PVC 半结皮共挤生产线使用维护手册

PVC Semi-Skinning extrusion line maintenance manual

目 录

Catalogue

一、使用和性能

Usage and performance

1.1、使用范围

Usage scope

该挤出生产线是加工 PVC 半结皮共挤的生产线，本说明书所描述的操作和使用规程只适用于加工 PVC 的物料情况。如使用者自行加工其他物料则不在本说明书描述之列，同时本公司不负担由此产生的后果。

The extrusion lien is PVC semi-skinning co-extrusion line, the instruction describes the operation and use regulation just apply to process PVC material condition. If the user process other material by himself, and so not the in the range of the instruction described, at the same time the company will not take any responsibilities for the consequence caused by this.

1.2、性能

Performance

该生产线生产范围，片材厚度 5 ～18mm，制品宽度 1220，挤出机产量 400～450kg/h。

The machine production range, the sheet thickness 5～18mm, the width is 1220, the extruder output capacity 400～450kg/h.

1.2、 PVC 挤出生产线工作与储运的环境要求

PVC extrusion line work and shipment environment requirement

允许环境空气温度：+5℃～40℃；

Allowance the environment air temperature: +5℃～40℃;

储运温度：-20℃～55℃；

The shipment temperature: -20℃～55℃;

相对湿度：至 90%，无凝露；

The relative humidity: to 90%, no condensation;

污染等级：2 级，不应安装在多粉尘，有腐蚀性气体的场所；

The class of pollution: 2 class, don’t install at the more dust, has corrosion air places;

海拔高度：〈1000 米，〉1000 米须降容使用，每升高 100 米，负载能力降 1%。

Sea level elevation:〈1000 米，〉1000 meters must reduce volume, rise up

per 100 meters, the load capacity decline 1%.

1.3、地基

Foundation

生产线地基图（附图 1）

The machine foundation drawing (see as diagram 1)

1.4、电源要求

The requirement of electric power

供电系统形式：三相五线制，即 TN-S 系统 （3P/N/PE）

Supply electric system type: three phase and five line, TN-S system (3P/N/PE)

三相电压：440V±10% 单相电压：254V±10%

Three phase voltage: 440V±10% single phase: 254V±10%

电源频率：50HZ±5%

The electric power frequency: 50HZ±5%

1.5、进线电缆要求

The input wire requirement

要求用户厂房配备设备电源柜，用户厂房配电室至设备电源柜的进线电缆规格：

Require the user plant equip the electric cabinet, user plant electric house to the equipment electric cabinet input wire specification:

1. 80/156 主机电缆：3x120mm^2+1X70mm^2

   80/156 extruder cable:3×120mm＋1×70mm^2

2. 65/132 主机电缆：3x70mm^2+1X50mm^2

   65/132 extruder cable: 3×70mm＋1×50mm^2

3. 本设备（一条生产线）占变压器容量约：250kVA

   The equipment (one production line) occupy the volume of transformer about: 250kVA

1.6、气源要求

Air power requirement

气源压力 0.6～0.8MPa，正常工作时耗气量约 1.5m³/h。

Air power pressure 0.6～0.8MPa, regular work air consumption about 1.5m³/h.

1.7、水源要求

Water source requirement

生产线工作时总耗水量约 5 L/h。水流量 22 m³/h，压力 0.3～0.4MPa ，正常水温＜35℃,需配备大水池或冷却塔，总进水管口径 2″，并在进口处安装 2″球阀一个，总进水管为口径 2″水管。

When the machine working, the totally water consumption about 5 L/h. Water flow is 22 m³/h, pressure is 0.3～0.4MPa, the normal water temperature ＜ 35℃, equip with big pool or cooling tower, the main water inlet diameter 2″, and install a 2″ ball valve at the entrance, the main water inlet diameter is 2″water pipe.

二、PVC 共挤板材生产线构成及工艺流程

PVC Co-extrusion sheet line structure and technology process

2.1、生产线构成（生产线总布置见附图 1）

The machine structure (the production general arrangement see as figure 1)

生产线机械部分主要由以下部分组成：

The machine mechanical parts mainly composed by below parts:

（1） 挤出主机单元：80/156 挤出机 1 台

The extrusion unit: 80/156 extruder 1

65/132 挤出机 1 台

65/132 extruder 1

（2） 模具单元 1 套

The mould unit 1 set

（3） 模唇温度控制器 1 台

The mould lip temperature controller 1

（4） 定型台单元 1 台

Calibrator table unit 1

（5） 定型台液压站 1 台

（6） The calibrator table hydraulic station 1

（7） 真空系统 1 套

Vacuum system 1 set

（8） 冷却单元 1 套

Cooling unit 1 set

（9） 修边刀 1 套

Trimming unit 1 set

（10） 上下覆膜装置 1 套

Up and down coating device 1 set

（11） 牵引单元 1 套

Haul off unit 1 set

（12） 纵锯切边装置 1 套

Lengthways cutter device 1 set

（13） 横切机 1 套

Clockwise cutter 1 set

（14） 堆料台 1 台

Stacker 1

（15） 电气控制系统

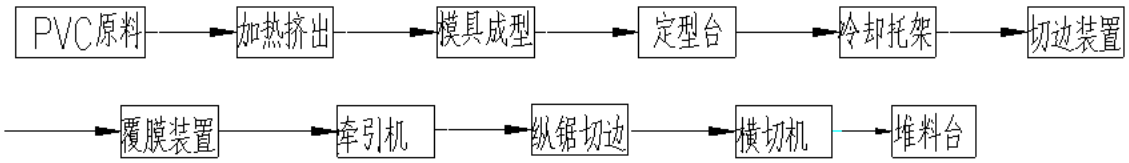
Electric control system

电气部分采用人机界面，变频控制。主机与辅机相互独立控制，以便于用户日后电气维护；具有强大配方功能（能存储大量的工艺参数及配方）和完善的故障报警系统。

The electric parts adopt man-machine interface, frequency conversion control. The extruder and downstream equipment mutual independence to control, the user easy to maintain the electric in the future; It has the powerful formulation function (can store a mass of technical parameter and formula) and impeccable fault warning system.

2.2、生产线工艺流程

Machine technology process



PVC material-----heat and extrusion-----mould to form shape-----calibrator table------cooling bracket------trimming device------coating device-----haul off unit-----longitudinal trimming -----clockwise cutter-----stacker

三、生产线各组成单元基本参数及安全操作指导

The machine each units basic parameter and safety instruction guidance

3.1、挤出单元基本参数及安全操作指导

The extrusion unit basic parameter and safety instruction guidance

3.1.1、挤出机基本参数

The extrusion basic parameter

A：JWZ80/156 锥形双螺杆挤出机技术参数

A: JWZ80/156 conical twin screw extruder technical parameter

名称 name	技术参数 Technical parameter
1、挤出机 extruder	
外型尺寸 The size of apprance	4750mmX1550mmX2460mm 4750mmX1550mmX2460mm
整机重量 The weight of machine	5000kg 5000kg
挤出量	200-250kg/h

The output capacity	200-250kg/h
主电机 The main extruder	交流电机 75kw， AC motor 75kw
温度控制 The temperature control	PLC 控制 PID 自整定调节 PLC control PID automatically adjustment
上料方式 Loading method	螺旋上料 Spiral feeder
机头与模头法兰配置方式 The head of extrusion and flange connection method	螺栓联接 Connect by bolt
优于同行业的特点 Character are superior to the same industry	塑化好、产量大，设计合理，精度高，并选用优质部件零件选用优质材料，稳定性好，易与控制，稳定的、挤出生产制品。 Good plastify 、 big production, reasonable design, high precision, and adopt the good elements and material, good stability, easy to control, stability extrusion product.
锥双螺杆 Conical twin screws	
直径 diameter	80/156mm 80/156mm
有效长度 The effective length	1815mm 1815mm
啮合形式 Gears type	锥形啮合 Conical gear
总转矩 Total torque	14.2kNm 14.2kNm
转速 speed	1~36.9 1~36.9

渗氮深度 The nitride layer thickness	0.6~0.7 0.6~0.7
螺杆芯部加热方式 The core of screw heating method	螺杆芯部恒温选用 SZK-3 The screw core constant temperature SZK-3
机筒 barrel	
料筒形式 Material barrel type	整体式 unitary
加热方式 Heating method	机筒采用风冷，专用不修钢外壳，铸铝加热器 The barrel adopt air cooling, specially use the stainless cover, aluminum heater band
机筒加热段数 The barrel heating zones	5 段 5 zones
机头连接套 The head of extruder connection cover	3Cr13 不锈钢，镀硬铬表面处理，内部采用合流形式 3Cr13 stainless, the surface chrome plating treatment, the inner part adopt interflow type
渗氮深度 Nitride layer thickness	0.6~0.7mm 0.6~0.7mm
传动减速系统 Drive deceleration system	
主驱动电机功率 Main drive motor power	75kw 75kw
主电机工作方式 Main motor work type	三相异步电动机与减速箱相联 Three-phase asynchronous motor and gearbox connection
主驱动电机转速 Main drive motor speed	30~1500r/min 30~1500r/min

减速箱形式 The gearbox type	齿轮减速，采用硬齿面斜齿面结合 Gear slow down, adopt hard surface and helical connection
减速齿轮 The reduction gearbox	渗碳磨齿处理，材质为 20CrMoTi Carburized and grind treatment, the material is 20CrMoTi
主驱动电机调速方式 Main drive motor regulate speed method	交流变频调速，变频器采用进口 ABB 公司 AC inventor adjust speed, the inventor adopt the imported ABB company
排气系统 Vented system	
真空泵式样 Vacuum pump type	直联式水环密封真空泵 Direct connection water sealing vacuum pump
真空泵电机功率 Vacuum pump motor power	4kw 4kw
定量给料系统 Dosing feeder system	
喂料方式 Feeding method	定量喂料 Dosing feeding
喂料螺杆转速 Feeding screw rotation	0.5~30r/min 0.5~30r/min
电机功率 The motor power	0.55kw 0.55kw
电动机转速 The motor rotation speed	10~1500r/min 10~1500r/min
恒温油箱系统 Constant oil tank system	
油加热温控范围 Oil heating temperature control scope	50~200° C 50~200° C

加热功率 Heating power	6kw 6kw
流量 flow	10L/min 10L/min
工作压力 Work pressure	0.2~0.3Mpa 0.2~0.3Mpa
热交换介质 Heat exchange medium	水 water

B：JWZ65/132 锥形双螺杆挤出机技术参数

JWZ65/132 conical twin screw extrusion technical parameter

名称 name	技术参数 Technical parameter
1、挤出机 extruder	
外型尺寸 The size of apprance	4235mmX1520mmX2450mm 4235mmX1520mmX2450mm
整机重量 The weight of machine	4000kg 4000kg
挤出量 The output capacity	120-170kg/h 120-170kg/h
主电机 Main motor	交流电机 37kw， AC motor 37kw
温度控制 Temperature control	PLC 控制 PID 自整定调节 PLC control PID automatically adjustment
上料方式 Feeding method	螺旋上料 Spiral feeder
机头与模头法兰配置方式	螺栓联接

The head of extruder and flange connection method	Connected by bolt
优于同行业的特点 The character are superior to the same industry	塑化好、产量大，设计合理，精度高，并选用优质部件零件选用优质材料，稳定性好，易与控制，稳定的、挤出生产制品。 Good plastify 、 big production, reasonable design, high precision, and adopt the good elements and material, good stability, easy to control, stability extrusion product.
锥双螺杆 Conical twin screw	
直径 diameter	65/132mm 65/132mm
有效长度 The effective length	1440mm 1440mm
啮合形式 The gears type	锥形啮合 Conical gears
转速 Rotation speed	2~32 2~32
渗氮深度 Nitride layer thickness	0.6~0.7mm 0.6~0.7mm
螺杆芯部加热方式 The core of screw heating method	螺杆芯部恒温选用 SZK-3 The core screw part adopt constant SZK-3
机筒 barrel	
料筒形式 Barrel type	整体式 Unitary type
加热方式 Heating method	机筒采用风冷，专用不修钢外壳，铸铝加热器

