PET片材挤出生产线使用说明书

PET sheet line manual

安全注意事项

Safety precautions

使用金纬公司设备前敬请详细阅读本说明书

本说明书中将具体的介绍 PET 片材挤出生产线整个安全生产的工艺流程，以及各组成单元的具体安装、操作、维护规程。相关操作人员必须：

- 熟读本安全操作说明书或接受本公司培训后,方可操作本生产线；
- 提高警惕，注意安全；

- 在操作贴有安全防范标志的设备前，请配戴专用的防护工具；
- 正确使用工具，注意工具的维护保养；
- 对设备进行正确的保养和维护，以保证操作安全；
- 更换相关配件和电线时，请使用满足工作要求的电线及其他相关配件，以保证操作者的安全。
- 电气维修人员在检修电路时，禁止接通电源；
- 为了提醒操作人员在操作过程中避免造成人身伤害，本生产线在许多有人身伤害危险的部位张贴了相应的安全警告标志，请在生产和调试，以及保养维护的过程中，不要把这些安全警示标志移位，在拆卸修理机器时，需要移动或者拆下某些标志，请在完成相应的工作之后，将它们安装回原来的位置。

对违规操作和不熟练的操作所造成的人身伤害、设备损伤、财产损失等后果，本公司将不承担任何责任 ！

因为地区和国家在安全警示标志意义上的差别，在此特别解释本生产线上的安全警示标志的具体意义，请操作人员在操作机器之前，先了解以下这些安全警示标志的意义。

安全标识的解释说明

Please read this manual carefully before using the equipment of Jinwei Company

This manual will specifically introduce the entire safe production process of the PET sheet extrusion line, as well as the specific

installation, operation and maintenance procedures of each component. The relevant operators must:

Operate this production line only after reading this safety operation manual or receiving training from our company;

Be vigilant and pay attention to safety;

Before operating equipment with safety precaution signs, please wear special protective tools;

Use tools correctly and pay attention to the maintenance of tools;

Carry out the correct maintenance and maintenance of the equipment to ensure safe operation;

When replacing related accessories and wires, please use wires and other related accessories that meet the working requirements to ensure the safety of the operator.

Electrical maintenance personnel are prohibited from turning on the power supply when inspecting and repairing the circuit;

In order to remind the operator to avoid personal injury during the operation, the production line has posted corresponding

safety warning signs on many parts where personal injury is dangerous. Please do not use these safety warnings during production, debugging, and maintenance. The signs are shifted. When disassembling and repairing the machine, some signs need to be moved or removed. Please install them back to their original positions after completing the corresponding work.

The company will not bear any responsibility for personal injury, equipment damage, property damage and other consequences caused by illegal operations and unskilled operations!

Because of the difference in the meaning of safety warning signs between regions and countries, here is a special explanation of the specific meaning of the safety warning signs on this production line. Please understand the meaning of the following safety warning signs before operating the machine.

Explanation of safety signs

在机器运转时请保证接地良好！ Ensure good grounding when the machine operates!

罩中存在高速旋转运动的危险，操作人员除维修外不得拆掉或者换位！ There is a danger of high-speed rotation movement in the cover, and the operator shall not remove or put it in the position except for maintenance!

注意！此处温度极高，操作时，要注意安全，防止烫伤！ Note! The temperature here is very high, when the operation, to pay attention to safety, to prevent scald!

注意！滚动件容易伤人，请不要把手接触在上边。Note! The rolling parts is easy to hurt. Please do not touch your hand on it.

注意！机器上有危险部位，容易压住手指，请不要把手接近此处！Note! There are dangerous parts on the machine, easy to press your fingers, please do not put your hands near here!

注意！当接通电源后禁止打开任何电线盖、电线管和插头，不然操作者有触电的危险！ **Note! There are dangerous parts on the machine, easy to press your fingers, please do not put your hands near here!**

注意！设备温度较高，操作时请戴防高温手套！ Note! There are dangerous parts on the machine, easy to press your fingers, please do not put your hands near here!

注意！设备温度较高，操作时要穿防高温服！ Note! Equipment temperature is high, wear high temperature clothing during operation!

对于因不了解正确的安全说明造成的人身伤害或财产损失，我公司不予承担任何责任！**Our company shall not bear any responsibility for the personal injury or property loss caused by not understanding the correct safety instructions!**

一、使用和性能 Use and Performance

1.1、使用范围

PET 片材条挤出生产线是加工 PET 料的生产线，本说明书所讲的操作和使用规程只适用于加工 PET 料。如果使用者自行加工其它物料，则不在本说明书指导的范围之内，同时，由此产生的不良后果由使用方自行承担，本公司将不承担任何责任。

1.2、性能

PET 片材挤出生产线最终产品，厚度范围为δ=0.2-1mm。挤出产品均匀自然，表面要求光滑。挤出产量大约 900-1300Kg/h。

1.3、PET 片材挤出生产线工作与储运的环境要求

允许环境空气温度：+5℃～40℃；

储运温度：-20℃～55℃；

相对湿度：至 90%，无凝露；

污染等级：2 级，不应安装在多粉尘,有腐蚀性气体的场所；

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

1.4、地基

生产线地基图

1.1. Scope of Use

PET strip extrusion production line is the production line for processing PET material, and the operation and use procedures described in this manual are only applicable to processing PET material. If the user processes other materials himself, it is not within the scope of this instruction, and the resulting adverse consequences shall be borne by the user himself, and the Company will not bear any responsibility.

1.2. Performance

PET Plate Extrusion Line Final Product, thickness range of δ =0.2-1mm. The extrusion products are uniform and natural, and the surface is smooth. Extruded yield of approximately 900-1,300 Kg/h.

1.3. PET sheet extrusion production line work and environmental requirements for storage and transportation

Allowable ambient air temperature: 5 ℃ ~40 ℃;

Storage and transportation temperature: -20 ℃ ~55 ℃;

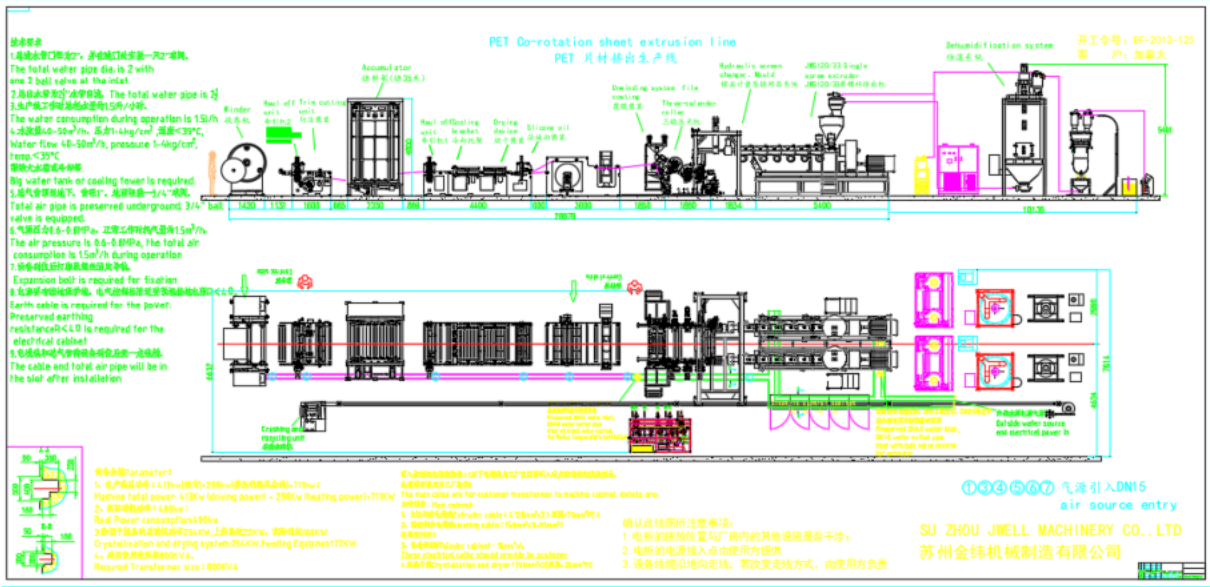
Relative humidity: to 90%, no condensation dew;

Pollution level: Class 2, and shall not be installed in places with excessive dust and corrosive gas;

Elevtitude: <1000 m,> 1000 m, 1% lower load capacity per 100 m increase

1.4. Foundation

Foundation diagram of the production line



1.5、电源要求

电源要求:(三相五线制）

1.6、进线电缆要求

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：电源要求:(三相五线制）

1.生产线总功率：413kw(动力)+298kw(挤出机模具加热)=711kw

2.实际耗电功率：480 kw

3.本设备占变压器容量约：建议使用变压器 800KVA

4.电源要有接地保护线，电气控制柜附近要预埋接地电阻 R≤4Ω

1.总进水管口径为21/2，需装阀门和过滤器。

2.总出水管为21/2“水管自流，污水不得进入水池。

3.总气管预埋地下，管径1"，地面按装一3/4"球阀。

4.电缆线和总气管待设备到位后埋入暗沟内，所有暗沟待设备安装好后铺设铸铁盖板。

5.生产线工作时总耗水量约5L/h

6.气源压力0.6-0.8MPa，正常工作时耗气量约1.5m3/ /h

7.地面导轨中心宽度为　　mm，设备到位后打膨胀螺丝固定导轨

8.水流量40m3/ /h，压力0.1-0.4MPa ,温度＜35℃,需添大水槽或冷却塔

9.本生产线总装机的容量为 KW 实际能耗 KW/h

10.客户必备水泵供整条生产线使用 建议客户水泵用7.5KW

1.7、气源要求

气源压力 0.6～0.8MPa，正常工作时耗气量约 1.5m^3/h。

1.8、水源要求

生产线工作时总耗水量约 5L/h。水流量 40 m^3/h，压力 1-4kg/cm^2 ,正常水温＜35℃,需配备大水池或冷却塔，总进水管口径 $2\frac{1}{2}$ "，并在进口处安装 $2\frac{1}{2}$ "球 阀一个，总出水管为口径 3"水管。

二、PET 片材挤出生产线构成及工艺流程

2.1、生产线构成及各部分功能（生产线总布置见附图 1）

生产线机械部分主要由以下部分组成，具体如下图所示：

（1）	一拖二真空上料机	2 套
（2）	2 组分称重喂料装置	2 台
（3）	除湿结晶干燥装置	2 台
（4）	色母粒、添加剂喂料装置	4 台
（5）	JWS12 单螺杆挤出机	2 台

（6）	模具，换网器，计量泵、分配器	2 套
（7）	三辊压光单元	1 套
（8）	辊温控制器	1 台
（9）	冷却托架	1 套
（10）	放卷装置	1 台
（11）	双面涂硅油装置	1 套
（12）	测厚仪	1 套
（13）	在线边料破碎机	1 套
（14）	牵引机	1 台
（15）	储料装置	1 套
（16）	分切刀及辅助牵引	1 套
（17）	三工位收卷机	1 台
（18）	电气控制系统	全套
（19）	备品备件	

生产线机械部分主要功能：

上料系统：给挤出机及时供应原料。

挤出机：JWS120 挤出机 2 台，主要作用是对加工物料进行输送、熔融和均化挤出。

液压换网装置：通过液压装置进行快速更换过滤网。

衣架式挤出模具：对物料进行成型挤出。

三辊压光机：对产品进行压光和初步冷却定型。

双面覆膜：对成型的产品进行覆膜。

一次牵引机：对产品进行牵引，是其向前输送的原动力。

纵向切边装置：将制品边角的废料修除，以得到客户所需要的制品。

废边在线破碎及风送：对产品废边回收利用。

涂硅油装置：对产片进行涂油，不锈钢加热箱烘干。

牵引机：对产品进行牵引，是其向前输送的原动力。

收卷机：用于收卷产品。

电气控制系统：对生产线的各个工作部分进行控制。电气部分采用人机界面，变频和伺服等控制。主机与辅机相互独立控制，以便于用户日后电器维护；具有强大配方功能（能贮存大量的工艺参数及配方）和完善的故障报警系统。

1.5. Power supply requirements

Power supply requirements: (Three-phase and five-wire system)

1.6. Requirements for incoming cable

Requirements to provide equipment power supply cabinet, incoming cable from user plant distribution room to equipment power supply cabinet specification: power requirements: (three-phase five-wire system)

1. Total power of production line: 413kw(power) 298kw(extruder die heating) =711kw

2. Actual power consumption: 480 kw

3. The capacity of transformer: 800KVA

4. Power supply shall have grounding protection line, and grounding resistance in electrical control cabinet near R ≤ 4 Ω

1. The main water inlet pipe diameter is 21 / 2, and the valves and filters shall be installed.

2. The main outlet pipe is 21 / 2 " Water pipe is self-flow, and the sewage shall not enter the pool.

3. The total air pipe is embedded underground, with 1 "pipe diameter and a 3 / 4" ball valve on the ground.

4. Cable cable and main air pipe shall be buried in the dark trench after the equipment is in place, and all the dark trench shall be laid with the cast iron cover plate after the equipment is installed.

5. Total water consumption of production line operation is about 5L/h

6. Gas source pressure is 0.6-0.8MPa, and the gas consumption is about 1.5m3/ /h during normal operation

7. Center width of ground rail is mm, after the equipment is in place

8. Water flow of 40m3/ /h, 0.1-0.4MPa, temperature <35 ℃, large tank or cooling tower

9. The total installed capacity of the production line is KW actual energy consumption of KW/h

10. Customer necessary pump for the whole line 7.5KW

1.7. Air source requirements

Gas source pressure is 0.6~0.8MPa, and the gas consumption is about 1.5m3/h during normal operation.

1.8. Water source requirements

Total water consumption of the production line during operation is about 5L/h. Water flow 40 m3/h, pressure 1-4kg/cm², normal water temperature <35 ℃, large pool or cooling tower, total inlet pipe diameter 2 "and one 2" ball valve at inlet, total outlet pipe diameter 3 " water pipe.

II. PET sheet extrusion production line composition and process flow

2.1 Composition of production line and functions of all parts (see Fig. 1 for general layout of production line)

The mechanical part of the production line mainly consists of the following parts, as shown in the following figure:

Two sets of vacuum feeding machine

Two sets of 2-component weighing and feeding devices

2 Dehumidified crystallization drying unit

Four color mother and additive feeding devices

JWS12 single screw extruder

Mold, network changer, metering pump and distributor

One set of three-roller optical pressing unit

Roller temperature controller: 1 set

1 set of cooling bracket

One unwinding device

Double-sided coating of silicon oil unit: 1 set

One set of thickness gauge

One set of online side material crusher

Tractor: 1 set

1 set of storage unit

One set of split cutter and auxiliary traction

Three win-machine el winmachine

Electrical control system, complete set

Spare Parts

Main functions of the production line:

Feed system: the timely supply of raw materials to the extruder.

Extruder: 2 JWS120 extruder, mainly used to transport, melt and equalization extrusion of the processed materials.

Hydraulic mesh replacement device: quickly replace the filter screen through the hydraulic device.

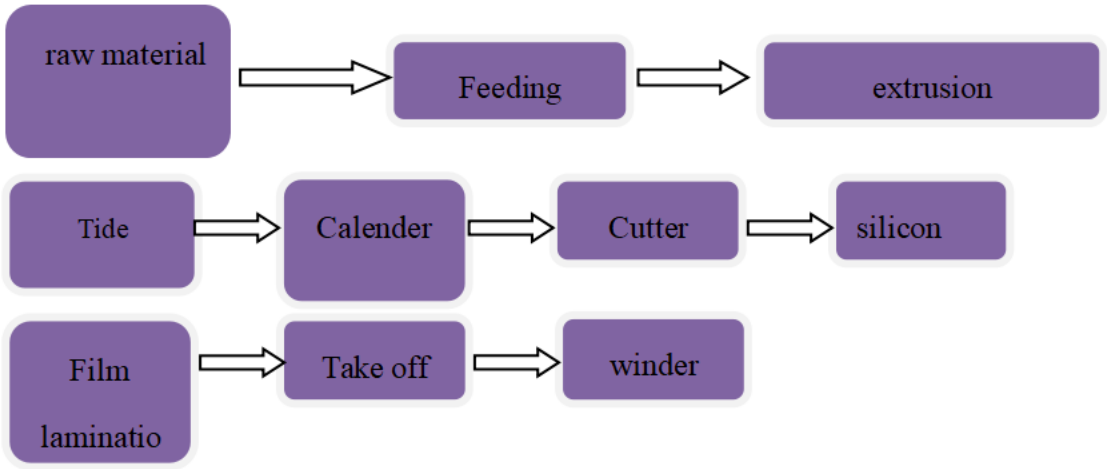
Frrack extrusion mold: molding and extrusion of materials.

Three-roller press: the product pressing and preliminary cooling design.

Double-sided coating: coating the molded product.

Primary tractor

2.2、生产线工艺流程 Production line process flow



三、挤出生产线的组成及操作维护 Composition and operation and maintenance of the extrusion production line

3.1.1 挤出生产线各单元基本参数及安全操作指导

3.1.1 JWS120/33 挤出机的基本技术参数

螺杆直径： 120mm

长 径 比： 33:1

驱动电机： 160kW

加 热 区域： 6 区

加热功率约： 40kW

加热元件： 陶瓷加热

挤出机外形图：

Basic parameters and safety operation guidance of each unit of 3.1.1 extrusion production line

3.1.1 Basic technical parameters of the JWS120/33 extruder

Screw diameter: 120mm

Longameter ratio: 33: 1

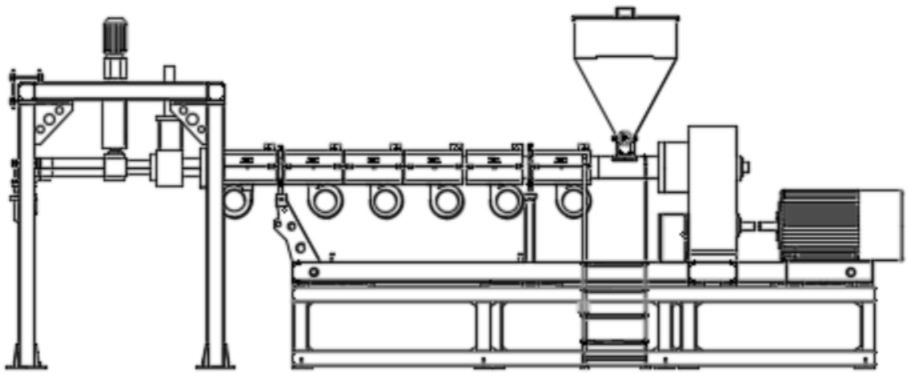
Drive motor: 160kW

Heating area: Zone 6

Heating power about: about 40kW

Heating element: ceramic heating

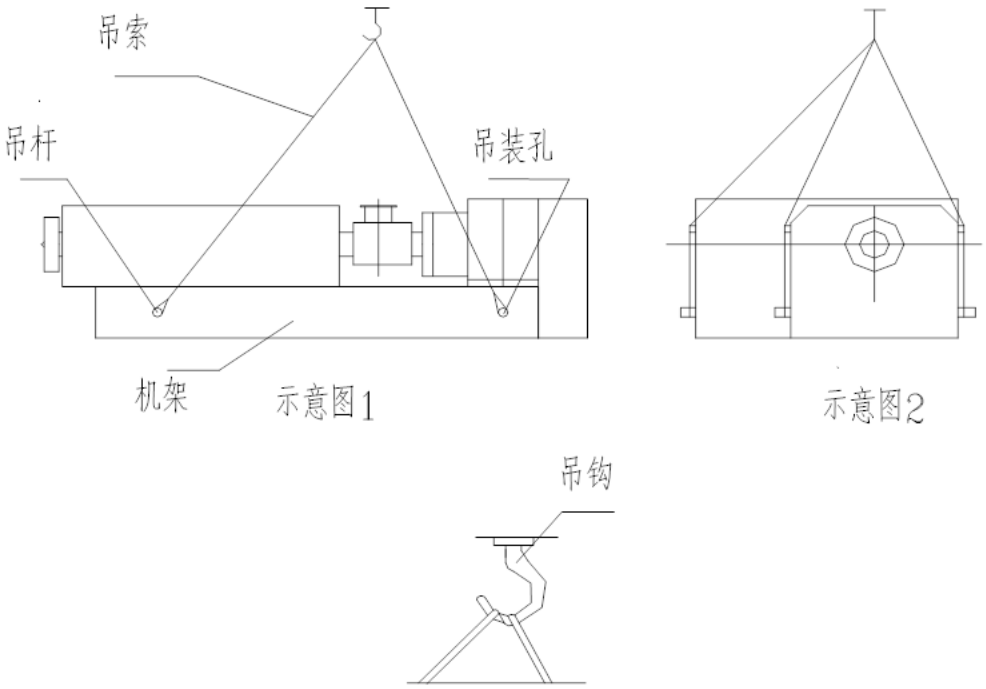
Outline drawing of the extruder:



3.1.2、挤出机的吊装 Hofting of extruder

挤出机在吊装前，先将有足够强度的圆钢插入机架吊装孔，根据吊装示意图，起吊挤出机。由于挤出机重量分布不平衡会导致搬运过程中的中心偏移，为防止吊索在吊钩中滑动，套在吊钩中的吊索必须在吊钩上再多绕一圈。在吊装过程中,请稳住机器的中心,防止机器在吊装过程中在空中摆动幅度太大,伤及操作者或现场其他相关人员。Before lifting the extruder, insert the round steel with sufficient strength into the frame hoisting hole, and lift the extruder according to the lifting schematic

diagram. Because the unbalanced weight distribution of the extruder leads to a center offset during handling, to prevent the sling from sliding in the hook, the sling caught in the hook must be more rounded on the hook. During the hoisting process, please stabilize the center of the machine to prevent the machine from swinging in the air during the hoisting process, injuring the operator or other relevant personnel on the site.



3.1.3、挤出机的就位和安装 Position and installation of the extruder

挤出机的就位和安装通常与生产线上其它设备一起进行，就位时必须遵循生产线基础图（由我公司设计部门提供），如生产线线图所示。调整好挤出机之间的相对位

置和整个生产线之间的相对位置，同时调整好挤出机自身的水平位置（料筒口和进料口处的安装表面均可作为测量基准）。The location and installation of the extruder usually works with other equipment on the production line, and must follow the production line foundation diagram (provided by our design department), as shown in the production line diagram. Adjust the relative position between the extruder and the relative position between the whole production line, and adjust the horizontal position of the extruder itself (both the mounting surface at the inlet can be used as the basis of measurement purposes).

3.1.4 、挤出机的安全操作注意事项 Safety operation precautions for machine departure

挤出机在正常工作时，存在高温和高速转动的危险。在接近高温部件作业时，需穿戴防高温服、防高温手套，以及穿防滑靴。电机与减速箱连接部分是高速旋转的联轴器，在联轴器罩不再正常位置或没有牢固地固定在机架上，不允许启动挤出机。The extruder is in danger of high-temperature and high-speed rotation. When working near high temperature parts, wear anti-high temperature clothing, gloves, and anti-skid boots. The motor connection part to the reduction box is a high speed rotating coupling that is not allowed to start the extrusion machine when the

coupling cover is no longer normal or not firmly secured to the frame.

3.1.3、挤出机的就位和安装 Position and installation of the extruder

挤出机的就位和安装通常与生产线上其它设备一起进行，就位时必须遵循生产线基础图（由我公司设计部门提供），如生产线线图所示。调整好挤出机之间的相对位置和整个生产线之间的相对位置，同时调整好挤出机自身的水平位置（料筒口和进料口处的安装表面均可作为测量基准）。The location and installation of the extruder usually works with other equipment on the production line, and must follow the production line foundation diagram (provided by our design department), as shown in the production line diagram. Adjust the relative position between the extruder and the relative position between the whole production line, and adjust the horizontal position of the extruder itself (both the mounting surface at the inlet can be used as the basis of measurement purposes).

3.1.4、挤出机主要部件 Main parts of the extruder

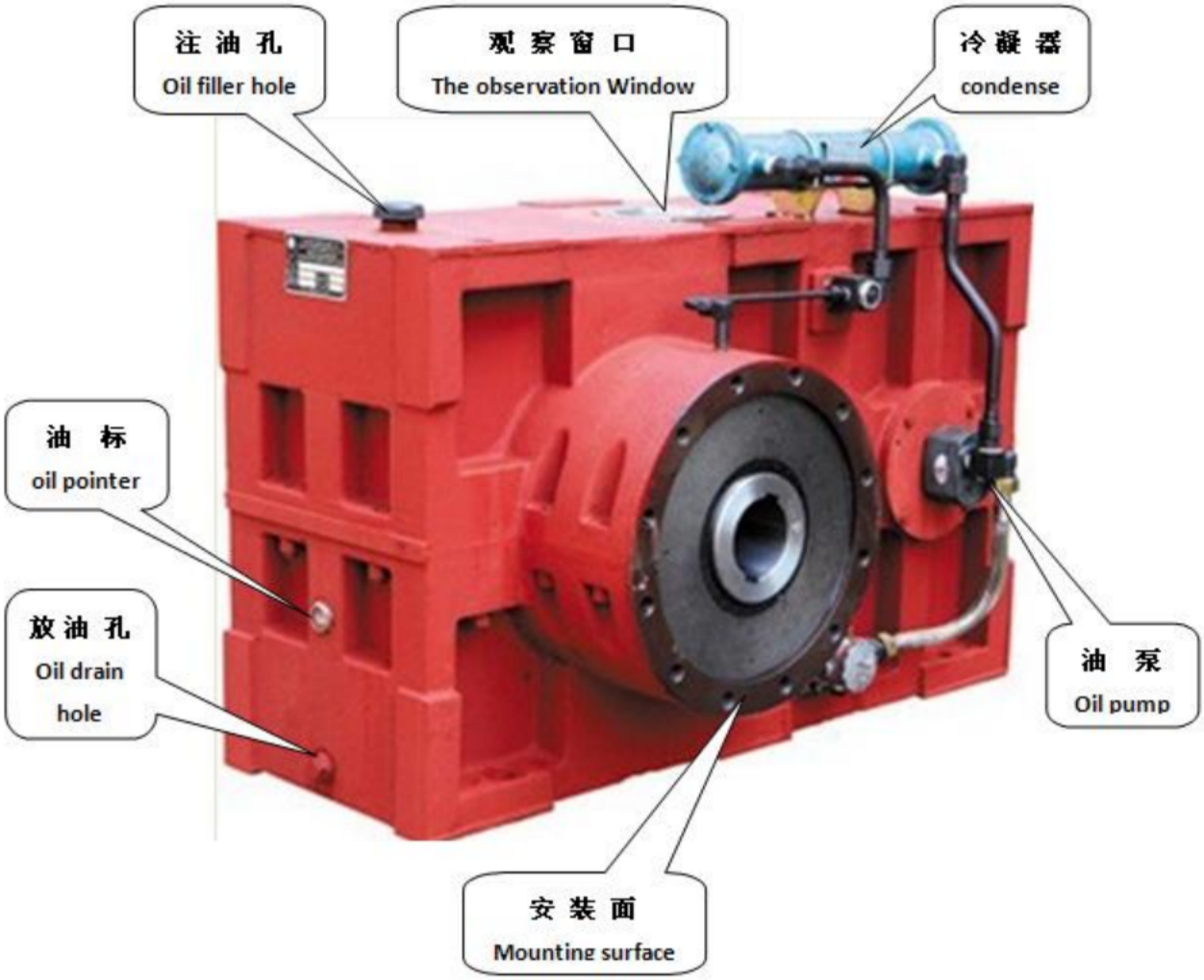
3.1.4.1 齿轮减速箱基本参数和安全操作说明 Main parts of the extruder

螺杆挤出机专用齿轮箱是专门为塑料、橡胶单螺杆挤出机配套设计的高精度硬齿面齿轮传动装置。产品参照 JB/T 8853-2001《圆柱齿轮减速机》设计，其齿轮和齿轮轴材料采用高强度低碳合金钢，齿面经渗碳、淬火、磨齿加工而成，齿轮精度达到 6 级（GB/T 10095）齿面硬度 HRC54~62，输出轴前端配有大规格的推力轴承，承受螺杆轴向推力。

The special gear box for the screw extruder is a high-precision hard tooth surface gear drive specially designed for the plastic and rubber single screw extruder. The product is designed with reference to JB/T 8853-2001《 Cylindrical gear reducer, its gear and gear shaft materials of high strength low carbon alloy steel, tooth surface by carburization, quenching, grinding teeth, gear precision reaches level 6 (GB/T 10095) tooth hardness HRC54 ~ 6), the output shaft front equipped with large standard thrust bearing, withstand screw axial thrust.

使用范围 range of application

- 原动机输入转速不高于 1500 转/分
- 齿轮传动圆周速度不大于 20 米/秒
- 工作环境温度-40℃～45℃，在环境温度低于 0℃情况下工作时，启动前对润滑油预热至 0℃ 以上，或者选用低温润滑油。）
- Motor input speed not higher than 1500 rpm
- Gared peripheral speed not more than 20 m / s
- Operating ambient temperature-40 ℃ ~45 ℃. When operating with the ambient temperature below 0 ℃, preheat the lubricating oil to above 0 ℃ before startup, or select low-temperature lubricating oil.)



塑料单螺杆挤出机用齿轮箱外形图 Outline drawing of gear box for plastic single-screw extruder

注意：

◆ 本减速机可用于正、反两方向运转，但部分机型高速轴带单向油泵，默认方向为：面对输 出轴，输出轴为顺时针旋转。

减速机的安装与联接

- 减速机的安装基础必须平整、牢固、可靠、稳定，特殊场合工位的安装应慎重考虑，在地脚螺栓均匀紧固的情况下保证插入输出轴中的螺杆无卡滞地均匀回转；
- 减速机与原动机的联接应优先考虑误差补偿联接方式，减速机输入轴轴心线联接部分的轴心线要保证同轴度，同时应检查轴向偏差及角位移量，其误差不得大于所用联轴器的允许值；
- 安装完毕，在减速机中加入润滑油，润滑油在箱体内分布均匀后润滑油油位至油标中心线；
- 接通水冷系统，检查各接头处是否有渗、漏水现象；
- 接通电源，让减速机短时间空载运行，检查设备运行时润滑管路润滑油是否正常，是否有渗、漏油现象，安装零部件是否松动，是否有异常响声；

Note:

This reducer can be used to operate in both positive and reverse directions, but some models of high-speed shaft belt unidirectional oil pump, the default direction is: facing the output shaft, the output shaft is clockwise rotation.

