed cold rolling strips in order to improve the machinery functions to enhance the surface hardness,strength and elasticity of CR strips.Meanwhile,the CR strips through the leveler unit can have functions of excellent deep punching,shapes and surface clearness.Four rollers leveler unit for middle and wider coils and plates is equipped with hydraulic AGC pressing down and automatic adjusting rolling elevation lever installations.The working rollers adopt hydraulic reverse bending electro-liquid servo system.Roller"S",anti-crinkle rollers,and anti-jumping rollers are set up to the front and rear machines with functions of strips transmission automatically and easy operation. Leveling technics such as constant extension,constant rolling force,constant clearance of rollers,and constant tension can come true by computer online control.

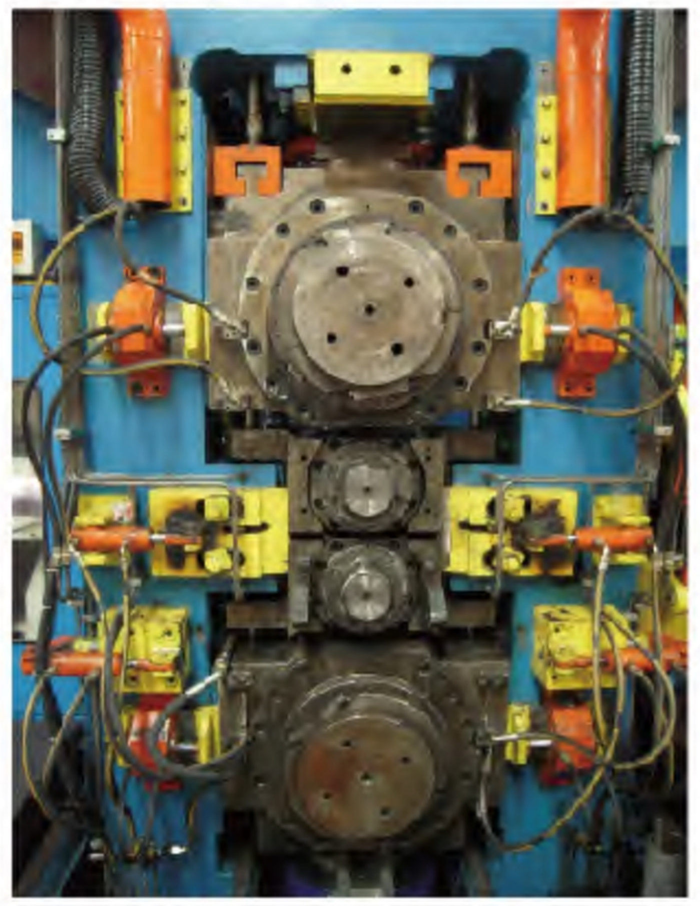
■ 工艺流程图 Components

开卷→液压剪→入口 S 辊→入口防皱辊→四辊平整机→出口防皱辊→出口 S 辊→卷取机

Uncoiler →hydraulic shear →entry roller"S"→entry anti-crinkle rollers→four rollers→leveler unit→entry anti-crinkle rollers→exit roller"S"→coiler

■ 生产线工艺参数 Technical Parameters

型号 Type	ϕ350x400	ϕ450x550	ϕ550x650–750	ϕ280/ϕ580x800–900	ϕ320/ϕ650x900–1000	ϕ330/ϕ700x1200–1400
钢带厚度 Strip Thickness	0.3–1.0 0.2–0.8	0.3–1.0 0.2–0.8	0.32–1.0 0.2–0.8	0.2–0.8	0.2–0.8	0.2–0.8
钢带宽度 Strip Width	250–300	350–450	550–650	700–800	700–900	1000–1200
压下方式 Screw–down	电动 液压 Motor Hydraulic	电动 液压 Motor Hydraulic	电动 液压 Motor Hydraulic	液压 Hydraulic	液压 Hydraulic	液压 Hydraulic



产 品 类 别
Product Classification

推拉式酸洗生产线
Push-pull Pickling line

一、技术特性 Technology Parameter

以普通热轧钢带为例，下表为年产 40 万吨推拉式酸洗生产技术参数。
Following is the data for push-pull pickling hot rolled strip with the annual output of 400000 tons.

工艺方法 Process Method	推拉式浅槽紊流盐酸酸洗 Push-pull shallow slot turbulence HCL
原材料 Raw Material	普碳钢 Carbon Steel
酸洗介质 Pickling Medium	盐酸 Hydrochloric acid(≥31%)
酸洗浓度 Pickling Density	8 ~ 18%
酸洗时间 Pickling Time	min : 25-30s
酸洗温度 Pickling Temperature	65 ~ 85℃
酸浓度 Acid Density	Max 200 g/L HCl 120g/LFe2+
机组传动方式 Driven Way	SIEMENS 交流变频控制系统 SIEMENS AC frequency control system

Acid Medium	Annual Output	Strip Thickness	Strip Width	Coil Weight	Line Speed
HCL	100 000-600 000t	1.2-6.0mm	450-1630mm	Max 35t	40-180m/min

二、生产工艺流程图 Process Flow of Push Pull Pickling line

预开卷准备站

受料台 → 上卷小车 → 地辊式开卷机组 → 夹送矫直机 →切角机 → 齐头剪切机

Pre-uncoiling station

Loading platform → entry coil car → payoff reel → pinch straightener →comer shear → shear

酸洗机组

人工上料 → 开卷机→ 夹送矫直机 → 剪切机 →反冲洗 → 酸洗 → 水洗 → 烘干 → 活套 → 圆盘剪 → 三辊张力机 → 出口剪切机 → 静电涂油机 → 卷取机 → 人工下料

Pickling line

Manually loading → pay-off reel → pinch straightener → entry shear → riveter pinch roll → back washing → pickling → water washing → drying → looper →disc shear → exit shear → electrostatic oiling → coiler → manually unloading

轧机配件
Spare Parts

轧辊 Roller

冶金十字万向轴 Universal Joint

轴 承 Bearing

Four-row tapered roller bearing

Four-row cylindrical roller bering

轴承座 Bearing House

Bck-up Roller Bearing Chock

技术服务及售后服务承诺
Technical and after-sale service

- 机组设备在需方现场开始安装，供方即派相关人员提供现场技术服务。
- 设备质保期为设备调试正常通过验收后 12 个月
- 在质保期内，设备出现故障，供方将派技术人员到现场处理或协商解决；对非人为造成的损坏，将免费修理或更换零部件。（易损备件除外）
- 设备质保期后，对设备运行中出现的问题，乙方将尽可能给予需方方便，帮助解决；提供长期服务。

- Seller will send the installing engineer to offer technical service from the beginning of the installing of the cold rolling mill.
- Guarantee period is 12 months after the installation work and get the notice of acceptance signed by buyer.
- During the guarantee period, in case of the CRM fault, seller will send the engineer to buyer' s factory to solve the problem. Against the non-artificial destruction, seller will repair or change the parts for free.
- After the guarantee period, seller will help the buyer to solve the problem of CRM to offer a long after-sale service.

生产设备
Production Equipment

精 加 工 车 间
Fabricating Workshop





装 配 车 间
Assembly Wokshop