

XLB-Y1800×10000

钢丝绳（及织物芯）输送带生产线

Steel Cord (Textile Cord) Conveyor Belt Press line

技术协议

Technical Agreement

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XLB-Y1800×10000 钢丝绳（及织物芯）输送带生产线 XLB-Y1800×10000 Steel Cord(Textile Cord) Conveyor Belt Press line

I. 概述 Overview:

硫化线设计执行标准：GB / T9770- 2001、HG/T3034- 1999，计算机辅助设计。

生产线满足ST630--7500级别的钢丝绳芯输送带，由主机、辅机两大部分组成。主机包括框板、托板加热板、液压缸泵站电器控制等。辅机包括锭子架、张力站、固定分梳、成形车、多功能拉带机组、(液压切带机)、卷取包装机等设备装置，并配有液压站、电气控制系统。该设备能够实现钢丝绳芯输送带在张力情况下成型硫化的生产工艺要求。钢丝绳直径最细 ϕ 0.5mm 最粗为 ϕ 15.0mm 电控系统采用PLC控制，可以实现手动和自动两种方式。

Execution standards for vulcanization line design: GB/T9770-2001, HG/T3034-1999, computer-aided design.

The production line meets the ST630-7500 grade steel wire core conveyor belt, composed of main machine and auxiliary machines. The main machine includes frames, supporting plate heating plate, hydraulic cylinder pump station, electrical control, etc. Auxiliary machines include spindle frame, tension station, fixed carding, forming car, multi-function belt drawing unit, (hydraulic belt cutter), winding up device, packaging device and other equipment and devices, and are equipped with hydraulic station and electrical control system. The equipment can meet the production process requirements of steel cord conveyor belt forming and vulcanization under tension. The diameter of wire rope is min. ϕ 0.5mm, max. ϕ 15.0mm; The electric control system adopts PLC controller, which can realize manual and automatic modes.

II. 设备工艺流程 Work technology process

锭子架→张力站→固定分梳→成型车（含垫布卷取，生带导开装置）→前夹持拉伸→前脱锅装置→主硫化机→后脱锅装置→中夹持→托辊组→多功能组合机组→修补硫化机→液压切带机→卷取包装机。

Spindle Frame → tension station → fixed carding → forming care (including Cloth liner reeling , green belt unreeling) → front clamping & stretching → front pot stripping device → main vulcanizing press → back pot stripping device → middle clamping → carrier roller group → multi-function belt drawing unit → repair vulcanizer → hydraulic belt cutter → winding up packaging device

XLB-Q1800×10000mm平板硫化机全线配置，设备流程长度约为94-102 M，设备基准（地面至上热板下表面）高为1300mm。

XLB-Y1800*10000 mm vulcanizing press full line configuration, total length being around 94-102 meters, Equipment center height is 1300mm (from lower surface of upper plate to the ground).

III. 具体应用功能与配置

Detailed functions and configurations:

1. 锭子架（变位定向器采用陶瓷结构） Spindle frame (displacement orienteer adopts ceramic structure):

锭子架支架由型钢焊接而成，共有156个锭子，分成两排，每排分成三层，每个锭子都有一个电机减速机驱动，为钢丝绳提供初涨力和收卷，钢丝绳导出采用瓷管导出机构，最大限度的减小导出时对钢丝绳的摩擦损伤，设有3套0.5吨锭子吊装机构，满足锭子的装卸。

Spindle frame support is welded by structural steel. There are 156 spindles in total, which are divided into two rows and each row is divided into three layers. Each spindle is driven by a motor reducer to provide initial expansion force and winding up. The steel wire rope is exported by a porcelain tube export mechanism to minimize the friction damage to steel wire rope during export; three sets 0.5t spindle hoisting mechanisms are set to meet the requirements of

spindle loading and unloading.

技术参数 Technical Parameters:

- | | |
|---|------------------------|
| 1) 锭子轴总数 spindle axis qty: | 156个 / pcs |
| 2) 电机减速机 motor reducer: | 156台/ sets |
| 3) 钢丝绳初张力 steel wires rope initial expansion force: | 400N/ pc 根 |
| 4) 钢丝绳直径 steel wire rope diameter: | φ 0.5~15.0mm |
| 5) 锭子盘排列方式 spindle disc arrangement mode: | 2 rows 3 layers / 2排3层 |
| 6) 变位定向器 displacement orienteer : | ceramic structure 陶瓷结构 |
| 7) 吊机规格及数量 hoisting mechanisms spec. And qty: | 2000Kg×2 sets / 台 |
| 8) 钉子架驱动电机功率: | 力矩电机 12NM*156 |
| spindle frame drive motor power: | torque motor 12NM*156 |
| 9) 电动葫芦驱动电机功率 hoist drive motor power : | } 5 (KW)*3 |