Installation and connection of the speed reducer

The installation foundation of the reducer must be flat, firm, reliable and stable. Consider the installation of working stations on special occasions, and ensure the

uniform rotation of the screws inserted into the output shaft when the anchor bolt is evenly tightened;

The error compensation connection mode shall be given priority to the connection of the reducer and the original motor, the reducer input connection part of the shaft core shall ensure the coaxial degree, and the axial deviation and angular displacement shall be checked, and the error shall not be greater than the allowable value of the coupling used;

After installation, add lubricating oil to the reducer, and the lubricating oil is evenly distributed in the box after the lubricating oil level to the center line of the oil mark;

Turn on the water cooling system and check whether there is seepage and water leakage at each joint;

Turn on the power supply, let the reducer have no-load operation for a short time, check whether the lubricating oil of the equipment is normal, whether there is seepage and oil leakage, whether the installation parts are loose, whether there is abnormal noise;

注意：

◇ 在对所有联轴器进行安装作业时，应切断电机电源并采取措施（如悬挂警示标识）防止意外接通；

◇ 联轴器、小齿轮等不允许使用榔头敲击方式套装至轴端部上；

◇ 安装皮带轮时应注意皮带的正确张力；

◇ 输出部分不得采用强力装拆螺杆；

◇ 减速机的外露旋转部分（联轴器、皮带轮）应加防护罩；

◇ 联接轴端和法兰表面必须彻底清除掉防锈剂、污染物或类似脏物，可使用溶剂清洗，清洗时不得让溶剂进入轴端密封部件的密封唇上，否则会损坏密封材料。

开机前检查项目：

◆ 使用前，首先检查减速机箱体内是否有润滑油，油位是否正确，若润滑油不足则应及时补充；

◆ 各联结部位是否松动，安全防护装置是否齐备；

◆ 环境温度是否低于 0℃，低于 0℃情况下工作时，启动前对润滑油预热至 0℃以上。

减速机运行：

◆ 减速机应空转 5~10 分钟（若减速机配电机齿轮泵，则在减速机开机前开启电机齿轮泵），使各轴承、齿轮处充分润滑后加载使用；若减速机为首次使用，空运转后逐级加载，每级加 20%额定载荷运行 1~2 小时，直至额定载荷，无异常现

象进入正常运行。

- 在减速机运行过程中，适时监控减速机的温升，并作好记录。当减速机温度超过 70℃或油温超过 100℃时，应停止使用，查明原因并排除故障，必要时与本公司售后服务部联系。故障排除后重新更换润滑油方可使用。
- 减速机停机按如下程序操作：首先关闭进料斗，待螺筒内物料输送完毕关闭减速机电机电源（若减速机配电机齿轮泵，则在减速机关机后关闭电机齿轮泵）。
- 如果减速机长时间停止使用，必须每隔 2～3 周让减速机运转一次。
- 如果减速机停止使用时间超过 6 个月，就需要对减速机内部和外部额外采取防锈措施:

内部用润滑油充满；外部使用蜡质防锈涂层对轴端和未经油漆表面进行防锈处理，并使用润滑脂涂抹在轴密封部件的密封唇上以防止防锈剂渗入。

Note:

◇ When installing all couplings, it shall cut off the motor power and take measures (such as hanging warning signs) to prevent accidental connection;

◇ couplings, pinion, etc. are not allowed to use the hammer knock method to set to the shaft end;

◇ shall pay attention to the correct tension of the belt when installing the pulley;

Powerful mounting and disassembly screws shall not be used for the ◇ output part;

The exposed rotating part of ◇ reducer (coupler, pulley) shall be shield;

◇ connecting shaft ends and flange surfaces must be completely removed from rust inhibitor, pollutants or similar dirt, and can be cleaned with solvent and shall not enter the sealing lip of the shaft end sealing parts, otherwise damage the sealing material.

Inspection items before starting on:

Before use, first check whether there is lubricating oil in the reducer box, whether the oil level is correct, if the lubricating oil is insufficient, it should be supplemented in time;

Whether the connecting parts are loose, and whether the safety protective devices are complete;

Whether the ambient temperature is below 0 ℃, and when operating below 0 ℃, preheat the lubricating oil to above 0 ℃ before startup.

Reducer operation:

The reducer shall be idle for 5~10 minutes (if the reducer is equipped with motor gear pump, open the motor gear pump before the reducer is turned on) to load the bearings and gears. If the reducer is used for the first time, load step by step, add 20% of the rated load at each stage for 1~2 hours until the rated load, no abnormal phenomenon into normal operation.

During the operation of the reducer, timely monitor the temperature rise of the reducer, and make records. When the temperature of the reducer exceeds 70 ℃ or the oil temperature exceeds 100 ℃, stop use, identify the cause and eliminate faults, and contact the after-sales service department of the Company if necessary. Replace the lubricating oil again after troubleshooting.

The shutdown of the reducer is operated as the following procedure: first close the intake hopper, and turn off the motor power supply of the reducer after the delivery of materials in the cylinder (if the reducer is equipped with the motor gear pump, close the motor gear pump after the deceleration machine).

If the reducer is stopped for a long time, the reducer must be operated every 2~3 weeks.

If the reducer is stopped for more than 6 months, additional rust prevention measures inside and outside of the reducer:

The interior is filled with lubricating oil; externally treat the shaft ends and unpainted surfaces with wax antirust coating and grease to the seal lip of the shaft seal parts to prevent rust penetration.

注意：

◇ 在开车的初始阶段，油泵可能会发出较高的噪声，这是因为润滑油粘度大、油泵的吸油阻力大而引起，该现象在润滑油温度升高后自行消失；

◇ 在减速机正常使用过程中出现油泵噪声增大，此时应清洗滤油器，保证油路畅通；

◇ 在减速机运行过程中应适时监控减速机漏油情况，发现漏油现象，及时停机排除；

减速机的检查、维护：

◆ 检修与维护时间间隔

Note:

◇ In the initial stage of driving, the oil pump may make high noise, which is caused by large viscosity of the lubricating oil and large oil absorption resistance of the oil pump, which phenomenon disappears after the lubricating oil temperature rises;

◇ increases oil pump noise during normal use of reducer, and clean oil filter to ensure smooth oil circuit;

◇ shall monitor reducer oil leakage during reducer operation, find oil leakage and stop it in time;

Inspection and maintenance of the speed reducer:

Interval between maintenance and maintenance

时间间隔 time interval；time span；time cell；period	检修与维护 Maintenance and Maintenance
正常工作运行 Normal working operation	检查减速机温度：使用矿物润滑油时，不得超过 90℃ 使用合成润滑油时，不得超过 100℃ 检查减速机噪声有无异常 检查减速机是否有泄漏现象 Check the speed reducer temperature: shall not exceed 90 ℃ when using mineral lubricating oil Not exceeding 100 ℃ with synthetic lubricants Check for abnormal reducer noise Check the speed reducer for leaks
在运行 500～800 小时后 After running the 500 ~ for 800 hours	首次投入运行后的第一次润滑油更换 检查油位是否需加注润滑油 First lubricating oil replacement after being first put into operation Check the oil level for filling with lubricating oil
每隔运行 3000 小时，	检查润滑油，若在室外或潮湿环境，应检查油中水含量，

至少半年一次 Every 3000 hours, At least once in half a year	不得超过 500ppm 更换矿物润滑油（每天工作时间不足 8 小时） 清洁通气塞 Check lubricating oil, if in outdoor or wet environment, check the water content not exceeding 500ppm Replace the mineral lubricating oil (less than 8 hours per day) Clean ventilation plugs
根据使用情况而定，至少 3 个月一次 Depending on the usage situation, At least once in 3 months	更换矿物润滑油（长期连续工作） 检查各处联接螺栓有无松动 检查污染情况和润滑冷却装置状态 清洁润滑油过滤器，如有必要更换滤芯 Replace the mineral lubricating oil (long-term continuous operation) Check for loose connecting bolts everywhere Check the contamination condition and the lubrication cooling unit status

	Clean the lubricant filter and replace the filter element if necessary
根据使用情况而定，至少一年一次 Depending on the usage situation, At least once a year	更换合成润滑油 Replace the synthetic lubricant
根据环境及使用情况而定 Depending on the environment and the usage conditions	改善或更换表面防护（锈）漆 清洁减速机外表面 检查配置的附件装置 Improve or replace the surface protection (rust) paint Clean the outer surface of the speed reducer Check the configured accessory devices

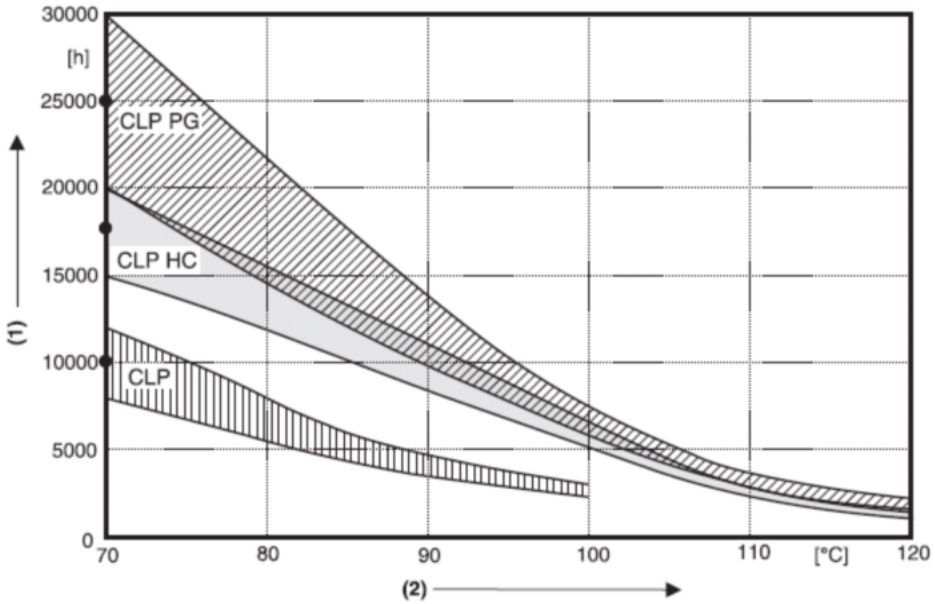
◆ 润滑油更换时间间隔

在恶劣环境条件下使用的特殊规格减速机应经常更换润滑油

下图为正常环境条件使用下的润滑油更换时间间隔，CLP HC 为聚烯烃基(PAO)合成润滑油 Interval of lubricant replacement time

Special specification reducer used in harsh environmental conditions shall be replaced frequently

The figure below shows the interval of lubricant replacement under normal environmental conditions, CLP HC is Polyolefin (PAO) synthetic lubricant



(1) 为运行时间 (2)油池持续温度 (平均值为 70℃)(1) Running time (2) oil tank continuous temperature (average is 70 ℃)

故障分析与排除 Failure analysis and troubleshooting

故障现象 fault phenomenon	可能原因 Possible Cause	排除方法 Exclclusion Method	故障现象 fault phenomenon	可能原因 Possible Cause	排除方法 Exclclusion Method

异常、均匀的运转噪声 Abnormal and uniform operating noise	A 滚动/碾压噪声：轴承损坏 B 敲击式噪声：啮合不均匀 A rolling / rolling noise: bearing damage B percussion noise: uneven engagement	A 检查润滑油，更换轴承 B 向江阴咨询 A Check lubricating oil, replace bearings B consulted with Jiangyin	润滑油泄漏： 减速机结合面 减速机端盖面 减速机视孔盖 传动轴密封处放油塞处 通气塞处 Lubricating oil leakage: Reducder bonding face End cover surface of	减速机联接部件不紧密 联接紧固件松动 密封部件安装不正确 密封部件损坏/磨损 联接不紧密 润滑油位过多 安装错误 Intight coupling parts of the speed reducer Loocoupling fasteners Incorrect seal	检查联接螺栓发现松动及时拧紧 检查密封部件并看情况更换 检查油位/改善排气 向江阴咨询 Check the connecting bolts Check and replace the
异常、不均匀的运转噪声 Abnormal and uneven operating noise	润滑油杂质 Lubricating oil and impurities	检查润滑油 停止运行,向江阴咨询 Check the lubricating oil Stop the operation and consult with Jiangyin			

在减速机固定区域内的异常噪声 Abnormal noise in the fixed area of the speed reducer	减速机固定件有松动 Looseness of the speed reducer fixation parts	检查紧固件，使用规定的紧固件 Check and use the specified fasteners	the speed reducer Visual hole cover of reducer Oil discharge plug at drive shaft seal Breather plug in place	part installation Seal parts for damage / wear Not tight connection Too much lubricating oil level Installation error	sealing parts Check the oil level / improve the exhaust gas Consulting with Jiangyin

运行温度太高 Operating temperature is too high	A 润滑油过多 B 润滑油变质或杂质较多 C 润滑泵损坏 D 冷却系统故障 Excessive A lubricant B lubricating oil has deteriorated or has more impurities C lubrication pump damage D cooling system fault	A 检查油位，如有必要修正 B 检查润滑油质量及更换时间 C 检查润滑泵，如有必要请更换 D 检查冷却系统 A Check the oil level and correct it if necessary B Check the lubricating oil quality and replacement time C Check the lubrication	轴承位置上温度太高 Too high for the temperature on the bearing position	A 润滑油过少 B 润滑油老化变质 C 润滑泵损坏 D 轴承损伤 A too lubricant B lubricating deterioration C lubrication pump damage D bearing damage	A 检查油位，如有必要修正 B 检查润滑油更换时间 C 检查润滑泵，更换 D 检查轴承，更换 A Check the oil level and correct it if necessary B Check the lubricating

磨合期内轴端密封处温度太高 Temperature at the shaft end seal is too high during the run-in period	轴端联接安装时未清理密封部件与轴端的磨合 Uncleaned during shaft-end connection installation Running-in of sealing parts and shaft ends	清理轴端 可视作正常现象 Temperature at the shaft end seal is too high during the run-in period			oil replacement time C Check the lubrication pump, and replace the D Check the bearings, Replace

润滑油的选择

润滑油的粘度按高速级齿轮圆周速度 V、使用环境或润滑方法选择：

当 V≤2.5 米/秒或当环境温度在 35℃～50℃之间时，应选用 CKC320 中负荷工业闭式齿轮油或 CKD320 重负荷工业闭式齿轮油

当 V＞2.5 米/秒或采用强制循环油润滑时，应选用 CKC220 中负荷工业闭式齿轮油或

CKD220 重负荷工业闭式齿轮油

润滑剂

Selection of lubricants

The viscosity of lubricating oil is selected by the circular speed V, using the environment or lubrication method:

CKC320 medium load industrial closed gear oil or CKD320 heavy load industrial closed gear oil shall be selected when V ≤ 2.5 m / s or when the ambient temperature is between 35 ℃ ~50 ℃

CKC2202.5 load industrial closed gear oil or CKD220 heavy load industrial closed gear oil when V> m / s or lubrication with forced circulating oil

Lubricant

减速机不推荐使用润滑脂润滑，如有需要，敬请垂询

国内外润滑油牌号对照请参见附录-润滑油对照表 **Grease lubrication is not recommended for reducer, please if required**

Refer to Appendix-lubricating oil control table at home and abroad

3.1.4.2、主电机基本参数和安全操作说明 Basic parameters and safe operation instructions of the main motor

交流电机说明书

Y 系列电动机是一般用途的全封闭自扇冷却式鼠笼型三相异步电动机。安装尺寸和功率等级符合 IEC 标准，外壳防护等级为 IP44，冷却方式为 IC411，连续工作制（S1）。适用于驱动无特殊要求的机械设备，如机床、泵、风机、压缩机、搅拌机、运输机械、农业机械、食品机械等。

Y 系列电动机效率高、节能、堵转转矩高、噪声低、振动小、运行安全可靠。Y80-315 电动机符合 Y 系列（IP44）三相异步电动机技术条件 JB/T10391-2002.Y355 电动机符合 Y 系列（IP44）三相异步电机技术条件 JB274-1991.

Y80-315 电动机采用 B 级绝缘。Y355 电动机采用 F 级绝缘。额定电压为 380V，额频率 50Hz，功率 3Kw 及以下为 Y 型接法。其他功率均为△接法。电动机运行地点的海拔不超过 1000m；环境空气温度随季节而变化，但不超过 40°C；最低环境空气温度为-15°C；最湿月月平均最高相对湿度 90%；同时该月月平均最低温度不高于 25°C。

电机有一个伸轴。按用户需要，可制成双轴伸。第二轴伸亦能传递额定功率，但只能用联轴器传动。按用户需要，还可供应其他功率、电压、频率、湿热带型（TH）、防护等级等电动机。

1、启动

1．1、 检验

收货后，立即检查电机有无外部损伤，检验所有的铭牌数据，尤其是电压和绕组的连

接方式（Y 或△）。

用手旋转转轴，检验空载情况，如果电机装有锁定装置，注意将其打开。

1.2、绝缘性能检测

电机初次使用前，绕组有可能受潮，都要测量其绝缘电阻值。25°C 时测量的绝缘电阻值应超过参考值，测量后绕组要立即放电，避免电击。周围环境温度每升高 20°C，电阻的参考值减少一半。如果没有达到绝缘电阻的参考值，绕组就必须烘干。烘炉的温度为 90°C，时间 12-16 小时。如果安装了排水管，烘干时必须将其打开，绕组被海水浸泡后一般要重绕。

1.3、直接启动或 Y/△启动

标准单速电机的接线盒一般有 6 个接线螺栓和至少一个接地螺栓，电机通电之前，必须按规定要求可靠接地，不能零代替接地。

电压和绕组连接方式在铭牌上有标注。

1.3．1 直接启动

绕组可以采用 Y 或△接法，例如 600VY,380V△分别表示：660V-Y 接法和 380V-△接法

1.3.2 Y/△启动

电源电压必须等于△接法电机的额定电压。

拆卸接线板山所有的接线片，按 Y/△起动装置接线，妥善连接到电机六个接线柱上，

并能从起动初期的 Y 连接跳到自动完成的△连接。双速电机和其他特种电机的电源接法，必须依照接线盒内的接线图说明。

1.4、接线柱和旋转方向

如果电源相序 U、V、W 依次与接线柱 U1、V1、W1 连接，从电机的驱动端观察转轴，其旋转方向为顺时针。

换接电线中的任意两相就可以改变电机的旋转方向。

2、使用说明

2.1、运行环境

电机用于工业生产。

正常的环境温度在-15°C 到+40°C 之间，海拔不高于 1000m

2.2、安全要素

电机应由熟悉相关要求的专业人员安排和接线。

安装时必须有安全装置以防止事故发生，安装的位置也必须符合规定。

2.3、遵守规格

电机不能用于加速和超载运行。

正常运行时，电机表面会发热，但不会超过额定许用温度的 60%。

一些有特殊用途的电机需要特别的指导说明

3、管理

3.1、贮存

所有电机都应保存在室内，要求干燥、防震、防尘的环境。

无保护层的电机表面应该采取防锈措施。

建议定期检查电机，用手转动转轴，防止润滑脂流失或其他问题。

3.2、运输

安装有圆柱及滚针轴承和球顶针轴承的电机，在运输是需要安装缩紧装置。

3.3、重量

相同机座号（中心高）的电机由于输出功率，安装尺寸、附加零件的不同而总重量有所不同，电机的具体重量，可以在电机铭牌上找到。

4、安装

4.1、垫板

安装垫板的准备工作由用户负责。

金属垫板应做防锈漆。

垫板应该平稳，并且足够坚固以防止冲击负载造成的影响。选择尺寸时注意刚性避免共振。

4.2、底脚螺栓安装

拧紧电机底脚和垫板间的螺栓并留有 1-2mm 的缝隙。采用合适的方式调整电机对接同心度后，再均匀拧紧螺栓。如果电机轴伸与负载刚性连接，则同心度调好后，

两者的底脚都必须与底座间各安装二个定位钉，防止电机运转时破坏连接同心度而损坏电机。

4.3、排水孔

当安装非标准电机时，检查排水孔表面是否朝下。

电机在搬运或不使用时，电机如果安装了可关闭塑料排水塞，应将其关闭。

在特别脏的环境下，所有的排水孔都应关闭。

4.4、调整安装

正确的安装对避免轴承振动和可能造成的外部磨损都十分重要的。

4.5、滑轨和皮带轮

将滑轨水平放置。

检查电机转轴是否平行于被驱动轴。注意，皮带张得过分紧或皮带轮残留不太平衡大会损伤轴伸，甚至引起轴断裂，也会影响轴承寿命。

不要超过产品说明中规定的最大张紧力

以上数据可在电机样本中查得。

5、 电气联接

电机顶部的接线盒允许旋转，可按要求选择出线方向，也可选用旁出线的接线盒安装方式。没有电缆进入的进线口必须封闭。

除了主绕组和接地端的接线端，接线盒内还可包括热敏电阻、热敏开关或 PT100

电阻元件的接线部件。

注意：电机停转时，在接线盒内仍可能带电，不要立即触摸接线柱。打开接线盒，可以在接线盒内找到电源连接示意图。

6、 安装和拆卸

6.1、概论

必须由专业人员采用专门的工具按照规定进行。

6.2、轴承

对轴承要予以特别重视，安装，拆换轴承要加热或使用特殊工具。

6.3、离合器和皮带轮的安装

安装离合器和皮带轮时，要使用适当的装置和工具，不要与轴伸配合太紧，装配前需拆下风轴传到其他定位工件上，以防损坏轴承和轴伸。

安装时不能重锤猛击，拆卸时也不能使用杠杆压靠机身。

6.4、平衡

标准电机，采用半键平衡。

为了避免振动，离合器和皮带轮必须经过半键平衡，才能安装到电机轴上。

7、 维护与润滑

7.1、概论

定期检修电机

保持电机清洁，空气流通。

检查轴伸的密封圈，如有必要应及时更换。

检查安装连接状况和安装螺钉。

通过监听异常噪声、振动测量，监控用油量或轴承侧振元件来检查轴承运行情况。

如有异常发生，应立即停机，检查原因并及时排除。

7.2、润滑

装封闭型或开启式轴承的电机

电机中心高在 225 及以下，用户无特殊要求的电机一般装配封闭型轴承，轴承的型号在相关的产品样本中有介绍，装开启式轴承的电机，要求定期重新加润滑脂。具体要求如下：

AC motor instruction manual

Y series motor is a self-enclosed cooling cage three-phase asynchronous motor. Installation size and power rating meet IEC and IP44, cooling for IC411, continuous operation (S1). Suitable for driving machinery without special requirements, such as machine tools, pumps, fans, compressors, mixers, transportation machinery, agricultural machinery, food machinery, etc.

Y series motor has high efficiency, energy saving, high blocking torque, low noise, small vibration, safe and reliable operation. Y80-315 motor meets Y series (IP44)

three phase asynchronous motor JB/T10391-2002.Y355 motor meets Y series (IP44) three phase asynchronous motor technology conditions JB274-1991.

The Y80-315 motor adopts Class B insulation. The Y355 motor adopts Class F insulation. Rated voltage is 380V, rated frequency 50Hz, power 3Kw and less is type Y connection. Other power is △ connection method. The altitude of the motor shall not exceed 1000m; ambient air temperature varies with season, but not exceeding 40 C; minimum ambient air temperature is 90% average maximum relative humidity; meanwhile the average monthly minimum temperature is not higher than 25 C.

The motor has an extension shaft. Two-axis extension can be made as the user needs. The second shaft extension also delivers rated power but only by coupling. Other power, voltage, frequency, TH and protection level can be provided as required by users.

Start-Up

Inspection:

Immediately upon receipt, check the motor for external damage and check all nameplate data, especially how the voltage and windings are connected (Y or △).

Rotate the shaft by hand, check the empty load, and open the motor if it is locked.

1.2. Insulation performance test

Before the measurement of the insulation resistance. The insulation resistance value measured at 25 C shall exceed the reference value, and the winding shall be discharged immediately to avoid electric shock. Reference values decrease by half for every 20 C, resistance increase in the ambient temperature. If the reference value of the insulation resistance is not reached, the winding must be dried. The oven temperature is 90 C, time of 12-16 hours. If a drain pipe is installed, it must be opened during drying and the windings soaked in seawater.

1.3. Direct start, or Y/ △ start

The junction box of the standard single-speed motor generally has 6 wiring bolts and at least one grounding bolt. Before the motor is electrified, it must be reliably grounded as per the specified requirements, and no zero replaces the grounding.

Voltage and winding connection methods are marked on the nameplate.

1.3.1 Direct Start

Windings can be Y or △, such as 600VY,380V △ representing 660V-Y and 380V- △

1.3.2 Y/ △ startup

The supply voltage must be equal to the rated voltage of the △ connection motor.

Remove all the junction board mountain pads, press the Y/ △ starter device, properly connect to the six terminals of the motor, and can jump from the initial starting Y

connection to the automatically completed △ connection. Electricity of dual-speed motors and other special motors

机座号[体]seat No.	油脂量 Oil ase greas eg	3600 r/min	3000 r/min	1800 r/min	1500 r/min	1200 r/min	1000 r/min	500-900 r/min
112,132	15	4200	4800	7000	7800	8500	10000	10500
160,180	20	3200	4200	6000	7000	8000	9000	10000
200,225	25	1800	3100	5500	6500	7500	8500	9500
250,280	35	800	2000	5000	6000	7000	8000	9000
315	50	800	2000	4600	5500	6500	7500	8000
355	60		1000	4000	5000	6000	7000	8000

滚柱轴承电机添加润滑脂的间隔时间 Interval time of grease addition in the roller bearing motor

机座号[体]seat No.	油脂量 Oil ase greas eg	3600 r/min	3000 r/min	1800 r/min	1500 r/min	1200 r/min	1000 r/min	500-900 r/min
160,180	20	1600	2000	4700	5400	6200	6900	7800
200,225	25	900	1500	4300	5000	5800	6500	7000
250,280	35	400	1000	3300	4500	5500	6300	6800
315	50	400	1000	2700	3800	5000	6000	6500
355	60			2200	3200	4400	5500	6000

装注油嘴的电机

在电机运行时润滑。

加润滑油脂前，应打开油脂出口塞。

如果装有油脂前，应打开油脂出口塞。

如果装有加油示意牌，亦可以以它为准。

垂直安装的电机添加润滑脂的间隔时间是表中规定数值的一半。表中规定的数值基于轴承温度为 80°C；

轴承温度每升高 15K，表中规定数值应该减少一半。

如果轴承最高温度为 70°C，表中数值应加倍。

注意：运行温度不能超过油脂和轴承最高允许温度。高速运行时，或过载低速运行时，需要缩短添加润滑脂的间隔。一般双速电机添加润滑脂的间隔需要将表中数值减少大约 40%，在高速运行时，必须检查轴承的适用性。

7.3、润滑脂

在重新润滑脂时，只能使用具有以下特性的轴承润滑脂：

良好质量的锂基

在 40°C 基脂　粘度为 100-140CST

浓度等级 NLGL2 或 3

温度范围从-30°C 到+120°C

可以从主要润滑脂生产商处得到具有良好特性的润滑脂。

如果润滑脂的成功发生改变并且不能确定新旧的兼容性，在短期内多次润滑以代替旧

的润滑脂。

高负载或低转速的轴承需要 EP 润滑脂。

如果因轴承温度大于 80°C 而缩短添加润滑脂的间隔，可使用高温润滑脂，这种高温润滑脂一般允许轴承温度再高 15K。

7.4、注意

7.4.1、高速电机

对高速电机

对高速电机（如 2 级电机），检查润滑脂的 fn 参数是否足够高。

Fn=DM x n

Dm=平均轴承直径

n=转速

注意：大多数润滑脂会刺激皮肤，引起眼睛发炎。请遵守生产商的注明所有安全预防措施。

7.4.2、零件

订购零件，应注明电机铭牌上的型号，。规格和产品代码。如果电机铭牌上标有系列号，也应注明。

7.4.3、噪声要求

电机的噪声不超过产品样本或铭牌规定数值。

对于 60Hz 电机，噪声等级比 50Hz 高 3dB（A）。

3.1.4.3、机筒与螺杆的维护保养

当挤出机的挤出产量下降或其它原因影响螺杆正常工作时，就应该对螺杆和机筒进行检查，根据螺杆机筒的磨损情况决定更换螺杆机筒或修复。

1、螺杆拆卸、清洗、安装的方法：

A、螺杆拆卸

拆卸螺杆前，应先将挤出机机筒连接的流道、换网器、计量泵和模具等拆除，在残余熔体尚未凝结前，采用本机配套提供的专用工具将螺杆从机筒内顶出。如果挤出机已经冷却，顶出螺杆前要对机筒进行加热，加热到操作温度，然后再次断开电源，顶出前应配套起吊装置，以便在顶出时支承 Motor with oil nozzle

Lubricate it while the motor is running.

Open the grease outlet plug before adding the lubricating grease.

If so, open the grease outlet plug before the grease is installed.

If a refueling sign is installed, it may also prevail.

The vertically mounted motor is half the value specified in the table. The values specified in the table are based on a bearing temperature of 80 C;

The bearing temperature shall be reduced by half for the values specified in Table 15K,.

If the maximum bearing temperature is, double the value in Table 70 C,.

Note: Operating temperature shall not exceed the maximum allowable temperature of grease and bearings. Reduce grease intervals at high speed or overload at low speed. Generally, the grease addition interval of the two-speed motor requires to reduce the values in the table by about 40%, and the applicability of the bearings must be checked at high speed operation.

