
XPS 挤塑板挤出生产线

XPS board extrusion line

使用说明书

Manual

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安全注意事项 Security considerations

使用金纬公司设备前敬请详细阅读本说明书 Please read this manual
before using Jin Wei company equipment

本说明书中将具体的介绍 XPS 挤塑板挤出生产线，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。相关操作人员必须注意以下几点 This manual will be detailed introduction XPS extruded board extrusion production line, the safety in production process, and the composition of each unit of the specific installation, operation and maintenance procedures. Relevant operators must pay attention to the following points:

- 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。

- perusal this safety operating instructions or accept the company after the training, operation must be carried out production line;
- vigilant, pay attention to safety;
- before operating equipment with safety signs, please wear special protective tools;
- use tools correctly, pay attention to the maintenance tools;
- to correct maintenance and maintenance of equipment, to ensure the safety in operation;
- replacing related accessories and power lines, please use the wire that could satisfy the requirement of work and other related accessories, to ensure the safety of the operator.
- electrical maintenance personnel in maintenance circuit, ban on power;
- to remind the operators in the process of operation to avoid personal injury, this production line in the area of many there is a risk of personal injury to post the corresponding safety

warning signs, please in the production and debugging, as well as the process of maintenance maintenance, don't put the displacement of the safety warning signs, when removing repairing the machine, need to move or removed some logo, please after complete the corresponding work, install back to their original position.

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！ To the operation of the irregularities and unskilled caused personal injury and equipment damage, damage to property and other consequences, the company will not bear any responsibility!

安全警告标识 Safety warning labels

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。Because regions and countries in the security warning signs in the sense of difference, in this particular explanation on the production line of the specific significance of safety warning signs, please the operator before operating the machine, to understand the meaning of these safety

warning signs.

安全标识的解释说明 The security identity of explanation



在设备运转时请保证接地良好! Please make sure that when the equipment is running grounding is good!



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! In high speed rotation, operators shall not be removed or transposition in addition to maintenance.



注意! 此处温度极高，操作时，要注意安全，防止烫伤! Attention! The temperature is too high for operation, should pay attention to safety, prevent burns!



注意！滚动件容易伤人，请不要把手接触在上边。Attention! Scroll to easy to hurt, please don't contact with his hands in the top.



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！Attention! Machine on the dangerous parts, easy to pin your fingers, please don't put his hand 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，有触电的危险！Attention! When switching power supply after the forbidden any power lines and plug wire cover, there is a risk of electric shock!



注意！设备温度较高，操作时请戴防高温手套！ Attention! Equipment at higher temperature, please wear heat gloves when operating.



注意！设备温度较高，操作时要穿防高温服！ Attention! Equipment at higher temperature, operation in high temperature proof clothes!

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！ Due to do not understand the correct safety instructions cause bodily injury or property damage, our company shall not bear any responsibility!

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第一章 生产线的使用范围和性能 The first chapter the use of the production line, and performance

1.1 使用范围 Using range

XPS 挤塑保温板挤出生产线是加工 PS 原料的生产线,本说明书所讲的操作和使用规程只适用于加工 PS 物料。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。XPS extruded insulation board extrusion production line is processing the PS materials production line, this manual of operation and the use of procedures is only applicable to processing the PS material. If the user to other materials processing, is outside the scope of this manual instruction, at the same time, the resulting consequences shall be borne by use, the company will not undertake any responsibility.

1.2 使用性能 The use of performance

XPS 挤出生产线最终产品,片材宽幅 600mm,厚度 20-100mm。XPS extrusion production line of the final product, sheet wide 600 mm, the thickness of 20-100 - mm.

1.3 生产线工作与贮运的环境要求 Production line survey work

and environmental requirements

允许环境空气温度：+5℃~40℃；

贮运温度：-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%。

: allow ambient air temperature + 5 °C and 40 °C.

Suitable temperature: - 20 °C ~ 55 °C;

Relative humidity: 90%, without any condensation;

Pollution levels: level 2, should not be installed in the dust, corrosive gases places;

1000 meters altitude: <, > 1000 m must let use, every 100 meters, load capacity fell 1%.

1.4 电源要求 The power supply requirements

供电形式：三相五线制，即 TN-S 系统（3P/N/PE）

三相电压：380V±10% 单相电压：220V±10%

电源频率：50Hz±5%

Form: three-phase five wire system, namely, TN -s system (3 p/N/PE)

Three-phase voltage: 380 v + 10% for single phase voltage:

220 v + / - 10%

Power frequency: 50 hz plus or minus 5%

1.5 进线电缆及断路器要求 **Into the line cable and circuit breaker**

要求用户厂房配备设备电源柜，用户厂房配电室电源柜的总进线电缆规格在具体生产布线图中有说明（在 1 标准大气压下），没有包括本公司设备以外的电源容量。本公司 XPS 挤塑板挤出生产线需要设备电源柜配置 4 只断路器，其要求分别为：

挤出机温控柜：整定电流 518.2A，短路分断电流 25KA，电缆规格为 $3 \times 120\text{mm}^2 + 95\text{mm}^2$ 地线（1 个标准大气压下）；

辅机柜：整定电流 100A，短路分断电流 25KA，电缆规格为 $3 \times 25\text{mm}^2 +$ 零线+ 地线（1 个标准大气压下）；

注：如果当地电压和电缆规格与上面所说的不同，请另定合适的规格。

Requires the user to plant equipped with equipment power cabinets, user total plant substation power supply cabinet into the wire cable specifications in specific wiring diagram shows that (1) under normal atmospheric pressure, do not include equipment outside the power capacity of the company. The company XPS extruded board extrusion production line need equipment power supply cabinet configuration of four circuit breakers, its requirements are:

Extruder temperature control cabinet: 518.2 A setting current, short circuit breaking current 25 ka, cable specification for 3 x 120 was + 95 mm + ground wire (1) under normal atmospheric pressure;

Auxiliary rack: setting current 100 a, short circuit breaking current 25 ka, cable specification for 3 x 25 was + + ground zero line (1) under normal atmospheric pressure;

Note: if the local voltage and cable specification is different from what is said above, please make the appropriate the other specifications.

1.6、气源要求 Air supply requirements

气源压力 0.6—0.8MPa, +

正常工作时耗气量约 2m³/小时。

Air pressure 0.6 0.8 MPa, +

The gas consumption in normal working conditions about 2 m³ / h.

1.7、水源要求 Water requirements

生产线工作时总耗水量 2m³/小时，压力 0.3—0.4MPa 正常水温 <35℃，须配备大水池或冷却塔。Production line to work the total water consumption of 2 m³ / h, 0.3 0.4 MPa pressure normal temperature < 35 °C, must be equipped with large pools or cooling

tower.

1.8、地基防护 The foundation protection

生产线地基图，挤出机混凝土平台，混凝土平台必须按照图纸安装防护栏。Line diagram of foundation, extrusion machine concrete platform, concrete platform fencing must be installed in accordance with the drawings.

第二章 挤出生产线的组成及其操作维护 The second chapter of extrusion production line and its operation and maintenance

2.1 生产线构成 Production line constitute

1. JWS75 平双挤出机：用来进行物料的熔融，为 JWS150/40 单螺杆挤出机提供熔融料。

2. JWS150/40 单螺杆挤出机：均化发泡剂，并进一步对物料进行塑化熔融挤出。

3. 液压式换网装置：通过液压装置进行更换过滤网。

4. 600KG/h 螺旋上料搅拌机：对加工物料进行搅拌混合，然后通过压力输送提供给挤出系统。

5. 1000×1200 压平机：对刚从模具中挤出的产品进行表面压平，定厚。

6. 一次牵引机：对成品进行牵引，是产品向前输送的原动力。

7. 冷却辊架：冷却产品的同时对产品进行辅助输送。
8. 二次牵引机：对成品进行二次牵引，使成品进一步向前输送。
9. 纵向切割机：对产品进行计宽修边。
10. 小辊压花装置
11. 横向切割机：对最终成品进行计长切割。
12. 堆料架：堆放最终产品。
13. 模具：对熔融料进行成型挤出。
14. 辅助配套设施：辅助主机和辅机进行生产。
15. 电气控制系统：对生产线的各个工作部分温度、电流等因素进行控制。

JWS75 double extrusion machine: used for the molten material, provide JWS150/40 single screw extruder with molten material.

2. JWS150/40 single screw extruder, homogenization, foaming agent and further plasticized melt extrusion was carried out on the material.

3. Hydraulic device to replace the network: through hydraulic device to replace filter.

Spiral feeding mixer: 4.600 KG/h to mixing of materials processing, through pressurization and then to the extrusion system.

5. 1000 x 1200 pressing machine: products of just out of the mould surface flattening, thick.

6. A tractor: traction to finished product, is the product impetus for forward delivery.

7. Cooling roller frame: cooling products for auxiliary conveying products.

8. Secondary tractor: the finished product to pull the second of finished further carry forward.

9. The longitudinal cutting machine: the products in a meter wide trimming.

10. Small roller embossing device

11. The transverse cutting machine: the final finished product length cutting.

12. Stacking frame: the stacking of the final product.

13. The mould: the molten material extrusion molding.

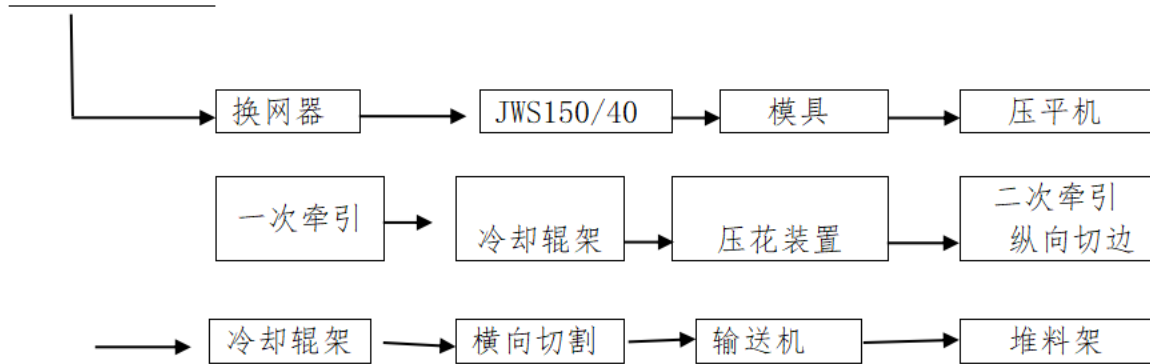
14. Auxiliary facilities, auxiliary production of main and auxiliary machinery.

15. Electrical control system: the production line of the working parts of various factors such as temperature, current control.

2.2、XPS 挤出生产线的生产过程及工艺流程 The production process of the XPS extrusion production line and process flow

2.2.1、生产线工艺流程 Production line process





2.3、挤出生产线各单元基本参数及安全操作指导 Basic parameters and extrusion production line units safety operation instruction

2.3.1 挤出机基本参数：Basic parameters of extruder

挤出成型具有生产率高、适应性强、用途广泛等优点，几乎适合所有的高分子材料的加工。螺杆挤出机是聚合物加工最基本的装备之一，迄今为止，对单螺杆挤出机的研究已经有近 90 年的历史。过去人们对螺杆挤出机的研究仅仅是停留在普通挤出机的理论研究和结构改善上，这只能适当提高产量、改善制品性能。

在当今世界四大材料体系（木材、硅酸盐、金属和聚合物）中，聚合物和金属是应用最广、最重要的两种材料。以树脂为例，其产量超过一亿吨。按其体积来讲，已和钢铁并驾齐驱。而在这一亿吨树脂中，大约 80%都要经过螺杆挤出这一重要的工艺来加工。其中不仅包括膜、板、管丝和型材等制品的直接成型，还包括中空吹塑、热成型等坯料的挤出加工。除此之外，在填充、增强、共混、改进等复合材料和聚合物合金生产过程中，螺杆挤出和造粒等前处理工序中，无论是大型的树脂厂，或者中小型的制品厂，几乎都采用了挤出这一先进工艺。挤出机几乎成为任何一个塑料有关的企业或研究所最基本的装备之一。在这里，我们还没有考虑注塑机几乎都用螺杆来预塑这一重要因素。

上述发展趋势是由下列原因造成的：螺杆挤出机能将一系列化工基本单元过程，如固体输送、增压、熔融、排气、脱湿、熔体输送和泵出等物理过程集中在挤出机内的螺杆上来进行。最近 20 年来，挤出工程的发展表明，更多的过程，如交联、发泡、接枝嵌段、调节相对分子量甚至聚合反应等化学过程都越来越多地在螺杆挤出机上

进行。螺杆挤出机这种工艺装备逐步取代了一些由多台经典的化工装备组成的生产线。以连续生产代替间歇生产，必然有较高的生产率和较低的能耗，减少了生产面积和操作工人数量，也易于实现生产自动化，还有较好的劳动条件和较少的环境污染。与此同时，螺杆的搅拌作用也提高了混合质量。这些因素加在一起，必然降低了生产成本。正因如此，螺杆挤出这种工艺不仅广泛地用于聚合物加工，而且在建材、食品、纺织、军工、金属和造纸等工业部门中得到了越来越多的应用。

一条挤出生产线通常由挤出机、机头、辅助及相应的控制设备等组成，物料从料斗中加入后，经过一系列物理和化学作用，一般以熔融态从机头的口模挤出再经过定型、冷却、牵引、切割、卷取或堆放等基本工序得到所要求的制品。而控制系统则保证了整条生产线在挤出工艺所设定的速度和温度下运行。近代的挤出机生产线还有更为复杂的压力，尺寸和形状各方面的检测、反馈和自动控制系统，这些技术往往和计算机在线检测技术结合，推动了挤出工程和科学的发展。

Extrusion has advantages of high productivity and strong adaptability, wide range of USES, suitable for almost all of the polymer material processing. Screw extruder is one of the most basic equipment for processing of polymer, so far, the study of single screw extruder is nearly 90 years of history. In the past, people study of screw extruder is only stay in the study of the theory of the common extruder and structure improvement, it can only be appropriate to increase production, improve product performance.

In today's world four big material system (wood, silicate, metal and polymer), polymer and metal is the most widely used, two of the most important material. Resin, for example, its output more than one hundred million tons. According to its volume, and steel. About 80% in the one hundred million tons of resin, go through screw extrusion is an important process to machining. Not only including film, plate, tubes and profiles of products direct forming, also including hollow blow molding, thermoforming billet extrusion processing. In addition, the filling, enhancement, blending, improvements and other composite materials and polymer alloy production process, screw extrusion and granulation, pretreatment process, regardless of whether they are large resin factory, or small and medium-sized production factory, almost all adopted out of this advanced technology. Extruder has become almost any enterprise or institute a plastic one of the most basic equipment. Here, we have not yet

considered almost all use screw to pre plastic injection molding machine is an important factor.

The development trend is caused by the following reasons: screw extrusion function will be a series of chemical basic unit process, such as solid conveying, pressurization, melting, exhaust, take off the wet, the melt conveying and pump out the physical processes such as concentrated in the extruder screw up. In recent 20 years, the development of extrusion engineering show that more process, such as graft crosslinking, foaming, block, adjusting the relative molecular mass, and even the chemical process such as polymerization are increasingly in the screw extrusion machine. Screw extruder the process equipment gradually replace some composed of many sets of classical chemical equipment production line. Batch production is replaced by a continuous production, must have higher productivity and lower energy consumption, reduced the number of production area and the operators, also easy to realize automation of production, and better working conditions and less environmental pollution. At the same time, the screw of the mixing effect and improve the quality of mixed. Together, these factors reduced the production cost. Because of this, screw extrusion this process not only widely used in polymer processing, but also in building materials, food, textile, military industry, metal and paper such as the more and more application in the industrial sector.

A extrusion production line is usually composed of extruder, head, auxiliary and the corresponding control equipment, etc, the material from the hopper to join later, after a series of physical and chemical action, general with molten expressed after finalize the design, from the nose and the mouth of mold cooling, traction, basic process such as cutting, coiling, or pile up to get the required products. While control system ensures that the whole production line in the extrusion process is configured to run speed and temperature. Modern extruder production line and more complex pressure, size and shape every aspect of testing, feedback and automatic control system, these techniques often and combining with computer on-line detection technology, promote the development of the extrusion engineering and science.