2. 张力站（恒张力装置） Tension station (constant tension device):

框架式结构，带夹持装置的张力站是由排线装置、夹持装置、恒张力装置等几部分组合在一个框架内。排线装置是由上下两排滑轮组成；夹持装置由固定上平台、移动下平台和油缸组成夹持板为弧形，表面粘有胶版（由定作方提供自产的织物胶带进行黏贴，以提高使用寿命）；恒张力装置由上横梁、升降平台、同步机构和油缸组成。上横梁固定在框架上，上横梁设有312个定滑轮，每两个滑轮一组共156组，恒张力升降平台在大油缸的作用下，升降156个小油缸柱塞，每个小油缸柱塞顶推一组动滑轮；同步机构分别设在框板和升降平台上，使升降平台升降保持平稳。整个张

力站156组定动滑轮组，作用在每根钢丝绳上，通过改变油压的大小来调节 $\phi 0.5 \sim \phi 15.0\text{mm}$ 钢丝绳的张力值。从而使每根钢丝绳张力可达到基本均匀一致（张力误差 $\pm 5\%$ ）。

Frame structure, the tension station with clamping device is composed of cable laying device, clamping device, constant tension device and other parts in a frame. The cable arrangement device is composed of two rows of pulleys; The clamping device consists of a fixed upper platform, a movable lower platform and an oil cylinder. The clamping plate is curved, and the surface is pasted with a rubber plate (the buyer provides its own fabric tape for pasting to improve the service life); The constant tension device is composed of upper crossbeam, lifting platform, synchronous mechanism and oil cylinder. The upper crossbeam is fixed on the frame. The upper crossbeam is equipped with 312 fixed pulleys, one group for each two pulleys and 156 groups in total. The constant tension lifting platform lifts 156 small oil cylinder under the action of big oil cylinders, and each small oil cylinder plunger pushes a group of movable pulleys; The synchronous mechanism is respectively set on the frame plate and the lifting platform to keep the lifting platform stable. 156 sets of fixed and movable pulley blocks of the whole tension station act on each steel wire rope and are adjusted by changing the oil pressure $\phi 2.5 \sim \phi 15.00$ Tension value of steel wire rope. Thus, the tension of each wire rope can be basically uniform (tension error $\pm 5\%$).

技术参数 Technical Parameters:

- | | |
|--|-------------------------------|
| 1) 钢丝绳根数 steel wire rope qty: | 156 pcs / 根 |
| 2) 钢丝绳直径范围 steel wire diameter range: | $\phi 0.5 \sim 15.0\text{mm}$ |
| 3) 单根钢丝绳涨力 each steel wire rope tension: | 830-3090N/pc根 |
| 4) 夹持板规格 clamping plate specification: | 1800 \times 500mm |

- 5) 夹持力clamping force: 5.0MN
- 6) 夹持缸行程clamping piston stroke: $\phi 450 \times 150 \text{mm} \times 2$ pcs 件
- 7) 升降缸行程lifting piston stroke: $\phi 500 \times 390 \text{mm} \times 2$ pcs 件
- 8) 小油缸数量small oil cylinder qty: 156 pcs 个
- 9) 小油缸行程small oil cylinder stroke: $\phi 25 \times 150 \text{mm}$
- 10) 回拉缸行程pulling back piston stroke: $\phi 180 \times 150 \text{mm}$
- 11) 工作液压力 working pressure: 25Mpa
- 12) 夹持升降及小油缸均带自动补压装置
Clamping, lifting and small oil cylinder are with automatic pressure refill device.
- 13) 驱动电机功率 driving motor power: 25+17(KW)

3. 垫布卷取,生带导开 **Cloth liner reeling ,green belt unreeling**

为操作方便节省空间及减少投入费用，垫布卷取与生带导开设置在成型车上，斜盘式自动保险导开头，力矩电机拖动可正反转，在保持线速度不变的情况下自动调速。利用力矩电机的开卷特性和收卷特性，完成胶带卷在恒张力下的导开及取代前牵引机完成胶带卷的回拉。

In order to facilitate operation, save space and reduce investment costs, the Cloth liner reeling device ,green belt unreeling device are set on the forming car, adopting inclined plate type automatic insurance unreeling head, the torque motor can be driven forward and reverse, and the speed can be adjusted automatically while keeping the line speed unchanged. The uncoiling and winding characteristics of torque motor are used to guide the belt roll under constant tension and replace the front tractor to pull back the belt roll.

