PE 铝塑板挤出生产线使用维护手册 PE ACP Board Extrusion Production Line Instruction Book

目 录

Catalogue

一、使用和性能 use and function

1.1、使用范围 use scope

该挤出生产线是加工 PE 铝塑板的生产线，本说明书所描述的操作和使用规程只适用于加工 PE 的物料情况。如使用者自行加工其他物料则不在本说明书描述之列，同时本公司不负担由此产生的后果。This extrusion line is used for PE ACP board production line,all description for operation and using rule are just suitable for PE material product.if use the material beyond PE material,the company will not have any responsible for the consequence.

1.2、性能 character

该生产线生产范围，片材厚度 2 ～5mm，制品宽度 1600mm，挤出机产量 650-850kg/h。Work scope for this line, thickness of sheet is 2 ～5mm,width of final product is 1600mm, output for extruder is 650-850kg/h.

1.3、PE 挤出生产线工作与储运的环境要求 PE Extrusion production line working and storing environment

允许环境空气温度 environment temperature：+5℃～40℃;

储运温度 storage temperature：-20℃～55℃;

相对湿度 relative humidity：至 90%，无凝露 no condensation;

污染等级 pollution class：2 级，不应安装在多粉尘,有腐蚀性气体的场所 a place where with much dust and corrosion air should not install machine ;

海拔高度 height：<1000 m，>1000 m 须降容使用 need to reduce volume，每升高 100 米，负载能力降 1% rise each 100m, load capacity reduce 1%。

1.4、地基 foundation

生产线地基图(见附录 1) production line foundation drawing(reference picture NO. 1)

1.5、电源要求 power requirement

供电系统形式：三相五线制，即 TN-S 系统 （3P/N/PE）

power supply system type:3-phase 5-wires,namely TN-S system(3P/N/PE)

三相电压：380V±10% 单相电压：220V±10%

3-phase gauge:380V±10% single-phase gauge:220V±10%

电源频率 power frequence：60HZ±5%

1、180 主机调速电缆规格 $3X185mm^2+120mm^2$

180 extruder adjustable cable model： $3X185mm^2+120mm^2$

2、120 主机温控柜电缆线规格: 3X95mm2X3+70mm2

120extruder temperature controlling cabinet cable model：3X95mm2X3+70mm2

3、辅机线规格 support equipment cable model： 3X70mm^2+50mm^2

4、热复合线规格 Hot composite wire specifications：3X95mm^{2}X3+70mm^2

5、本设备占变压器容量约： 700kVA

This machine occupies transformer volume: 700kVA

5、电源要有接地保护线，电气控制柜附近要预埋接地电阻 R≤4Ω

Power should be with grounding protection cable,near electrical cabinet should bury the grounding resistance R≤4Ω

1.6、气源要求 air source requirement

气源压力 0.6～0.8MPa，正常工作时耗气量约 1.5m^3/h。

Air source pressure 0.6～0.8MPa, when normal work it will cost air 1.5m^3/h。

1.8、水源要求 water source requirement

生产线工作时总耗水量约 5L /h。水流量 22m^3/h，压力 0.3～0.4MPa ,正常水温＜35℃,需配备大水池或冷却塔，总进水管口径 2.5″，并在进口处安装 2.5″球阀一个，总出水管口径 3″。When the production is operating,the total cost for water is 5L /h。Water flow rate 22m^3/h， pressure is 0.3～0.4MPa , water temperature is less than 35 ℃, matching with the big water pool and cooling tower, input water pipe diameter 3″,and install a valve ball 2.5″, total output water pipe diameter is 2.5″.

二、构成及工艺流程 **structure and technology process**

2.1、生产线构成（生产线总布置见附图 1） **production line structure(whole line layout reference picture NO. 1)**

生产线机械部分主要由以下部分组成,具体如下图所示 production line machinery part form,reference the following drawing：

（1）	挤出主机单元：JWS180/35 挤出机	1 台
	Extrusion unit: extruder JWS180/35	1set
（2）	液压换网单元	1 套
	Hydraulic screen changing unit	1set
（3）	模具单元	1 套
	Die unit	1set
（4）	三辊压光单元	1 台

Three roller calender unit 1set

（5） 水辊温控制器 1 套

Temperature roller controller 1set

（6） 高分子膜覆膜机 1 套

Adhesive film covering unit 1set

（7） 四工位上下放铝箔机 4 套

Four station upper and down aluminum foil unwinder 4 sets

（8） 铝塑热复合装置 1 套

Composition unit 1 set

（9） 冷却风箱装置 1 套

Fan 1 set

（10） 保护膜覆膜机 1 台

Protective film covering unit 1 台

（11） 五辊整平装置 1 台

Five roller correction unit 1 台

（12） 牵引机 1 台

Haul-off unit 1set

（13） 修边定宽单元 1 套

Trimming and width fixed unit 1set

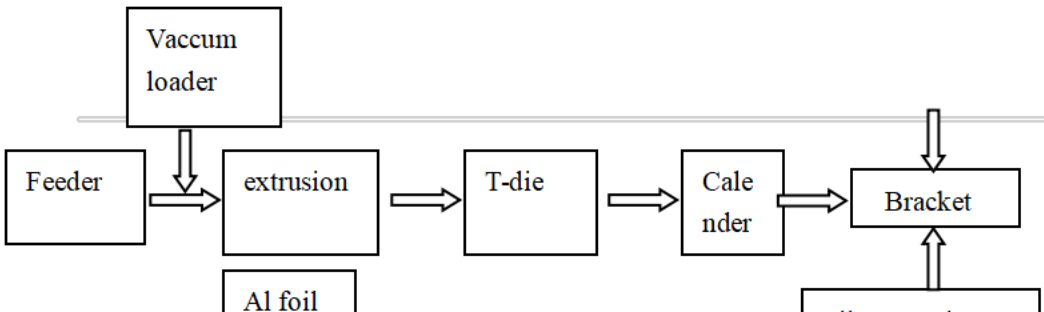
（14） 剪板机 1 台

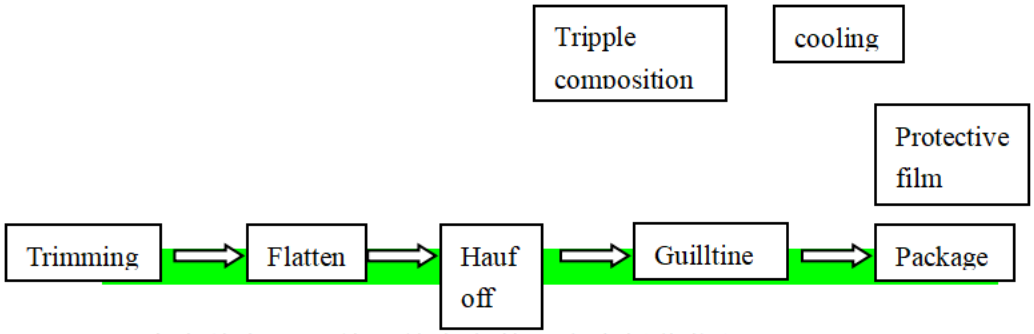
Guillotine 1set

（15） 皮带输送机 1 台

Belt conveyor 1set

2.2、生产线工艺流程 **production line technology process**





三、生产线各组成单元基本参数及安全操作指导 **basic parameter for production line each unit and direction for safety operation**

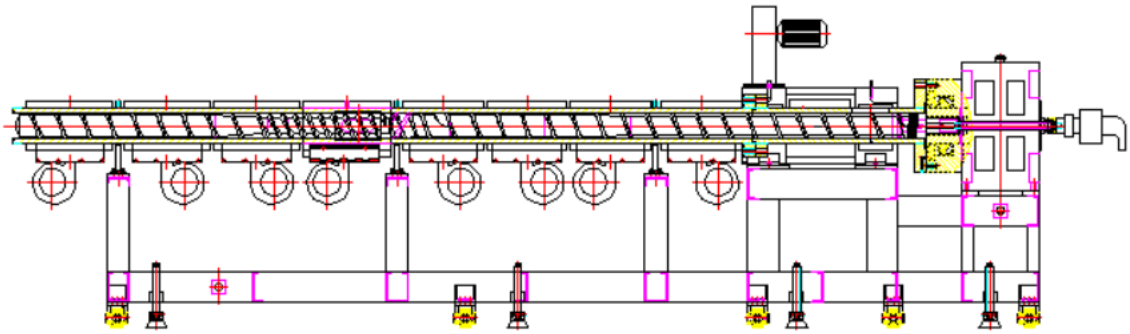
3.1、挤出单元基本参数及安全操作指导 **basic parameter for extruder unit and direction for safety operation**

3.1.1、挤出机基本参数 extruder basic parameter

JWS 180/35 挤出机 extruder

螺杆机筒 barrel and screw	
材质 material	38CrMoAlA 双金属 thermometal
渗氮深度 nitration	0.5-0.7mm
螺杆硬度 hardness of screw	HV≥740
机筒硬度 hardness of barrel	HV≥940
长径比 L/D	35：1
产量 capacity	850Kg/h
螺杆直径 diameter of screw	180mm
机筒加热区 barrel heating zone	8 区 zones
总加热功率 heating power	138.5kw
加热方式 heating type	陶瓷加热 ceramic heating
冷却方式 cooling type	风冷 air cooling
驱动 driving	
电机型号 motor model	直流电机 DC motor

额度电压 voltage rating	380V
调速器 governor	ABB
电机功率 motor power	250kw
减速箱 gearbox	江阴减速箱 Jiangyin Gear box
热处理 heating treatment	渗碳磨齿 nitration and grinding gear
电机与减速箱的连接方式 connection type between gearbox and motor	直连 directly connect



3.1.2、挤出机的吊装 extruder hoisting

挤出机在吊装前，先将有足够强度的圆钢插入机架吊装孔，根据吊装示意图，起吊挤出机。由于挤出机重量分布不平衡会导致搬运过程中的中心偏移，为防止吊索在吊钩中滑动，套在吊钩中的吊索必须在吊钩上再多绕一圈。在吊装过程中,请稳住机器的中心,防止机器在吊装过程中在空中摆动幅度太大,伤及操作者或现场其他相关人员。Before extruder hoisting, (sees attached figure 1and 2)hookon extruder. Due to the extruder weight distribution imbalance will lead to handling process center to prevent sling offset, and in the hook slide, set in the hook on the hook the sling must go round and more circle(reference picture NO.3).In the process of hoisting, to avoid too big swing range and cause some unhappy thing,please keep central of machine steady.

3.1.3、挤出机的就位和安装 extruder takes place and installation

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），如附图所示。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）。之后，将挤出机固定在混凝土平台或钢平台上，以防止产生振动。Extruder installation usually together with other equipment ,both of them must follow line foundation drawing. Adjust good extruders relative position between the whole production line and the relative position meanwhile adjust extruder own level position (material feeding port(input) and mounting surface could be used as measurement datum). After extruder fixed in concrete platform, in order to prevent the vibration generation.

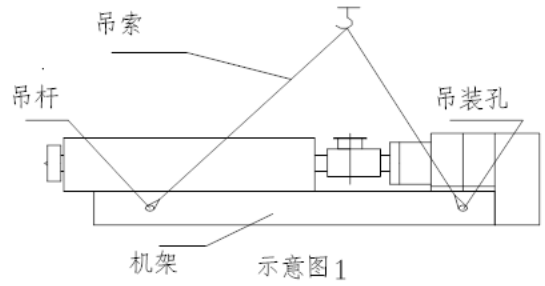


示意图1

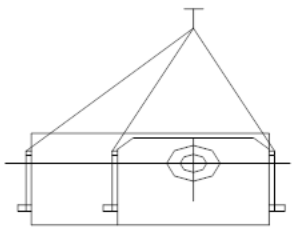


示意图2

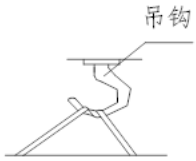


示意图3

3.1.4、挤出机主要部件 extruder component

3.1.4.1 、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 Generals

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 specially designed for plastic rubber single screw extruder of high precision hard tooth surface gear products refer to JB/T 8853-2001 cylindrical gear reducer design, and its gear and gear shaft material USES high strength low carbon alloy steel, tooth surface after carburizing and quenching gear grinding machining, precision of the gear tooth surface level 6 (GB/T 10095) hardness HRC54-62 output shaft front end is equipped with

large size of thrust bearing, screw axial thrust

二、使用范围 range of application

- 原动机输入转速不高于 1500 转/分 The prime mover input speed is not higher than 1500 r/min
- 齿轮传动圆周速度不大于 20 米/秒 Gear circumferential velocity is not more than 20 m/s
- 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。）- 40 ~ 45 working environment temperature, under the condition of environment temperature is below zero, before the start of lubricating oil preheating to 0 or more, or to choose lubricating oil at low temperature

注意 Note：

- 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。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 brand logo Reducer factory with product nameplate signs, recorded the model performance of product manufacture 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。Reducer based firm and reliable stability must be cleaned and the installation of 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
- 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 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

- 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）。When the gear reducer using the pulley sprocket when feed input power, should be used according to the product sample check the additional radial speed reducer shaft tolerance, middle in the input shaft, additional radial tolerance shall not be greater than (N) : reducer input torque (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。Installed, add lubricating oil in the reducer Lubricating oil evenly distribution in the casing to the center line of the oil standard oil
- 接通水冷系统，检查各接头处是否有渗、漏水现象 Connect water cooling system, check the tapping for infiltration leakage phenomenon
- 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。Wired up, let the no-load running speed reducer for short periods of time, check the equipment run time lubricating oil in the pipeline is normal, whether there is oil leakage phenomenon, 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；On all coupling, when installation, cut off the motor power supply and measures should be taken, such as hanging warning labels) to prevent accidental through

◇ 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；Coupling pinion, etc are

not allowed to use a hammer percussion way suits to the shaft end

◇ 安装皮带轮时应注意皮带的正确张力；The correct belt tension should be paid attention to when installing pulley

◇ 输出部分不得采用强力装拆螺杆；Output part shall not adopt any screw strength

◇ 减速机的外露旋转部分（联轴器、皮带轮）应加防护罩；Exposed rotating parts of speed reducer (coupling pulley) should add shield

◇ 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。The connecting shaft end and flange surface must be thoroughly remove dirt, rust inhibitor 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

2）减速机使用 Gear-box operation

开机前检查项目：Check before starting

◆ 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；Before use, first check the deceleration box body for lubricating oil, the oil level is correct, if lack of lubricating oil should be added in a timely manner

◆ 各联结部位是否松动，安全防护装置是否齐备；Whether the connecting parts loose, safety protection device is ready

◆ 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。Environment temperature is below zero, lower than 0 cases, before the start of lubricating oil preheating to more than 0

减速机运行 Operation：

◆ 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。Reducer should be idling 5 ~ 10 minutes (if reducer gear pump with motor,

reducer, open before starting motor gear pump), make each bearing gear after loading using sufficient lubrication; 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

- 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。In the process of reducer running, timely monitoring the rise of temperature of the speed reducer, and make records When the reducer temperature rise of more than 70 or the oil temperature exceeds 100, 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
- 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）。Reducer outage operation according to the following procedure: first shut down the feed hopper, stay in the screw tubes is conveying of closed reduction of mechanical and electronic mechanical and electrical source (if reducer gear pump with motor, the machine shut down after the motor gear pump in the deceleration authority
- 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 If the captain of the deceleration time to stop using, must be every 2 ~ 3 weeks for reducer running at a time
- 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 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 Note：

◇ 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；In the early stage of the drive pump may emit higher noise, which is large in the resistance should be in the lubricating oil viscosity oil pump oil absorption, caused the phenomenon go away after the lube oil temperature

◇ 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；In the reducer in the course of using the normal oil pump noise increases, this time should be clean oil filter, ensure smooth oil

◇ 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 process of reducer running should be timely monitoring of speed reducer leakage, and found the oil leakage phenomenon, timely stop ruled out

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

检修与维护时间间隔 Repair and maintenance interval

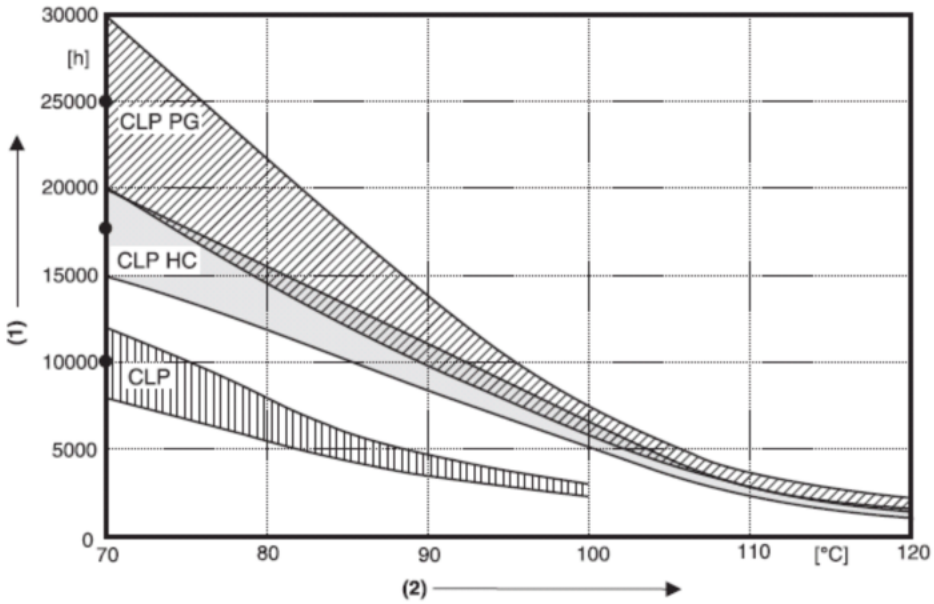
时间间隔 interval	检修与维护 inspection maintenance
正常工作运行 Work properly run	检查减速机温度：使用矿物润滑油时，不得超过 90℃ 使用合成润滑油时，不得超过 100℃ 检查减速机噪声有无异常 检查减速机是否有泄漏现象 Check reducer temperature: when using mineral lubricating oil, shall not exceed 90 ℃ When using synthetic lubricating oil, shall not exceed 100 ℃ Look for abnormal noise reducer Check for leaks reducer phenomenon
在运行 500～800 小时后	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 running oil replacement for the first time Check whether the oil level should be filling lubricating oil
每隔运行 3000 小时，至少半年一次 Every 3000 hours of operation, at least once half a year	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

	To check the oil, if in outdoor or damp environment, should check the oil, water content is not 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 use of the case may be, at least 3 months at a time	更换矿物润滑油（长期连续工作） 检查各处联接螺栓有无松动 检查污染情况和润滑冷却装置状态 清洁润滑油过滤器，如有必要更换滤芯 Replace 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 use of the case may be, at least once a year	更换合成润滑油 Replace synthetic lubricants
根据环境及使用情况而定 According to environment and usage	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 To improve or change the surface protection (rust) paint 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 Under the condition of bad environment using special specifications reducer lubricating oil should be changed often

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 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℃) Continuously for running time (2) the oil pool temperature to 70 ℃ (average)

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

故障现象 Failure phenomenon	可能原因 may cause elimination	排除方法 method	故障现象 failure phenomenon	可能原因 may cause elimination	排除方法 method
异常、均匀的运转噪声 Abnormal running noise, uniform	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	A 检查润滑油，更换轴承 B 向国茂咨询 A. to check the oil, replace the bearing Consult the mau B	润滑油泄漏： 减速机结合面 减速机端盖面 减速机视孔盖 传动轴密封处 放油塞处 通气塞处 Lubricating oil spill: Reducer combinationReduce	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	检查联接螺栓发现松动及时拧紧 检查密封部件并看情况更换 检查油位/改善排气 向国茂咨询 Check the connecting

异常、不均匀的运转噪声 Unusually, uneven running noise	润滑油杂质 Lubricating oil impurities	检查润滑油停止运行,向国茂咨询 Check the oil Stop running, consult the alum	r end cover surface Depending on the hole cover reducer The shaft seal Drain plug place Air plug in	Don't close reducer connection parts Loose connection fasteners Sealing parts installation is not correct Sealing parts damaged/wear Not tightly coupled Lubricating oil a too much Installation errors	bolt found loose screw in time Check the sealing parts and replace it depends Check the oil level/improve exhaust
在减速机固定区域内的异常噪声 Abnormal noise in the area of the reducer is fixed	减速机固定件有松动 Fixed a loose reducer	检查紧固件，使用规定的紧固件 Check the fasteners, the use of fasteners			

运行温度太高 Operating temperature is too high	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 failure	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 Check the oil level, 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	轴承位置上温度太高 Position on the bearing temperature is too high	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 lubricating oil too little B lubricating oil aging metamorphism C lubrication pump damage D bearing damage	A 检查油位，如有必要修正 B 检查润滑油更换时间 C 检查润滑泵，更换 D 检查轴承，更换 Check the oil level, A correction if necessary B to check the oil change of time C check the lubrication pump, replacement D check the bearing replacement
磨合期内轴端密封处温度太高 The running-in period of shaft end seal temperature is too high	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 The sealing parts on the shaft	清理轴端可视作正常现象 Clean the shaft end can be regarded as normal			

八、润滑油的选择 The choice of the lubricating oil

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

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

environment temperature 35 ℃ to 50 ℃, should choose the load CKC320 industrial closed gear oil or CKD320 heavy duty industrial closed gear oil

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 When V > 2.5 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 Reducer is not recommended use of grease lubrication, if necessary, please feel free to contact us

国内外润滑油牌号对照请参见附录-润滑油对照表 Lubricating oil grades please see appendix - lubricating oil table at home and abroad

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

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。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 Startup

1．1、 检验 Inspection

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△）。Immediately after the goods, to check whether external motor damage, check out some nameplate data, especially the voltage and the winding connection (Y or delta) No-load rotation axis with the hand, tests, if the motor is equipped with locking devices, pay attention to open it

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

1.2、绝缘性能检测 Insulation performance testing

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。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、直接启动或 Y/△启动 Start or Y/delta start directly

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。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

电压和绕组连接方式在铭牌上有标注。The voltage and the winding connection is marked on the nameplate

1.3．1 直接启动 Direct start

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 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

电源电压必须等于△接法电机的额定电压。Supply voltage must be equal to delta connection the rated voltage of the machine

拆卸接线板山所有的接线片，按 Y/△起动装置接线，妥善连接到电机六个接线柱上，并能从起动初期的 Y 连接跳到自动完成的△连接。双速电机和其他特种电机的电源接法，必须依照接线盒内的接线图说明。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、接线柱和旋转方向 Terminal and the direction of rotat

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。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

换接电线中的任意两相就可以改变电机的旋转方向。In any two phase in the wiring can change the direction of rotation of the machine

2、 使用说明 the instructions

2.1、运行环境 Runtime environment

电机用于工业生产。Motor used in industrial production

正常的环境温度在-15°C 到+40°C 之间，海拔不高于 1000m Normal temperature in between 15 ° C to + 40 ° C, is not higher than 1000 m above sea level

2.2、安全要素 Safety factor

电机应由熟悉相关要求的专业人员安排和接线。Motor should be familiar with the requirements of the professional staff arrangement and wiring

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

2.3、遵守规格 Comply with the specifications

电机不能用于加速和超载运行。The motor cannot be used to accelerate and overload operation

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

一些有特殊用途的电机需要特别的指导说明 Some special purpose motor need special instructions

3、 管理 management

3.1、贮存 storage

所有电机都应保存在室内，要求干燥、防震、防尘的环境。All motors shall be kept indoors for dry, shock, dust environment

无保护层的电机表面应该采取防锈措施。No protective layer of the surface of the motor should be rust preventive measures

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

3.2、运输 Transportation

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。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、重量 Weight

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。Due to the same frame number (center) of motor output power, install additional parts of different sizes and the total weight is different, the specific weight of the motor, can be found in the motor nameplate

4、 安装 Installation

4.1、垫板 base plate

安装垫板的准备工作由用户负责。Preparations for installation plate shall be the responsibility of the user

金属垫板应做防锈漆。The metal plate should be anticorrosive paint

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

4.2、底脚螺栓安装 The foot bolt installation

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。Tighten foot motor and bolt between the plate and had 1-2 mm gap by the right 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、排水孔 Drain hole

当安装非标准电机时，检查排水孔表面是否朝下。When installing non-standard motor, check whether the drain surface is down

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

在特别脏的环境下，所有的排水孔都应关闭。In a particularly dirty environment, all the drain should be shut down

4.4、调整安装 Installation adjustment

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

4.5、滑轨和皮带轮 Slide rail and pulley

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。

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 introduction

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。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

安装时不能重锤猛击，拆卸时也不能使用杠杆压靠机身。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。Standard motor, USES the balance half a key

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。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 introduction

定期检修电机

保持电机清洁，空气流通。

检查轴伸的密封圈，如有必要应及时更换。

检查安装连接状况和安装螺钉。

通过监听异常噪声、振动测量，监控用油量或轴承侧振元件来检查轴承运行情况。

如有异常发生，应立即停机，检查原因并及时排除。

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	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
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。

Fn=DM x n

Dm=平均轴承直径

n=转速

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

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.

Fn = DM x n

Dm = 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).

3.1.4.3、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，L2 为压缩段长度，L3 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，H1 为加料段螺槽深度，H3 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。

挤出过程

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。

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 (alpha) is associated with the extruder flow Q and drag flow QD 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 Db for barrel nominal diameter, delta t for single side clearance between screw and barrel, while ignoring delta t, Db 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.

Extrusion process

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

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。

2）输送

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，这种理想的情况时不可能的。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 fb 和塑料对螺杆的摩擦因数 fs。fb 越大或 fs 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 fb。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。

3）压缩

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，也只有在

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。

4）熔融

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。

5）混合

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。这在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。

6)、排气

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。

1) charging

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) delivery

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 fb and plastic on the friction factor of screw fs. Fb or fs 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) compression

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) the molten

In pressure at the same time, the movement of the solid plastic and heating of the machine are compared.in the continuous contact and friction, close to the machine are compared.in the plastic material temperature keep improving, reached after melting point on the inner wall of the barrel, form a thin layer of molten film. After this, solid plastic melting heat source of two aspects: one is the barrel external heater transfer heat conduction, the second is due to the layers of melt in the melt film speed of different shear heat, namely rheology referred to in the viscous dissipation of heat.