	Barrel adopt air cooling, specially use stainless cover, aluminum heater bands
机筒加热段数 Barrel heating zones	4 段 4 zones
机头连接套 The head of machine connection cover	3Cr13 不锈钢，镀硬铬表面处理，内部采用合流形式 3Cr13 stainless steel, the surface chrome plating treatment, the inner parts adopt confluence type
渗氮深度 Nitride layer thickness	0.6~0.7mm 0.6~0.7mm
传动减速系统 Drive reduction system	
主驱动电机功率 Main drive motor drive	37kw 37kw
主电机工作方式 Main motor work method	三相异步电动机与减速箱相联 Three-phase asynchronous connected with gearbox
主驱动电机转速 Main drive motor speed	0~1500r/min 0~1500r/min
减速箱形式 The gearbox type	齿轮减速，采用硬齿面斜齿面结合 The gear reduction, adopt hard surface connected with helical
减速齿轮 Reduction gear	渗碳磨齿处理，材质为 20CrMoTi Carburize and grind treatment, material is 20CrMoTi
主驱动电机调速方式 Main drive motor regulation method	交流变频调速，变频器采用进口 ABB 公司 AC inventor regulate speed, inventor adopt imported ABB company

排气系统 Vented system	
真空泵式样 Vacuum pump type	直联式水环密封真空泵 Direct connection water sling sealing vacuum pump
真空泵电机功率 Vacuum pump motor power	1.5kw 1.5kw
定量给料系统 Dosing feeding system	
喂料方式 Feeding method	定量喂料 Dosing feeding
喂料螺杆转速 Feeding screw rotation	0.5~30r/min 0.5~30r/min
电机功率 Motor power	0.55kw 0.55kw
电动机转速 Motor rotation	0~1500r/min 0~1500r/min
恒温油箱系统 Constant oil tank system	
油加热温控范围 Oil heating temperature control scope	50~200° C 50~200° C
加热功率 Heating power	6kw 6kw
流量 flow	10L/mim 10L/mim
工作压力 Work pressure	0.2~0.3Mpa 0.2~0.3Mpa
热交换介质 Heat exchange medium	水 water

3.2.模具单元基本参数及安全操作指导

Mould unit basic parameter and safety instruction guidance

3.2.1、模具的基本参数

Mould basic parameter

模具类型：发泡板专用模具

Mould type: the foam board special mould

模具材料：优质模具钢

Mould material: good mould steel

加热区域：7 区

Heating zone: 7 zones

加热功率：5kw/区

Heating power: 5kw/zone

配模唇温度控制器：

Mould lip control temperature controller

介质：高温导热油

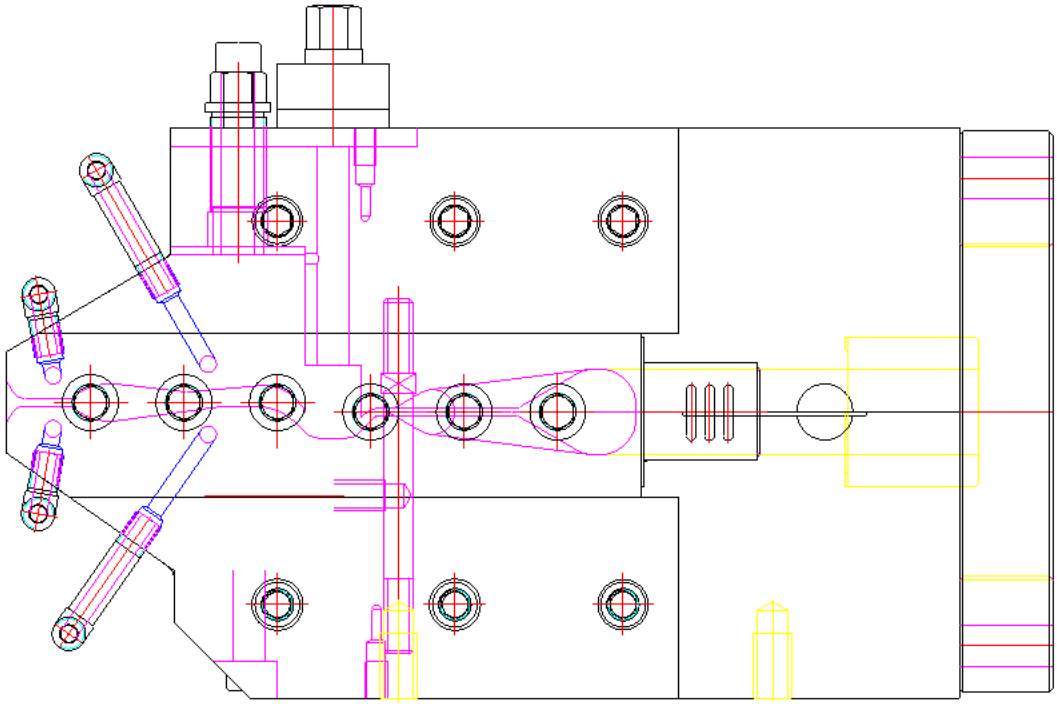
Medium: high temperature conductivity oil

加热范围：50-160° C

Heating range: 50-160℃

模具外形：

Mould appreance:



3.2.2、模具的运输和包装

Mould transportation and package

本设备在运输前必须仔细检查和包装，即使如此，如果运输不当仍有可能损坏某些零部件。

The equipment before transportation must be carefully check the package, even so , if the improper transportation may cause some parts damage.

收到本产品时应检查实物与发货清单是否一致，包装是否完好。

When received the product should check the item whether according with send list, and the package is good or not.

如果包装受到损坏：

If the package have the damage:

- 检查设备的外观是否受到损坏

  Check the machine appearance damage or not

- 拍摄所有损坏、损伤的部位

  Take photos about all the damage、scathe

假如设备在运输时受到损坏：

If the equipment damage in the transportation:

- 尽快联系营运商

  Contact the manufacture as soon as possible

- 保存好包装材料(以便营运商将本设备运回本公司接受检查)

  Keep the package material well(in order the manufacture back the machine to the company for checking)

  需运回检修时请尽量使用原始的包装件和原始的包装材料。如果上述的包装件都不可用了，请按如下说明做：

  When return to repairing, please use the original package piece and material.

  If the above package pieces can't use, please do as below:

- 使用专业生产包装产品的厂家生产的包装件

  Using the manufacture specialized production package pieces

- 每种分类零件都放置在同一个箱子里，以防遗失。

  Each kinds of elements should be place in the same box, in case lose.

  设备不允许露天放置。

  The equipment not allowed place in the outdoor.

  推荐的室内存放环境：

  Recommendation the indoor environment:

- 温度： 5℃至50℃(40℉至120℉)

  Temperature: 5℃-50℃ (40℉-120℉)

- 湿度： <70%

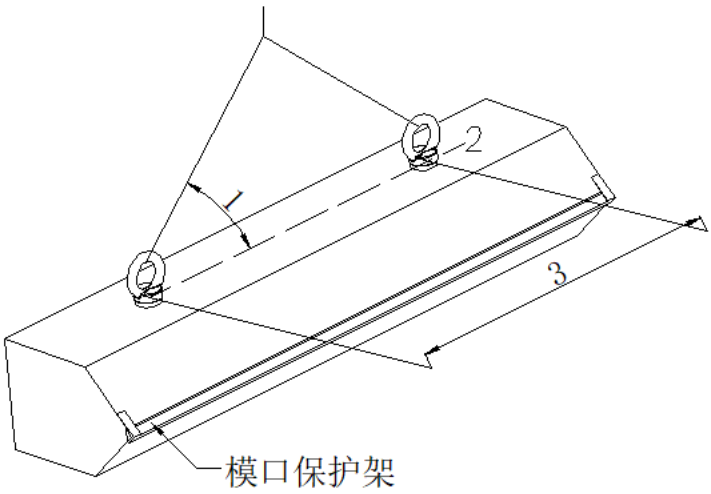
  Humidity: <70%

3.2.3、模具的吊装

Mould hoisting

吊装示意简图：

Hoisting drawing:



The mould mouth protective frame

- 标号 1 的角度不应小于 60°；

  The point of view of mark 1 should be not less than 60°;

- 吊装的高度不宜超过标号 2 的中心线的目视水平高度；

  Hoisting height should not be more than center line of mark 2 visual level height;

- 标号 3 所指的两个吊环应大致水平。

  The mark 3 referred the two rings should be roughly level.

注意:

Attention:

本公司设计的模具在模具运输过程中装有模唇保护架，请注意拆卸和保存。拆卸过程中不要碰伤模唇，因为模唇在整套设备中属相当重要的部位，模唇中任何细微的损伤都将可能影响产品质量。

The mould is designed by our company has the die lip protective frame in the transportation, please note dismantle and keep. Don't injury the lip in the process of dismantle, because the lip is the most position in the whole set, the quality of die lip will be influenced by any tiny injury.

3.2.4、模具的操作

Mould operation

注意所有的安全警告

Note all the safety warning

• 操作者应明确吊装模具用的起吊装置的极限起吊重量。

The operator should clear hoisting the mould device hoisting weight limit.

• 操作者应明确设备工作在极高的温度，在手、手臂及脸部穿戴好足够的防护用品。

Operator should clear that equipment running at extremely high temperature, in hand、arm and face should wear enough protective articles.

附页上说明了本副模具的零件说明及数量以便用户参考。(我们建议用户先检查一下备用的零件是否与说明的相符)

On the attached sheet shows this pairs of mould parts number so that user reference. (we suggest that user check the spare parts is consistent with manual firstly of not)

• 本模具在包装时使用了高温润滑剂。在包装箱内有电源导线、吊环以及各种各样的拆装工具。(将以发货清单的方式告诉用户)

Mould was used high temperature grease when packing. There are the power wire、rings and other all kinds of dismantle tools.(as the send list to inform the user)

• 使用吊环将模具从包装箱内吊出。并且注意模唇的保护装置。

Use ring hang the mould out from the wrap box. And note the die lip protective device.

• 将模具放置与模具(支架)小车上，仔细的调整好高度使模具与连接体连接平稳。模具小车的稳固与否直接影响到模具的使用情况。

Put the mould on the frame, carefully adjust the height, make the mould connected with body smoothly. The tighten of mould small car or not directly influence the mould use condition.

• 连接电源线及热电偶并检查各个电源线及热电偶的连接是否正确。

Connected the power wire with thermocouple and then check each power wire and thermocouple connection is right or not.

• 检查控制结构是否标准和连接正确并检查其温度设定是否恰当。加热模具和分配器到操作温度。

Check the control structure is standard or not and connection right, then check the temperature set is appropriate or not. Heat the mould and distributor to operation temperature.

• 当模具加热到操作温度时至少保温一小时再进行生产。

When the mould heat to operation temperature at least keep one hour and then go on production.

• 按照给定的各种螺丝的扭矩，对加温后的模具的各部分的螺丝重新拧紧校正。注意：拧紧模具体大螺丝的过程应按如下的顺序，模具中间的螺丝先拧再依次往两端操作，左边和右边要交替进行。起初阶段模唇的微调螺丝应保持接触松弛的状态。

According to the given all kinds of screw torque, each parts screw of mould to tighten the correction again after heating. Attention: tighten the big screw of mould should follow the below order, in the middle of mould firstly twist and then operate to both ends, the left and right operate alternately. At first stage, mould lip tiny adjustment keep screw at loose status.

• 本模具设计有弹性模唇及节流棒装置，它们装配时处于最大的开口处，此时可以根据需要，用软隙规(软材料制品包括铝(Al)、黄铜(brass)等)测量并调整它们的开口大小。

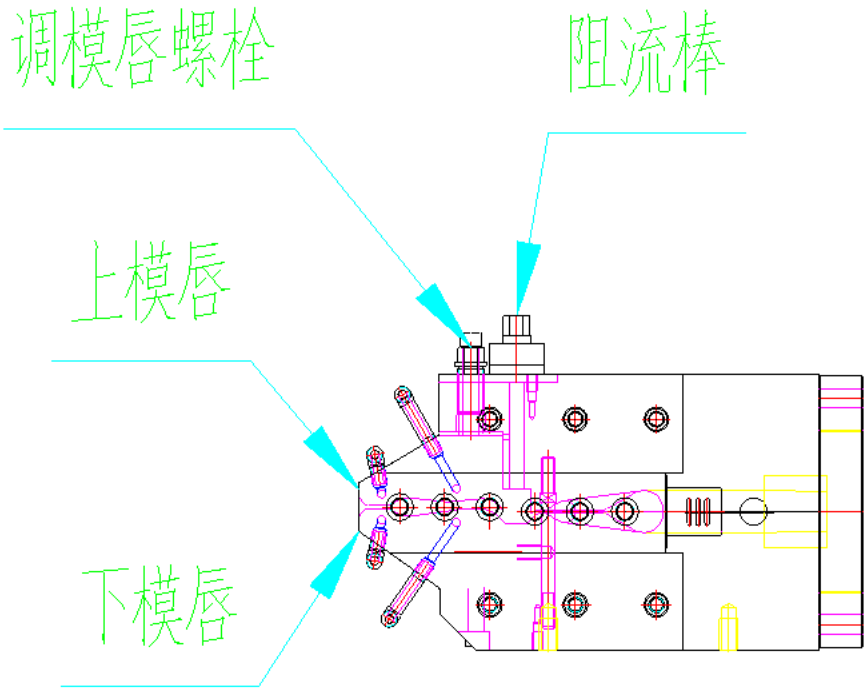
This mould has elasticity mould lip and shunt mandrel device, its stay the maximal mouth when assembly, at this time according to the requirement, use soft gauge (soft material product include(Al) 、yellow copper(brass) ect.) measure and adjust its opening size.

