

蒸压加气混凝土设备

Aerated Autoclaved Concrete Equipment

切割机组

Cutting machine

安装使用说明书

执行标准：JC/T921-2014

Installation and Operation Instructions

Executive standard: JC/T921-2014

适用设备：

4.8x1.2m切割机组

Applicable equipment:

4.8x1.2m cutting machine

使用前请仔细阅读说明书，阅读完后请妥善保管以备需要时查阅

Please read the instructions carefully before use and keep them properly for
reference when necessary

一、设备简介 Equipment Introduction

切割机组用于对蒸压加气混凝土坯体进行几何分割和外形加工，是加气混凝土生产线的核心设备，由切割机轨道、切割小车、置换系统、水平切割机、横向切割机、切割机沟盖板、吹气装置、电气系统与液压系统等组成。

The cutting machine is used for geometric segmentation and contour processing of autoclaved aerated concrete cakes, and is the core equipment of the aerated concrete production line. It is composed of cutting machine track, cutting trolley, displacement system, horizontal cutting machine, vertical cutting machine, cutting machine trench cover, air blowing device, electrical and hydraulic system, etc.

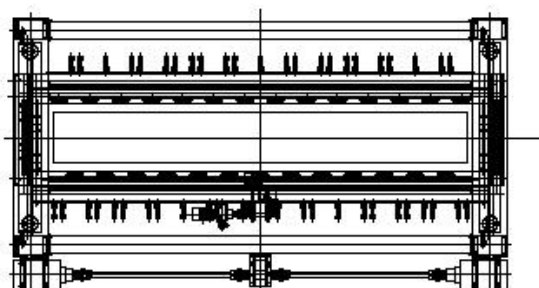
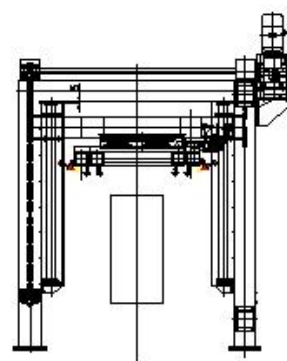
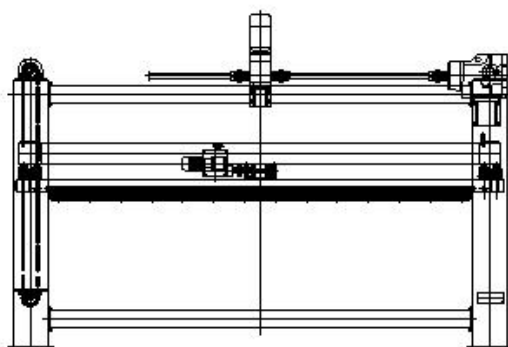
水平切机具有纵切、大面铣削、铣槽和退换刀功能（板材）；横向切割机具具有置换、横切功能，各种功能可以根据工艺和用户要求进行设计配置。

The horizontal cutting machine has the functions of longitudinal cutting, large face milling, slot milling, and blade replacement (plate); The vertical cutting machine has displacement and cross cutting functions. Various functions can be designed and configured according to the process and user requirements.

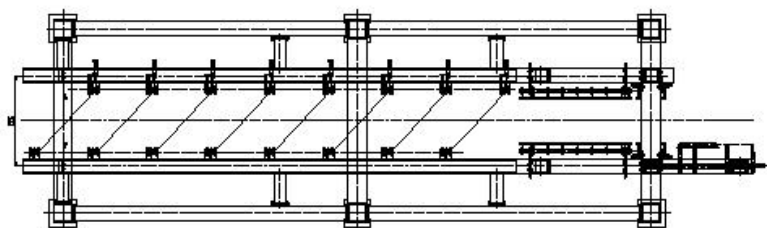
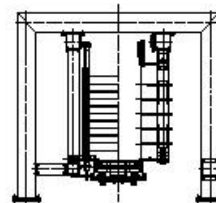
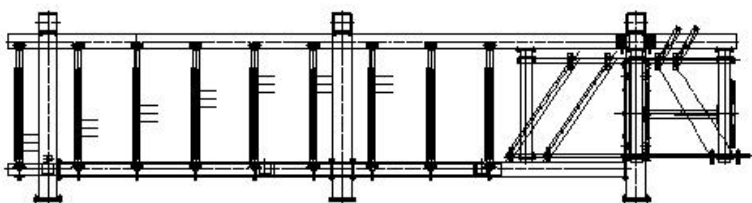
加气混凝土切割机工作原理：模具内预养好的坯体，由脱模行车将加气混凝土坯体翻转 90° 到切割小车台上，脱掉模框，由纵向水平切割机构完成切割动作，再由横切机构自上而下摆切割动作完成， 上升到原位完成一次切割周期。