垫布卷取技术参数 Cloth liner reeling technical parameters:

- 1) 垫布卷最大直径 cloth liner roll max. dia: $\phi 700\text{mm}$
- 2) 垫布卷最大宽度 cloth liner roll max. Width : $B=1800\text{mm}$
- 3) 垫布卷取速度 cloth liner winding up speed: automatic adjustment 自动调整
- 4) 垫布卷轴方杠规格 Cloth liner roll axle square bar specification: $\square 40\text{mm} \times L$
- 5) 垫布重量 cloth liner weight: **2Ton**
- 6) 驱动方式 drive method: Torque motor 力矩电机

生带导开技术参数（带动力回拉功能）

green belt unreeling technical parameters(with power pulling-back function)

- 1) 带胚最大直径 green belt max. diameter: $\phi 2000\text{mm}$
- 2) 带胚最大宽度 green belt max. Width: $B=1600\text{mm}$
- 3) 回拉速度 pulling back speed: 2m/min
- 4) 卷带最大重量 belt roll max. weight: **25Ton**
- 5) 带胚卷轴方杠规格 Cloth liner roll axle square bar specification: $\square 80\text{mm} \times L$
- 6) 驱动方式 drive method: **Torque motor 250NM 力矩电机 250NM**

4. 固定分梳器 fixed carding:

固定分梳是由机架和分梳辊组合而成，分梳辊主要用来将钢丝绳按规格间距促精排列。将板式固定改为辊式分梳。其优点分梳辊可上下丝杆调整，以便于钢丝绳接头通过和更换分梳辊，较好解决钢丝绳镀锌层损伤问题。

The fixed carding is composed of the rack and the carding roller, which is mainly used to arrange the wire ropes according to the specification spacing. The plate fixation is changed to roller type carding. Its advantage of the carding

roller is that the upper and lower screw rods can be adjusted to facilitate the passage of wire rope joints and the replacement of the carding roller, so as to better solve the damage problem of the galvanized layer of the wire rope.

技术参数 **Technical parameters:**

- 1) 齿底距地面高度 Height from tooth bottom to ground: 1250mm
- 2) 分梳辊数量 carding roller qty: 1 pcs 支
- 3) 结构形式: 分梳辊可上、下丝杆调整, 可满足经常拆装

Structural form: The carding roller can be adjusted by upper and lower screw rods, which can meet the requirements of regular disassembly.

5. 带切边胶装置和自定中心装置成型车:

Forming car with side rubber cutting device and self centering device:

成型车主要由上平台、上胶片导开架、下胶片导开架、钢丝绳精分梳装置、成型车架、切边胶装置、液压驱动车轮组、托辊装置、冷压成型装置、定中心装置和液压站、操作控制台组成。配检查小车一台。

The forming car is mainly composed of upper platform, upper cover belt guide frame, lower cover belt guide frame, wire rope fine carding device, forming frame, side rubber cutting device, hydraulic drive wheel unit, carrier rolls device, cold pressing forming device, centering device, hydraulic station and operation control cable. One inspection trolley is provided.

1. 上导开小车: 机架由型钢焊制。机架在动力带动下可以在上平台上横向移动, 调整复合片和钢丝绳的中心一致。机架上装有胶片导开支架和垫布卷取支架。

Upper guide trolley: the frame is welded by structural steel. The rack can move laterally on the upper platform driven under the power, and the center of the composite

sheet and the wire rope can be adjusted to be consistent. The frame is provided with a belt guide support and a cloth liner winding up support.

2. 下平台的移动导开小车结构和上导开小车基本相同，他由驱动机构带动可以移到成形车侧面装胶片。装好胶片后即可复位。技术参数同上导开小车。

The structure of the moving guide car of the lower platform is basically the same as that of the upper guide trolley. It can be moved to the side of the forming car to load belt driven by the drive mechanism. After the belt is installed, it can be reset. The technical parameters are the same as that of the upper guide trolley.

3. 成形车架是由上下两个平台及底盘组成。车架两侧装有4个车轮，由液压马达驱动，可实现无极调速。车架底盘装有自定中心装置，从根本上解决了跑偏问题。在冷压平板出口处设2把裁刀,用于精确地切割多余边胶。为了安全，下导开小车在开出设备时设电控及机械限位装置。

The forming frame is composed of upper and lower platforms and base. Four wheels are installed on both sides of the frame, which are driven by hydraulic motors to realize stepless speed regulation. The base of the frame is equipped with a self centering device, which fundamentally solves the problem of deviation. 2 pcs cutter were put at the cold press plate outlet ,which are used to cut the side rubber accurately.