2.3.2、挤出机基本参数 Basic parameters of extruder

JWS 75/32 挤出机

长径比 : 32 : 1

调速器: ABB

加热功率: 约为 48Kw

加热区段: 8

冷却区段: 8

螺杆机筒材料: 38CrMoAl

JWS150/44 挤出机

长径比: 44: 1

调速器: ABB

加热功率: 75Kw

加热区段: 9

冷却区段: 9

螺杆机筒材料: 38CrMoAl

150 主机外形图:

JWS 44 extruder extruder JWS150/75/32

Length to diameter ratio: 32, 1 length to diameter ratio: art

Governor: ABB governor: ABB

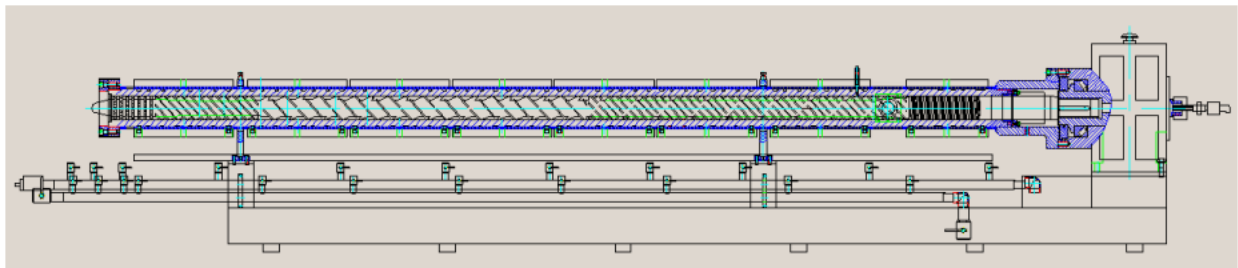
Heating power: about 48 kw heating power: 75 kw

Heating sections: section 8 heat: 9

Cooling section, cooling section 8:9

Screw barrel material: 38 crmoal screw barrel material: 38 crmoal

150 host contour diagram:



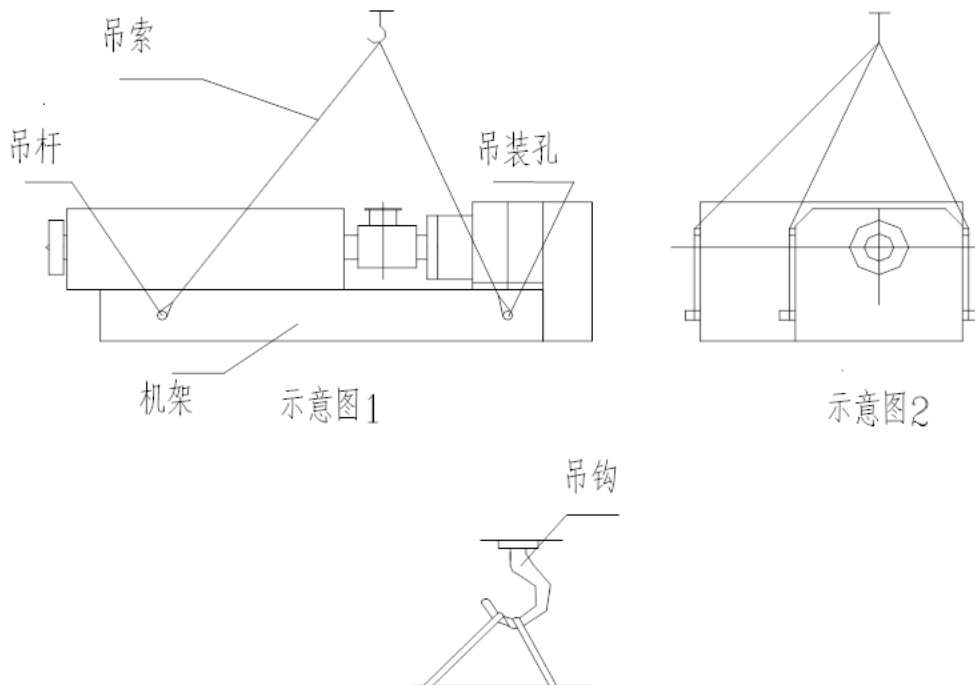
150 挤出机外形 150 extruder appearance

2.3.3、挤出机的吊装 Lifting 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。

Extruder, before assembly will have enough strength of the first round steel insert frame

hole for hoist, according to hoisting, lifting extruder. Due to the extrusion machine weight distribution imbalance will lead to deviation in the process of handling center, in order to prevent the sling sliding in the hook, set in a sling the hook must be on the hook more around a circle. In the process of hoisting, please hold the center of the machine, to prevent the oscillation amplitude in the air in the process of hoisting machine is too big, hurt the operator or other relevant personnel at the scene.



2.3.4、挤出机的就位和安装 **In place and installation of extrusion machine**

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）。Extruder is in place and installation and production line with other equipment, usually in place must follow the line foundation drawing (provided by my company's design department), as shown in the line chart. Adjust the relative position between the extruder and the relative position between the whole production line, at the same time adjust extruder its horizontal position (TongKou and the inlet point of the surface of the installation can be used as measuring datum).

2.3.5、挤出机主要部件 **Extruder main components**

2.3.5.1 、齿轮减速箱基本参数和安全操作说明 **Basic parameters of gear reducer and**

safety instructions

一、概述 overview

螺杆挤压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。Screw extruder special gear box is designed specifically for plastic, rubber single-screw extruder design of high precision hard tooth surface gear. Reference to JB/T 8853-2001 design of cylindrical gear reducer, the gear and gear shaft material USES high strength low carbon alloy steel, tooth surface by carburizing, quenching, grinding processing, precision of the gear level 6 (GB/T 10095) tooth surface hardness HRC54-62. Output shaft front end is equipped with large size of thrust bearing, screw axial thrust.

二、使用范围 Using range

- ◆ 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。）

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。
- ◆ prime mover input speed is not higher than 1500 r/min
- ◆ gear circumferential velocity is not more than 20 m/s
- ◆ work - 40 °C ~ 45 °C environment temperature, under the condition of environment temperature is lower than 0 °C , the lubricating oil preheating prior to start to 0 °C above, or to choose lubricating oil at low temperature.)
- ◆ Note:
- ◆ this reducer can be used to is, the two direction of running, but some type high speed shaft one-way oil pump, the default direction is: in the face of the output shaft, output shaft is clockwise.

三、减速机型号说明 Deceleration machine instructions

产品铭牌标识 减速机出厂都附带产品铭牌标识，记录了产品的型号、性能、出厂日期、出厂编号等信息，为了更好提供售后服务，方便档案查询，请勿擅自拆除 Product nameplate marks reducer factory with product nameplate, records the product model, performance, production date, factory number and other information, in order to provide better after-sales service, convenient file query, please do not remove

四、减速机的安装与联接 Installation and connection of speed reducer

- ◆ 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
- ◆ 当减速机使用皮带轮、齿轮、链轮等输入传递动力时，应根据使用产品样本校核减速机轴的附加径向承受力，在输入轴伸中间部位，附加径向承受力不得大于 $125 \times \sqrt{T_1}$ (N)。式中： T_1 ——减速机输入力矩 (N.M)。
- ◆ 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。如果无异常现象即可交付使用。
- ◆ reducer installed base must be smooth, solid, reliable, stable, special occasions workstation installation should be considered. In the case of uniform anchor bolt fastening guarantee inserted into the output shaft of the screw without binding uniform rotation.
- ◆ reducer and prime mover of the connection way, priority should be given to error compensation connection speed reducer input shaft axis to ensure alignment on the connecting part of the axis, should check the axial deviation and angular displacement quantity at the same time, the error

shall not be greater than the allowable values of coupling used

- ◆ when reducer using the pulley, gear, sprocket, such as input to the transmission power, should be used according to the product sample check additional radial tolerance of speed reducer shaft, middle in the input shaft, additional radial tolerance shall not be greater than (N). Type: reducer input torque (N.M).
- ◆ installed, add lubricating oil in the reducer. Lubricating oil evenly distribution in the casing to the center line of the oil standard oil.
- ◆ connect water cooling system, check the tapping for seepage and leakage phenomenon
- ◆ switch on the power, let the no-load running speed reducer for short periods of time, check the equipment run time lubricating oil in the pipeline is normal, permeability, oil leakage, installation parts is loose, whether there are abnormal noise. If no abnormal phenomenon can be delivered.

注意 Note:



- ◇ 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。

Filled in for all coupling, when installation, cut off the motor power supply and measures should be taken, such as hanging warning labels) to prevent accidental connected;

Cardiac coupling, and not allowed to use the hammer knock pinion methods suit to the shaft end;

Derive the correct belt tension should be paid attention to when installing pulley;

Cardiac output part shall not adopt strong screw installation;

Is left exposed rotating parts of the reducer (coupling and pulley) should add shield;

Derive the connecting shaft end and flange surface must be thoroughly remove rust, dirt, pollutants or similar can use solvent cleaning, cleaning shall not let the solvent into the shaft end sealing lip seal parts, otherwise it will damage the sealing material.

五、减速机使用 Reducer using

开机前检查项目 Check before starting the project:

- ◆ 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。当减速机温升超过 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

before use, first check the deceleration box body for lubricating oil, the oil level is correct, if lack of lubricating oil should be timely supplement;

if the connection parts loose, safety protection device is complete;

whether the environment temperature is lower than 0 °C, lower than 0 °C case work, before the start of lubricating oil preheating to 0 °C and above.

Reducer running:

reducer should be idling 5 ~ 10 minutes (if reducer gear pump with motor, reducer, open before starting motor gear pump), make each bearing, gear load after sufficient lubrication is used; If the reducer for the first time use, empty load step by step after operation, per level and 20% rated load running 1 ~ 2 hours, until the rated load, no abnormal phenomenon into normal operation.

in the operation process of reducer, timely monitoring the rise of temperature of the speed reducer, and make records. When the reducer temperature over 70 °C or oil temperature exceeds 100 °C, should stop to use, find out the reason and troubleshooting, need to contact the company's after-sales service. Troubleshooting to lubricating oil should be replaced after use.

reducer outage operation according to the following procedure: first shut down the feed hopper, stay in the screw tubes conveying complete closed reduction, mechanical and electrical source (if reducer gear pump with motor, the machine shut down after the motor gear pump in the deceleration authority).

if the captain of the deceleration time to stop using, must be every 2 ~ 3 weeks let reducer running at a time

if reducer to stop using time more than 6 months, you need to take extra

for reducer internal and external anticorrosive measures:

Internal lubricating oil is full of; External use wax antirust coating on shaft end and without paint surface antirust processing, and use the daub grease on the shaft sealing components of the sealing lip to prevent infiltration of rust inhibitor

注意 Notes:



- ◇ 在开车的初始阶段，油泵可能会发出较高的噪声，这是应为润滑油粘度大、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；
- In the initial stage of the driving pump may be a higher noise, this is should be Lubricating oil viscosity caused by the large in the resistance of oil absorption, oil pump, the phenomenon in the lubricating oil temperature Higher degrees after go away;
- In reducer emerged during the normal use of the pump noise increase, at this time should be cleaning filter Oiler, ensure smooth oil;
- In operation process of reducer should be timely monitoring of speed reducer leakage, and found the oil leakage phenomenon, timely stop elimination;

六、减速机的检查、维护 The inspection, maintenance of reducer

◆ 检修与维护时间间隔 overhaul and maintenance interval

时间间隔 The time interval	检修与维护 Repair and maintenance
正常工作运行 Work normally run	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 reducer temperature: when using mineral lubricating oil, shall not exceed 90 °C When using synthetic lubricating oil, shall not exceed 100 °C Look for abnormal noise reducer

	Check for leaks reducer phenomenon
在运行 500~800 小时后 Run in the 500 ~ 800 hours filling lubricating oil	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 after the first operation of lubricating oil replacement for the first time Check whether the oil level should be
每隔运行 3000 小时，至少半年一次 Every 3000 hours of operation, At least once half a year to	检查润滑油，若在室外或潮湿环境，应检查油中水含量，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 the oil, if in outdoor or damp environment, check the water content in oil, and no more than 500 PPM Replace mineral oil (work time less than eight hours a day) Clean air plug
根据使用情况而定，至少 3 个月一次 According to the using situation and decide, At least 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 to replace mineral oil (long-term continuous work) Check whether there is any looseness on the connecting bolt everywhere Check the pollution state of lubrication and cooling device Clean lubricating oil filter, replacement of filter if necessary
根据使用情况而定，至少一年一次 According to the using situation and decide, At least once a year to	更换合成润滑油 replace synthetic lubricants
根据环境及使用情况而定 According to the environment and the use of the case	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 may be improved or replaced (rust) paint surface protection Clean deceleration closed to the surface

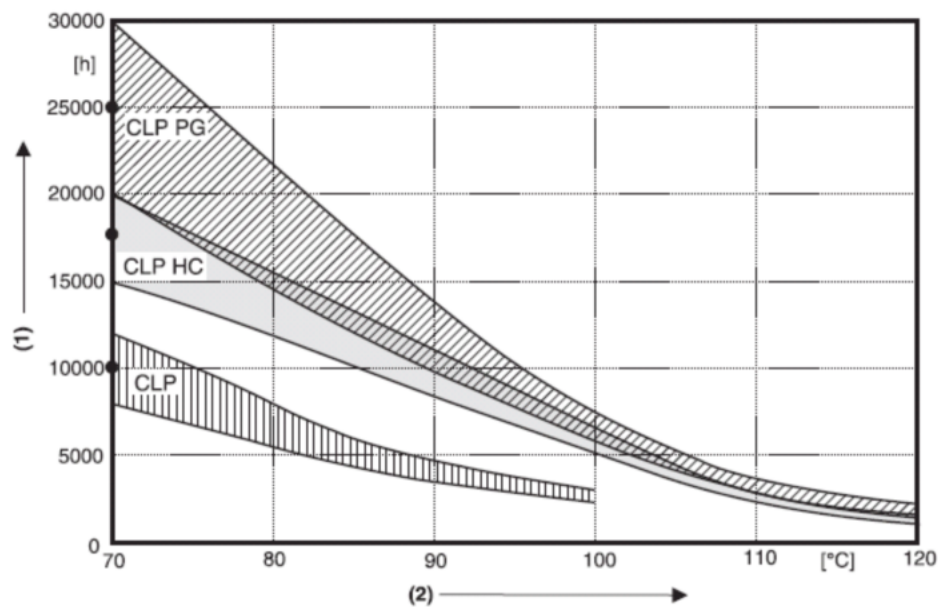
Check the attachment device

◆ 润滑油更换时间间隔 lubricating oil change interval

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 Under the condition of bad environment using special specifications reducer lubricating oil should be changed often

Below for normal environmental conditions using lubricating oil change interval, the CLP HC for polyolefin base (PAO) synthetic lubricants



(1) 为运行时间 (2) 油池持续温度 (平均值为 70°C) (1) to run the time

(2) continuous temperature (70 °C) average of oil pool

七、故障分析与排除 Failure analysis and elimination

故障现象 Failure phenomenon	可能原因 may cause	排除方法 elimination method	故障现象 failure phenomenon	可能原因 may cause	排除方法 elimination method

<p>异常、均匀的运转噪声 Exception, even running</p>	<p>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 Tap on A type B noise: uneven mesh</p>	<p>A 检查润滑油, 更换轴承 B 向国茂咨询 A to check the oil, replace the bearings B Consult the manu</p>	<p>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</p>	<p>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</p>	<p>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</p>
<p>异常、不均匀的运转噪声 Abnormal impurities, uneven running noise</p>	<p>润滑油杂质 lubricant</p>	<p>检查润滑油 停止运行, 向国茂咨询 check the oil Stop running, consult the alum</p>	<p>放油塞处 通气塞处 Lubricating oil spill: Reducer combination Reducer end cover surface</p>	<p>Don't close reducer connection parts Loose connection fasteners</p>	<p>向国茂咨询 Check the connecting bolt found loose screw in time Check the</p>
<p>在减速机固定区域内的异常噪声 Abnormal noise in the area of the fixed speed reducer</p>	<p>减速机固定件有松动 reducer fixed a loose check fasteners,</p>	<p>检查紧固件, 使用规定的紧固件 using rules of fasteners</p>	<p>Depending on the hole cover reducer The shaft seal Drain plug place Air plug in</p>	<p>Sealing parts installation is not correct Sealing parts damaged/wear Not tightly coupled Lubricating oil a too much Installation errors</p>	<p>sealing parts and replace it depends Check the oil level/improve exhaust Consult the alum</p>

<p>运行温度太高 Operating temperature is too high</p>	<p>A 润滑油过多 B 润滑油老化变质 C 润滑油杂质较多 D 润滑泵损坏 E 冷却系统故障 A lubricating oil too much B lubricating oil aging metamorphism C lubricating oil more impurities D lubrication pump damage E cooling system fault check the oil level,</p>	<p>A 检查油位, 如有必要修正 B 检查润滑油更换时间 C 检查润滑油 D 检查润滑泵, 更换 E 检查冷却系统 A correction if necessary B to check the oil change of time C to check the oil D check the lubrication pump, replacement E check the cooling system</p>	<p>轴承位置上温度太高 Bearing temperature is too high</p>	<p>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 position too little oil B lubricating oil aging metamorphism C lubrication pump damage D bearing damage</p>	<p>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, correction if necessary B to check the oil change of time C check the lubrication pump, replacement D check the bearing replacement</p>
<p>磨合期内轴端密封处温度太高 The running-in shaft end seal high temperature</p>	<p>轴端联接安装时未清理 密封部件与轴端的磨合 shaft end connection is not clear when installation With the shaft end in</p>	<p>清理轴端 可视作正常现象 clean up the shaft end sealing parts Can be regarded as normal</p>			

八、润滑油的选择 Lubricant choice

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 $V \leq 2.5$ 米/秒或当环境温度在 $35^{\circ}\text{C} \sim 50^{\circ}\text{C}$ 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

The viscosity of the lubricating oil level according to the high speed gear circumferential velocity V , environment or lubrication method is used to choose:

When $V \leq 2.5$ meters/seconds or less, or when the environment temperature 35°C to 50°C , should choose the load CKC320 industrial closed gear oil or

CKD320 heavy duty industrial closed gear oil

When $V > 2.5 \text{ m/s}$ or with forced circulation oil lubrication, the load should be chosen CKC220 industrial closed gear oil or CKD220 heavy duty industrial closed gear oil

润滑剂 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 Reducer is not recommended use of grease lubrication, if necessary, please feel free to contact us

Lubricating oil grades please see appendix - lubricating oil table at home and abroad

2.3.5.2、主电机基本参数和安全操作说明 Basic parameters of main motor and safety instructions

交流电机说明书 Ac motor specification

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，额定频率 50Hz，功率 3Kw 及以下为 Y 型接法。其他功率均为 Δ 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。

Y series motor is general purpose fully enclosed fan cooled squirrel-cage

three-phase asynchronous motor. Installation size and power level in accordance with IEC standard, enclosure protection class is IP44, cooling way for IC411, continuously (S1). No special requirements applicable to drive the mechanical equipment, such as machine tools, fan, compressor, pump, mixer, transport machinery, agricultural machinery, food machinery, etc.