Working principle of the aerated concrete cutting machine: After precuring, the demoulding crane will turn the cakes 90 ° onto the cutting trolley platform, remove the mould frame, and the longitudinal horizontal cutting mechanism will complete the cutting action. Then, the vertical cutting mechanism will swing the cutting frame from top to bottom, and rise to the original position to complete a cutting cycle.

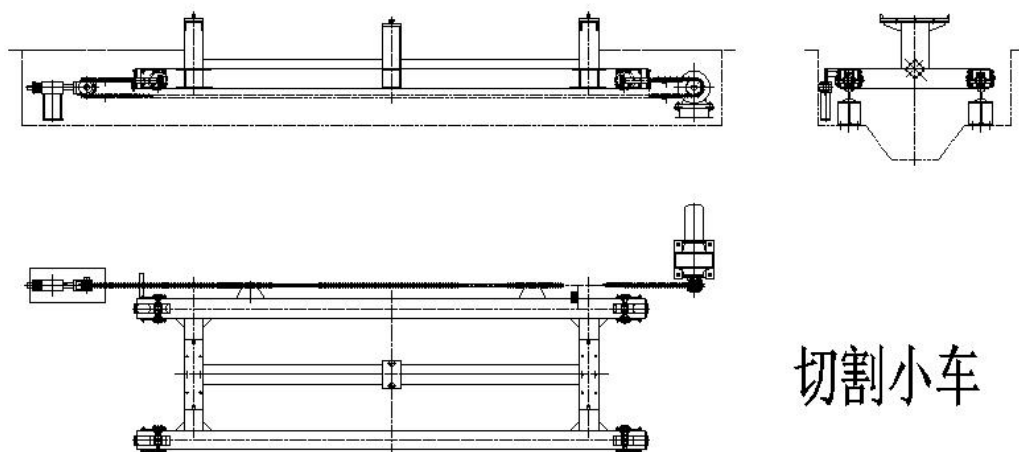
二、设备外形图 Equipment Outline Drawing



横向切割机



水平切割机



特别说明：

以上外形图仅供参考，我公司根据工艺和客户要求，会对设备进行部分重新设计。

Special instructions:

The above outline drawings are for reference only. Our company will partially redesign the equipment according to the process and customer requirements.

三、技术参数 Technical parameters

切割机组				
Cutting machine				
1	规格型号 Specification and model		Unit	4. 8/6. 0x1. 2
2	切割后坯体尺寸 Cake size after cutting		mm	4800/6000x1200x600
3	切割模数 Cutting Quantity	水平切割 Horizontal cutting	mm	5
		垂直切割 Vertical cutting	mm	5
4	切割精度 Cutting accuracy	砌块 Block	mm	长×宽×高:±2; ±1; ±1 long × wide × Height: ±2; ±1; ±1
		板材 Panel	mm	长×宽×高: ±4; 0~-2; ±1 long × wide × Height: ±4; 0~-2; ±1
切割小车				
Cutting trolley				
5	切割小车外形尺寸 Overall dimensions of cutting trolley		mm	5460x1685x790
6	切割小车行走减速电机 Cutting trolley walking gearbox motor		台 set	1
7	切割小车行走减速电机型号			BWP4-17-7. 5（6 级）

	Cutting trolley walking gearbox motor model		BWP4-17-7.5 (Grade 6)
8	行走电机功率 Walking motor power	kW	7. 5
9	行走速度 Walking speed	m/min	32
水平切割机 Horizontal cutting			
无减速机传动部件 No transmission parts such as gearbox			
10	水平切割机外形尺寸 Overall dimensions of horizontal cutting machine	mm	10080x2870x2550
横向切割机 Vertical cutting			
11	横切切割机外形尺寸 Overall dimensions of vertical cutting machine	mm	5750x3415x3900
12	横切升降减速电机 Vertical cutting machine lifting gearbox motor	台 set	1
13	横切升降减速电机型号 Vertical cutting machine lifting gearbox motor model		K87S-11.16-YEJ-11-B31
14	横切升降电机功率 Vertical cutting machine lifting motor power	kw	11
15	横切升降减速机输出转速	r/min	131