For safety, electric control and mechanical limit devices are set when the lower guide trolley drives out the equipment.

4. 冷压成形车装置由框板、冷压平板、上、下平台、油缸、顶离油缸、液压站等组成。冷压成型工作时，在油缸的作用下，使下平台上升、压合、使复合胶片在高压下挤入钢丝绳的间隙中，上下复合胶片组合，保持钢丝绳间距一致，互不移动。

The cold pressure forming car device is composed of frame plate, cold pressing plate, upper and lower platforms, oil cylinder, jacking oil cylinder, hydraulic station,

etc. During cold forming, under the action of the oil cylinder, the lower platform is lifted and pressed, and the composite belt is squeezed into the gap of the wire rope under high pressure. The upper and lower composite belt are combined to keep the wire rope spacing consistent without moving each other.

技术参数 technical parameters:

- 1) 冷压平板有效长×宽 cold pressure plate efficient LxW: 1800×1050mm
- 2) 合模力clamping force: 17 MN
- 3) 冷压油缸直径cold pressure oil cylinder diameter: ϕ 550mm
- 4) 冷压油缸行程 cold pressure oil cylinder stroke: 280mm
- 5) 冷压缸系统压力 cold pressure cylinder system pressure: 25 Mpa
- 6) 冷压成型单位面积压力: 5.5Mpa最大 (可调)
unit pressure of cold pressure forming: 5.5 Mpa max. (adjustable)
- 7) 大车行走速度big trolley speed: 6m/min
- 8) 钢丝绳上胶片卷最大直径max diameter of upper belt roll : ϕ 2000mm
- 9) 钢丝绳下胶片卷最大直径max diameter of lower belt roll: ϕ 1200mm
- 10) 钢丝绳芯胶片卷最大宽度 max width of cord belt: 1600mm
- 11) 胶片导开方杠尺寸belt loosen square bar size: \square 80×80×L
- 12) 垫布卷取最大宽度max width of cloth liner reeling: 1800mm
- 13) 垫布卷取最大直径max diameter of cloth liner reeling: ϕ 700mm
- 14) 垫板卷取轴方杠尺寸base plate winding axis square bar size: 40×40×L
- 15) 横向移动导开卷小车速度 traverse moving loosen trolley speed:6-10m/min
- 16) 顶离油缸顶力: 2×45 KN (最大) 可调
jacking oil cylinder jacking force: 2×45 KN (max) adjustable

- 17) 顶离缸径jacking cylinder diameter: $\phi 110\text{mm}$
- 18) 顶离缸行程jacking cylinder stroke: 100mm
- 19) 顶离缸工作压力jacking cylinder working pressure: 25Mpa
- 20) 切边胶缸推力side rubber cutting cylinder pushing force: $2 \times 11\text{KN}$
- 21) 切边胶缸径side rubber cutting cylinder diameter: $\phi 110\text{mm}$
- 22) 切边胶行程side rubber cutting cylinder stroke: 250mm
- 23) 切边胶缸系统压力side rubber cutting cylinder system pressure: 25Mpa
- 24) 精分梳装置: 分梳辊 $\phi 120 \times 1800\text{mm} \times 1$ 支
fine carding device: carding roller $\phi 120 \times 1800\text{mm} \times 1$ pc
- 25) 托（压）辊 carrier (press) roller: $\phi 100 \times 1800\text{mm} \times 2$ pcs 支
- 26) 分梳板: 1800 x 500 x 120(长×高×厚, 带锥槽) ×1件
carding board: 1800 x 500 x 120(L×H×Thickness, with grooves) ×1 pc
- 27) 驱动 drive: 液压马达驱动 hydraulic motor drive
- 28) 上导开: 5.5KW×1台 正反转 卷布电机: 12KW ×1台
upper guide: 1.1KWx1 set,FWD /REV, cloth winding motor: 12KW x 1 set
- 29) 下导开: 正反转 卷布电机: 12KW ×1台
lower guide: FWD /REV, cloth winding motor: 12KW x 1 set
- 30) 下导开行走: 12KW ×1台 正反转
lower guide travel: 12KW x 1 set, FWD /REV
- 31) 自动切胶装置, 辅助顶离缸装置并配调压装置
Automatic rubber cutting device, auxiliary jacking off cylinder device and pressure regulating device.
- 32) 下胶片车电动行走, 行走位置可控
The lower belt car moves electrically, and the travel position is controllable