Y series motor with high efficiency, energy saving, high locked-rotor torque, low noise, small vibration, safe and reliable operation. Y80-315 meet Y series (IP44) motor three-phase asynchronous motor technology JB/T10391-2002. The Y355 meet Y series (IP44) motor JB274-1991 three-phase asynchronous motor technology conditions.

Y80-315 motor USES the class B insulation. Y355 motor with F class insulation. Rated voltage of 380 v, frequency 50 hz, power 3 kw and the y-shaped connection are as follows. Other power are delta connection. The level of the motor run place no more than 1000 m; Ambient air temperature changes with the seasons, but no more than 40 ° C; Minimum ambient air temperature was minus 15 ° C; The wettest month average relative humidity of 90%; At the same time this month average minimum temperature is not higher than 25 ° C.

Motor has a shaft. According to user needs, can be made into biaxial stretching. The second shaft extension can transfer power rating, but can only use the coupling transmission. According to user needs, but also can supply other power, voltage, frequency, damp and hot zone type (TH), motor protection grade, etc.

1、启动 start,

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 Δ)。

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/△启动装置接线，妥善连接到电机六个接线柱上，并能从启动初期的 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。

1.1 and inspection

Immediately after the goods, to check whether external motor damage, check out some nameplate data, especially the voltage and the winding connections (Y or delta).

No-load rotation axis with the hand, tests, if the motor is equipped with locking devices, pay attention to open it.

1.2, insulation performance test

First before use, motor winding is likely to be affected with damp be affected with damp, measuring the insulation resistance value. 25 ° C, the measurement of insulation resistance should be more than a reference when measuring winding immediately after discharge, avoid electric shock. Ambient temperature rise every

20 ° C, the reference resistor reduced by half. If not reached the reference value of insulation resistance, winding must be dry. The temperature of the oven to 90 ° C, 12-16 hours. If the installation of the drains, drying it must be opened, winding is generally to rewind after seawater immersion.

1.3, start or Y/delta start directly

Standard single speed motor terminal box usually has six connection bolt and at least one ground, electric motor, reliable grounding, required by regulations cannot replace ground zero.

The voltage and the winding connection is marked on the nameplate.

1.3.1 direct start

Winding can use Y or delta connection, vy 600, for example, the 380 v delta respectively: 660 v - Y connection and 380 v - delta connection

1.3.2 Y/delta start

Supply voltage must be equal to delta connection the rated voltage of the machine. Remove the patch panel mount all lugs, press Y/train starting device wiring, six properly connected to the motor terminal, and can automatically from starting early Y connection to complete delta connection. Double speed motor and other special power supply connection, must be in accordance with the wiring diagram of terminal box.

1.4, terminal and the direction of rotation

If the power phase sequence U, V, W, in turn, connected to the terminal U1, V1, W1, from motor drive shaft end observation, its direction of rotation is clockwise.

In any two phase in the wiring can change the direction of rotation of the machine.

2、使用说明 Instruction

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

2.1, the running environment

Motor used in industrial production.

Normal temperature in between 15 ° C to + 40 ° C, is not higher than 1000 m above sea level

2.2, the safety factors

Motor should be familiar with the requirements of the professional staff arrangement and wiring.

When installation, must have a safety device to prevent the accident, the location of the installation must also be within the rules.

2.3, comply with the specifications

The motor cannot be used to accelerate and overload operation.

During normal operation, the motor surface heats up, but not more than 60% of the allowable temperature rating.

Some special purpose motor need special instructions

3、管理 Management

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。

3.1, and storage

All motors shall be kept indoors for dry, shock, dust environment.

No protective layer of the surface of the motor should be rust preventive measures.

Suggest that regular inspection machine, turn the shaft by hand, prevent loss of grease or other problems.

3.2, transportation

Equipped with cylinder and needle roller bearings and ball plunger bearings of the motor, the transportation is need to install the tightening device.

3.3, weight

The same base number (center) due to the output power of motor, the installation size, the total weight of the additional parts of different and different, the specific weight of the motor, can be found in the motor nameplate.

4、安装 Installation

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。

4.1, plate

Preparations for installation plate shall be the responsibility of the user.

The metal plate should be anticorrosive paint.

Plate should be smooth and strong enough to prevent the effects of impact load. When selecting size note rigidity to avoid resonance.

4.2, bottom bolt installation

Tighten foot motor and bolt between the plate and had 1-2 mm gap. Use appropriate way to adjust motor after docking concentricity, tighten bolt again. If the motor shaft extension and load rigid connection, the concentricity set, both at the bottom of the feet must be installed between the base and the two positioning pin, and prevent damage to the motor damage when machine is running to connect concentricity.

4.3, drain

When installing non-standard motor, check whether the drain surface is down.

Motor in handling or when not in use, if the installation can be closed plastic drain plug, should be closed.

In a particularly dirty environment, all the drain should be shut down.

4.4, adjust the installation

Correct installation to prevent external bearing vibration and may cause the wear is very important.

4.5, slides and pulley

Place the slide level.

Check whether the motor shaft is parallel to the drive shaft. Note, the belt

too tight or pulley less residual balance shaft extension assembly damage, even cause shaft fracture, may also affect bearing life.

Not more than the product instructions specified maximum tension

The above data can Chad in motor samples.

5、电气联接 electrical connection

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。

The motor at the top of the junction box to allow rotation, can choose according to the requirement for the direction, also can choose the outlet box installation. No cable into the service entrance must be closed.

In addition to the main winding and to the earthing terminal, terminal box can also include thermal resistance, thermal switch or PT100 resistance element connection parts.

Note: when the motor stalling, could still be charged within the junction box, do not touch the terminal immediately. Open the box, can be found in the terminal box power connection diagram.

6、安装和拆卸 install and remove

6.1、概论 General

必须由专业人员采用专门的工具按照规定进行。A professional must use special tools shall be carried out in accordance with the provisions

6.2、轴承 Bearing

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。To pay special attention to bearing, installation, changing a bearing to heating or use of special tools.

6.3、离合器和皮带轮的安装 The clutch and the installation of belt pulley

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。Installing a clutch and pulley, to use proper equipment and tools, don't cooperate with shaft extension is too tight, need to dismantle shaft to the other before assembly positioning workpieces, in case of damage to the bearing and shaft extension.

When installation can't heavy hammer bash, remove also cannot use the lever on the fuselage.

6.4、平衡 balance

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。

Standard motor, USES the balance half a key.

In order to avoid vibration, clutch and pulley must pass a half key balance, can be installed onto the motor shaft.

7、维护与润滑 maintenance and lubrication

7.1、概论 General

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。

Preventive maintenance of motor

Keep the machine clean, the air circulation.

Check the shaft extension of sealing ring, if necessary, it should be replaced in a timely manner.

Check the connection and installation screws.

By monitoring abnormal noise, vibration measurement, monitoring oil or bearing lateral vibration device to check the running status of bearings.

If there are any exception occurs, should immediately stop and check the reason and ruled out in time

7.2、润滑 lubrication

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:

Closed or open bearings of motor

High motor center in 225 and the following, the user has no special requirements of the motor general assembly model of bearing, bearing of the model is described in the relevant samples of the products, open air bearing motor, request to add grease on a regular basis. Specific requirements are as follows:

机座号	油脂量 g	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 The time interval of roller bearing motor add grease

机座号 base no.	油脂 量 greas e g	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。

Filling nozzle of the motor

Lubrication when the motor running.

Before adding grease, should open the oil exports.

If equipped with grease, should open the oil exports.

If equipped with come on ShiYiPai, also will be subject to it.

Vertical installation of the machine to add the time interval of the grease is half the value specified in the table. The value specified in the table based on the bearing temperature of 80 ° C；

Bearing temperature rise every 15 k, value specified in the table should be reduced by half.

If the bearing a maximum temperature of 70 ° C, value in the table should be doubled.

Note: the maximum permissible operating temperature cannot exceed oils and bearing temperature. High speed running, or overload running at low speed, the need to

shorten the interval of adding grease. General double speed motor in the table will need to add grease intervals numerical reduced about 40%, when running at high speed, you have to check the applicability of the bearing.

7.3、润滑脂 grease

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。

When grease again, can only use bearing grease has the following characteristics:

Good quality lithium base

At 40 ° C base grease viscosity is 100-140 CST

NLGL2 or 3 concentration level

Temperature ranges from - 30 ° C to + 120 ° C

From the main grease producers can get grease with good properties.

If the successful change of the grease and cannot determine the compatibility of the old and new, in the short term to replace the old grease lubrication for many times.

High load or low speed bearings need EP grease.

If because of bearing temperature greater than 80 ° C and shorten the interval of adding grease, can use high temperature grease, this kind of high temperature grease generally allow bearing temperature, and high 15 k.

7.4、注意 Note

7.4.1、高速电机 high speed motor

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。

$$F_n = D_m \times n$$

D_m = 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。

The high speed motor

Of high-speed motor (e.g., 2 levels of motor), check whether the fn parameters of the grease is high enough.

$$F_n = D_m \times n$$

D_m = average diameter of the bearing

N = speed

Note: most of the grease can irritate the skin and cause eye irritation. Please indicate all comply with the manufacturer's safety precautions.

7.4.2、零件 parts

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。Parts ordering, should indicate the type of the motor nameplate, . Specifications and product code. If the motor nameplate marked with serial number, should also be marked.

7.4.3、噪声要求 Noise requirements

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)。

The noise of the machine does not exceed the numerical product samples or nameplate.

For 60 hz motor, noise level is higher than 50 hz 3 db (A).

2.3.5.3、机筒与螺杆的设计及其工艺 The design and technology of the barrel and screw

单螺杆挤出机螺杆参数的计算，下文主要对物料在单螺杆挤出机内的输送过程中

所关心的几个问题进行详细分析。混合度 (M) 是分析物料主要在螺槽中的分散程度，比能耗 (e) 是分析物料在螺槽中的塑化程度，停留时间 (t) 是分析物料主要成分的热历史或老化程度。深延比 (α) 是与挤出机流量 Q 和拖曳流量 Q_D 相关的物理量又表征流体粒子的应变程度。

所谓三段式螺杆是把螺杆划分为三段：供料段主要承担固体物料的输送；压缩段主要完成物料压实和塑化；计量段主要承担熔体的输送和进一步塑化。

螺杆几何参数如下：

D 为螺杆公称直径， D_b 为机筒公称内径， δt 为螺杆与机筒间的单面间隙，当忽略 δt 时， D_b 也就是螺杆的外径。L 为螺杆的有效长度， L_1 为加料段长度， L_2 为压缩段长度， L_3 为计量段长度（注意：不要将上述三段与固体输送段、熔融段和熔体输送段混淆。前者是工程师在图纸上的设计值，而后者取决于操作参数和被挤出的物料的性能，是三个不定值）。L/D 是挤出机的一个重要参数，即螺杆的长径比， H_1 为加料段螺槽深度， H_3 为计量段螺槽深度。T 为导程，S 为螺距，M 为螺纹头数。b 为螺棱的轴向宽度，e 为螺棱的法向宽度，B 为螺槽的轴向宽度（即螺棱与螺棱间的轴向距离），W 则为螺槽的法向宽度（即螺棱间的法向距离）， ϕ 为螺纹升角。

Single screw extruder screw parameter calculation, the following main within the material in a single screw extruder on several problems concerned in the process of conveying for detailed analysis. Mixed degree (M) is to analyze the dispersion degree of materials mainly in the spiral groove, than energy consumption (e) is to analyze the material in the screw groove plasticizing degree, residence time (t) is to analyze the thermal history of material ingredient or aging. Deep drawing ratio (α) is associated with the extruder flow Q and drag flow Q_D quantities and characterization of fluid particle degree of strain.

So-called a three-stage screw is to put the screw is divided into three sections: feed section mainly undertaking the transport of solid materials, Compression section is complete material compaction and plasticizing; Metering section mainly undertakes the melt conveying and plasticizing further.

The screw geometry parameters are as follows:

D as the nominal diameter of the screw, the D_b for barrel nominal diameter, delta t for single side clearance between screw and barrel, while ignoring delta t, D_b is the outer

diameter of the screw. L is the length of the screw, L1 for feeding length, L2 for compressed length, L3 for measuring length (note: do not solid conveying with the three sections of confused, melting and melt conveying section. The former is an engineer in the design drawings and value, while the latter depends on the operating parameters and being squeezed out of the performance of the material, are three values). L/D is an important parameter of the extruder, screw length to diameter ratio, namely the H1 for charging period of spiral groove depth, H3 for metering section of the spiral groove depth. Pitch for T as the lead, S, M for the thread. B for screw axial width of the edges, e for screw arris normal width, b for the spiral groove of axial width (i.e., screw arris and the axial distance between screw arris), W is the normal width of screw groove (i.e., the normal distance between screw arris), phi for thread Angle.

挤出过程 Extrusion process

螺杆的外形并不复杂，在正常情况下，根据转速的不同，物料在螺杆上停留的时间大约 1min，至多几分钟。但就在这样短的时间内，却发生了大量的物理及化学过程。因此，虽然说质量及产量与挤出生产线的其他部件都有直接的关系，但螺杆设计质量的好坏却更大地影响着挤出产量的高低和制品质量的好坏。人们称螺杆为挤出机的“心脏”，一点也不过分。因此，在正式分析挤出理论之前，我们必须对发生在螺杆上的挤出过程有一比较全面的认识。The appearance of the screw is not complicated, under normal circumstances, depending on the speed and the time duration of the material on the screw about 1 min, at most a few minutes. But in such a short time, but it happened a lot of physical and chemical process. Therefore, though the quality and yield and other components of the extrusion production line has a direct relationship, but the screw design quality has greater influence on the quality of extrusion production and product quality. The heart of the people called screw extruder, a little too much. Therefore, before the formal analysis of extrusion theory, we must in screw extrusion process on a more comprehensive understanding.

1) 加料 charging

塑料加入料斗后，依靠自重或在强力加料器的作用下，进入螺杆槽的空间，在螺棱的推动下往前挤出。但是，如果物料与金属料斗之间的摩擦因数太大，或物料之

间的内摩擦因数太大，或料斗锥角太小，都会在料斗中逐步形成架桥和空心管现象，物料将不能顺畅地进入螺槽，挤出将被迫停止或极不稳定。因此，如果挤出生产率不正常地降低或不出料，便必须检查加料情况，甚至更改料斗的设计。Plastic after joining hopper, rely on or under the action of strong feeder, into the space of screw groove, under the impetus of the screw arris forward extrusion. However, if the friction factor between the material and metal hopper is too large, or internal friction between the material factor is too large, or hopper taper Angle is too small, will be gradually formed in the hopper bridge and hollow tube phenomenon, the material will not be able to smoothly into the spiral groove, extrusion will be forced to stop or unstable. So if extrusion productivity is not normal to reduce or not discharging, then you have to check loading situation, or even change the design of the hopper.

2) 输送 delivery

从理论上说，当塑料进入螺槽后，螺杆每转动一转，所有的塑料将往前输送一个导程。这时我们称输送效率为 1。但对单螺杆来说，这种理想的情况是不可能的。如同我们在后面将要分析的那样，往前的输送量事实上主要取决于塑料对机筒的摩擦因数 f_b 和塑料对螺杆的摩擦因数 f_s 。 f_b 越大或 f_s 越小，往前输送的固体塑料量将越多，一般的光滑机筒的输送效率为 0.3-0.4，加料段机筒开小沟槽时，其输送效率为 0.5 左右，而当加料段机筒开有大而深的沟槽时，其输送效率有可能达到 0.6-0.8。显然，关键的差别就是塑料对机筒的摩擦因数 f_b 。大量的实验表明：树脂对金属的摩擦因数主要取决于系统的温度及金属的表面粗糙度或系统的结构及形状，与系统压力及物料运动速度也有关系。

Theoretically, after the plastic into the spiral groove, a screw each roll and all the plastic carry forward a lead. When we call conveying efficiency 1. But for single screw, the ideal situation impossible. As we will be at the back analysis, and the throughput in fact mainly depends on the friction factor of plastics on the barrel f_b and plastic on the friction factor of screw f_s . f_b or f_s is smaller, the greater the amount of solid plastic is forward delivery, the more general smooth barrel of 0.3 0.4 transmission efficiency, charging period of barrel to open small groove, its transmission efficiency is about 0.5, and when the charging period of barrel has great and deep grooves, the conveying efficiency could reach 0.6-0.6. Obviously,

the key difference is the friction factor of plastics on the barrel fb. A large amount of experiments show that; Resin to metal friction factor mainly depends on the temperature of the system and the structure and shape of the surface roughness of the metal, or system, also has relationship with the system pressure and material movement speed.