7.3. Grease

When regrease, only use bearing grease with the following properties:

Good-quality lithium base

At 40 C base viscosity 100-140CST

Concentration grade: NLGL2 or 3

Temperature range from-30 C to 120 C

Greases with good properties can be obtained from the major grease producers.

If the grease changes successfully and has no compatibility between old and new, lubricated multiple times in the short term to replace the old grease.

Bearing with high load or low speed require EP grease.

If the interval between adding grease is shortened due to the bearing temperature above 80 C, a high temperature grease can be used, which generally

allows a bearing temperature higher than 15K.

7.4. Attention

7.4.1. High-speed motor

Against the high-speed motor

For high speed motors (such as Class 2 motors), check that the grease fn parameter is high enough.

Fn=DM x n

Dm= average bearing diameter

n= Speed Speed

Note: Most greases can stimulate the skin and cause inflammation of the eyes. Please observe all safety precautions indicated by the manufacturer.

7.4.2. Parts

Order parts indicating the model on the motor nameplate. Specification and product codes. If the series number is marked on the motor nameplate.

7.4.3. Noise requirements

The noise of the motor shall not exceed the values specified in the product sample or nameplate.

For 60Hz motors, the noise level is 3 dB (A) higher than 50Hz.

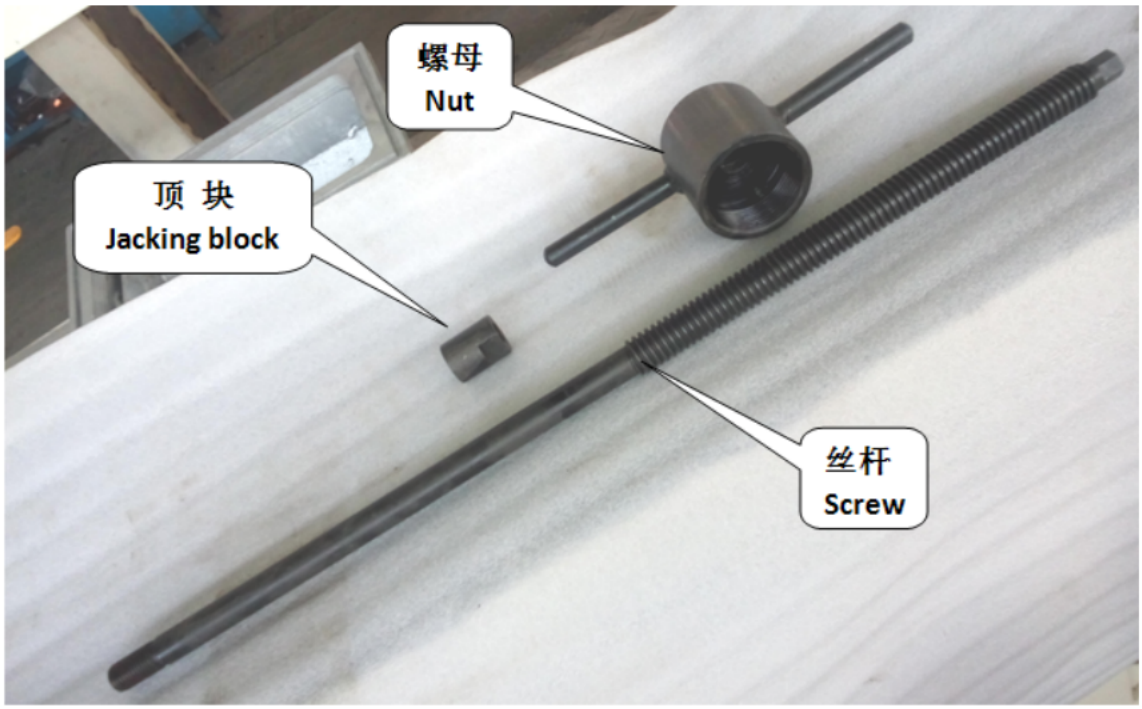
3.1.4.3 Maintenance of the cylinder and the screws

When the extruding output of the extruder drops or other reasons affect the normal operation of the screw, the screw and cylinder should be inspected, and the screw cylinder should be replaced or repair according to the wear situation of the screw cylinder.

1. Methods for the disassembly, cleaning and installation of the screw:

A, screw removal

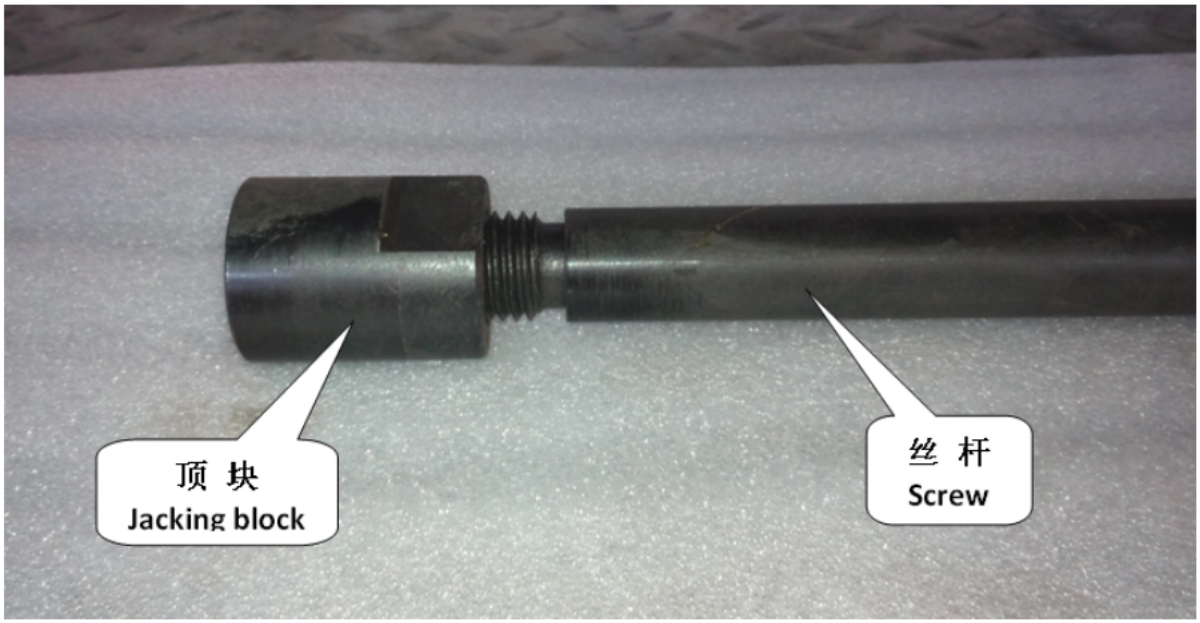
Before removing the screws, the flow channel, network changer, metering pump and mold connected to the extruder cylinder should be removed. Before the residual melt is condensed, the screw should be top from the cylinder with special tools provided by the machine. If the extruder has cooled, heat the cylinder prior to topping the screw to the operating temperature, disconnect the power again and provide a lifting device to support the screw before jacking 螺杆

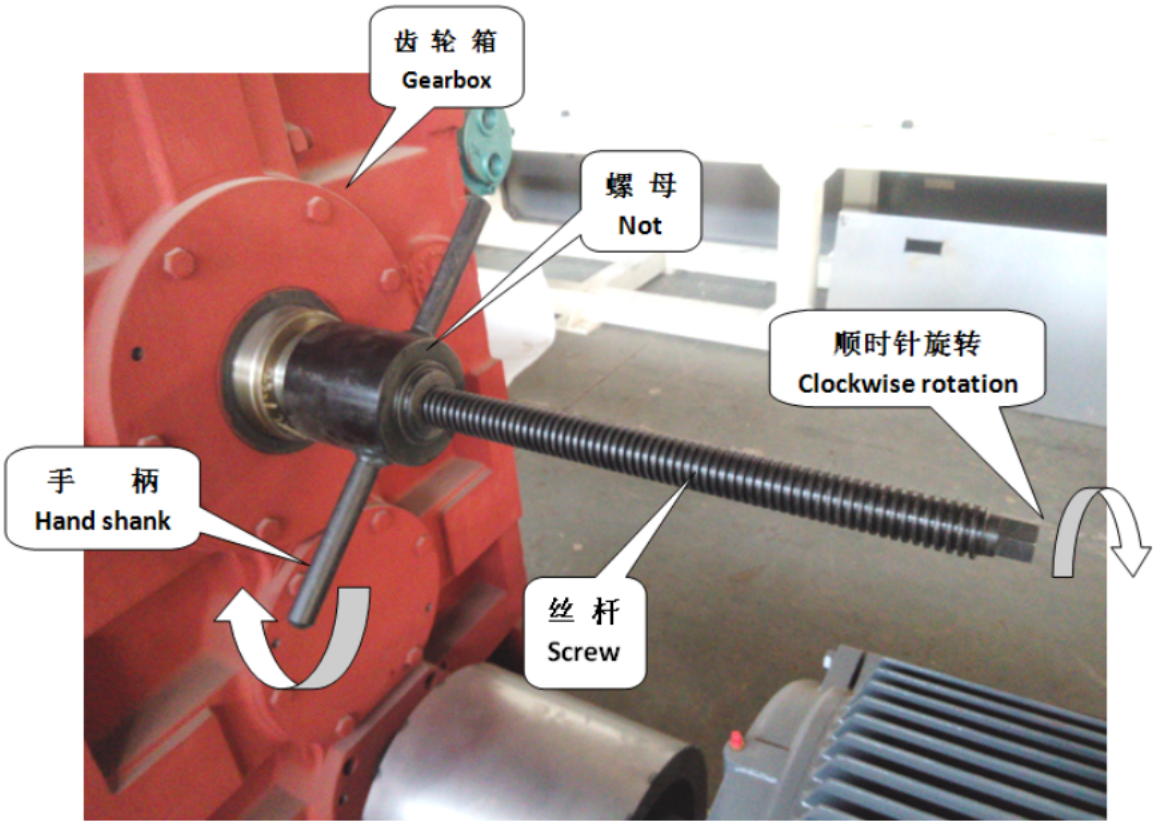


单螺杆挤出机螺杆专用拆装工具 Special disassembly and assembly tool for single-screw extruder screw

首先将丝杆从靠近螺母手柄端旋入一段距离，再将顶块旋入丝杆前端螺牙段（如图所示），把拆卸工具整体由齿轮箱后孔装入，顺时针转动螺母手柄，直到螺母完全旋入齿轮箱后轴为止，接下来用活动扳手顺时针转动丝杆尾部六角头，直到把螺杆柄部被完全顶出齿轮箱输出孔为止，最后，即可通过起吊装置缓缓的将螺杆拖出机筒。First, spin the screw from near the end of the nut handle for a distance, then spin the top block into the screw front screw section (as shown in the figure), load the disassembly tool by the gearbox back hole, clockwise until the nut handle into the gearbox rear shaft, then turn the screw clockwise until the screw handle is completely out of the hole of the gearbox output. Finally, you can slowly drag the

screw out of the cylinder through the lifting device.





附图 螺杆拆卸示意图 **Schematic diagram of attached screw disassembly**

拆出后的螺杆，需要放置在开阔平整的地方，并在螺杆下方均匀垫两到四块木块，在螺杆还未冷却之前，清理螺杆表面的残余物料，因螺杆表面具有很高的温度，所以全程需要佩戴耐高温手套，防止裸露皮肤触摸螺杆表面。

B、螺杆安装

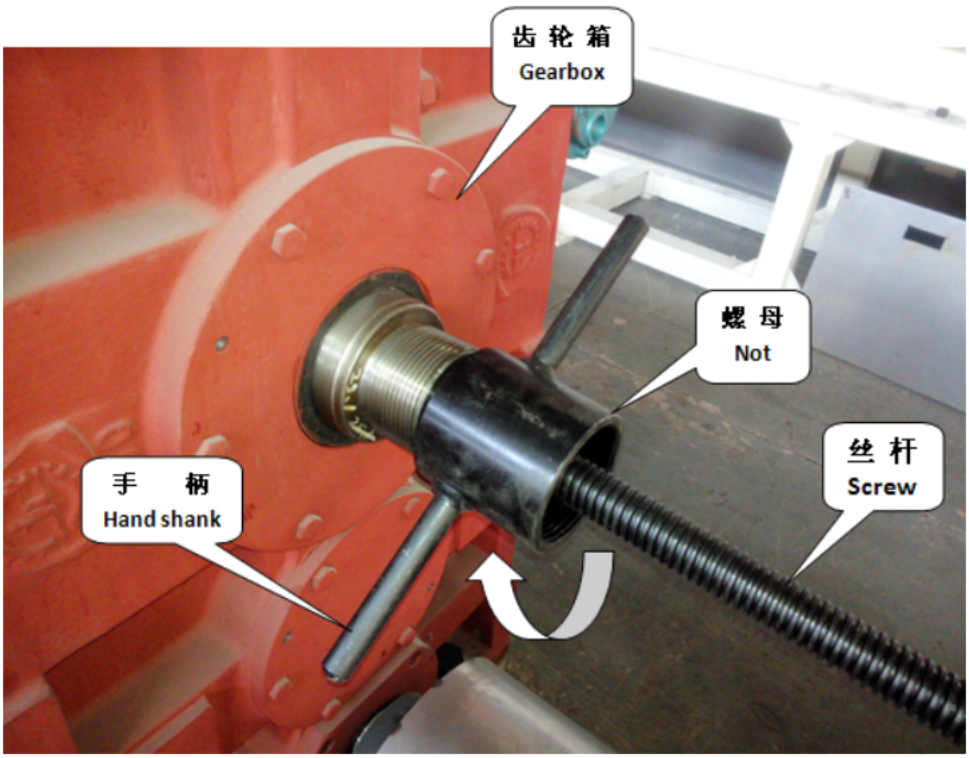
安装前，清洁螺杆表面、机筒内孔和传动轴内孔，然后，机筒内孔涂薄薄的一层硅油，螺杆轴上涂上一层硅润滑脂。安装前，进料口必须盖上，建议把挤出机加热到操作温度，这样便于安装。

安装时，要将螺杆轴上键与减速箱输出轴的内孔键槽对准，并小心地将螺杆推入机筒，直到螺杆无法轻松推入为止，此时需要使用螺杆安装专用工具，将丝杆六角头旋入螺母靠近手柄侧，待六角头完全露出螺母时，将丝杆前端螺纹由齿轮箱后孔插入，使丝杆前端顶到螺杆柄部中心孔，使用活动扳手顺时针转动六角头，直到丝杆旋紧为止，此时需要手动转动拆装工具螺母手柄，直到角螺杆柄部拖入齿轮箱内孔为止。After the removed screw, it needs to be placed in an open and flat place and evenly pad two to four wooden blocks under the screw. Before the screw has cooled, clean the residual material on the screw surface. Because the screw surface has a high temperature, it need to wear high-resistant gloves to prevent exposed skin from touching the screw surface.

B, screw installation

Before installation, clean the screw surface, cylinder inner bore and drive shaft inner bore, and then apply a thin layer of silicone oil and a silicone grease on the screw shaft. Before installation, the inlet must be covered and it is recommended to heat the extruder to the operating temperature for easy installation.

When installing, align the upper key on the screw shaft with the inner hole of the output shaft and carefully drive the screw into the cylinder until the screw can not be pushed easily. Use the special screw tool to turn the hexagon head into the head of the nut near the handle side of the screw. When the nut, insert the front handle of the screw clockwise until the corner screw handle is dragged into the inner hole.



注意：在安装螺杆过程中，绝不能使用强力，以免损坏键及键槽。如出现螺母手柄无

法转动时，需要松掉拖拽螺母，通过齿轮箱后孔观察螺杆柄部键槽与齿轮箱键槽的相互位置，如果位置仅相差在 5mm 以内，可将螺母拧紧，用手旋紧螺母手柄，保持拉力，然后可由另一名工作人员转动齿轮箱输入轴，注意旋转方向需要与键槽错位方向相同，当两键槽对齐后，螺杆会被轻松拖入齿轮箱内孔。如果以上方法还是无法装入螺杆，则需要将螺杆退出检查键槽，是否有碰伤等情况，待问题解决后可重复以上操作。

C、清理螺杆、机筒表面

应使用黄铜刷、铜丝团、黄铜或铝刮刀清理螺杆表面，避免擦伤螺杆。机筒内孔应在热态清理，清理时可使用固定在拉杆上的半圆形刮刀，先将刮刀朝上插入机筒，然后将刮刀半圆面朝下，将残余的熔体刮下，必要时此过程可重复进行，最后用黄铜刷将机筒刷干净，并用棉布对机筒进行最终清理。

3.1.4.4、加热圈和冷却风机的使用说明

1、加热圈

主机使用加热圈主要有陶瓷、云母和铸铝加热圈，其中应用最多的为陶瓷加热圈，加热性能和导热稳定，有利于温度的控制，也是加热系统中重要的执行元件。

加热圈外形示意图如下：

Note: During the installation of screws, strength must not be used to avoid damage to the keys and keygrooves. If the nut handle fails to rotate, it is necessary to loosen the drag nut and observe the mutual position of the key groove of the screw handle and the gearbox key groove through the rear hole of the gearbox. If the position is only within 5mm, tighten the nut handle with the hand to maintain the tension, and then turn the gearbox input shaft to note that the rotation direction needs the same direction as the key slot. When the two key grooves are aligned, the screw will be easily dragged into the inner hole of the gearbox. If the above method is still unable to load the screw, it is necessary to exit the screw from the check key slot, whether there is touch, etc. The above operation can be repeated after the problem is solved.

C, Cleaning the screw, cylinder surface

The screw surface shall be cleaned with brass brushes, brass strands, brass or aluminum scraper to avoid scratching the screw. The hole in the cylinder shall be cleaned in hot state. Using a semicircular scraper fixed to the pull rod, insert the scraper first into the cylinder, then turn the blade face down and scrape the remaining melt. This process can be repeated if necessary, and finally brush the cylinder with brass brush and finally clean the cylinder with cotton cloth.

3.1.4.4 Instructions for the use of the heating coil and the cooling fan

1. Heating ring

The heating ring of the main machine mainly has ceramic, mica and cast aluminum heating ring, among which the most application is ceramic heating ring, heating performance and heat conduction stability, conducive to temperature control, is also an important executing element in the heating system.

The outline diagram of the heating circle is as follows:

挤出机机筒加热圈外形 Appearance of extruder

1.1 加热圈的安装

陶瓷加热系统主要由不锈钢金属防护罩和加热片组成。在装配过程中需要注意

以下几点：

1) 陶瓷加热片为易碎品，在安装过程中需要保护好每个瓷片的完整性

2) 陶瓷加热片在机筒上以测温孔为中心均匀分布，分布总长度应小于防护罩总长40mm（如图所示）

3) 陶瓷加热片固定在机筒上时，锁紧螺栓应用力应得当，防止螺栓滑丝或瓷片破碎（如图所示）

4) 安装过程中，需要保护好接线柱绝缘瓷冒，如已经造成损坏需要及时更换（如图所示）

5) 因金属外壳有多处尖角，存在划伤风险，所以装配时请佩戴防护手套，并且在锁紧螺栓时不能用力过猛，造成焊接件开裂或螺栓滑丝，安装原则为双手不能晃动外壳为准

1.1 Installation of the heating ring

Ceramic heating system mainly consists of stainless steel metal shield and heating sheet. The following points should be noted during the assembly process:

Ceramic heating pieces are fragile and need to protect the integrity of each porcelain piece during installation

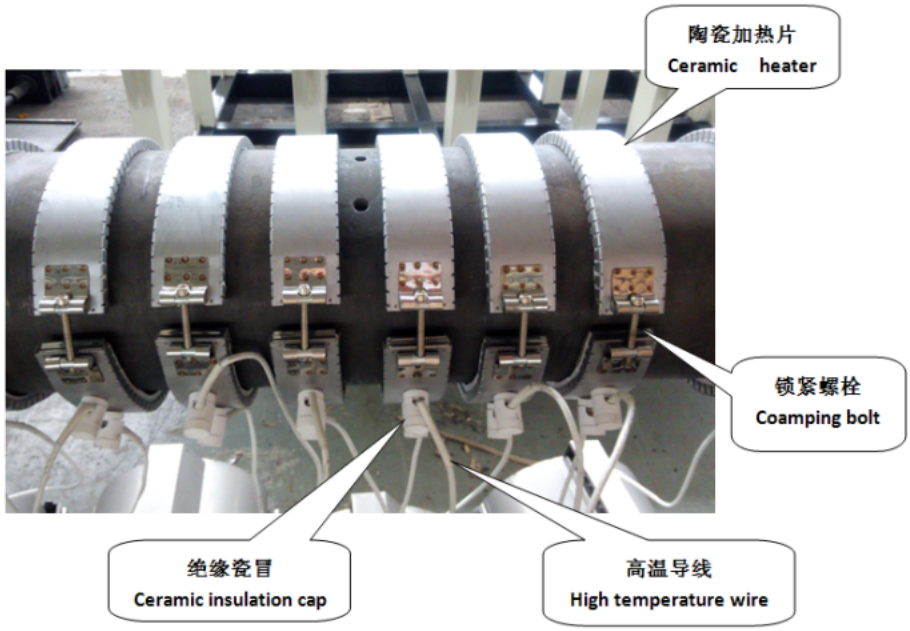
Ceramic heating sheets are evenly distributed around the temperature measuring hole on the cylinder, and the total length of distribution shall be less than 40mm(of

the total length of the protective cover, as shown in the figure)

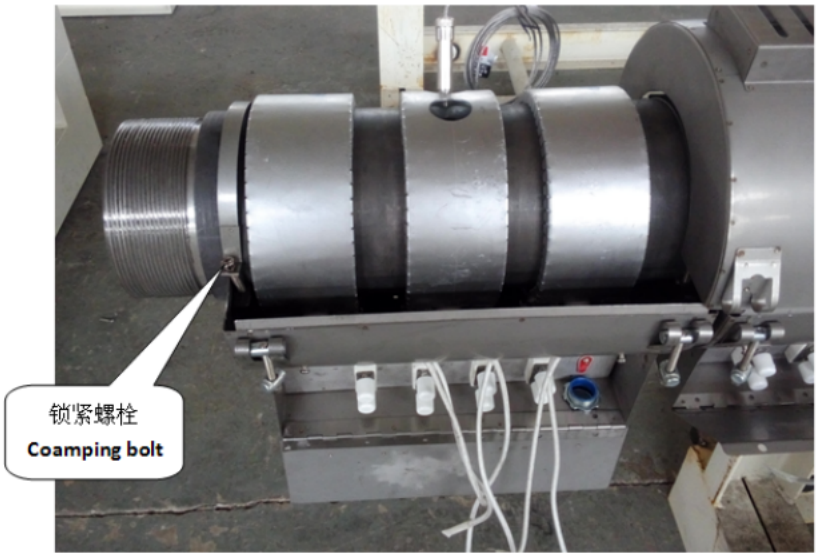
When the ceramic heating sheets are fixed to the cylinder, the locking bolts shall be applied to prevent the bolt slip or porcelain sheet breakage (as shown)

During installation, the terminal column insulated porcelain accessories shall be protected and shall be replaced in time if damage is caused (as shown in the figure)

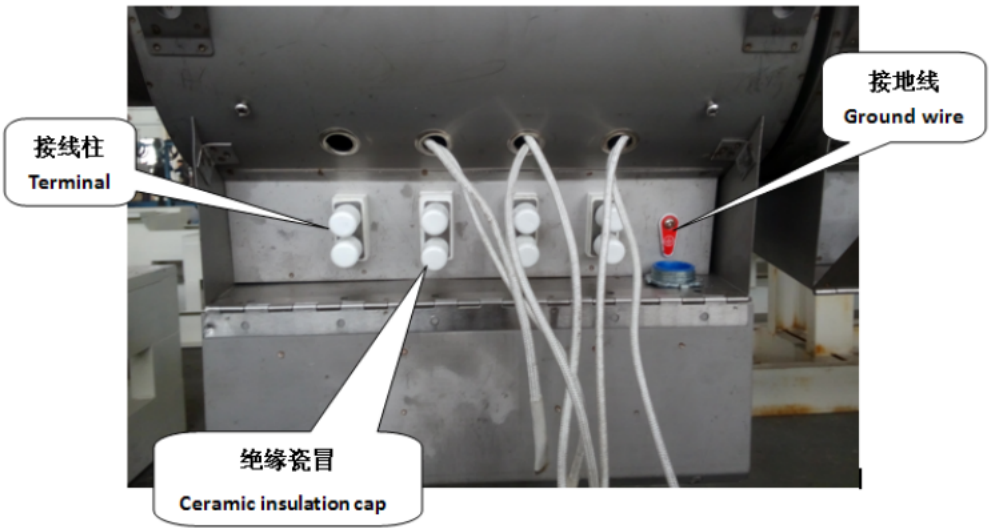
With multiple pointed corners and risk of scratch, please wear protective gloves during assembly, and do not exert too hard when locking the bolts, causing cracking of welding parts or bolt slip wire. The installation principle shall not shake the shell



装配示意图一



装配示意图二



装配示意图三

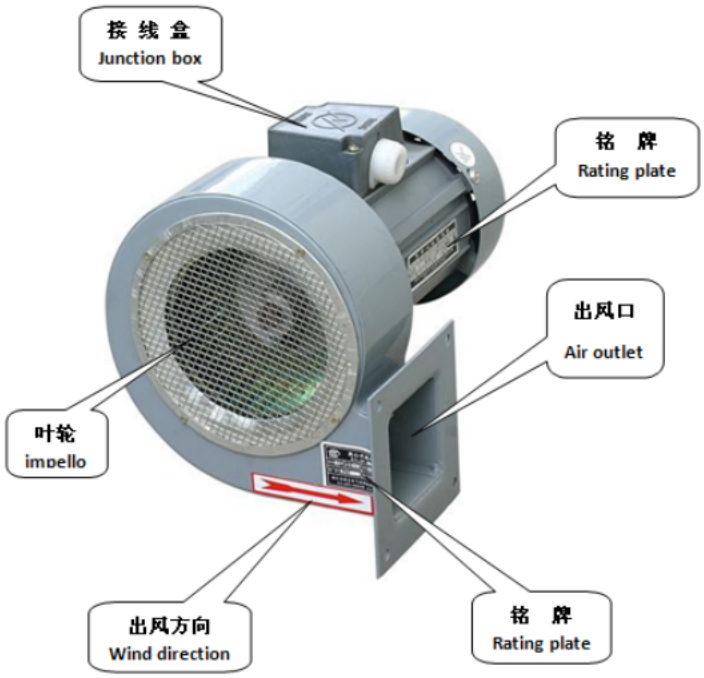
2、冷却风机

机筒冷却风机目前常用 DF 系列风机，DF 系列风机为“多叶、前向、窄轮”式叶轮，具有流通面积大，加速型流道，在对流体强力加压的同时产生的涡流小等特点，具有风量大，风压高，噪音低，效率高等诸多优点，结构上采用优质钢板经先进工艺冲压后铆

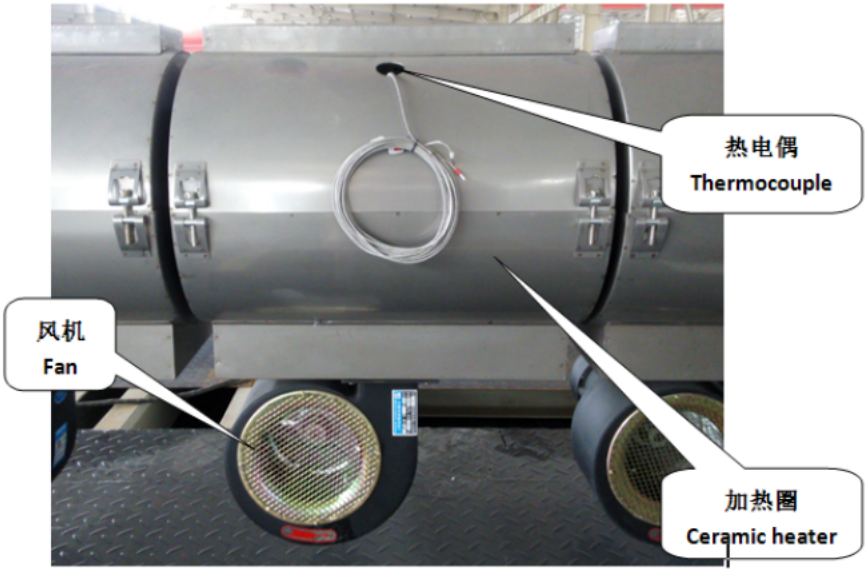
接、焊接而成，因此结构紧凑牢固、体积小、安装、维修方便。

2, cooling fan

Drum cooling fan is commonly used DF series fan, impeller "leafy, forward, narrow wheel" impeller, with accelerated flow area, small vortex, high wind pressure, high noise, high efficiency, the advantages of high-quality steel plate riveting, welding, so compact and firm structure, small volume, convenient installation and maintenance.



风机外形图



风机安装示意图

3、加热圈与冷却风机的维护保养

加热圈和风机是维持挤出单元热平衡的重要部件，是挤出机稳定工作的保证，在每次升温时应该检查加热温控表显示温度与对应加热圈的实测温度的误差，如两者温度相差很大，就必须细查原因，根据实际情况分析处理。在机筒温度超出设定温度时，冷却风机将会启动，此时可以检查风机的工作情况。如发现问题，应及时排除。

3.1.4.5、冷却水套

挤出机的加料口壳体装有冷水装置，依靠水冷却。冷水装置每半年用高压水清洗一次，以清除水套内杂质，提高冷却效果。冷却水套是机筒喂料段关键的零件，同时喂料段也是整个挤出机关键部件，直接影响到螺杆的运行状况，影响的挤出机的产量。所以喂料段需要严格控制，温度太高物料处于熔融堵料，温度太低不利于螺杆喂料的稳定。

挤出机冷却用水要求：

水的纯度： 无污染，无石灰质

水　　压： 0.5－0.9MPa

水　　温： 10－20℃

Maintenance of 3, heating coil and cooling fan

The heating ring and fan are important parts to maintain the thermal balance of the extruded unit and guarantee the stable work of the extruder. At each temperature increase, the error of the heating temperature control meter and the measured temperature of the corresponding heating ring. If the temperature difference between the two is great, the reasons must be carefully investigated and analyzed and processed according to the actual situation. When the fan temperature exceeds the set temperature, the cooling fan will start, and the operation of the fan can be checked. If problems are found, they should be eliminated in time.