As the molten, when the thickness of melt film is greater than the screw and barrel clearance, moving screw arris will melt film blowing down, formation of molten pool in front of the screw propulsion of the edges. In the process of melting, the molten pool is more and more wide, the remaining solid width narrow, until finally disappeared completely.

5)

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), exhaust

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.

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。

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.

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。

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.

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。

Screw removal, cleaning, installation method:

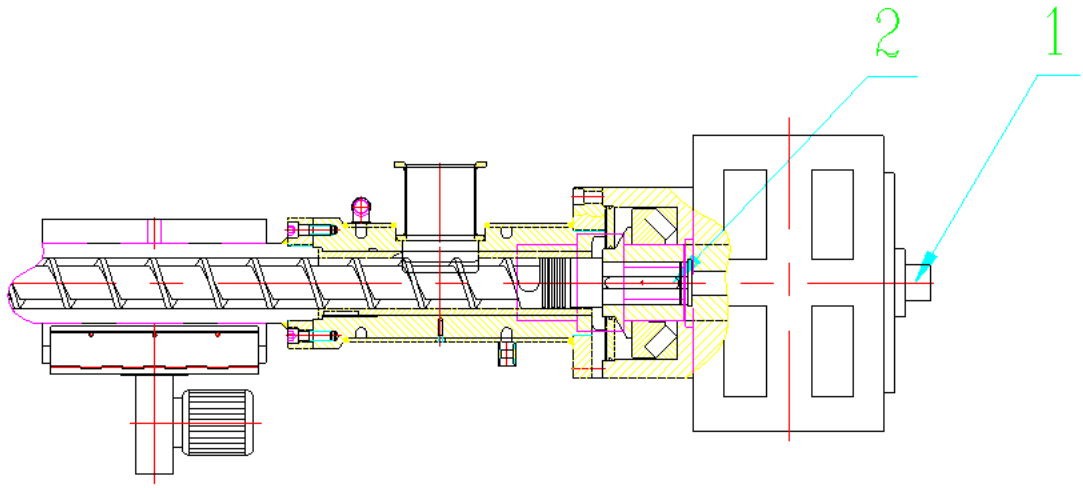
A, screw removed

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.

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

1）加热圈

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。

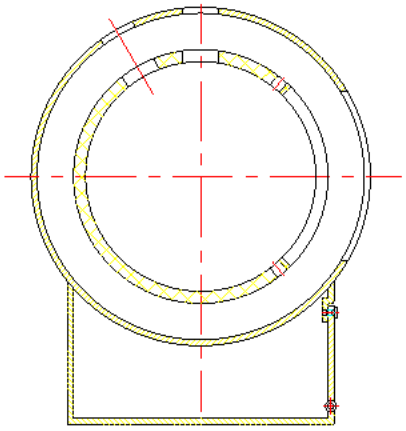
加热圈外形示意图如下

1) the heating coil

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.

Heating coil shape diagram below



机筒加热圈 Barrel heater

2）冷却风机

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。

2) the cooling fan

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.

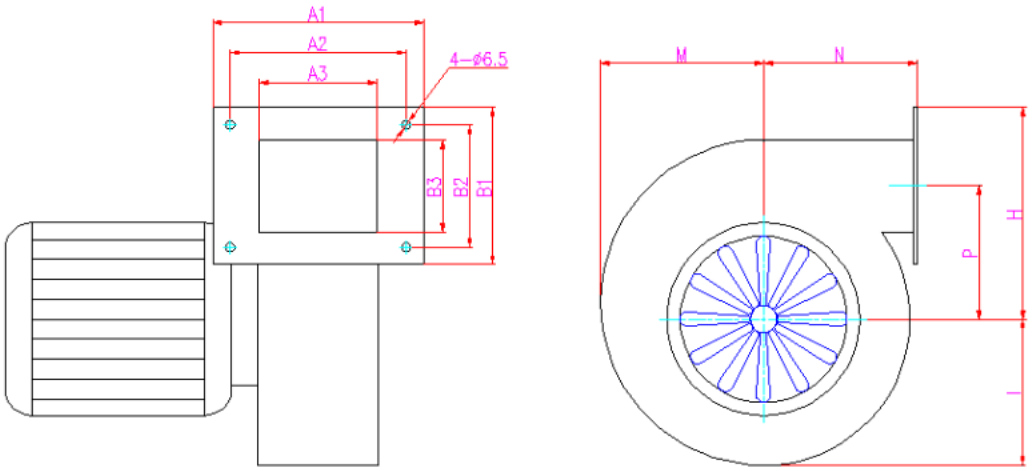
DF 型风机性能参数及电机配置 DF type fan performance parameters and machine configuration

型　　号 Flow	流　　量 M3/hmodel M3 / h	全压 par total pressure par	转　　速 r/min speed r/min	噪声 db noise db	功率 kw kw power	电压 v voltage 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

3.1.4.5、冷却水套 cooling water 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。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

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

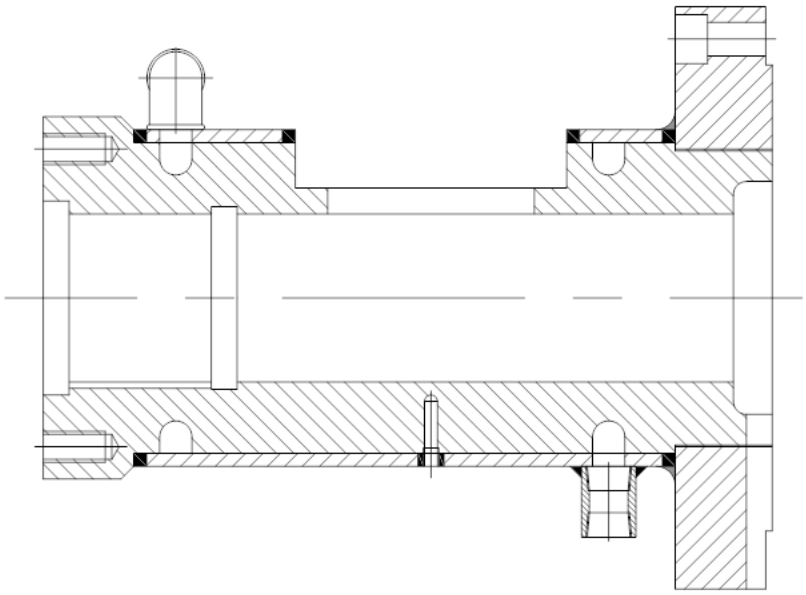
水　　温：　　10－20℃

Extruder cooling water requirements:

The purity of water, no pollution, no lime

Water pressure: 0.5-0.5 MPa

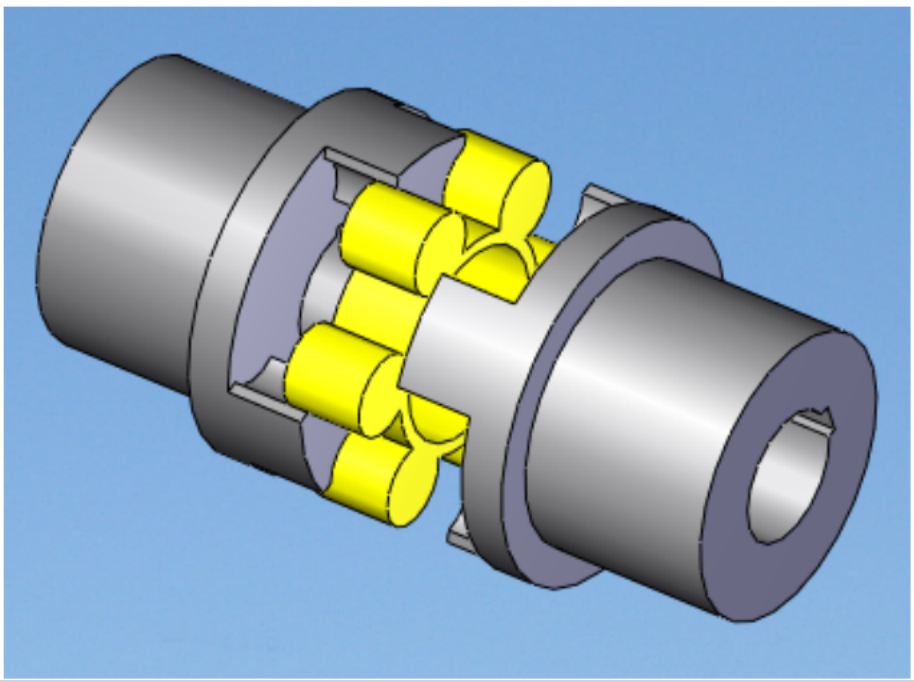
The water temperature, 10-20 ℃



水套结构 **Water jacket structure**

3.1.4.6、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 motor and reducer relative position produces 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!

3.1.5、挤出单元的安全保护 The safety protection of extrusion unit

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

3.1.6、挤出单元的安全保护 The safety protection of extrusion unit

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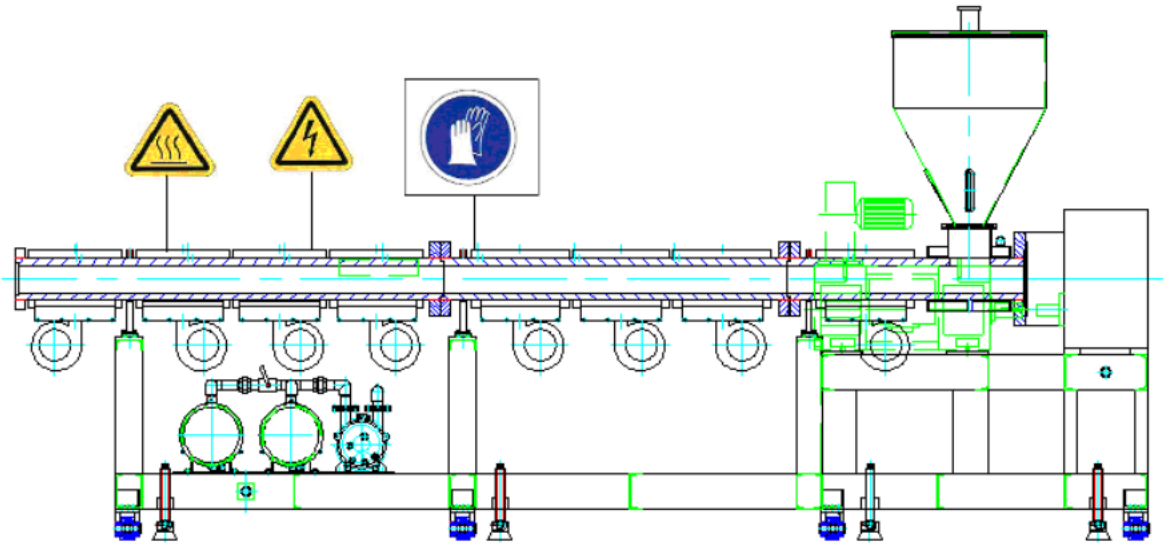
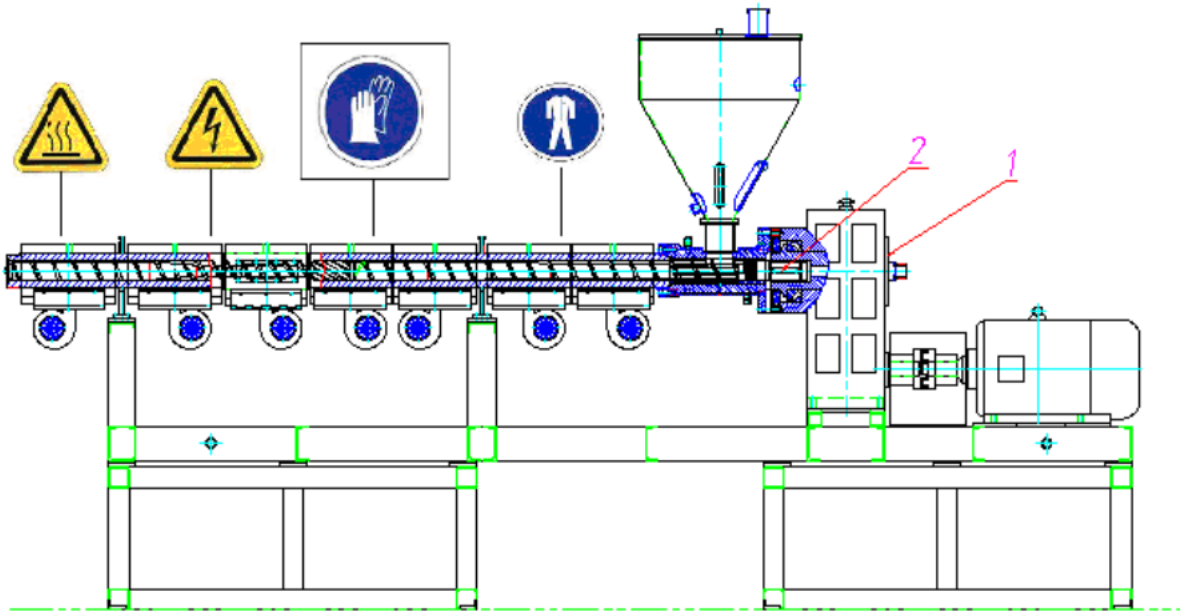
挤出机安全标志贴放处 Extruder in safety signs





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!

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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.

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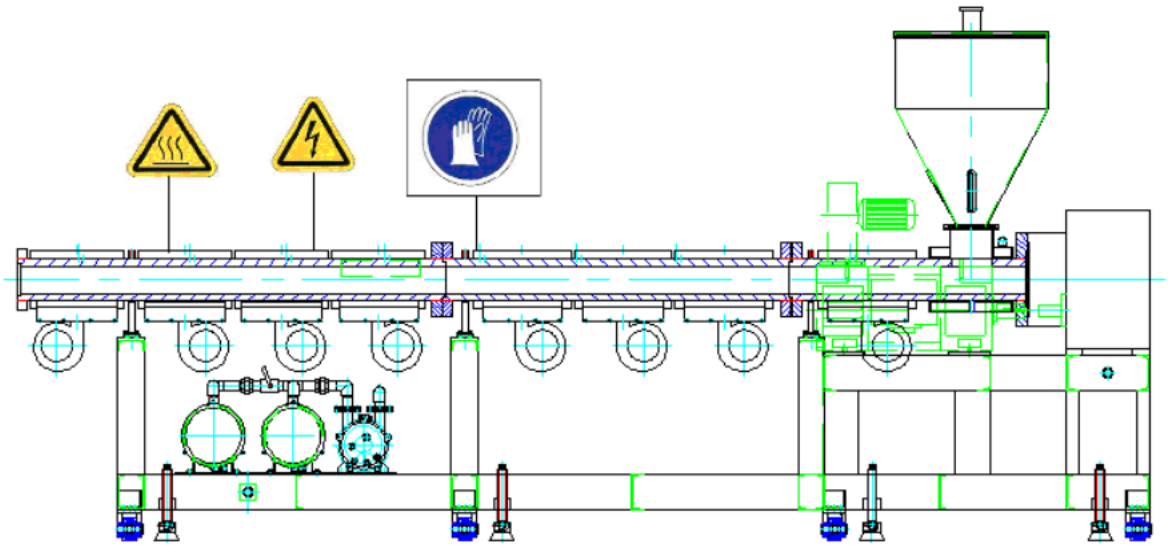
挤出机安全标志贴放处 Extruder in safety signs



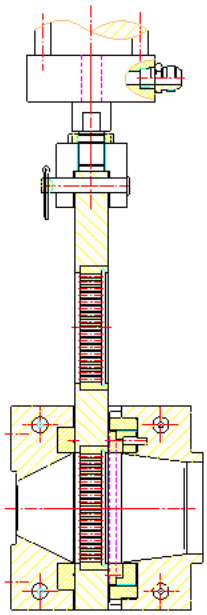
3.2 换网器、液压单元 screen changer ,hydraulic unit

3.2.1、换网单元的基本组成 The basic composition of draping unit

PE 铝塑板挤出生产线的换网单元由双工位的板式换网器和换网液压站组成。PE aluminum extrusion production line of the unit to replace the network by the plate net changer and network double location of hydraulic station.

3.2.2、换网器使用说明

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。This screen changer is of two-work position type,different model and quantity of mesh can be placed at working place,with different model and quantity the extrusion pressure and flow will different, we can do as your different requirement.



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。We always use heater bar and thermal couple to adjust and control temperature.the model of heat bar should references instruction book technical parameter.

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，本产品在出厂前，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。Before changing screen ,sealing adjust ring must be in position,or which will leads to

leak material.otherwise,before leave from the factory,coat the high temperature lubricant grease on the flashboard, first time to use it,do not remove the lubricant oil,or this will easy to make the sealing surface damaged.

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）。This screen change can support the Max pressure is 25Mpa,changing screen pressure can be adjusted by different environment and requirement,but which should not higher than limitation pressure.as usual when screen changing pressure at 15MPa can work normally,this indicates all thing are available. When changing screen pressure reach at 20Mpa,but it can not work normally, we suggest to check all this relative system(includes hydraulic station,screen changer)

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，每次换网之必须保证网板在正确的位置，否则有可能把网板拉坏。When screen changer change work position,before the resin has not dried,to clean the changed position,cleaning the odd parts,and spay release agent,make a good preparation work for the next changing work,each time when changing the mesh plate ,please guarantee it is in right position,or this will leads to damage it.

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

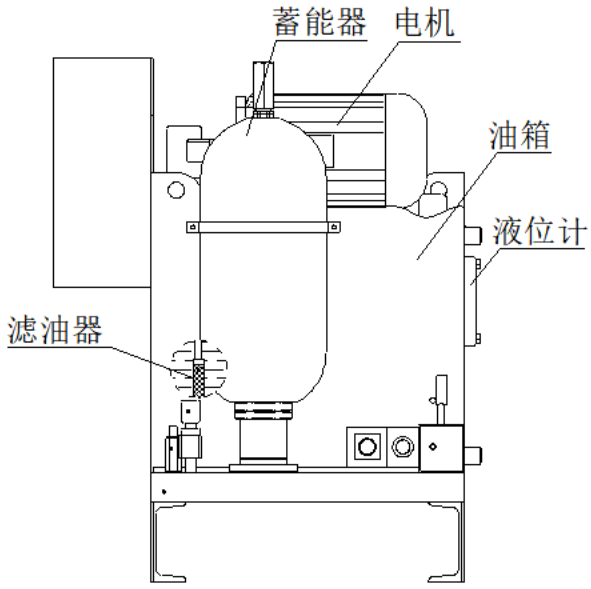
1、概述 Overview

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

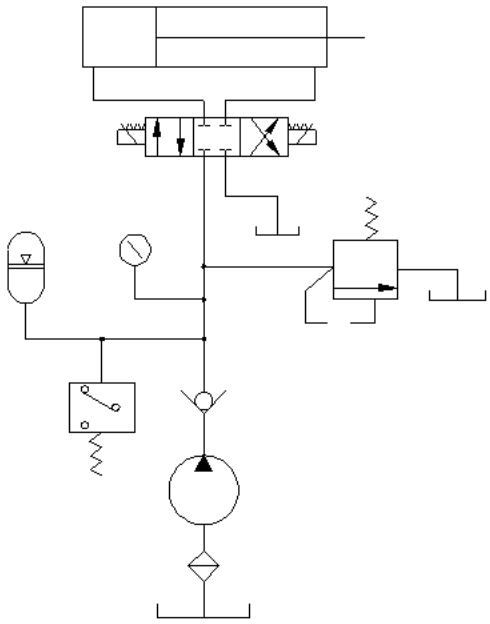
2、主要技术参数 main technical parameters

系统最大压力：25MPa（蓄能器限压）Maximum pressure system: 25 mpa (accumulator pressure limiting)

3、液压站结构图以及其工作原理图 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 Preparation before first use

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＃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。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、 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）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、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%。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.

- 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。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 regulating nut
- 不工作时换向阀要回到中位，油缸处于轻载状态。does not work when reversing valve to return to the median, oil cylinder in light load condition
- 停机四小时以上时，应空载运行 5～10 分钟，再加载运行。down more than four hours, no-load running 5 ~ 10 minutes, then load operation

使用说明 Directions for use

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。When hydraulic station are required, 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、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）Solenoid 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、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。the solenoid directional valve to make it back to the median, preparing work for the next cycle

D、切断电源。**Cut off the 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. Did not stop the power failure pressure maintenance is prohibitedλ
- sharps, shall be used for replacing the seals damaged seals shall not damage.λ
- 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.λ
- connection order when motor maintenance, to ensure the actual direction of rotation of motor and labeled in the same direction.λ
- check system pressure is stable within the prescribed scope.λ
- note system work there is no abnormal noise.λ
- this hydraulic system when installation should pay special attention to avoid heat pollution. The oil temperature is within the prescribed scope (30 ℃ ~ 55 ℃), generally not more than 60 ℃. If the oil temperature is too high should stop looking for reasons.λ
- power supply voltage should be stable, its value is less than 15% of the rated voltage fluctuations.λ

- 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.λ
- regularly changing working medium (for half a year for the first time, once a year later) and filter, filter depending on the work environment and congestion, usually for 3 ~ 6 months.λ
- cannot adjust in the case of no pressure gauge pressure gauge damage to change in time.λ
- timely processing system of internal and external leakage.λ
- electrical control system to keep clean and dryλ
- when disassembling hydraulic components, to keep the element clean, prevent the dust, foreign bodies, the hydraulic oil pollution.λ
- the maintenance after completion of boot debugging. Operating procedures should be in strict accordance with the instructions.λ
- any caused by improper maintenance and operating system components damage or system failure, the company will not take any responsibility.λ

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 ℃) or low (less than 15 ℃) should stop to use.λ
- the oil in the tank too little should stop using it.λ
- if injection or leakage is serious, it is forbidden to maintenance in the work.λ
- hydraulic system failure, should promptly notify the maintenance personnel maintenance, shall not take fault operation.λ
- system to avoid load startup.λ

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 pressureλ
- check motor rotate to right.λ
- check the overflow valve pressure regulating is normal.λ
- check whether the pressure relay is normal.λ
- to check whether there is enough oil tank (see level gauge).λ
- check whether the oil pump is working properly.λ
- system internal and external leakage.λ
- check is mixed with air in the hydraulic oil.λ
- check whether accumulator failure.λ

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

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

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

gauge pressure measurement		
蓄能器充气压力 Accumulator charging pressure	1 / 年	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	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	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

3.3、模具单元基本参数及安全操作指导 die unit basic parameter and safety operation direction

3.3.1、模具的基本参数 die basic parameter

模具类型：衣架式流道模具 cloth hanger type.

3.3.2、模具的运输和包装 transportation and package of die

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。This equipment before shipment must be carefully checked and packaging, even so, if the transport undeserved remains possible damage certain parts.

如果包装受到损坏 If the package were damaged：

· 检查设备的外观是否受到损坏 Check the equipment of exterior whether damaged

· 拍摄所有损坏、损伤的部位 Filming all damage, the site of injury

假如设备在运输时受到损坏 If the equipment transported damaged：

· 尽快联系营运商 Contact suppliers

· 保存好包装材料(以便营运商将本设备运回本公司接受检查)

需运回检修时请尽量使用原始的包装件和原始的包装材料。如果上述的包装件都不可用了，请按如下说明做 Save the packaging materials (so carriers will this equipment shipped back to our company to accept inspections)Need to carry maintenance try to use the original package and the original packaging material. If the above package are not used，Please click below that：

· 使用专业生产包装产品的厂家生产的包装件 Use specializing in the production of packaging products manufacturers package

· 每种分类零件都放置在同一个箱子里，以防遗失。Each classification parts are placed in the same box, in case of loss.

设备不允许露天放置 Equipment does not allow open-air placement.

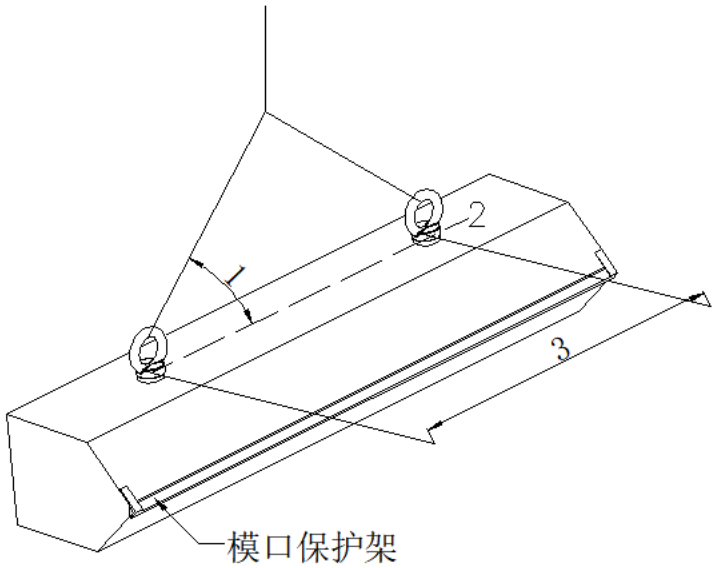
推荐的室内存放环境 The recommended indoor storage environment：

·温度 temperature： 5ºC 至 50ºC(40ºF 至 120ºF)

·湿度 humidity： <70%

3.3.3、模具的吊装 die hoisting

吊装示意简图 See Drawing：



·标号 1 的角度不应小于 60°**Label 1 Angle should be not less than 60**；

·吊装的高度不宜超过标号 2 的中心线的目视水平高度 Hoisting height is unfavorable

exceed label the centerline of the visual level 2 height;

·标号 3 所指的两个吊环应大致水平 3 the two rings referred to label should roughly level.