3) 压缩 The compression

在挤出过程中，塑料被压缩时绝对必要的。这是由于，首先，塑料是一种热的不良导体，颗粒之间如果有空隙，将会直接影响其传热，从而影响熔融速率；其次，也只有沿螺杆长度方向逐渐增加的压力下，才会将颗粒之间的气体从料斗中排出，否则，制品将因为其内部产生气泡而成为次品或废品；最后，较高的系统压力也保证了制品比较密实。

在螺杆上产生的压力的原因有以下三点：一是在结构上螺杆的螺槽深度逐渐变浅，物料逐渐被压缩；二是在螺杆头部前方安装有分流板、过滤网及机头等阻力元件；最后，可以用实验证明，即使没有上述两因素，沿螺杆全长上仍然会建立一定的压力。这是由物料对金属的摩擦引起的。

In the process of extrusion, plastic is compressed when absolutely necessary. This is because, first of all, the plastic is a poor conductor of heat, if there is a gap between particles, will directly affect the heat transfer, thus affecting melting rate; Second, also only in the direction along the length of the screw increases gradually, under the pressure of the particles will between the gas from the eduction in hopper, otherwise, the products will be defective due to its internal bubble or waste; Finally, the high system pressure also ensures that products more compact.

Causes of pressure on the screw has the following three points: one is the screw in the structure of the spiral groove depth becomes shallow gradually, the material is compressed gradually; 2 it is in front of a screw head equipped with shunt resistance components such as plate, filters, and the nose; Finally, you can use experiments show that even in the absence of the above two factors, along the screw length, still can establish a certain pressure. This is caused by the friction material of metal.

4) 熔融 The molten

在压力升高的同时，运动着的固体塑料与加热着的机筒壁不断接触与摩擦，靠近

机筒壁的塑料料温不断的提高，到达熔点后在机筒内壁形成一层薄薄的熔膜。在此以后，固体塑料熔融的热量来源两个方面：一是机筒外部加热器传递的传导热，二是在熔膜中由于各层熔体运动速度不同而产生的剪切热，即流变学中所指的粘性耗散热。

随着熔融的进行，当熔膜的厚度大于螺杆和机筒的间隙时，运动着的螺棱将熔膜刮下来，在螺棱的推进面前形成熔池。在熔融过程中，熔池越来越宽，剩下的固体宽度越来越窄，直至最后完全消失。在压力升高的同时，运动着的固体塑料与加热着的机筒壁不断接触与摩擦，靠近机筒壁的塑料料温不断的提高，到达熔点后在机筒内壁形成一层薄薄的熔膜。在此以后，固体塑料熔融的热量来源两个方面：一是机筒外部加热器传递的传导热，二是在熔膜中由于各层熔体运动速度不同而产生的剪切热，即流变学中所指的粘性耗散热。

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5) 混合 Mixing

挤出过程中，在高压作用下，固体物料一般都被压实成密实的固体塞，由于固体塞中顺粒之间无相对运动，因此，混合作用只能在相对运动的各层熔体间进行。这从部分机筒试验中得到的图片看得很清楚，红色颜料在固相中没有任何扩散，而一旦形成熔池，通过流动着的熔体的混合作用。

为了保证得到混合均匀的制品，必须保证螺杆的熔体输送段有足够的长度，在某些资料中将螺杆的熔体输送段称之为均化段的根据正在于此。在另一些资料中，将螺杆的熔体输送段称为计量段，这是考虑到在计算挤出机产量时，都以螺杆最后等深一段的螺槽容积作为计算的根据之故。

Extrusion process, under the effect of high pressure, the solid materials are generally being compacted into dense solid plug, as there is no relative movement between solid plug along the grain, as a result, the mixing action can only be relative motion between the layers of melt. From this part of the barrel of the test the picture to see very clearly that the red pigment no diffusion in the solid phase, and once the formation of molten pool, through the role of the mixed flow of the melt.

In order to get the mix of products guarantee, must ensure that the length of the screw

of the melt conveying section has enough, in some data will be screw in the melt conveying section called homogenization according to in this period. In other materials, called screw the melt conveying section of metering section, it is considered in calculating the output, with the screw end such as deep a spiral groove volume as calculated according to the property.

6)、排气 Venting

在挤出机过程中，需要排出的气体有三种：一种是在粉粒颗粒之间夹杂着的空气，只要螺杆转速不太高，一般来说，这部分气体可以在逐渐增高的压力下从料斗中排出。但是当转速太高时，物料往前运动的速度太快，气体有可能来不及全部排出，从而在制品中形成气泡。第二种气体是物料从空气中吸附的水分满载加热时它们变成水蒸汽。对于那些吸湿量不大的塑料如 PVC、PE、PS、PP 等等，一般不会发生什么问题，这些少量的水蒸气也可同时从料斗中排除；但是对于某些塑料 PA、PET 等，由于它们的吸湿量太大，水蒸气过多，因而来不及从料斗中排出，这便形成气泡。第三部分是在塑料颗粒内部的一些杂质，如低分子挥发物、低熔点增塑剂等。它们在挤出过程中产生的热量作用下逐步气化，只有当塑料熔融后，这些气体才能克服熔体的表面张力而逸出，但此时由于已远离料斗，从而无法通过料斗排出。这种情况下，不得不使用排气挤出机。

由此可见，任何一根螺杆都必须完成上述加料、输送、压缩、熔融、混合和排气等六大基本功能。显然，加料和输送影响挤出机的产量，而压缩、熔融、混合和排气却直接影响挤出制品的质量。这里所谓质量，不仅仅指熔融是否完全，而且还包括制品压缩得是否密实，混合是否均匀及制品中不能有气泡，这就是我们经常讲的塑化质量。

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。

螺杆拆卸、清洗、安装的方法：

A、螺杆拆卸

拆卸螺杆需采用本机配套提供的专用工具，配备这种工具是为了能在挤出机排空之后直接拆卸螺杆，此时，残余熔体尚未凝结，因此螺杆很容易被顶出。如果挤出机

已经冷却，顶出螺杆前要接通加热区，并加热到操作温度，然后再次断开电源。顶出前应配套起吊装置，以便在顶出时支承螺杆。

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，以保证螺杆能从机筒拉出。

把拆卸专用螺母旋入拆卸专用手柄，顺时针转动心轴，直到把螺杆顶出减速箱输出轴内孔为止。最后，即可拉出螺杆（附图中标号 2 所示），放在清洁、柔软的材料上。

Gas in the process of extrusion machine, need to have 3 kinds: one kind is mixed with air between the powder particles, as long as the screw rotation speed is not too high, generally speaking, this part under the pressure of gas can be increased gradually from the eduction in hopper. Forward movement of material but when the speed is too high, too fast, all gas may be too late, so as to form bubbles in products. The second kind of gas is a material adsorption of moisture from the air with heating them into water vapor. For those of moisture absorption is plastics such as PVC, PE, PS, PP, and so on, generally do not what problem, the small amount of water vapor can also be wiped from the hopper at the same time; But for some plastic PA, PET, etc, because of their moisture absorption quantity is too big, too much water vapor, so too late from the eduction in hopper, the formation of air bubbles. The third part are some of the impurities inside the plastic particles, such as low molecular volatiles, low melting point, plasticizer, etc. They heat in the process of extrusion under the action of gasification step by step, only after the plastic melt, these gases to overcome the surface tension of the melt and escape, but at the moment, because is far away from the hopper, thus cannot through the hopper. In this case, have to use exhaust extruder.

Thus, any one screw are required to complete the loading, transportation, compression, melting, mixed and exhaust and so on six big basic functions. Obviously, the feeding and conveying affect the output of extruder, and compression, melting, mixing and exhaust are directly affects the quality of extrusion products. Here the so-called quality, not only refers to melt completely, but also including products compression is close-grained, whether mixing and products in there can be no bubbles, this is we often speak of plasticizing quality.

The screw of the maintenance

When the extruder extrusion production or other reason affect the normal work of the screw, it should be checked for screw and barrel, according to the abrasion of screw barrel decided to replace the screw barrel or repair.

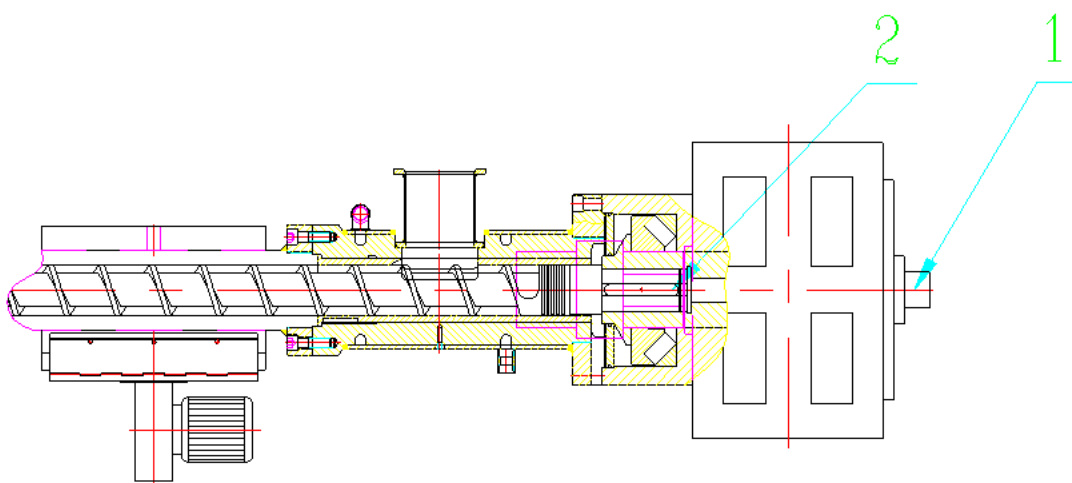
Screw removal, cleaning, installation method:

A, screw removed

Remove the screw need to use this machine is necessary to provide the special tools, is equipped with the tools to remove screw extruder after emptying directly, at this point, the residual melt condensation, so the screw is easy to be out. If the extruder has been cooling, knocking out the screw to turn on the heating area, before and heated to operating temperature, then power off again. Ejection should form a complete set before lifting device for supporting the screw in the ejection.

Before you remove the screw, should connect the extrusion machine machine barrel of flow channel, net changer, metering pump and mould removed, to ensure that the screw can be drawn out from the barrel.

Screwing in the removal of dedicated nut remove special handle, clockwise rotating mandrel, until the screw cap out of the gearbox output shaft hole. Finally, you can pull out the screw (shown in label in the attached figure 2), in a clean, soft material.



附图 螺杆拆卸示意图 Remove the schematic drawing illustrated screw

B、螺杆安装

安装前，消洁螺杆表面和机筒内孔，清洗传动轴内孔。然后，套筒内孔涂上薄薄

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，直到螺杆到位为止，或者使用螺杆安装专用工具，将安装芯轴旋入螺杆后端部的螺孔，转动螺母即可装入螺杆。螺杆应一直推到顶住为止，根据尺寸图可检查螺杆是否到位。

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。键如果太紧，应予以小心修正后再装。

C、清洗螺杆、机筒

应使用黄铜丝刷，黄铜或铝刮刀，或铜丝团清洗螺杆，避免擦伤螺杆。

挤出机机筒内孔应在热态清洗，清洗时使用一符合内孔直径的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，必要时此过程重复进行，最后用按直径配制的黄铜刷或铜刷将套筒刷干净，拆装。

B, screw installation

Before installation, clean surface of screw and barrel inner hole elimination, drive shaft hole cleaning. Then, the sleeve hole coated with a thin layer of silicone oil, coated with a layer of silicone grease on the screw shaft. Before installation, the inlet must cover, suggested that the extrusion machine heated to operating temperature, it is easy to install.

When installation, must the key screw shaft and the inner hole keyway on the output shaft of reducer, and carefully put into machine barrel screw, until the screw in place, or use a screw to install special tools, will be installed after screwing in the screw core shaft end of the screw hole, turn the nut and screw. Screw should have been pushed to withstand so far, according to the size chart to check whether the screw is in place.

Note: in the process of install screw, cannot use powerful, so as not to damage the key and keyway. Must be paid to the key if it is too tight, the reload after careful revision.

C, clean the screw and barrel

Should use brass wire brush, brass or aluminum scraper, or clean copper wire ball screw, avoid scratch screw.

During extrusion machine machine barrel inner hole should be hot cleaning, cleaning

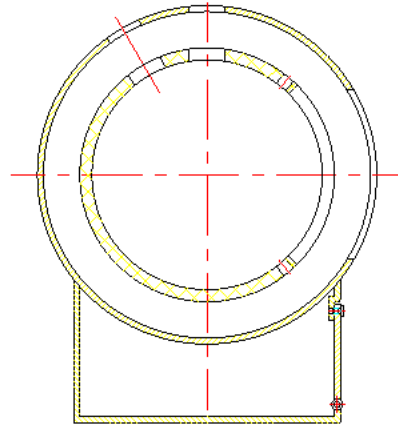
with a meet inner hole diameter on the pull rod of the scraper, scraper up first inserted into the barrel, then put the scraper semicircle face down, the residual melt blown, this process is repeated when necessary, in the end, according to diameter brass brush or copper brush brush clean the sleeve, tear open outfit.

2.3.5.4、加热圈和冷却风机的使用说明 The use of heating and cooling fan

1) 加热圈 Heating coil

主机使用加热圈主要有陶瓷、云母和铸铝加热圈，其中用的最多的就是陶瓷加热圈，加热性能和导热稳定，好用，有利于温度的控制，也是温控系统中重要的执行元件。Host use, mica heating coil are mainly ceramics and cast aluminum heating circle, which use most is the ceramic heating coil, heating performance and thermal stability, good, is advantageous to the temperature control, is also an important actuators in temperature control system.

加热圈外形示意图如下 Heating coil shape diagram below



机筒加热圈 Barrel heating coil

2) 冷却风机 Cooling fan

采用无锡特顺风机，型号为DF系列，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一系列特点，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。

DF型风机性能参数及电机配置

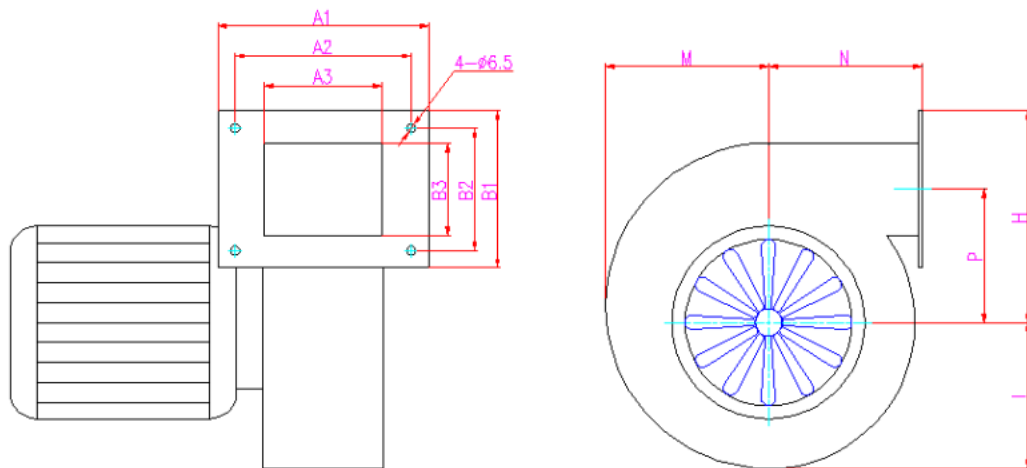
By wuxi wind machine, model for DF series, DF series fan as "leafy, forward, narrow wheel, impeller, has a large circulation area, accelerated flow, strong pressure on the fluid at the same time a series of characteristics such as small vortex, has big air volume, high wind pressure, low noise, high efficiency a lot of advantage, after the structure is made of high qualified steel plate after advanced technology on the stamping riveting, welding, so the structure is compact and firm, small size, installation, maintenance is convenient.

DF type fan performance parameters and machine configuration

型号	流 量 M3/h	全压 par	转 速 r/min	噪声 db	功率 kw	电压 v
DF-3	405	458	2840	72	0.18	380/220
DF-3B	340	340	2840	72	0.12	380/220
DF-5	850	1020	2800	76	0.55	380/220
DF-6	660	853	2800	76	0.37	380/220
DF-7	1200	1250	2800	78	0.75	380/220

风机外形尺寸： Fan shape size:

型号	A1	A2	A3	B1	B2	B3	M	N	H	P
DF-3	115	96	76	115	96	70	97	103	125	70
DF-3B	115	96	76	115	96	70	97	103	125	70
DF-5	120	100	80	120	100	78	155	146	188	128
DF-6	158	132	97	118	92	70	120	111	160	100
DF-7	150	125	97	130	105	78	157	147	192	128



风机外形图 Fan shape figure

3)、加热圈与冷却风机的维护保养 Heating coil and cooling machine maintenance

加热圈和风机是维持挤出单元热平衡的部件，加热圈和冷却风机的正常工作是挤出机稳定工作的保证。在每次升温时都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。在机筒温度接近设定温度时，冷却风机将会间歇地工作，此时可以检查风机的工作情况。如发现问题，因及时处理。在正常工作时，每班交接时应检查机筒的实测温度与风机的工作情况。Heating coil and fan is to maintain extrusion unit heat balance of components, the normal work of the heating and cooling fan is the assurance of extruder and stable work. Is supposed to check in every time to heat up the heating temperature control table shows the temperature and the error of the corresponding to the measured temperature of the heating coil, such as the temperature difference is very big, will have to check the reason, according to the actual situation analysis. In the barrel temperature close to the set temperature, the cooling fan will work intermittently, can monitor the performance of the fan. If found the problem, due to the timely processing. In normal work, per shift handover should check the actual temperature of barrel and the performance of the fan

2.3.5.5、冷却水套 Cooling jacket

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，影响的主机的产量。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℃

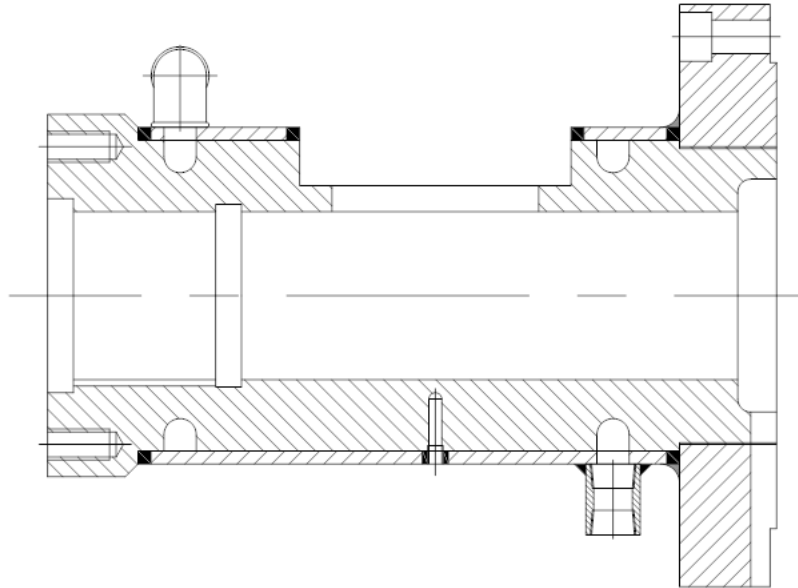
Extruder feeding mouth shell filled with cold water unit, rely on water cooling. Cold water device with high pressure water cleaning once every six months, to remove the impurity in water jacket, improve the cooling effect. Cooling jacket is barrel feeding period of key parts, at the same time feeding period is also the key components in the extruder, directly affect the operation condition of the screw, affect the output of the host. So feeding section must be strictly controlled, high temperature materials in the molten plugging material, the stability of the temperature is too low, is not conducive to screw feeding.