3.1.4.5. Cooling water sleeve

The feeding housing of the extruder is equipped with cold water and cooled by water. The cold water device is cleaned with high-pressure water every six months to remove the impurities in the water jacket and improve the cooling effect. The

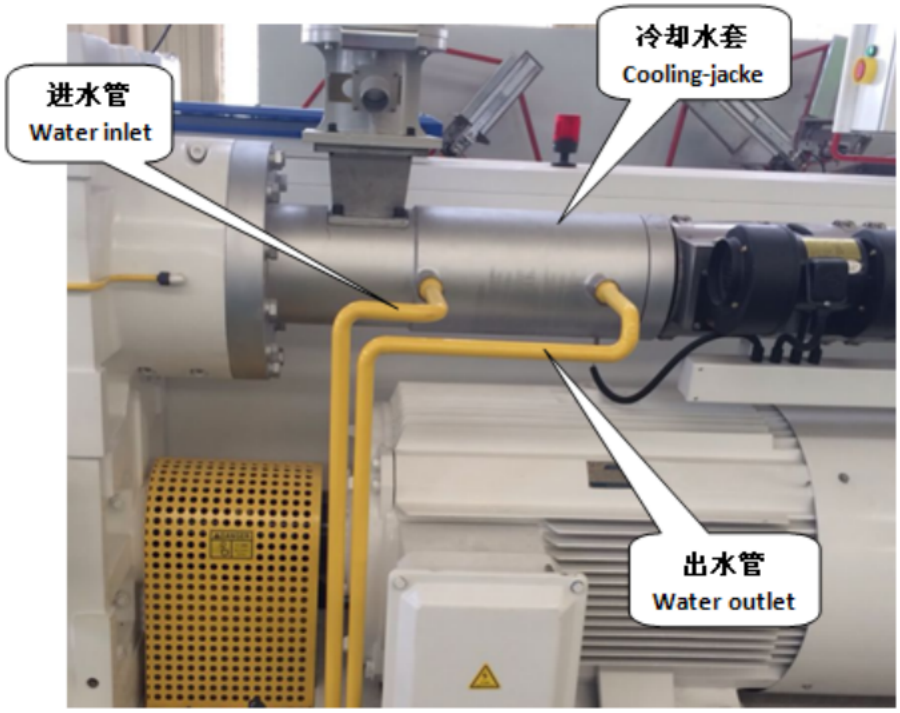
cooling water jacket is the key part of the cylinder feeding section, and the feeding section is also the key part of the whole extruder, which directly affects the operating condition of the screw and the output of the extruder. Therefore, the feeding section needs to be strictly controlled, the temperature is too high, the material is in the melting and blocking material, the low temperature is not conducive to the stability of the screw feeding.

Requirements for cooling water for the extruder:

Water purity: pollution-free, lime-free

Water pressure: 0.5-0.9MPa

Water temperature: 10-20 ℃



3.1.4.6、联轴器的维护保养

联轴器在长时间的运转中会因设备的振动，而使电机和减速箱相对位置的产生改变，从而导致联轴器的错位、弹性体磨损，影响传动的平稳。所以，每隔 3 个月就应检查联轴器的同轴度、弹性体的磨损情况，以便调整联轴器或更换弹性体。

3.1.4.6. Maintenance of the couplings

During the long operation of the coupling, the relative position of the motor and the deceleration gearbox will change due to the vibration of the equipment, resulting in the dislocation of the coupling, the elastomer wear, and affecting the stability of the transmission. Therefore, check the wear of the coupling and the elastomer every 3 months to adjust the coupling or replace the elastomer.

注意：在使用过程中禁止拆开防护罩，以免转动部件伤人！

在检修过程中拆开防护罩后，检修完成时请务必装好防护装置！Note: Do not open the shield during use to avoid rotating parts!

After removing protective shield during maintenance, please install protective devices after maintenance!

梅花联轴器的安装：

1. 安装前应首先检查电机和齿轮箱两轴是否同心，两轴表面是否有碰伤，梅花联轴器两个半联轴节内孔是否有杂物，内孔棱边是否有碰伤、如有应将轴、半联轴节清理干净，碰伤用细锉处理好， 然后检查两个半联轴节的内孔直径和长度是否同电机、齿轮箱的直径和轴伸长度尺寸相符，通常情况下，电机和齿轮箱端半联轴节长度小于其轴伸长度 2mm。

2. 为了便于安装，最好是将两个半联轴节放在 120—150℃的保温箱或油槽中进行预热，使内孔尺寸涨大方便装入。安装后保证轴头不能凸出半联轴节端面，以齐平为好。检测两半联轴节之间的距离：沿半联轴节的法兰盘两内侧测出 3--4 点的读数取平均值，及加长段与两个膜片组实测尺寸之和，两者误差控制在 0—0.4mm 范围之内。

3. 找正：用百分表检测两半联轴节法兰盘端面和外圆跳动，当法兰盘外圆小于 250mm 时跳动值应不大于 0.05mm；当法兰盘外圆大于 250mm 时，跳动值应不大于 0.08 mm。

4、实践证明，如按说明及要求进行安装、维护、操作、梅花联轴器的日启动次数在 1--5 次,弹性垫的使用寿命最少 3 年以上，如不按要求进行安装、维护、操作，原动机与工作机两轴轴心偏移过大都会使弹性垫提前损坏。

梅花联轴器的拆卸：

1、 在梅花联轴器拆卸前，要对联轴器各零部件之间互相配合的位置作一些记号，以作复装时 的参考；

2、 在梅花联轴器拆卸过程中，最困难的工作是从轴上拆下轮毂。对于键联接的轮毂，一般用三脚拉马或四脚拉马进行拆卸。选用的拉马应该与轮毂的外形尺寸相配，拉马各脚的直角挂钩与轮毂后侧面的结合要合适，在用力时不会产生滑脱想象。这种方法仅用于过盈比较小的轮毂的拆卸，对于过盈比较大的轮毂，经常采用加热法，或者同时配合液压千斤顶进行拆卸；

三角拉马如图：

Installation of the plum blossom coupling:

1. Before installation, first check whether the motor and the gearbox are concentric, whether the surface of the two axes is touched, whether the inner holes of the two semi-coupling are sundries, whether the edges of the inner holes, and if the shaft should be cleaned with a fine file, and then check whether the diameter and length of the coupling are consistent with that of the motor and gearbox. Generally, the length of the motor and gearbox end is less than 2mm.

2. For easy installation, it is best to put two half coupling in a 120-150-150 ℃ insulation tank for preheating, so that the size of the inner hole increases and convenient for loading. After installation, ensure that the shaft head can not bulge the semi-joint end surface, in flush. Check the distance between the two half coupling: measure the average reading of 3-4 points along the two inner sides of the flange of the half coupling, and measure the sum of the extension section and the two diaphragm groups, and the error is controlled within the 0—0.4mm range.

3. Correction: detect the end surface of the two half joint flange disc with the percentage table. When the beating value of the outer flange disc is le

ss than 0.05 mm; than 250mm. When the outer circle of the flange disc is greater than 250mm, the beating value shall be not greater than 0.08mm.

4. Practice has proved that if the installation, maintenance, operation and plum coupling start 1- -5 times, the service life of the elastic pad is at least 3 years, if the installation, maintenance and operation as required, the offs et of the two shaft axis of the original motor and the working machine will mostly damage the elastic pad in advance.

Disassembly of the plum blossom coupling:

Before the disassembly of the plum coupling, mark the position between the parts of the coupling for reference when refitting;

The most difficult work during the removal of the plum blossom coupling is to remove the hub from the shaft. For the key-connected hub, generally u se a tripod or quadrufoot horse for disassembly. The selected pull horse sh ould be matched with the appearance size of the hub. The right Angle hoo k of each foot of the pull horse and the combination of the rear side of the hub should be appropriate, which will not produce sliding imagination when exerting force. This method is only used for the disassembly of hubs with

small surplus, for wheels with large surplus, often use heating method, or with hydraulic jack at the same time;

Triangle horse as shown:

3、对梅花联轴器的全部零件进行清洗、清理及质量评定是联轴器拆卸后的一项极为重要的工作。零部件的评定是指每个零部件在运转后，其尺寸、形状和材料性质的现有状况与零部件设计确定的质量标准进行比较，判定哪一些零部件能继续使用，哪一些零部件应修复后使用，哪一些属于应该报废更新的零部件。

3.1.5、挤出单元的安全保护

挤出机在正常工作时，存在高温和高速转动的危险。在接近高温部件作业时，需穿戴防高温服、防高温手套，以及穿防滑靴。电机与减速箱连接部分是高速旋转的联轴器，在联轴器罩不再正常位置或没有牢固地固定在机架上，不允许启动挤出机。

3.2、换网单元基本参数、液压站及安全操作指导 详见（附带说明书）

液压换网系统广泛应用于各类塑料制品挤出，塑胶制粒等领域，完美的设计和精心的制作让产品的性能值得信赖，多种可供选择的结构形式和规格型号，最大程度满足客户的需求。

PET 所使用的换网器为双工位柱式换网器，该换网器主要有以下优点：

1. 无机械密封结构，保证在高压、高温状态下不渗料。有效降低换网阻力，减小液压系统的工作压力

2. 优质合金钢经氮化处理，大幅延长产品使用周期；

3. 整体式工程油缸，使用寿命更长久；

4. 交替式工作模式，能保证在换网过程中的料流连续、稳定以及工艺参数的可重复性；

5、经过流变优化后的蜂窝板，有效降低了挤出过程中流体剪切；

6. 配合行程位置传感器，换网更精确，更可控。

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6. 配合行程位置传感器，换网更精确，更可控。

3.2.2 换网单元的基本组成

换网器主要由换网器本体、柱塞、金属过滤网、多孔板、液压缸组成。具体如下图：

3, ' s cleaning, cleaning and quality evaluation of all parts of the plum blossom coupling is a very important task after the removal of the coupling. The evaluation of components means that the existing conditions of the size, shape and material nature of each part are compared with the quality standards determined by the component design to determine which parts can continue to use, which parts should be repaired, and which parts should be scrapped and updated.

3.1.5. Safety protection of the extrusion unit

The extruder is in danger of high-temperature and high-speed rotation. When working near high temperature parts, wear anti-high temperature clothing, gloves, and anti-skid boots. The motor connection part to the reduction box is a high speed rotating coupling that is not allowed to start the extrusion machine when the coupling cover is no longer normal or not firmly secured to the frame.

3.2. See basic parameters of network changing unit, hydraulic station and safety operation guidance (attached instructions)

Hydraulic network changing system is widely used in all kinds of plastic products extrusion, plastic granulation and other fields, perfect design and careful production make the performance of the product reliable, a variety of optional

structural forms and specification models, to meet the needs of customers to the greatest extent.

The network changer used by PET is a duplex column network changer, which mainly has the following advantages:

1. has no mechanical sealing structure under high pressure and high temperature. Effectively reduce the mesh change resistance and reduce the working pressure of the hydraulic system

2. high-quality alloy steel after nitride treatment, greatly extend the product service cycle;

3. integral engineering cylinder with longer service life;

4. alternating working mode can ensure the continuous, stability of the material flow in the changing process and the repeatable of process parameters;

5, optimized honeycomb plate, effectively reduces fluid shear during extrusion;

6. with travel position sensor, network change is more precise and more controllable.

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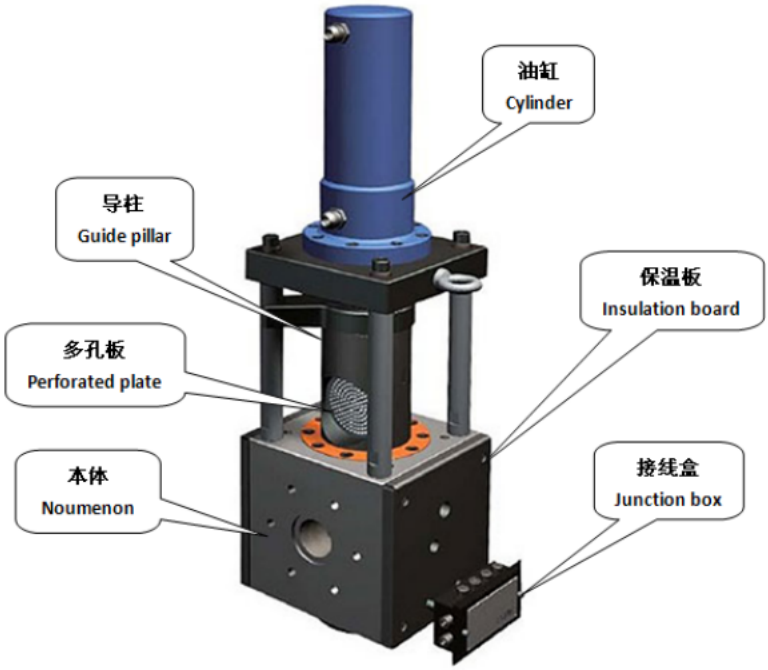
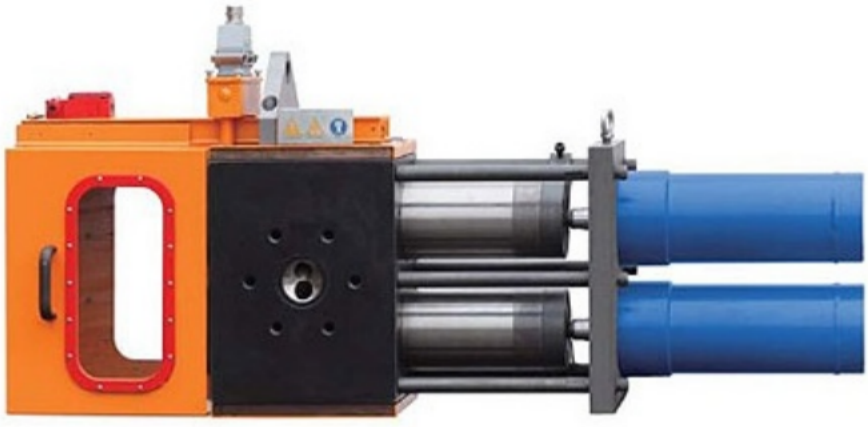
Basic composition of 3.2.2 network changing unit

The net changer mainly consists of the net changer body, plunger, metal filter net, porous plate and hydraulic cylinder. The specific figure is shown below:



单柱式换网器 Single-column net changer



双柱式换网器 Double-column mesh changer

3.2.3、换网器使用说明

在工作区域内可放置不同目数和数量的过滤网，放置的网片数及目数对挤出压力和流量有直接影响，操作者可根据自己的实际生产情况而定。在换网器正常工作过程中，随着滤网前杂质的积累，压力会慢慢上升，当达到一定压力时我们需要进行换网操作（可根据自己的生产经验决定换网压力，但换网压力建议低于 16MPa），具体操作步骤如下：

1. 启动液压站、调节压力阀使液压站的系统压力达到 16Mpa 左右；
2. 待液压站系统压力稳定后，按下液压缸启动按钮；
3. 液压缸到位后，用铜铲将需要更换的滤网铲除，并去除柱塞上的遗留熔体；
4. 将事先准备好的滤网装入网孔，按压平整；
5. 关闭液压站。

3.2.3, network changer

Filters of different entries and quantities can be placed in the working area, and the number of mesh pieces and entries placed can have a direct impact on the extrusion pressure and flow, and the operator can decide according to their actual production situation. During the normal operation of the network changer, the pressure will slowly increase with the accumulation of impurities before the filter screen. When a certain pressure is reached, we need the network replacement

operation (the replacement pressure can be determined according to our own production experience, but the replacement pressure is less than 16MPa). The specific operation steps are as follows:

Start the hydraulic station and adjust the pressure valve to make the system pressure of the hydraulic station reach about 16Mpa;

After the pressure of the hydraulic station system stabilizes, press the hydraulic cylinder start button;

After the hydraulic cylinder is in place, remove the replacement filter screen with a copper shovel and remove the remaining melt on the plunger;

Install the prepared filter screen into the mesh hole, press and flat;

Close off the hydraulic station.

注意事项：换网时滑柱运动很快，并且会存在少量高温熔体流出，所以换网过程中存在高温烫伤危险，因此换网过程中，操作人员不得处于滑柱下方，在换网结束后，应快速更换滤网并清理滑柱熔融物料，清理物料时必须戴耐高温手套。Note: change the network column movement quickly, and there will be a small amount of high temperature melt outflow, so the risk of high temperature scald in the process, so the operator shall not be under the slide, after the end of the network, should quickly replace the filter screen

and clean the column melt material, cleaning the materials must wear high temperature gloves.

技术参数 Technical parameter

型号 Model	产量 (Kg/h) Output	滤网规格(mm) Filter size	过滤面积 (mm^2) Filtration area	最高承压 (Mpa) Withstanding pressure	温控分区 Heating zone	加热功率(KW) Heating power
JW-SZ-50	50-150	Φ55	1960X2	40	2	7.5
JW-SZ-70	80 - 150	Φ75	3850X2	40	2	7.5
JW-SZ-100	150 - 380	Φ105	7850X2	35	2	9
JW-SZ-120	350 - 700	Φ125	11300X2	30	2	13.5
JW-SZ-150	400 - 1000	Φ155	17670X2	28	2	15
JW-SZ-180	700 - 1500	Φ185	25440X2	25	2	18

3.3、液压站主要参数和使用说明 Main parameters and service instructions of the hydraulic station

1、概述

本液压系统采用了蓄能器以在短时间内供应大量的压力油，实现系统的快速运动。采用手动换向阀实现系统执行元件的不同方向的运动。

2、主要技术参数

系统最大压力：16MPa（蓄能器限压）

控制回路电压：220V

3、 液压站结构图以及其工作原理图

1, Overview

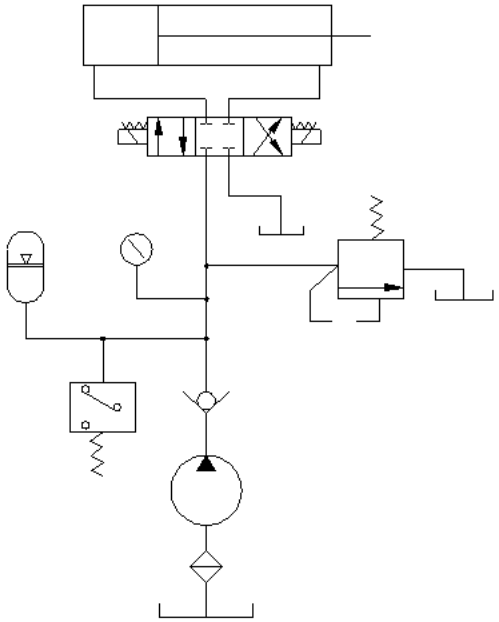
The hydraulic system adopts an accumulator to supply plenty of pressure oil in a short time to achieve rapid movement of the system. Use the manual reversing valve to move in different directions of the system actuator.

2. Main technical parameters

System maximum pressure: 16MPa(accumulator pressure limit)

Control circuit voltage: 220V

3. Structure diagram of the hydraulic station and its working principle diagram



液压原理图

4、液压站使用说明

1）首次使用前准备工作

首先加入液压站规定的工作介质，加入时应经过过滤器，过滤器精度不得低于液压站设计规定的过滤精度。注入油量 70L～80L 为宜，也可视液位计，油位应位于液位计 80％左右。介质建议使用 46 号抗磨液压油，清洁度为 8-9 级（NAS1638）25～54CST，实际使用可参考《机械设计手册》第五卷《介质》篇章。不能混合使用不同种类的液压油。

A、按照原理图安装好液压系统，确认无误。接入电源线时应注意电机的旋转方向。开机前，先用手转动电机，确定无故障后，点动电机，待确定电机旋向正确后，才能正式启动电机。（以电机或泵上的旋向标志为准）

B、调试，调节压力继电器至工作压力，注意压力继电器的工作压力不得高于蓄能

器的限压（本液压站系统蓄能器限压为 16MPa），并调节溢流阀压力使其压力高于压力继电器设定压力的 5%。调节系统压力时，应先调节溢流阀的压力，再调节压力继电器的压力，调节溢流阀压力时，压力继电器应先断电再调节，根据实际需要按调节手柄上的压力增减指示标识，左旋或右旋以调低或调高系统压力以满足要求。调整完毕后，按照上述的调节方法调节压力继电器，溢流阀的压力应高于压力继电器设定压力的 5%。

a.开机前空转 5～10 分钟，然后调节泵的压力，调节时需慢慢将压力升高，待压力至工作压力稳定后，锁紧调压螺母。

b.不工作时换向阀要回到中位，油缸处于轻载状态。

c.停机四小时以上时，应空载运行 5～10 分钟，再加载运行。

2）使用说明

A、当需要液压站工作时，请先看压力表的压力显示是否达到工作要求，如果压力小于工作压力，请接通电源，按下电磁启动器启动按钮（绿色）以启动电机和泵对蓄能器蓄能，当压力达到设定值时，压力继电器会自动发出信号使电机停止工作。

B、按下电控箱上的电磁阀启动按钮使其至左位或右位（视实际液压缸的接入状态和工作需要而定）。

C、当执行元件达到指定位置后，按下电磁换向阀的复位按钮使其回到中位，为下一个工作循环做准备。

D、切断电源

5、系统维护

- 未停机停电泄压时禁止检修；
- 更换密封件时不得使用锐器，不得损伤损坏密封件；
- 不允许在蓄能器上进行焊接和加工，维修不当可能造成重大事故，如检查是蓄能器的问题应及时送回制造厂修理；
- 电机维修时注意接线顺序，保证电机的实际旋转方向和标示方向一致；
- 随时检查系统压力是否稳定在规定范围内；
- 注意系统工作时有无异常响声；
- 本液压系统安装时应特别注意避免热能的污染。油温是否在规定的范围内（30℃～55℃），一般不得超过 60℃。若油温过高应停机查找原因；
- 电源电压应保持稳定，其波动值不超过额定电压的 15%；
- 定期检查液压站运转情况及泄漏油情况，液位低于油标的 80%时要及时补油；
- 定期更换工作介质（第一次为半年，以后每年一次）和滤芯，滤芯视工作、环境和堵塞情况而定，一般为 3～6 个月；
- 不能在无压力表的情况下调节压力，压力表损坏后要及时更换；
- 及时处理系统的内外泄漏；
- 电气控制系统保持清洁干燥；
- 拆装液压元件时，要保持元件清洁，防止灰尘、异物污染液压油；

- 检修完毕确认无误后进行开机调试。操作步骤应严格按照使用说明；
- 任何不正当的维修和操作所引起的系统元件损坏或者系统故障，本公司将不负任何责任。

6、注意事项

- 油温过高（大于 60℃）或过低（小于 15℃）应停止使用；
- 油箱中油量过少应停止使用；
- 如果出现喷油或泄漏严重，严禁在工作中维修；
- 液压系统出现故障时，应及时通知维修人员维修，不得带故障操作；
- 系统尽量避免带负载启动。

7、常见故障与排除

- 系统无压力或压力异常；
- 检查电机旋向是否正确；
- 检查溢流阀调压是否正常；
- 检查压力继电器是否正常；
- 检查油箱油液是否有足够量（看液位计）；
- 检查油泵是否工作正常；
- 系统内外泄漏严重；

- 检查液压油中是否混入空气；
- 检查蓄能器是否失效；
- 吸油管或滤油器堵塞可引起系统压力不足；
- 系统噪声和振动大；
- 电机振动，轴承磨损引起振动；
- 系统管路松动引起振动和噪声；
- 油泵吸入空气时会产生噪声；
- 阀换向引起的压力急剧变化和生产的液压冲击等产生的管路冲击噪声和振动；
- 系统温度过高；
- 周围环境温度高，散热不好；
- 油液型号不当、粘度大则粘性阻力大，粘度小则泄漏量大；
- 油泵吸油不畅或系统回油不畅，过滤器堵塞；
- 油泵内泄漏大；
- 油缸不动作或爬行；
- 检查系统压力是否正常；
- 换向阀是否工作正常；

- 系统中混入空气产生爬行；
- 机械方面是否卡死。

8、 定期检查和维护

4, Hydraulic Station

1) Preparation before the first use

First add the working media specified of the hydraulic station, which shall be passed through the filter, and the filter accuracy shall not be lower than the specified filter precision of the hydraulic station design. The injection amount of 70L~80L and visible liquid level gauge shall be about 80%. Medium recommended 46 wear hydraulic oil with cleanliness of Class 8-9 (NAS1638) 25~54CST, is refer to Volume 5, Mechanical Design Manual. Different types of hydraulic oil should not be mixed together.

A, Install hydraulic system according to schematic diagram for confirm. Pay attention to the rotation direction of the motor when accessing the power cable. Before starting the motor, turn the motor by hand and click the motor after determining no fault and officially start the motor until the rotation is correct. (Whichever is the rotation mark on the motor or pump)

B, commissioning, adjust the pressure relay to the working pressure, note that

the working pressure of the pressure relay shall not be higher than the pressure limit of the accumulator (16MPa in the hydraulic station system), and adjust the overflow valve pressure to be 5% above the set pressure of the pressure relay. When regulating the system pressure, adjust the pressure of the overflow valve, then adjust the pressure of the pressure relay. adjust the overflow valve pressure, the pressure relay should be cut off and then adjusted. According to the pressure increase and decrease indication on the adjustment handle, left or right to lower or raise the system pressure to meet the requirements. After the adjustment, the pressure relay shall be adjusted according to the above adjustment method, and the pressure of the overflow valve shall be 5% of the set pressure of the pressure relay.

a. idle 5~10 minutes before starting on, then adjust the pressure of the pump and raise the pressure slowly. Lock the pressure regulating nut after the pressure reaches the working pressure.

Return the reversing valve to the center when the b. is not working and the cylinder is in light load.

When c. is down for more than four hours, run 5~10 minutes and then load.

2) Use instructions

A, When the hydraulic station is required, first see whether the pressure display of the pressure gauge meets the working requirements. If the pressure is less than the working pressure, turn on the power supply and press the electromagnetic initiator start button (green) to start the motor and pump on the accumulator. When the pressure reaches the set value, the pressure relay will automatically signal the motor to stop working.

B, Press the solenoid start button on the electrical control box to get it to the left or right position (depending on the actual access status and operating needs of the hydraulic cylinder).

C, When the actuator reaches the specified position, press the reset button of the solenoid reversing valve to return it to the middle position to prepare for the next working cycle.

D, Power off

5. System maintenance

Maintenance is prohibited when the power failure is not stopped;

Do not use the sharp device when replacing the seal, do not damage the seal;

Welding and processing on the accumulator are not allowed, and improper maintenance may cause major accidents, if the accumulator for inspection shall

be returned to the manufacturer for repair;

Pay attention to the wiring order during motor maintenance to ensure the actual rotation direction of the motor and the marked direction;

Check whether the system pressure is stable within the specified range;

Pay attention to the abnormal noise of the system;

Special attention shall be paid to avoid thermal pollution during the installation of this hydraulic system

检查项目 inspection item	检查周期 Inspection: Cycle	检查方法及标准 Inspection method and standards
泵的噪声 Pump Noise	1 / 季 season	一般的标准 7Mpa≤75db(A)、14Mpa≤90db(A)使用噪声检测仪 General standard 7Mpa ≤ 75db (A), 14Mpa ≤ 90db (A) using a noise detector
压力表压力测量	1 / 年 year	用标准表检测 Test with standard table

Pressure gauge pressure measure ment		
蓄能器充气压力 Accumul ator inflation pressure	1 ／年 year	用带压力表的充气装置检测，检测标准应保持规定压力 Accumulator inflation pressure
油液的污染状况 Pollution status of the oil fluid	1 ／季 season	用专用仪器检测，检测标准按 NAS1638 或 ISO4406 标准应在 9 级以上 Accumulator inflation pressure
油箱液位	1 ／季	目视液位计，标准液位不得低于液位计 80％Visual level

Oil tank liquid level	season	gauge, the standard level shall not be less than 80%

3.4、模具单元基本参数及安全操作指导 Basic parameters of the mold unit and safe operation guidance

3.4.1 模具的基本参数 Basic parameters of the die

模具类型：衣架式流道模具

模具宽度：1250mm 带 150mm 单边挡边

制品规格：L=1150mm，δ=0.2-1.0mm。

Mold type: clothes-hanger-type flow channel mold

Mold width: 1250mm with 150mm unilateral edge

Product specification: L=1150mm,δ=0.2-1.0mm

3.4.2 模具的运输和包装 Transportation and packaging of the molds

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。

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。

如果包装受到损坏：

· 检查设备的外观是否受到损坏

· 拍摄所有损坏、损伤的部位

假如设备在运输时受到损坏：

· 尽快联系营运商

· 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)

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：

· 使用专业生产包装产品的厂家生产的包装件

· 每种分类零件都放置在同一个箱子里，以防遗失。

设备不允许露天放置。

推荐的室内存放环境：

·温度： 5ºC 至 50ºC

·湿度： <70%

3.4.3 模具的吊装

吊装示意简图：

The equipment must be carefully inspected and packaged before transportation, even so, improper transportation may damage some parts.

When receiving the product, check whether the shipment list and the package are intact.

If the packaging is damaged:

Check the equipment appearance for damage

Shooting all damaged and damaged parts

If the equipment is damaged during transportation:

Contact the operator as soon as possible

Keep the packaging materials (for the operator to return the equipment to the Company for inspection)

Use original packages and materials when shipped back for maintenance. If none of the above packages are unavailable, do so as follows:

Packaging parts manufactured by the manufacturer using specialized packaging products

Each classified part is placed in the same box in case of loss.

Equipment is not allowed in the open air.