33) 成形车液压配管完成，配下胶片车及成型车行走卷链电缆。

The hydraulic piping of the forming car is completed, and the lower belt car and the traveling winding chain cable of the forming car are equipped

34) 配检查小车一台 Equipped with an inspection trolley

35) 驱动电机功率drive motor power: 25+18 (KW)

6. 中夹持和前夹持拉伸 **middle clamping and front clamping & stretching**

设计制造采用二根导向轴固定在主硫化机下垫台内，随下垫台升降而升降，一个主拉伸油缸满足胶带硫化前的拉伸量，利用框体内二个活塞缸的上下300mm的活动量，在中夹持、液压自动顶铁和脱锅装置的配合下，既可保证粘在上下热板上的胶带脱离、精确装锅，又可十分方便的在拉伸状态加装商标。

In the design and manufacture, two guide shafts are fixed in the lower platform of the main vulcanizing press, which will rise and fall with the rise and fall of the lower platform. One main stretching cylinder can meet the stretching amount of the belt before vulcanization. With the help of the upper and lower 300 mm movement of the two piston cylinders in the frame, with the cooperation of the middle clamping, hydraulic automatic iron blocking and the pot stripping device, it can not only ensure that the belt stuck on the upper and lower hot plates is separated, and the pot can be loaded accurately, but also very convenient to add a trademark in the stretching state.

技术参数 **technical parameters:**

- | | |
|-------------------------------------|--------|
| 1) 夹持力 clamping force: | 5.0MN |
| 2) 夹持行程 clamping stroke: | 500mm |
| 3) 夹持缸径 clamping cylinder diameter: | φ350mm |

4) 夹持缸数量 clamping cylinder qty:	2 pcs 个
5) 夹持缸工作液压力 clamping cylinder working pressure:	25.0MPa
6) 夹持板规格 clamping plate specification:	1800×1200mm
7) 拉伸力 elongation force:	1.8MN
8) 拉伸行程 elongation stroke:	1000mm
9) 拉伸缸径 elongation cylinder diameter:	250mm
10) 拉伸缸数量 elongation cylinder qty:	2 pcs / 支
11) 拉伸缸工作液压力 elongation cylinder working pressure:	25 MPa

7. 脱锅装置 pot stripping device

在主硫化机的进出口端，各加装一套脱锅装置，在前中夹持的配合下，可将粘在上下热板的胶带有有效的剥离。

At the inlet and outlet ends of the main vulcanizing press, a set of pot stripping device is installed respectively. With the cooperation of the front and middle clamping, the belt stuck to the upper and lower hot plates can be effectively stripped.

技术参数 Technical parameters:

1) 脱模辊直径 Demoulding roll diameter:	φ120mm
2) 脱模油缸直径 Demoulding oil cylinder diameter:	φ100mm
3) 托模油缸数量 Quantity of demoulding cylinder:	2 pcs / 个
4) 脱模力 Demoulding force:	30KN

8. 主硫化机 main vulcanizing press

1) 上下垫台：为Q235B钢板焊接整体式结构，采用非常先进的二次焊接、

二次加工工艺及双热平衡系统。

top & bottom platforms:It is a welded integral structure of Q235B steel plate, adopting very advanced secondary welding, secondary processing technology and dual heat balance system.

- 2) 热板：采用双定尺整轧板经过正火处理的45#钢板制作，每块热板共分8个加热区，每一加热区的蒸汽出口处都有一个测温点，上下热板共有16个测温点,主机上显示温度。

Hot plates:adopting double fixed length after normalizing treatment 45 # steel plate, .Each hot plate is divided into 8 heating zones, and there is a temperature measuring point at the steam outlet of each heating zone. There are 16 temperature measuring points at the upper and lower hot plates, and the temperature is displayed on the host.

- 3) 框板：框板采用定做轧制的Q235B钢板,其结构为焊接框板。

Frame:adopting custom rolled Q235 steel plate,its structure is welding frame.

- 4) 液压平衡升降装置：在下垫台的两端加装液压升降装置，确保下热板升降平衡，以克服由于下热板倾斜升降而造成的制品厚度不均欠压现象，以保证制品的质量。

Hydraulic balance lifting device: a hydraulic lifting device is installed at both ends of the lower platform to ensure the lifting balance of the lower hot plate, so as to overcome underpressure phenomenon of uneven thickness caused by the inclined lifting of the lower hot plate, and ensure the quality of products.