• 当完成了上述的准备过程之后，就可以进行生产了。

After finish the mentioned preparation process, then can undertake production.

3.2.5、模唇调节系统

Mould lip adjustment system



• 安装

Installation

将 M10(M12)微调螺丝装进模具上模的配合孔中，后将螺丝旋进微调块中直到螺丝轻微接触上模体为止。(微调螺丝应保持在松弛状态)

Install M10(M12) tiny adjustment screw into the hole of mould, after rotated screw into fine-tuning chunk till the screw lightly contact with body. (mould lip tiny adjustment keep screw at loose status)

• 操作

Operation

用配备的“T”形扳手拧调节螺丝，不要用加力杆或大扳手调节模唇调节螺丝。及时更换损坏的调节螺丝和微调螺丝。用“T”形扳手调节微调螺丝使得模唇开口间隙达到设计的预设值。初次调节时请使用千分尺测量开口大小，调节微调螺丝直到开口为设计预设值为止。之后调节(右旋)微调螺丝调整整个幅宽的开口大小，使用铜规(设计开口大小)测试。直到整个幅宽的开口大小都均匀一致并达到设计要求时才调节完毕。并且请检查是否每个微调螺丝都和模体接触。

Using the equipped with T type wrench to adjust screw, don’t use the reinforcing bar or big wrench adjust mould lip or screw. Change the broken adjusting

screw and fine-tuning screw in time. Using the T type wrench adjust fine-tuning screw, make the gap of mould lip reach the preset value. At first adjusting, please use micrometer measure the mouth size, adjusting the fine-tuning screw until to the preset value. After adjusting(dextrorotation) fine-tuning screw adjust the whole breadth of opening size, use copper (design the mouth size)test. Until the whole breadth of opening size uniform and meet design requirement when fished. Please check each fine-tuning screw contact with body.

3.2.6、保养和维护

Maintenance and keep

1）一般的清理和维护

Common cleaning and maintenance

注意:

Attention:

本手册说明的维护操作仅仅是对那些有资格的技术员或技师而言。

The manual is the only maintenance operation that for those who have qualified technician concerned.

- 在更换生产产品时和每次停产检修时对模具设备的彻底清理是很必要的

  At changing the product and every time stop production to examine mould equipment clean thorough is necessary.

- 请注意任何树脂和润滑材料的去除销毁都必须按照当地的环境保护条例执行。

  Please note any resin and lubricant material removal destroyed all must according to the local environment rules.

- 在生产过程中对设备的操作及温度高低的循环操作和设备的振动都可能引起某些连接螺丝、接头的松动。为避免损坏这些零部件，每次休息停产时都应由设备保养人员对设备各个连接螺丝和接头进行检查。

At the process of production, the operation equipment、 the temperature cycle operation and equipment vibration may cause some connection screw、loose adaptor. In order to avoid these components damage, every time stop production shall be made maintenance staff to each connection screws and equipment joint inspection.

2）关机过程

Turn off process

警告:

Warning:

所有的清理、维护、修理工作都必须在下述的关机过程完成的情况下进行。

All the cleanness、maintenance、repair work must proceed in the condition as below.

关闭机器

Shunt down the machine

- 将主控电源开关转至“OFF”位。(将主电源切断)

Make major power switch to “OFF” position. (cut off major power)

- 检查整个电路是否已经断电。

Check the whole circuit is cut off or not.

3）拆卸和清理

Dismantle and clean

拆卸场地和准备工作

The remove site and preparation work

- 挤塑模应在专门的的场所拆卸、清理、检修和维护。此场所要充分远离“粗件”生产区。工作场地应保持清洁，并垫以瓦楞纸板或橡胶板。

Extruder mould should be in the special place dismantle、clean、overhaul、maintenance. The place should be fully away from “rough part” production area. The work place should keep clean,

and mat with corrugated board and rubber sheet.

• 工作区内应备有各种工具(螺丝刀、扳手)、软刮片(黄铜、软铝制品)、清理及抛光材料，以及尽可能有挤塑模的预热装置。

Work area should have all kinds of tools (screwdriver、 wrench) 、soft blade (copper、 soft aluminum) 、clean and polish material, as well as have extrusion mould preheater.

• 挤塑模应趁热拆卸，必须迅速工作以免过早冷却。当挤塑模还在挤塑机上时，将模头温度加热至比生产时的温度高出 20℃左右，之后停止加热断开所有电源，迅速松开侧板上的螺丝，拆卸下两侧板。在模具仍处于高温状态时，松开上下模体的紧固螺丝，以及和主机的连接螺丝。之后用吊车吊起上模体放在附近的工作区内，并迅速清理上、下模体。清理流道时必须使用软刮片或铜刷，将流道内的任何残余树脂清理干净，可以借助石蜡或相关溶剂清理，切勿使用钢铁制器具。

Extrusion mould should dismantle at the high temperature, must work quickly to avoid untimely cooling. When the extrusion on the extruder, heat the mould head temperature higher than the production temperature about 20 ℃, then stop heating and cut off all power, quickly loosen the screw on side plate, dismantle two side palte. When the mould stay at the high temperature, loosen the fastening screw of the upper and nether mould, and the screw connected with main extruder. Use the crane lift upper mould place at the near work area, and quickly clean upper、nether mould. When clean runner must use soft blade and copper brush, clean up any resin in the runner, can use paraffin or relevant solvent to clear, don't use steel tool.

• 模具冷却后的清理，模具流道以及密封圈应用软刮片、细平磨石和金相砂纸予以清理及抛光，模具其他表面宜用软刮片和 240#以上的细砂纸清理。每个装配接触、非接触面都要将残余树脂清理干净。

Cleaning after mould cooling, mould runner and sealing ring should use soft blade、millstone and sand paper to clean and polish, other surface of mould can use soft and higher than 240# sand paper to clean. Each assembly contact、 non-contact surface all should be clean remains resin.

• 当上述工作都已完成之后，就可以进行再装配。在装配前应检查模具流道的光洁度，必须除去较小的微细划痕，较严重的损伤应送回厂方修理。

After above work is finished, can process the assembling. Before assembling should check the

runner fineness, must remove smaller scratch, sever injury should send factory to repair.

• 在挤塑模正式装配前，最好将其流道涂以薄层有机硅脂，如钼石或石墨脂，以保证挤塑模在工作过程中以及以后拆卸时均很方便。

Before the extrusion mould formally assembly, it's better to coat runner with thin layer organic silicon grease, like molybdenum stone or graphite grease, ensure extrusion mould is convenient in the process of working and dismantle.

• 装配时应注意各装配尺寸符合装配要求，定位好后，在模具处于冷却状态时拧紧各连接螺丝，当模具连接与挤塑机后，并加温至操作温度后应再次拧紧各连接螺丝。

When assembly should note assembly size accord with assembly requirement, after location, when the mould stay cooling status tighten all the connection screw firmly, when the mould connected with extrusion, heat temperature to operation temperature and then tighten all the screw again.

注意:

Attention:

模具加温前一定要仔细检查各个电源线的连接是否正确。此外，还必须校正热电偶。 Before the mould heated must carefully check every power wire connection is right or not. Beside, must check thermocouple.

我们建议模具在使用六个月左右后应完全拆卸、清理，并检查相关设备。对可能出故障的所有零部件(螺丝、螺栓、加热棒、引线等)应更换。然而具体的维护、维修时间间隔应视所加工的原料生产周期等相关问题而定。

We suggest that mould after use about six months should dismantle completely、clean, and check related equipment. Should be replaced all the elements may have the fault (screw、bolt、heat pin、lead line). But the specific maintenance、repair interval should depend on production cycle and related issue to be determined.

4）调试常见问题及处理和注意事项

The common commission problem and dispose、note affairs

挤塑模在生产过程中最容易出现的问题是挤出不均匀，影响产品质量，甚至调试不出

合格的产品。引起挤出不均的原因有多种多样，比如温度的控制，原料配方，挤出机的挤出压力等等，各方面的因素综合影响的结果。

Extrusion mould most easily happen the problem extrusion is not balance in the production, influence the quality, even rejected parts after commission. The reason caused uniformity is various, such as the temperature control, raw material formulation, the extrusion pressure of extruder and so on, all aspects factor comprehensive influence lead to the result.

现在就这几个方面一般性的问题，做几点解释和说明。以方便用户在实际生产调试中参考。

Now, about these aspects general problem, make some explanation and illustration. It is convenience to commission for the user in the production to refer.

• 开机前的加温和保温工作一定要做好，根据您生产的产品的塑料的特性设定合适的加热温度。各区的温度和挤出压力控制均匀与否，对产品挤出的均匀和稳定很有影响。在调节温度的过程中，需要注意的是热电偶反馈的温度和在模具上的玻璃温度计视值不应相差太大，一般在 1-2° C 左右是正常的，超出了这个范围，就很可能热电偶所测的温度不是模具实际的温度，应检查热电偶是否插到位。温度控制均匀稳定后，挤出机的挤出压力控制均匀稳定也很重要。

Before starting machine, heat temperature and keep temperature must do well, according to the plastic property of product to set the appropriate heating temperature. Every zones temperature and extrusion pressure be controlled balance or not, influence the steady and uniformity of the product very much. In the process of regulating temperature, need to note value of thermocouple feedback and class thermometer on the mould has no big difference, general about 1-2 ° is normal, beyond this range, it is very impossible the thermocouple measure the temperature is not the mould actual temperature, should check whether the thermocouple put in place. After the temperature be controlled balance, extrusion pressure of extruder control balance also is very important.

• 一般挤出不均匀时，开始很少调整模具的微调螺栓来调节，等温度和挤出压力都调节均匀稳定后，仍有波动或者挤出不均匀时才考虑调节模具。

General extrusion is not uniformity, at the first time rarely regulate mould fine tuning bolt,

after the temperature and extrusion pressure regulate to steady and uniformity, still has wave or extrusion is not balance to consider to regulate mould.

• 在调节模具时，应注意各区的调节过渡，防止调节螺栓咬死。

When regulate mould, should note each zones transition, to prevent regulating bolt seizure.

• 模唇的微调，同样得注意调幅的问题，调节的幅度不应过大，阻流棒和模唇的调节幅度我们推荐不应大于 1.00mm。另外，调节时不允许单个螺栓的调节，最少的在波动区域内得调节 3 个以上的微调螺栓。

The fine tuning of mould, at the same time should note the amplitude issue, regulate amplitude is not too big, choked flow pin and die lip regulate amplitude, we suggest that should not bigger than 1.00mm.Beside, when regulate it's not allowed to regulate single bolt, at least at the wave area regulate more than 3 fine tuning bolt.

如果上述调节都调试过后，仍然存在规律性的波动，或者挤出不均匀的话，就很可能是挤出机的波动或分配器的芯棒引起的。

If the commission mentioned above all is tried, still have regular wave, or extrusion is not balance, may be the extruder wave or pin of distributor caused.

• 无论是新模具还是老模具，都有可能出现漏料的问题。出现漏料时，最常见的原因是在漏料的部位的紧固螺栓没有拧紧，老模具也有可能是多次的拆卸和清理损伤了密封圈，如果漏料严重需停产检修。

No matter new or old mould, all has possible to happen seep material problem, the common reason didn't tighten the bolt at the seep material position, old mould may be some times dismantle and clean damage sealing ring, if seep material heavily should stop production for maintenance.

• 另外，模具的放置一定要平稳，并且要固定好，否则生产时产生的震动会影响挤塑机螺杆的使用寿命，也影响产品质量。

Beside, the place of mould must be placed steady, and tighten well, or when production produce vibration will influence the life of extruder screw, also influence the quality of product.

5）安全警告

Safety warning

在接通电源前，确信地线已接地，否则不允许接通任何电源。

When connected with power, make sure earth line contacted ground, or not allowed put through any power.

安全警告的标识牌必须始终保持在其位置上，当接通电源线后不允许打开任何的电源盖、电线盖、电线导管和插头。

The sign of safety warning must remain at its position, after connected power wire not allowed open any power plate、wire plate、line conduct and adaptor.

3.3、定型台说明

Calibrating table state

定型台是用来对刚挤出地产品进行定型的装置。

Calibrating table is the device to form the shape for the product come out.