Extruder cooling water requirements:

The purity of water, no pollution, no lime

Water pressure: 0.5-0.5 MPa

The water temperature, 10-20 °C



水套结构 Water jacket structure

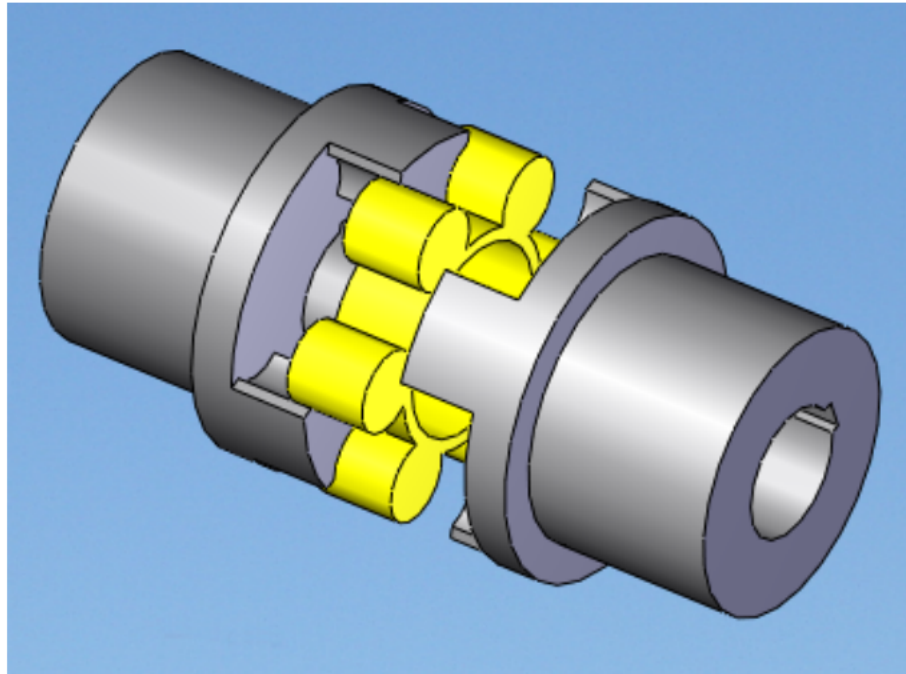
2.3.5.6、联轴器的维护保养 Coupling of maintenance

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。Coupling in the long run due to the vibration of the equipment, and make the relative location of motor and reducer

Change, resulting in dislocation of the coupling, elastomer wear and affect the smooth transmission.

So every three months shall check the alignment of coupling, the abrasion of elastomer. In order to adjust the coupling elastomer or replaced.



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: in the process of using open shield, so as to avoid moving parts are hurt. After open shield in the process of maintenance, repair complete, please be sure to pack good protective device!

2.3.6、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。电机与减速机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，不准启动挤出机。
 Extruder in normal work, are at risk of high temperature and high speed rotation. When working near the high temperature parts, need to wear high temperature proof clothes, prevent heat gloves, and wear FangHuaXue. Motor and reducer connection part is high speed rotating shaft coupling, the coupling guard is no longer normal position or not firmly fixed on the frame, are not allowed to start the extruder.

2.4、换网单元基本参数、液压站及安全操作指导 Unit to replace the network basic parameters, hydraulic station and safety instructions

液压换网系统，生产的过滤网系统广泛应用与各类塑料制品挤出，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。Hydraulic system to replace the network, the production of filter system is widely used with all kinds of plastic extrusion, plastic granulating etc, perfect design and elaborate production to product performance reliable; A wide selection of structure form and types, the maximum to meet customer demand.

2.4.1 换网单元的基本组成

1. 挤出生产线的液压快速换网系统分单板式和单柱式两种，适用于各种高透明，高黏度，易裂化，高分子量类塑料的过滤，换网活动部件高耐磨，高耐压，高精度，换网时间短。
 2. 双流道不停机换网系统换网单元由双工位的板式换网器和换网液压站组成，可以根据生产的需要选择的换网器的型号也不一样，实现不停机液压换网。
 3. 手工换网器：适合低产量小型挤出，经济实用，操作简单，柔性密封设计，确保密封效果。
1. The production line of hydraulic system to rapidly replace the single plate and single column type two kinds, suitable for all kinds of high transparent, high viscosity, easy cracking and high molecular weight class plastic filter, moving parts to replace the network high wear resistance, high pressure, high precision, short time to replace the network.

2. Shuangliu non-stop in network system of net unit by the plate net changer and network double location of hydraulic station, can choose according to the needs of production of net changer model is different also, not achieve hydraulic machine network.
3. Manual net changer: suitable for low yield of small extrusion, economical and practical, simple operation, flexible seal design, to ensure the sealing effect.

2.4.2、换网器使用说明（例：双工位柱式换网器）Net changer instructions (example: double location pillar net changer)

本换网器是双工位工作的，在工作区域内可放置不同型号和数量的过滤网，放置的型号和数量不同对挤出压力和流量都有影响，贵公司可视其生产需要而定。PE 一般用双工位柱式换网器。

换网器的安全防护，由于换网时，滑柱运动很快以及从滑体里会流出很多高温熔体，所以换网时存在高温危险，因此换网过程中，操作人员不得处于滑柱下面，换网结束后，快速更换过滤网并清理滑柱物料。清理物料时必须戴耐高温手套。

在换网器上，我们使用加热棒及热电偶来控制调节温度。其加热棒的规格及型号参见换网器说明书的技术参数。

在换网器前一般都有一压力传感器，用来显示网前压力。

在使用换网器前，密封调节环一定要调节到位，否则可能会导致漏料。另外，本产品出厂前，在闸板上涂有高温润滑脂，首次使用切勿将其擦除，否则容易将其密封面擦伤。其中过滤网板示意图如下：

The net changer is double location of work, different models can be placed in the work area and the number of filter, place the type and quantity of different impact on the extrusion pressure and flow rate are, your company visual its production needs. Double location column is commonly used in PE net changer.

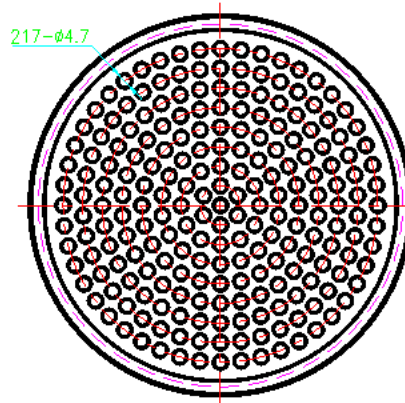
Safety net changer, due to the change of network, sliding column sport soon and will flow out from the slippery body a lot of high temperature melt, so high temperature change of network risk, so network process, operator shall

not be in a sliding column below, in after the network, rapid replacement of filter material and clean up slippery column. Clean up the material, high temperature resistant gloves must be worn.

On the net changer, we use the heating bars and thermocouple to adjust temperature control. The heating rod specifications and the technical parameters of model see net changer manual.

In front of the net changer usually have a pressure sensor, used to display the net pressure.

Before using the net changer, sealed regulating ring must be in place, otherwise it may lead to leakage of material. In addition, the products before they go out, coated with high temperature grease on the gate, for the first time to use do not erase it, otherwise easy to sealing surface scratch it. The filter mesh plate schematic diagram is as follows:



本换网器最大可承受压力 25Mpa，换网压力的设定可根据生产环境和需要调整，但最大不可高于极限压力。一般情况下换网压力在 15MPa 时能顺利进行换网操作为正常，当换网压力达到 20Mpa 时仍不能顺利换网时，建议对整个换网系统进行检查（包括液压站、换网器）。

当换网器换工位工作时，应趁树脂还没有冷却时及时清理被替换出来的工位，将残余树脂清理干净，并喷上脱模剂，为下次换工位工作做准备，每次换网之后必须保证网板在正确的位置，否则有可能把网板拉坏。换网时操作人员请不要在换网器旁，以免高温烫伤。

由于换网器处于高温状态，操作人员请慎重操作，避免不必要的伤害，由于双工位液压换网时间较快，避免了停机换网，不会因明显的溶体压力波动而影响制品的质量，油压控制采用阶段式排气装置避免产生气泡，内置式电热管迅速加热，保温效果极佳。

The largest net changer can be 25 mpa under pressure, pressure to replace the network can be set according to the production environment and the need to adjust, but not higher than the biggest limit stress. Usually in net pressure in 15 mpa can smoothly in net operating as normal, when the net pressure reaches 20 mpa is still not well network, suggest to check the whole network system (including hydraulic station, net changer).

When net changer exchange Labour work, should take advantage of the resin is not clear in time be replaced when cooling out of the station, will clean up the residual resin, and spray on the release agent, preparing for the next exchange Labour work, after each time of net must ensure that the screen in the right place, otherwise likely to pull the door. In network operator, please don't beside the net changer, so as to avoid high temperature burns.

Due to net changer in high temperature condition, the operator, please careful operation, to avoid unnecessary damage, due to the double location hydraulic network time quickly, avoid the outage in the net, won't because obvious melt pressure fluctuation and affects the quality of the products, staged exhaust device for the oil pressure control, avoid to produce bubbles built-in rapid heating, electric heating tube heat preservation effect is good.

技术参数 Technical parameter:

型号 Type	结构形式 Structure	过滤面积 area mm ²	产量 outp Kg/h	承受压力 pressure Mpa
JW-DZHWQ-70	单柱双工位 Single column dual	3850	80-150	18Mpa

	sation			
JW-DZHWQ-100	单柱双工位 Single column dual sation	7854	100-250	18Mpa
JW-DZHWQ-120	单柱双工位 Single column dual sation	11300	250-400	18Mpa
JW-DZHWQ-150	单柱双工位 Single column dual sation	17670	350-450	18Mpa
JW-DBHWQ-70	单板双工位 Single plate dual sation	3850	80-150	18Mpa
JW-DBHWQ-100	单板双工位 Single plate dual sation	7850	100-250	18Mpa
JW-DBHWQ-120	单板双工位 Single plate dual sation	11300	250-350	18Mpa
JW-DBHWQ-150	单板双工位 Single plate dual sation	17670	350-400	18Mpa
JW-DBHWQ-180	单板双工位 Single plate dual sation	25440	400-550	18Mpa

换网器具体操作:启动液压站、调节压力阀使液压站的系统压力达到 20Mpa 左右,待系统压力稳定后进行换网、换网后用铜铲把网片产出,去除网板上的遗留下的物料,换上新的过滤网,压平整,然后启动换网。In network instrument gymnastics as: start the hydraulic station, adjust the system pressure of the pressure valve to make hydraulic station has reached around 20 mpa, after waiting for stable system pressure with copper shovel in net, net after the net output, remove the legacy of the material on the screen, put on the new screen pack, pressure level, then start in network

2.4.2.3、液压站主要参数和使用说明 Hydraulic station main parameters and instructions

1、概述 overview

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。The hydraulic system adopts the accumulator to in a short time, a lot of pressure oil supply, to achieve the fast movement of the system. System is realized by using manual reversing valve actuators of different direction of movement.

2、主要技术参数 The main technical parameters

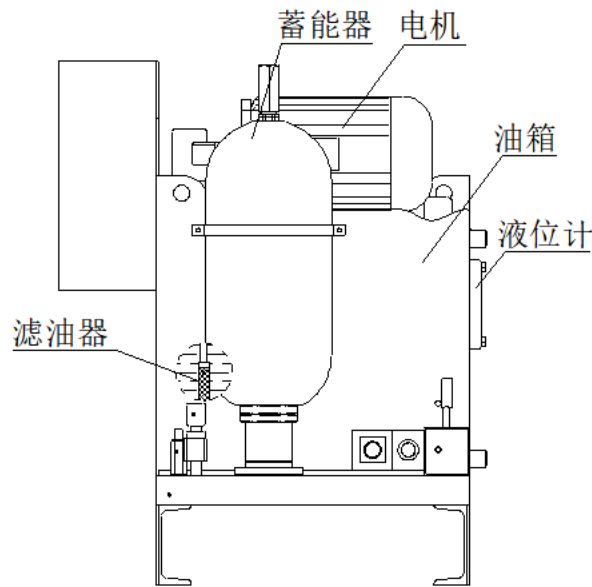
系统最大压力: 16MPa (蓄能器限压)

控制回路电压: 220V

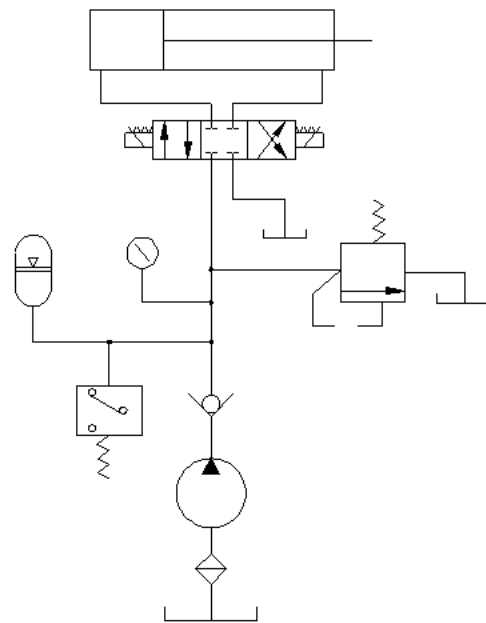
Maximum pressure system: 16 mpa pressure limiting (accumulator)

Control circuit voltage: 220 v

3、液压站结构图及其工作原理图 Hydraulic station structure and its working principle diagram



液压站结构图（板式）



液压原理图

4、液压站使用说明 The instructions on hydraulic station

1) 首次使用前准备工作 before using the preparation for the first time

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 20MPa），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。

First to join the working medium of hydraulic station, by adding should be through the filter, the filter accuracy may not be lower than the design of the hydraulic pressure station filtration precision. Injection oil 70 l and 70 l advisable, also visible level gauge, oil level should be located in the liquid level meter is about 80%. Medium recommended 46 # anti-wear hydraulic oil, cleanliness is 8/9 grade (NAS1638),

25 to 54 CST, actual use volume v of the "mechanical design manual" for reference "medium" chapter. Cannot be mixed with different kinds of hydraulic oil.

A good, according to the principle diagram to install hydraulic system, confirm the correct. Connect to the power cord should be paid attention to the direction of rotation of the machine. , before starting the rotating motor by hand, and determine the trouble-free, inching motor, after being sure motor spin to the right, to officially start the motor. (in the motor and pump rotate to sign shall prevail)

B, debugging, regulate the pressure relay to pressure of work, pay attention to the working pressure shall not be higher than that of the accumulator pressure relay pressure limiting (hydraulic station system accumulator pressure limiting

for 20 mpa), and adjust the relief valve pressure is higher than the 5% of the pressure relay setting pressure. Adjust the system pressure, should first adjust the pressure of overflow valve, to adjust the pressure of the pressure relay, adjust the pressure relief valve, the pressure relay should be power off and then adjust, according to the actual need according to the regulating handle pressure increase or decrease in indicator, left-handed or right-handed to lower or higher system pressure in order to meet the requirements. After the adjustment, according to the regulation of the above method to adjust the pressure relay. Pressure relief valve should be higher than 5% of the pressure relay setting pressure.

A. idle before starting the 5 ~ 10 minutes, and then adjust the pressure of pump, adjust to pressure slowly, after being stable pressure to work, lock nut voltage regulator.