- 5) 液压系统：液压系统达到工作液压力时，保压1小时，液压系统压力降小于10%且液压系统无堵塞、泄露现象；当压力降超过工作压力的10%时，液压系统自动补压，直到达到工作压力为止。系统具有安全限压装置。每个液压缸进油口配置一个截止阀。液压件采用油研产品。关键液

压件采用台湾产品。

Hydraulic system: when the hydraulic system reaches the working fluid pressure, maintain the pressure for 1 hour, the pressure drop of the hydraulic system is less than 10%, and the hydraulic system is free of blockage and leakage; When the pressure drop exceeds 10% of the working pressure, the hydraulic system will automatically supplement the pressure until the working pressure is reached. The system has a safety pressure limiting device. Each hydraulic cylinder oil inlet is equipped with a stop valve. The hydraulic parts adopt YUKEN products. The key hydraulic components are Taiwan products.

- 6) 液压缸：液压缸采用ZG270-500材料，柱塞采用质地密实的冷硬合金铸铁，铸后精磨而成；液压缸采用内衬式密封圈。

Hydraulic cylinder: adopting ZG270-500 material, and the plunger is made of dense chilled alloy cast iron, which is finely ground after casting; The hydraulic cylinder adopts the built-in type sealing ring.

- 7) 硫化主机控制；采用PLC控制。可实现自动控制和手动控制两种控制方式；自动方式可以实现自动开、合模、排气、硫化计时、补压、硫化完报警。辅机各个部套采用现场与远程两套控制按钮，方便操作。主要电器件均采用进口和国产著名品牌。

Vulcanizing press control: adopting PLC controller, Automatic control and manual control can be realized; The automatic mode can realize automatic mold opening, mold closing, exhaust, vulcanization timing, pressure supplement and alarming. Two sets of control buttons, on-site and remote, are used for each component of auxiliary machine to facilitate operation. The main electrical components are imported and domestic famous brands.

- 8) 液压自动顶垫铁装置：下热板两侧设有液压自动顶垫铁装置：在四个液压缸作用下，通过可编程控制程序控制垫铁在合模前自动顶齐。液压顶垫铁装置适合最大带厚度40mm。

Hydraulic automatic sizing block device: hydraulic automatic sizing block device is set on both sides of the lower hot plate: under the action of four hydraulic cylinders, the sizing block is automatically aligned before mold closing through programmable control program. The hydraulic sizing block device is suitable for the maximum belt thickness of 40mm.

- 9) 合模导向装置：在下垫台的两侧设有合模导向装置，框板与平台安装导向座，导向座加工斜面，可通过顶丝调整斜面距离。

Mold closing guide device: mold closing guide device is set on both sides of the lower platform, guide seat is installed between the frame plate and the platform, and the guide seat slope is processed, The distance of the slope can be adjusted through the jackscrew.

技术参数 technical parameters:

- | | |
|--|--------------------------------------|
| 1) 公称合模力 clamping force: | 110MN |
| 2) 单位面积压力 unit area pressure: | 6.5MPa |
| 3) 系统工作压力 system working pressure: | 25MPa |
| 4) 框板厚度及数量 frame thickness and qty | 120mm x 16 pcs |
| 5) 上垫台厚度 upper platform thickness : | 800mm(including double heat balance) |
| 6) 下垫台厚度 lower platform thickness: | 800mm(including double heat balance) |
| 7) 热板规格 plate specification: | 1800×10000×120mm |
| 8) 热板间距 daylight: | 350mm |
| 9) 柱塞直径 piston diameter: | φ850mm |
| 10) 柱塞行程 piston stroke: | 350mm |
| 11) 油缸数量 piston qty: | 16 pcs / 支 |
| 12) 热板上升下降速度 rising and down speed: | rise≥15mm/s down≥15mm/s |
| 13) 进出口处冷却范围 inlet and outlet cooling range: | 300mm |

14)驱动电机功率 drive motor power:

55+25 (KW)

9. 多功能拉带机组 **multi-function belt drawing unit:**

该机组由五辊、机架、轴承及传动装置、拉伸、液压泵站、电控系统等组成。四只小油缸夹住输送带后，辅助对钢丝绳实施张力。除了具有牵引功能外，在生产化纤材料类胶带时还有冷定伸功能。辊的工作表面滚花，以增加对钢丝带的牵引力。

This unit is composed of five rollers, frame, bearing and transmission device, stretching, hydraulic pump station, electric control system, etc. After four small oil cylinders clamp the conveyor belt, the steel wire rope shall be tensioned. In addition to the traction function, the cold stretching function is also available in the production of chemical fiber belt. The working surface of the roller is with pattern to increase the traction on the steel wire belt.