3.3.1、 定型台的外形和基本参数其维护

Calibrating table appearance、basic parameter and maintenance

宽度： 1600mm

Width: 1600mm

定型板数量： 4 对

The quantity of calibrating plate: 4 pairs

定型板闭合： 液压驱动

Calibrating plate drive: hydraulic drive

真空装置： 第一对定型板带抽真空装置

Vacuum device: the first calibrating plate equipped the vacuum suction device

真空泵驱动功率：3KW

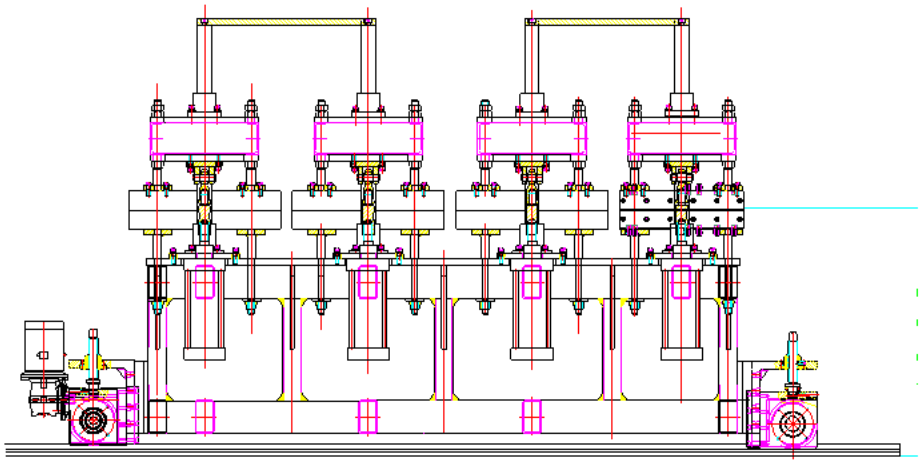
Vacuum pump drive power: 3KW

定型板冷却： 水冷

Calibrating cooling: water cooling

定型机纵向移动：0.75kw 减速电机

Calibrating clockwise move: 0.75kw gear motor



定型台外形

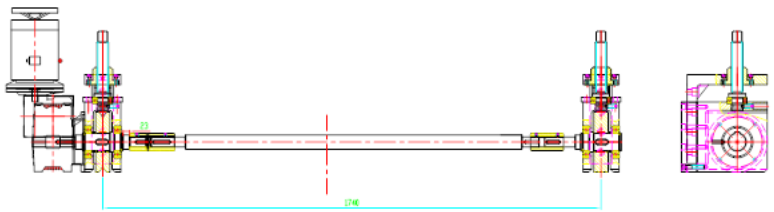
Calibrating table appearance

3.3.2、定型台移动系统

Calibrating table drive system

此机构由前脚轮组件、后脚轮组件构成。前脚轮组件直连二级蜗轮蜗杆加速机，由带手轮电机驱动，实现手动和电动移动功能。后脚轮组件为被动。此机构由前、后脚轮滑动部件及丝杆升降组成。转动丝杆前后脚轮相对于定型台上、下滑动，从而实现定型台中心高度的调节。

The system composed by former truckle component、behind truckle component. The former truckle component direct connection with secondary worm gear and worm accelerate machine, drived by manual wheel, achieve the manual and motor-driven move function. The behind truckle component is passive. The system composed by former、behind truckle slide component and leading screw. Turn the leading screw former、behind truckle relative to the calibrating table up and down sliding, to accomplish adjust the central height of calibrating table.



3.3.3、定型台单元的吊装和运输

Calibrating table unit hoisting and transportation

1、吊装

Hoisting

定型台的吊装需用承载 15 吨以上的吊索吊装，在吊装过程中请采取保护措施保护模具表面，并在吊带与定型台之间用软质东西隔开，以防止机器表面在吊装过程中划伤。

Calibrating table hoisting need to bear more than 15 tons sling to hoisting, in the process of hoisting please attention the protection of mould surface, and separated by soft something between the harness and calibrating table, in case the appearance of machine get scratch in the process of hoisting.

2、运输

Transportation

运输时，必须将三辊压光机牢靠地固定在包装箱中。同时，防止在运输中损伤。

In the transportation, must firmly fixed the three roll calendar in the package box. At the same time, to prevent the scratch in the transportation.

3.3.4、定型台单元的就位

Calibrating table unit in the position

定型台的就位是和整线安装同时进行。根据生产线的布置图，将导轨按地基图布置在地面，然后将定型台就位。

Calibrating table in the position and the whole machine proceed at the same time. According to the production line layout, place the guide rail according to the ground plot on the ground, then the calibrating table in the position.

3.3.5、定型台单元结构特点

Calibrating table unit structure character

定型台主要有机架、上模调节机构、下模支撑机构、同步升降机构、定型台移动系统、定型台中心高度调节机构、控制系统等组成。

Calibrating table mainly has frame、upper mould adjustment system、down mould support system、synchronization elevator mechanism、calibrating table move system、calibrating table central height adjustment system、control system etc. composed

1)、机架由底座及墙板等组成，底座由型钢焊接而成，墙板为整体。

Frame composed by foundation and wallboard, foundation welding by profile steel.

2)、上模调节机构，对上面的模具进行支撑，可保证上面的模具上下调节.

Upper adjust organization, support the upper mould, to ensure the upper mould can regulate up and down.

3)、上模调节机构，对下面的模具进行支撑，可使下面的模具有一个基准.

Upper mould adjust organization, support the down mould, for the down mould have a standard.

4)、定型台移动系统：通过减速电机，驱动电机功率 0.75kw。

Calibrating table shift system: through the gear motor, drive motor power 0.75kw.

3.3.6、定型台单元安全操作

Calibrating table unit safety operation

定型台主要作用是对片材定型等作用。是影响制品品质的关键部分。定型台的正确操作关系制品质量和人员安全。请按照以下步序操作：

Calibrating table mainly used for keep shape of sheet. It's the critical parts to influence product quality. Calibrating table right operation has relation with the product quality and operator safety. Please do as below step:

1）开机前，请先检查模具的加热冷却系统及真空系统是否畅通.。

Before starting machine, please check mould heating and cooling system firstly, vacuum system is unimpeded or not.

2）初次开车请先检查定型台升降机构，保证下面模具的面与模头的模唇在一个水平面.。

Please check the elevator mechanism of calibrating table when the first time running machine, make sure the down face mould and the mould lip of mould head at the same level.

3）检查水辊温控制系统的管路连接及进出水情况，保证本系统要求的水压。初次开车请检查水泵电机旋向是否合水泵标示旋向一致。

Check the water roller control system tube connection and water input condition, make sure the system certain water pressure. At the first running machine please check the water pump motor rotation whether accordance with water pump mark rotation.

4）初次使用定型台液压站时，请先检查电机旋向。检查油路的安全情况，保证油路中油管和泵阀完好性。检查液压缸动作的正确无误

Using the hydraulic station of calibrating stable at the first time, please check the motor rotation firstly. Check the oil tube safety condition, make sure oil tube and pump valve in the oil way is well. Check the hydraulic cylinder is right or not.

3.3.7、定型台液压系统

Calibrating table hydraulic system

a) 概述

General

液压系统在机械、冶金等行业中的辅助作用起到相当大的影响，它具有工作状态稳定，输出力均匀，操作方便，控制灵活等特点。已在各行业得到肯定。

The hydraulic system act as a helping role has a great influence in the mechanical、metallurgy industries, it has the steady work status, output uniform, convenient operation, flexible control etc. characteristic. Have been proved in various industries.

b) 液压系统主要技术参数

The main technical parameter

系统工作压力 P =6.5~12Mpa

System work pressure P=6.5~12Mpa

工作辊压力 P 减 =6.0Mpa

Work roller pressure p minus =6.0Mpa

★ 本泵站最高压力为 16Mpa，不得长时间超压使用。

★ The pump maximum pressure is 16Mpa, not allowed used overpressure for a long time.

系统工作流量 Q =11.5L/min，不可调节。

The system work flow Q=11.5L/min, not adjustable

控制电压：DC24V

Control voltage: DC24V

系统电压：AC440V　8.8A　50Hz

System voltage: AC440V　8.8A　50Hz

工作介质：ISO　VG 46 抗磨液压油

Work medium: ISO　VG 46　wear resistance hydraulic oil

油箱加油量：约 100L

The volume of oil tank: about 100L

液压系统主要组件

The main element of hydraulic system

1) 电机泵组单元---由电动机、叶片泵、支架、联轴器组成

The motor and pump unit---composed by motor、vane pump、frame、coupling

电动机：中国上海造　功率：4kW　电流：8.8A 440V/50Hz　IP44　转速：1440r/min

Motor: made in China shanghai　power: 4KW　current: 8.8A 440V/50Hz　IP44 rotation speed: 1440r/min

叶片泵：原装日本 YUKEN 产品，型号 PV2R1-8-F-RAA-40

Vane pump: original product made in Japan, type PV2R1-8-E-RAA-40

公称排量 8ml/r　旋转方向从轴伸端看为顺时针向

Nominal output volume 8ml/r　rotation direction see at the end of shaft extension is clockwise direction

2) 控制阀组单元---由阀块、电磁换向阀、溢流阀、减压阀、单向阀等元件组成

Control valve composed by valve chuck、solenoid direction valve、relief valve、reducing valve、one-way valve etc.

采用叠加阀式设计，体积小，重量轻，易于安装及维护。阀块经镀镍处理，保证不生锈；所有阀类均为原装日本 YUKEN 产品。具体型号规格祥见原理图。

Adopt composition valve design, little volume, light weight, convenient to install and maintain. Valve chuck through the nickel plating treatment, make sure no rust; all the valve is the original product made in Japan. Specific type see as schematic diagram.

3) 执行机构---油缸

Executive organization---cylinder

4) 能量储存---蓄能器

Energy storage---accumulator

蓄能器型号：NXQ—L10/200-H

The accumulator type: NXQ—L10/200-H

5) 回油过滤器---滤芯每半年更换一次

Back oil filter---filter element should be replaced half year one time

型号：RFA-63x20L-Y，　滤芯型号：FAX-63x20

Type:　RFA-63x20l-y,　　filter element type: FAX-63x20

6)　油箱及其他液压附件

Oil tank and other hydraulic accessory

规格型号祥见液压泵站总装图

The specification see at the hydraulic pump general assembly drawing

c)　、液压系统工作原理

Hydraulic working principle

电机带动油泵回转，在吸油区形成负压，油液在大气作用下被吸入泵内，泵内排出的油液经溢流阀口溢流回油箱。

The motor drive the oil pump rotation, have the negative pressure in the absorb oil area, the oil under the air inhalation into pump, oil exhaust form the pump through the relief valve port back to the oil tank.

本系统由一电接点压力表控制电机启停，当系统压力升至电接点压力表设定的高位---红色指针位时（12Mpa），电机停止工作，系统由蓄能器供油；当系统压力低至电接点压力表设定的低位---绿色指针位时（6.5Mpa），电机自动启动，周而复始。

The system controlled by electro connecting pressure gauge to stop or start, when the system pressure rise to the high position set by the electro connecting pressure gauge---red pin position (12Mpa), the motor stop work, system get the oil by accumulator; when the system pressure down to the low position set by electro connecting pressure gauge---green pin position (6.5Mpa), motor start automatically, again and again.

本液压泵站电磁阀控制电压为 DC24V。当电机启动时，YV7 电磁阀（DSG-01-2B3B-D24-70）即通电，通过调节溢流阀（MBR-01-H-30），系统压力缓慢上升至电接点压力表高位（12Mpa）时，电机停止，YV7 失电，整个系统因蓄能器而处于保压状态。此时截止阀（GCT-02L）应处于关闭状态，只有在维修泵站需要释放压力时才能打开此阀。

The hydraulic pump station solenoid valve controlled voltage is DC24V. When the motor start, YV7 solenoid valve (DSG-01-2B3B-D24-70) through the electric, through the relief valve (MBR-01-H-30), system pressure rise up slowly to the position of electro connecting

pressure gauge (12Mpa), the motor stop, YV7 no electric, the whole system due to the accumulator stay the keep pressure state. At this time, stop valve (GCT-02L) should stay closed state, only when repair the pump station need to release pressure can open the valve.

YV3、YV6 电磁阀（DSG-01-2B2A-D24-70）在系统工作时一直处于通电状态，只有当系统急停断电或停电时，两阀开始工作----通过蓄能器压力使两辊自动分开。

YV3 、 YV6 solenoid valve (DSG-01-2B2A-D24-70) get through the electric when the system working, only when the system scram or power cut, two valves start work----through the accumulator separate the rollers automatically.