B. does not work when reversing valve to return to the median, oil cylinder in light load condition.

C. stop more than four hours, no-load running 5 ~ 10 minutes, then load operation.

2) 使用说明 instructions

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。

A, when need hydraulic station, please see the pressure of the pressure gauge display whether meet the job requirements, if the pressure is less than the pressure of work, please switch on the power and electromagnetic starter start button (green) to start the motor and pump accumulator energy storage, when the pressure reached set value, the pressure relay will automatically sends A signal

to make the motor stop working.

B, electromagnetic valves on the electric cabinet start button to make it to the left or right (depending on the actual state of hydraulic cylinder of the access and work needs)

C, when actuator reaches the specified location, press the reset button on the solenoid directional valve to make it back to the median, the preparation work for the next cycle.

D, cut off power supply.

5、系统维护 System maintenance

- 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。

- did not stop the power failure pressure maintenance is prohibited.
- sharps, shall be used for replacing the seals damaged seals shall not damage.
- not allowed on the accumulator for processing, welding and repairs may cause major accidents, such as checking is a question of accumulator shall be promptly returned to the factory repair.
- connection order when motor maintenance, to ensure the actual direction of rotation of motor and labeled in the same direction.
- check system pressure is stable within the prescribed scope.
- note system work there is no abnormal noise.
- this hydraulic system when installation should pay special attention to avoid heat pollution. The oil temperature is within the prescribed scope (30 °C ~ 55 °C), generally not more than 60 °C. If the oil temperature is too high should stop looking for reasons.
- power supply voltage should be stable, its value is less than 15% of the rated voltage fluctuations.
- regularly check the workings of the hydraulic station and leakage of oil, liquid level less than 80% of oil mark to fill oil in a timely manner.
- regularly changing working medium (for half a year for the first time, once a year later) and filter, filter depending on the job, the environment and jams, usually for 3 ~ 6 months.
- cannot adjust in the case of no pressure gauge pressure gauge damage to change in time.
- timely processing system of internal and external leakage.
- electrical control system to keep clean and dry
- when disassembling hydraulic components, to keep the element clean, prevent the dust, foreign bodies, the hydraulic oil pollution.
- the maintenance after completion of boot debugging. Operating procedures should be in strict accordance with the instructions.

- any caused by improper maintenance and operating system components damage or system failure, the company will, not take any responsibility.

6、注意事项 Matters needing attention

- 油温过高（大于 60℃）或过低（小于 15℃）应停止使用。
- 油箱中油液过少应停止使用。
- 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。
- the oil temperature is too high (more than 60 °C) or low (less than 15 °C) should stop to use.
- the oil in the tank too little should stop using it.
- if injection or leakage is serious, it is forbidden to maintenance in the work.
- hydraulic system failure, should promptly notify the maintenance personnel maintenance, shall not take fault operation.
- system to avoid load startup.

7、常见故障与排除 Common faults and ruled out

- 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。
- 油液型号选择不当，粘度大粘性阻力大，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。
- system without pressure or abnormal pressure
- check motor rotate to right.
- check the overflow valve pressure regulating is normal.
- check whether the pressure relay is normal.
- to check whether there is enough oil tank (see level gauge).
- check whether the oil pump is working properly.
- system internal and external leakage.
- check is mixed with air in the hydraulic oil.
- check whether accumulator failure.
- suction tubing or insufficient oil filter plug can cause the system pressure.
- system noise and vibration
- motor vibration, bearing wear caused by vibration.
- system pipeline loosening caused by vibration and noise.

- pump suction air will produce noise.
- reversing valve caused by rapid changes in pressure and production line shock produced by the hydraulic impact of noise and vibration.
- system temperature is too high
- high ambient temperatures, heat dissipation is not good.
- oil improper selection model, the viscosity viscous resistance, low viscosity, large amount of leakage.
- pump oil absorption oil return not free not free or system, filter clogging.
- oil pump internal leakage.
- oil cylinder action or crawl
- check system pressure is normal.
- directional control valve is working correctly.
- crawl mixed with air in the system.
- mechanical aspects is jammed.

8、定期检查和维护 Regular inspection and maintenance

检查项目 Check the project	检查周期 check cycle	检查方法及标准
泵的噪声 Inspection method and standard	1 / 季 season	一般的标准 7Mpa≤75db(A)、14Mpa≤90db(A) 使用噪声检测仪 General standard 7 mpa acuties were 75 db (A), 14 mpa 90 db (A) use or less noise detector
压力表压力测量 Pressure gauge pressure measurement	1 / 年 year	用标准表检测 With a standard table

蓄能器充气压力 Accumulator charging 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 With pressure gauge of aeration device detection, detection standard stipulated pressure shall be maintained
油液的污染状况 The oil pollution	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 With a special instrument to detect, according to the testing standards NAS1638 or ISO4406 standard should be above 9
油箱液位 Tank of liquid level	1 / 季 season	目视液位计，标准液位不得低于液位计 80% Visual level meter, the standard level shall not be less than 80% level gauge

2.5、模具单元基本参数及安全操作指导 Mould unit basic parameters and safety instructions

2.5.1、模具的基本参数（具体视实际模具而定） Basic parameters of the mold (specific depending on the actual mold)

模具类型：衣架式流道模具

模具规格：300mm

加热区数：4

加热总功率：9.6KW

Mold types: hangers type runner mold

Mould specification: 300 mm

Heating area number: 4

Total heating power: 9.6 KW

2.5.2、模具的运输和包装 Die of transportation and packing

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。

如果包装受到损坏请按如下做：

1、检查设备的外观是否受到损坏。

2、拍摄所有损坏损伤的部位

假如设备在运输时受到损坏请按如下做：

3、尽快联系营运商

4、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），需运回本公司检修时，请尽量使用原始包装材料，如上述的包装材料都不可用了，请按如下说明做：

(1) 使用专业生产包装产品的 厂商生产的包装件

(2) 每种分类零件都放置在同一箱子里，以防遗失。

(3) 设备不允许露天放置

(4) 推荐的室内存放环境:

温度: 5°C~50°C (40 ° F~120° F)

湿度: <70%

(5) 噪音环境(设备正常工作状态下): <70dB (A)

(6) 机器的销毁: 本设备基本上是由钢铁制造的(除少数电器元件), 因此它的销毁可根据当地的《环保法》处理废旧的器械。

(7) 另油污和清理的废物也必须按照当地的《环保法》处理, 以免污染环境带来不良后果。

This equipment must be carefully checked before shipping and packaging, even so, if improper transportation is still likely to damage some parts.

I received this product should be check if physical and shipping list, the packing are in good condition.

If the packing damage, please do as follows:

- 1, whether the appearance of the inspection equipment damage.
- 2, filming all damaged parts damage

If the equipment is damaged during transportation, please do the following:

- 3, contact the operator as soon as possible
- 4, keep the packing materials (so that operators will this equipment back to the company for inspection), to the company inspection, please use the original packaging materials, such as the packing material is

not available, please click the following instructions:

(1) using specializing in the production of packaging products manufacturers packaging

2 each parts are placed in the same box, in case of loss.

(3) the equipment should not be placed open air

(4) the recommended indoor environment:

Temperature: 5 °C ~ 50 °C (40 ° F to 120 ° F)

Humidity: 70%

5] noise environment (equipment working normally) : < 70 db (A)

[6] machine: the destruction of this equipment is basically made by steel (with the exception of a few electric components), so it can be destroyed according to the local instruments of the environmental processing waste.

Once the other oil and clean up the waste must be disposed of in accordance with the "environmental law" of the local, so as not to pollute the environment adverse consequences.

2.5.3、模具的安全操作指导 The mould safety operation

instruction:

操作前的安全说明:

注意:

下面所说的操作和维护人员是指包括搬运、装配、安装(安置)、操作、维护、修理以及清理的人员。

(1) 本设备只能由有资格证书的或者经过相关操作培训的人来操作。商家应

明确各个操作员工的职责，不应混淆或混乱各自的操作范围，以保证安全生产。

- (2) 进行任何的维修、维护、清理等工作时都应在关闭总电源的前提下进行。
- (3) 操作者不允许使用任何损害设备安全性能的操作及操作方式。
- (4) 操作者有责任保证本设备不被任何未经批准的人来操作本设备。
- (5) 操作者对本设备的任何异常都应及时向主管领导反映。

关闭过程：

首先关闭机器，再切断总电源，检查各个电路是否完全处于断电状态，把电源警告警示牌放置于电源开关处以明示在此期间不允许接通电源确保安全

Before the operation safety instructions:

Note:

The following operating and maintenance personnel is to point to include handling, assembly, installation (place), operation, maintenance, repair and cleaning staff.

(1) of this equipment is only by a certified or after the relevant operation training to operate. Businesses should clarify the responsibilities of various operational staff, should not be confused or chaos their scope of operation, to ensure safety in production.

2 for any repairs, maintenance, cleaning work should be on the premise of shut off the main power supply.

(3) the operator is not allowed to use any damage to equipment safety operation and the mode of operation.

(4) the operator has the responsibility to ensure that the equipment will not be any unauthorized person to operate the equipment.

5] operators any exception this equipment should be timely to the competent leadership.

Close the process:

First close the machine, then cut off the total power supply, check whether the circuit power is completely out, warning sign placed on the power switch off the electricity supply put to express are not allowed to connect power supply to ensure safety during this period

2.5.4、模具的操作 The operation of the mold

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质量。
- 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使用户参考。（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取出，并且注意模唇的保护装置。
- 将模具放置于模具小车上，仔细地调整好高度使模具与连接体平稳，模具
- 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是否正确，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 1 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螺丝重新拧紧校正。

注意：拧紧模具体上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，左边和右端要交替进行。起初阶段模唇的微调螺丝应保持接触松弛的状态。

本模具的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。

- 当完成上述的准备过程以后，就可以进行生产了。

Note that all of the safety warning

, the operator should be clear hoisting mould lifting limit of lifting device used for quality.

, the operator shall specify the equipment working at high temperature, wear enough on the hands, arms and face protective equipment.

On the attached sheet with the pair of mold parts and the quantity so that the user reference. (we recommend the user to check the stock of spare parts is consistent with instructions)

Bin mould using high temperature lubricant when packing. In boxes

with power supply wire, rings and various kinds of disassembling tool.
(will tell the user in the form of shipping list)

Use rings will die from the packing box, and pay attention to the die lip protection device.

Will die mold placed on car, carefully adjust height to make the mold and connecting smoothly, mold

, connect the power cord and thermocouple and check the power cord and the thermocouple connection is correct.

, check whether the control structure is the standard and the connection is correct, and check whether the temperature setting.

Heating mould and distributor to operating temperature.

, when the mould heated to operating temperature insulation at least 1 hour and then to production.

, according to the given all kinds of screw torque, after heating of the mould parts of the screw to tighten the correction.

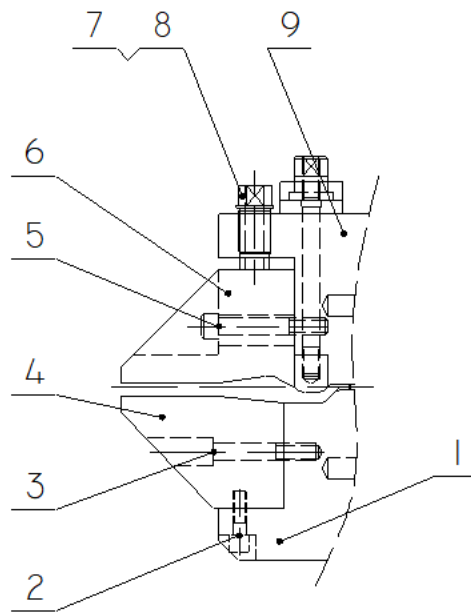
Note: tighten the mold on a specific screw should be in the following order, the process of the mould in the middle of the operation on both ends of the screw first twist again in order to, the left and right side to continue. In the beginning stage of the die lip fine adjustment screw should maintain contact state of relaxation.

This mold design flexible die lip and restrictor bar device, are at the greatest when they assemble the openings, can according to need

at this time, with a soft gap gauge (soft materials including aluminum (Al), brass (brass), etc.), measure and adjust their size.

When after the completion of the preparation process of, can be produced.

2.5.5、模唇调节系统 Die lip conditioning system



模唇调节示意图 Die lip conditioning schematic diagram

- | | | |
|-----------|-----------|------|
| 1、下模 | 5、上模唇紧固螺丝 | 9、上模 |
| 2、下模唇紧固螺丝 | 6、上模唇 | |
| 3、下模唇紧固螺丝 | 7、上模唇调节螺丝 | |
| 4、下模唇 | 8、上模唇调节螺母 | |

Die lip conditioning schematic diagram

1, lower die on die lip fastening screw 9, 5, and die

2, lower die lip fastening screws 6, upper die lip

3, lower die lip adjusting screw fastening screw 7, upper die lip

4, 8 lower die lip, upper die lip adjusting nut

2.5.6、安装 Installation

• 安装

将微调螺丝装进模具上的配合孔中，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计值。初次调节时请使用千分尺测量开口的大小，调节微调螺丝直到开口为设计的预计值为止。之后调节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。

The installation,

Fine adjustment screw into the mould on the mating hole, screw screws into after fine-tuning block until screws touch the upper die body. Fine adjustment screw should be in a state of relaxation.

Operation,

With t-shaped wrench with the adjusting screw, do not use a torque rod or wrench to adjust die lip adjusting screw. Timely adjusting screw to replace damaged and fine adjustment screw. With t-shaped wrench fine-tuning adjustment screw make die lip opening gap to achieve the

design expected values. Adjustment for the first time please use the micrometer to measure the size of the opening, adjust the fine adjustment screw until the openings for the design of expected value. After adjusting the fine adjustment screw to adjust the width of the opening size, use copper gauge (opening size) testing, until the entire width of the opening size uniform and adjust to complete to meet the design requirements. And please check whether every fine adjustment screw and die body contact.

2.5.7 保养和维护 Maintenance and maintenance

2.5.7.1、一般的清理和维护 General cleaning and maintenance

注意：本手册说明的维护操作仅仅是对那些经过培训并取得操作资格的技术人员而言。

- 在更换产品时和每次停产检查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必须按照当地环境保护条例进行。
- 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，为了避免损坏这些零件，每次休息停产时都应由设备保养人员对设备各个螺丝和接头进行检查。

Note: this manual instructions maintenance operation is only for those who are trained and qualified operation in terms of technical personnel.

Every time, when replacement product and clean up to the mold

production inspection equipment, it is very necessary.

, please note that any resin and lubricating material removal destruction must be carried out in accordance with the local environmental protection regulations.

In the process of production, and temperature of the circulation to the operation of the equipment operation and equipment vibration can cause some connection of loose screws, connectors, in order to avoid damage to the parts, when shut down and rest every time, should by equipment maintenance personnel to various screws and joint inspection equipment.

2.5.7.2、关机过程 shutdown process

警告：所有的清理的、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。

Warning: all the cleaning, maintenance and repair work must be finished in the following the shutdown process of closing machine.

, the master power switch to "OFF" position. (the main power supply cut off).

Check whether the whole circuit has been without electricity.

2.5.7.3、拆卸和清理 Remove and clean up

拆卸场地和准备工作

- 挤塑模应在专门的场所拆卸、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，以及尽可能由挤塑模的预热装置。
- 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，模具其它表面宜用软刮片和 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。在装配之前应检查模具的光洁度，必须除去微细划痕，较严重的损伤应送回厂方修理。
- 在挤塑模正式装配之前，最好将其流道涂一薄层有机硅脂，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应符合装配要求，定位好后，在模具处于冷却状态时拧紧各连接螺丝，当模具和挤出机相连接后，并加温到操作温度后，应再次拧紧各连接螺丝。

注意：模具加温前一定要检查各个电源线的连接是否正确。此外，还必须

校正热电偶。

我们建议模具在使用六个月左右应完全拆卸、清理、并检查相关设备，对可能出现故障的所有零部件（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。

Remove the venue and preparation

Extrusion die should be in a special place, dismantling, cleaning, repair and maintenance. The place to fully away from "rough" production area. Work site shall be kept clean and pad in corrugated cardboard or rubber sheet.

, work area should be equipped with a variety of tools (screwdriver, wrench), soft soft (brass, aluminum) of smears, cleaning and polishing materials, and as far as possible by extrusion mould preheating device.

Extrusion mould should strike removed, must work quickly to avoid premature cooling. When the extrusion die is also on the squeeze molding machine, die temperature heating to about 20 °C higher than the temperature at which the production, after the stop, the heating power off quickly loosen the screw on the side panel, remove the plate on both sides. In the mold is still in the high temperature state, loosen the screw securing the die body up and down, and the host of the screw connection. After the crane to lift the upper die body in the work zone, near the body, and quickly clean up and down mould cleaning port must be used when the soft blade or copper brush, clean

up the residual resin within the flow channel, can with the aid of paraffin or related solvent cleaning, do not use the steel utensils.

, mold cooling after cleaning, mold flow and seal application soft blade, thin flat stone and metallographic sandpaper, cleaning and polishing, mould with soft blade and other surfaces should be above 240 # sandpaper clean up. Each assembly contact, the contact surface are both to clean up the residual resin.

When the work is completed, can be assembled again. Mould finish, before the assembly should be inspected must remove fine scratches and serious injury should be sent back to the manufacturer to repair.

In extrusion die, before assembly, it is best to the port with a thin layer of silicone grease, such as molybdenum stone or graphite fat, to ensure that after extrusion die in the process of work and disassembly are very convenient.

Assembly time, attention should be paid to the mounting dimensions should conform to the requirements of the assembly, good location, in the mold are in a state of cooling tighten the screw connection, after the mold connected with extruder, and after heating to the operating temperature, should tighten the screw connection again.