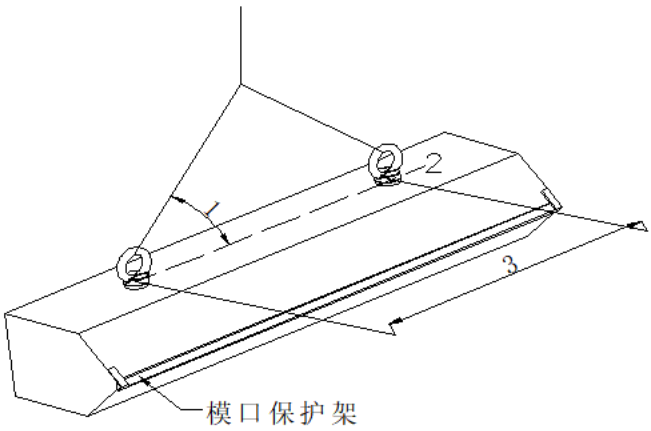
Recommended indoor storage environment:

Temperature: 5oC to 50oC

Humidity: <70%

3.4.3 Hofting of mold

Brief drawing of hoisting diagram:



·标号 1 的角度不应小于 60°；

·吊装的高度不宜超过标号 2 的中心线的目视水平高度；

·标号 3 所指的两个吊环应大致水平。

注意：

The angle of number 1 shall not be less than 60;

The height of lifting should not exceed the visual level height of the center line of standard 2;

The two rings indicated number 3 shall be roughly horizontal.

Note:

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 mold designed by the company is equipped with lip protection frame during mold transportation. please pay attention to removal and preservation. Do not touch the mold lip during disassembly, because the mold lip is a very important part of the whole equipment, any slight damage in the mold lip may affect the quality of the product.

3.4.4 模具的操作 Operation old operation

注意所有的安全警告

·操作者应明确吊装模具用的起吊装置的极限起吊重量。

·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。

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)

·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)

·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。

·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。

·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。

·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。

·当模具加热到操作温度时至少保温一小时再进行生产。

·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。

·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。

·当完成了上述的准备过程之后，就可以进行生产了。

3.4.5 推出式模唇调节系统

Note all safety warnings

The operator shall specify the ultimate lifting weight of the lifting device used for lifting the mould.

The operator shall make clear that the equipment works at an extremely high temperature and shall wear enough protective equipment in the hands, arms and face.

The attached page describes the part description and quantity of this auxiliary mold for user reference. (We recommend the user to check that the spare parts match the instructions first)

This mold is used with a high temperature lubricant during packaging. In the packaging box, there are power wires, lifting rings and various kinds of disassembly tools. (Will be told to the user by shipping list)

Lift the mold out of the box using a lifting ring. And pay attention to the protection device of the mold lip.

Place the mold on the mold (bracket) trolley, and carefully adjust the height to make the mold to the connector connect smoothly. The stability of the mold trolley directly affects the use of the mold.

Connect the power cord and thermocouple and check for each power cord and thermocouple.

Check the control structure for correct standards and connection and check for proper temperature setting. Heat the mold and the distributor to the operating temperature.

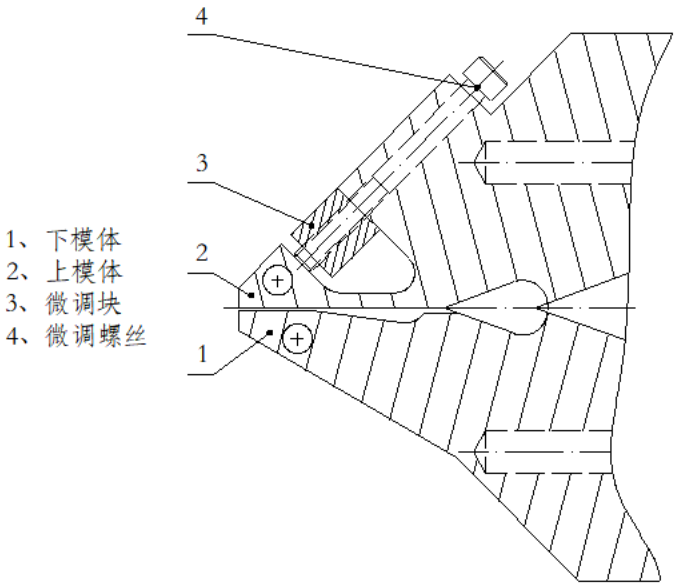
Heat heat for at least one hour when the mold is heated to operating temperature.

Resighten the screws for each part of the heated mold at the given torque of the various screws. Note: the process of tightening the specific large screws should be according to the following order, the screws in the middle of the mold are screwed first and then operated to the two ends in turn, and the left and right sides should be conducted alternately. The fine tuning screws of the initial mold lip shall remain in contact and relaxed.

This mold is designed with elastic mold lips and throttle rods which are assembled at the maximum opening, which can be measured and resized with soft gap (including Al, brass, etc.) as required.

When the above preparation process is completed, the production is possible.

3.4.5 Launch-mode lip adjustment system



·安装

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)

·操作

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。

3.4.6 保养和维护

A. 一般的清理和维护

注意:

Installation:

Install the M10 (M12) trim screw into the mating hole of the upper mold and then screw into the trim block until the screw slightly contacts with the upper mold. (The tuning screws shall be kept in slack)

Operation

Uncrew the adjustment screws with the equipped "T" -shaped wrench, and do not adjust the mold lip adjustment screws with a booster bar or a large wrench. Replace the damaged adjustment screws and the fine-tuning screws in time. Use the "T" -shaped wrench to adjust the fine-tuning screw to bring the mold lip opening gap to the designed preset value. Use the meter to measure the opening during the initial adjustment and adjust the tuning screw until the opening is the design preset. Then adjust (right) tuning screw adjusts the entire width opening size using a copper gauge (design opening size) test. It is not adjusted until the entire opening width is uniform and meets the design requirements. And check that each tuning screw is contact with the mold.

3.4.6 Maintenance and Maintenance

General cleaning and maintenance

Note:

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。

·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

·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。

·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。The maintenance operations described in this manual are only for those qualified technicians or technicians.

Complete cleaning of mold equipment when replacing production products and during each shutdown overhaul is necessary

Please note that the removal and destruction of any resin and lubricant material must be performed in accordance with the local environmental protection regulations.

The operation of the equipment and the cyclic operation of the

temperature level and the equipment vibration may cause the loosening of some connecting screws and joints. To avoid damage to these parts, each connecting screws and joints shall be inspected by the equipment maintenance personnel at each break.

B. 关机过程 Shutdown process

警告 warn；caution；admonish；warning；admonition ：

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。

关闭机器

·将主控电源开关转至“OFF”位。(将主电源切断)

·检查整个电路是否已经断电。

All cleaning, maintenance, and repair work must be carried out with the shutdown process described below.

Turn off the machine

Turn the master power switch to the "OFF" bit. (Cut off the main power supply)

Check the entire circuit for power off.

C. 拆卸和清理 Removal and cleaning

拆卸场地和准备工作

·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。

·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。

·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。

·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。

·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。

·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。

·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。

Removing site and preparation work

The extrusion shall be removed, cleaned, overhauled and maintained in special locations. This place should be fully far away from the "coarse parts" production area. The work site shall be kept clean and padded with corrugated or rubber panels.

Various tools (screwdriver, wrench), soft scratch blades (brass, soft aluminum products), cleaning and polishing materials, and preheating devices as possible with extruded mold shall be provided in the work area.

The extrusion mold shall be removed while hot and must work quickly to avoid premature cooling. When the extrusion mold is still on the extruder, heat the mold head temperature to about 20 ℃ higher than the production temperature, then stop heating and disconnect all power supplies, quickly unscrew the screws on the side plate, and remove the side plate. While the

mold is still in the high temperature state, release the fastening screws for the upper and down the mold and the connection screws to the host. Later, lift the upper mold and put it in the nearby working area, and quickly clean the upper and lower mold. The channel must be cleaned with a soft scraper or copper brush to clean any residual resin in the channel, with paraffin or related solvents, do not use steel appliances.

After the mold cooling, the mold flow path and sealing ring shall be cleaned and polished by soft scraper, fine abrstone and gold sand paper, and other surfaces of the mold shall be cleaned with soft scraper and fine sand paper above 240 #. Clean up the residual resin for each assembly contact and non-contact surface.

Reassembly can be performed after all the above works are completed. If the smoothness of the mold flow channel shall be checked before assembly, the minor scratches must be removed, and the more serious damage shall be sent back to the factory for repair.

Before the formal assembly of the extruded mold, it is best to apply the flow path with a thin layer of silicone fat, such as molybdenum stone or graphite fat, to ensure that the extruded mold is very convenient during the work process

and later when the disassembly.

During assembly, we should note that each assembly dimensions meet the assembly requirements. After positioning, tighten the connecting screws when the mold is cooling. When the mold is connected to the extrander and warmed to the operating temperature.

注意 note：

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。Be sure to carefully check whether the connection of each power cord is correct before heating the mold. Also, the thermocouple must be corrected for the

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 recommend that the mold should be completely removed, cleaned, and the relevant equipment inspected after about six months of use. All possible faulty parts (screws, bolts, heating rods, leads, etc.) shall be replaced. However, the specific maintenance and maintenance interval shall be based on the production cycle of processed raw materials

D. 调试常见问题及处理和注意事项 Common oning problems and handling and considerations

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。

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。

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。

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。

在调节模具时，应注意各区的调节过渡，防止调节螺栓咬死。

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。

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。

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。

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出机螺杆的使用寿命，也影响产品质量。

E. 安全警告

在接通电源前，确信地线已接地，否则不允许接通任何电源。

The most likely problem in the extrusion mold in the production process is the uneven extrusion, affecting the quality of the product, and even the debugging of qualified products. There are various reasons for the uneven extrusion, such as the temperature control, the raw material formula, the extrusion pressure of the extruder, and the result of the comprehensive influence of all factors.

Now make a few explanations on these general issues and explanations. To facilitate the user to reference in the actual production debugging.

Heating and insulation work must be done well before startup, and set the appropriate heating temperature according to the characteristics of the plastic of your product. The temperature and extrusion pressure of each area are uniform, which has an impact on the uniformity and stability of the product extrusion.

In the process of adjusting the temperature, it is noted that the temperature of the thermocouple feedback and the glass thermometer on the mold should not differ too much, generally normal at about 1-2 C, beyond this range, it is likely that the temperature measured by the thermocouple is not the actual temperature of the mold, should be checked to check whether the thermocouple is inserted in place. After the temperature control is uniformly stable, the extruding pressure control of the extruder is also very important.

Generally, when the extrusion is uneven, the fine adjustment bolts are rarely started. After the temperature and extrusion pressure are adjusted uniformly and stable, the adjustment mold is still considered when the extrusion is still fluctuating or uneven.

When adjusting the mold, pay attention to the adjustment transition of each area to prevent the adjustment bolt from biting dead.

The fine-tuning of the mold lip, we should also pay attention to the amplitude

adjustment problem, the adjustment range should not be too large, the flow resistance bar and the mold lip adjustment range should not be greater than 1.00mm. In addition, the adjustment of individual bolts is not allowed during the adjustment, and at least more than 3 fine-tuning bolts should be adjusted in the fluctuation area.

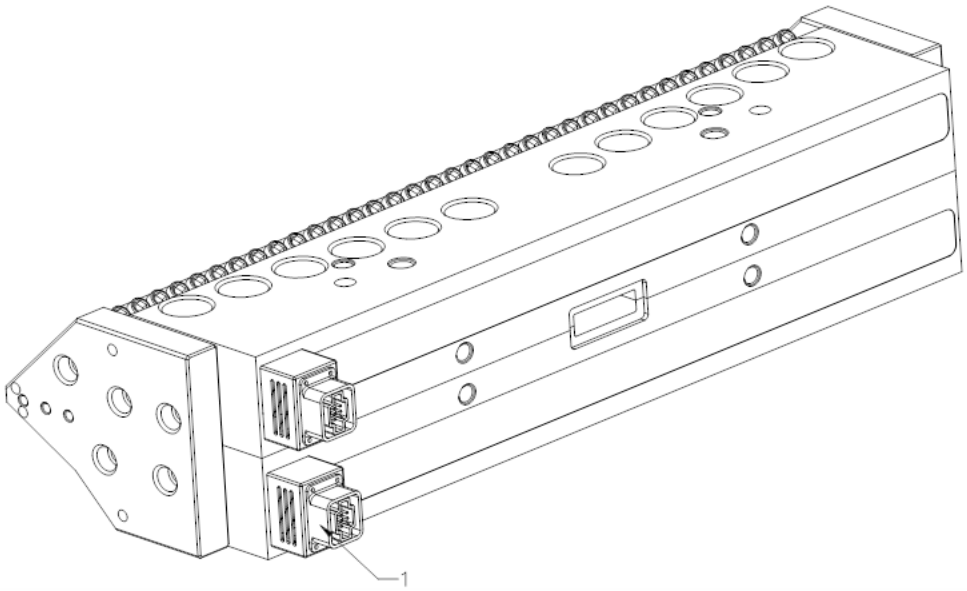
If the above adjustments are commissioned, there are still regular fluctuations or uneven extrusions, it is likely caused by the fluctuations of the extruder or the core of the distributor.

Whether new or old molds, there is a possibility of material leakage problem. When the leakage occurs, the most common reason is that the fastening bolts at the part of the leakage are not tightened, and the old mold may also be removed and cleaned for many times and has damaged the sealing ring. If the leakage is serious, we need to be stopped for maintenance.

In addition, the placement of the mold must be stable and fixed, otherwise the vibration produced during production will affect the service life of the extruder screw and the quality of the product.

Safety warning

Before power, be sure the ground wire is grounded, otherwise no power is allowed.



1-电源接插口 Power supply connector

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 safety warning signs must always remain in its position and any power covers, wire covers, wire guides and plugs shall not be opened when the power cord is on.

3.5、三辊压光单元基本参数及安全操作指导

3.5.1、三辊压光机组成基本参数

三辊压光机主要由三辊压光机、水辊温控制器、液压站组成。

三辊压光机外形及基本参数

辊筒直径：600mm+600mm+400mm 辊筒长度：1300mm

三辊驱动功率：　　4.4kW×3

三辊形式：　　J 三辊

移动电机：　　1.1KW

三辊外形如下图：

3.5 Basic parameters and safety operation guidance of pressing unit of three roller

3.5.1 Basic parameters of three-roller press

The three-roller compressor is mainly composed of a three-roller compressor, a water-roll temperature controller and a hydraulic station.

Outline and basic parameters of the three-roller compressor

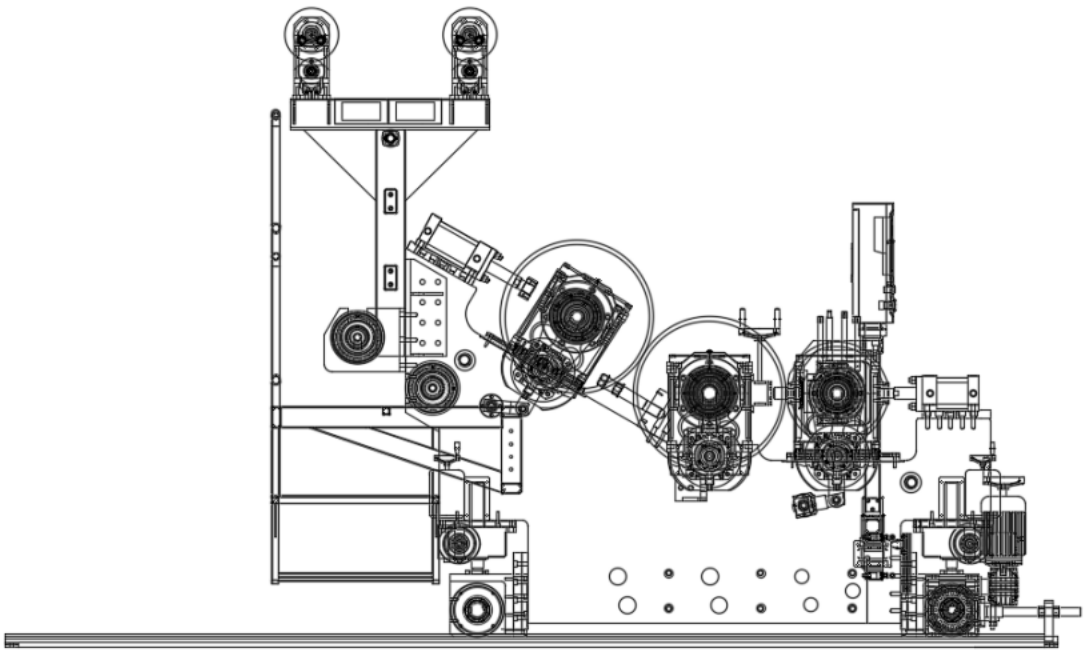
Roller diameter: 600mm 600mm 400mm Roller Length: 1,300 mm

Three-roll drive power: 4.4kW × 3

Three-roll form: J three-rolls

Mobile motor: 1.1KW

The shape of three roll is as follows:



三辊压光单元的吊装和运输 Lifting and transportation of the three-roller optical pressing unit

3.5.2、三辊压光机组成基本参数 Basic parameters of three-roller press

1、吊装

三辊压光机的吊装需用承载 10 吨以上的吊索吊装，在吊装过程中请采取保护措施保护辊筒表面，并在吊带与三辊之间用软质东西隔开，以防止机器表面在吊装过程中划伤和割伤吊带。

2、运输

运输时，必须将三辊压光机牢靠地固定在包装箱中。同时，对三辊的辊筒包裹保护，防止在运输中损伤。

3.5.3、三辊压光单元的就位

三辊压光机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，然后将三辊压光机就位，其中三辊辊面与模具模唇的平行度必须要保证还有模具进三辊的距离要控制好，方便进料、利于工艺工程师的使用。

3.5.4、三辊压光单元结构特点

此三辊压光机采用墙板式卧三辊结构。主要有机架、辊筒、辊筒传动机构、辊距调节机构、三辊移动系统、三辊中心高度调节机构、辊筒温度控制系统等组成。

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。机架结构简易满足设计要求，可承载辊筒，长期不变形，左右墙板对称精度要求高，左右墙板夹在一起加工成型保证精度。

2)、辊筒采用内部采用介质恒温流通，三组辊中，中间辊的轴承固定，只可转动不可移动，辊筒轴承使用的是日本 NSK 优质轴承。辊筒外形图：

1, lifting

The hoisting of the three-roller press should be hoisted by a sling bearing

more than 10 tons. Take protective measures to take during the hoisting to protect the roller surface, and separate the lifting belt from the three rollers, so as to prevent the machine surface from scratching and cutting the lifting belt during the hoisting process.

2. Transportation

During transportation, the three-roller optical press must be firmly fixed in the packaging box. At the same time, the three-roll roller package is protected to prevent damage in transportation.

3.5.3 In position of three-roller pressing unit

The three-roller press is simultaneous with the installation of the whole line. According to the layout drawing of the production line, the guide rail is arranged on the ground according to the foundation drawing, and then the three-roller press is in place, where the parallelism of the three roll surface and the mold mold lip must ensure that the distance between the mold into the three rolls should be controlled, so as to facilitate the feeding and conducive to the use of process engineers.

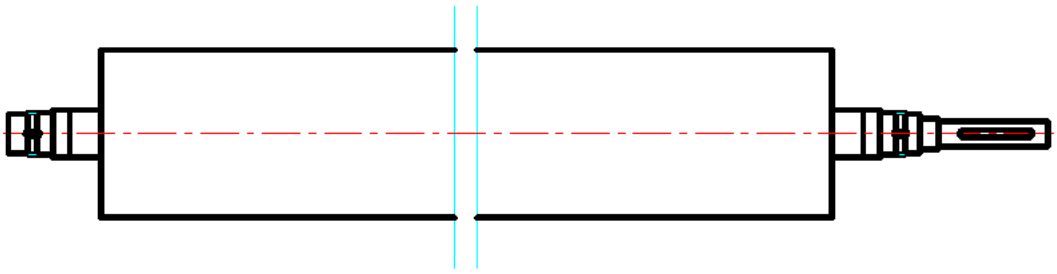
3.5.4. Structural characteristics of the three-roller optical pressing unit

The three-roller press adopts a wall board type horizontal three-roll

structure. Mainly composed of organic frame, roller, roller drive mechanism, roller distance adjustment mechanism, three-roll moving system, three-roller center height adjustment mechanism, roller temperature control system, etc.

1) The frame consists of base and wall board, the base is welded by type steel, and the wall board is the whole. The frame structure can simply meet the design requirements, can carry the roller, long-term deformation, left and right wall plate symmetry accuracy requirements are high, left and right wall board processing together to ensure the accuracy.

2) The roller is circulated by medium constant temperature. In the three groups of rollers, the bearings of the middle roller are only fixed and unmovable. The roller bearings use Japanese high NSK quality bearings. Roll outline drawing:



其中，辊筒为焊接件，焊接严密、辊筒的辊身和内胆都经过调质处理，达到设计的强度和硬度要求；辊身做中频淬火，表面镀硬铬，镀铬后抛光；再做静平衡和动平衡；所以辊筒对加工工艺要求很高，辊面的同轴度、圆柱度、辊面跳动、

光洁度、硬度等等，都必须满足；辊筒也是我们公司优质产品，有十多年的研发，生产实践经验，从研发、材料热处理、金加工生产、到客户使用，有完整生产流程系统，多年来得到用户广泛的好评。

优质旋转接头：

Among them, the roller is a welding part, strict welding, roller and inner bile through the quality treatment to meet the design strength and hardness requirements; the roller body medium frequency quenching, hard chrome plating, chrome polishing; and then static balance and dynamic balance; so the roller processing process is high requirements, coaxial, linarity, roller beating, finish, hardness, etc.; roller is a high quality product of our company, from more than ten years of research and development, material thermal treatment, complete production system, has been widely praised for years.

High-quality rotary joint:

无锡腾旋是研制、开发和生产旋转接头及其相关的高新技术企业。公司长期致力于摩擦技术的研究，在旋转接头领域处于国内领先地位，并拥有多项技术专利。

公司拥有加工中心、数控车床及其专业设备 50 余台套，严格按照 ISO9001 质量规范组织开展生产、销售、服务等业务。并与韩国、美国专业研发机构进行全面技术合作。其产品已在造纸、钢铁、瓦楞、纺织、印染、橡塑、化工等行业得到广泛应用。

腾旋旋转接头拥有先进的平面密封技术、优良的平衡式密封设计、自支撑固定、高精度滚动轴承、不锈钢外管，通用性好、便于互换。

平衡式机械密封：

施加在旋转密封面上的压力越大，则接头产生的接头摩擦、扭矩及磨损就

越大。为此，接头采用独特的“平衡式机械密封”。应用此技术，不考虑介质的压力，推力载荷或密封面接触压力被保证在最低限度。这样即降低了磨损又延长了密封的寿命。对弹簧加载密封进行固定，使其不能产生旋转或蠕动，正是这种旋转或蠕动使辅助密封过早老化，进而使接头产生泄露。

喷涂可对单一金属，合金、氧化物或混合氧化物，硬质合金，以碳化钨或碳化钛为基体的金属陶瓷碰涂，因而可赋予工件表面某些特定性能，如耐磨，耐热抗蚀、抗冲击载荷、导电、绝缘、增摩、减摩等一系列特殊性能。

涂层粉末在高温高速的气流推动下以 800-1200m/s 的速度撞击工件的表面，在熔融涂层粉末沉积处与工件基体形成牢固可靠的结合键，因此涂层与基材的结合强度高，致密度高。

工件受热小，不变形：由于每次爆炸喷涂的过程只有几毫秒，所以工件不会受到连续加热。温升一般小于 100°C，工件不易发生相变和形变。

功能性强，应用范围广：喷涂设备可对单一金属，合金、氧化物或混合氧化物，硬质合金，以碳化钨或碳化钛为基体的金属陶瓷及各种复合材料等进行喷涂，因而可赋予工件表面某些特定性能，如耐磨，耐热抗蚀、抗冲击载荷、导电、绝缘、增摩等一系列特殊性能。

预保护涂层，当由于技术或经济上的原因，单一材料部件难以完全满足严酷的工作条件时，在新工作表面上增设予保护涂层以改变其表面性能往往是最优越

的解决办法，特别是当对工件整体性能要求与表面性能要求有明显矛盾时，制备这种有予保护层的复合材料工件是惟一的解决办法。预保护涂层适用于新部件制备，也适用于某些部件的修复。

磨损部件或超差部件修复，现代机械设备中不少昂贵部件，其整体的工作寿命尚有盈余，但往往因局部磨损即行报废，造成巨大经济损失，喷涂是修复这些部件的唯一手段。在喷涂过程中，工件受热很少，故修复的工件没有相变，也不会有形变，因而特别适宜修复精密机械的部件，此外，喷涂过程无需真空或惰性气体保护，因而对维修部件的尺寸及形状，限制较小，扩大了可修复部件的范围。

修复表面磨损的涂层材料其理化指标一般都明显高于母材，因而修复部件的寿命往往明显超过新工件。

3)、传动机构，辊筒的旋转靠三台伺服电机，通过减速器直接驱动，减速机输出轴为空心轴，空心轴直接套装在辊筒轴端上。

伺服电机使用环境:

减速电机适合在周围环境温度-10°C 到+40°C 条件下运行，海拔高度为 1000 米。

A. 安装

安装传动元件之前，采用适当的方法去掉轴端的保护套，分段安装传动元件到磨过的减速机的输出轴时要非常小心，利用输出轴时要非常当心，利用输出轴端的螺纹孔。最好将传动元件加热到大约 100°C，所有零件需彻底清洁，去毛刺，配合处稍微涂些油脂，避免敲打和用力冲击轴端。

B. 启动检查

- 润滑油检查，通过拧开油位塞螺堵，油应该很轻松流出。
- 拧开适配器的检查螺塞，观察联轴器的爪子边缘是否啮合完整。
- 检查电机轴的旋转方向，尤其是带逆止器。
- 检查带逆止器的最小驱动速度。
- 所有的紧固件是否拧紧。
- 检查减速机的安装形式是否与订货时一致。

C. 润滑

再润滑仅用于垂直安装位置且电机在上的减速电机。最初加油脂的滚子轴承，当采用逆止器接头时就必须采用永久润滑油脂。

D. 维护

泄露检查：每运行 3000 小时或者每隔 6 个月的时间周期，定期检查所有密封，如果泄露必须立即更换。

加脂：每运行 8000 小时或每隔 1 年，给适配器加油脂。

逆止器：逆止器是易损件，每运行 6000 小时或每隔 3 年必须更换，系统操作人员必须采取安全的预防措施，避免逆止器失效可能会导致人身伤害，减速机损坏或应用设施的损坏，在下列条件下必须更换逆止器。

全面检查：减速机规定运行 25000 小时或每隔 5 年后全面检查，所有损件必须按照要求进行检查并更换。

4）、辊筒间隙调节机构

辊筒间隙可以用油缸或者丝杆升降机进行驱动。辊筒间隙调节机构常用有两种方式，微调器控制和细牙螺栓螺母结构，两种方式都有自锁功能，主要功能对辊筒间隙进行限位。

微调器控制：上、下辊筒移动距离由安装在中间轴承座上的微调器控制。利用涡轮蜗杆传动方式，蜗杆用两个圆锥滚子轴承定位，蜗轮中间装配带梯形螺牙的丝杆、并配有导向槽，其中梯形螺牙可限位自锁，主要用于驱动上下辊压制片材，调节间隙。

微调器外形简图：

Wuxi Tengxuan is the development, development and production of rotary joints and related high-tech technology enterprises. The company has long been committed to the research of friction technology, in the domestic leading position in the field of rotary joints, and has a number of technology patents.

The company has more than 50 sets of processing center, CNC lathe and its professional equipment, and organizes and carries out production, sales and service business in strict accordance with ISO9001 quality specifications. And with South Korea and the United States professional research and development institutions for a comprehensive technical cooperation. Its products have been widely used in paper, steel, corrugated, textile, printing and dyeing, oak and plastic, chemical and other industries.

Teng rotary joint has advanced plane sealing technology, excellent balanced sealing design, self-support fixation, high-precision rolling bearing, stainless steel outer pipe, good versatility and easy to exchange.

Balance-type mechanical seal:

The greater the pressure applied to the rotary sealing surface, the greater the friction, torque and wear of the joint. For this purpose, the joint adopts a unique "balanced mechanical seal". Using this technique, regardless of medium pressure, thrust load or seal surface contact pressure is guaranteed to a minimum. This reduces the wear and extends the life of the seal. The spring-loaded seal is fixed so that it cannot produce rotation or peristalsis, which ages the auxiliary seal prematurely and thus leaks the joint.

Spraying can be applied to a single metal, alloy, oxide, or mixed oxide, carbide carbide, based on tungsten carbide or titanium carbide, thus giving the workpiece surface some specific properties, such as wear resistance, heat resistance, impact resistance, impact load, conductivity, insulation, friction increase, friction reduction and more.

The coating powder hits the surface of the workpiece at a speed of 800-1200m/s under the airflow at high temperature, forming a firm and reliable binding bond with the workpiece substrate at the molten coating powder deposition, so the binding strength of the coating and substrate is high, and causes high density.

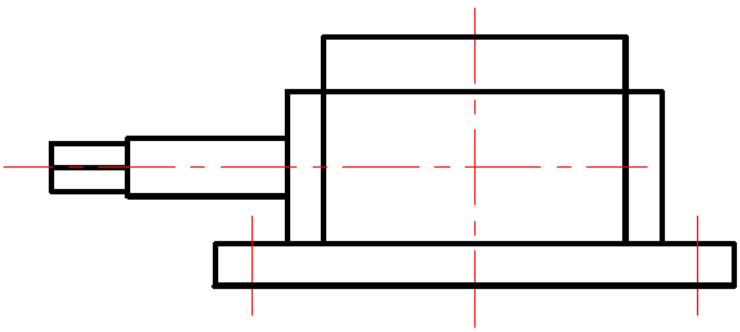
The workpiece is small without deformation: because the process of each explosion spraying is only a few milliseconds, so the workpiece will not be subject to continuous heating. Temperature rise is generally less than 100 C, artifacts is not prone to phase transition and deformation.