上、下工作辊的合拢、分开主要由两电磁阀（DSG-01-3C2-D24-70）来控制，当 YV1、YV4 通电时两辊分离；YV2、YV5 通电时两辊合拢；工作辊的压制力通过减压阀（MRP-01-C-30）实现。出厂设定为 6MPa。上、下两工作辊各由两个油缸控制，通过调节管路中的 8 个单向节流阀（PT-03）使每两个油缸（一组）工作同步。

Up 、 down roller folding 、 separating mainly controlled by solenoid valve (DSG-01-3C2-D24-70), when the YV1、YV4 get through power two rollers separate; YV2、YV5 get through power the two rollers fold; the rollers pressure controlled by relief valve (MRP-01-C-30) to achieve. Out of plant set 6MPa. Up and down roller separate controlled by two cylinders, via the eight one-way valve (PT-03) in the regulation tube make the two cylinder synchronization.

d)、液压系统操作程序

Hydraulic system operation program

- **开机前准备**

The preparation before the starting machine

油箱液位确定：液压油加至液位液温计高度的 80%。

Liquid level of oil tank confirmation: hydraulic oil added to the 80% of the liquid thermometer.

电机转向确定：电机点动，电机尾罩风叶转向为顺时针或按标贴箭头方向。

Motor rotation direction confirmation: when the motor start, the fan blade in the end of motor tail fairing rotation is clockwise or according to the label direction.

严禁无油或反转运行，否则将造成油泵干烧损坏！

Prohibit no oil or inversion rotation running, or will cause the oil pump brake!

- **系统参数调节**

System parameter commission

系统压力调节：

System pressure regulation:

调节溢流阀、减压阀---松开锁紧螺母，用 4mm 内六角扳手调节螺钉，顺时针调节压力升高，逆时针调节压力降低；调节后锁紧螺母。本系统压力（溢流阀）设定为 12Mpa，工作压力（减压阀）设定为 6Mpa。

Regulate the relief valve、reduce valve---loosen the unblocking nut, use 4mm socket head wrench to regulate the screw, under the clockwise direction regulate the pressure to rise up, under the anticlockwise direction regulate the pressure to decline; after regulating blocking the nut firmly. The system pressure (relief valve) set at 12Mpa, work pressure (reduce valve)set at 6Mpa.

电接点压力表调节：

Electro connecting pressure gauge:

用一字螺丝刀轻压电接点压力表中间一调节按钮，将红色指针拨至示值 12 位置处，绿色指针拨至示值 6.5 处；黑色指针为实际压力指示针，不可调节。

Using straight screwdriver lightly press the regulation button at the middle of electro connecting pressure gauge, move the red pin to the 12 position and green pin to the 6.5 position; the actual pressure pointer is the black one, unadjustable.

蓄能器皮囊内氮气压力设定：

The nitrogen pressure set in the leather bag of accumulator:

使用专用充气工具检测皮囊内氮气压力；本系统充气压力为 5.5~6.0Mpa。不足时应及时补充氮气。具体祥见后附“蓄能器”节

Use the special aeration tool examine the nitrogen pressure in the leather bag; the system pressure is 5.5~6.0Mpa. If not enough should add the nitrogen gas. Specifically see attached the chapter “accumulator” behind

出厂时所有参数均已经调节好，原则上不用调节，如需调节，请在清楚原理的情况下进行调节！

When the machine out of plant all the parameter already set, in theory don’t need regulate, if need regulate, please proceed regulating after understanding theory!

e)、泵站常见故障排除

Pump station common fault eliminate

故障状态 Fault state	现 象 Phenomenon	原因分析 Reason analysis	排除方法 Eliminate method
泵的噪音大 Big noise of pump	泵中发生气穴 Cavitation in the pump	吸油阻力大 Oil absorption resistance is small 吸油管径小 The diameter of oil absorption is small 吸油滤网堵塞 The oil screen of oil absorption was blocked 油温过低、油液粘度高 Low temperature、low viscosity 泵转速过快 Fast rotation speed of pump 油液劣化起泡 The bad quality of oil cause bubble	减小吸油阻力 Reduce oil absorption resistance 增大吸油管径 Enlarge the oil tube diameter 清洗滤网或更换 Cleaning or replacing oil screen 加热油液 Heat the oil liquid 降低泵转速 Slow down the rotation 更换油液 Change the oil
	油液中混入空气 Air mixed into the oil	吸油口接头漏气 The adaptor of oil absorption has a leakage 液位不够 Liquid level in not enough 轴封处有空气吸入 Shaft seal suction air	拧紧接头、更换密封 Tighten adaptor、replace sealing 增加液位 Adding the liquid level 涂黄油检查、更换 Coating the yellow to check、replace

	机械振动	同心度超差 泵、电机连接螺钉松动 泵本身故障，如轴承、滑履损坏等	同心度小于0.1mm 拧紧松动螺钉 修理或更换新泵

压力故障 Pressure fault	无压力、压力不足 No pressure、pressure is sufficient 调压不成线性比例 Regulation is not forming linear proportion	电机反转 Motor inversion 液位不够 The liquid level is not enough 吸油口漏气、未吸上油 Absorption oil mouth leak gas、didn't absorb oil 油液中混入空气 Air mixed into the oil liquid 油液温度过高、粘度低 Oil liquid temperature is too high、low viscosity 压力阀故障 Pressure valve fault 泵、元件磨损，泄露大 Pump、component wear, big leakage 有其他卸荷通道 Have other unloading passageway	改变转向 Change the rotation 加足油液 Adding the oil 拧紧接头、更换密封 Tighten the adaptor、replace sealing 放气、不让空气混入 Release air、not allowed the mix into 降低油温、更换油液 Lower the oil temperature 、change oil liquid 清洗或更换压力阀 Cleaning or change pressure valve 更换或修理 Changing or repairing 查找排除卸荷通道 Check and eliminate unloading passageway

	压力不下来 The pressure can't decline	压力阀阀芯卡住 Pressure valve core locked 卸荷通道被堵住 Locking the unloading passageway	清洗阀 Cleaning the valve 让卸荷通道通畅 Clear the unloading passageway
流量故障 Flow fault	流量不足速度失控 The insufficient flow caused out of control	泵发生气穴 The pump cavitation 油液中混入空气 Air mixed into the oil liquid 阀芯被异物卡住 Valve core stopped by something foreign 元件过度磨损、泄露大 Element wear excessively 、 big leakage	减小吸油阻力 Decrease oil absorption 防止油液混入空气 Prevent the air mixed into oil 清洗阀芯 Cleaning valve core 修理或更换 Repairing or changing
换向阀故障 Selector valve	换向阀无动作 Selector valve has no action	无控制信号输入 No control signal input 电磁铁插头接触不良 Electromagnet plug contact undesirable 电磁线圈烧坏 Magnet coil 电压不符、欠电压 Voltage discrepancy 、 insufficient voltage 阀芯被异物卡住 Valve core stopped by foreign thing	输入控制信号 Input control signal 使插头接触良好 Make the plug contact well 更换电磁线圈 Replacing the magnet coil 输入正确电压 Input correct voltage 清洗阀芯 Cleaning valve core 更换弹簧

		弹簧疲劳或折断 Spring fatigue or break	Changing the spring

f)、液压站的维护保养

The maintenance of hydraulic station

① 建立、健全维护保养记录，建立巡检专检规章制度。

Establishing、perfect maintenance record, set up the inspection regulation.

② 对液压系统的油温、清洁度、噪音及蓄能器进行定期检查:

For the hydraulic system leakage、 cleanness、 noise and accumulator have regular inspection

- 油温过高（超过 80℃），会加速密封件老化及元器件磨损，大大缩短系统的工作寿命。如电机频繁启动，就要注意是否系统的某一部位出现泄漏，应及时处理，一旦油温过高应停机检查。

Oil temperature is too high (exceed 80℃), may accelerate sealing aging and element wear, greatly shorten the system working life. Such as motor start continually, should pay attention to the position of the system whether have leakage, deal with in time, once the oil temperature is too high stop machine to check.

a) 液压油污染严重，出现恶臭变质现象，应更换液压油；原则上液压油每一年更换一次。

Oil liquid has seriously pollution, have stench metamorphic phenomenon, should replace the hydraulic oil; In theory, hydraulic oil should change one time in half year.

b) 工作过程中出现异常噪音，应初步判断噪音来源后马上停机检查，以免造成更大损失。

In the process of work have strange noise, should check the noise source and then stop machine at once, in case not cause more damage.

c) 蓄能器内氮气压力应经常检测，具体祥见后附“蓄能器”节。

The nitrogen in the accumulator should often examine, specifically see at the attached chapter “accumulator” behind.

检查液压站阀组、堵头及管接头出是否有漏油现象，应及时更换密封件。

Check the hydraulic station valve bank、 choke plug and pipe adaptor whether have the leakage phenomenon, should replace the sealing element.

③ 电磁换向阀换向动作是否灵活、单向节流阀速度调节是否有效、溢流阀压力调节是否正常，如有异常，应检修或更换元件。

Solenoid directional valve movement whether flexible、return orifice check valve speed adjustment whether effective、

④各种滤油滤芯每半年更换一次。Relief valve pressure adjustment whether normal, if have something strange, should examine or replace element.

吸油滤油器：MF-04

Oil absorption filter: MF-04

回油过滤器：FAX-63x20

Oil return filter: FAX-63x20

g)、蓄能器的使用维护

Accumulator usage and maintenance

① 安装

Installation

蓄能器原则上应该气阀朝上垂直安装，为便于维护和检查，气阀处应留有一定空间。蓄能器的固定：蓄能器必须牢固地安装在托架或壁板上。蓄能器与管路系统之间应设置截止阀或安全球阀，可供充气、调节放油速度或长时间停机时使用。蓄能器与液压泵之间应装设单向阀，当电机停止工作时防止蓄能器中所储存的压力油倒流。不得用焊接方法来固定蓄能器。

Accumulator should be installed by air valve upwards in theory, in order to convenient maintenance and check, at the air valve position should leave some space. The accumulator fixed: the accumulator should be installed on the bracket or sliding firmly. Between the accumulator and pipe system should be set stop valve or ball relief valve, can for the aeration、regulate speed oil outlet or stop machine for a long time. The one-way valve should be installed between accumulator and hydraulic pump, when the motor stop working to prevent the pressure oil store in the accumulator backwards. Have to adopt welding method fix accumulator.

氮气的充装

The nitrogen fulfill

蓄能器严禁充装氧气、压缩空气或其他可燃性、腐蚀性气体。蓄能器在充装氮气前必须对蓄能器进行检查。对未安装铭牌、铭牌上字样脱落得不易识别蓄能器种类、钢印标记不全或不能识别的、壳体上有缺陷不能保证安全使用的，应事先进行妥善处理，停止使用或查明规定使用压力。在充装氮气时应缓慢进行，以防充破胶囊。请使用专用的充气（氮）工具（型号 CQJ-25-1500）为蓄能器胶囊充装氮气，本系统充装氮气压力为 5.5~6.0Mpa。充气（氮）工具用于对蓄能器进行充气、检测充气压力或改变蓄能器里已存在预充压力。

如果被充的蓄能器最高压力低于氮气瓶最高压力时，可以通过减压阀向蓄能器进行充气。充气完毕后，应关闭氮气瓶和蓄能器的接口，接着打开充气工具中的放气阀，放尽高压胶管中的气体，然后卸下充气工具。

The accumulator prohibit fulfill oxygen、compressed air or other flammability、corrosive gas. Before fulfill the nitrogen must inspect the accumulator. For the not installation nameplate、nameplate fall off not easy to recognition accumulator type、 steel impression mark is not complete or not recognition、 there's some defect on the shell can't guarantee use safely, should be deal with before this, stop using or find out the regulated working pressure. When fulfill the nitrogen should be proceeded slowly, in case broken capsule. Please use special aeration tool (type CQJ-25-1500) for the capsule of accumulator fulfill nitrogen, the system fulfill nitrogen pressure is 5.5~6.0Mpa. Aerating tool used for accumulator capsule fulfill nitrogen、check the aeration pressure or change the pressure already store in the accumulator. If the aerated accumulator maximum pressure lower than the nitrogen bottle maximum pressure, can through the relief valve aerate for the accumulator. Finishing the aeration, should turn off the nitrogen bottle and accumulator port, then open aeration tool air bleeder, release the air in the high pressure rubber pipe, then dismantle the aeration tool.

注意：以上操作均应在液压系统无压力的情况下进行。

Note: the operation above should be proceeded under the hydraulic system without pressure.