Note: be sure to check all the power cord before mould heating connection is correct. In addition, still have to correct the thermocouple.

We suggest that the mould in the use of six months or so should be completely removed, clean up, and check the related equipment, all the possible fault components (screws, bolts, heating rods, wire, etc.) should be replaced, but the specific maintenance, maintenance interval should be depending on the processing of raw materials production cycle and other related problems.

2.5.7.4、调试常见问题及注意事项 Debug the common problems and the matters needing attention

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。引起挤出不均匀有各种各样的原因，比如温度的控制，原料配方，挤出机的挤出压力等等，受各方面的因素的综合影响。

现在就这几个方面一般性的问题，做几点解释说明。以方便用户在试机生产调试中参考。

- 开机前的加温和保温工作一定要做好，根据生产的产品的塑料的特性设定合适的加热温度。各区的加热温度和挤出压力控制均匀与否，对产品挤出的均匀性和稳定性有很大的影响，在调节温度的过程中，需要注意的是热电偶的反馈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℃是正常的，超出这个范围，就很有可能是热电偶所测的温度不是模具的实际温度，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也很重要。

- 一般挤出不均匀时，开始很少调节模具的微调螺栓来调节，等温度和挤出压力都调节均匀以后，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度，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，最少得在波动区域内调节 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。

- 无论是新模具还是旧模具，都有可能出现漏料问题。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，旧模具也有可能是多次的拆卸和清理损伤了密封圈，如果漏料严重需要停产检修。

- 另外，模具的放置一定要平稳，并且一定要固定好，否则生产时产生的振动会影响挤出机螺杆的使用寿命，也影响产品质量。

Extrusion die in the process of production is the most prone to the problem of uneven, affect the quality of our products and they couldn't even debug the qualified products. Cause uneven extrusion has a variety of reasons, such as temperature control, raw material formula, extruder extrusion pressure and so on, affected by various factors synthetically.

Now these a few respects of general problems, make some explanation. To facilitate the user reference in the trial production debugging.

, heating and heat preservation before starting the work must be well done, according to the production of the characteristics of the plastic products to set the appropriate heating temperature. District heating

temperature and uniform extrusion pressure control or not, to squeeze out the uniformity and stability of the product has a great influence, in the process of adjusting the temperature, it is important to note the feedback from the thermocouple temperature and glass thermometer on the mould depending on the value should not differ too big, generally in $1 \sim 2$ °C is normal, beyond this range, it is likely to be measured by thermocouple temperature not mold actual temperature, should check whether the thermocouple is put in place. Uniform and stable temperature control, uniform extruder extrusion pressure control is also very important.

, typically start out unevenly, rarely adjust mould adjustment bolt to adjust, such as temperature and extrusion pressure adjustment even later, there are still uneven fluctuations or extrusion to consider to adjust mould.

Should be paid attention to when adjusting mold, district the regulation of excessive, prevent the adjusting bolt killed.

Fine-tuning of the die lip and must also pay attention to the problem of amplitude modulation, adjust the amplitude should not be too big, choke rod and the adjustment of the die lip range we recommend should not be greater than 1.00 mm. When another adjustment does not allow the regulation of a single bolt, at least have to adjust three or more in the area of the volatility of fine tuning bolt.

If the above adjustment after the debugging, there is still a regular fluctuations, or extrusion is not uniform, it is likely to be the volatility of the extruder or distributor of the mandrel.

Whether new mould or old mould, is likely to be material leakage problems. Material leakage, the most common reason is at the site of the leak is expected to tighten bolts not tight, the old mold can also be remove and clean up the damage of the sealing ring for many times, if leakage is serious need shutdown maintenance.

The placement of, in addition, the mold must be smooth, and must be fixed, or vibration of production will affect the service life of extruder screw, also affect the quality of products.

2.5.7.5、安全警告 Safety warning

在接通电源前，确信地线已接好，否则允许接通任何电源。

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。

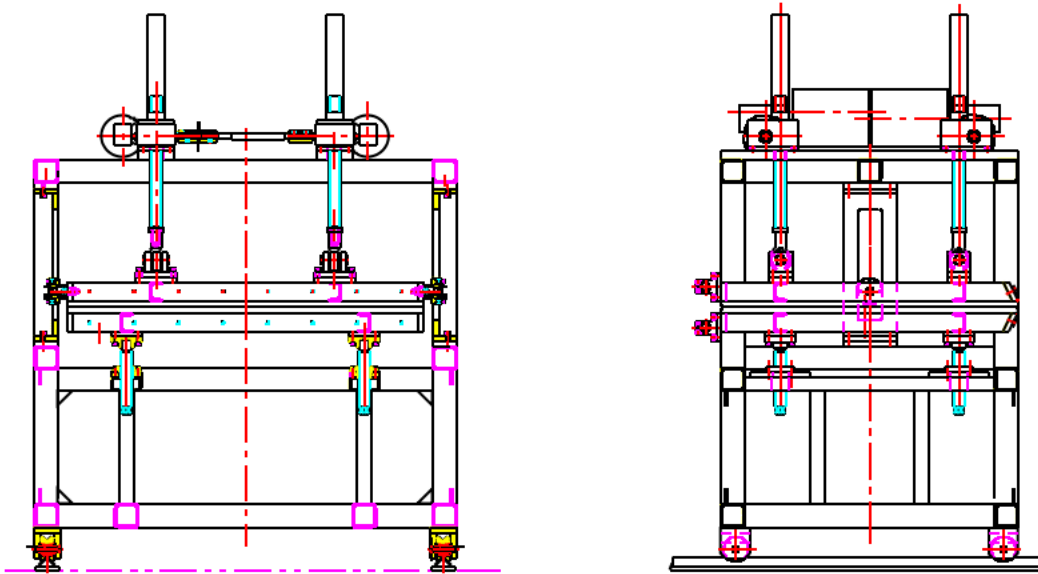
In before turning on the power supply and be sure to ground wire is connected, otherwise allowed on any power supply.

Safety warning sign must always remain in their positions, when connect the power cord is not allowed to open any of the cover, wire cover, wire tube, and the power plug.

2.6 压平机的组成及其维护和保养 The composition of pressing machine and its maintenance and maintenance

原料在 $\Phi 150$ 螺杆中进行物理发泡并在模具出口膨胀，经过压平机上、下平板的挤压，初步成形。Raw materials in 150 screw Φ physical foaming in the mold and export expansion, after pressing machine, the plate extrusion, preliminary formed

1、压平机的外形图及其构成：The appearance of pressing machine and its components



压平机主体结构可分为：移动滚轮部件、机架、主板、上平板、下平板、上平板移动部件、下平板移动部件、丝杆升降机、电机、链轮链条、纵进纵退部件。Smashing machine main body structure can be divided into: mobile wheel parts, frame, main board, plate, the plate, the plate moving parts, the plate moving parts, screw lift, motor, chain sprocket, longitudinal in longitudinal components

2、压平机的运动及工作原理：Smashing machine movement and working principle

(1) 整体纵进纵退采用锁紧装置。

(2) 下平板的升降运动：下平板是靠机架上部的四个丝杠均布支撑的，通过分别调节各丝杆来实现平板的升降运动，使达到合适的中心高。

(3) 上平板的升降运动：上平板是通过自润滑关节轴承与四台丝杆升降机的升降丝杆紧连接。其中每两台丝杆升降机用弹性柱销联轴器连接为一组，由 0.75KW 的电机带动链轮传动，通过电机的转动来实现上平板的升降运动。使上、下平板间达到要求间距。

(1) the overall longitudinal into longitudinal with locking device.

2 tablets under the lifting movement: the tablet is to rely on the upper frame of four screw uniform support, through adjusting the screw respectively to implement flat lifting movement, to reach the center of the right.

(3) on the tablet of lifting movement: the tablet is through self-lubricating bearing joints with four screw hoist lifting screw tight connection. Each of two screw elevator shaft coupling with elastic dowel pin as a group, by 0.75 KW motor drive chain wheel drive, through the rotation of the motor to realize the tablet on the lifting movement. Make up to par spacing between the upper and lower plate.

3、特点: characteristics

上板的运动中两电机可单独驱动, 来实现上平板一定角度的偏转, 结构稳定可靠。In the movement of the upper two motor drive alone, to implement the tablet on the deflection Angle, structure is stable and reliable

4、注意事项: Matters needing attention

- (1) 电机及升降机、链轮、链条要注意维修和保养, 半个月加一次润滑油。
- (2) 每次开机前要检查链轮的紧定螺钉以及联轴器的螺钉是否有松动。
- (3) 定期检查链条的松紧程度, 如果太松可适当调整电机的位置来实现张紧。

(1) motor and elevator, sprocket, chain must pay attention to the repair and maintenance, half a month a lubricating oil.

2 every time to check before starting the sprocket set screws as well as the coupling screw loose.

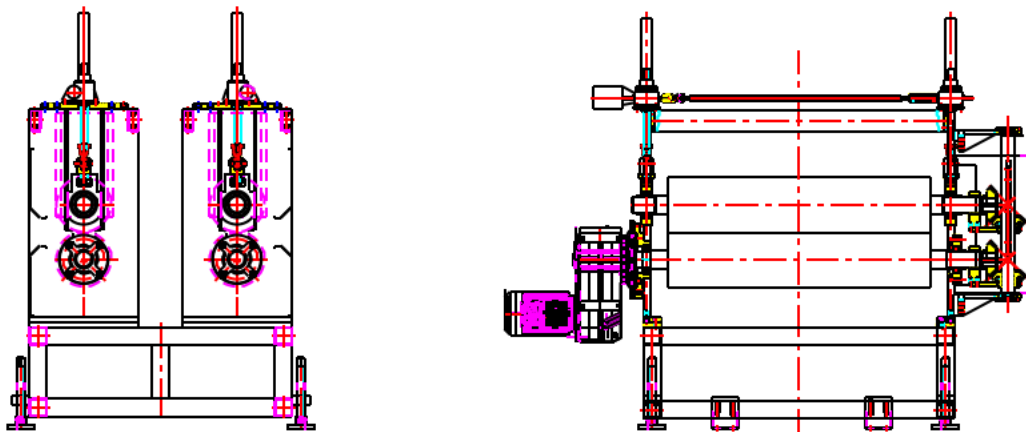
(3) check the tightness of the chain, if too loose can adjust motor position to achieve tensioning.

5、压平机的维护和保养 Smashing machine maintenance and maintenance

在日常的生产过程中，要对压平机进行保养和维护，以保证压平机能够很好地工作。首先，要保证压平板压平面地光滑平整，避免划伤压平板表面而在以后的生产过程中划伤制品的表面；其次，要保证纵向和横向的移动部件的运动平稳灵活，以免增加驱动电机的负担，对有转动部件的地方，要隔期进行润滑，保证轴承和其它部件的转动灵活。最后，要对驱动电机进行隔期维护和保养，具体的维护措施，跟其它电机相似。In daily production process, to the pressing machine for maintenance and maintenance, to ensure that the pressing machine can work well. First of all, to ensure that the pressure plate surface smooth level off, avoid scratch plate surface and in the later production process the surface of the scratch products; Second, to ensure the smooth movement of vertical and horizontal moving parts flexible, lest increase burden of the drive motor, with moving parts, to every phase of lubrication, ensure that the rotation of the flexible bearings and other parts. Finally, be to every phase of the drive motor maintenance and maintenance, the maintenance of specific measures, with other similar motor

2.7、一次牵引机 tractor

1、一次牵引机的外形图及基本参数：The appearance of a tractor figure and basic parameters



胶辊材质：丁晴橡胶

胶辊直径：Φ250

牵引辊宽度：1000mm

胶辊数量：4

牵引电机功率 3KW

升降电机功率：2×0.9KW=1.8KW

升降方式：丝杆升降机

Rubber roller material: nitrile butadiene rubber

Rubber roller diameter: Φ 250

Traction roll width: 1000 mm

Rubber roller number: 4

Traction motor power 3 kw

Lifting motor power: 2 x = 0.9 KW to 1.8 KW

Lifting: screw lift

2、一次牵引机的构成：The composition of a tractor

一次牵引机主要由地脚、机架、两组牵引辊、四只丝杆升降机、两台带电机的减速机、两台升降电机、及锥齿轮升降传动系统。A tractor is mainly composed of anchor and frame, two groups of traction roll, four screw lift, two belt motor reducer, two elevator motors, and bevel gear elevator drive system

3、一次牵引机的特点：The characteristics of a tractor

- 本牵引机采用斜齿蜗轮蜗杆减速电机，调速采用1只变频器单独调速。
- 牵引辊由两组胶辊组成，升降传动采用丝杆升降机，上辊通过锥齿轮带动。
- 机架采用槽钢焊接而成。
- 在入板处安装紧急停止开关；在侧面安装了防护罩等安全装置。

, the tractor adopts helical worm gear and worm gear motor, speed

control using one frequency converter speed control alone.

, traction roller is composed of two groups of rubber roller, lifting transmission adopts screw elevator, roll through the bevel gear drive.

Frame adopts channel steel welded together.

At the plate, emergency stop switch; Installed in the side cover, such as safety device.

4、一次牵引机的传动原理： a tractor transmission principle

(1)、第一组双胶辊牵引：下胶辊由减速机直接驱动，上胶辊经一组锥齿轮同步传动，转动方向相反，从而实现发泡板材的首次牵引。

(2)、第二组双胶辊牵引：下胶辊由减速机直接驱动，上胶辊经一组锥齿轮同步传动。

(1), the first set of double roller drawing: directly driven by speed reducer, the roller on the roller by a set of bevel gear synchronous transmission, rotating in opposite directions, so as to enable the first drawing of the foam sheet.

[2], the second group of double roller drawing: directly driven by speed reducer, the roller on the roller by a set of bevel gear synchronous transmission.

5、牵引机的安全操作 The safety of the tractor

开机时，升起牵引压辊，将板材穿过牵引机，拉紧板材，启动牵引机，然后压下牵引压辊。注意上下辊应平行一致。Boot, rising drawing roller, the

sheets through the tractors, taut sheet, start the tractor, then presses the traction roller. Pay attention to the roller should be parallel and consistent

6、牵引机的保养和维护 Tractor maintenance and maintenance

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，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、长时间使用会令橡胶辊表面结垢，应定期使用非油性清洗剂对辊筒清洁。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。如过度老化，必须修复或者更换。

Tractors in normal use process, must be regularly maintenance and maintenance. Maintenance methods:

1, in the first time to use 300-600 when I was a child, the oil should be replaced once, replacement should be parking in reducer, lubricating oil before discharge of the old oil cooling. Use of lubricating oil for N220.

2, traction machine housings, from the nozzle to join grease is needed every half a year, until the grease from the seal and the discharge valve discharge, and eliminate the redundant grease on bearing seat.

3, use for a long time can make rubber roller surface fouling, should be regularly use non-oily lotion for roller clean. After short-term parking, package protection should be carried out on the rubber roller. Stop for a long time the opportunity to make the rubber surface aging, need to prepare the corresponding protection measures. Such as excessive aging, it is necessary to repair or replacement.

2.8、冷却输送单元 **Cooling conveyor unit**

冷却装置主要用途是将压平后的板材冷却定型、引取。Cooling device is primarily used to flatten the plank after cooling to finalize the design, the leading

1. 外形图及总体特点: **Contour map and general characteristics**

- (1) 共由 2 个冷却辊架组成, 由 20 个托辊组成。
- (2) 机架采用型钢由螺栓连接而成。
- (3) 托辊上有防止板跑偏的导轮限制横向移动的装置一套。
- (4) 托辊采用铝合金管制作, 采用轴承装在管内的方式。
- (5) 托辊规格: $\Phi 63$
- (6) 冷托辊架带地脚调节螺栓, 调节距离为中心高的正负 50mm。

(1) consist of two cooling roller frame, composed of 20 roller.

2 frame adopts steel bolt connection and into.

(3) on the roller to prevent plate wheel limit of a lateral movement of the device.

(4) rollers were made with aluminum alloy, with the method of the

bearing in a tube.

5] roller specification: Φ 63

[6] cold roller belt anchor adjusting bolt, adjust the distance of plus or minus 50 mm high.