Strong functional and wide range of application: spraying equipment can spray a single metal, alloy, oxide, mixed oxides, carbide, tungsten carbide or titanium carbide matrix and various composite materials, thus giving the surface of some specific properties, such as wear resistance, heat-corrosion resistance,

impact load, conductivity, insulation, friction and other special properties.

Pre-protective coating, when a single material component is difficult to fully meet the harsh working conditions due to technical or economic reasons, adding a protective coating to the new working surface to change its surface performance is often the superior solution, especially when the overall performance requirements of the surface performance requirements have obvious contradiction, the preparation of the composite coating is the only solution. Preprotective coating is suitable for the preparation of new parts and also for the repair of certain parts.

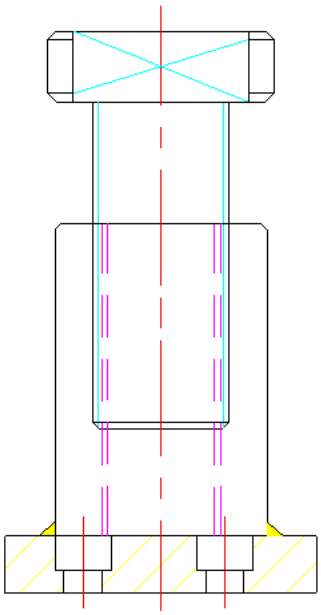
Wear parts or poor parts repair, many expensive parts in modern mechanical equipment, its overall working life is still surplus, but often due to local wear and tear that scrap, causing huge economic losses, spraying is the only means to repair these parts.



细牙螺栓螺母结构：上、下辊筒移动距离由安装在中间轴承座上的细牙螺栓螺母，旋转细牙螺栓调节两辊筒之间的间距，细牙螺栓调节精度高，可限位自锁。

细牙螺栓螺母示意图：Structure of fine tooth bolt nut: the moving distance of the upper and lower rollers is adjusted by the fine tooth bolt nut installed on the middle bearing seat to adjust the distance between the two rollers. The adjustment accuracy of the fine tooth bolt is high, which can be limited to self-locking.

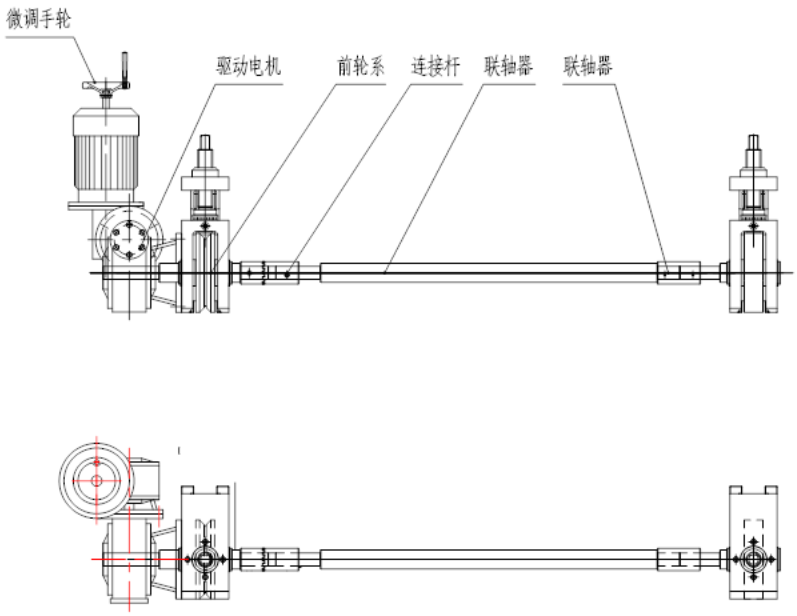
Fine tooth bolt nut schematic diagram:



3.5.5、三辊移动系统 Three-roll mobile 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。利

用手动可以实现微调。具体结构用二级蜗轮蜗杆加速器连接轮系主动连接轴，再用联轴器、连接，链接到另一个轮系的传动轴上进行传动。Dear my friend, good day, plz check, 45# roller price is 6421usd and alloy roller 8328usd, recently a lot of roller arrives, both delivery time will be 80days, so plz take care of time if it is urgent for you



三辊移动电机：浩耐斯减速电机说明书 Reducer Operation Manual

一、使用范围

1、工作环境温度-15°C—+40°C 范围内使用（0°C 以下启动时润滑油要加热到 0°C 以上）。

2、输入转速不大于 1500 转/分，WB、X、B 系列摆线针轮减速机不大于 2000 转/分。

3、R、F 系列斜齿轮减速机线速度不大于 20m/s,RV、S 系列蜗轮减速机线速度

不大于 17m/s,K 系列螺旋锥齿轮减速机减速机线速度不大于 15m/s.

4、适用于各种工作制，允许正反方向运行。

5、直联电机时，要注意电动机对使用条件的限制。

I 、Range of use

1)、Temperature of working Atmosphere ：-15°C—+40°C（start under 0°C，the lubricanting oil should be heated up to 0°C above）。

2)、The input rotating speed should not Higher than 1500r/m，WB.X.B series cycloid pinwheel reducer should not higher than 2000r/m

3)、Linear velocity of R.F series helical gear reducer should not higher than 20m/s,linear velocity of RV.s series worm speed reducer should not higher than 17m/s ，linear velocity of R series spiral bevel reducer should not higher than 15m/s.

4)、It is applicable for various working systems，and allows rotation in positive and negative direction。

5)、Pay attention to the limitation of using condition of the motor during direct connection。

二、安装注意事项

1、脚底式安装，应校准中线标高， 水平度及相关关联接件的位置尺寸，联接器联接时，应校准两轴的同轴度，不应超过联轴器的允许范围。

2、法兰式安装，凸肩（或凹肩）应配合良好，以免变位。

3、扭力臂安装，主动的空心轴与被动轴应配合良好，力臂应固定并锁紧。

4、输出轴加装联轴器、皮带轮、链轮等时，切勿重击，应用输出轴外端螺孔压入联结件。

5、空心轴配装实心轴时，将实心轴在装前应涂防锈油。

6、输出轴、输入轴的平键或键槽安装时应符合配合公差。

7、本机必须按规定的安装方式、方位正确安装，（倾斜角度不大于 15°）以防止漏油及润滑不良。

Ⅱ、Precautions of installation

1)、Foot type installation：calibrate the position and size of midline elevation, level and related connecting pieces。Connected by coupling piece，calibrate the coaxiality of two shafts；do not exceed the permission range of the shaft coupling

2)、Flange type installation：the raised shoulder （concave shoulder）should be in well conjunction to avoid displacement。

3)、Torque arm type installation：the arm should shaft and the passive shaft should be in well conjunction；the arm should be fixed and locked。

4)、When the output shaft is provided with shaft coupling，belt pulley，chain wheel and etc，please do not pound on it，press the external screw into the

connecting piece。

5）、If the hollow shaft is provided with solid soled，shaft，the solid shaft should be coated with anticorrosive oil。

6）、The installation of straight key or the key slot of output shat and input shaft should comply with fit tolerances。

7）、The machine should be installation correctly according to the stipulated installation method and direction （ the obliquity should not larger than 15 degrees ）， otherwise there might be oil leakage or bad lubricantion。

三、使用方式

1、在使用前，传动箱内应加入指定的润滑油，切不能将其它油品混合使用，并按游标油位高度定量注油，不宜太浅或太满。本减速机、变速机大多品种是采用油浴润滑，WB 系列、X 系列机型 4#以下，B 系列机型 12#以下的减速机和 RV 系列减速机，在出厂前均已充满润滑油，（用户有特殊指定除外），用户在使用前不需要加油。（并注意出厂时标明加油标志）

2、开机前松开或换上通气帽，保证减速机和电机良好的通气、通风和散热条件。

3、负载试车前要先空载运行半小时左右，并检查转动是否灵活，确定空载无故障后方可加载运行。

4、MB 无级变速机出厂时，调整限位螺钉已经调整在极限位置，不得任意调整。

本机必须在开机运转情况下方可调速，停机时切勿调整，否则会损坏零部件。

5、若需变动安装方位，一般情况下调换油镜、油塞、通气帽即可。

6、电动机接线按其电机有关规定操作。

7、本减速机、变速机应变在许可转矩、转速、行程或力的范围内使用，超扭矩使用应在输出轴上安装扭矩限制器等安全装置，以免损坏。

Ⅲ、Use method

1)、Before use，add appointed lubricate into wheel box，don't mix it with other oil。Pour oil to certain height，never too shallow or too full。The speed reducer and variable-speed motor adopts oil bath lubricantion，such as WB series，X series，machine below 4#，B series machines have enough lubricantion before leaving factory （Exclude special statement by users） users have no need to add electric motor。

2)、Loose or change vent-cap before starting machine，keep good aeration，ventilation and radiating for speed reducer and electric motor

3)、Do no-load running for half a hour before trial，check the rotation is whether flexible，do load running after configurating the no load running is failure free。

4)、The speed adjusting limit screw has been adjusted to limited locating with no random adjustment when the MB stepless speed reducer leave factory。 The

speed of machines can be adjusted under running， no speed adjusting under common condition，or it will damage the components

5）、If is needed to change the installation direction，replace the oil mirror plup cock and ventilating cap。

6）、The wireconnection of electric motor should be operated according to relevant provision。

7）、The speed reducer should be used within the range of permitted Torque，rotation speed of strength use besides Torque should intall Torque limiter and such safe equipment to avoid damage。

四、各列系减、变速指定使用润滑油表。

Ⅳ、List of Lubricant Designed used to each series reducer and uariator

产品系列 Serise	油品名称 Name of oil	油品牌号 Brand of oil	更换周期 Change Period
X．B．R．S K．F．T	齿轮油 Gear oil	130-160EP	5000 小时 5000h
RV	蜗杆油 Worm oil	N460	2000 小时 2000h
MB	变速机专用油	Ub-3	2000 小时

	Oil of variator		2000h
WB	锂基脂润滑油 Lithium based srease	0-00#	10000 小时 10000h

五、维修 Maintenance

各种传动设备，客户若发现有质量问题时，不要先拆卸零件，应与本公司售后服务部门联系，说明现象，然后确认问题所在，再采用较理想方法解决。

All kind of reducer and variator， if client find problem，do not take the units to pieces，you ought to correlate with afterservice department，explain phenomenon and confirm problem，then adopt ideal method problem。

六、贮存 Storage

1、在干燥通风、室内环境中贮存，当贮存期超过三个月时，应作防锈处理。

2、放置一年后的机器，使用时要检查油封是否老化，油品是否变质。

1、Store it in the environment of dry & ventilate and room Temperature，when the storage time exceeds 3 months， treat it with rustproof。

2、check the oil closure is whether aging and the oil is whether bad when the machine is placed for 1 year。

七、合格证 Certification

本产品经检验合格，准予出厂。

The product is tested and qualified，is approved to release。

型号 Model：RV63/90-600-1.1

额定输入功率 Rated input power：1.1kw

额定输入转速 Rate input ratating speed：1400r/min

输出转速 output ratating speed：2.3 r/min

减速比 Reduction rate：600

3.5.6、三辊压光单元安全操作 Safe operation of the three-roller optical pressing unit

三辊压光机的主要作用是对片材定厚、压光及牵引定型等作用。是影响制品品质的关键部分。三辊压光机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：

1）开机前，请先清洁三辊压光机辊面。

2）初次开车请先检查三辊的旋向，弄清楚生产线采用的是上下进出的走片方式还是下进上出。在电气系统检修后，也应按照此步序。

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。初次开车请检查油泵电机旋向是否合水泵标示旋向一致。

4）初次使用三辊站时，请先检查三辊升降机是否正常运行。以免保证辊筒的

开合.

5）启动三辊，让辊筒低速旋转后，开启水辊温控制系统。将辊筒温度调节至生产工艺温度。

6）三辊穿片时请使用点动开关，手动启动三辊。

7）发生片材绕辊时，请立即拉动急停开关停止三辊，三根压光辊会自行分开，以保护辊面。

The main role of the three-roller press is on sheet thickness, pressing and traction shaping. It is a key part of affecting the quality of products. The correct operation of the three-roller optical press is related to the product quality and personnel safety. Follow the following steps:

1) Please clean the roller surface of the three-roll press before turning on.

2) Please check the three-roll rotation for the first drive to find out whether the production line adopts the way of moving up or down or going up and out. This step sequence shall also be followed after the electrical system overhaul.

3) Check the pipeline connection and outlet of the water roller temperature control system to ensure the water pressure required by the system. For the first drive, please check whether the oil pump motor closes the water pump.

4) When first using the three-roll station, please check whether the

three-roll elevator is operating normally first. We do not ensure the opening and closing of the roller.

5) Start the three rolls, let the roller rotate at low speed, open the water roll temperature control system. Adjust the roller temperature to the production process temperature.

6) Use the point motion switch when cutting the three rollers and manually start the three rolls.

7) When the sheet goes around the roll, please immediately pull the emergency stop switch to stop the three rolls. The three embossing rollers will be separated by themselves to protect the roll surface.

3.5.7、三辊压光单元维护和保养 Maintenance and maintenance of the three-roller optical pressing unit

1)、减速机在初次使用 300-600 小时后，应换油一次。以后每 3000 小时换油一次。更换应在减速器停车，润滑油尚未冷却时排放。使用润滑油为 N220。

2)、三辊压光机上轴承座，每隔半年需从油嘴加入润滑脂，直至润滑脂从密封处和排出阀流出，并清除轴承座上多余的油脂。

3)、三辊压光机暂时不使用时，必须对辊筒包裹保护。

4)、机器在运转时应随时检查电机工作情况。

5)、定期对旋转接头、辊温管路进行检查，清除结垢，防止油汽化发生故障。

6)、在生产制品时，严禁使用杂质含量高及质检不合格原料。以免损坏辊筒。

The 1), reducer shall change the oil once after 300-600 hours of initial use. Oil oil every 3000 hours. The replacement shall be discharged when the reducer stops and the lubricating oil has not cooled. Use lubricating oil is N220.

2) The bearing seat of the three-roller press adds grease from the oil nozzle every half months until the grease exits from the seal and discharge valve and remove excess grease on the bearing seat.

3) When the three-roller compressor is not used temporarily, the roller package must be protected.

4) Check the operation condition of the motor at any time when the machine is running.

5) Regularly check rotary joints and roller temperature pipeline, remove dirt and prevent oil vaporization.

6) Do strictly use high impurity content and quality inspection unqualified raw materials. Avoid damage to the rollers.

3.6、 辊温控制系统 Roller temperature control system

（具体以实物为准，此处用以举例说明）此系统由管道系统、加热冷却装置、压力控制系统及外部冷却系统组成。(For whichever is physical, used here for example) This system consists of piping system, heating cooling device, pressure control system and external cooling system.

3.6.1 辊温控制器基本参数 Basic parameters of the roller temperature controller

3.5.1 辊温控制器基本参数

水泵功功率： 3KW×4

辊温加热功率： 6KW×3

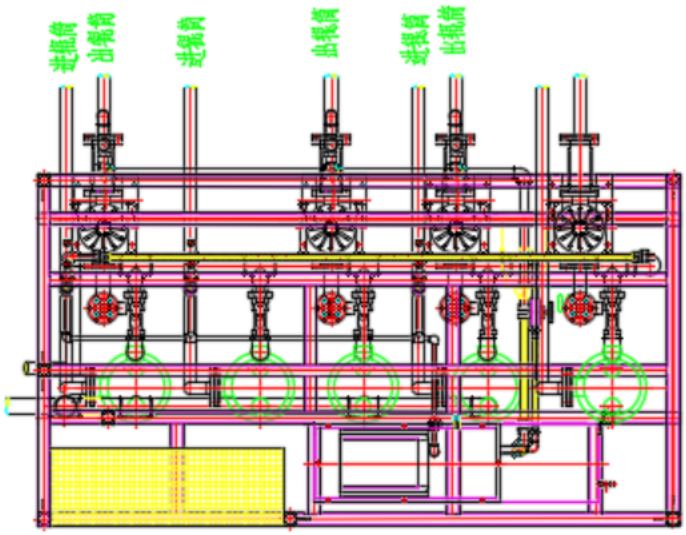
补水泵电机功率： 0.55Kw

3.5.1 Basic parameters of roller temperature controller

Water pump power power: 3KW × 4

Roller temperature heating power: 6KW × 3

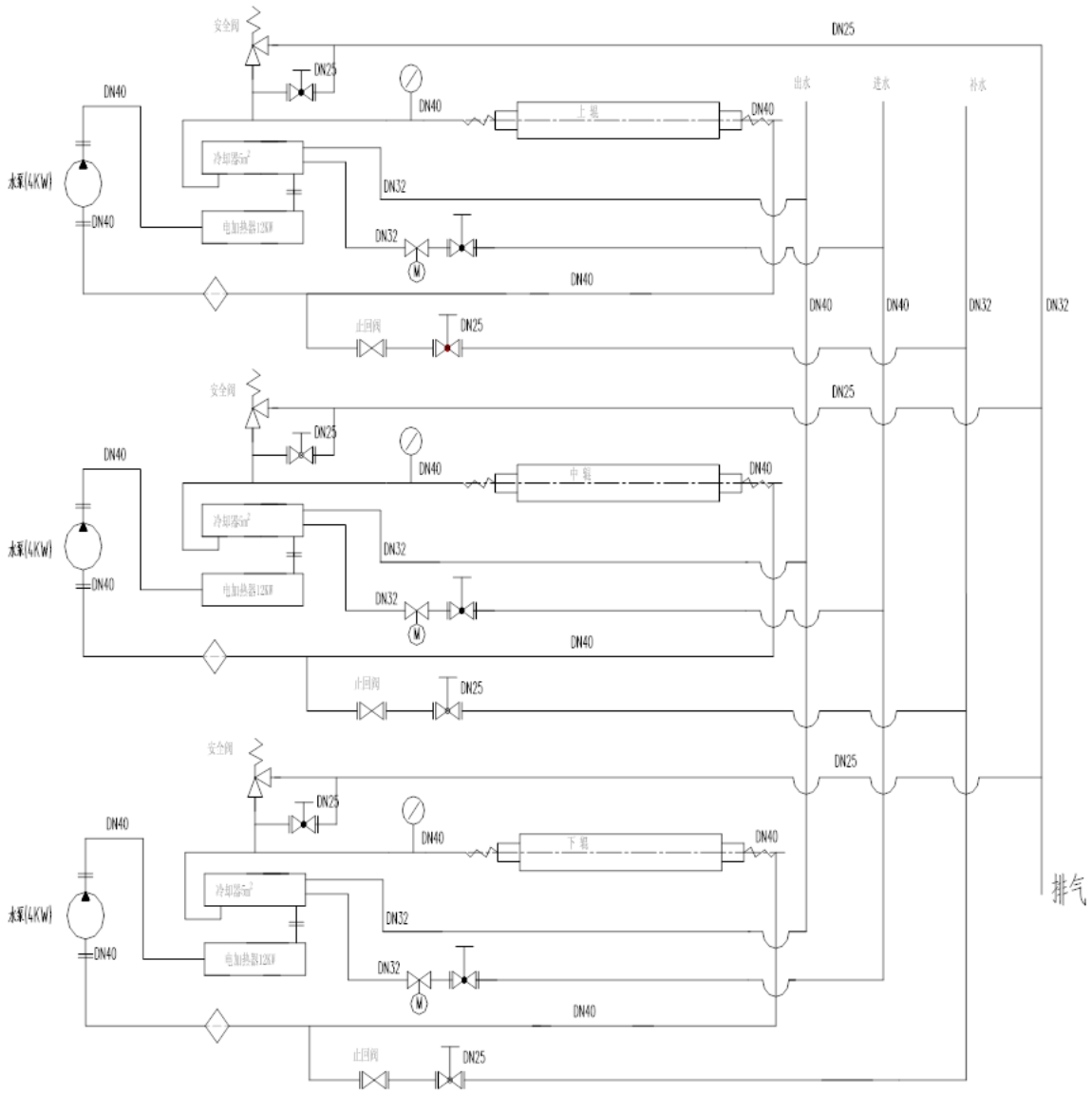
Power of supplementary water pump motor: 0.55Kw



此系统由管道系统、加热冷却装置及外部水冷系统组成。加热油循环系统的压力表为电接点压力表，它控制着启动加热时的压力，使油循环系统具有一定的压力后才能启动加热，以便保护加油热器。通常，要求在 1Kg/cm^2 以上压力时启动加热，否则，就要以系统排气或间隔启动油泵来进行调整，待系统压力升高后才能正常运行。油泵不能长时间运行在 3Kg/cm^2 以下系统压力下，热油站与外部有三套管路连通，补油管、冷却水管、回水管，补油压力要求在 3Kg/cm^3 以上，用导热油。冷却水为常温循环水，用水流量约 1.5m^3/h，水压在 3Kg/cm^3 以上。回水管要求无压力。This system consists of piping system, heating and cooling device and external water cooling system. The pressure gauge of the heating oil circulation system is the electric contact pressure gauge, which controls the pressure when starting the heating, so that the oil circulation system has a certain pressure before starting the heating, so as to protect the refueling heater. Generally, it is required to start heating at pressure above 1Kg/cm2, otherwise, start the oil pump at system exhaust or intervals to adjust until the system pressure rises. The oil pump cannot operate under system pressure below 3Kg/cm2. The hot oil station is connected with the outside, oil filling pipe, cooling water pipe and return pipe, oil filling pressure above

3Kg/cm3 with heat guide oil. The cooling water is normal temperature circulating water with water flow of about 1.5m3/h and water pressure above 3Kg/cm3. The return water pipe requires no pressure.

3.5.2 辊温控制系统原理图：Schemdiagram of roller temperature control system



在使用辊温控制器前，辊筒里面没有油，也就是说该循环系统没有压力，先对油箱加满油、启动补油泵、再启动循环油泵，对辊筒进行加油；调节压力表到 0.3-0.4Mpa，让油在辊筒内进行循环， 在此过程压力表显示压力不稳定，说明系统中有空气存在，需要打开油泵的放气阀进行放气，要进行多次操作，直到油压稳定。

检查整个油路的连接处，是否有漏油现象，并进行处理，紧固连接螺栓或者拆下重新安装。

系统油压稳定，油路没有问题，启动温度加热，加热棒开始工作，预设温度不宜太高，首先预设 30-50°C，随着温度的升高，系统压力会出现波动，这时需要进行排气，打开油泵的排气阀，加热的过程中，要启动三辊驱动电机，使辊筒转动起来，使辊面在加热的过程中受力均匀。

设备一切没有问题，不断慢慢提高加热温度，直到正常工作温度。正常运行 8 小时，无异常，可放心使用。

系统安全保护，在没有系统压力的情况下，设计是无法启动加热棒工作的。

Before using the roller temperature controller, there is no oil in the roller, that is, the circulation system has no pressure, fill the oil tank with oil, start the oil filling pump, start the circulating oil pump, fuel the roller; adjust the pressure gauge to 0.3-0.4Mpa to circulate the oil, the pressure gauge shows pressure instability, there is air in the system, open the discharge valve of the oil pump to bleed, many times until the oil pressure is stable.

Check the connection of the whole oil road for oil leakage, and treat it, tighten the connection bolts or remove and reinstall.

The system is stable oil pressure, oil road is no problem, start temperature heating, heating rod began to work, the preset temperature should not be too high, first preset 30-50 C, with the temperature rises, the system pressure will fluctuate, then need to exhaust, open the exhaust valve of the oil pump, in the process of heating, to start the three roll drive motor, to make the roll rotation, make the roll surface in the heating process evenly.

Everything is no problem with the equipment, constantly slowly increasing the heating temperature until the normal operating temperature. Normal operation for 8 hours, no abnormality, it can be used safely.

System safety protection, the design is unable to start the heating bar work without system pressure.

3.5.3、辊温控制器结构和原理 Structure and principle of the roller temperature controller

1.三辊辊温控制器主要由4部分组成，热水泵（热油泵），加热筒，冷凝器，水（油）箱组成，有个别配置需要无冷凝器。主要是用来控制辊筒的温度以达到所需要的恒温状态以利于生产需要的一种温度控制设备。

2.外型结构紧凑，元器件为内包箱体式结构设计，为方便更换与维修元器件配有门板。辊温控制器采用耐高温的金属软管与三辊旋转接头连接。并根据生产线的需要配有脚轮便于移动。（部分生产线无脚轮）

3.采用知名企业的热交换器和热水泵（热油泵），压力显示表，温度显示表，以及电磁阀，气动角座阀以利于温度控制，实现了降温度速度快，控制精确，热稳定性强等特点。尤其是产品的质量和良好的信誉深受广大用户的好评。CDL系列离心泵的电机轴通过连轴器直接与泵轴连接，拉杆螺栓将耐压筒，过流部件固定在泵头和进出水段之间，泵进出口在泵底同一直线上。电机为全封闭式风冷式二级标准电机，防护等级为IP：55，绝缘等级为F。

声明：非专业人员严禁拆装此热水泵。

4.为方便泄压配有自动泄压阀和手动阀。

5.冷凝器工作原理：冷凝器采用两个独立的循环系统，以达到热交换的目的，使温度降低。（内部水或油通过加热器进入冷凝器在通往三辊压光机，外部冷却水通过温度控制电磁阀的起停，从而控制气动脚座阀打开和关闭，冷却水进入冷凝器并循环后直接排出。）

6.辊温控制器：首先将补水泵（补油泵）启动将水（油）注入辊筒后在开启热水泵，水（油）通过热水泵进入加热器再进入冷凝器再进入辊筒实现水，油内循环。

1. three-roller roller temperature controller is mainly composed of 4 parts, hot water pump (hot oil pump), heating tube, condenser, water (oil) box, with individual configuration need no condenser. A temperature control equipment mainly used to control the temperature of the roller to achieve the required constant temperature state to facilitate the production needs.

2. The external structure is compact, and the components are internal box

structure design, equipped with door boards for convenient replacement and maintenance components. The roller temperature controller is connected with a high temperature resistant metal hose to the three-roll rotary joint. And equipped with casters according to the production line. (No casters in some production lines)

3. Adopt the heat exchanger and heat water pump (hot oil pump) of well-known enterprises, pressure display meter, temperature display meter, solenoid valve and pneumatic angle seat valve to facilitate temperature control, realizing the characteristics of fast temperature reduction speed, accurate control and strong thermal stability. Especially the quality of the product and a good reputation is highly praised by the majority of users. The motor shaft of the CDL series centrifugal pump is directly connected to the pump shaft through the coupling, the pull rod bolt holds the pressure withstand cylinder, the overflow parts between the pump head and the outlet section, and the inlet and outlet of the pump are on the same line of the pump bottom. Motor is fully enclosed air cooled Class II standard motor with protection grade IP:55, insulation grade F.

Statement: Non-professional personnel are not allowed to remove and disassemble this hot water pump.

4. Automatic pressure relief valve and manual valve are equipped for the convenience of pressure relief.

5. Operating principle of the condenser: the condenser: the condenser adopts two independent circulation systems to achieve heat exchange and reduce the temperature. (Internal water or oil enters the condenser through the heater to the three-roller compressor, the external cooling water through the temperature control solenoid valve, thus controlling the pneumatic foot valve is open and closed, the cooling water enters the condenser and is discharged directly after circulation.)

6. Roller thermostatic controller: the supplementary water pump (filling pump)

starts the water (oil) into the roller after opening the heat pump, the water (oil) enters the heater into the condenser into the roller to achieve water, the oil circulation.