② 检查和维修

Repair and maintain

检查漏气：蓄能器设置后，开始每周检查胶囊气压一次；一月后，每月一次；半年后，半年检查一次；一年后，每年检查一次。定期检查可以保持最佳使用条件，并及早发现泄漏及时修复使用。检查方法：在蓄能器的进油口和油箱连接的油路上设置一个截止阀，并在截止阀前装一压力表。本液压站为电接点压力表。然后慢慢打开截止阀，使压力油流回油箱，同时观察压力表变化，压力表指针先是慢慢下降，达到某压力值后急速降到零，指针移动的速度发生变化的数值，就是充气压力。 此外也可以用充气工具直接检查充气压力，但每检查一次都会放掉一些气体。如蓄能器在液压系统中不起作用，请检查是否由于气阀漏气引起，以便给予补充氮气。若胶囊内没有氮气，气阀处冒油，请拆卸检查胶囊是否破损。若蓄能器向外漏油，请旋紧连接部分。若仍然漏油，请拆卸并更换有关零件。
卸下蓄能器前必须卸去压力油，使用充气工具放完胶囊里的氮气，然后才能拆装。

Examine the leakage: after set the accumulator, check the capsule pressure one time in one week; after one month, every month one time; after half year, check one time in a half year; one year later, check once in a year. Regular examine can keep the best usage condition, find out

leakage as soon as possible and repair to use.

h)附则

Supplementary rules

蓄能器严禁充装氧气，以避免引起爆炸。系统调试之前，应排尽管道内空气。通过蓄能器下部排气螺堵或截止阀来完成）蓄能器使用前必须检查胶囊内氮气压力是否符合充气压力确定值。

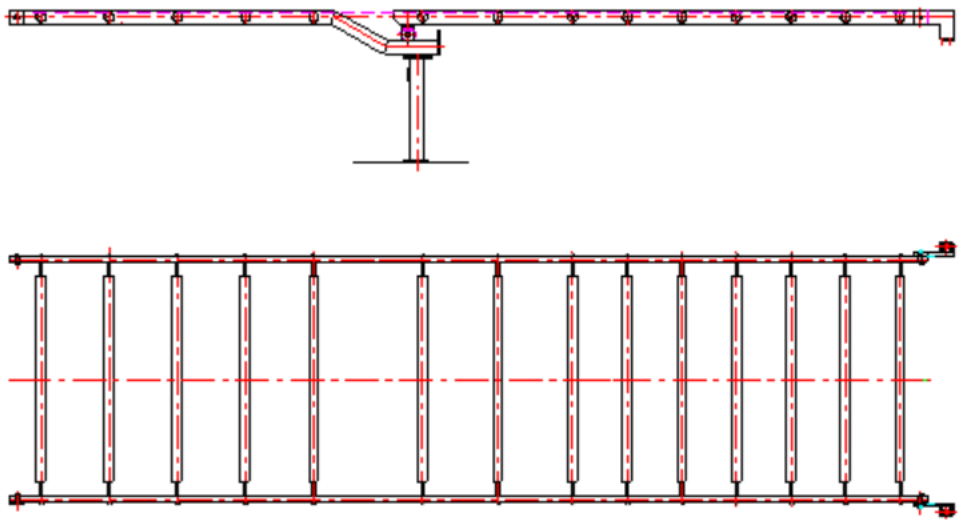
The accumulator prohibit aerate oxygen, in case cause the explosion. Before the system commission, should exhaust the air in the tube. Through the accumulator bottom exhaust spiral or stop valve to finish. Before using the accumulator should check the capsule nitrogen pressure whether accord with the aerate pressure certain value.

3.4、冷却输送单元基本参数及安全操作指导

Cooling convey unit basic parameter and safety operation guidance

冷却装置主要用途是将定型台出来的板材进行冷却定型、引取。

Cooling device mainly purpose finalize the design、 haul off the sheet come out from the calibration table.



冷却托架单元部件

3.4.1、冷却输送基本结构参数

Cooling convey basic structure parameter

冷却架长度：8m

Cooling bracket length: 8m

冷却辊筒规格： φ70×1500mm

Cooling roller specification: Φ70×1500mm

冷却辊筒材料：铝合金、氧化处理、表面抛光。

Cooling roller material: aluminum alloy、oxidation treatment、polished syrface.

3.4.2、冷却辊架维护和保养

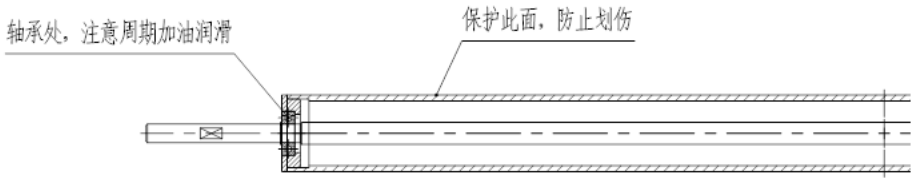
Cooling roller bracket maintain and keep

• 辊筒未使用前应涂防锈油，用棉布包裹等措施保护。

Before using the roller should coat antirust oil, with cotton cloth package protection measures.

• 使用时应经常检查辊筒表面有无腐蚀及划伤，以免损伤片材表面。当辊筒表面有微小腐蚀及划伤时，可用金相砂皮打磨光滑。必要时更换辊筒。

When using roller should often check the surface whether have the corrosion and scratch, in case damage sheet surface. When the roller surface have tiny corrosion and scratch, can use metallographic paper to polish it. When necessary change roller.



3.5、切边定宽单元基本参数及安全操作指导

Scrap edge fixed width unit basic parameter and safety operation guidance

切边定宽单元固定在冷却架上，主要用途是将冷却架上片材进行切边，以及定宽分片。

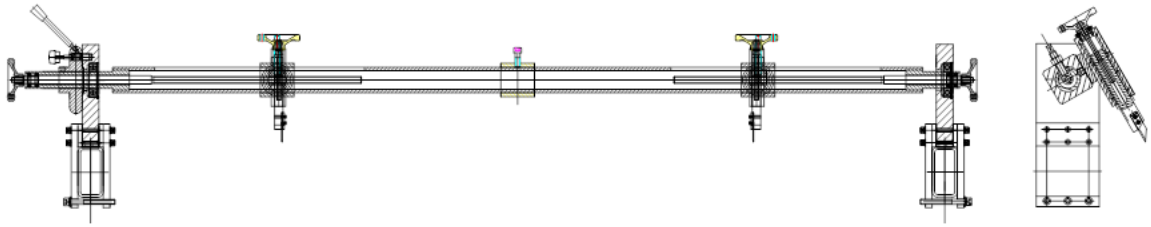
Scrap edge fixed width unit fixed on the cooling bracket, main purpose is scrap the sheet on the bracket, and fixed width and sort it.

3.5.1、切边定宽单元基本参数

Scrap edge fixed width basic parameter

切边定宽外形图

Scrap edge fixed width outside view



切刀组数：2 组

Knife class number: 2 group

切刀夹角（与片材）：60 度

Knife included angle(with sheet): 60 degree

切刀伸缩行程：120mm

Knife flexible distance: 120mm

3.5.2、切边、定宽操作

Scrap edge、fixed width operation

• 定宽

Fixed width

片材定宽分切时，通过调节丝杆调节分切刀的位置来控制片材的宽幅。

When scraping the sheet and separate it, through adjusting the lead screw device knife position to control the sheet width.

• 切边

Scrap edge

通过调节刀杆的位置，锁紧紧定螺丝来控制片材的分割。

Through adjusting knife position, lock the fixed screw to control sheet segmentation.

3.5.3、切边的安全防护

Scrap edge safety protection

由于切边的刀片非常的锋利，严禁手指等部位接触刀片以及刀片周围运行的片材！在不使用时请用棉布或其他东西包装好刀片，涂上防锈油，并放在安全不易伤到人的地方。

Due to the scrap edge blade is very sharp, prohibit finger etc. part contact blade and the sheet movement around blade! Package the blade with the cotton cloth or other thing when blade is not used, coated the antirust oil, and place in the

safety position it’s not easy hurt people.

在拆装过程中，请注意刀片，先拆下刀片并放在安全不易伤到人的地方，以免划伤手指，严禁用坚硬物体敲打丝杆及其他零件。定期检查固定螺钉，防止由于螺钉的松动而产生的事故。

In the process of dismantling, please attention to the blade, firstly dismantle the blade and place in the safety place which not easy hurt people, in case scratch finger, prohibit use hard thing beat lead screw and other element. Inspection regular tighten screw, prevent due to the screw loosen cause accident.

3.6、牵引单元基本参数及安全操作指导

Haul off unit basic parameter and safety operation guidance

牵引单元是挤出的成品向前输送的原动力。

Haul off unit is extrusion the finish product conveying upwards original power.

3.6.1、牵引机基本参数

Haul off unit basic parameter

胶辊材质：丁腈橡胶

Rubber roller material: nitrile rubber

胶辊直径：Φ250mmX1600mm

rubber roller diameter: Φ250mmX1600mm

胶辊数量：6 对

Rubber roller quantity: 6 pairs

电机功率：7.5KW

Motor power: 7.5KW

气缸规格：12－Φ100×100

Cylinder specification: 12－Φ100×100

升降方式：气压驱动

Up and down method: pressure gas drive

3.6.2、牵引机的吊装和运输

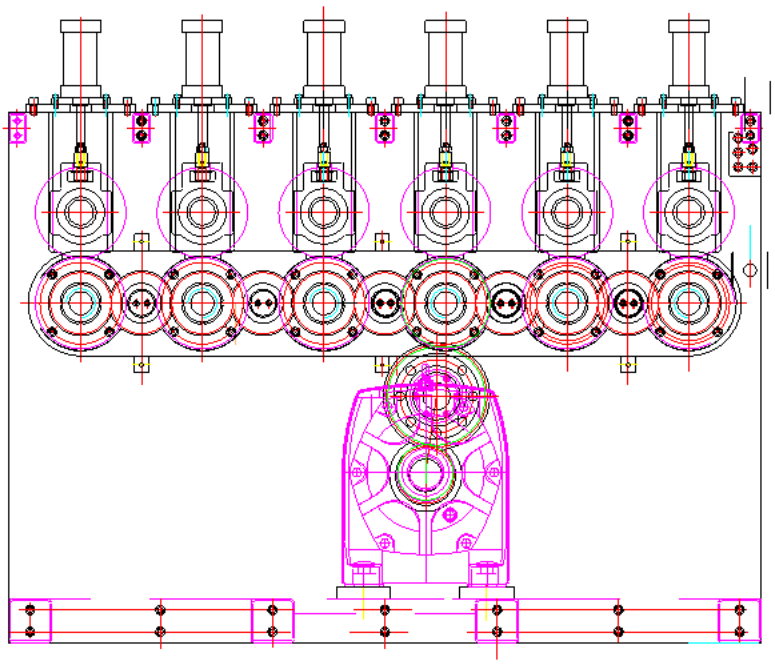
Haul off unit hoisting and transportation

1、吊装

Hoisting

一次牵引机的吊装须用承载 4 吨以上的吊索，二次牵引机的吊装须用 3 吨以上的吊索，按照吊装图吊装（如下图所示）。

Haul off unit for once hoisting must use burden more than 4 tons sling, haul off unit for second must use burden more than 3 tons sling, according to the hoisting drawing to hoist (see as below).



牵引机外形图

Haul off unit view outside

2、运输

Transportation

牵引机在运输过程中，将牵引机固定在包装箱中。为防止运输过程中牵引辊表面损伤，必须对辊筒进行包裹保护。

The haul off unit in the process of transportation, should fixed it in the package box. To prevent the haul off unit roller in the process of transportation damage the surface, must take protective measures for roller.

3.6.3、牵引机的安全操作

Haul off unit safety operation

1、牵引机开机前的准备

The preparation before start haul off unit

开机前先打开气源，检查气源压力。开启手动单向阀，升起牵引压辊。到顶后手动阀换向，分别压下两辊筒。反复几次，检查牵引压辊左右气缸是否同步。（左右气缸在工作中压力不等，片材会跑偏，影响板材切割的平整，也有可能使板材变形。）根据实际情况调节气缸节流阀，使左右气缸同步。

Before start machine open the air source, check the air power pressure. Start manual one-way valve, rise up roller. To the top position, change direction by manual valve, push down the roller separately. Again and again, inspect the haul off press roller right and left cylinder whether synchronization. (right and left cylinder has different pressure during work, sheet will be wandering, affect the smooth of plate cutting, may make the sheet deformation.) According to the actual condition regulate the cylinder relief valve, make the right and left cylinder synchronization.

2、牵引机中的安全操作

Haul off unit safety operation

开机时，先升起牵引压辊。将冷却架上的片材穿过牵引机，拉紧片材，启动牵引电机然后压下牵引压辊。

When starting machine, firstly rise up roller. Make the sheet on the bracket come across the haul off unit, tensioning the sheet, start haul off unit motor and then press down the haul off roller.