注意 attention:

> 本公司设计的模具在模具运输过程中装有模唇保护架，请注意拆卸和保存。拆卸过程中不要碰伤模唇，因为模唇在整套设备中属相当重要的部位，模唇中任何细微的损伤都将可能影响产品质量。The company in the mold design of mould in the process of transportation with die lip protection frame, please pay attention to remove and preservation. Remove process don't bruising die lip, because die lip in the whole equipment is quite important place, die lip in any of the subtle damage may affect the quality of products。

3.3.4、模具的操作 Operating of Die

注意所有的安全警告 all of the safety warning should be noticed

·操作者应明确吊装模具用的起吊装置的极限起吊重量。The operator should make clear with the lifting equipments installation mould limit hookon weight。

·操作者应明确设备工作在极高的温度，在手、手臂及脸部穿戴好足够的防护用品。

附页上说明了本副模具的零件说明及数量以便用户参考。(我们建议用户先检查一下备用的零件是否与说明的相符)The operator should determine equipment working in high temperature in the hand, arm and face dressed enough protection articles.

On the attached sheet illustrates this vice mould parts specifications and quantities so that users reference. We recommend that users (check stock of spare parts and explain whether agree)

·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)The mould in packaging used a high-temperature lubricant. The package has power wires, rings and various kinds of disassembly tools. (will with shipping list way tell users)

·使用吊环将模具从包装箱内吊出。并且注意模唇的保护装置。Use rings from the box will die hoisted out. And note the die lip protective device

·将模具放置与模具(支架)小车上，仔细的调整好高度使模具与连接体连接平稳。模具小车的稳固与否直接影响到模具的使用情况。die with mold (stent placement cars, and carefully) adjust height mould and connection implant connecting smoothly. Mould car firm or not directly affects the mold use。

·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。Connect the power cord and thermocouple and check each power lines and thermocouple connection is correct。

·检查控制结构是否标准和连接正确并检查其温度设定是否恰当。加热模具和分配器到操作温度。Check control structure whether standards and are connected correctly and check the temperature setting proper. Heating mould and distributors to the operating temperature。

·当模具加热到操作温度时至少保温一小时再进行生产。When the mould heated to the operating temperature at least an hour again insulation production。

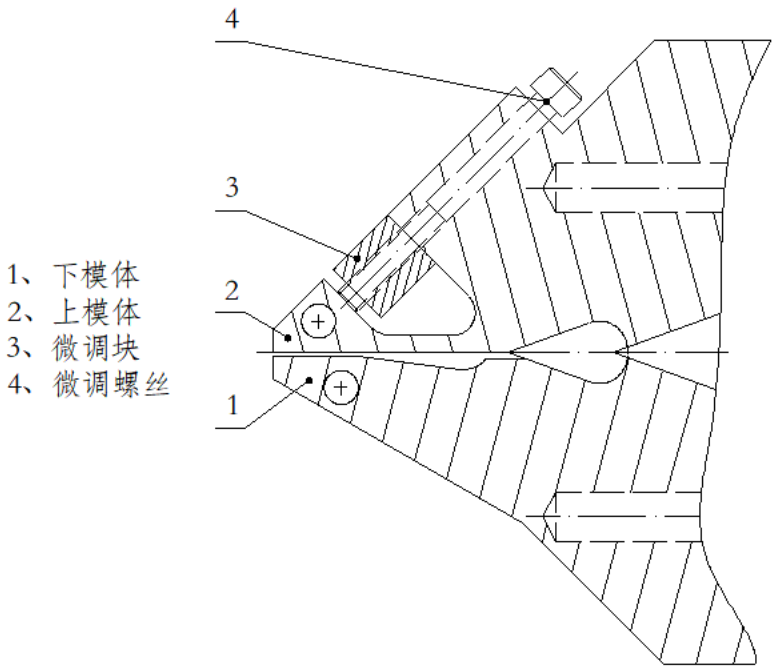
·按照给定的各种螺丝的扭矩，对加温后的模具的各部分的螺丝重新拧紧校正。注意：拧紧模具体大螺丝的过程应按如下的顺序，模具中间的螺丝先拧再依次往两端操作，左边和右边要交替进行。起初阶段模唇的微调螺丝应保持接触松弛的状态。According to the given all the screws to warm up the torque, mould parts of the screw to tighten the calibration. Note: tighten the screws process of mould specific big follows the same order should be in the middle of the screw, mould first twist again ordinal to both ends operations, to the left and to the right to review. At first stage die lip of fine adjustment screw should maintain contact with flabby condition。

·本模具设计有弹性模唇及节流棒装置，它们装配时处于最大的开口处，此时可以根据需要，用软隙规(软材料制品包括铝(Al)、黄铜(brass)等)测量并调整它们的开口大小。This mold design elastic modulus lip and restrictor bar device, they are assembled in the biggest opening, right now can according to the needs, with soft gap rules (soft materials products including aluminum (Al), brass (side), etc.), measure and adjust

their opening size。

·当完成了上述的准备过程之后，就可以进行生产了。When finished after the preparation process, can undertake production。

3.3.5、推出式模唇调节系统 Launch type die lip adjustment system



·安装 Install

将 M10(M12)微调螺丝装进模具上模的配合孔中，后将螺丝旋进微调块中直到螺丝轻微接触上模体为止。(微调螺丝应保持在松弛状态)M12 M10 (will) fine adjustment screw loaded into the mould mold mating hole, after screw precession fine-tuning block until screw touch on die bodies so far. (fine adjustment screw should be held in flabby condition)

·操作 Operating

用配备的“**T**”形扳手拧调节螺丝，不要用加力杆或大扳手调节模唇调节螺丝。及时更换损坏的调节螺丝和微调螺丝。用“**T**”形扳手调节微调螺丝使得模唇开口间隙达到设计的预设值。

初次调节时请使用千分尺测量开口大小，调节微调螺丝直到开口为设计预设值为止。之后调节(右旋)微调螺丝调整整个幅宽的开口大小，使用铜规(设计开口大小)测试。直到整个幅宽的开口大小都均匀一致并达到设计要求时才调节完毕。并且请检查是否每个微调螺丝都和模体接触。Equipped with the "T" spanner twist adjusting screw, do not use strength rod or big wrench adjust die lip adjusting screw. Promptly replace the damaged adjusting screw and fine adjustment screw. With the "T" spanner adjust fine adjustment screw make die lip openings clearance to design the default values. First please use micrometer adjustment, adjust the size measurement openings until openings for the design of the fine adjustment screw default values so far. After adjustment (dextral) fine adjustment screw adjusting the whole breadth of opening size, use cupreous rules (size) test. Design openings Until the whole breadth of opening size are uniform and meet the design requirements only adjust finished. And please check whether each fine adjustment screw and die bodies contact.

3.3.6、保养和维护 Maintance

1）一般的清理和维护 **General cleaning and maintance**

注意 Note：

本手册说明的维护操作仅仅是对那些有资格的技术员或技师而言。This manual is only maintenance operation instructions for those qualified technicians or technician is concerned。

·在更换生产产品时和每次停产检修时对模具设备的彻底清理是很必要的 When replacement products and clean up every time production maintenance to the mold equipment, it is very necessary

·请注意任何树脂和润滑材料的去除销毁都必须按照当地的环境保护条例执行。In the replacement of a production product and

every production in mould maintenance equipment thoroughly clean is very necessaryplease note any resin and lubricating material removal destroyed all must, in accordance with the local environmental protection regulations

·在生产过程中对设备的操作及温度高低的循环操作和设备的振动都可能引起某些连接螺丝、接头的松动。为避免损坏这些零部件，每次休息停产时都应由设备保养人员对设备各个连接螺丝和接头进行检查。In the process of production of equipment operation and temperature cycle operation and equipment vibration are likely to cause some connection screws, joint of loose. In order to avoid damage these parts, every time when shut down to rest shall be the responsibility of the equipment maintenance personnel of each connection screws and equipment joint inspection。

2）关机过程 **Process of stop the machine**

警告 Note:

所有的清理、维护、修理工作都必须在下述的关机过程完成的情况下进行。All the cleaning, maintenance and repair work must be in the following shutdown process is complete

关闭机器 stop machine

·将主控电源开关转至“OFF”位。The power switch turn to "OFF" position。(将主电源切断 cut down main power)

·检查整个电路是否已经断电。Check whether the circuit has been without electricity。

3）拆卸和清理 **Remove And Install**

拆卸场地和准备工作 Remove sites and the preparation work

·挤塑模应在专门的的场所拆卸、清理、检修和维护。此场所要充分远离“粗件”生产区。工

作场地应保持清洁，并垫以瓦楞纸板或橡胶板。Extrusion die in special places shall be removed, cleaning, maintenance and maintenance. The site should be fully away from "rough piece" production. The work site should be kept clean, and pad with corrugated board or rubber sheet。

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

(screwdriver, spanner), soft air-compressor (brass, soft stock), cleaning and polishing materials, and possible extrusion die of preheater。

·挤塑模应趁热拆卸，必须迅速工作以免过早冷却。当挤塑模还在挤塑机上时，将模头温度加热至比生产时的温度高出 20℃左右，之后停止加热断开所有电源，迅速松开侧板上的螺丝，拆卸下两侧板。在模具仍处于高温状态时，松开上下模体的紧固螺丝，以及和主机的连接螺丝。之后用吊车吊起上模体放在附近的工作区内，并迅速清理上、下模体。清理流道时必须使用软刮片或铜刷，将流道内的任何残余树脂清理干净，可以借助石蜡或相关溶剂清理，切勿使用钢铁制器具。Extrusion mould should strike disassembly, must quickly work early cooling. To avoid When extruded plastic mould in crowded, will die head when heated to a temperature of higher temperature than producing ℃ around 20 after heating power, disconnect all stop quickly loosen lateral plate under the screws, remove both sides board. In the mold is still in high temperature condition, loosen the screw upper die bodies, and host the connection screws. After with the crane lift on die bodies in nearby working area, and quickly clean upper and lower die bodies. Cleaning port must be used in soft air-compressor or copper brush, will be in the flow of any residual resin is clean, can use the paraffin wax or related solvent clean, do not use steel making appliances。

·模具冷却后的清理，模具流道以及密封圈应用软刮片、细平磨石和金相砂纸予以清理及抛光，模具其他表面宜用软刮片和 240#以上的细砂纸清理。每个装配接触、非接触面都要将残余树脂清理干净。After cleaning, mold cooling mould flow and seal rings application soft and fine flat blade and metallographic sand stone be cleared up and polishing,

mould other surface appropriate USES soft air-compressor and 240 # above of fine sand paper cleaning. Each assembly contact, the interface to residual resin clean。

·当上述工作都已完成之后，就可以进行再装配。在装配前应检查模具流道的光洁度，必须除去较小的微细划痕，较严重的损伤应送回厂方修理。When the above work has been completed, can undertake again assembly. Before assembly should check mold runner smooth finish and must remove fine scratches, smaller than serious injuries should be sent back to the manufacturer of repair。

·在挤塑模正式装配前，最好将其流道涂以薄层有机硅脂，如钼石或石墨脂，以保证挤塑模在工作过程中以及以后拆卸时均很方便。In extrusion die formal before assembly, best will its port coated with thin layers of organic silicon grease, such as molybdenum stone or graphite fat, in order to ensure that the extrusion mold in work process and later disassembled are very convenient。

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

注 意 Assembly should be paid attention to when the assembly size accord with assembly request, after a good location, in the mold in cooling state tightened each connecting screw, when mould connection and crowded, and heating color-printed after to the operating temperature after each connecting screws should be again tightened。：

模具加温前一定要仔细检查各个电源线的连接是否正确。此外，还必须校正热电偶。Mould heating must check carefully before each power wires connected correctly. In addition, still must correction thermocouples

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

months or so after should fully disassembled, cleaning, check and relevant equipment. On may malfunction all the parts (screws, bolts, heating pipes, fuses, etc.) should be replaced. However, the specific maintenance, repair time interval should inspect working raw material production period and so on related problems and decide。

4）调试常见问题及处理和注意事项 **common problems and debugging process 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。引起挤出不均的原因有多种多样，比如温度的控制，原料配方，挤出机的挤出压力等等，各方面的因素综合影响的结果。Extrusion mold in production process most prone to question is extrusion uneven, affect the quality of products, and even debugging not qualified products. Cause extrusion uneven reason has many and varied, such as the control of the temperature, the formula materials, extruder of extrusion pressure etc, various aspects of factors influence the results。

现在就这几个方面一般性的问题，做几点解释和说明。以方便用户在实际生产调试中参考。Now these a few respects general questions, do some interpretation and explanation. The users in the actual production debugging in reference。

·开机前的加温和保温工作一定要做好，根据您生产的产品的塑料的特性设定合适的加热温度。各区的温度和挤出压力控制均匀与否，对产品挤出的均匀和稳定很有影响。在调节温度的过程中，需要注意的是热电偶反馈的温度和在模具上的玻璃温度计视值不应相差太大，一般在 1-2°C 左右是正常的，超出了这个范围，就很可能热电偶所测的温度不是模具实际的温度，应检查热电偶是否插到位。温度控制均匀稳定后，挤出机的挤出压力控制均匀稳定也很重要。Before starting the heating and insulation work must do well, according to your production product characteristics of plastics setting proper heating temperature. The temperature and extrusion pressure control of product evenly or not, uniform and stable extruder had an impact. In the process of temperature adjustment, you need to be

aware of temperature and in thermocouple feedback mold the glass on the thermometer depending on the values should not are far too big, general in 1-2 ° C or so is normal, exceeds the scope, probable thermocouple measured the temperature is not die actual temperature, should check whether the thermocouples inserted in position. Temperature control homogeneous steady, extruder of extrusion pressure control uniform stability is very important also。

·一般挤出不均匀时，开始很少调整模具的微调螺栓来调节，等温度和挤出压力都调节均匀稳定后，仍有波动或者挤出不均匀时才考虑调节模具。General extrusion uneven, start rarely adjustment mould fine-tuning bolt to adjust, wait temperature and extrusion pressure regulating uniform stability, still have volatility or extrusion uneven regulation only when considering the mould。

·在调节模具时，应注意各区的调节过渡，防止调节螺栓咬死。In regulating mould, attention shall be paid to the regulating transition, prevent adjusting bolt bite dead。

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

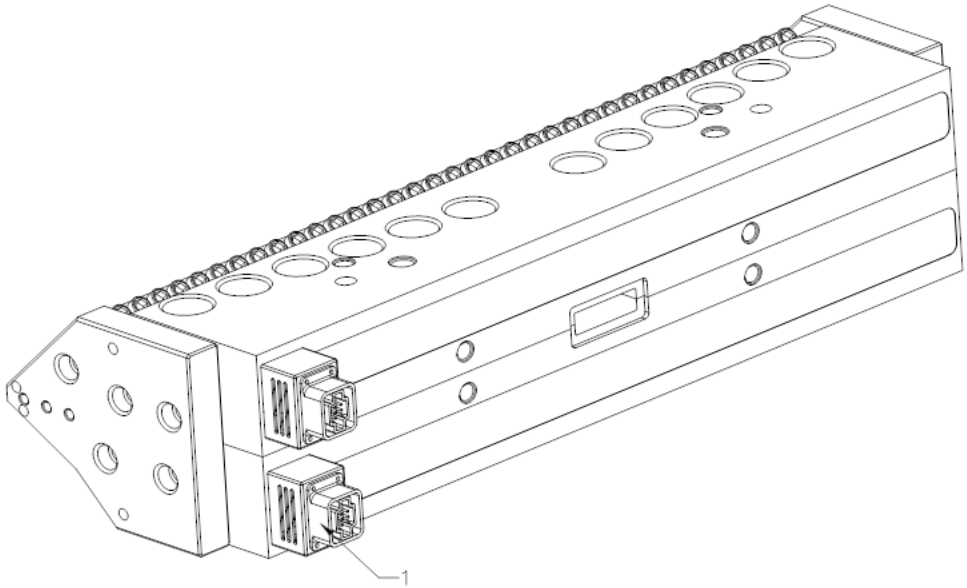
如果上述调节都调试过后，仍然存在规律性的波动，或者挤出不均匀的话，就很可能是挤出机的波动或分配器的芯棒引起的。If above-mentioned regulation, after all debugging still exists the regularity of fluctuation, or extrusion uneven's words, he is probably extruder fluctuations or distributor of mandrel cause.

·无论是新模具还是老模具，都有可能出现漏料的问题。出现漏料时，最常见的原因是在漏料的部位的紧固螺栓没有拧紧，老模具也有可能是多次的拆卸和清理损伤了密封圈，如果漏料严重需停产检修。Whether new mold or old mold, appear likely leakage material. Appear when leakage material, the most common reason is the leaks material parts of the bolt no tight and old mold may also have been dismantled and cleaning damage the sealing ring, if leakage material production maintenance. If leakage is serious, please stope operate to test.

·另外，模具的放置一定要平稳，并且要固定好，否则生产时产生的震动会影响挤塑机螺杆的使用寿命，也影响产品质量。In addition, mold placed must smoothly, and fixed or production are produced when the vibrations will affect crowded color-printed screw using life, also affect the quality of products

5）安全警告 **Caution**

在接通电源前，确信地线已接地，否则不允许接通任何电源。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 plug-in power, convinced ground already grounding, otherwise don't allow no connection power supply。Safety warning sign must always keep in its position, when switching power supply cord after not allowed to open any power cover, wire lid, wire catheter and plug。



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。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.

3.4、三辊压光单元基本参数及安全操作指导 Three roller calendar consist of and technical data

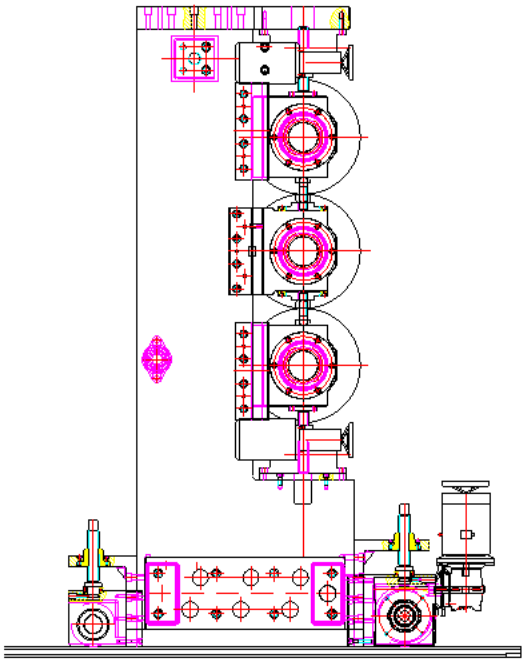
3.4.1、三辊压光机组成基本参数 Basic parameter of three-roller calender

三辊压光机主要由三辊压光机、水辊温控制器、液压站组成。Three roller calendar consist of mirror roller ,water temperature and hydraulic station.

三辊压光机基本参数 basic parameter：

辊筒规格 model of roller：	φ450mmX1800mm
三辊驱动功率 driving motor：	2.2kW×3
移动电机 Movement motor：	0.75KW
升降电机功率 Vertical moving power：	2X0.75KW

三辊压光机外形 three-roller calender：



3.5.2、三辊压光单元的吊装和运输 Three roller calander's Lifting and transportation

1、吊装 Lifting

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

Three roller calander the hoisting smooth machine needs 10 tons of sling hoisting, in hoisting process please taking protective measures to protect the rollers surface, and in condole belt and three roll with a soft things between separated, to prevent the surface in hoisting process scratch.

2、运输 Transportion

运输时，必须将三辊压光机牢靠地固定在包装箱中。同时，对三辊的辊筒包裹保护，防止在运输中损伤。Transportation, must the three roller press machine firmly fixed in light of packing. At the same time, to three rollers rollers package protection, prevent damage in transit。

3.4.3、三辊压光单元的就位 Install

三辊压光机的就位是和整线安装同时进行。根据生产线的布置图，将导轨按地基图布置在地面，然后将三辊压光机就位。Three roller calander machine and the whole line positioning is installed simultaneously. According to production line layout, will guide according to the foundation in the ground, and then figure layout three roller calander machine in place。

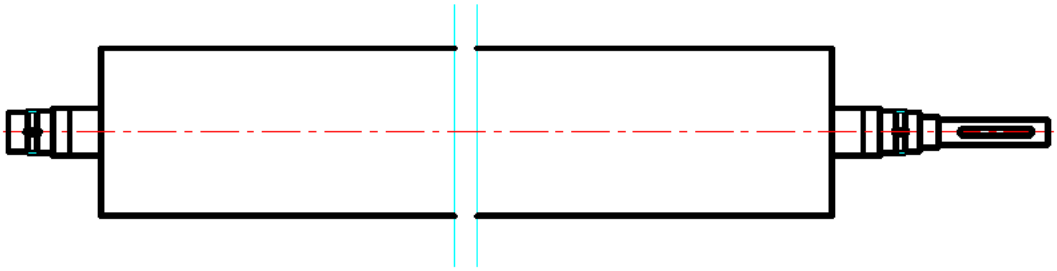
3.4.4、三辊压光单元结构特点 Characters

此三辊压光机采用立式三辊结构。主要有机架、辊筒、辊筒传动机构、辊距调节机构、三辊移动系统、三辊中心高度调节机构、辊筒温度控制系统等组成。Adopt wallboard type vertical roller structure. Basically have frame, rollers, the rollers transmission mechanism, roller from adjusting mechanism, three rollers mobile system, three rollers center height adjustment mechanism, the rollers temperature control system etc。

1)、机架由底座及墙板等组成，底座由型钢焊接而成，墙板为整体。机架结构简易满足设计要求，可承载辊筒，长期不变形，左右墙板对称精度要求高，左右墙板夹在一起加工成型保证精度。Frame by base and wallboard etc, base by steel welded, wallboard for whole。Simple and meet the design requirements, the frame structure of

bearing roller, long-term deformation, wallboard symmetry precision demand is high, around about panels sandwiched together forming guarantee machining precision.

2)、辊筒采用内部采用介质恒温流通，三组辊中，中间辊的轴承固定，只可转动不可移动，辊筒轴承使用的是日本 NSK 优质轴承。辊筒外形图. Inside the roller adopt medium balance flow channel, among three rollers, middle roller bear fixed, which is just turning but not moving, Roller bearing is used Japanese NSK bearings with high quality. Roller contour figure



其中，辊筒为焊接件，焊接严密、辊筒的辊身和内胆都经过调质处理，达到设计的强度和硬度要求；辊身做中频淬火，表面镀硬铬，镀铬后抛光；再做静平衡和动平衡；所以辊筒对加工工艺要求很高，辊面的同轴度、圆柱度、辊面跳动、光洁度、硬度等等，都必须满足；辊筒也是我们公司优质产品，有十多年的研发，生产实践经验，从研发、材料热处理、金加工生产、到客户使用，有完整生产流程系统，多年来得到用户广泛的好评。Among them, the roller for welding parts, welding, roll roll closely and bladder after tempering treatment, to meet the design strength and hardness of the requirements; Roll for intermediate frequency quenching, surface hard chromium plating, chrome plating after polishing. To do dynamic balance and static balance; So roller to high requirement of processing technology, on the surface of the roll alignment, cylindricity, roller surface runout, roughness, hardness, etc., must meet; Roller is high quality products, our company has ten years of research and development, production experience, from research and development, material heat treatment, metal processing production, to customers to use, with complete production process system, widely praised users for many years.

优质旋转接头 High quality rotary joints:

无锡腾旋是研制、开发和生产旋转接头及其相关的高新技术企业。公司长期致力于摩擦技术的研究，在旋转接头领域处于国内领先地位，并拥有多项技术专利。Wuxi teng spin is a research, development and production of rotary joints and related high-tech enterprises. Company long-term commitment to friction technology research, in the field of rotary joints in the domestic leading position, and has a number of technology patents

公司拥有加工中心、数控车床及其专业设备 50 余台套，严格按照 ISO9001 质量规范组织开展生产、销售、服务等业务。并与韩国、美国专业研发机构进行全面技术合作。其产品已在造纸、钢铁、瓦楞、纺织、印染、橡塑、化工等行业得到广泛应用。Company has machining centers, CNC lathes and more than 50 sets of professional equipment, in strict accordance with ISO9001 quality standards organization to carry out the production, sales and service, etc. And with South Korea, the United States professional research and development institutions to conduct a comprehensive technical cooperation. Its products have been in paper making, steel, corrugated, textile, printing and dyeing, rubber, chemical and other industries widely used.

腾旋旋转接头拥有先进的平面密封技术、优良的平衡式密封设计、自支撑固定、高精度滚动轴承、不锈钢外管，通用性好、便于互换。Teng spiral rotary joint has advanced plane sealing technology, the fine balance type sealing design, since the fixed support, high precision rolling bearing, stainless steel pipe, good commonality, easy to exchange.