3.5.4、辊温控制器主要零部件 Main components of the roller temperature controller

1)、油泵的使用说明书

1、用途

WRY 系列热油泵在我国载热体加热系统中得到了广泛的使用，已经进入石油、化工、塑料、制药、纺织、印染、建筑、食品等各个工业领域，主要用于输送不含固体颗粒的弱腐性高温液体，使用温度≤350°C，是一种理想的热油循环泵。

2、结构特点

Way 系列热油泵的支撑采用了双端球轴承支撑的结构形式、前端采用润滑油润滑，后端采用润滑脂润滑。

采用自热散结构，改变了传统的水冷却结构，使结构简单，体积小，节约运行费用，性能好，使用可靠。

Way 系列热油泵：

（1）采用填料密封，填料密封用耐高温的填料，具有良好的热态适应性。

（2）采用第三代聚四氟乙烯做唇形密封，使密封性能产生了飞跃，比橡胶类密封可靠性提高 25 倍，耐腐蚀性能极强。泵的旋转方向，从驱动端看，为顺时针方向。

3、机组的安装

1)、泵安装的好坏对泵的平稳运行和使用寿命有很重要的影响，所以安装工作必须仔细的进行，不得草莽行事。

2)、泵吸入管的安装高度、长度和管径应满足计算值，力求简短，减少不必要的损失。

3)、吸入和吐出管路应有管架，泵不允许承受管路的负载。

4)、安装地点足够宽畅，以方便检修工作和散热良好。

4、泵的使用和维护

1）、开机准备

- 清理现场，拧开轴承座螺丝，加入导热油作润滑油。
- 检查电机转向是否与泵旋转方向一致。
- 用手搬动联轴器泵应转动灵活。
- 开车前应使用所输送的导热油将泵灌满，以驱除泵中空气，此时吐出口的管道上闸阀应关闭。
- 所输送的导热油在开车前要均匀加热，预热是利用被输送的导热油不断通过泵体进行的。
- 开车前应检查基础及螺栓有无松动，密封是否正常。

2）、开机

- 全面检查各项准备工作是否已经完善。
- 打开各种仪表的开关。
- 接通电源，当泵达到正常转速，且仪表显示出相当压力后，逐渐打开输出管路上的闸阀，并调节到需要工况。在输出管路上的闸阀关闭的情况下，泵连续工作不能超过 3 分钟。
- 泵初始运行期间，把生产流程中的设备缓缓加热到 100-130°C，并且保持在该温度下继续运行，脱水脱气到导热油中的水份完全蒸发，再把设备加热到操作温度。
- 在初次运行 3-4 小时，把设备加热到操作温度之后关掉油泵，检查泵轴和电机轴联轴器的同轴度，泵轴和电机轴偏差应控制在允许范围内，泵轴用手转动应轻便灵活和无振动旋转，如达不到上述要求，应重新进行调整。
- 开机过程中，要时时注意电动机的功率读数及振动情况，振动值不超过 0.6mm，如有异常应停车检查。

3）、维护

- 输送介质传动到泵盖和轴承上的热量，由泵盖和轴承座的表面散热，是轴承座的温度适应于轴密封性能的温度。因此选择泵的安装位置时，要使泵盖和轴承座的热量便于扩散，不出现任何蓄热功当量现象。
- 轴承座中设置有两个球轴承，靠泵叶轮侧的一个球轴承用所输送的导热油润滑，

靠联轴器侧的一个球轴承则用高温润滑脂润滑。

- 每个球轴承在运行 3000 小时之后，必须拆下用柴油清洗干净后，检查接触面是否损坏，如有损坏，必须换新的轴承。
- 不许用输入管上的闸阀调节流量，避免产生气蚀。
- 泵不宜低于 30%设计流量下连续运转，如果必须在该条件下运转，则应在出口装旁通管，且使流量达到上述最小值以上。
- 经常检查地脚螺栓的松动情况，泵壳温度与入口温度是否一致，出口压力表的波动情况和泵的振动情况。
- 注意泵运行有无杂音，如发现异常状态时，应及时处理。

4)、停机

1、切断电源

2、将泵内液体放空，清洗且应定期把时轮旋转 180°以防轴变形，直运载泵体完全冷却为止。

5)、泵的拆卸和装配

1、泵的拆卸顺序

- 放净泵内液体及其轴承托架内的润滑油。
- 拧下电机固定螺栓，将电机搬离底座。
- 拆下泵盖联接，松开轴座托架螺栓，将泵盖连同轴承架和转子部分一起从泵体内抽出。
- 拧下叶轮螺母，拆下叶轮。
- 拧下泵盖与轴承座螺栓，拆下泵盖、拆下泵联轴器。
- 拧下右端轴承盖螺栓，拆去轴承盖。
- 拆下轴承挡圈。
- 将泵轴从轴承座中压出。

2、泵的装配

泵的装配顺序可按拆卸相反顺序进行。拆卸后再装配时要检查油封和各零件是否失效，如有效损坏现象等发生，一定要换新的备件，安装时务必小心谨慎，不要敲打，以免损坏零件。

2)、冷凝器：冷凝器采用两个独立的循环系统，以达到热交换的目的，使温度降低。（内部水或油通过加热器进入冷凝器在通往三辊压光机，外部水（软水）通过温度表显示利用电磁阀以及气动脚座阀自动通进冷凝器并循环后直接排出。）

外形图如下：

Operating Instructions for the 1), Oil Pump

1. Use

WRY series hot oil pump has been widely used in the heat carrier heating system in China. It has entered various industrial fields of petroleum, chemical, plastics, pharmaceutical, pharmaceutical, textile, printing and dyeing, construction, food. It is mainly used to deliver low rot high temperature liquid without solid particles. Using temperature ≤ 350 C, is an ideal hot oil circulation pump.

2. Structural characteristics

The support of Way series thermal oil pump adopts the structural form of double-end ball bearing support, and adopts lubrication with lubricating oil at the front end and grease at the rear end.

The self-heat dispersion structure changes the traditional water cooling structure, making the structure simple, small volume, saving operation cost, good performance and reliable use.

Way series Thermal oil pump:

(1) Use packing sealing and high temperature resistant packing with good thermal adaptability.

(2) adopts the third-generation type of PTFE for lip seal, which makes a leap in sealing performance, with a 25 times increase in the reliability of rubber seal and strong corrosion resistance. The direction of pump rotation is clockwise from the drive end.

3. Unit installation

1) The quality of the pump installation has an important impact on the smooth

operation and service life of the pump, so the installation work must be carried out carefully and shall not act recklessly.

2) The installation height, length and pipe diameter of the pump suction pipe shall meet the calculated value, and strive to be short and reduce unnecessary loss.

3) The suction and discharge pipe shall have a pipe frame, and the pump shall not bear the load of the pipeline.

4) The installation site is wide and smooth enough to facilitate the maintenance work and good heat dissipation.

4. Pump use and maintenance

1) Preparation for startup

Clean the site, unscrew the bearing seat screws, and add the heat guide oil for lubricating oil.

Check that the motor steering is in the same direction of the pump rotation.

Move the coupling pump flexibly.

The pump shall be filled with the heat conduction oil delivered to remove the air in the pump, and the pipe upper gate valve shall be closed.

The heat conduction oil delivered shall be evenly heated before driving. The preheating is carried out continuously through the pump body using the transported heat conduction oil delivered.

Check whether the foundation and bolts are loose and whether the sealing is normal before driving.

2) Power-on

Comprehensive check whether the preparations have been completed.

Switch on for the various instruments.

Turn on the power supply. When the pump reaches the normal speed and the instrument shows considerable pressure, gradually open the gate valve on the output pipeline and adjust it to the required working condition. The pump shall not operate continuously for more than 3 minutes when the gate valve on the output line is closed.

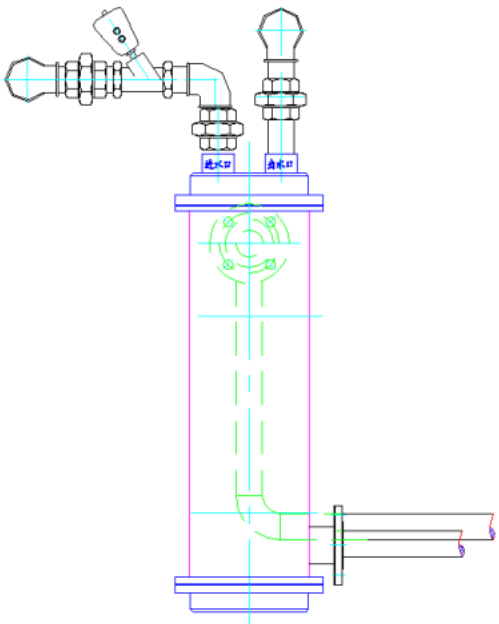
During the initial operation of the pump, the equipment in the production process is slowly heated to 100-130 C, and maintained at that temperature, the water dehydrated to the heat conduction oil is completely evaporated, and then the equipment to the operating temperature.

After the initial operation for 3-4 hours, turn off the oil pump to the operating temperature, check the coaxicity of the pump shaft and motor shaft coupling, the pump shaft and motor shaft deviation shall be controlled within the allowable range, the hand rotation of the pump shaft shall be light and flexible and no vibration rotation, if the above requirements, it shall be readjusted.

During startup, always pay attention to the power reading and vibration of the motor. If the vibration value shall not exceed 0.6mm,, stop for check.

3). Maintenance

Transmission medium to drive to the pump cover and bearing

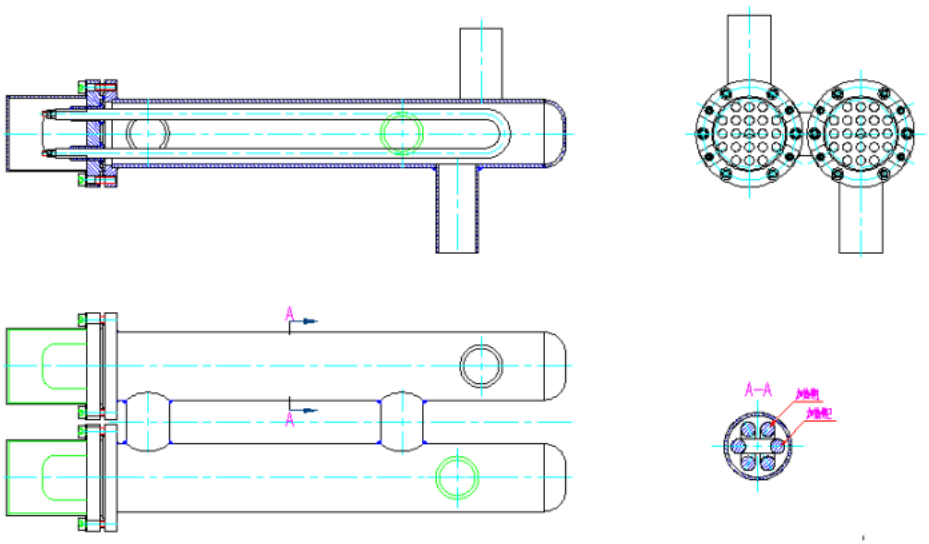


3）、加热器：加热元件

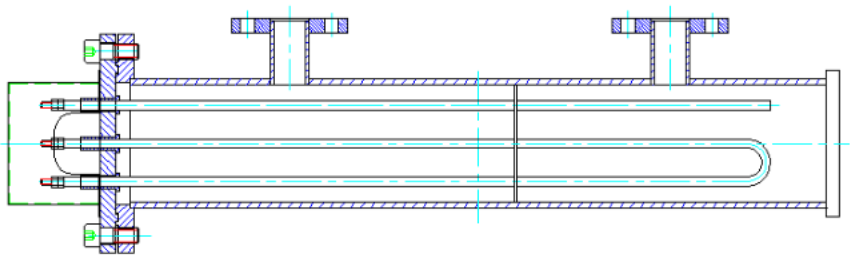
- 双筒加热器

3). Heater: the heating element

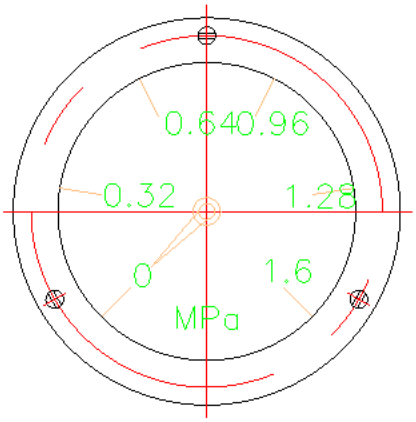
Double-cylinder heater



◆ 单筒加热器Single-cylinder heater



4）、压力表元件Pressure gauge element



压力表

压力表使用说明

- 仪表适用于测量对铜和铜合金不起腐蚀作用的液体和气体及其它压力。
- 使用前应重新检验合格后方能使用并注意出厂有效期。
- 使用仪表时上限不应超过 3/4，测量波动压力时上限不应超过 2/3，最低压力在两种情况下都 不低于上限的 1/3。
- 仪表应装在和测量点同一水平线上，周围环境温度-40-70，相对湿度不大于 80%场合使用。
- 使用中的仪表必须每两个月鉴定一次，如仪表发生故障，像指针失灵内部零件松动，读数误差增大等现象，应立即检修和送制造厂检修。
- 用户应当遵守使用和保管规则。
- 压力表使用严禁拆卸。

5)、定期清理水箱，油箱污垢防止杂物进入管路堵塞流道，造成元器件损坏。

由于受泵体，管道的各参数值的制约各管路的管径以及长度不得私自更改。

6）常见故障排除：

Instructions of pressure gauge

Instruments are suitable for measuring liquids and gases and other pressures that do not corrode copper and copper alloys.

It shall only be used and pay attention to the factory validity period before use.

The upper limit shall not exceed 3 / 4,2 / 3 when measuring the fluctuating pressure, and the minimum pressure shall not be less than 1 / 3 of the upper limit in either case.

The instrument shall be installed on the same horizontal line as the measuring point, with ambient ambient temperature-40-70 and relative humidity not more than 80%.

The instrument in use must be identified once every two months. If the instrument fails, like loose internal parts of pointer failure and increasing reading error, it shall be immediately repaired and sent to the manufacturer for maintenance.

Users shall abide by the use and storage rules.

Pressure gauge pressure pressure gauge is pressure gauge.

5) Clean the water tank regularly, and prevent oil tank dirt to prevent sundries from entering the pipeline and blocking the pipeline, causing damage to components.

Due to the pump body, the pipe diameter and length of the pipeline shall not be changed privately.

6) Common troubleshooting:

故障状态 现　　象Fault Status Phenomenon	原　因　分　析Cause Analysis	排　除　方　法 Exclclusion Method
水泵启动后压力表上无压力显示；No pressure display on the pressure gauge after the water pump startup;	1．水泵反转； 2．没有充足的水源，水泵空转； 3．管路中有较多空气；1. water pump to reverse; 2. Without sufficient water source, the water pump is idle;	1．调换电机任意两相线； 2．外供水源的压力＞2KG/CM^2； 3．排掉管路中的空气； 1. Switch any two-phase lines of the motor;

	3. More air is found in the pipeline;	2. Pressure of external water supply:> 2KG/CM2; 3. Remove the air from the pipeline;
温度失控，不能降温；Temperature out of control, can not cool down;	冷却电磁阀YV11，YV12，YV13其中任一个阀不能工作；Cooling solenoid valve YV11,YV12,YV13, either valve does not work;	检查冷却电磁阀YV11，YV12，YV13是否正常工作并排除；Check whether the cooling solenoid valve YV11,YV12,YV13 is working normally and excluded;
温度失控，不能升温；Temperature out of control, can not heat up;	1．该区加热回路，过载跳闸； 2．温度传感器损坏； 3．冷却电磁阀阀体内有杂物，使电磁阀不能完全关闭；1. heating circuit in this area, overload trip; 2. Damage to the	1. 如果是过载继电器跳闸，将整定电流调大；如果是断路器跳闸，则需要更换容量大一档的断路器； 2．更换温度传感器； 3．打开电磁阀阀体，清洗内部；仍不能解决则更换电

	temperature sensor; 3. There are sundries in the cooling solenoid valve valve, so that the solenoid valve cannot be completely closed;	磁阀；1. If the overload relay trip, adjust the rectification current; if the circuit breaker trips, the large capacity circuit breaker shall be replaced; 2. Replace the temperature sensor; 3. Open the solenoid valve body and clean the interior; replace the solenoid valve;
水泵不能启动 Water pump cannot not start	1．水泵过载或过流跳闸；1. water pump overload or overcurrent trip;	将整定电流调大，如仍跳闸，则检查电机三相线圈是否正常，是否有相线对地短路现象，然后排除之；Adjust the rectification current, if still tripping,

		check whether the motor three-phase coil is normal, whether there is a short circuit to ground, and then eliminate it;

注意！此处温度极高，操作时，要注意安全，防止烫伤！Note! The temperature here is very high, when the operation, to pay attention to safety, to prevent scald!

3.7、冷却输送单元基本参数及安全操作指导 Basic parameters of cooling and conveying unit and safe operation guidance

冷却装置主要用途是将压光后的片材冷却定型、引取。冷却托架采用多段墙板式拼接，三辊往后移动，便于拆卸模具及方便操作.The main purpose of the cooling device is to cool and introduce the sheet after pressing light. The cooling

bracket adopts multi-section wall panel splicing, and the three rollers move back to facilitate mold disassembly and convenient operation.

3.7.1、冷却输送基本结构参数 Basic structural parameters of cooling and transport

冷却架总长度：6m

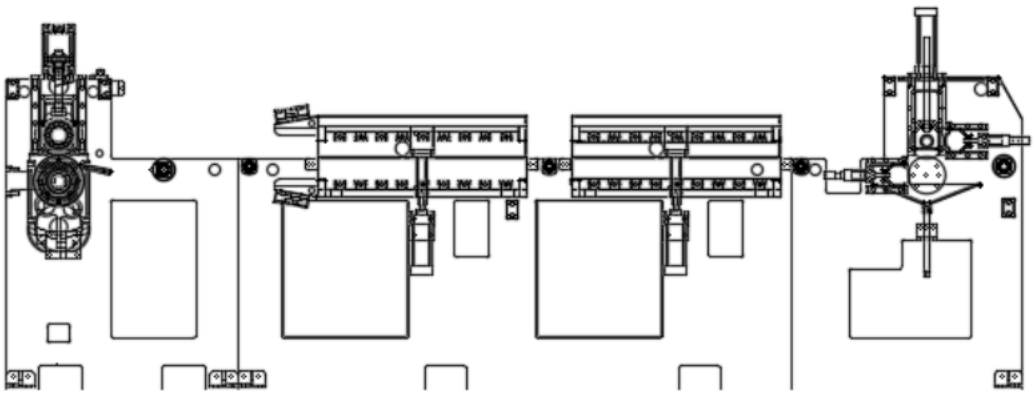
冷却辊筒规格： φ70mm×1300mm

冷却辊筒材料： 铝辊氧化处理，抛光

Total length of the cooling frame: 6m

Cooling roller specification: φ70mm × 1,300 mm

Cooling roller material: aluminum roller oxidation treatment, polishing



3.7.2、冷却辊架维护和保养 Maintenance and maintenance of the cooling roller frame

·辊筒未使用前应涂防锈油，用棉布包裹等措施保护。

·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。

Apply antirust oil and wrap with cotton cloth and other measures.

Check the roller surface without corrosion and scratch to avoid damage to the sheet surface. On the roller surface with minor corrosion and scratches, it can be polished and smooth with gold sand skin. Replace the rollers if necessary.

3.7.3 切边定宽单元基本参数及安全操作指导 Basic parameters and guidance of cutting and width unit and safe operation

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。

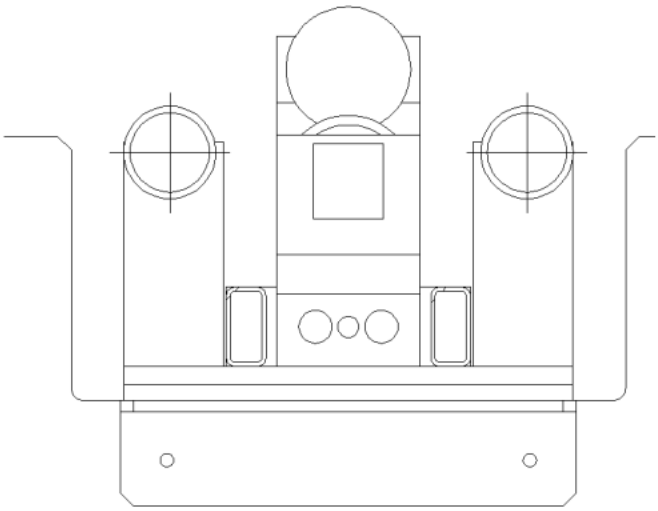
1) 切边定宽外形图

采用滚切刀片进行切边，切割美观，不裂边，经久耐用。

The cutting edge fixed width unit is fixed to the cooling frame, with the main purpose of cutting the sheet on the cooling frame and dividing the fixed width.

Outline drawing of cutting boundary and fixed width

Cut edges with rolling blades, beautifully cut, uncracked and durable.



2)切边、定宽操作

·定宽

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。

·切边

通过调节刀杆的位置，锁紧紧定螺丝来控制片材的分割。

3)切边的安全防护

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。

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。

3.8、 牵引单元基本参数及安全操作指导

2) edge cutting, fixed width operation

Fixed-width

When the sheet has fixed width, the width of the sheet is controlled by adjusting the position of the cutting blade.

Cutting edge

The division of the sheet is controlled by adjusting the position of the blade and locking the screws tightly.

3) Safety protection edge cutting

Because the cutting edge blade is very sharp, it is strictly prohibited for the fingers to contact the blade and the blade running around the blade! Please package the blade with cotton cloth or other things, apply the anti-rust oil, and put it in a place that is safe and not easy to hurt people.

In the process of disassembly and disassembly, please pay attention to the blade, first remove the blade, and put it in a place that is not easy to hurt people to avoid cutting fingers, it is strictly prohibited to beat the wire rod and other parts. Check the fixing screws regularly to prevent accidents due to the loose screws.

3.8. Basic parameters of the traction unit and safe operation guidance

3.8.1、牵引机基本参数 Basic parameters of the tractor

胶辊材质：丁腈橡胶

胶辊直径：Φ200mm×1300mm

胶辊数量：1 对

电机功率：4.4KW

升降方式：气压驱动

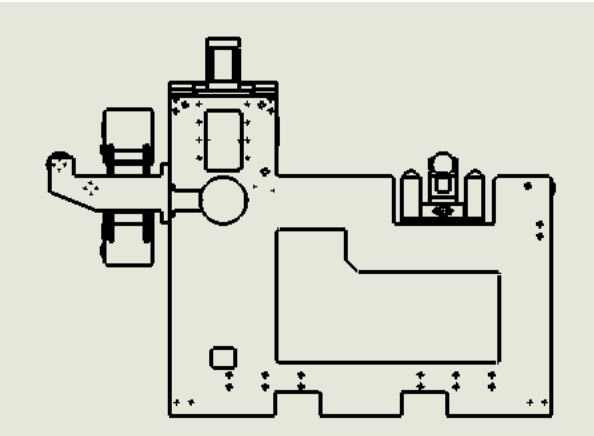
Rubber roller material: nitrile rubber

Rubber roller diameter: Φ200mm × 1,300 mm

Number of rubber rollers: 1 pair

Motor power: 4.4KW

Lift mode: Air pressure drive

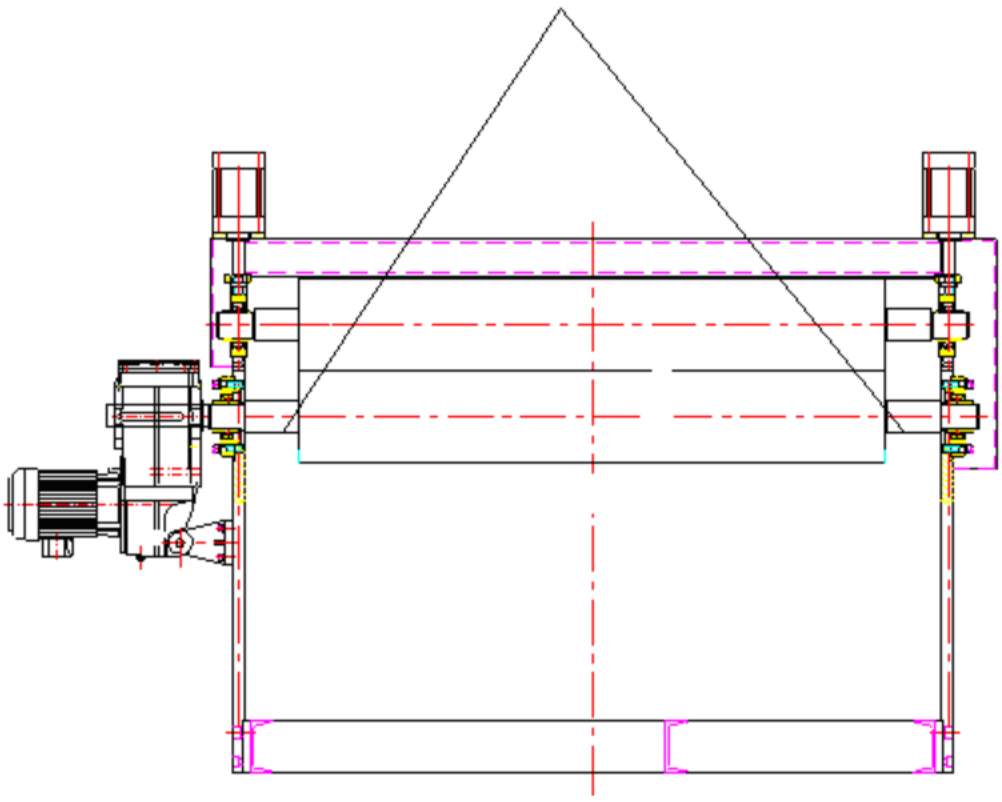


3.8.2、牵引机的吊装和运输 Lifting and transportation of the tractor

1、吊装

牵引机的吊装须用承载 4 吨以上的吊索，按照吊装图吊装（如下图所示）。

Lifting and transportation of the tractor



2、运输

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。

2, Transport

The tractor holds the tractor in the box during transportation. To prevent surface damage to the traction roller during transportation, the roller must be wrapped protected.

3.8.3、牵引机的安全操作 Safe operation of the tractor

1、 牵引机开机前的准备

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。

2、牵引机中的安全操作

开机时，升起牵引压辊，将片材穿过牵引机，拉紧片材，启动牵引机，然后压下牵引压辊，牵然后压下牵引压辊。在此操作过程中，操作人员严禁带手套操作，以免造成人身伤害。

Preparation before tractor startup

Open the air source before starting on and check the air source pressure. Open the manual check valve and raise the traction pressure roller. To the top manual valve direction, press two rollers respectively. Repeat several times and check whether the left and right cylinder of the traction pressure roller is synchronized. (The left and right cylinder in the work pressure varies, the sheet will run off, affecting the leveling of the plate cutting, and may also deform the plate.) Adjust the cylinder throttle according to the actual situation to synchronize the left and right cylinders.

2. Safe operation in the tractor

When starting on, raise the traction roller, pass the sheet through the tractor, pull the sheet, start the tractor, then press the traction roller, pull and then press the traction roller. During this operation, the operator shall not bring gloves to avoid personal injury.

3.8.4、牵引机的保养和维护 Maintenance and maintenance of traction tractor

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：

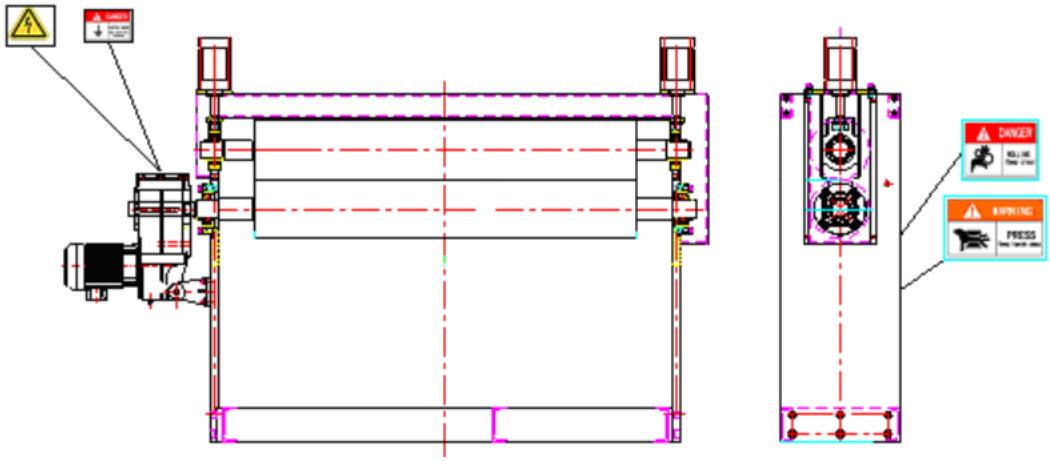
1、在初次使用 300－600 小时后，应换油一次，更换应在减速器停车，润滑油尚未冷却时排放旧油。使用润滑油为 N220。

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。

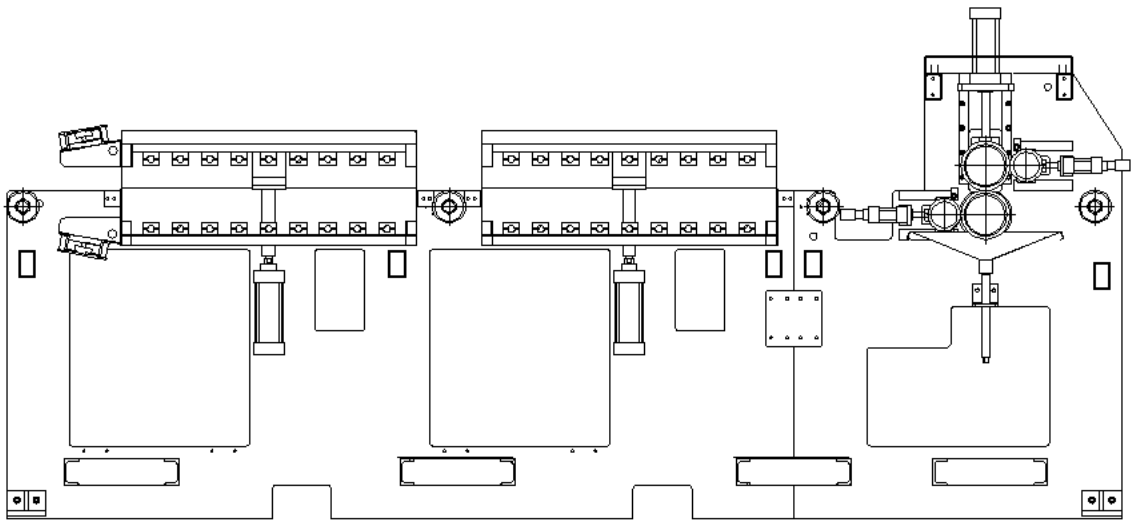
3、材料为橡胶，长时间使用会令橡胶辊表面结垢，应定期使用非油性洗剂对辊筒清洁。短期停车后，需对胶辊进行包裹保护。长时间停机会令橡胶表面老化，需做好相应的保护措施。如过渡老化，必须修复或者更换。

The tractor must be regularly maintained and maintained during normal use. Maintenance method:

1. After 300-600 hours, the oil should be replaced once, and it should be stopped at the reducer. The old oil is discharged when the lubricating oil is not cooled. Use lubricating oil is N220.
2. The bearing seat used on the tractor shall add grease from the oil nozzle every six months until the grease is discharged from the seal and the discharge valve, and remove the excess grease from the bearing seat.
3. The material is rubber, and a long time will scale the surface of the rubber roller. The roller shall be cleaned regularly with a non-oil detergent. After the short-term stop, the rubber roll should be wrapped and protected. Long time stop opportunity to make the rubber surface aging, take corresponding protective measures. If the transition is aging, it must be repaired or replaced.