2. 冷却输送结构参数 Cooling conveyor structure parameters

冷却辊架长度: 18m

冷却辊规格: Φ 63

冷却辊面材料: 不锈钢装饰管

冷却辊筒间距: 约 700 mm

冷却辊筒数量: 22

The cooling roller frame length: 18 m

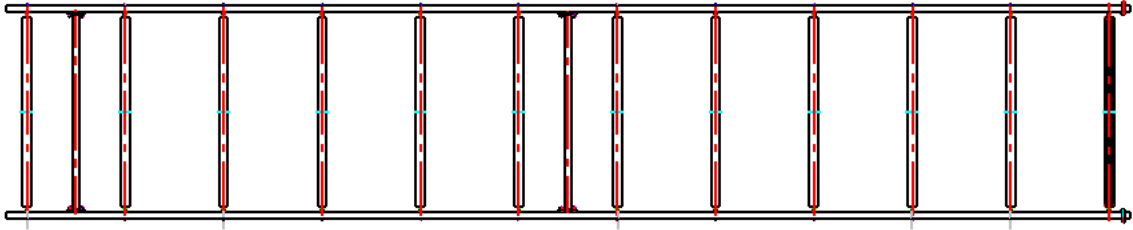
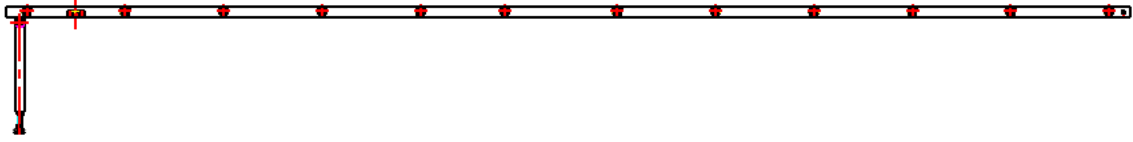
Cooling roll specifications: Φ 63

Cooling roller surface material: stainless steel decoration pipe

Cooling roller spacing: around 700 mm

Number of cooling roller: 22

3. 冷却托架的维护和保养 The maintenance and maintenance of cooling bracket



- 辊面未使用前应用棉布包裹等措施保护。
- 经常检查连接及紧固螺栓，以防松动。

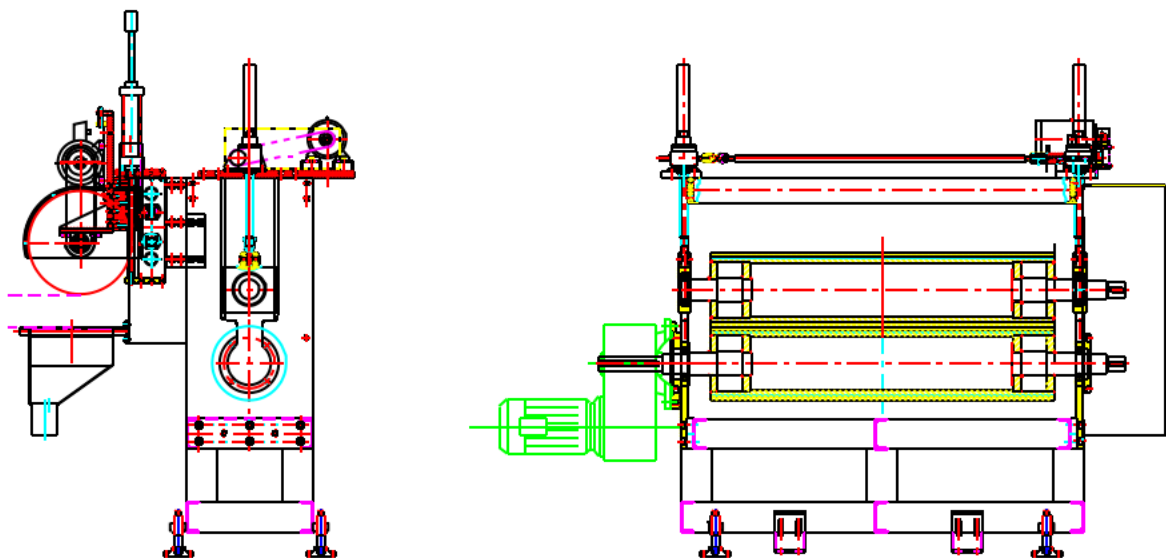
Application, roller surface before using cotton package such as measures to protect.

Often check the connection and fastening bolt, to prevent loosening.

2.9、二次牵引纵切机 The second traction slitting machine

纵向切边通过锯片式纵切机来实现。制品经过压平机，一次牵引后，通常制品两端都会参差不齐，要达到制品所需宽度的合格产品，就要利用纵向切边装置并通过调节锯片刀的位置来达到切割制品宽度的要求。Longitudinal trimming by blade type slitting machine. Products after smashing machine, a traction, usually will vary on both ends of the products, products to achieve the required width of qualified products, then a longitudinal trimming device and is used by adjusting the position of the saw blade knife to meet the needs of cutting width of products

1、二次牵引纵切机的外形图及基本参数 Second drawing contour map and basic parameters of slitting machine:



胶辊材质：丁晴橡胶

胶辊直径：Φ250

牵引辊宽度：1000mm

胶辊数量：2

牵引电机功率：4KW

升降电机功率：0.75KW

升降方式：丝杆升降机

锯片电机功率：2X2.2kW=4.4kW

Rubber roller material: nitrile butadiene rubber

Rubber roller diameter: Φ 250

Traction roll width: 1000 mm

Rubber roller number: 2

Traction motor power: 4 kw

Lifting motor power: 0.75 KW

Lifting: screw lift

Saw blade motor power: 2 x2. 2 kW = 4.4 kW

2、二次牵引纵切机的构成：The composition of secondary traction slitting machine

二次牵引部件主要由地脚、机架、一组牵引辊、二只丝杆升降机、一台带电机的减速机、一台升降电机、及锥齿轮升降传动系统组成。

纵切部件由二台电机，皮带传动系统，气缸升降系统，及锯片组成。

Secondary traction unit is mainly composed of anchor and frame, a set

of traction roller, two screw elevator, a belt motor reducer, a lifting motor, and bevel gear elevator drive system.

Longitudinal cutting parts by two motors, belt drive system, cylinder lifting system, and saw blade

3、二次牵引纵切机的传动原理及特点:The second traction transmission principle and characteristics of slitting machine

- 本牵引机采用斜齿蜗轮蜗杆减速电机，调速采用 1 只变频器单独调速。
- 牵引辊由一组胶辊组成，升降传动采用丝杆升降机，上辊通过锥齿轮带动。

根据所需制品的宽度调整锯片的横向位置，切割时锯片的上升、下降运动由手动阀控制的两只气缸来实现，锯片的旋转由电机通过皮带轮传动。切割后的锯屑通过风机经管路排放。

, the tractor adopts helical worm gear and worm gear motor, speed control using one frequency converter speed control alone.

Traction roll, composed of a set of rubber roller, lifting transmission adopts screw elevator, roll through the bevel gear drive.

Adjusted according to the width of the required products saw blade transverse position, the rise and fall of the saw blade when cutting movement is controlled by a manual valve of the two cylinders, the rotation of the saw blade by motor through the pulley drive. After cutting the sawdust by fan concession road emissions.

4、二次牵引纵切机的安全操作 Secondary traction slitting

machine safety operation

开机时，升起牵引压辊，将板材穿过牵引机，拉紧板材，启动牵引机，然后压下牵引压辊。注意上下辊应平行一致。Boot, rising drawing roller, the sheets through the tractors, taut sheet, start the tractor, then presses the traction roller. Pay attention to the roller should be parallel and consistent.

2.10、压花机 Embossing machine

为提高板面的附着能力及美观程度，对表面结皮的板材进行破皮压花。

(1) 构成：由机架、上下压花辊等组成。

(2)、操作说明：

调整上下压花辊的间距，使与制品厚度要求相吻合，通电使上下压花辊达到足够的设定温度，让制品从中间穿过。In order to improve the surface adhesion ability and beautiful degree, to break the skin surface skinning plate embossing.

(1) : by the frame, and embossing roll, etc.

2, the operating instructions:

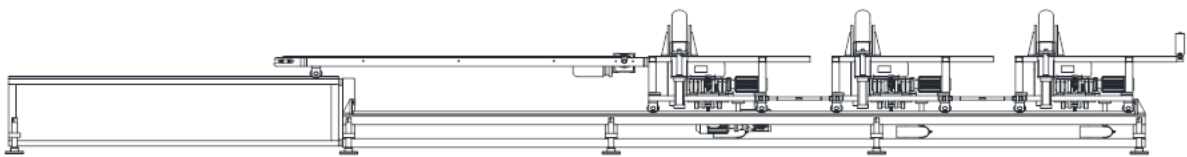
Adjust the spacing of embossing roll up and down, in conformity with the product thickness requirements, current embossing roll up and down enough set temperature, make products through the middle.

2.11、横向切割机 The transverse cutting machine

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

1、横向切割机外形图：The final product after all kinds of working procedure of processing, finally through the length cut off, to achieve the requirement, this is the function of transverse cutting device.

1, the transverse cutting machine appearance figure:



横向切割装置的总体特点：

- (1) 横切机采用气缸压紧，电机带动锯片旋转的切割方式。
- (2) 纵向移动与牵引同步采用被动形式沿导轨运动，复位由减速电机

经链传动复位。

小车横向移动由减速电机经链传动沿直线导轨运动。

(3) 压紧采用气缸压紧，规格为 $\Phi 63 \times 160$ 。

(4) 切割长度由光电开关控制，长度可以自由控制。

(5) 切割程序由 PLC 控制。

3、工作原理：

1. 通过光电开关，控制制品的切割长度。每当制品纵移一个定长，上面两只压紧气缸同步压紧，锯片抬刀，小车横向移动切板。

2. 横切同时，由于压紧气缸的作用，使得上架与制品无相对运动。整个架子沿直线导轨与牵引机的牵引辊同步等速向后纵移。

3. 切割动作结束后，在气缸的拉动下，架子沿直线导轨纵向前移。

4. 与此同时，定长制品在输送机作用下迅速转移到堆料平台。

(注：横切机工作时请勿接触压紧辊；设备维护与检修由专业人士进行操作，并在断电情况下进行！)

The overall characteristics of transverse cutting device:

(1) cut machine adopt cylinder pressure, motor drive the saw blade cutting way.

2 longitudinal movement and traction synchronous movement of the passive form along a guide rail, reset the reset by gear motor through a chain.

Gear motor car lateral movement by the chain drive along a straight line guide rail movement.

(3) compression using cylinder pressure, the specification of 63 x 160 Φ.

(4) cutting length is controlled by photoelectric switch, the length can control freely.

5] cutting process is controlled by PLC.

3, how it works:

1. Through the photoelectric switch, cutting length of control products. Whenever products surge a fixed length, the above two pressure cylinder synchronous clamp, tool blade, car lateral movement and cutting board.

2. Cross at the same time, due to the effect of pressure cylinder, make shelf and products without relative motion. The entire shelf along a straight line guide rail and the tractor traction roller synchronous constant longitudinal move back.

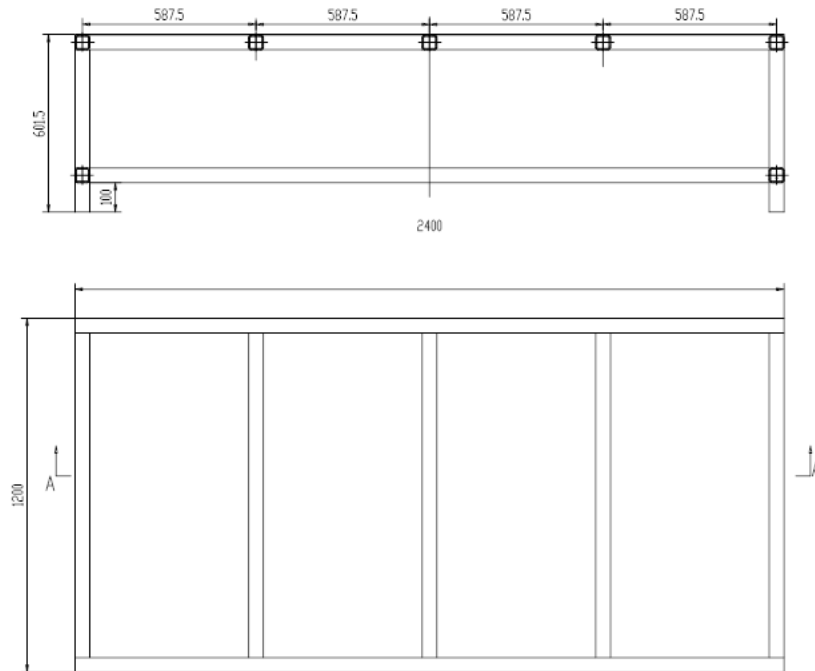
3. After the cutting action, under the pull of the cylinder, along a straight line guide rail longitudinal forward shelf.

4. At the same time, fixed-length products on the conveyor, rapidly transferred to stacking platform.

(note: during work please do not contact pressure roller, equipment maintenance and overhaul by professionals, and in the case of power cuts are!)

2.12、堆料平台装置 Stacking platform device

堆放装置的用途是堆放经计量切割后的最终产品。Is the purpose of the stacking device stack after measuring cutting of the final product.



堆放装置外形图

堆放装置由型钢焊接而成，由镀锌板保护，规格为 2.4m×1.2m×0.6m。

要保持堆放装置的清洁，以免因脏物或表面不平整划伤最终制品。

Stacking device figure shape

Stacking device from steel welded together, from protection of galvanized sheet, specification is 2.4 m * 1.2 m * 1.2 m.

To maintain the cleanness of stacking device, in order to avoid because of the stolen goods or uneven surface scratch the final products.

2.13、其它辅助配套设施的说明 Other ancillary facilities

1、发泡剂注入系统

用来向发泡原料中注入发泡剂。

特点：

- (1) 采用高压柱塞泵，63L/h，驱动电机功率为 4KW，采用变频调速。
- (2) 采用了高压管线和蓄能器。
- (3) 系统最高压力为 50MPa。
- (4) 柱塞泵采用常用密封件。
- (5) 配备防震支座。

注意：在生产过程中，一定要注意发泡剂注入设备的密封性能，以防止发泡剂的泄漏造成环境污染和环境破坏。

1, the foaming agent into the system

Used to inject foaming agent in the foaming material.

Features:

- (1) using high pressure plunger pump, 63 l/h, drive motor power is 4 kw, adopts frequency control of motor speed.
- 2 adopted high-pressure pipeline and the accumulator.
- (3) the system maximum pressure of 50 mpa.
- (4) piston pump adopts the common seal.
- 5] equipped with shockproof bearing.

Note: in the process of production, it is important to note that the sealing performance of foaming agent injection equipment, in order to prevent the environmental pollution and environmental damage caused by leakage of the foaming agent.

第三章 废弃处理 **The third chapter scrap processing**

当生产线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。

When could the production line to achieve the service life of it, the machine can no longer continue to use, or maintenance, the user may not arbitrarily discarded, it should consider the perspective of protecting the environment and save energy, delivered to the relevant environmental management department or to properly handle in accordance with local environmental regulations.

At the same time, in the process of use and maintenance, should consider the importance of protecting the environment,

the conversion from the machine down the trash, replace to properly handle, such as waste oil, so as not to cause environmental pollution.

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

第四章 机器故障分析与排除 **Machine fault analysis and ruled out**

故 障 排 除 troubleshooting

故障状态 现象Failure state phenomenon	原因分析Cause analysis	排除方法Method
噪声增大Increase noise	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. The noise from the screw barrel, screw and barrel in operation from time to tome, even whistlers; 2. The noise from the cooling fan, the fan impeller and casing friction;	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； 1. The new machine, when the phone is switched on for cylinder inside do not have enough material, there will be a little friction, running for a period of time will be improved;

		2. There will be friction blower, repair or replacement;
<p>主机螺杆电机电流增大，或电流时大时小</p> <p>When host screw motor current increases, or current</p>	<p>1. 物料没完全塑化；</p> <p>2. 物料下料不均匀；</p> <p>1. On all plastic material;</p> <p>2. Material blanking uneven;</p>	<p>1. 提高工艺温度；</p> <p>2. 检查料斗下料口；</p> <p>1. Improve the process temperature;</p> <p>2. Check the hopper feed opening;</p>
<p>工艺温度到，螺杆仍不能转动</p> <p>Processing temperature, screw still cannot turn</p>	<p>1. 下料口至螺杆根部物料硬化，抱死螺杆，使电机不能启动；</p> <p>1. The feed opening to the root of the screw material hardening, lock screw, the motor can't start;</p>	<p>1. 提高螺杆根部的温度，并启动主电机；</p> <p>1. Raise the temperature of the root of the screw, and start the main motor;</p>
<p>压力显示不准确；</p> <p>Inaccurate pressure display;</p>	<p>压力传感器损坏；</p> <p>Pressure sensor is damaged;</p>	<p>更换压力传感器；</p> <p>Replace the pressure sensor;</p>
<p>压力显示波动大，在闭环控制时，造成主电机速度振荡；</p> <p>Pressure show volatility, when in closed loop control, main motor speed oscillation; after work, then switch to "closed-loop</p>	<p>挤出机下料口进料不均匀；</p> <p>Feeding extruder opening is not uniform</p>	<p>检查进料不均匀的原因，并排除原因，</p> <p>转换到“开环控制”状态，待料均匀后，再转换到“闭环控制”状态；</p> <p>Check the reason of not uniform of feed and rule out the reason, Switch to "open loop control" status,</p>

control" state;		
<p>加温时，某区温度升不上去；When heating, temperature rise will not come up one district;</p>	<p>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；</p> <p>1. The heating circuit, overload trip; 2. Temperature sensor damage; 3. The heating coil or one district heating bar damage;</p>	<p>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；</p> <p>1. If it is overload relay trip, will be setting up the current; If it is a circuit breaker tripped, then the need to replace a high-capacity circuit breaker; 2. Replace the temperature sensor; 3. The heating ring ring or heating rods;</p>
<p>加温时，某区温度不升反而下降；Heat, the temperature does not rise instead of one district fall;</p>	<p>温度传感器+ -极接反； Temperature sensor + - pick up against</p>	<p>温度传感器+，-极对调；The temperature sensor +, - polar reversal</p>

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！

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，不便之处敬请谅解。

如有疑问，请与本公司技术部门联系。+086-0512-53377373

Note: such as fault has not ruled out, please contact in time in the company, without the consent of the company, without authorization, tear open outfit, caused a series of problems, is responsible by the users themselves, please understanding!

Because the company continuously devotes to the upgrading of products and development, so the instructions provided in the diagram, description, parameters such as do not tally with the actual product may have, the specific in kind prevail, pictures for reference only, any inconvenience caused, please understanding.

If you have questions, please contact our technical department.

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