平衡式机械密封 The balance type mechanical seal

施加在旋转密封面上的压力越大，则接头产生的接头摩擦、扭矩及磨损就越大。为此，接头采用独特的“平衡式机械密封”。应用此技术，不考虑介质的压力，推力载荷或密封面接触压力被保证在最低限度。这样即降低了磨损又延长了密封的寿命。对弹簧加载密封进行固定，使其不能产生旋转或蠕动，正是这种旋转或蠕动使辅助密封过早老化，进而使接头产生泄露。In the rotating seal surface pressure, the greater the joint of joint friction, the torque and the greater the wear and tear. To this end, joint adopt unique "balance type mechanical seal. Applying this technology, irrespective of the medium pressure, thrust load or sealing surface contact pressure be guaranteed to a minimum. This reduces the wear and prolong the life of the seal. The spring-loaded seal fixed, make its cannot produce rotating or creeping, it is this rotating auxiliary seal premature aging or peristalsis, and then make joint leakage

喷涂可对单一金属，合金、氧化物或混合氧化物，硬质合金，以碳化钨或碳化钛为基体的金属陶瓷碰涂，因而可赋予工件表面某些特定性能，如耐磨，耐热抗蚀、抗冲击载荷、导电、绝缘、增摩、减摩等一系列特殊性能。Spraying on single metal, alloy, oxide or mixed oxide, carbide, tungsten carbide or titanium carbide matrix ceramic metal touch, thus gives certain workpiece surface properties, such as wear resistance, heat resistance corrosion resistance, resistance to impact load, conductive, insulation, rubbing, anti-friction and a series of special performance

涂层粉末在高温高速的气流推动下以 800-1200m/s 的速度撞击工件的表面，在熔融涂层粉末沉积处与工件基体形成牢固可靠的结合键，因此涂层与基材的结合强度高，致密度高。Coating powder under high temperature and high speed airflow driving at a speed of 800-1200 m/s hit the surface of the workpiece, the molten coating powder deposition combined with the workpiece matrix form are secure key, therefore the combination of coating and base material with high intensity, high density.

工件受热小，不变形：由于每次爆炸喷涂的过程只有几毫秒，所以工件不会受到连续加热。温升一般小于 100°C，工件不易发生相变和形变。Small workpiece heat, not deformation, because only a few milliseconds each explosion spraying process, so the workpiece will not be continuous heating. Generally less than 100 ° C temperature, phase transformation and deformation artifacts are less.

功能性强，应用范围广：喷涂设备可对单一金属，合金、氧化物或混合氧化物，硬质合金，以碳化钨或碳化钛为基体的金属陶瓷及各种复合材料等进行喷涂，因而可赋予工件表面某些特定性能，如耐磨，耐热抗蚀、抗冲击载荷、导电、绝缘、增摩等一系列特殊性能。Functional, wide scope of application: spraying equipment for single metal, alloy, oxide or mixed oxide, carbide, tungsten carbide or titanium carbide as metal ceramic substrate and various composite materials for coating, thus gives certain workpiece surface properties, such as wear resistance, heat resistance to corrosion, resistance to impact load, conductive, insulation, and a series of special performance

预保护涂层，当由于技术或经济上的原因，单一材料部件难以完全满足严酷的工作条件时，在新工作表面上增设予保护涂层以改变其表面性能往往是最优越的解决办法，特别是当对工件整体性能要求与表面性能要求有明显矛盾时，制备这种有予保护层的复合材料工件是惟一的解决办法。预保护涂层适用于新部件制备，也适用于某些部件的修复。Protective coating, when due to technical or economic reasons, a single material components is difficult to fully satisfy the harsh working conditions, adding to the protective coating on the surface in the new job to change its surface properties are often the most superior solution, especially when the surface of workpiece overall performance requirements and performance requirements have obvious contradiction, the preparation of this kind of have to protective layer composite materials is the only solution. Preliminary preparation, protective coating is suitable for the new parts can also be applied to some of the repair parts.

磨损部件或超差部件修复，现代机械设备中不少昂贵部件，其整体的工作寿命尚有盈余，但往往因局部磨损即行报废，造成巨大经济损失，喷涂是修复这些部件的唯一手段。在喷涂过程中，工件受热很少，故修复的工件没有相变，也不会有形变，因而特别适宜修复精密机械的部件，此外，喷涂过程无需真空或惰性气体保护，因而对维修部件的尺寸及形状，限制较小，扩大了可修复部件的范围。Repair worn parts or ultra poor parts, a lot of expensive parts in modern mechanical equipment, there are surpluses in its whole working life, but often due to the partial abrasion is discarded, cause huge economic losses, spray is the only way to repair these parts. Rarely in the spraying process, the workpiece is heated, so the repair of the workpiece without phase change,

there will be no deformation, therefore particularly suitable for the repair of precision machinery parts, in addition, the spraying process without vacuum or inert gas protection, thus to repair parts, size and shape of limit is small, expand the scope of repairable components

修复表面磨损的涂层材料其理化指标一般都明显高于母材，因而修复部件的寿命往往明显超过新工件。Repair wear and tear the surface of the coating material of its physical and chemical indicators are significantly higher than that of parent metal, thus the service life of repair parts is often significantly more than new artifacts

3)、传动机构 transmission structure

辊筒的旋转靠三台变频电机通过减速器直接驱动，减速机输出轴为空心轴，空心轴直接套装在辊筒轴端上。The rollers rotation by three direct drive motor through reducer, gear reducer output shaft for hollow shaft, hollow shafts rollers axle directly suit in carry on。

安川伺服电机使用环境 Yaskawa servo motor using the environment :
减速电机适合在周围环境温度-10°C 到+40°C 条件下运行，海拔高度为 1000 米。Gear motor suitable for ambient temperature - 10 ° C to + 40 ° C under the condition of running, the height is 1000 meters above sea level

A. 安装 install

安装传动元件之前，采用适当的方法去掉轴端的保护套，分段安装传动元件到磨过的减速机的输出轴时要非常小心，利用输出轴时要非常当心，利用输出轴端的螺纹孔。最好将传动元件加热到大约 100°C，所有零件需彻底清洁，去毛刺，配合处稍微涂些油脂，避免敲打和用力冲击轴端。Before installing drive components, adopt appropriate methods to remove shaft end case, panel transmission device to the ground have to be very careful when reducer output shaft, should very careful when using the output shaft, make use of the output shaft end thread hole. Best will drive element heated to about 100 ° C, all parts should be thoroughly clean, deburring, cooperate with the place with some oil, slightly to avoid knocking and impact force shaft end.

B. 启动检查 start checking

- 润滑油检查，通过拧开油位塞螺堵，油应该很轻松流出。
- 拧开适配器的检查螺塞，观察联轴器的爪子边缘是否啮合完整。
- 检查电机轴的旋转方向，尤其是带逆止器。
- 检查带逆止器的最小驱动速度。

- 所有的紧固件是否拧紧。
- 检查减速机的安装形式是否与订货时一致。
- **lubricating oil check, through unscrewed the oil level screwλ plug, oil should be easy.**
- **check plug unscrew the adapter, to see whether it has mesh λ complete coupling claws edge.**
- **check the direction of the rotation of the motor shaft, λ especially with non-return device.**
- **check with non-return device, the minimum driving speed.λ**
- **all of the fasteners are tight.λ**
- **check reducer installations and consistent when you order itλ**

C. 润滑 lubricating

再润滑仅用于垂直安装位置且电机在上的减速电机。最初加油脂的滚子轴承，当采用逆止器接头时就必须采用永久润滑油脂。Lubricant is used only for vertical installation position in the deceleration of the motor and motor. Roller bearing grease, initially when non-return device connector is used a permanent lubrication grease must be followed

D. 维护 maintenance

泄露检查：每运行 3000 小时或者每隔 6 个月的时间周期，定期检查所有密封，如果泄露必须立即更换。Leak check: every run of 3000 hours or every six months period of time, regular check all seal, if leaks must be replaced immediately

加脂：每运行 8000 小时或每隔 1 年，给适配器加油脂。Fatliquoring: every 8000 hours or every 1 years running, add grease to the adapter

逆止器：逆止器是易损件，每运行 6000 小时或每隔 3 年必须更换，系统操作人员必须采取安全的预防措施，避免逆止器失效可能会导致人身伤害，减速机损坏或应用设施的损坏，在下列条件下必须更换逆止器。Non-return device: a non-return device is wearing parts, each running 6000 hours, or must be replaced every three years, the system operator safety precautions must be taken to avoid non-return device failure may cause personal injury, reducer damage or application facilities damaged, non-return device must be replaced under the following conditions

全面检查：减速机规定运行 25000 小时或每隔 5 年后全面检查，所有损件必须按照要

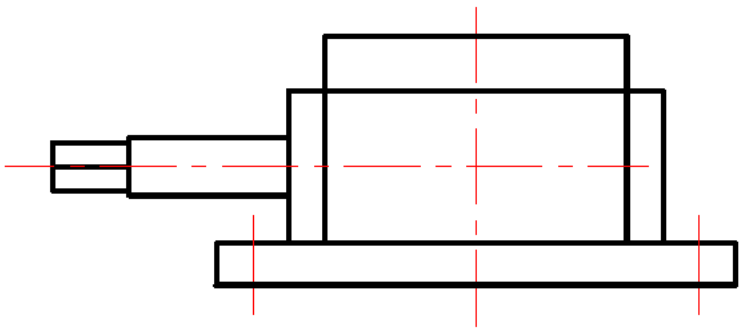
求进行检查并更换。Comprehensive review: reducer running 25000 hours or full check every five years later, the damage must be in accordance with the requirements for inspection and replacement

4)、辊筒间隙调节机构 **The rollers gap adjusting mechanism**

辊筒间隙可以用油缸或者丝杆升降机进行驱动。辊筒间隙调节机构常用有两种方式，微调器控制和细牙螺栓螺母结构，两种方式都有自锁功能，主要功能对辊筒间隙进行限位。Roll gap can be driven oil cylinder or screw lift. Roll gap adjusting mechanism commonly there are two ways to control and fine thread spinner structure of bolt and nut, two ways has self-locking function, the main function to limit the roll gap.

微调器控制：上、下辊筒移动距离由安装在中间轴承座上的微调器控制。利用涡轮蜗杆传动方式，蜗杆用两个圆锥滚子轴承定位，蜗轮中间装配带梯形螺牙的丝杆、并配有导向槽，其中梯形螺牙可限位自锁，主要用于驱动上下辊压制片材，调节间隙。Spinner control: upper and lower roller distance moved by installing the spinner on the bearing seat in the middle of control. Method of turbine worm drive, worm with two tapered roller bearing positioning, worm gear assembly with a trapezoidal screw tooth middle screw, with a guide groove, the trapezoidal screw tooth can limit self-locking, mainly used for the drive roller pressing sheet, and adjust the clearance.

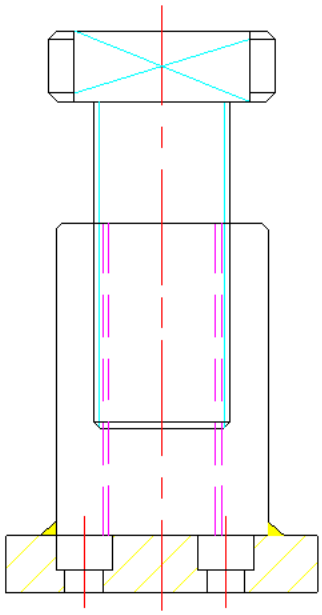
微调器外形简图：**Spinner dimension sketch**



细牙螺栓螺母结构：上、下辊筒移动距离由安装在中间轴承座上的细牙螺栓螺母，旋转细牙螺栓调节两辊筒之间的间距，细牙螺栓调节精度高，可限位自锁。Fine tooth structure of bolt and nut: upper and lower roller distance moved by the installation on

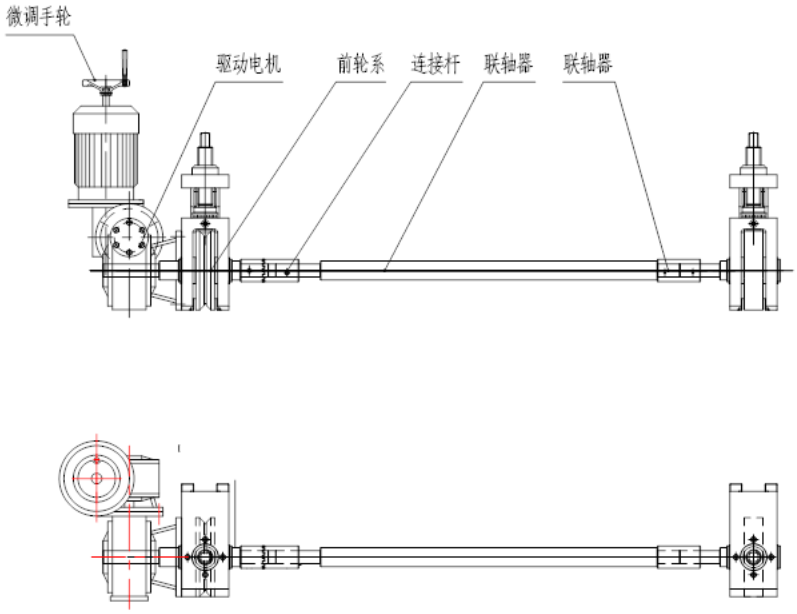
the bearing seat in the middle fine thread bolt and nut, rotating fine thread bolt to adjust the spacing between the two roller, adjustment of high precision, fine thread bolt can limit self-locking

细牙螺栓螺母示意图 Fine thread bolt and nut：



3.5.7、三辊移动系统 Three roller mobile system

此机构由前脚轮组件、后脚轮组件构成。前脚轮组件直连二级蜗轮蜗杆加速机，由带手轮电机驱动，实现手动和电动移动功能。后脚轮组件为被动。利用手动可以实现微调。具体结构用二级蜗轮蜗杆加速器连接轮系主动连接轴，再用联轴器、连接，链接到另一个轮系的传动轴上进行传动。After the agency by the former castor components, castor components. Former castor components direct secondary worm gear and worm speed machine, by hand wheel motor drive, realize manual and electric mobile capabilities. After the castor for passive components. Make use of the manual can be fine-tuning. Concrete structure with secondary active connecting shaft, worm gear and worm gear train accelerator connection with couplings and connections, links to another transmission gear train of driving shaft.



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

一、使用范围

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

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

3、R、F 系列斜齿轮减速机线速度不大于 20m/s,RV、S 系列蜗轮减速机线速度不大于 17m/s,K 系列螺旋锥齿轮减速机减速机线速度不大于 15m/s.

4、适用于各种工作制，允许正反方向运行。

5、直联电机时，要注意电动机对使用条件的限制。

I 、Range of use

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

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

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

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

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

二、安装注意事项

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

2、法兰式安装，凸肩（或凹肩）应配合良好，以免变位。

3、扭力臂安装，主动的空心轴与被动轴应配合良好，力臂应固定并锁紧。

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

5、空心轴配装实心轴时，将实心轴在装前应涂防锈油。

6、输出轴、输入轴的平键或键槽安装时应符合配合公差。

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

Ⅱ、Precautions of installation

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

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

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

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

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

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

7)、The machine should be installation correctly according to the stipulated installation method and direction （the obliquity should not larger than 15 degrees ）， otherwise there

might be oil leakage or bad lubricantion。

三、使用方式

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

2、开机前松开或换上通气帽，保证减速机和电机良好的通气、通风和散热条件。

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

4、MB 无级变速机出厂时，调整限位螺钉已经调整在极限位置，不得任意调整。本机必须在开机运转情况下方可调速，停机时切勿调整，否则会损坏零部件。

5、若需变动安装方位，一般情况下调换油镜、油塞、通气帽即可。

6、电动机接线按其电机有关规定操作。

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

Ⅲ、Use method

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

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

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

4)、The speed adjusting limit screw has been adjusted to limited locating with no random adjustment when the MB stepless speed reducer leave factory。 The speed of machines can be adjusted under running，no speed adjusting under common condition，

or it will damage the components

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

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

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

四、各列系减、变速指定使用润滑油表。

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

产品系列 Serise	油品名称 Name of oil	油品牌号 Brand of oil	更换周期 Change Period
X．B．R．S K．F．T	齿轮油 Gear oil	130-160EP	5000 小时 5000h
RV	蜗杆油 Worm oil	N460	2000 小时 2000h
MB	变速机专用油 Oil of variator	Ub-3	2000 小时 2000h
WB	锂基脂润滑油 Lithium based srease	0-00#	10000 小时 10000h

五、维修 Maintenance

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

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

六、贮存 Storage

1、在干燥通风、室内环境中贮存，当贮存期超过三个月时，应作防锈处理。

2、放置一年后的机器，使用时要检查油封是否老化，油品是否变质。

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

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

七、合格证 Certification

本产品经检验合格，准予出厂。

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

型号 Model：RV63/90-600-1.1

额定输入功率 Rated input power：1.1kw

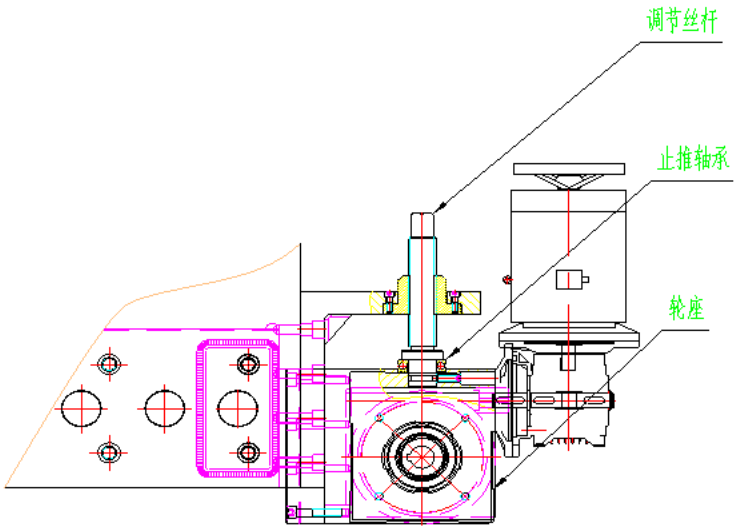
额定输入转速 Rate input ratating speed：1400r/min

输出转速 output ratating speed：2.3 r/min

减速比 Reduction rate：600

3.4.6、三辊中心高度调节机构 Three roll center height adjustment

此机构由前、后脚轮滑动部件及丝杆移动部件组成。转动螺旋升降机的丝杆前后脚轮相对于墙板上、下滑动，从而实现三辊中心高度的调节。结构如下图：Before and after the agency by castor move sliding parts and screw parts. Rotating screw hoist before and after the screw castor, sliding relative to the wall, so as to realize the adjustment of the three roll center height. Structure of the diagram below



3.4.7、三辊压光单元安全操作 Three-roll calender unit safety operation

三辊压光机的主要作用是对片材定厚、压光及牵引定型等作用。是影响制品品质的关键部分。三辊压光机的正确操作关系制品质量和人员安全。请按照以下步序操作：Three-roll calender is the main function of the sheet thickness, pressure light and traction type, and so on. Is a key part of the quality of products. Three-roll calender relationship between the proper operation of products quality and personnel safety. Please follow the following steps

1）开机前，请先清洁三辊压光机辊面。Before starting, please clean the three-roll calender roll surface

2）初次开车请先检查三辊的旋向，本生产线采用的是上进下出的走片方式。在电气系统检修后，也应按照此步序。First please check three roll rotate to drive, this production line adopts the progress under the walk way. After the electrical system maintenance, also should according to the steps

3）检查水辊温控制系统的管路连接及进出水情况，保证本系统要求的水压。初次开车请检查水泵电机旋向是否和水泵标示旋向一致。Check the water temperature control system of the pipeline connection and in and out of the water situation, ensure that the hydraulic system requirements. First please check whether the water pump motor rotate to drive and water pump rotate to consistent

4）启动三辊，让辊筒低速旋转后，开启水辊温控制系统。将辊筒温度调节至生产工艺温度。Start the three roll, let roller after low-speed rotation, open water temperature control system. The roller temperature control to the production process temperature

5）三辊穿片时请使用点动开关，手动启动三辊。Three roll wear were please use switch, manual start three roll

6）发生片材绕辊时，请立即停止三辊，三根压光辊会自行分开，以保护辊面。Sheet roll around, please immediately stop three roll, three roll calender will separate by oneself, in order to protect the roll surface

3.5.8、三辊压光单元维护和保养 maintenance for three roller calender

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

first used 300-600 hours, should replace the oil again. After every 3000 hour change oil again. Replacement should be in reducer, lubricating oil is cooled yet parking emissions. Use lubricant for N220。

2)、三辊压光机上轴承座，每隔半年需从油嘴加入润滑脂，直至润滑脂从密封处和排出阀流出，并清除轴承座上多余的油脂。Three roller bearing light on every six months, from nozzle to join the thickener.they until grease from seal and the discharge valve outflow, and remove the redundant grease on the bearing。

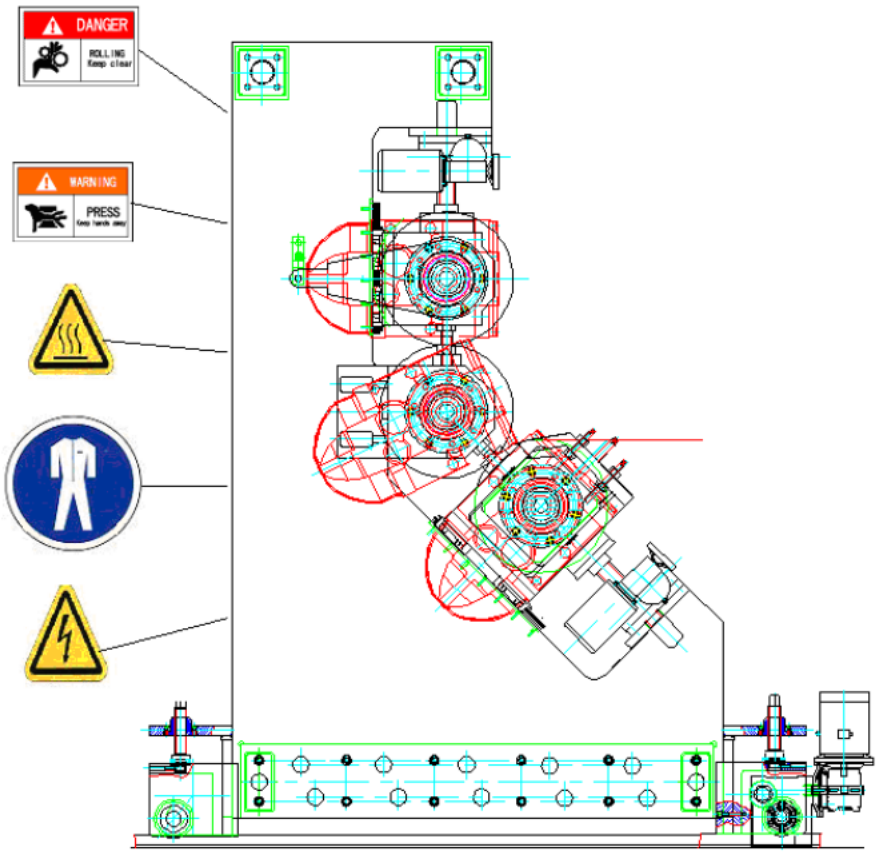
3)、三辊压光机暂时不使用时，必须对辊筒包裹保护。Three roller light machine temporarily when not in use, must on the rollers package protection。

4)、机器在运转时应随时检查电机工作情况。machines in operation should always check motor work situation。

5)、定期对旋转接头、辊温管路进行检查，清除结垢，防止水汽化发生故障。Regularly for rotating joint, roller temperature pipeline inspection, remove scaling, prevent water vaporizing failure。

6)、在生产 1.2mm 以下制品时，严禁使用杂质含量高及质检不合格原料。以免损坏辊筒。In the production of 1.2 mm the following products, high impurity content and quality inspection is unqualified raw materials is strictly prohibited. In order to avoid damage to the roller.