3.6.4、牵引机的保养和维护

Haul off unit maintain and keep

牵引机在正常的使用过程中，必须定期保养和维护。维护保养方法：

Haul off unit in the normal process of working, must regular maintain. The maintenance method:

1、在初次使用 300－600 小时后，应换油一次，更换应在减速器停车，润滑油尚未冷却时

排放旧油。使用润滑油为N220。

At the first time, using after 300-600 hours later, should change oil one time, change should be proceeding at the reducer stop, the lubricating oil not cooling exhaust the used oil. The lubricating oil is N220.

2、牵引机上使用的轴承座，每隔半年就需从油嘴加入润滑脂，直至润滑脂从密封处和排出阀排出，并清除轴承座上多余的油脂。

The bearing pedestal used in the haul off unit, every half year need to add the lubricating oil from the nozzle, until the lubricating oil from the sealing and exhaust orifice discharge, and clean the redundant oil on the bearing pedestal.

3、材料为橡胶，长时间使用会令橡胶辊表面结垢，应定期使用非油性洗剂对辊筒清洁。短期停车后，需对胶辊进行包裹保护。长时间停机会令橡胶表面老化，需做好相应的保护措施。如过渡老化，必须修复或者更换。

The material should be rubber, used for long time will make the nitrile roller surface scale formation, should use the oily lotion clean the roller regular. Stop the machine for a short time, need to take package measures to roller. Stop machine for a long time, the roller surface will aging, need to do relative protective measures. If the transition aging, must repair or change it.

3.7、腹膜单元基本参数及安全操作指导

Coating device basic parameter and safety operation guidance

3.7.1、覆膜装置的组成及技术参数

Coating device constitution and technical parameter

覆膜装置由气涨轴，磁粉制动器、展平辊装置，移动调节装置等组成.

Coating device is composed by air shaft, magnetic powder brake、nip roller device, movement adjustment device etc.

覆膜装置基本技术参数

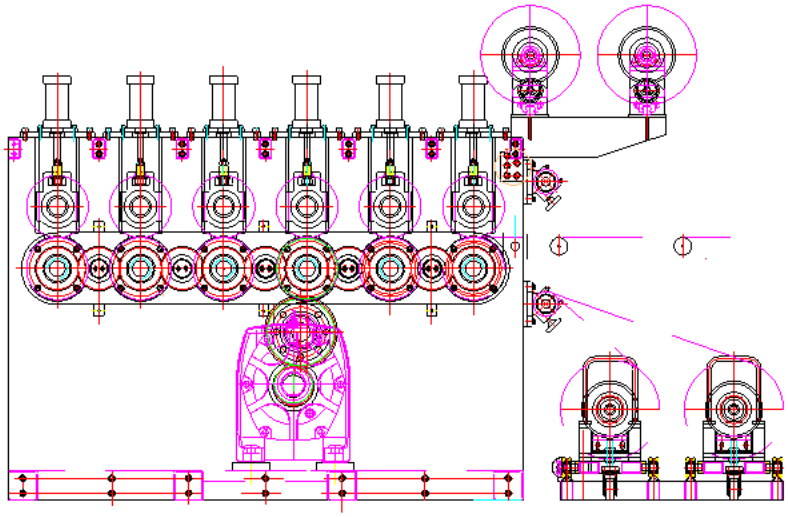
Coating device basic technical parameter

最大放卷直径:	400mm
The maximum unreeling device diameter:	400mm

气涨轴涨径：	Φ79-Φ81
Air shaft rise diameter:	Φ79-Φ81
气涨轴有效长度：	1500mm
The air shaft effective length:	1500mm
磁粉制动器扭矩：	50N.m
Magnetic powder brake torque:	50N.m
工位：	双工位
Work station:	double position

3.7.2、表面覆膜装置外形图

Coating device view outside



3.7.3 结构特点及组成

Structure character and constitution

1）结构特点：放卷装置为无动力机构，放卷轴通过两轴承固定在机架上方，靠后面的牵引产生的拉力进行放卷。物料张力控制采用手动张力控制器进行调节。此装置具有结构简单、操作方便、容易维护等特点。

Structure character: the unreeling device is no power structure, unreeling shaft through the bearing fixed on the frame, through the haul off behind produce force to unreeling. Material tension control adopt manual tension controller to adjust. This device has the performance structure simple、operation convenient、maintenance easy etc.

2）此结构装置位于机架上方，用于完成上膜的放卷，本装置利用气胀轴胀紧纸筒，通过消皱扩覆辊消皱展平高分子膜，利用丝杆螺母装置纠偏，并通过磁粉制动器进行刹车及制动，磁粉制动器通过联轴器与气涨轴连接。

The structure is located on the machine frame, used to finish the upper film unreeling, the device use flatulence axis to expand paper tube, Through the back wrinkled by expanding away knit flattening roller polymer film, Using screw nut rectify, and through the magnetic powder brake proceed brake, magnetic powder brake through the coupling connected with air shaft.

3.7.4、表面覆膜装置的操作维护

Coating device operation and maintenance

在进行生产之前，将要在生产中应用的表面膜准备好，安装在覆膜装置的辊子上，等片材将要通过牵引机的压辊时，拉展薄膜，绕过之间的过渡辊，然后平展地覆在片材之上，具体操作过程可以参考以上外形图所示。注意在覆膜过程中，一定要将薄膜和片材完全贴合，使膜能够很平滑地贴在片材的表面。同时，要调整好覆膜装置在覆膜过程中的张力，以免由于松弛而使覆膜质量下降。当生产线速度发生变化时，也要调整张力，使其能够顺畅地覆膜。

Before the production, prepare the surface film will be used in the production, installed on the roller of the coating device, specific operation process can refer to the view outside above. Noting in the process of coating, must joint the film and plate completely, make the film smoothly stick on the sheet surface. At the same time, should adjust the coating device tension in the process of coating, in case due to the loose caused the quality of coating decline. When the speed of production line have changed, also need adjust tension, make it coating smoothly.

在使用过程中，要保持覆膜装置辊子表面清洁光滑，转动灵活，过渡辊表面不能有划痕，否则会划伤薄膜表面，影响制品的质量

In the process of using, should keep the coating roller surface clean and

smooth, flexible movement, transition roller surface don't have the scratch, or will scratch the film surface, influence the quality of product

3.8、锯片切边定宽单元基本参数及安全操作指导

Saw bit scrap edge fixed width unit basic parameter and safety operation guidance

切边定宽单元固定在牵引机后面上，主要用途是将冷却架上片材进行切边，以及定宽分片。

Scraping edge fixed width unit fixed behind the haul off unit, main purpose is cutting the sheet on the cooling bracket, and fixed width divide.

3.8.1、切边定宽单元基本参数

Scraping edge fixed width unit basic parameter

切边单元的组成：它有锯片，切割电机、横向滑动单元及纵向滑动单元，汽缸等零部组成。

The scrap edge unit constitution: it has saw bit, cutter motor、 crosswise sliding unit and longitudinal sliding motion unit, cylinder etc. element composed.

最大切割宽度：1220mm

The maximum cutting width: 1220mm

最大切割厚度：40mm

The maximum cutting thickness: 40mm

切割电机：3kw

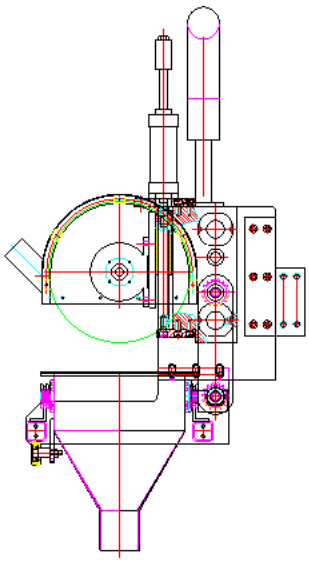
The cutting motor: 3kw

锯片：14#合金锯片

Saw bit: 14# alloy saw bit

切边定宽外形图

Scraping edge fixed width view outside



3.8.2、切边、定宽操作

Scraping edge、fixed width operation

• 定宽

Scraping edge

片材定宽分切时，通过调节丝杆来移动锯片的位置对板材的宽度定型，通过汽缸可使锯片上下移动对板材进行分切，锯片由 3KW 电机带动旋转。分切的粉尘通过吸尘装置把切出来的粉尘吸走.。吸尘电机功率 5.5KW。

When the sheet fixed width, through the movement blade of lead screw position to finalize the design for sheet width, through the cylinder make the blade movement up and down to separate the sheet, the blade rotated by 3KW motor. The dust produced by the cutting through the dust exhaust apparatus absorb the dust. Dust absorption motor power is 5.5KW.

3.8.3、切边的安全防置

Scraping safety protection

由于切边的锯片非常的锋利，严禁手指等部位接触锯片以及锯片周围运行的片材！

Due to the scrap edge blade is very sharp, prohibit put finger etc. part contact blade and the sheet around the blade running!

在拆装过程中，请注意锯片，先拆下锯片并放在安全不易伤到人的地方，以免划伤手指，严禁用坚硬物体敲打丝杆及其他零件。定期检查固定螺钉，防止由于螺钉的松动而产生的事故。

In the process of dismantling, please attention to the blade, firstly dismantle the blade and place in the safety place which not easy hurt people, in case scratch finger, prohibit use hard thing beat lead screw and other element. Inspection regular tighten screw, prevent due to the screw loosen cause accident.

3.9、横向切割机

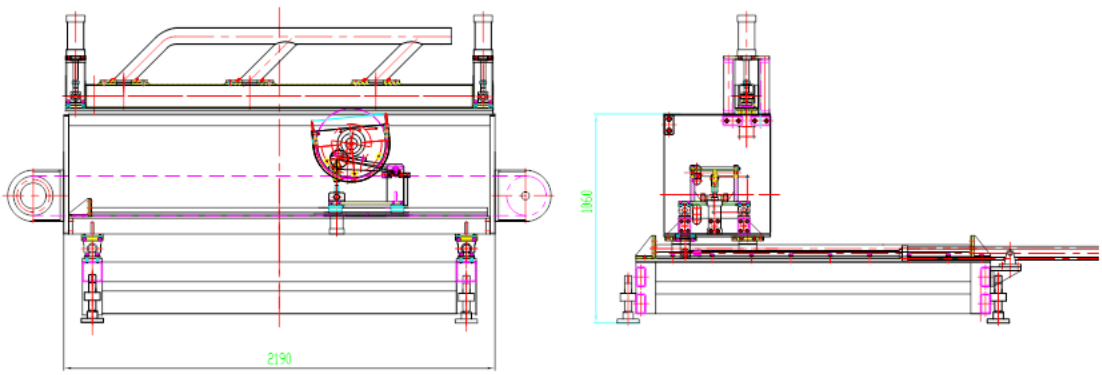
Crosswise cutter

最终的产品经过各种工序的处理之后，最后要经过计长切断，以达到使用要求，横向切割装置就是起这个作用的。

The final product is after through the various processes, to pass the measure length cutting at last, in order to meet the usage requirement, across cutting device has this function.

3.9.1、横向切割机外形图：

The across cutting view outside



3.9.2 横向切割的特点

The character of across cutting

1、技术参数

Technical parameter

有效切割宽度： 1500mm

Effective cutting width: 1500mm

最大切割厚度： 40mm

Maximum cutting thickness: 40mm

锯片： 14#合金锯片

Blade: 14# alloy blade

2、采用直线轴承横向移动，纵向同步采用直线轴承与同步电机移动。横向移动电机功率 0.75KW，纵向移动为气缸推动。

Adopting the straight line bearing horizontal movement, lengthways synchronously adopt straight line bearing and synchronous motor movement. Horizontal movement motor power is 0.75KW, longitudinal shift drived by cylinder.

3、锯片为Ø355×84X3 锯片，刀头镶合金，抬刀或落刀由气动控制，锯片速度可以调节。

The blade is Ø355×84X3 blade, with alloy head, raise or fall knife controlled by pneumatic, the blade speed is adjustable.

4、切割程序为日本三菱 PLC 控制，切割长度采用台湾产计米器或编码器控制，切割长度可以设定。

The cutting program is Japan Mitsubishi PLC control, the cutting length controlled by Taiwan meter counter or encoder, the cutting length can set.

5、的速度也可调。

The across cutting also is adjustable.

6、带有吸尘箱。

With the suction box.

3.10、堆料平台

Stacker panel

用于堆放成品。

Used for stack product.