技术参数 **technical parameters:**

- | | |
|---|-----------------------|
| 1) 最大牵引力 max pull: | 250KN |
| 2) 牵引辊规格 pull roll specification: | φ750×1800mm |
| 3) 牵引速度 pull speed: | 5500/10000 mm/min |
| 4) 拉伸辊行程 elongation roll stroke: | 500mm |
| 5) 最大拉伸量 max elongation distance: | 1000mm |
| 6) 最大拉伸力 max elongation force: | 800KN(adjustable)(可调) |
| 7) 压板最大锁紧力 max clamping force of press board: | 2500KN |
| 8) 锁紧缸规格 clamping cylinder specifications: | φ240×4 pcs 支 |
| 9) 胶片最大宽度 belt max width: | 1600mm |
| 10) 胶片厚度范围 belt thickness range: | 2 ~ 40mm |

11) 液压系统工作压力 hydraulic system working pressure: 25Mpa

12) 伸长形式 elongation way: hydraulic vertical 液压垂直式

13) 驱动电机功率 drive motor power: 45 (KW)

10. 修补硫化机 repair vulcanizer:

对在生产过程中出现的制品缺陷进行二次硫化修整，控制形式为手动，当不使用时，可以切断加热气源。

The defects of products in the production process shall be repaired by secondary vulcanization. The control mode is manual. When not in use, the heating air source can be cut off.

技术参数 technical parameters:

1) 公称合模力 total pressure: 8.5MN

2) 加热板规格 heating plates: 1800×1000×120mm

3) 加热板单位面积压力 unit area pressure: 6.0MPa

4) 加热板间距（工作间距） daylight: 280mm

5) 液压缸最大行程 max stroke: 280mm

6) 合模速度 mould-closing speed: ≥ 10 mm/s

7) 开模速度 mould-opening speed: ≥ 10 mm/s

8) 液压使用系统压力 hydraulic system pressure: 25.0MPa

9) 液压缸规格 hydraulic cylinder diameter: $\phi 750$ mm

10) 液压缸数量 hydraulic cylinder qty: 2 pcs 组

11) 驱动电机功率 drive motor power: 18+12 (KW)

11. 液压切带机 hydraulic belt cutter:

该设备由机架、液压剪切机构、液压站、移动小车等组成。采用横移剪切方式，可裁断任何种类输送带。手动或自动可转换使用。

The equipment consists of frame, hydraulic cutting mechanism, hydraulic station, mobile trolley, etc. It can cut any kinds of conveyor belt by means of sideway cutting. Manual or automatic can be switched.

技术参数 technical parameters:

- | | |
|--|-----------|
| 1) 切带最大宽度 belt cutting max width: | 1600mm |
| 2) 切带最大厚度 belt cutting max thickness: | 40mm |
| 3) 切带机构行走速度 belt cutting mechanism travel speed: | 2.75m/min |
| 4) 液压站工作压力 hydraulic station working pressure: | 25Mpa |
| 5) 驱动电机功率 drive motor power: | 15 (KW) |

12. 卷取包装机 winding up packaging device:

双地辊结构，辊筒上配有挡边装置。保证卷带边缘齐整。采用旋转编码测量长度，并显示长度。

Double ground roll structure, and the roller is equipped with edge blocking device. Make sure that the belt edge is smooth. The length is measured using a rotary code and displayed.

技术参数 technical parameters:

- | | |
|--|--------|
| 12) 最大卷取直径 max winding up diameter: | 4200mm |
| 13) 最大卷取宽度 max winding up width: | 1600mm |
| 14) 最大卷取重量 max winding up weight: | 25T |
| 15) 卷取辊直径 winding up rollers diameter: | φ400mm |

16))驱动电机功率 drive motor power :

25 (KW)

13. 液压系统 Hydraulic system :

按工艺流程对液压系统进行设计，主要液压件采用油研系列产品，所有阀件选用插装、或板式组合，易于检修，密封效果更好，方便以后维修检测用。低压采用意大利海林柯螺杆泵。

Design the hydraulic system according to the process flow, with the main hydraulic components using the YUKEN series products, and all valve components using plug-in or plate combination, which is easy to maintain, better sealing effect, and convenient for future maintenance and testing. Low pressure adopts Italian Helinco screw pump.

14. 电气系统 Electrical System

完整完善的控制系统，采用西门子PLC触摸屏；其余常规元器件采用西门子主的优质产品；人工设定；生产线各设备可实现手动、自动和全线必要的联动。

A complete control system using Siemens PLC touch screen; Other conventional components adopt high-quality products from Siemens; Manual setting; Each equipment on the production line can achieve manual, automatic, and necessary linkage throughout the entire line.