注意：我公司每台三辊压光机上均装有拉线开关，此装置是在发生紧急情况时，暂停并打开上下辊，因此在任何情况下，均不得拆除该装置，如因拆除该装置，所造成不利后果，我公司将不负任何责任。Note: our company each three-roll calender machine are equipped with pull switch, the device is in an emergency, pause and open the roller, and so in any case, shall not dismantle the device, as a result of dismantling the device, caused by the adverse consequences, my company will not take any responsibility

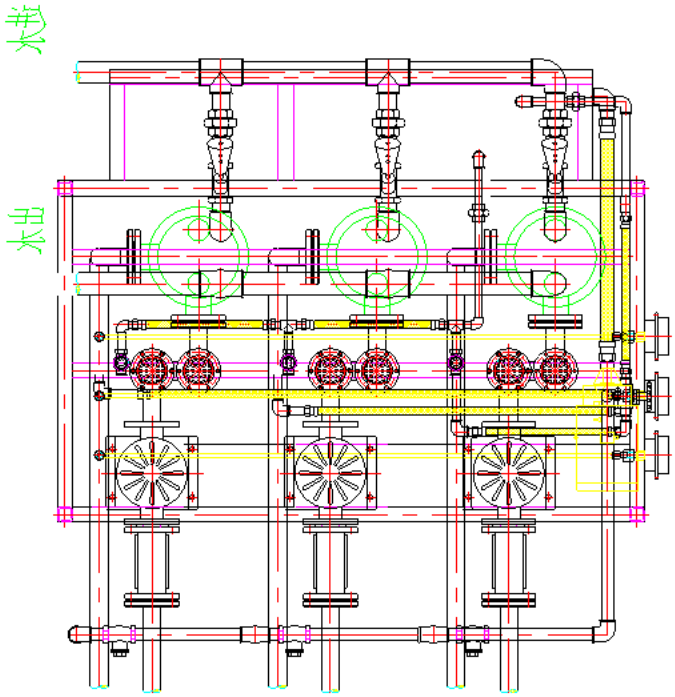


三辊安全标志贴放处

3.6、辊温控制系统 **Roller temperature control system**

此系统由管道系统、加热冷却装置及外部水冷系统组成。This part consist of pipe syetem,heating and cooling units

3.6.1 水辊温外形



3.6.2 水辊温控制器基本参数 water roller temperature controlling basic parameter

水泵功率 water pump power： 2.2kW×3

加热功率 heating power： 12kw×3

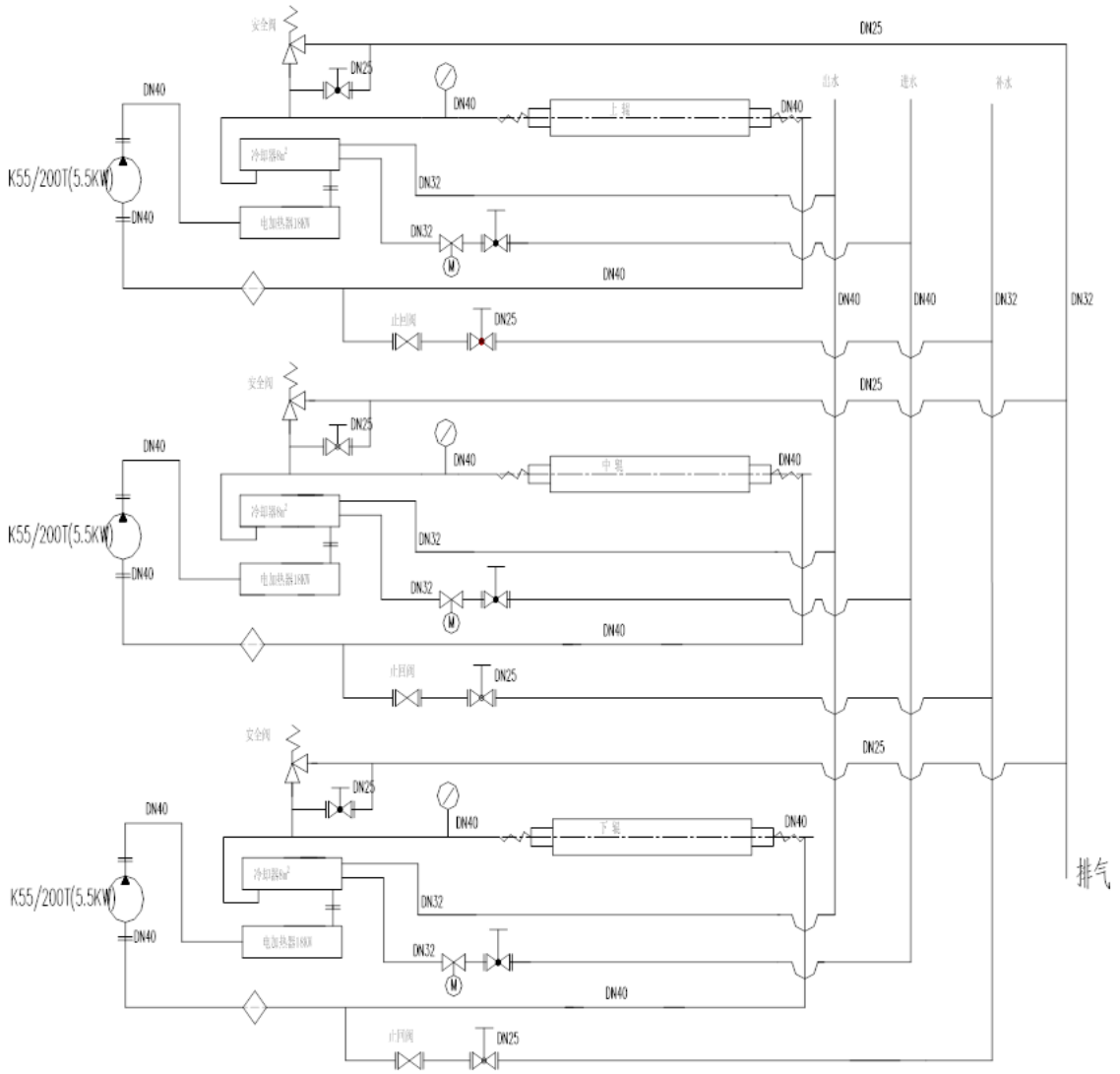
冷却器冷却面积 The cooler area： 5m^2×3

冷却控制 cool controlling 气动角座阀 pneumatic seat valve

加热水循环系统的压力表为电接点压力表，它控制着启动加热时的压力，使水循环系统具有一定的压力后才能启动加热，以便保护加热器。通常，要求在 1Kg/cm^2 以上压力时启动加热，否则，就要以系统排气或间隔启动水泵来进行调整，待系统压力升高后才能正常运行。水泵不能长时间运行在 3Kg/cm^2 以下系统压力下，热水站与外部有三套管路连通，补水管、冷却水管、回水管，补水压力要求在 3Kg/cm^2 以上，用水使用软化或蒸馏水。冷却水为常温循环水，用水流量约 1.5m^3/h，水压在 3Kg/cm^2 以上。回水管要求无压力。This system consists of pipeline system, heating, cooling device and external water-cooling system composition. Heating water cycle system gauges for contact monometers, it controls startup when heated to the pressure, make water cycle system has certain pressure to activate heating in order to protect the heater. Usually, 1Kg/cm2 above requirements in start-up pressure when heated, otherwise, it must take the system exhaust or undertake adjustment interval start pump, let the

system pressure increases the ability after normal operation. Pump can no longer 3Kg/cm2 running in the following system under pressure and hot water standing with external three casing road connectivity, filling water pipe, cooling water pipe and pipe, filling water pressure requirements back in 3Kg/cm2 above, water use soften or distilled water. Cooling water circulating water, water flow for normal temperature of 15,000 m3 / h, hydraulic 3Kg/cm2 above in. Back without pressure pipe requirements。

3.6.3 辊温控制系统原理图 roller temperature controlling system schematic diagram：



在使用辊温控制器前，辊筒里面没有水，也就是说该循环系统没有压力，先对水箱加满水、启动补水泵、再启动循环水泵，对辊筒进行加水；调节压力表到 0.3-0.4Mpa，让水在辊

筒内进行循环， 在此过程压力表显示压力不稳定，说明系统中有空气存在，需要打开水泵的放气阀进行放气，要进行多次操作，直到水压稳定。Before using temperature controller, roller inside there is no water, no pressure, which means the circulation system of water tank filled with water first, start the pump, and then start the circulating water pump, water for roller; Adjust the pressure gauge to 0.3-0.4 Mpa, let water circulation in the roller, in the process pressure gauge shows pressure is not stable, there are air in system, need to open the pump vent valve to vent, must carry on the operation for many times, until the water pressure stable

检查整个水路的连接处，是否有漏水现象，并进行处理，紧固连接螺栓或者拆下重新安装。Check whether there is the joint of the waterway, leakage phenomenon, and for processing, fastening bolt or remove the installation again

系统水压稳定，水路没有问题，启动温度加热，加热棒开始工作，预设温度不宜太高，首先预设 30-50°C，随着温度的升高，系统压力会出现波动，这时需要进行排气，打开水泵的排气阀，加热的过程中，要启动三辊驱动电机，使辊筒转动起来，使辊面在加热的过程中受力均匀。System hydraulic stability, water is no problem, start the heating temperature, heating rods began to work, the preset temperature shoulds not be too high, the first preset 30 to 50 ° C, with the increase of temperature, the system pressure will fluctuate, then the need for exhaust, open the exhaust valve of the pump, the process of heating, to start the three roll drive motor, the roller rotation, to receive strength evenly in the roll surface in the process of heating

设备一切没有问题，不断慢慢提高加热温度，直到正常工作温度。正常运行 8 小时，无异常，可放心使用。All equipment no problem, continuously improve the heating temperature slowly, until the normal working temperature. Normal operation of 8 hours, without exception, can be at ease use

系统安全保护，在没有系统压力的情况下，设计是无法启动加热棒工作的。System security protection, in the absence of system pressure, unable to start heating rod design works

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

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

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

于移动。（部分生产线无脚轮）

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

声明：非专业人员严禁拆装此热水泵。

4.为方便泄压配有自动泄压阀和手动阀。

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

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

1. Three roll temperature controller is mainly composed of four parts, the heat pump (heat pump), heating tube, condenser, water tank, a few configuration need a condenser. Is mainly used to control the temperature of the roller to achieve the required temperature state for production needs a temperature control device.

2. Features compact structure, and components for the package box type structure design, for the convenience of replacement and maintenance components with door plank. Temperature controller adopts high temperature resistant metal hose connected with three roller rotary joint. And according to the need of the production line is equipped with castor facilitate mobile. No castor (part of the production line)

3. USES the well-known enterprises of heat exchanger and heat pump (heat pump), pressure display table, temperature display table, and electromagnetic valves, pneumatic Angle seat valve for temperature control, realized the temperature reduction speed, control precision, strong thermal stability characteristics. Especially the quality of the products and good reputation was well received by the majority of users. CDL series centrifugal pump motor shaft through the shaft is directly connected

to the pump shaft, the pressure cylinder rod bolt, fixed in the pump head and flow components between in and out of the water period, import and export of a straight line from the bottom of the pump pump. Motor is totally enclosed the air-filled type secondary standard, for IP protection grade: 55, the insulation class is F.

Statement: non-professional workers do not tear open outfit this heat pumps.

4. For the convenience of relief is equipped with automatic pressure release valve and manual valve.
5. Working principle of the condenser, the condenser adopts two independent circulation system, to achieve the purpose of heat exchange, the lower the temperature. (internal water or oil through heater into the condenser on the three-roll calender, external cooling water through the start-stop temperature control electromagnetic valve, to control pneumatic foot seat valve open and close, after entering the condenser and circulating cooling water discharge directly.)
6. Temperature controller: first of all start pump fill (pump) will be to water (oil) after injection of roller in open hot water pump, water (oil) through heat pump heater again into the condenser again into the roller to realize water, oil, inner loop.

3.5.6、辊温控制器主要零部件The major parts of the temperature controller

1)、水泵的操作说明书

轻型立式多级离心泵，启动、操作和维护

1、 泵必须充满水才能启动

在倒灌系统中给泵灌水

关闭泵出口阀门，打开泵头上的螺堵，慢慢打开进水阀门，直到稳定的水流排气螺堵，然后拧紧排气螺堵。完全打开吸入管路的止回阀。

在开式系统中野蛮低于泵的情况下给灌水：

注意：吸入管路上必须安装一个止回阀

关闭泵出口阀门，打开泵头上的螺堵，通过螺堵孔把液体注入泵内直到泵和吸入管路完全充满水为上，重新拧上螺堵。

在泵未充满液体和彻底排空气体之前，不得启动泵！

注意排气螺堵放气孔方向，小心确保溢出的水不要伤及人，也不要对泵和其他部件造成伤害。在热水应用的场合，特别要小心，以免烫伤的危险！

2、 检查转动方向

合上电源，观察旋转方向，正确的转动方向如泵头上箭头所示，即从电机驱动端看，泵应该以逆时针方向转动。

3、 启动泵之前应检查

检查地脚螺栓是否拧紧； 泵是否充满水

电网电压是否正确； 转动方向是否正确。

所有管道是否连接紧密，管路能否正常供水；

进水管路上的阀门是否完全打开；出口阀门应在泵已经启动后慢慢打开。

若安装了压力表，检查工作压力；

所有正常运行所需的控制。如果泵由压力开关控制，检查、调整启动和断开压力。通过压力开关检查电机的满载电流应不超过最大允许电流。

4、 泵的启动次数

泵不能启动太频繁。建议电机功率≤4kw，每小时不超过 100 次启动；电机功率>4kw，每小时不超过 20 次启动。如果发现启动太频繁，必须调整控制设备，减小起停频率。此时有必要检查一下安装情况。

5、 防冻措施

泵可以用在对水已采取了防冻措施的系统中。如果泵安装在易结冰的地方，必须加适量的防冻剂以免泵输送的液体因结冰而损害泵。如果没有防冻剂，在很可能出现霜冻危险时泵应停机，泵停用时，必须排空泵和系统中的水。

6、 泵需定期下列检查

泵的工作和运行压力；可能的泄露

电机可能的过热；取出和清洁/更换所有的过滤网

电机过载的断开时间，启动和关停的频率

所有的控制操作。

如果发现故障，按“常见故障及处理方法”检查系统。

7、 泵长期停用时，应清洗干净，妥善保管。

8、 泵在存放中应防止锈蚀和损坏。

1, the pump must be full of water to start

In the backward system for water pump

Close the pump outlet valve, open the pump head of the screw, slowly open the inlet valve, until a stable water flow exhaust screw plug, then tighten vent screw plug. Check valve fully open the inlet line.

Under the condition of the open system of savage below the pump to the water:

Note: suction piping must install a check valve

Close the pump outlet valve, open the pump head of the screw, through the screw plug hole until the pump inside the liquid injection pump and inlet line is completely filled with water, the screw in screw up again.

Before the pump is not filled with liquid and gas completely emptying, can not start the pump!

Pay attention to the vent screw plug vent hole direction, ensure the overflow water don't hurt people, also do not harm the pump and other components. In the hot water application occasions, special be careful, in order to avoid the danger of burns!

2, check the rotation direction

On the power and observe the direction of rotation, the correct direction, as shown in the pump head arrow, when looking from the motor driven pump should be counterclockwise rotation.

3, should check before start the pump

Check the anchor bolts are tight; The pump is filled with water

Power grid voltage is correct; The rotation direction is correct.

All piping is connected closely, can normal water supply pipeline;

Feed line of the valve is fully open; Export the valve should be open after the pump has been started slowly.

If the installation of the pressure gauge, check the work pressure;

All needed for the normal operation of the control. If the pump is controlled by a pressure switch, check and adjust the start and disconnect the pressure. Through the pressure switch to check the motor full load current shall not exceed the maximum allowable current.

4, pump start times

The pump can't start too often. Suggest motor power 4 kw or less, not more than 100 times per hour start; > 4 kw motor power, no more than 20 times per hour. If it is found that start too often, must adjust control equipment, reduce the start-stop frequency. At this point it is necessary to check the installation conditions.

5, anti-freezing measures

Pump can be used in the water have taken the antifreezing measures of the system. If the pump is installed in the icy place, must add the right amount of antifreeze to pump fluid pump due to freezing damage. If there is no antifreeze, frost in could be in danger when pump should be shut down, when the pump stop, must drain pump and the water in the system.

6, pump should be regularly check the following

Work and running of the pump pressure; Possible leaks

Motor may be overheating; Remove and clean/replace all filter

Motor overload trip time, the frequency of start-up and shutdown

All the control operations.

If you find fault, according to the common failures and solutions "inspection system.

Seven, pump stopping for a long time, should be cleaned and properly kept.

8, pump should prevent corrosion and damage in the store.

2)：补水泵的使用说明：Instructions on the use of the pump

1. 特点、用途

水环真空泵由于它用水来做密封剂，所以可以吸空气、水蒸气以及少量含水分较大的气体、不含颗粒的少量粉尘气体。

它主要用于粗真空，抽气量大的工艺过程。因此适用于塑料、医药、化工、轻纺、电力、食品、冶金及造纸行业的真空干燥、浓缩、蒸发、除气、蒸馏等在本行泵技术范围内的各种真空处理。

供水温度在 5-20℃，吸入气体的温度以低于 40℃为宜。

泵的型号意义：

例如：S K－2 A

S：水环式 water-loop type

K：真空泵 vacuum pump

2：抽气量 quantity bleeding air

A：第一次改进 improve the first time

2. 工作原理

泵的工作原理如图所示，叶轮（1）偏心地装在泵体（5）内，当叶轮旋转时、水受离心力的作用想四周甩出，沿泵体内壁形成水环（2），当叶轮沿顺时针方向旋转时，在前半转的过程中，水环内表面逐渐与轮毂分离，相邻两叶片之间形成的空腔逐渐增大，被抽气通过泵盖进气口、经月牙形吸气孔（3）、不断被吸入泵体内；在后半转的过程中，水环内表面渐渐的接近轮毂相邻两叶片之间的空腔，空腔逐渐变小，气体被压缩。因而压力不断增加，当压力达到大于外界压力时，气体经月牙排气孔（4）排出，连续旋转就能达到不断地抽走密封容器中的气体，使容器内形成真空。

3. 结构及装配说明

本系列泵的设计时已充分考虑用户装拆、维修方便，有关事项请注意一下几点：SK-A 型系列泵是直联式单级泵，主要由泵盖、隔板、叶轮、泵体、密封、电机等组成。叶轮直接安装在电机轴上，轴封与电机之间装有甩水片或密封，可避免水进入电机。装配时必须保证叶轮两端面的间隙为出厂时的值。

4. 系统安装说明

1、 泵应安装在水平、结实的基础上。

2、 连接好进、排气管路，管道口径不得小于泵的口径，并尽量减少管道长度及弯头的数量，降低排气口接管的高度，进气系统不允许有漏气的现象，以免降低有效抽气量。

3、 泵的进气口应安装阀门和过滤器。

4、 供水量的大小会影响泵的性能，请在系统中装置流量计和阀门，以便调节水量。供水压力应等于 0.1Mpa 左右为宜。使泵高效稳定地工作。

5. 使用须知

启动前（特别是长期停用的泵）必须拆下电机风叶罩、用手转动风叶数转，以便证实是否卡死或咔嚓现象。

- 启动

A、 关闭吸气管路上的阀门 17

B、 打开截止阀 12，控制阀 10（约 20 秒）向泵内供水

C、 启动电机（先点动电机）确认电机风叶的旋转方向应与旋转方向一致、方能启动。

D、 打开吸气管路控制阀 7，关闭截止阀 12、调节控制阀 10 至合适水流量。

- 停止

1、 关闭吸气管路上的阀门 7

2、 切断电源

3、 关闭控制阀 10

- 注意事项

4、 严禁无水启动

5、 带有渗气阀的泵在极限真空下运转时会发出爆鸣声，应避免在情况下使用。此时应调节渗气阀（松开六角螺母、用起子往逆时针方向微调、再背紧螺母），作微量渗气、爆鸣声立即消除。

6、 泵在环境接近≤0℃时，停止工作后、应将泵内的积水放净；打开 2 放积水，以

防泵体冻裂。

7、 泵只适用于处理无尘（或不含颗粒的少量粉尘气体但需过滤）、不燃、无腐蚀和非爆炸性的气体、水蒸气下使用。

1. The characteristics and USES

Water ring vacuum pump because it use water to do sealant, so you can suck air contains a small amount of moisture, water vapor and great gas, do not contain particles of a small amount of dust in gas.

It is mainly used for coarse vacuum, the processes of swept volume is big. Therefore apply to plastic, medicine, chemical, textile, metallurgy, electric power, food and paper industry of vacuum drying, concentration, evaporation, degassing and distillation at various vacuum pump technology within the scope of bank processing.

In 5-20 ℃, water temperature in gas temperature below 40 ℃ advisable.

The pump model:

For example: S K - 2 A

S: water ring type water - loop type

K: vacuum pump vacuum pump

2: the swept volume quantity bleeding air

A: the first time to improve improve the first time

Working principle of the 2.

Pump working principle as shown, eccentric impeller (1) installed in the pump body (5), when the impeller rotates around the water, the effect of the centrifugal force to throw, along the wall in the pump body to form water ring (2), when the impeller along the clockwise, in the first half of the turn in the process of inner surface gradually separated from wheel, water ring adjacent cavity is formed between two blade gradually increases, gas is pumped through the air inlet pump cover, the crescent suction hole (3), by continual suction pump body; In the process of the half turn, inner surface gradually close to the wheel hub adjacent water ring cavity between the two blades, cavity became smaller, the gas is compressed. Increasing pressure, therefore, when the pressure is greater than the outside pressure, gas is removed by the crescent vent (4), continuous

rotation can achieve continuously draining gas in the sealed container, the container form a vacuum.

3. The structure and the assembly instructions

This series of pump design is fully consider the user installation, convenient maintenance, related matters, please pay attention to the points: SK - type A series pump is straight association-like single-stage pumps, mainly by the pump cover, partition, impeller, pump body, sealing, electrical, etc. Impeller installed directly on the motor shaft, the shaft seal and motor between tumble or sealed, can avoid the water into the motor. Assembly time must make the pledge that we shall on both ends of the impeller clearance for the value of the factory below.

4. System installation instructions

1, the pump should be installed in a horizontal, on the basis of the strong.

2, fitting of inlet and exhaust pipe, pipe diameter shall not be less than the diameter of the pump, and a reduction in the number of pipe length and bend as far as possible, reduce exhaust control of the height of the air intake system do not allow the leak phenomenon, so as not to reduce the effective containment.

3, the air inlet of the pump should be installed valves and filters.

4, the size of the water supply will affect the performance of the pump, please gear flow meter and valve in the system, so as to adjust the amount of water. It is advisable to supply pressure should be equal to 0.1 Mpa. For effective and stable work of pump.

5. Use the guidelines

Start (especially the long-term outage) pump blades must remove the motor cover, the number of rotating blades with the hand, in order to confirm whether jammed or click phenomenon.

launchλ

A, close the suction valve on the road in the 17

B, 12, open the cut-off valve control valve 10 (about 20 seconds) to supply water to the water inside the pump

C, start the motor (motor) at first confirm the motor rotation direction of the blades should

be consistent with the direction of rotation, in order to start.

D, open the suction pipe valve 7, close the valve, regulating valve, 10 to 12 suitable water flow.

to stopλ

1, close the suction valve 7 on the road

2, cut off power supply

10 3, close the valve

matters needing attentionλ

4, it is strictly prohibited without water

5, with the air valve leakage under the limit of vacuum pump running off when bombs, use should be avoided in the circumstances. When the permeability valve should be adjusted, loosen the hexagonal nut, with a screwdriver to fine-tune counterclockwise, then back nut), as a trace gas permeability, burst immediately eliminate.

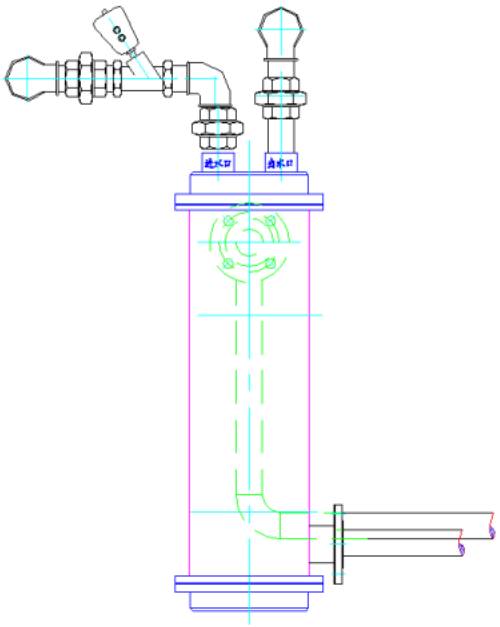
6, pump in the environment is close to 0 ℃ or less, to stop work, should be put inside the pump water net; Open the 2 water, in case the pump body frost crack.

7, pump is only applicable to processing clean (or do not contain particles of a small amount of dust in the gas, but need to filter), non-combustible, non-corrosive and non explosive gas, water vapor.

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

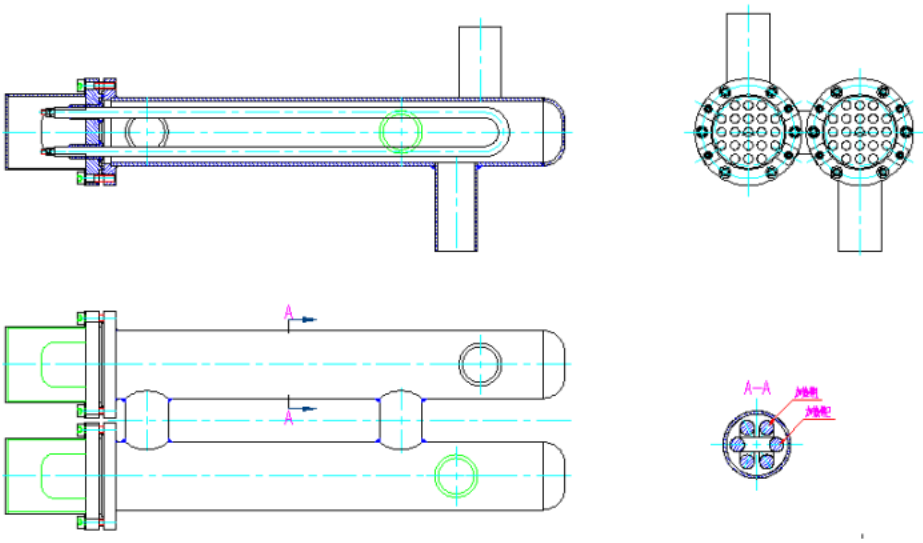
3), condenser, the condenser adopts two independent circulation system, to achieve the purpose of heat exchange, the lower the temperature. (internal water or oil through heater into the condenser on the three-roll calender, external water (water) through the thermometer display using the electromagnetic valve and pneumatic foot seat valve automatic discharge into the condenser and circulating directly after.)

外形图如下Appearance figure as follows：

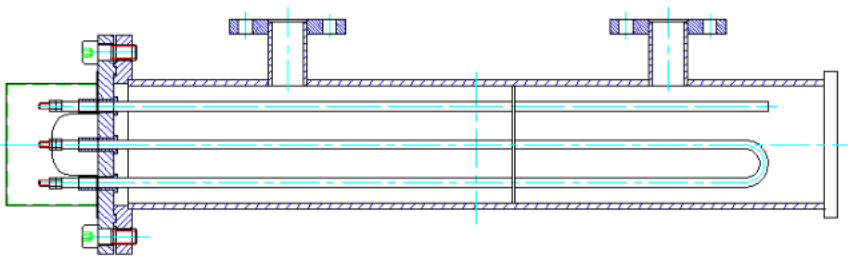


4)、加热器：加热元件 Heater, heating element

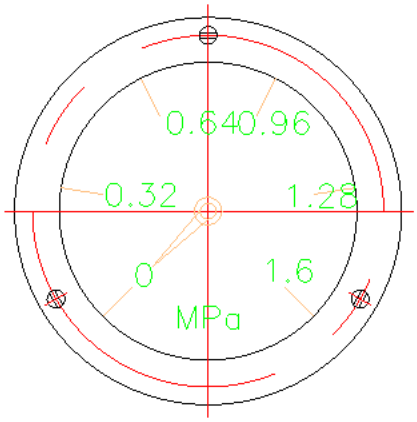
1）双筒加热器Double tube heater



2）单筒加热器Single tube heater



5)、压力表元件Pressure gauge element



压力表

压力表使用说明

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

Pressure gauge instructions

instrument is suitable for the measurement of which do not corrode copper and copper alloy liquid and gas, and other pressure.λ

before use should be re-examined qualified rear can use and pay attention to the validity of the factory.λ

when using the instrument limit should not be more than 3/4, when measuring fluctuating pressure limit should not be more than two-thirds, minimum pressure in the two cases are not less than 1/3 of the upper limit.λ

instrument shall be mounted on and points to the same level, ambient temperature - 40-70, relative humidity is not more than 80%.λ

use the instrument must be once every two months to identify, such as the malfunction of the instrument as internal pointer failure parts loose, reading error increase wait for a phenomenon, should immediately and send to factory maintenance repair.λ

users shall abide by the rules of use and preservation.λ

pressure gauge used it is forbidden to remove.λ

6)、定期清理水箱，油箱污垢防止杂物进入管路堵塞流道，造成元器件损坏。

由于受泵体，管道的各参数值的制约各管路的管径以及长度不得私自更改。Regular cleaning water tank, fuel tank into the dirt to prevent debris line plug flow, causing damage of components.