3.11、上料系统

Automatic loader system

1. 弹簧上料机 1 套

Spring loader 1 set

2. 不锈钢储料箱 1 件

Stainless steel storage bin 1 pcs

四、电器控制系统

Electrical control system

4.1、电器控制系统组成

The constitution of electrical system

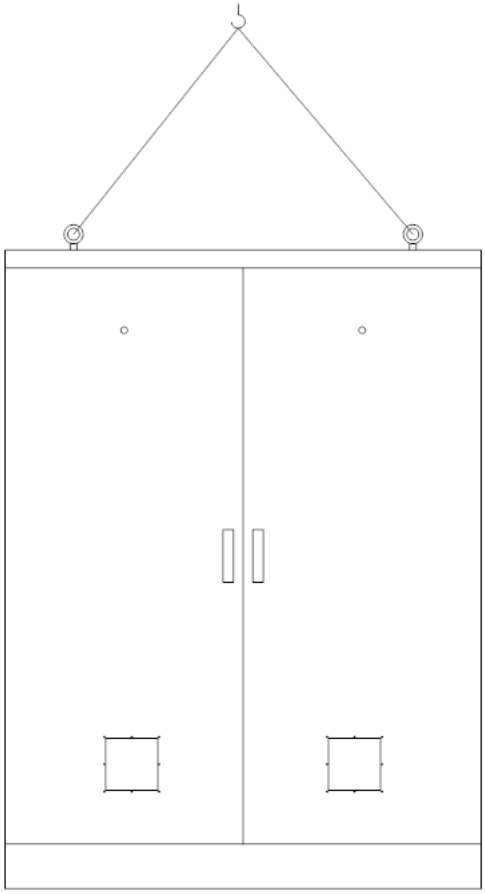
主机调速器:	ABB
The extruder inventor:	ABB
继电器:	欧姆龙
Realy:	omron
接触器:	西门子
Contactor:	siemens
低压断路器:	施耐德
Low pressure breaker:	Schneider
空气开关:	LG
Air switch:	LG
显示表:	奥托尼克斯
Display meter:	Autonics

4.2、电柜的吊装与运输

Electronics cabinet hoisting and transportation

4.2.1、吊装（如图所示）

Hoisting (see as drawing)



其它小电控箱的吊装用叉车等机械搬运。

Other small electronics cabinet hoisting use forklift etc. mechanical handing.

4.2.2、运输

Transportation

电柜必须包裹一层PS发泡片，然后用木箱装运，电柜牢固地固定在包装箱中；

The electronics cabinet must pack with a piece of PS foam sheet, then with wood box shipping, the electronics firmly fixed in the package box;

4.2.3、电柜的安全操作规程

Electronics cabinet safety operation regulation

1)、电气柜按照《PVC共挤结皮发泡板生产线的布局图》摆放；

The electronics cabinet according《PVC co-extrusion scanning foaming board extrusion line layout》to place;

2)、电气柜与设备的连接线必须按照《电气原理图》连接;

Electronics and equipment connection must according to《electric schematic diagram》connection;

4.2.4、设备的废弃处理

Equipment abandon dispose

当设备的使用期达到它的使用寿命时，机器再不能继续使用或维修时，用户不得随意将其丢弃，应从保护环境和节约能源的角度考虑，交付给有关环境管理部门或者按照当地环保法规进行妥善处理。

When the equipment use period reach its lifetime, the machine can't continues use or maintain, user may not arbitrarily discard, should think at the point of protecting environment and save energy, delivery to the relevant environmental management department or in accordance with local environmental protection regulations of properly.

同时，在使用和维修的过程中，要考虑到保护环境的重要性，对从机器上拆换下来的废件，替换的废油等要进行妥善的处理，以免造成环境污染。

At the same time, in the process of using and maintaining, should consider about the importance of protecting environment, for the waste element dismantle from the machine, replaced oil etc. should have properly method, in case cause environment pollution.

还有，在生产过程中，要从节约能源和材料的角度考虑，尽量减少废料的产生。

五、开关机说明

Start machine explanation

（PVC半结皮共挤发泡板生产线各部位设备名称与功率大小详见线图,请结合<<电气原理图>>仔细阅读以下操作说明.）

(PVC semi-skinning co-extrusion foaming extrusion line each parts equipment name and power specific see as the diagram, please combine<<electric diagram>>specifically reading the instruction below.)

5.1 开车前的准备：

The preparation before the start machine

- 加热圈及接线盒端子是否松动。

  Heater band and connecting box terminal whether loose.

- 热电偶的位置及插入状况。

  Thermocouple position and insert condition.

- 管道接头部位是否松动，有无泄漏。

  The pipe adaptor part whether loose, leaks or not.

- 水夹套的冷却水接通，先开出水阀，再开进水阀。

  Cooling water through to the water leg, firstly open the outlet valve, and then open inlet valve.

- 挤出机驱动马达的转速限度：≤1500rpm。

  Motor drive extruder speed limit: ≤1500rpm.

- 减速机油冷却部件油压计（警报）：1～1.5Kg/cm^2。

  The hydraulic gauge of gearbox oil cooling component (alarming): 1～1.5Kg/cm^2

- 电机旋向是否与挤出机螺杆要求的转向相同，否则予以改正。

  The motor rotation whether in accordance with the extruder screw requirement rotation, or will correct it.

5.2、开机步骤：

Start machine step

步骤1：检查水，电，气源是否充足，检查物料是否合格，上料系统工作是否正常，辅机水加热系统是否正常，切割机工作是否正常；

Step 1: inspect water, elctric, air power is enough or not, check the material is whether quality, loader system work whether normal, the downstream equipment water heating system whether normal, cutter work whether normal;

步骤2：挤出机料斗内加满物料,插上插板；

Step 2: the extruder hopper full filled with material, plug spile;

步骤3：按照工艺温度设定机筒和模具各区的温度后开始加热。当加热温度达到设定值时，挤出机即进入自动保温状态，当工作环境低于12℃时，挤出机需要至少持续保温2小时，当工作环境高于16℃时，挤出机只要保温1.5小时即可。如果生产车间温度过低，可以用石棉布对机筒进行保温，打开压光机水加热器开关，并启动三辊，并给定较低的速度转动，加热至正常工艺温度后,并保温1-2小时，首次测温需要用玻璃温度计校准温度；

Step 3: according to the technology temperature set barrel and mould each zones temperature and start heating. When the temperature reach the set value, extruder access to the automatically heat preservation condition, when the work temperature lower than 12℃, the extruder at least keep temperature two hours, when the work temperature higher than 16℃, extruder just need keep temperature 1.5 hours. If the workshop temperature is too low, can use cotton cloth keep temperature for extruder, open the three roller calendar water heater switch, and start three roller, and set lower rotation speed, heat to normal craft temperature, keep temperature 1-2 hours, first time measure temperature should use glass thermometer correct temperature;

步骤4启动挤出机，并同步调挤出机的速度至生产工艺所需的速度；

Step 4: start extruder, and synchronously regulate the extruder speed to the craft speed;

步骤5：将定型台中心高度调整与主机的中心高度一致，检查定型台水路，气路是否

畅通.

Step 5: regulating the calibrating table centre height in accordance with the extruder, check the calibrating table water way, air way whether unblocking.

步骤6：当需要增加挤出产量时，压力闭环控制时，提高主机的转速，使所需要的工作压力；

Step 6: when need add the extrusion output capacity, pressure closed-loop, increase the extruder speed, make the needed work pressure;

步骤7：测量需要制品的宽度，对应放下两边切边.

Step 7: measuring the product width, correspondingly fall off two sides scrap edge.

步骤8：当挤出板材正常后，在计数器上设定长度，然后将计米轮放在牵引辊上，当到达设定长度时，开始报警，给出“消音”信号，横切机开始切开板材，正常后将计数器清零，周而复始。

Step 8: after extruder plate normal, set the length in the meter counter, and then put the JMQ on the haul off roller, when reach the certain length, start alarming, give “erasure” signal, transverse cutting start cut plate, after normal clean the meter counter, again and again.

5.3、停机步骤：

Stop machine step

步骤1：插上进料斗插板；

Step 1: plug the hopper spile

步骤2：降低主机的转速.

Step 2: declien the extruder speed

步骤3：降低牵引速度，然后使定型台向后退，上下模体分开；

Step 3: decline the haul off speed, and then backwards calibrating table, up and down mould separate;

步骤4：模口不能正常出料后，停止牵引机运行；

Step 4: the mouth of mould can't come-out martial, stop haul off unit running;

步骤5：停止横切机；

Step 5: stop transverse cutting;

步骤6：机筒内物料排空后，停止主机运行；

Step 6: the material in the hopper exhaust empty, stop extruder running;

步骤7：若为压力闭环控制时，在人机界面《闭环控制》画面中，将其转换至手动开环控制状态，且把机筒温度降至100℃，15分钟后关掉所有加热开关；

Step 7: if pressure close-loop control, in the human-computer interface 《close-loop》menu, transfer it to the manual open loop control state, and decline the temperature to 100℃, after 15 minutes turn off all heating switch;

步骤8：关掉所有的电源开关，气源，水源开关，以及所有安全防护装置恢复到原位；

Step 8: turn off all the electric switch, air switch, water power switch, and all protective device recover to original position;

步骤9：打开模具，清除模具内的

Step 9: open mould, clean the mould inside

六、机器故障分析与排除

Machine fault analysis and eliminate

6.1、定型台与牵引机（参考液压系统原理图）

Calibrating table and haul off unit (refer to the hydraulic system schematic diagram)

故障状态 现　象 Fault state phnomenon	原　因　分　析 Reason analysis	排　除　方　法 Eliminate method
定型机或牵引机不同步 Calibrating table	1. 牵引速度不同步； Haul off speed is different;	1. 调节牵引速度，使速度同步； Regulate haul off speed, make it synchronous;

and haul off unit is out of synchronous		
定型工作时压力不能保持; When calibrating the pressure can't keep;	1. 油管漏油; Oil tube leakgs; 2. 液压站电磁阀YV1或YV3阀芯漏油; Hydraulic station solenoid valve YV1 or YV3 valve core leak oil; 3. 油缸1，2，3，4内漏油; Oil cyliner 1, 2, 3, 4 leak oil;	1. 油管接头密封更换或更换油管; Oil tube adaptor seaing change or replace oil tube; 2. 更换电磁阀阀体; Change the solenoid valve; 3. 更换油缸内密封件; Change the sealing in the oil cylinder;
液压电机频繁启动; Hydraulic motor start frequency;	1. 手动闸阀MV1漏油; Manual sluice valve MV1 leak oil; 2. 电磁阀YV5阀芯漏油或控制其运动的电磁线圈损坏或电压不足; Solenoid valve YV5 valve core leak oil or control it movement magnetic wire break or voltage is not enough;	1. 修理或更换闸阀MV1; Repairing or changing sluice valve MV1; 2. 修理或更换闸阀YV5; Repairing or changing sluice valve YV5;
液压电机启动但不能建立压力; Start hydraulic motor but can't establish pressure;	1. 电机反转; Motor inversion; 2. 手动闸阀MV1没有关闭; Manual sluice valve MV1 didn't close; 3. 减压阀调至最小值; Regulate the relief valve to the minimum;	1. 调换电机任意两相线; Change motor ant two phase; 2. 关紧闸阀MV1; Close sluice valve MV1 firmly; 3. 将减压阀压力调大; Regulateing the pressure valve to the maximum;

注：如故障仍未排除，请及时于本公司联系，未经本公司同意，擅自拆装，造成一系列问题，将由用户自己负责，敬请谅解！

Note: if fault still didn't eliminate, please contact with our company, without our company consent, dismantle by themselves, cause a series problems, will be responsible for user themselves, please forgive this!

当设备的使用期达到它的使用寿命时，机器再不能继续使用或维修时，用户不得随意将其丢弃，应从保护环境和节约能源的角度考虑，交付给有关环境管理部门或者按照当地环保法规进行妥善处理。

When the equipment use period reach the life time, machine can't continue use or repair, user may not discard, should think at the point of protecting the environment and saving energy, delivery to the relative environment management department or according to the local environment regulations to deal with.

同时，在使用和维修的过程中，要考虑到保护环境的重要性，对从机器上拆换下来的废件，替换的废油等要进行妥善的处理，以免造成环境污染。在生产过程中，要从节约能源和材料的角度考虑，尽量减少废料的产生。

At the same, in the process of using and repairing, should think that it's very important to protect environment, for the component remove from the machine, replaced oil etc. to properly deal with, avoid cause environment pollution. In the process of production, should think at the point of saving energy and material, try to reduce waste material.

由于本公司不断致力于产品的更新换代和开发，所以该说明书中提供的图表、说明、参数等与实际产品可能有所不符，具体以实物为准,图片仅供参考，不便之处尽请谅解。

Due to our company constantly devote ourselves to upgrading product and development, so this instruction book provide chart 、 explanation 、

parameter and didn't in accordance with actual product, specific see as the object as reference, picture is just for reference, any inconvenient do please understand.