下列项目不包含在供货范围内：

- a. 芯鼓、模条、分疏板、辊（试生产所用的1套除外）等
- b. 厂房、设备基础及外部电源接线
- c. 由总电源到控制柜的接线
- d. 电机到控制柜的接线
- e. 外部动力源（冷却水）与机组间的连接管路及阀门

f. 液压油、润滑油

g. 设备由供作方负责运输。由供方派工程技术人员全部安装调试，但需方必须提供相应的生产工具。

The following items are not included in the scope of supply:

a. Core drum, mould strip, carding board, roll (except one set for trial production), etc

b. Plant, equipment foundation and external power wiring

c. Wiring from main power supply to control cabinet

d. Wiring from motor to control cabinet

e. Connecting pipeline and valve between external power source (cooling water) and machine unit

f. Hydraulic oil, lubricating oil

g. The equipment shall be transported by the supplier. The Supplier shall send engineers and technicians for installation and commissioning, but the Demander must provide corresponding production tools.

IV. 其他 Others

1. 质量保证 **quality assurance:**

1) 供方按合同和技术协议中规定的设备性能、质量要求和技术参数向定作方提供未经使用的全新设备。为保证设备工艺及技术要求，供方可对技术协议约定的技术参数进行必要的改良型修改。

The Supplier shall provide unused full new equipment to the ordering party according to the equipment performance, quality requirements and technical parameters specified in the contract and technical agreement. In order to ensure the equipment process and technical requirements, the supplier can make necessary modifications to the technical parameters agreed in the technical agreement.

2. 安装调试 **Installation and commissioning:**

在定作方按合同约定付款的前提下，供方派专业人员到定作方进行设备安装（包括蒸汽、循环水、液压管线系统）、调试（单机设备调整、试车、空负载运转试车、全线试车）、试产；定作方需积极配合（提供相应的工具）。

On the premise that the ordering party pays as agreed in the contract, the supplier shall send professionals to the ordering party for equipment installation (including steam, circulating water, hydraulic pipeline system), commissioning (single equipment adjustment, commissioning, no-load operation commissioning, full line commissioning), and trial production; The ordering party shall actively cooperate (provide corresponding tools).

3. 售后服务 **after-sales service:**

全套生产线保修一年。

1) 设备在质保期年内发生因设计制造方面造成故障，由供方免费维修和更换。

2) 质保期满后，设备出现的其他故障，需供方帮助解决时，供方亦应给予积极帮助，费用由定作方承担。

The whole production line is guaranteed for one year.

1) : If the equipment fails due to design and manufacturing within the warranty period, the Supplier shall repair and replace the equipment free of charge.

2): After the expiration of the warranty period, if the Supplier is required to help solve other faults of the equipment, the Supplier shall also provide active help at the expense of the ordering party.

5. 技术文件 **Technical documents:**

1) 合同签订预付款到位后60天，供方向定作方提供所供设备所需的设备流程图、基础条件、蒸汽系统原理图、冷却水原理图等必要的条件图纸及采购明细。

2) 设备制作完毕，供方向定作方提供安装所需的设备总装图纸、液压原理图、各部液压密封件明细、电控原理图、安装图、易损件图、维修需用图纸、使用保养说明书等技术文件2套。

1): Within 60 days after the advance payment is made after the contract is signed, the Supplier shall provide the ordering party with necessary condition drawings and purchase details such as equipment flow chart, basic conditions drawing, steam system schematic diagram, cooling water schematic diagram, etc. required for the supplied equipment.

2): After the equipment is manufactured, the Supplier shall provide the ordering party with 2 sets of technical documents required for installation, such as general assembly drawings, hydraulic schematic diagrams, details of hydraulic seals, electrical control schematic diagrams, installation drawings, wearing parts drawings, maintenance drawings, and operation and maintenance instructions, etc.

V. 贸易条款 **Trade items**

1.Packing: Export packing with PE film/wooden case

2.Country of origin:The People's Republic of China

3.Delivery time:Within 8 months after getting the prepayment

4.Port of loading:Qingdao port,China

5.Shipping Vehicle:by 40HCx15 containers (around)

6.Terms of payment:30% by T/T as prepayment after signing the contract,
70% by T/T before shipment

7. Guarantee of quality: The seller guarantees that the commodity is complied in all respects with the quality and specification stipulated in this contract and appendixes to this contract. The guarantee period shall be 1 year counting from the date after finishing installation.