Due to the pump body, pipe of each parameter value of each line pipe diameter and length can't change without permission

7）常见故障排除：Common troubleshooting

故障状态Failure state 现象 phenomenon	原因分析Cause	排除方法Solution
水泵启动后压力表上无压力显示；Water pump starts on the pressure gauge pressure display	1．水泵反转； 2．没有充足的水源，水泵空转； 3．管路中有较多空气； 1. Water pump inversion; 2. Do not have enough water, idle running; 3. More air in the pipe line;	1．调换电机任意两相线； 2．外供水源的压力＞2KG/CM^2； 3．排掉管路中的空气； 1. Any two phase line switch motor; 2. The water supply pressure > 2 kg/CM2. 3. The drainage pipeline in the air;
温度失控，不能降温；Temperature is out of	冷却电磁阀YV11，YV12，YV13其中任一个阀不能工作；	检查冷却电磁阀YV11，YV12，YV13是否正常工作

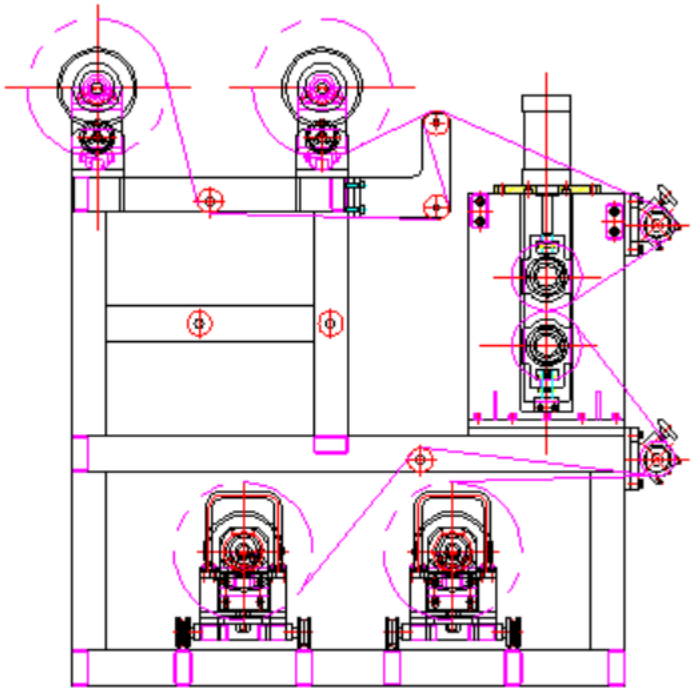
control, not cool	Cooling, electromagnetic valve, YV11 YV12, YV13 which served as a valve doesn't work	并排除；Check the cooling solenoid valve YV11 YV12, YV13 is working correctly and ruled out
温度失控，不能升温；Temperature control, can't heat up	1．该区加热回路，过载跳闸； 2．温度传感器损坏； 3．冷却电磁阀阀体内有杂物，使电磁阀不能完全关闭；1. The heating circuit, overload trip; 2. Temperature sensor damage; 3. The cooling solenoid valve body with sundry, which solenoid valve cannot be completely shut down	1. 如果是过载继电器跳闸，将整定电流调大；如果是断路器跳闸，则需要更换容量大一档的断路器； 2．更换温度传感器； 3．打开电磁阀阀体，清洗内部；仍不能解决则更换电磁阀； 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. Open the electromagnetic valve body, cleaning internal; Still cannot solve the replacement of the electromagnetic valve;

水泵不能启动 The pump can't start	1．水泵过载或过流跳闸；1. Water pump overload or over-current trip	将整定电流调大，如仍跳闸，则检查电机三相线圈是否正常，是否有相线对地短路现象，然后排除之；Will be setting up the current, such as trip, still check three-phase motor coil is normal, whether there is phase line to ground short circuit phenomenon, and then eliminate it

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!

3.6、覆高分子膜（覆保护膜）单元基本参数及安全操作指导 Polymer membrane (cover protective film) unit basic parameters and safety instructions

3.6.1 覆高分子膜装置结构示图 Polymer membrane device structure shown in figure



3.6.2、基本技术参数 The basic technical parameters

最大放卷直径：	400mm
气涨轴涨径：	φ79-φ81
气涨轴有效长度：	1800mm
磁粉制动器扭矩：	50N.m
工位：	双工位
压紧辊规格：	φ200x1800
压紧辊表面材质：	丁腈橡胶
修边刀：	芯板采用勾刀

The maximum rolling diameter: 400 mm

Gas rose axis diameter up: from 79-79

Gas rose axis effective length: 1800 mm

Magnetic powder brake torque: 50 n. m

Location: double location

Pressure roller specification: 200 x1800 phi

Pressure roller surface material: nitrile rubber

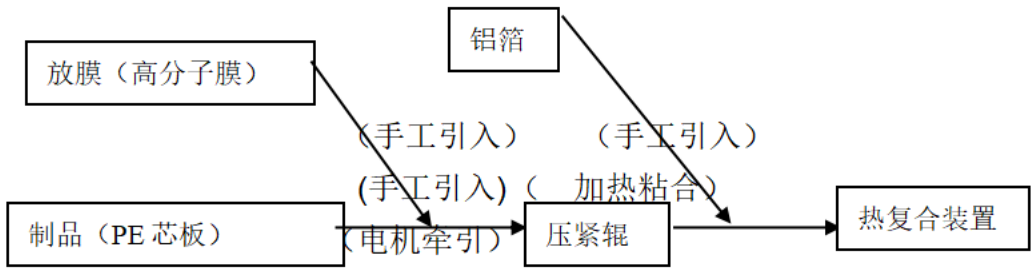
Trimming knife: core board USES the hook knife

3.6.3、结构特点及组成 The structure characteristics and composition

1）结构特点：放卷装置为无动力机构，放卷轴通过两轴承固定在机架上方，靠后面的覆膜机与收卷机对物料的牵引产生的拉力进行放卷。物料张力控制采用手动张力控制器进行调节。此装置具有结构简单、操作方便、容易维护等特点。Rolling device structure features: for unpowered, scroll through the above two bearings fixed to the frame, laminating machine and at the back of the winding machine for material volume with the pull force caused by traction. Material adjusted manually tension controller are adopted in the tension control. This device has simple structure, convenient operation, easy maintenance, etc

2）此结构装置位于机架上方，用于完成上膜的放卷，本装置利用气胀轴胀紧纸筒，通过消皱扩覆辊消皱展平高分子膜，利用丝杆螺母装置纠偏，并通过磁粉制动器进行刹车及制动，磁粉制动器通过联轴器与气涨轴连接。This structure device located above rack for complete film put on paper, this device use lhe swelling rolls, gassing axis through the wrinkle elimination expansion by roller wrinkle flattening polymer film, using the screw nut device action, through magnetic powder brake and brake and brake, magnetic powder brake via coupling shaft connected with gas

3.6.4、覆高分子膜装置的使用及维护 Use and maintenance of polymer film device



1）覆膜前的准备工作：The effect of the preparation work before

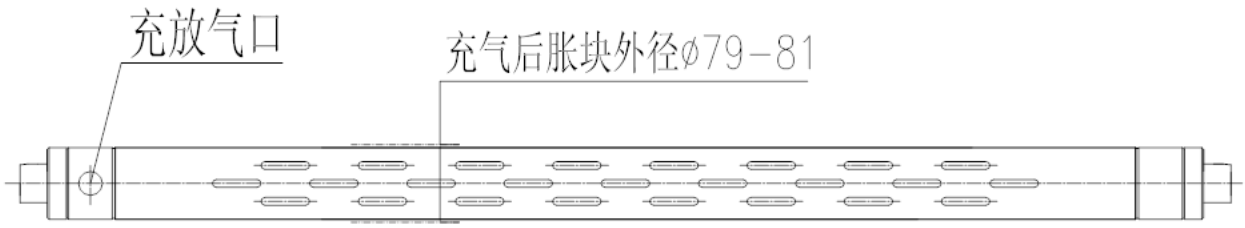
①操作设备前必须仔细阅读使用说明，理解其性能和使用方法。Must read the instructions carefully before operating equipment, understand its performance and usage

②检查气涨轴的使用性能。Check gas rose axis using performance

③扳动换向阀使上下辊分开。Pull reversing valve separated roll up and down

2）覆膜过程操作步骤：Effect of process steps

①将卷有高分子膜的纸筒装在气涨轴上，用气枪嘴对气涨轴进行充气，直至把纸筒涨紧。Will roll with polymer film rolls in the gas rose axis, with inflatable air gun mouth to gas rose axis, until the film up tight



②扳动换向阀，两辊分开。Pull (directional control valve, the two separated roll

③手动引制品和覆膜按原理图所示顺序跨过覆膜机。Manual led products and coated in accordance with the principle as shown in figure order across the laminating machine

3）维护和保养注意事项 Preventive maintenance and matters needing attention：

未使用前应采取涂防锈油，棉布包裹等措施保护好辊筒。Should be taken before using tu rust-proof oil, cotton package such as measures to protect the roller

（1） 运转前清洗干净辊筒防锈油或其它脏物，并在轴承上加注润滑油。before operation clean roller rust-proof oil or other dirt, and filling on the bearing lubricating oil

（2） 工作时根据制品前进速度调整好刹车片及展平辊，防放膜张力不够而起皱。the work according to the speed of the products to adjust brake pads and flattening roller, the membrane tension is not enough and wrinkling

（3） 上胶辊要平稳下滑，如果出现异常则可调整气缸的节流阀。on the rubber roller to steady decline, if abnormal can adjust the throttle valve cylinder

（4） 经常检查导辊有无锈蚀及划伤以免伤及制品，必要时更换辊筒。often check whether there is any rust and scratch on the guide roller in order to avoid injury and products, if necessary, replace the roller

（5） 保持机器整洁。keep the machine clean

（6）由于修边的勾刀非常的锋利，严禁手指等部位接触刀片以及刀片周围运行的片材。在不使用时请用棉布或其他东西包装好刀片，涂上防锈油，并放在安全不易伤到人的地方。Because of trimming hook knife is very sharp, it is strictly prohibited in areas such as the finger contact blades and blade sheet of running around. When not in use please use cotton cloth or other things wrapped blade, coated with anti-rust oil, and put in place is not easy to hurt people's safety

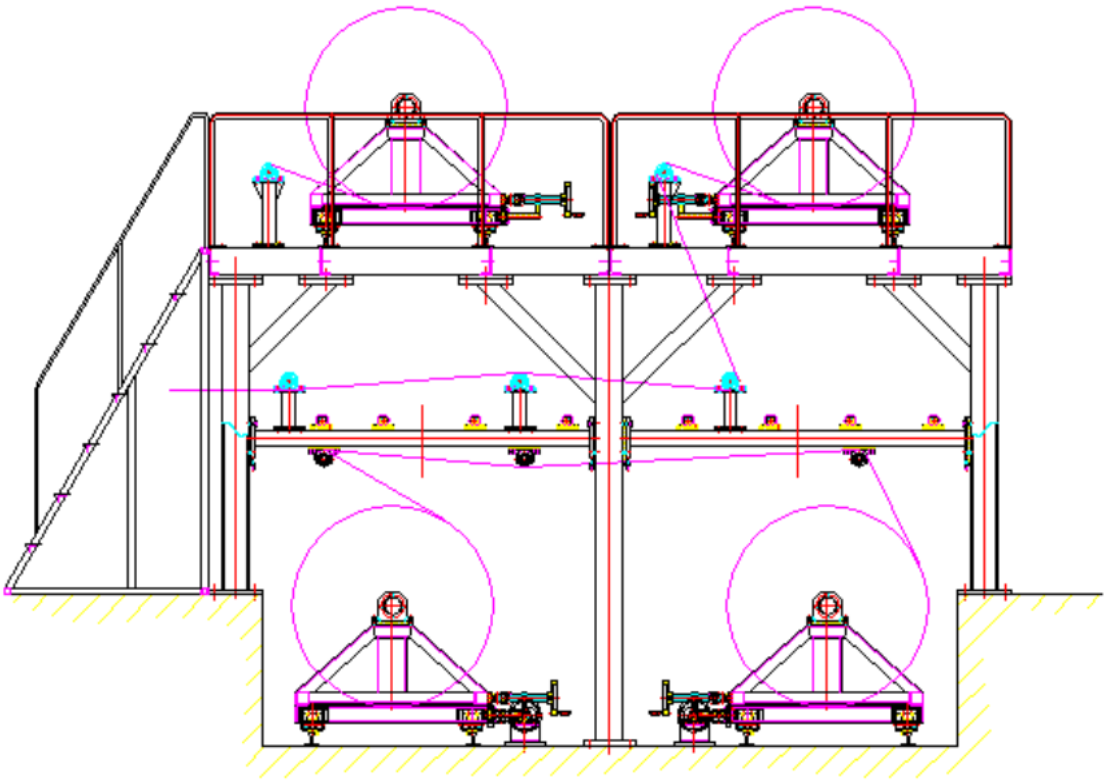
3.7、放铝单元基本参数 Put the aluminum unit basic parameters

3.7.1 用途 Application

本装置主要实现打开铝卷，展平铝箔的作用 This device is mainly to realize open aluminum coil, flattening the aluminum foil

3.7.2 结构及特点 Structure and characteristics

放铝装置主要由放铝平台架、放铝车、导向机构组成，具有结构紧凑、操作方便的特点（见下图）Aluminum device is mainly composed of aluminum aluminum platform frame, put the car, steering mechanism, with the merits of compact, operation The characteristics of convenient (see below)



放铝平台外形图 Put the aluminum platform figure shape

1.铝平台架由平台、立柱、楼梯及护栏组成。

2.放铝车共有四台。上下各两台，每台均由机架、夹紧装置、刹车装置、移动装置构成，机架由型钢焊接而成，夹紧装置由气缸推动活动夹头夹紧铝卷，刹车装置由磁粉刹车器通过齿轮传递给固定夹头，移动装置由四个行走轮构成，可方便铝卷对位，此机构换卷方便，张力控制可靠。

3.导向机构分上铝卷导向、下铝卷导向和芯板导向。上铝卷导向由一系列导辊组成，导辊直接连在平台架和热复合墙板上，上铝卷通过斜导铝架上一系列导辊实现下铝箔的导向，而芯板导向则由一系列水平导辊组成，可实现芯板平稳，顺畅前进。

1. Aluminum platform frame is composed of platform, columns, stairs and guardrails.

2. Put aluminum car a total of four sets. Up and down the two, each by a frame, a clamping device, brakes, mobile device, frame composed of steel welding, clamping device driven by cylinder activity chuck clamping aluminium roll, brake by magnetic powder brake via gear is passed to the fixed clamp, mobile device is composed of four walking wheels, easy to aluminium roll counterpoint, the agency in volume, convenient and reliable tension control.

3. Guide agency points on aluminum coil, aluminum volume under the guidance and core board. On aluminum coil guide is composed of a series of guide roller, guide roller directly on the platform frame and thermal compound wallboard, the aluminum coil by oblique guide on a series of guide roller to realize aluminum foil under the guidance, and the core board guide is composed of a series of horizontal guide roller, which can realize core board smooth, smooth.

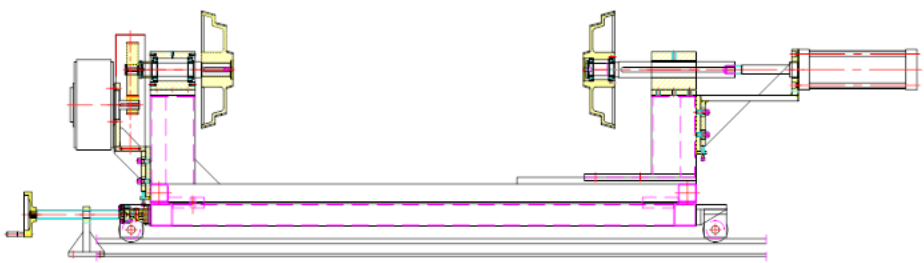
3.7.3 放铝车基本技术参数 Put the aluminum car basic technical parameters

最大放卷直径：	1200mm
磁粉制动器制动力矩：	400N.m
放卷宽度：	1800mm

The maximum rolling diameter: 1200 mm

Magnetic powder brake braking torque: 400 n. m

Put the roll width: 1800 mm



放铝装置外形图 Put the aluminum plant figure shape

3.7.4 维护保养和注意事项 Maintenance and matters needing attention

（1） 使用前应保护好辊筒，经常保持机器整洁。

（2） 运转前将各导辊擦洗干净，各轴承座加注润滑油。

（3） 工作时铝箔要平稳且具有一定的张力。

（4） 经常检查导辊转动是否灵活，有无锈蚀及划伤以免伤及制品，必要时更换辊筒。

（5） 经常检查连接螺栓是否松动，以免发生意外。

(1) before the use should protect roller, often keep the machine clean.

(2) before running the guide roller is swabbed clean, each bearing filling lubricating oil.

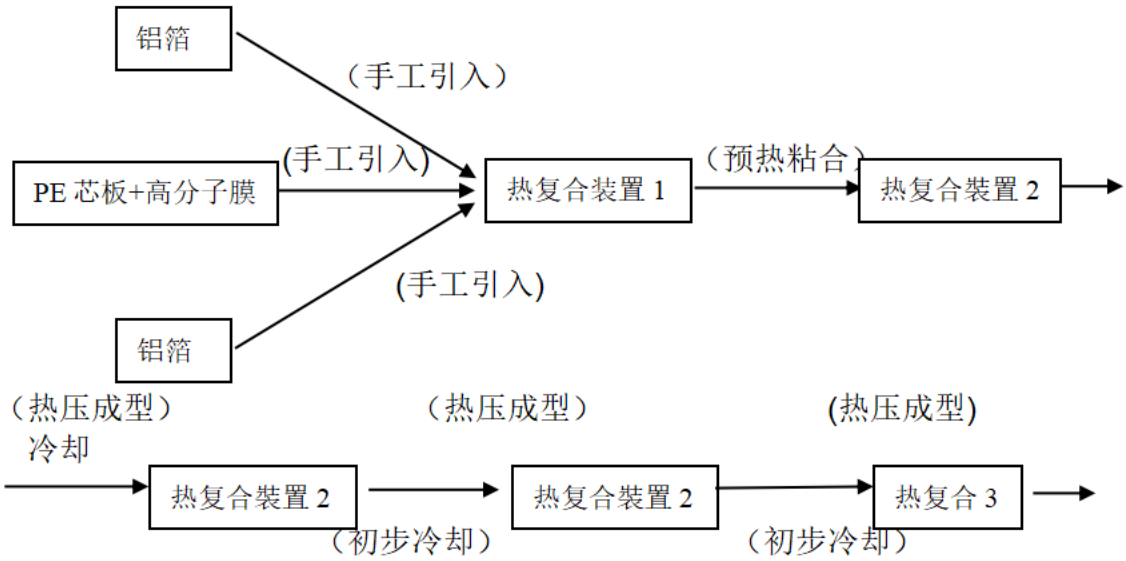
(3) the job when the aluminum foil to smooth and has a certain tension.

(4) regularly check whether the guide roller rotation is flexible, rustily and cut in order to avoid injury and products, if necessary, replace the roller.

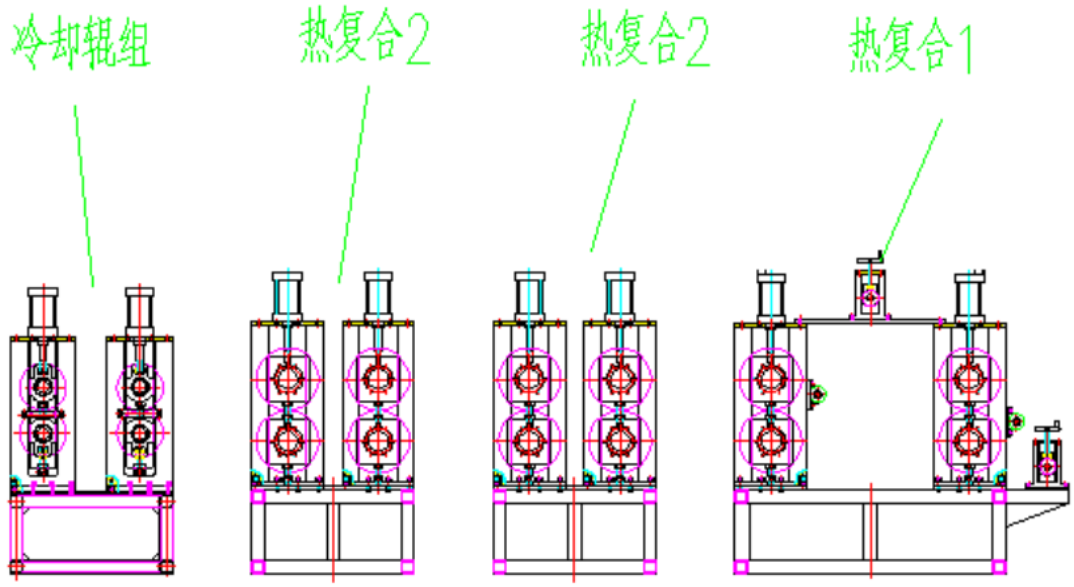
(5) check whether the connecting bolt is loose, often in order to avoid accidents.

3.8、热复合装置的构成及工艺规程 Hot composition and technical process of the compound mechanism

3.8.1 工艺流程 The process flow



3.8.2 结构及特点 Structure and characteristics



热复合装置分为三段：预复合、热压成型、初步冷却、冷却。预复合由 2 只胶辊和两只钢辊机架汽缸和传动机构组成；热压成型和初步冷却均为机架、钢辊和气缸组成，预复合热压成型的辊筒均配有温度控制系统。

1. 所有机架均为型钢焊接而成。
2. 所有辊筒规格均为φ400x1800（理论尺寸），下辊可微调，调节上辊通过气缸在两端墙板滑道上滑动来实现，另外在上下辊筒两端轴承座之间装有防撞螺钉，防止上下辊筒发生意外时碰伤。
3. 辊温控制器由油加热器和管路系统外部水冷却系统组成。

Hot composite device is divided into three parts: preliminary compound, hot press molding, preliminary cooling, cooling. Preliminary combined by two rubber roller and two steel roller rack cylinder and transmission mechanism; Extrusion forming and preliminary cooling are frame, steel roller and cylinder, in the process of the compound extrusion molding roller are equipped with temperature control system.

1. All the frame is steel welded together.

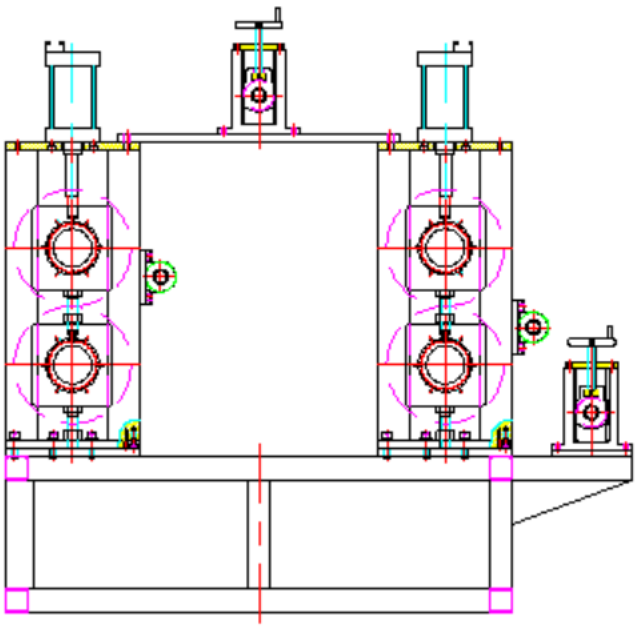
2. All the specifications of the roller are the phi 400 x1800 theory (size), the roll adjustment, adjust the roller sliding on the cylinder wall ramp at both ends, ends in the upper and lower roller equipped with collision between bearing screw, prevent roller up and down when the

accident bruised.