3.9、涂油装置： oiling station



采用聚氨酯胶滚涂，并配有 300 目的磨砂计量钢辊，滚涂均匀美观，大大降低了表面的附着力达离型的效果极佳，是产品具有良好的稳定性，耐热，耐候，疏水，绝缘均得到提高。

硅油池上下可调节，并配有硅油桶，材质为不锈钢，潜水泵便于硅油的补给。

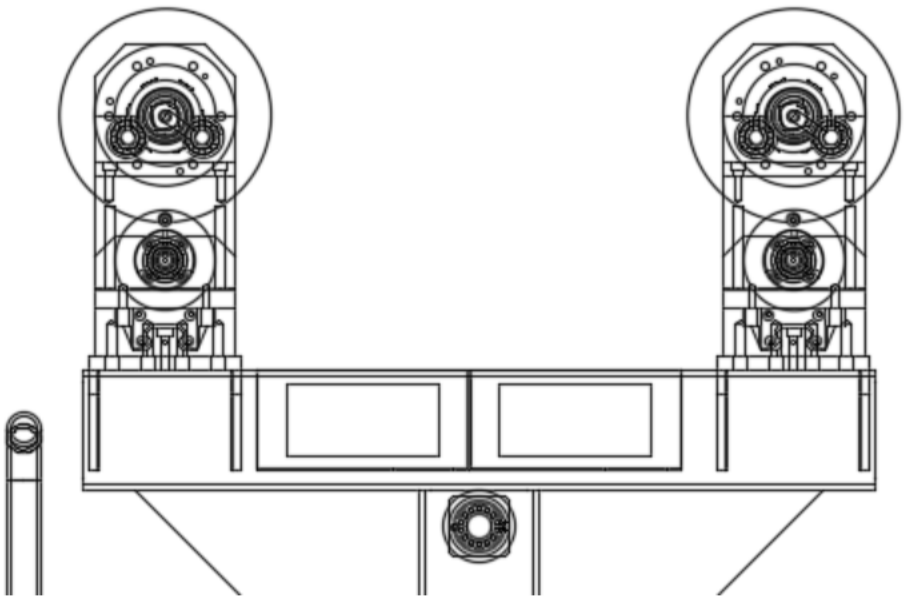
烘箱采用不锈钢焊接，外观美观不因气候的变化而造成生锈现象。

Using polyurethane rolling, and equipped with 300 purpose grinding measuring steel roll, the rolling is uniform and beautiful, greatly reduce the surface adhesion to excellent effect, is the product has good stability, heat resistance, weather resistance, water drainage, insulation have been improved.

The silicon oil tank is adjustable up and down, and equipped with silicon oil bucket, made of stainless steel, submersible pump for the supply of silicon oil.

The oven adopts stainless steel welding, and the beautiful appearance does not cause rust due to the climate change.

3.10、覆膜装置 Film coating device：



覆膜外形图

3.10.1 覆膜装置的组成及技术参数 Composition and technical parameters of the film coating device

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.The film covering device consists of air rising shaft, magnetic powder brake, leveling roller device, moving adjustment device, etc.

3.10.2 结构特点及组成

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。

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。

3.10.3、表面覆膜装置的操作维护 Operation and maintenance of the surface film coating device

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。

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 Before production, the surface mask to be applied in production is ready and installed on the roller of the film covering device, pull the film through the tractor rolling roller, around the transition roll, and then spread flat

over the sheet. The specific operation process can be shown by reference to the above outline diagram. Note that during the film coating, the film and the film completely fit, so that the film can be smoothly affixed to the surface of the film. At the same time, the tension of the film coating device during the film coating should be adjusted to reduce the film quality due to relaxation. When the production line speed changes, the tension should also be adjusted so as to cover the film smoothly.

During use, the roller surface of the film covering device should be kept clean and smooth, flexible in rotation, and the transition roller surface should not be scratched, otherwise the roller will scratch the film surface and affect the quality of the product

3.11 收 卷 机 winding machine ； coiling machine；winder

收卷机主要由以下几个部分组成：

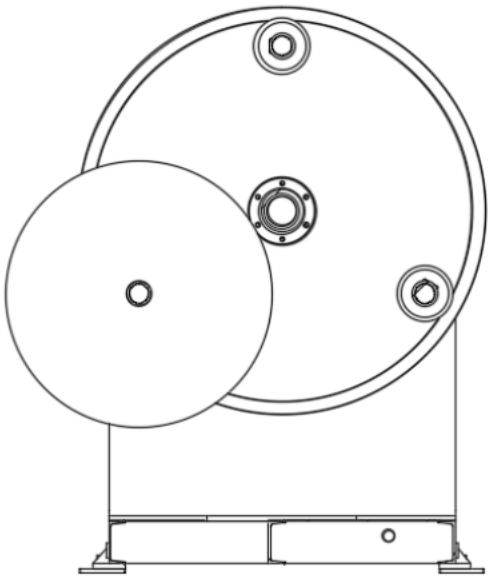
机架，气涨轴，中心轴，收卷电机，翻转电机、电器控制。

最大收卷直径:1000

The winder mainly consists of the following parts:

Rame, air rise shaft, central shaft, rewinding motor, flip motor and electrical control.

Maximum volume diameter: 1000



1. 用途

   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，剪片机就是起这个作用的，切割程序为韩国 AUTONICS 编码器控制，切割长度采用台湾产计米器或编码器控制，

2. 收卷机属于终端设备，它将生产出来的成品片材卷成料卷，便于堆放、运输、

位收卷机可以连续不停机操作。

此收卷机采用双工位收卷机，包括机架、卷取装置，夹头等组成。

机架由型钢焊接而成，强度可靠。

气涨轴夹头夹紧，拆装卷管方便、可靠。

三工位收卷机吊装和运输

1、吊装

4工位收卷机的吊装需用承载2.5吨以上的吊索，首先将收卷机的过渡辊固定牢固然后检查吊带的规格，确保吊带的长度与承载重量，并且固定吊带处确保安全无误后，点动平稳起吊后方可起吊收卷机。

2、运输

4工位收卷机在运输时，应将气涨轴取下，并包裹放于收卷机旁，过渡辊固定防止运输中途碰伤辊面，然后必须牢固地固定在包装箱中。

3.11.3、三工位收卷机安全操作

三工位收卷机是本生产线终端设备，它将片材收卷成卷。

操作中必须遵守以下安全操作规程：

● 对收卷机进行任何维修之前，必须切断包括控制柜在内的整个的电源，无论在何种情况下，都需要在电源总闸，电气控制柜等电源开关上悬挂警示牌或警示标志，机械维修现场设置警示牌或警示标志，以防止意外事故发生。

● 因电机装置带有高电压，为防止触电，在运转过程中请勿将手接触防护罩中。

● 为提醒用户在使用过程中注意危险部件，本设备已在相应部位粘贴有安全警告标志， 在维修过程中请勿挪动安全警告标志的位置，如在维修过程中要移动安全警告标志，维修后请粘贴回原处。

● 因其涨轴是转动物体，操作者不许穿松散衣服或披散头发。

3.11.4、操作说明

该机为手工切断，手工引入，自动卷取，计长报警手工换工位收卷机.收卷质量主要取决于片材质量以及收卷轴与牵引轴的安装平行度。

3.11.5、三工位收卷机收卷操作步骤：

1、收卷机在首次开车前，调整好收卷轴的转动方向，三工位切换的翻转方向。

2、每次开车前，必须检查气胀轴锁紧夹头是否锁紧到位。

3、片材剪断后，请立即停止收卷轴。

4、收卷轴启动必须在片材绕上气胀轴后。

5、从收卷机上取片材时，必须将气胀轴两端吊起后，再打开锁紧夹头，取出片材。

3.11.6、收卷机主要零部件说明

1)、收卷轴

收卷轴采用推拉，可快速更换式结构。

气涨轴设计标准符合国家设计标准，经过静平衡处理，两端面相对于气涨轴中心的跳动量小于等于0.02mm,静平衡小于等于20g

2)、气胀轴的使用

1、气涨轴（如上图所示）

2、气涨轴使用

将纸管套在气胀轴有效位置上，从充放气口充入压缩空气，使胀块胀紧纸管内孔。取卷时，用手按住充放气口，排出气体，使胀块缩入气胀轴内。然后将气胀轴从纸管中取出。

3.11.7、三工位收卷机维护保养

1、收卷减速机在初次使用300-600小时后，应换油一次。以后每3000小时换油一次。更换应在减速器停车，润滑油尚未冷却时排放。使用润滑油为N220。翻转减速机每年换油一次，使用润滑油为N220。

2、收卷机轴承座每隔半年需从油嘴加入润滑脂，直至润滑脂从密封处和排出阀流出，并清除轴承座上多余的油脂。

3、集电器每三个月就应该检查一次。

4、及时解决螺栓、零部件损坏等问题，以免麻痹大意出事故。

5、长时间不用时应采取相应的防锈措施保护好设备，如涂防锈油，并包装好气涨轴，防止灰尘落入气涨轴中。

6、工作时应经常检查电机工作情况，以防电机损坏影响生产，若对电机进行了维修，重新接线时请确定电机的转向与标志所示方向一致。

Use

After the final product is processed by various processes, it should finally be cut off by meter length to meet the use requirements. The shearing machine plays this role. The cutting program is controlled by Korean AUTONICS encoder, and the cutting length is controlled by Taiwan meter or encoder,

The retractor belongs to the terminal equipment, which rolls the finished sheet into material rolls, convenient for stacking, transportation and position retractor can be continuous without stop operation.

This winder adopts duplex winder, including rack, windevice, clip, etc.

The frame is made of type steel welding with reliable strength.

Air surge shaft clamps are convenient and reliable.

Lifting and transportation of three roll machine

1. Lifting

4. The hoisting of the station winder requires a sling with more than 2.5 tons. First, the transition roll of the winder shall be fixed firmly, and then check the specifications of the lifting belt to ensure the length and bearing weight of the lifting belt.

2. Transportation

4 When the station winder is transported, remove the gas rise shaft, be wrapped and put next to the winder. The transition roller is fixed to prevent collision of the roller surface during transportation, and then must be firmly fixed in the packing box.

3.11.3. Safe operation of the three-station winder

The three-position winder is the terminal equipment of this production line, which rolls the sheet into rolls.

The following safety operating procedures must be observed during the operation:

Before any maintenance to the winder, the whole power supply including the control cabinet must be cut off. Under any circumstances, warning signs or warning signs should be hung on the main power supply switch and electrical control cabinet, and warning signs or warning signs should be set on the mechanical maintenance site to prevent accidents.

Because the motor device has high voltage, do not prevent electric shock, do not contact the shield during operation.

In order to remind users to pay attention to dangerous parts during use, the equipment has pasted safety warning signs in the corresponding parts, and do not move the safety warning signs during maintenance. If you should move the safety

warning signs during maintenance, please paste them back to the original place after repair.

Because its shaft axis is rotating objects, the operator should not wear loose clothes or loose hair.

3.11.4. Operation instructions

The machine is manually cut off, manual introduction, automatic roll up, and meter alarm manual replacement. The quality of the rewinding mainly depends on the quality of the sheet and the installation parallel degree of the reel and the traction shaft.

3.11.5 Operation steps of three-station reder:

1. Before the first drive, adjust the rotation direction of the reel and the flip direction of the three-position switch.

2. Before each driving, check whether the expansion shaft lock clamp is locked in place.

3. Please stop collecting the reel immediately after the sheet is cut.

4. The reel must be started after the sheet is wrapped around the expansion shaft.

5. When taking the sheet from the winder, lift both ends of the expansion shaft, open the locking clip, and remove the sheet.

3.11.6. Description of the main parts of the winder

1). Reel collection

The reel is a push-pull for quick replacement structure.

The design standard of gas rise shaft meets the national design standard. After static balance treatment, the beating amount of both sides of the two sides for the center of gas rise axis is less than 0.02mm, static balance less than equal to 20g

2) Air expansion shaft

3.12、备品备件 spare part

螺杆拆装工具	1 套
模具拆装工具	1 套
通塞尺	1 套
模具加热棒	1 套
换网器加热棒	5 支
切边刀片	2 把
接触器	2 个
空气开关	1 套
电器按钮	1 套
软件备份储存卡	1 套
旋转接头	3 件
旋转接头密封圈	6 套
溶体泵	1 个
三辊小辊筒	1 件
三辊大辊筒	1 件
6 英寸气涨轴	1 个
3 英寸气涨轴	1 个
机筒螺杆	1 套
主机流道加热圈	全套
辊温加热棒	1 套
切边刀片	3 把
铝辊	1 件
牵引胶辊	1 件
双色片模具	1 套
主机减速箱	1 套

Screw disassembly and assembly tool 1 set

One set of mold disassembly and assembly tool

One set of the plug gauge

1 set of mold heating rod

5 heating rods

Cut edge blade 2 pieces

2 contactors

Air Switch 1 Set

Electrical push button 1 set

Software backup and storage card: 1 set

Rotary connector: 3 pieces

Rotary joint seal ring: 6 sets

Solvent pump: 1 unit

Three-roll small roller: 1 piece

Three-roll and large roller: 1 piece

A 6-inch gas surge shaft: 1

A 3-inch gas surge shaft: 1:

1 Set of cylinder screw

Complete set of main machine flow channel heating ring

1 set of roller temperature heating rod

Cut edge blade 3 pieces

Aluminum roller: 1 piece

Traction glue roller: 1 piece

Die of double-color sheet: 1 set

Main deceleration box 1 set

四、电器控制系统 Electrical appliance control system

4.1、电器控制系统组成 Electrical appliance control system composition

操作屏：	西门子
PLC：	西门子
变频器：	ABB
接触器：	施耐德
断路器：	施耐德
继电器	施耐德
按钮：	施耐德

Operating screen: Siemens

PLC: Siemens

Frequency converter: ABB

Contactor: Schneider

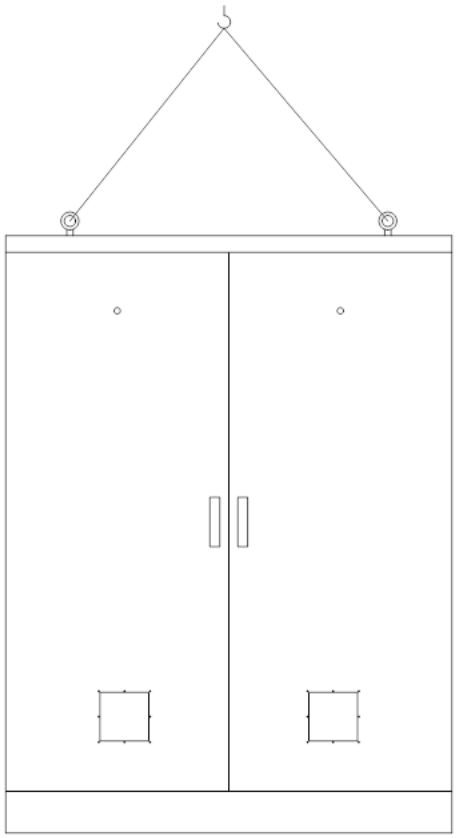
Circuit breaker: Schneider

Relay- -Schneider

Button: Schneider

4.2、电柜的吊装与运输 Lifting and transportation of the electric cabinet

4.2.1、吊装（如图所示）Hofting (as shown)



其它小电控箱的吊装用叉车等机械搬运。

4.2.2、运输

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；

4.2.3、电柜的安全操作规程

1)、电气柜按照《PP厚板生产线的布局图》摆放；

2)、电气柜与设备的连接线必须按照《电气原理图》连接;

4.2.4、设备的废弃处理

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。

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。

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。

Mechanical handling by forklift for lifting other small electric control boxes.

4.2.2. Transportation

The electric cabinet must be wrapped in a PS foam sheet, and then shipped in a wooden box, the electric cabinet is firmly fixed in the packing box;

4.2.3. Safety operation regulations of the electric cabinet

1) Electrical cabinet shall be arranged according to the Layout Drawing of PP Thick Plate Production Line;

2) The connecting line between the electrical cabinet and the equipment must be connected in accordance with the Electrical Principles Diagram;

4.2.4 Disposal of equipment

When the service period of the equipment reaches its service life and the machine can no longer be used or repaired, the user shall not discard it at will. It should be considered from the perspective of environmental protection and energy saving, delivered to the relevant environmental management department or properly handled in accordance with the local environmental protection regulations.

At the same time, in the process of use and maintenance, considering the importance of protecting the environment, the waste parts removed from the machine, replaced waste oil should be properly treated, so as not to cause environmental pollution.

Also, in the production process, minimize waste production from the perspective of saving energy and materials.

五、开关机说明 Switch Machine Description

（PP厚板片材挤出线各部位设备名称与功率大小详见PP厚板线图,请结合<<电气原理图>>仔细阅读以下操作说明.）(For the equipment name and power size of each part of the PP sheet extrusion line, see the PP sheet line diagram. Please read the following operation instructions carefully combined with the <<electrical schematic diagram>>.)

5.1 开车前的准备:Preparation before driving

- 加热圈及接线盒端子是否松动。
- 热电偶的位置及插入状况。
- 管道接头部位是否松动，有无泄漏。
- 水夹套的冷却水接通，先开出水阀，再开进水阀。
- 挤出机驱动马达的转速限度：≤1500rpm。
- 减速机油冷却部件油压计（警报）：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。
- Whether the heating ring and terminal box terminals are loose.
- Location and insertion status of the thermocouple.
- Whether the pipe joint part is loose, without leakage.
- The cooling water of the water jacket is turned on, open the water valve first, and then drive into the water valve.
- Speed limit for the extruder drive motor: ≤ 1,500 rpm.
- Reducreducer oil cooling component oil gauge (alarm): 1~1.5Kg/cm2.
- Whether the motor rotation is the same as that required by the extruder screw, otherwise correct.

5.2、开机步骤：Start tup steps

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

步骤2：挤出机料斗内加满物料,插上插板；

步骤3：接通料斗座下面的冷却水，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，在整个过程中，料斗座下的冷却水不得中断。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；

步骤4： 检查换网器工作是否正常，网片是否换上；

步骤5：启动计量泵，给定较低的速度转动，因为流道内还没有充足料；

步骤6：启动挤出机，并同步调整计量泵与挤出机的速度至生产工艺所需的速度；

步骤7：当压力稳定时，切换到压力闭环控制状态，实现模头恒压运行；如果进料不稳定,造成压力波动较大，则立即将其转换到压力开环控制状态，否则会损伤设备;

步骤8：将三辊压光机下辊与中辊间隙调至所需要的间隙，然后打开下辊，使模口出

来的料从中穿过，最后绕过中辊从上辊引出来，至牵引辊，正常后将上辊压紧，将三辊与牵引速度调至同步，且上辊与中辊之间压紧后，不能有堆积料，否则透明度较差；如果挤出的板材成形后，板向上凸起，则上辊相对于中辊温度偏低，需要加下辊温度或降低上辊温度；板向上凹起，则下辊相对于中辊温度偏高，需要减下辊温度或升高上辊温度；

步骤9：当需要增加挤出产量时，压力闭环控制时，提高计量泵的转速；手动开环控制时，先提高计量泵的转速，再提高主机的转速，使泵前压力能稳定在所需要的工作压力；

步骤10：测量需要制品的宽度，对应放下两边切边刀具；

Step 1: Check whether the water, electricity and gas sources are sufficient, check whether the materials are qualified, the dry hopper, the feeding system is working normally, whether the auxiliary water heating system is normal, and whether the retractor is working normally;

Step 2: Fill the extruder hopper with materials, and plug in the plug board;

Step 3: Turn on the cooling water under the hopper seat, and set the temperature of the cylinder and the mold area according to the process temperature. When the heating temperature reaches the set value, the extruder enters the automatic insulation state. When the working environment is less than 12 ℃, the extruder needs to keep insulated for at least 2 hours. When the working environment is higher than 16 ℃, the extruder can only be insulated for 1.5 hours. If the temperature in the production workshop is too low, the cylinder can be insulated with asbestos cloth, and the cooling water under the hopper seat shall not be interrupted during the whole process. Open the water heater switch of the press, and start the three rolls, and rotate at a low speed, heat to the normal process temperature, and keep heat for 1-2 hours. The first temperature measurement needs to calibrate the temperature with a glass thermometer;

Step 4: Check whether the network changer is working normally and whether the mesh is replaced;

Step 5: Start the metering pump and rotate at a low speed, because there is no sufficient material in the flow channel;

Step 6: Start the extruder and adjust the speed of the metering pump and extruder to the speed required for the production process;

Step 7: When the pressure is stable, switch to the pressure closed-loop control state to realize the constant pressure operation of the mold head; if the feed is unstable and causing a large pressure fluctuation, it will be immediately converted to the pressure open-loop control state, otherwise the equipment will be damaged;

Step 8: Adjust the gap between the lower roller and the middle roller to the required gap, then open the lower roll to make the material out of the mold pass through the middle roll, finally bypass the middle roll from the upper roll and lead the upper roller to the traction roller, tighten the upper roller and the traction speed to the synchronization of the three roll and the compression between the upper roll, otherwise the transparency of the plate is poor, the plate need to reduce the roller temperature or raise the upper roller temperature;

Step 9: When the extrusion output is required, the pressure control shall improve the closed loop speed of the metering pump; during the manual loop control, increase the rotation speed of the metering pump first, and then the speed of the main machine, so that the front pump pressure can be stable at the required working pressure;

Step 10: Measure the width of the required product and lower the side cutting tools;

5.3、停机步骤 Downtdown steps：

步骤1：插上进料斗插板；

步骤2：闭环控制时，降低计量泵的速度；手动开环控制时，同时降低计量泵与主电机速度；

步骤3：降低三辊速度，然后使三辊压光机向后退，上下辊分开；

步骤4：模口不能正常出料后，停止三辊压光机运行；

步骤5：停止后面的辅机；

步骤6：机筒内物料排空后，停止主机运行，停止计量泵运行；

步骤7：若为压力闭环控制时，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；

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 1: Plug in the feed hopper insert board;

Step 2: During the closed-loop control, reduce the speed of the metering pump; manually open the loop control, and simultaneously reduce the metering pump and the main motor speed;

Step 3: Reduce the three-roll speed, then reverse the three-roll press, and separate the upper and lower rollers;

Step 4: Stop the three-roller optical press operation after the mold port cannot be discharged normally;

Step 5: Stop the rear auxiliary machine;

Step 6: After the materials in the cylinder are emptied, stop the main machine operation and stop the metering pump operation;

Step 7: If pressure closed loop control, convert it to manual open loop control state and reduce the cylinder temperature to

100 ℃, turn off all heating switches after 15 minutes;

Step 8: Turn off all power switches, gas sources, water switches and all safety guards to return in position;

六、机器故障分析与排除 Machine Fault Analysis and Troubleshooting

6.1、挤出机部分 Extruder part

故 障 排 除Troublting

故障状态 现 象Fault Status	原 因 分 析Cause Analysis	排 除 方 法Cause Analysis

Phenomenon		
噪声增大Noise increase	1．噪声来自螺杆机筒，螺杆与机筒在运转时有摩擦声，甚至有啸叫声； 2．噪声来自冷却风机，风机叶轮与外壳有摩擦；1. noise comes from the screw cylinder, the screw and cylinder in the running of the friction sound, and even roar; 2. The noise comes from the cooling fan, with friction between the fan impeller and the shell;	1．新机器开机时，因料筒内没有充足的物料，会有一点摩擦声，运行一段时间会有好转； 2．将有摩擦风机整修一下，或更换； When the 1. new machine is turned on, because there is no sufficient material in the material cylinder, there will be a little friction sound, and the operation will improve for a period of time; 2. Repair the friction fan, or replace it;
主机螺杆电机电流增大，或电流时大时小 Host screw motor current increases, or small at large current	1．物料没完全塑化； 2．物料下料不均匀； The 1. material is not fully plasticized; 2. Improper feeding of the materials;	1．提高工艺温度； 2．检查料斗下料口； 1. improves the process temperature; 2. Check the hopper;
工艺温度到，螺杆仍不能转动 When the process temperature reaches, the screw can not rotate	1．下料口至螺杆根部物料硬化，抱死螺杆，使电机不能启动； 1. off the material to the screw root material hardening, hold the screw, so that the motor can not start;	1．提高螺杆根部的温度，并启动主电机； 1. Raise the temperature of the screw root and start the main motor;
压力显示不准确； Inaccurate pressure	压力传感器损坏；Damaged pressure sensor;	更换压力传感器；Replace the pressure sensor;

display;		
压力显示波动大，在闭环控制时，造成主电机速度振荡；The pressure display fluctuates fluctuations, in the closed-loop control, causing the main motor speed oscillation;	挤出机下料口进料不均匀；The material inlet of the extruder is not uniform;	检查进料不均匀的原因，并排除原因， 转换到“开环控制”状态，待进料均匀后，再转换到“闭环控制”状态； Check the reasons for uneven feed and exclude the cause, Convert to "open loop control" state, and then to "closed loop control" state after uniform feeding;
加温时，某区温度升不上去；When heating, the temperature in some area can not rise;	1．该区加热回路，过载跳闸； 2．温度传感器损坏； 3．某区加热圈或加热棒损坏； 1. this area heating circuit, overload trip; 2. Damage to the temperature sensor; 3. Broken heating ring or heating rod;	1．如果是过载继电器跳闸，将整定电流调大；如果是断路器跳闸，则需要更换容量大一档的断路器； 2．更换温度传感器； 3．环加热圈或加热棒； 1. If the overload relay trip, adjust the rectification current; if the circuit breaker trips, the large capacity circuit breaker shall be replaced; 2. Replace the temperature sensor; 3. Ring heating ring or heating rod;
加温时，某区温度不升反而下降； When heating, the	温度传感器+ -极接反； Temperature sensor-extreme reverse;	温度传感器+，-极对调； Temperature sensor, -polar adjustment;

temperature in a certain area does not rise but decreases;		

6.2、三辊压光机与牵引机 Three-roller compressor and tractor

故障状态 现象Fault Status Phenomenon	原因分析Cause Analysis	排除方法Exclclusion Method
三辊压光机或牵引机有一辊电机跳闸；Three-roller suppressor or tractor has a roller motor trip;	1．速度不同步； 2．电机故障； 1. Speed synchronization; 2. Motor failure;	1.速度，使速度同步； 2．通过伺服驱动器显示的故障代码与<伺服驱动器使用手册〉查出故障原因；1. Speed, to synchronize the speed; 2. Check the fault cause through the fault code displayed by the servo drive and the <server drive user manual>;
伺服电机响声较大；Servo motor sound is loud;	1．电机插头没有插紧； 2．减速箱内缺油或齿轮损坏； 1. The motor plug is not plugged in; 2. Lack of oil or damaged gear in the deceleration gearbox;	1．插紧电机插头； 2．加油或修复更换齿轮；1. Plug in the motor plug; 2. Fuel the oil or repair and replace the gears;

6.3、三辊温度控制器（参考辊温控制原理图）Three-roll temperature controller (refer to the roller temperature control schematic diagram)

故障状态 现象Fault Status Phenomenon	原因分析Cause Analysis	排除方法 Exclclusion Method
水泵启动后压力表上无压力显示；No pressure display on the pressure gauge after the water pump startup;	1．水泵反转； 2．没有充足的水源，水泵空转； 3．管路中有较多空气； 1. Water pump reversal; 2. Without sufficient water source, the water pump is idle; 3. More air is found in the pipeline;	1．调换电机任意两相线； 2．外供水源的压力＞2KG/CM^2； 3．排掉管路中的空气；1. Switch any two-phase lines of the motor; 2. Pressure of external water supply:> 2KG/CM2; 3. Remove the air from the pipeline;
温度失控，不能降温；Cooling solenoid valve	冷却电磁阀YV11，YV12，YV13其中任一个阀不能工作；YV11,YV12,YV13, either valve does not work;	检查冷却电磁阀YV11，YV12，YV13是否正常工作并排除；Check whether the cooling solenoid valve YV11,YV12,YV13 is working normally and excluded;
温度失控，不能升温；Temperature out of control, can not heat	1．该区加热回路，过载跳闸； 2．温度传感器损坏； 3．冷却电磁阀阀体内有杂物，	1. 如果是过载继电器跳闸，将整定电流调大；如果是断路器跳闸，则需要更换容量

up;	使电磁阀不能完全关闭；1. Heating circuit in the area, overload trip; 2. Damage to the temperature sensor; 3. There are sundries in the cooling solenoid valve valve, so that the solenoid valve cannot be completely closed;	大一档的断路器； 2．更换温度传感器； 3．打开电磁阀阀体，清洗内部；仍不能解决则更换电磁阀；1. If the overload relay trip, adjust the rectification current; if the circuit breaker trips, the large capacity circuit breaker shall be replaced; 2. Replace the temperature sensor; 3. Open the solenoid valve body and clean the interior; replace the solenoid valve;
水泵不能启动 Water pump cannot not start	1．水泵过载或过流跳闸；1. water pump overload or overcurrent trip;	将整定电流调大，如仍跳闸，则检查电机三相线圈是否正常，是否有相线对地短路现象，然后排除之；Adjust the rectification current, if still tripping, check whether the motor three-phase coil is normal, whether there is a short circuit to ground, and then eliminate it;

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！

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。

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。

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，最终解释权归金纬机械所有。

如有疑问，请与本公司技术部门联系。**+0512-53377373**

Note: If the fault is still not resolved, please contact the company in time, disassembly and disassembly without the consent of the company, causing a series of problems, which will be responsible by the user. Please understand!

When the service period of the equipment reaches its service life and the machine can no longer be used or repaired, the user shall not discard it at will. It should be considered from the perspective of environmental protection and energy saving, delivered to the relevant environmental management department or properly handled in accordance with the local environmental protection regulations.

At the same time, in the process of use and maintenance, considering the importance of protecting the environment, the waste parts removed from the machine, replaced waste oil should be properly treated, so as not to cause environmental pollution. In the production

process, the consideration from the perspective of energy and material conservation, to minimize the production of waste.

Since the Company is constantly committed to the upgrading and development of the products, the charts, instructions, parameters provided in the manual may be inconsistent with the actual product, the specific objects shall prevail, the pictures are for reference only, please understand for the inconvenience, the final interpretation belongs to Jinwei Machinery.

In doubt, contact our Technologies. 0512-53377373