3. The temperature controller by oil heater and piping system of external water cooling system.

3.8.3 热复合装置各组成单元的基本参数 The basic parameters of hot laminating device each composition unit

1）热复合装置一（1 台）A hot composite device (1)



此装置由机架、墙板、滑块轴承、汽缸、辊筒、油加热器等组成，通过汽缸压紧板材进行复合。其主要技术参数如下 This device consists of frame, wall plate, the slider bearing, cylinder, cylinder, oil heater, etc, through the composite cylinder pressure plate. Its main technical parameters are as follows：

钢辊规格：	φ400mmX1800mm （2 根）
胶辊规格：	φ400mmX1800mm （2 根）
胶辊材质：	硅 胶
气缸规格：	φ160mmX125mm
油加热功率：	36KW

导热介质：	高温导热油
油泵功率：	3KW

Steel roller specification: 400 mmx1800mm (2)

Rubber roller specification: 400 mmx1800mm (2)

Rubber roller material: silicon rubber

Cylinder size: 160 mmx125mm phi

Oil heating power: 36 kw

Heat conduction medium: high temperature heat conduction oil

Pump power: 3 kw

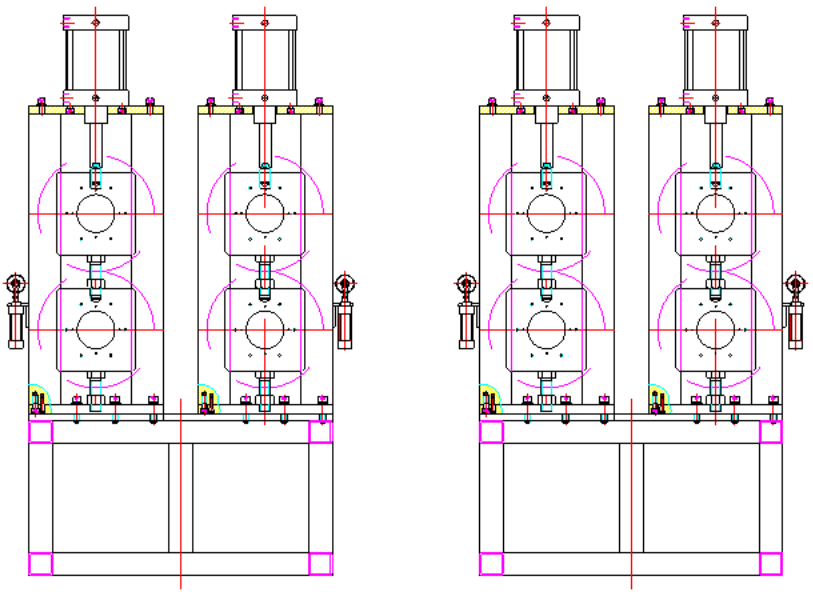
2）热复合装置二（2 台）Two (2) thermal laminating device

此装置由机架、墙板、滑块轴承、气缸、辊筒、油加热器等组成，通过气缸压紧板材进行复合。其技术参数如下： This device consists of frame, wall plate, the slider bearing, cylinder, cylinder, oil heater, etc, through the cylinder pressure plate composite. Its technical parameters are as follows

钢辊规格：	φ400mmX1800mm （8 根）
气缸规格：	φ160mmx125mm
油加热功率：	36KW
导热介质：	高温导热油和水
油泵功率：	3KW

热复合二外形图

Steel roller specification: 400 mmx1800mm (8)
Cylinder size: 160 mmx125mm phi
Oil heating power: 36 kw
Heat conduction medium: high temperature heat conduction oil and water
Pump power: 3 kw
Heat 2 shape of composite



3）冷却辊装置（一台）Cooling roller device (a)

此装置由机架、墙板、滑块轴承、气缸、辊筒、进行复合。This device consists of frame, wall plate, the slider bearing, cylinder, cylinder, composite

其技术参数如下：

钢辊规格：　　φ300mmX1500mm（4 根）

气缸规格：　　φ160mmx100mm

导热介质：　　水

冷却辊装置外形图：

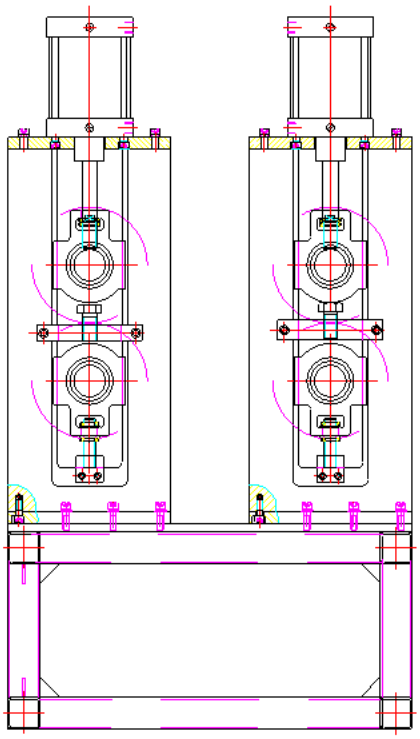
Its technical parameters are as follows:

Steel roller specification: 300 mmx1500mm (4)

Cylinder size: 160 mmx100mm phi

Heat conduction medium: water

Cooling roller contour diagram:



3.8.4 启动热复合前的工作：Start the hot compound work before

① 操作设备前必须仔细阅读使用说明，理解其性能和使用方法。

② 扳动换向阀，使上下辊分开。

③接通加热器，把辊筒温度加热到规定的工作温度。

(1) must read the instructions carefully before operating equipment, understand its performance and usage.

(2) throw reversing valve, make the separated roll up and down.

(3) turn on the heater, heat roller temperature to specified operating temperature.

3.8.5 维护及保养 Maintenance and maintenance：

- 经常保持机器清洁，定期给轴承加注润滑剂，每隔半年需给轴承加注润滑剂，，直至润滑脂密封处和排除孔流出，并清楚轴承座上多余的油脂。
- 夹紧部位，请勿乱动以免夹伤人体。
- 上辊筒下滑时一定要平稳，以免影响制品。
- 调整好轴承之间的限位块，以免碰伤辊筒。
- 经常检查轴承等转动部位，保持经常加油，以免损坏机器零部件。
- 及时解决螺栓零部件损坏等问题，以免麻痹大意出事故。
- 长时间不用时应采取相应的防锈措施保护好设备，如涂防锈油，并用软布包装辊筒，对于橡胶辊，则应采取相应的防老化措施。

often keep the machine clean, to inject lubricant, bearing regularly every half year need to inject lubricant, bearing, until the grease seal and eliminate holes out of the country,

and clear the redundant grease on bearing seat.λ

clamping part, please do not touch in order to avoid the task of the human body.λ

on roller slide must be smooth, lest affect products.λ

adjust the spacing between the good bearing block, to avoid bruising roller.λ

check bearing rotating parts, such as maintaining current refueling, so as not to damage the machine parts.λ

timely solve the problem of bolt parts damage etc, so as to avoid paralysis have an accident.λ

long time need not when rust prevention measures should be taken to protect the equipment, such as tu rust-proof oil, with soft cloth roller, packing for rubber roller, the corresponding aging proof measures should be taken.λ

3.9、冷却风箱的构成及工艺规程 Composition and technical process of cooling bellows

3.9.1、用途 Application

本机主要对初步成型的制品进行冷却定型，使其具有一定的粘结强度。This machine is mainly for the preliminary forming of products for cooling to finalize the design, make its have certain bond strength.

3.9.2、结构及特点 Structure and characteristics

冷却风箱包括机架、风冷系统和导辊输送系统，结构合理，冷却效果好。

（1）机架由型钢焊接而成，结构简单实用。

（2）风冷系统由上下各 12 只轴流式风扇组成，风扇倾斜一定角度，逆风冷却。

（3）导辊输送系统由一系列铝合金导辊组成，导辊两端安装轴承，轴承座直接焊接在机架内侧，保证了导辊转动自由灵活。

Cooling bellows including frame, air cooling system and the guide roller conveyor system, reasonable structure, good cooling effect.

(1) frame composed of steel welding, structure is simple and practical.

(2) the air cooling system is composed of up and down all the 12 only axial flow fan, fan

tilt Angle, the wind cooling.

(3) guide roller conveyor system is composed of a series of aluminum alloy guide roll, installed on both ends of the guide roller bearings, bearing seat welded directly on the rack inside, to ensure the guide roll rotating flexible freedom.

3.9.3、维护保养及注意事项 Maintenance and matters needing attention

（1）经常保持机器清洁，给轴承加注润滑剂。

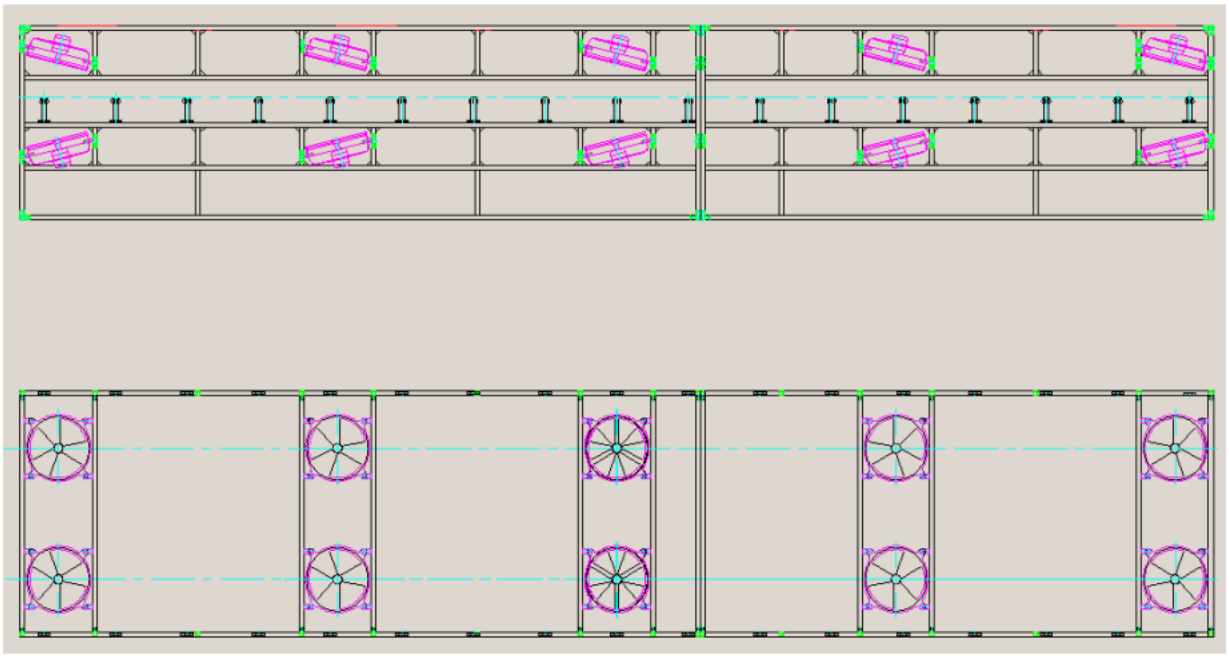
（2）导辊表面要保持干净，以免弄脏制品。

（3）经常检查风扇，以防发生零部件脱落等异常情况发生。

(1) keep the machine clean, often inject lubricant to the bearing.

(2) the surface of guide roller to keep clean, so as not to contaminate products.

(3) check the fan, to prevent loss of parts.



冷却风箱外形图

3.10、覆保护膜单元基本参数及安全操作指导 Protective film unit basic parameters and safety operation instruction

3.10.1、覆膜装置的组成及技术参数 The composition and technological parameters of the laminating device

覆膜装置由气涨轴，磁粉制动器、展平辊装置，移动调节装置等组成. Laminating device by gas rose axis, magnetic powder brake, flattening roller device, mobile control

device, etc

覆膜装置基本技术参数

最大放卷直径：	400mm
气涨轴涨径：	φ79-φ81
气涨轴有效长度：	1800mm
磁粉制动器扭矩：	50N.m
工位：	双工位

Basic technical parameters of laminating device

The maximum rolling diameter: 400 mm

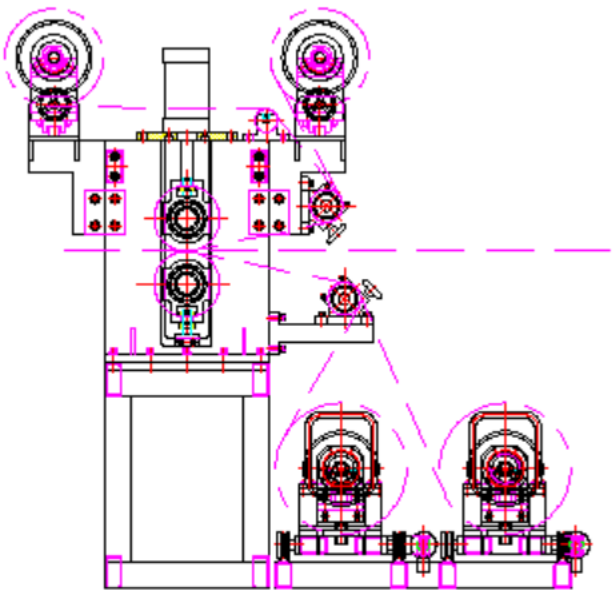
Gas rose axis diameter up: from 79-79

Gas rose axis effective length: 1800 mm

Magnetic powder brake torque: 50 n. m

Location: double location

3.10.2、表面覆膜装置外形图 Coated on the surface of gear contour map



3.10.3 结构特点及组成 The structure characteristics and composition

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

有结构简单、操作方便、容易维护等特点。

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

1) Rolling device features: structure for unpowered agencies, scroll through the above two bearings fixed to the frame, with the pull force caused by traction at the back of the volume. Material adjusted manually tension controller are adopted in the tension control. This device has simple structure, convenient operation, easy maintenance, etc.

2) this device located above rack structure, used to complete the film paper, this device use lhe swelling rolls, gassing axis through the wrinkle elimination expansion by roller wrinkle flattening polymer film, using the screw nut device action, through magnetic powder brake and brake and brake, magnetic powder brake via coupling shaft connected with gas.

3.10.4、表面覆膜装置的操作维护 Coated on the surface of equipment operation and maintenance

在进行生产之前，将要在生产中应用的表面膜准备好，安装在覆膜装置的辊子上，等片材将要通过牵引机的压辊时，拉展薄膜，绕过之间的过渡辊，然后平展地覆在片材之上，具体操作过程可以参考以上外形图所示。注意在覆膜过程中，一定要将薄膜和片材完全贴合，使膜能够很平滑地贴在片材的表面。同时，要调整好覆膜装置在覆膜过程中的张力，以免由于松弛而使覆膜质量下降。当生产线速度发生变化时，也要调整张力，使其能够顺畅地覆膜。Before the production, will be applied in the production of surface film, ready to install on the roll of laminating device, such as sheet will pressure roller, through the tractor pull film exhibition, bypassing the transition between the roller, and flat on sheet, concrete operation process can refer to the overall figure. Note in the laminating process, be sure to fit the film and sheet completely, make the membrane can be smoothly to stick on the surface of sheet. At the same time, to adjust laminating device in the process of effect of tension, so as to avoid because of relaxation and make the effect of

lower quality. When the production line speed change, also want to adjust the tension, enable it to coated.

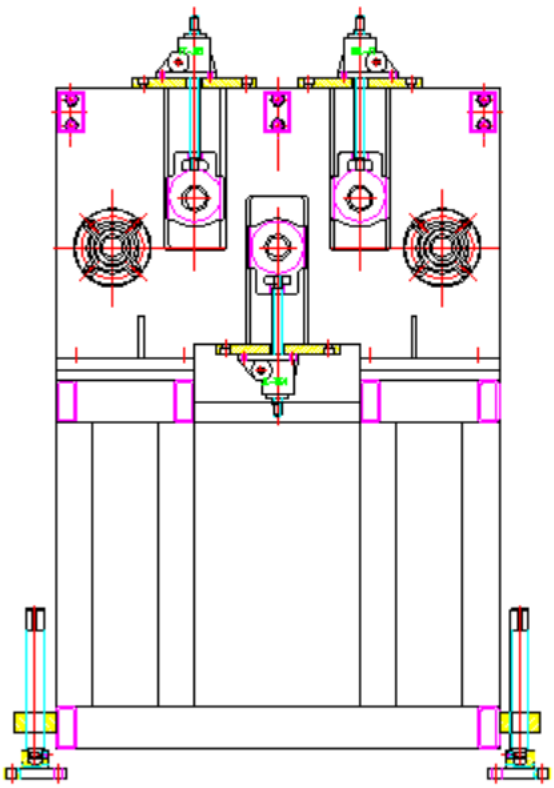
在使用过程中，要保持覆膜装置辊子表面清洁光滑，转动灵活，过渡辊表面不能有划痕，否则会划伤薄膜表面，影响制品的质量。In use process, keep laminating device roll surface clean and smooth, flexible rotation, transition roller surface can not have Nick, otherwise it will cut thin film surface, affect the quality of the products

3.11、五辊整平装置的构成及工艺规程 Five roller leveling device structure and process planning

3.11.1、用途 Application

本机主要是将成型的铝塑板挤压校正平直，完善制品的平整度。This machine is mainly is the aluminum extrusion molding correction straight, perfect the smoothness of products

五辊整平装置外形：Shape roller leveling device



3.11.2、结果及特点 The results and characteristics

五辊校平主要由机架墙板辊筒等组成，结构简单，操作方便。

（1）机架由型钢焊接而成，墙板为整体式墙板。

（2）辊筒包括校平上辊和校平下辊，辊身由优质无缝钢管精密加工而成，上辊规格为Φ100mm×1800mm，其中下辊固定不动，上辊可上下滑动。

Roller leveling is mainly composed of roller frame wall plate and so on, simple structure, easy to operate.

(1) frame composed of steel welding, wallboard for monolithic wall panel.

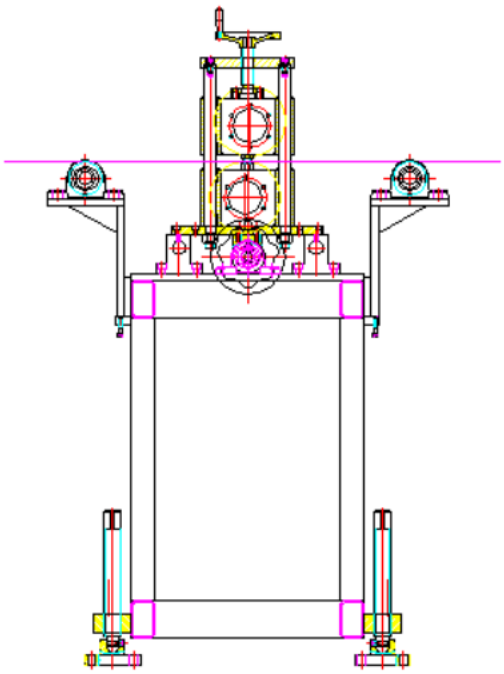
(2) roller including leveling roller and leveling roller, roller body is made of high quality seamless steel tube precision machining, the specification for roller Φ 100 mm * 1800 mm, and the lower roller fixed, the roller can slide up and down.

3.12、修边单元的构成及工艺参数 The composition and technological parameters of trimming unit

3.12.1 用途 Application

本机专用于铝塑板的滚切修边，保证制品的宽度以及边缘质量。This machine is dedicated to aluminous model board slitting trimming, ensure the quality of products and the width of edge

修边机外形 Trimming machine appearance：



3.12.2 结构及特点 Structure and characteristics

修边机主要由机架、修边机构和移动系统组成。

（1）机架由型钢焊接而成；

（2）修边机构由上下两把滚切刀组成，滚切刀通过刀座连接在刀轴上；

（3）移动系统分为幅宽调节移动、上刀座移动和纠偏移动三部分，幅宽调节移动主要保证生产不同宽度的制品；上下刀座移动主要为了牵料方便，调整刀刃重合长度；纠偏移动用于工作中制品相对偏离中心时调整整个修边装置横向移动补偿偏移量。

Trimming machine is mainly composed of frame, trimming of institutions and mobile system.

(1) frame composed of steel welding;

(2) the trimming mechanism is composed of two roll cutting knife, rolling cutter seat connection on the knife shaft through the edge of the sword;

(3) mobile system is divided into width adjustment, knife on mobile and rectification movement of three parts, main production of different width to guarantee width adjusting mobile products; About knife mobile mainly in order to take material is convenient, adjust the blade overlap length; Products relative deviation rectification movement for work center adjust the trimming device lateral

movement compensating the offset.

3.12.3 维修保养及注意事项 Maintenance and matters needing attention

（1）修边刀要保持刃口锋利，必要时可修磨刃口或更换刀具

（2）保持机器清洁，经常给运动部件加注润滑油；

（3）在机器运转过程中，经常检查电机工作情况。

（4）机器出现卡死等不能运动情况时，切勿用力敲打。

(1) keep sharp edge trimming knife, grinding blade or replaced when necessary

(2) keep the machine clean, often to oil the moving parts listed;

(3) in the process of the machine is running, check motor working condition.

(4) the machine appear stuck, unable to exercise, do not knock.

3.13、牵引单元基本参数及安全操作指导 haul-off unit basic parameter and safety operation indication

3.13.1、牵引单元基本参数 haul-off unit basic parameter

牵引功率 haul-off unit motor： 4kW

牵引辊规格 roller specification： φ40mmx2250mm

胶辊材质 runner roller material：丁腈橡胶

3.13.2、牵引机的吊装和运输 haul-off unit hoisting and transportation

1、吊装 hoisting

牵引机的吊装需用承载 2 吨以上的吊索，按照吊装图吊装。减速机的吊装详见减速箱使用说明书。This action need sling with the ability of supporting 4t substance,do all thing as the relative drawing.hoisting of gearbox should reference gear box instruction manual.

2、运输 transportation

牵引机在运输过程中，将牵引机固定在包装箱中。为防止运输过程中牵引辊辊表面损伤，必须对辊筒进行包裹保护。In the process of haul-off transportation,haul-off need to be fixed on the packing case.in case of unhappened thing,to package the roller is necessary.

3.11.3、牵引的安全操作 safety operation of haul-off unit

1、牵引开机前准备 preparation work for starting

开机前先打开气源，检查气源压力。开启手动单向阀，分别升起牵引压辊，到顶后手动阀换向，分别压下两辊筒。反复几次，检查牵引压辊左右气缸是否同步。（左右气缸在工作中压力不等，片材会跑偏，影响片材手卷的平整。）根据实际情况调节气缸节流阀，使左右气缸同步。First,turn on the air source and check pressure of air source.turn on manual single direction valve,and rise up haul-off roller one by one, to change direction when on the top and press down the two roller.repeatedly several times,and check cylinder of haul-off roller two side to make sure it is synchronous.(if left and right cylinder in different working pressure,sheet will in the wrong position)

2、牵引开机中的安全操作 safety operation of haul-off unit

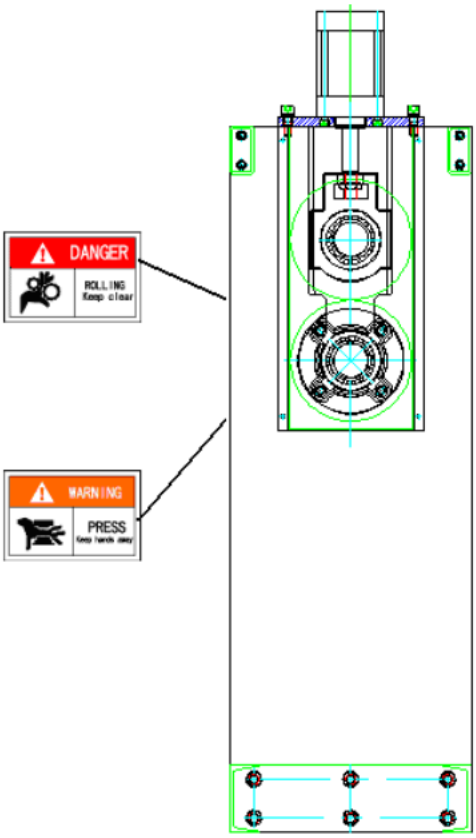
开机时，先升起牵引压辊。将冷却架上的片材穿过牵引机，拉紧片材，启动牵引电机。然后压下牵引压辊。When start up,to rise up haul-off roller initial. Make sure sheet on the cooling bracket traverses haul-off unit, pull strength sheet,start up haul-off motor.then press down haul-off roller.

3.13.4、牵引安全防护 safety protection

由于牵引辊处于运动之中，所以操作人员要小心注意！身体部位不得伸入辊筒之间！操作人员在穿片时一定要停止牵引机，穿片完成后，压紧牵引辊，才能启动牵引电机。两组辊筒之间，同步带轮，滑动轴承座处均存在挤伤，压伤等潜在危险，因此设置了安全防护罩，并且在防护罩上贴了警示标识！在正常工作时，如没有特殊必要，不得靠近这些潜在危险点！除维修外,操作人员不得私自拆下防护罩。Because haul-off roller is in operation,the operator should keep a way for safety!

Keep away from the roller body!When the necessary work should be done, please stop operating.the two units roller ,synchronous belts,sliding bear seat are all in danger, so the safety cover is necessary and also attaches warning sign on it! Keep away from

the dangerous point is really necessary.no one can dismount safety cover except operator.



3.11.5、牵引保养和维护 haul-off unit maintence

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 when haul-off unit is operating ,it need to be maintence frequently. The maintence way：

1、减速机在初次使用 300-600 小时后，应换油一次。以后每 3000 小时换油一次。更换应在减速器停车，润滑油尚未冷却时排放。使用润滑油为 N220。First time When gear box works 300-600 hours,change oil once time. Later to change the oil each3000 hours once time. When lubricant oil is not cool, this is the best time to change oil.the lubricant oil is N220.

2、牵引装置上使用的轴承座，每隔半年需从油嘴加入润滑脂，直至润滑脂从密封处和排

出阀流出，并清除轴承座上多余的油脂。Bear seat of haul-off device should be lubricated twice each year,when lubricant grease flow out from sealing part and pouring out valve,and remove the spare oil grease.

3、牵引辊压紧辊表面材料为橡胶，长时间使用会令橡胶辊表面结垢，应定期使用非油性洗剂对辊筒清洁。短期停车后，需对胶辊进行包裹保护。长时间停机会令橡胶表面老化，需作好相应保护措施。如过渡老化，必须修复。Surface of haul-off roller is rubber,if long time use the roller which will cause dirty on the surface,so clean the roller regularly which is really necessary.after short time stopping machine,please package the roller.the protection work is really necessary.

3.12 横切机 crossing cutter

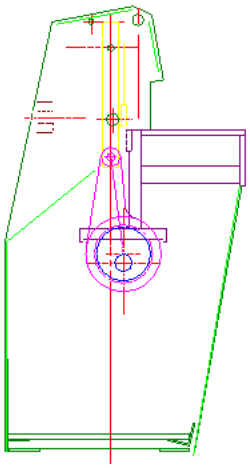
3.12.1、用途 function

本机器专用于板材的直线剪切，金属材料应为低碳钢，抗拉强度极限小于 450N/mm^2，非金属材料包括橡胶，塑料等，热剪板材料温度上于 50° C，机器在满负载时仅能做间断剪切，若剪切抗拉强度极限较高的板料时，剪切厚度应相当降低。可以保证剪片长度和剪切口的外观质量。

剪片机外形图：

This machine is dedicated to straight shear plate and metal materials should be mild steel, tensile strength limit is less than 450 n/was, non-metallic materials including rubber, plastic, etc., heat cutting plate material on the temperature at 50 ° C, discontinuous shear machine only when full load can do, if the higher shear tensile strength limit of sheet metal, the thickness should be quite lower shear. Can guarantee the quality of the appearance of the cut piece length and shear mouth.

Shearing machine contour diagram:



主要规格和参数：

刀片材质：9CrSi

蝶形弹簧：60Si2MnA

我公司使用的剪板机主要分为液压式剪板机和机械式 2 种规格

Main specifications and parameters:

Blade material: 9 crsi

Butterfly spring: 60 si2mna

My company use shearing machine consists of hydraulic shearing machine and mechanical specifications

3.14.2、机构及特点 Mechanism and characteristics

1） 机床床身是用钢板整体焊接而成，整机结构紧凑、重量轻、刚性好。

2） 刀架运行轨迹前倾于下刀片垂直支承面，可获得较好的剪切断面。上刀片可用顶起螺钉调整，使剪口毛边毛刺降低到最低程度。

3） 压料装置采用蝶形弹簧，压板压脚有防滑垫块，压料力较大，且不会损伤板料表面。

4） 本机床是用完全独立的封闭的齿轮箱，直接装在主轴上进行转动，结构紧凑、齿轮润滑良好，噪音低、寿命长。

5） 本机床没有离合器和飞轮，直接用电磁制动电机带动剪切，减少了电动机空运转的时间，在一定程度上节约能源。

1) machine tool lathe bed is to use steel plate overall welding and become, the machine has compact structure, light weight, good rigidity.

2) tool slide path forward in blade under vertical bearing surface, can obtain better shear fracture. On the blade available jacking screws to adjust, make snip flash burr reduced to a minimum.

3) pressure loading device adopts the butterfly spring, pressure plate presser foot mat piece, the force that press a material is larger, sheet metal surface without damage.

4) the machine is completely independent closed gear box, directly on the spindle rotation, compact structure, good gear lubrication, low noise, long service life.

5) the machine without the clutch and the flywheel with electromagnetic brake motor to drive directly shearing, reduced the time of motor idling, to a certain extent, to save energy.

3.14.3、机器的结构 Structure

1)、床身

床身采用钢板整体焊接结构，由左右立柱、工作台、角铁形连接梁和拉杆组成一个闭式框架，保证剪板机有足够的强度和制度。

左右立柱上端各有一个起吊孔，机床的调平螺钉和基础螺栓孔位于立柱的脚端，供安装使用，左右立柱上部内侧用二只偏心螺栓悬挂着左右导轨座，为刀架运动提供导向，导轨座可以前后摆动，使刀片间隙的调整成为可能，调整刀片间隙的两个手柄分别装在左右立住后侧，可实现间隙快调。

注意：在调整刀片间隙时应松开两只偏心螺栓和两只锁紧螺钉，间隙调整结束后，切记要将其紧固，融间隙变动，发生事故。

工作台左端装有前后挡料器，配备刻度标尺和挡块，剪切的板料定位，保证板料进行直角剪切，工作台上还装有两根前托料板，上面同样有刻度尺和可调的埋入式挡块，标尺的基准位置均以下片刃口为起点，可以进行调整，以修正刀片刃磨后数值变化。

1), bed

Lathe bed USES the steel plate overall welding structure, the left and right columns, workbench, Angle iron connecting beam and rod to form a closed frame, guarantee the shearing machine has enough strength and system.

A lifting hole are provided for each pillar top, machine tool leveling screws and foundation bolt hole is located in the foot end of the column, used for installation, with two columns around the upper inside eccentric bolt hanging around guide rail, to provide guide for head movement, guide rail can back and forth, have made it possible to blade gap adjustment, adjust the blade clearance stood around two handles in the back, which can realize fast clearance adjustable.

Note: when adjust the blade gap should loosen the two eccentric bolt and two lock screw, after the clearance adjusting, remember to tighten, it melts clearance change, have an accident.

Table before and after the left side is equipped with the stopper, equipped with scale and stop, shear plate positioning, ensure the right Angle shear, the worktable is equipped with two former retainer plate, it also has scale and adjustable embedded block, the reference position of the scale are the following parts as a starting point, can be adjusted, to correct the numerical change after the blade sharpening.

3.14.3、维护保养及注意事项 maintence items

1） 所有操作者作者必须熟悉本机器结构和使用方法；

2） 机器需要定期检查，例如螺钉、螺母有无松动，各运动副温升是否正常等。

3） 机器应有良好的工作环境，周围场地清洁，机器各相对运动部件，更应经常保持清洁，并按规定进行润滑。

4） 一切工具杂物，勿置于工作台上，以免进入刃口间造成事故。

5） 刀片刃口应注意保持锋利，发现刃口变钝和有缺口时需及时刃磨。

6） 刀片不用时应涂上油，以免锈蚀影响刀口锋利。

7） 运转中如发现有不正常的杂音，应立即停车检查，排除故障。

8） 经常检查电线，电气设备等绝缘良好，机器接地可靠。

9） 经常注意三角皮带是否松动，应及时调整。

10） 运转中若发现制动不灵，是因制动器摩擦片磨损，应及时调整。

11） 本机器剪切钢板的厚度不得超过额定值，严禁剪切有硬疤，夹渣、焊缝残边的板料。

12） 检修机器时必须停车，切断电源开关。

1） the author all operators must be familiar with the machine structure and

method of use;

2) machinery requires periodic inspection, such as screw, nut whether is loose, the temperature rise of motion pair is normal, etc.

3) the machine should have a good working environment and the surrounding site clean, each relative motion components, more often should keep clean, and in accordance with the provisions of lubrication.

4) all tools sundry, not on the worktable, so as not to enter the edge between cause an accident.

5) should be paid attention to the blade edge sharp, are found a gap when the blade dull and grinding.

6) the blade should be painted in oil, when not in use to avoid corrosion affect blade sharp.

7) if found to have abnormal noise during operation, should immediately stop check, troubleshooting.

8) often check the wires, electrical equipment, such as good insulation, reliable grounding machines.

9) often pay attention to whether the v belt loose, should be adjusted in time.

10) if found in the brake operation is ineffective, is because of the brake friction wear, should timely adjust.

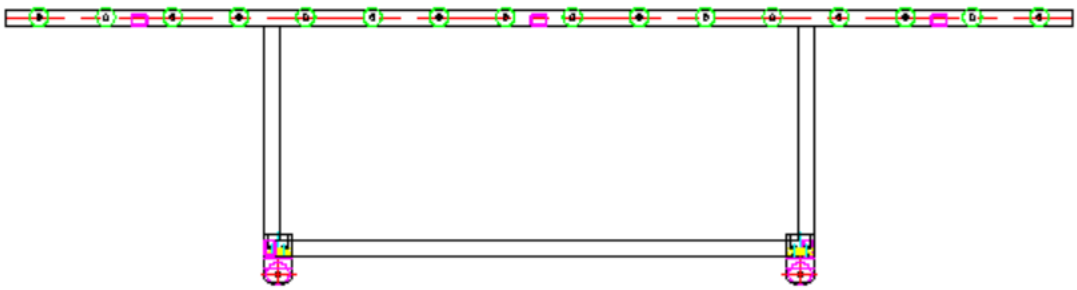
11) this machine cutting plate thickness shall not exceed the rating, it is forbidden to shear have scar, slag, weld the edge of the sheet.

12) when repair, parking, to cut off the power switch.

3.15、输送机外形图及其保养和维护 conveyor outside drawing and maintence

输送机的用途是把最终的产品继续向前输送，以便包装和运送。The function of conveyor is to transmit the final product, so as to package and transportation.

3.15.1、输送机外形图 outside drawing of conveyor：



3.15.2、输送机的维护和保养 conveyor maintence

为了保证输送机的正常工作，必须对输送机隔时进行维护和保养。In order to guarantee the conveyor work normally,

1) 保持输送带表面平整光滑，而且清洁，输送机输送的是最终的成品，输送带的表面不光滑或者不清洁，就会因其表面粗糙造成成品与其接触的表面被划毛，影响产品的质量。To guarantee the surface of conveyor belt smoothly and cleaning, conveyor transmit the final product,otherwise, if the conveyor belt is not smooth and dirty, this will lead to the damage to the final product surface.
2) 经常对输送辊的轴承进行润滑，保证输送辊转动灵活，以免增加驱动电机的负载。Lubricant the conveyor roller frequently,to guarantee the flexible work of the rotation,in case of the extra load of the driving motor.
3) 启动输送机的驱动电机之前，应该注意松开涡轮减速箱上面的那枚螺钉，同时，要隔时对驱动电机进行保养。Before start up the driving motor,please loosen the screw on the gearbox, maintence the driving motor frequently which is necessary.

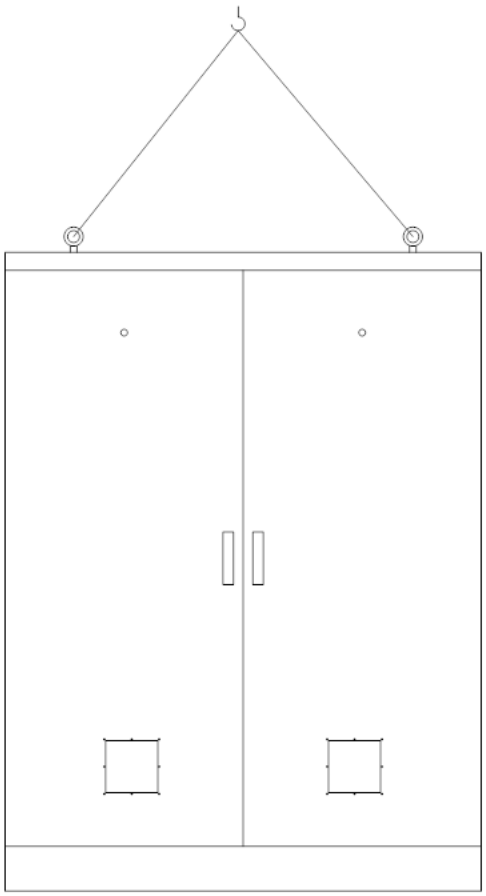
四、电器控制系统 electrical controlling system

4.1、电器控制系统组成 electrical controlling system unit

电气控制系统主要由：显示表、空气开关、低压断路器、接触器、继电器、主机调速器等组成。

Electrical control system is mainly composed of: display table, air switches, low voltage circuit breaker, contactor, relay, host speed, etc.

4.2.1、吊装（如图所示）hoisting (reference the following drawing)



其它小电控箱的吊装用叉车等机械搬运。Other smaller electrical cabinet hoist by forklift.

4.2.2、运输transportation

电柜必须包裹一层PS发泡片，然后用木箱装运，电柜牢固地固定在包装箱中；electrical cabinet should be coated by a layer of PS foam sheet,then packaging by wooden case,electrical cabinet should fixed in the wooden case.

4.2.3、电柜的安全操作规程safety operation of electrical cabinet

1)、电气柜按照《PE生产线的布局图》摆放；to place electrical cabinet as production line;

2)、电气柜与设备的连接线必须按照《电气原理图》连接;connection of electrical cabinet and equipment should reference electrical diagram;

4.2.4、设备的废弃处理 equipment treatment

当设备的使用期达到它的使用寿命时，机器再不能继续使用或维修时，用户不得随意将其丢弃，应从保护环境和节约能源的角度考虑，交付给有关环境管理部门或者按照当地环保法规进行妥善处理。When it is closed to life span,machine can operate or repair normally, user should not throw it ,but make consideration from environment protection,as for the handling problem,which should carry out by relative official department.

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。Meaning while,pay more attention to the around environment,when operating and servicing, for all waste part dismount from machine which should deal with properly .in the process of product,attention to avoid unnecessary waste.

五、开关机说明 instruction for starting and switching off

（PE铝塑板挤出线各部位设备名称与功率大小详见线图,请结合<<电气原理图>>仔细阅读以下操作说明.）each part of PE aluminum and plastic composite panel extrusion line reference the detail drawing,please read the detail instruction book carefully.

5.1开车前的准备preparation work before starting up:

- 加热圈及接线盒端子是否松动。

Whether terminal of heater ring and wiring case is strength

- 热电偶的位置及插入状况。

Position of thermal couple should be right.

- 管道接头部位是否松动，有无泄漏。

Adapter connector of pipe line keeps tightly

- 水夹套的冷却水接通，先开出水阀，再开进水阀。

Switch on water jacket ,first to switch on water valve, then switch on input water valve.

- 挤出机驱动马达的转速限度：≤1500rpm。

Extruder driving motor rotation speed limitation

- 减速机油冷却部件油压计（警报）：1～1.5Kg/cm^2。

Gearbox oil cooling part oil pressure gauge(alarming system)

- 电机旋转是否与挤出机螺杆要求的转向相同，是否予以改正。

Rotation direction of motor is the same as extruder screw .this will be ok!

5.2、开机步骤 start up steps：

步骤1：检查水，电，气源是否充足，检查物料是否合格，干燥料斗，上料系统工作是否正常，辅机水加热系统是否正常，收卷机工作是否正常； step 1:to check water ,electricity,pneumatic , material,dryer hopper and feeding system;whether this all are working normally, whether support equipment heating system is normally, whether winder system works normally.

步骤2：挤出机料斗内加满物料,插上插板； step 2:hopper fill with material,and plugging spile ;

步骤3：接通料斗座下面的冷却水，按照工艺温度设定机筒和模具各区的温度后开始加热。当加热温度达到设定值时，挤出机即进入自动保温状态，当工作环境低于12℃时，挤出机需要至少持续保温2小时，当工作环境高于16℃时，挤出机只要保温1.5小时即可。如果生产车间温度过低，可以用石棉布对机筒进行保温，在整个过程中，料斗座下的冷却水不得中断。打开压光机水加热器开关，并启动三辊，并给定较低的速度转动，加热至正常工艺温度后,并保温1-2小时，首次测温需要用玻璃温度计校准温度；getting through cooling water under hopper seat,according to technology temperature set barrel and model temperature,then heating work can be started.when heating temperature reach setting data,extruder is in thermal insulation condition,when working temperature lower than 12℃,thermal insulation work should lasts less than 2 hours,when working temperature higher than 16℃, thermal insulation work should only lasts 1.5 hours.if work shop temperature is a little low,adopt asbestos cloth to keep warm, in the whole process,cooling water under hopper seat should be continually. Switch on calender and start up three-roller calender,provide a low speed to rotate,heating to technology temperature, keeping warm for 1 or 2 hours,initial temperature tests should be with the help of temperature gauge.

步骤4： 检查换网器工作是否正常，网片是否换上； step 4:to check whether screen changer works normally.

步骤5：启动计量泵，给定较低的速度转动，因为流道内还没有充足料；step 5:to start up melting pump,because in the runner there is not enough material ,with low rotation speed is really necessary;

步骤6：启动挤出机，并同步调整计量泵与挤出机的速度至生产工艺所需的速度；step 6: start up extruder,to adjust the speed of melting pump and extruder to technical speed;

步骤7：当压力稳定在5Mpa时，在人机界面《闭环控制》画面中，切换到压力闭环控制状态，实现模头恒压运行；如果进料不稳定,造成压力波动较大，则立即将其转换到压力开环控制状态，否则会损伤设备;step 7: when pressure keeps steady in 5Mpa, in the frames of man-panel, change to pressure closed ring controlling

condition, to realize model head constant voltage operation;if feed stock is not steady,which causes too big pressure wave,then change it to pressure open ring controlling condition, or this will damage equipment;

步骤8：将三辊压光机上辊与中辊间隙调至所需要的间隙，然后打开上辊，使模口出来的料从中穿过，最后绕过中辊从下辊引出来，至牵引辊，正常后将上辊压紧，将三辊与牵引速度调至同步，且上辊与中辊之间压紧后，不能有堆积料，否则透明度较差；如果挤出的板材成形后，板向上凸起，则上辊相对于中辊温度偏低，需要加上辊温度或降低下辊温度；板向上凹起，则上辊相对于中辊温度偏高，需要减上辊温度或升高下辊温度；step 8:to adjust the space between up-roller and middle-roller to set point,then open up-roller,let material through the space, final round the middle roller draw forth from the down roller,when all thing are normally,compacting up-roller,keep same speed between three roller calender and the traction , also between up-roller and middle roller,there should not with any material;if the final product is raised,the temperature between up-roller and middle roller is a little low,this need to increase the temperature of up-roller or reduce down roller; if it is the opposite condition,then reduce the down roller temperature or increase the down roller temperature.

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

压力； step9: when the output need to be increased, pressure closed ring controlling,to increase the rotation speed;if it is manual open ring control, first to increase the rotation speed of melting pump, then increase the rotation speed of extruder,keep the pressure before pump in the setting working pressure.

步骤10：测量需要制品的宽度，对应放下两边切边刀具，并将两边的废边料绕与机器两边的废边收卷机上； measure the width of final product,put down the two sides cutter, and the two sides wastes material wind on the winder.

步骤11：当挤出片材正常后，将片卷绕与液压收卷机A轴上，在计数器上设定长度，然后将计米轮放在牵引辊上，当到达设定长度时，开始报警，操作员在控制面板上给出“消音”信号，A轴自动停止，操作员用剪刀剪开片材，并将其绕与B轴，正常后将计数器清零，周而复始。When the sheet is normal,winding sheet on the circling shaft A, to set the length on the data counter, then put the data counter on the haul-off roller,when reach in the fixed length, alarming,operator give the "removing voice " signal, A shaft stops working,operator cut down the sheet,and wind it on the shaft B, when all things are normally, set the data counter clean, do all this action repeatedly.

5.3、停机步骤 closing down steps：

步骤1：插上进料斗插板；step 1:to plug in feeder spile

步骤2：闭环控制时，降低计量泵的速度；手动开环控制时，同时降低计量泵与主电机速度；step 2:when under condition of closed ring controlling ,low down the speed of melting pump;when manual opening ring controlling ,low down melting pump and motor speed;

步骤3：降低三辊速度，然后使三辊压光机向后退，上下辊分开；step 3:low down three-roller calender speed,separate up-roller and down-roller;

步骤4：模口不能正常出料后，停止三辊压光机运行；step 4:when ejection work can not process normally, stop three-roller calender;

步骤5：停止三工位收卷机，停止废边收卷机；

步骤6：机筒内物料排空后，停止主机运行，停止计量泵运行；step 6:after there is no material in the barrel, please stop machine operating;

步骤7：若为压力闭环控制时，在人机界面《闭环控制》画面中，将其转换至手动开环控制状态，且把机筒温度降至100℃，15分钟后关掉所有加热开关；when it is controlled by pressure close ring, on the display of manual-panel,change it into manual controlling,low down barrel temperature to 100℃, after 15 minutes, please turn off all heater switch;

步骤8：关掉所有的电源开关，气源，水源开关，以及所有安全防护装置恢复到原位；switch off all switch, air source,water source,and reset all protection device;

六、机器故障分析与排除 fault analyses and remove

6.1、挤出机部分 **extruder part**

故 障 排 除fault removing

故 障 状 态 现 象stoppage phenomenon	原 因 分 析reason	排 除 方 法solution
噪声增大 high 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；noise comes from screw barrel,in the process of barrel and screw working ,there is always with some grating; 2．噪声来自冷却风机，风机叶轮与外壳有摩擦；noise come from air cooling fan, air fan impeller and shell will have rub	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；the new machine will always has some noise at the first operation,after while the noise will not exist; 2．将有摩擦风机整修一下，或更换；to repair air fan or change it

主机螺杆电机电流增大，或电流时大时小 motor current of extruder screw is not steady	1．物料没完全塑化；material plastify is not good 2. 物料下料不均匀；material is not balance	1．提高工艺温度；rise up technology temperature 2．检查料斗下料口；to check hopper;
工艺温度到，螺杆仍不能转动technology temperature has arrived,but screw still can not rotate	1．下料口至螺杆根部物料硬化，抱死螺杆，使电机不能启动；material hardening ,which causes motor stop working	1．提高螺杆根部的温度，并启动主电机；to start up motor and improve temperature of screw;
压力显示不准确；pressure data shows not accurately	压力传感器损坏；pressure sensor is broken	更换压力传感器；to change pressure sensor
压力显示波动大，在闭环控制时，造成主电机速度振荡；pressure display is not steady	挤出机下料口进料不均匀；extruder feeding system is not balance	检查进料不均匀的原因，并排除原因， 转换到“开环控制”状态，待进料均匀后，再转换到“闭环控制”状态；the check the reason for unbalanced feeding and remove the reason,change to "opening ring controlling "condition,after the feeding system is steady,then change to "closing ring controlling" condition
加温时，某区温度升不上去；when heating ,one of the zones can not rise	1．该区加热回路，过载跳闸；this zone heating circuit,overload trip 2．温度传感器损坏；temperature	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；if solid state relay trips,thus

up	sensor is broken; 3．某区加热圈或加热棒损坏；heater ring of heating bar of one heating zone was broken;	need a larger volume breaker; 2．更换温度传感器；to change temperature sensor; 3．环加热圈或加热棒；circle heater or heating bar
加温时，某区温度不升反而下降；when heating,temperature can not rise up but reducing;	温度传感器+ -极接反；temperature sensor connect wrong	温度传感器+，-极对调；to exchange the temperature sensor two ends.

6.2、三辊压光机与牵引机 three-roller calender and haul-off unit

故障状态 现象stoppage phenomenon	原因分析reason	排除方法solution
三辊压光机或牵引机有一辊电机跳闸；one roller motor of three-roller calender or haul-off unit trip	1．速度不同步；speed is not synchronous. 2．电机故障；motor fault	1.速度，使速度同步；keep speed synchronous 2．通过变频器显示的故障代码与<变频器使用手册〉查出故障原因；by reference the fault No. And <manual book of inverter>Shows on the inverter to check out the reason
电机响声较大；motor with high voice	1．电机插头没有插紧；motor plug is not tighten;	1．插紧电机插头；keep motor plug tighten

	2. 减速箱内缺油或齿轮损坏；gear box is short of oil or the gear is broken	2. 加油或修复更换齿轮；add oil or change gears;

6.3、三辊温度控制器（参考辊温控制原理图）**three-roller calender temperature controller**

故障状态 现象stoppage phenomenon	原因分析reason	排除方法solution
水泵启动后压力表上无压力显示；after start up water pump pressure gauge shows nothing	1. 水泵反转；water pump reversal 2. 没有充足的水源，水泵空转；without enough water,water pump idling 3. 管路中有较多空气；in the pipe there has too many air	1. 调换电机任意两相线；to exchange any wire of motor; 2. 外供水源的压力＞2KG/CM^2；water supply pressure ＞2KG/CM2 3. 排掉管路中的空气；remove air in pipe line
温度失控，不能降温；temperature abuse,temperature can not be raised	冷却电磁阀YV11，YV12，YV13其中任一个阀不能工作；cooling solenoid YV11，YV12，YV13, one of the solenoid can not work	检查冷却电磁阀YV11，YV12，YV13是否正常工作并排除；to check cooling solenoid YV11，YV12，YV13, whether it is operating normally
温度失控，不能升温；temperature abuse,temperature	1. 该区加热回路，过载跳闸；this zone heating circuit,overload trip	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

can not be cooled	2．温度传感器损坏；temperature sensor has some problem 3．冷却电磁阀阀体内有杂物，使电磁阀不能完全关闭；cooling pneumatic angle body with impurity,which leads to solenoid stops working ；	大一档的断路器；if solid state relay trips,thus need a larger volume breaker; 2．更换温度传感器；to change temperature sensor; 3．打开电磁阀阀体，清洗内部；仍不能解决则更换电磁阀；turn on angle body and clean inside;if the fault still in ,please change the solenoid;
水泵不能启动water pump can not be turned on	1．水泵过载或过流跳闸；water pump overload or over current trip	将整定电流调大，如仍跳闸，则检查电机三相线圈是否正常，是否有相线对地短路现象，然后排除之；to adjust whole current,if the trip action still exist,then check 3-phase wire ring of motor ,whether it is ok or not.thus it is easy to make the fault reason.

注：如故障仍未排除，请及时于本公司联系，未经本公司同意，擅自拆装，造成一系列问题，将由用户自己负责，敬请谅解！Note: If the fault has not solved, please contact the company, without our consent, unauthorized disassembly, resulting in a series of questions, will be the responsibility of the user, please be informed!!

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

环保法规进行妥善处理。When it is closed to life span,machine can operate or repair normally, user should not throw it ,but make consideration from environment protection,as for the handling problem,which should carry out by relative official department.

同时，在使用和维修的过程中，要考虑到保护环境的重要性，对从机器上拆换下来的废件，替换的废油等要进行妥善的处理，以免造成环境污染。在生产过程中，要从节约能源和材料的角度考虑，尽量减少废料的产生。Meaning while,pay more attention to the around environment,when operating and servicing, for all waste part dismount from machine which should deal with properly .in the process of product,attention to avoid unnecessary waste.

由于本公司不断致力于产品的更新换代和开发，所以该说明书中提供的图表、说明、参数等与实际产品可能有所不符，具体以实物为准,图片仅供参考，不便之处尽请谅解。Because Jwell apples to developing new product, all relative drawing ,instruction,parameter will have some difference,which just for referencing.

如有疑问，请与本公司技术部门联系。if you have some doubt,please contact with technical department.

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