	Vertical cutting machine lifting gearbox output speed		
16	横切升降减速机 Vertical cutting machine lifting gearbox	台 set	2
17	横切升降减速机型号 Vertical cutting machine lifting gearbox model		KW107-19.44-AD6-B3
18	横切摆动减速电机 Vertical cutting machine swinging gearbox motor	台 set	1
19	横切摆动减速电机型号 Vertical cutting machine swinging gearbox motor model		无级变速 MBW 40-Y3-C5-B6A Continuously variable speed MBW 40-Y3-C5-B6A
20	横切摆动电机功率 Vertical cutting machine swinging motor power	kw	3
21	切割机工作周期 Cutting machine cycle		约 4Min/模 4Min/mould
设备性能 Equipment performance	切割机组能满足 03-08 级不同容重产品切割的需求。切割机组对坯体进行六个面的切割。 The cutting machine can meet the cutting requirements of products with different unit weights in Grade 03-08. The cutting machine cuts six sides of the green cake.		

特别说明：

以上技术参数仅供参考，我公司根据工艺和客户要求，会对设备部分减速机进行重新选型，也会对设备进行部分重新设计。

Special instructions:

The above technical parameters are for reference only. According to the process and customer requirements, our company will reselect some gear units for the equipment, and also partially redesign the equipment.

四、安装和调试 Installation and commissioning

1. 安装(应在专业技术员指导下进行)

① 安装前应先检查各部分零件是否完整无缺，运输中是否有损坏（若有损坏，需联系我司及时更换）；

② 认真检查混凝土基础尺寸，各预埋板和预埋件位置及高度是否符合图纸要求，平整度是否满足安装要求；

③ 在确认都符合要求后，要找出切割机组的纵向、横向中心线，并作好标记；

④ 切割机组安装，先安装设备（轨道，切割小车，横向切割机，水平切割机），再安装液压系统，最后安装电气系统；

1. Installation (should be conducted under the guidance of professional technicians)

① Before installation, check whether all parts are complete and whether there is any damage during transportation (if there is any damage, please contact our company for timely replacement);

② Carefully check whether the size of the concrete foundation, the position and height of each embedded plate and embedded part meet the drawing requirements, and whether the flatness meets the installation requirements;

③ After confirming that the requirements are met, find out the longitudinal and transverse center lines of the cutting machine and mark them;

④ To install the cutting unit, first install the equipment (track, cutting trolley, vertical cutting machine, horizontal cutting machine), then install the hydraulic system, and finally install the electrical system;

2. 安装要点及注意事项:

- (1) 一切安装都要以切割小车为基准 要特别保证切割小车的安装精度;
- (2) 允许用切割机加垫的办法来调整安装尺寸;
- (3) 在试运行前,切割机立柱与预埋基础板点焊,待全部安装完空车调试合格后才满焊牢固;
- (4) 安装人员(所有现场人员)必须戴安全帽,涉及高空作业必须系安全绳;

2. Installation points and precautions:

(1) All installation shall be based on the cutting trolley, and the installation accuracy of the cutting trolley shall be specially guaranteed;

(2) It is allowed to adjust the installation dimensions by adding pads to the cutting machine;

(3) Before trial operation, spot welding shall be conducted between the cutting machine column and the embedded foundation plate, and the full welding shall be firm only after all the installation is completed and the empty vehicle commissioning is qualified;

(4) Installation personnel (all on-site personnel) must wear safety helmets and wear safety ropes when working at heights;

3. 试运行及注意事项:

- (1) 试运行前,清理现场,不得留下任何影响运行的安装残留物;
- (2) 检查各个部件安装尺寸是否正确;
- (3) 检查各润滑点,油槽及运转关节是否加注润滑油(没加必须加);
- (4) 空负荷运行,先对单个设备进行试运行,观察其动作情况,根据需要进行适当调整;
- (5) 单个设备运行良好,可进行联动试运行,检查电气连锁作用是否正确,PLC 控制程序是否正确,反复多次进行空车试运行;
- (6) 空负荷运行合格后,可进行负荷运行,即对静停后的加气混凝土坯体进行切割,做生产性实验,以检查切割性能及制品尺寸精度。

3. Trial operation and precautions:

- (1) Before commissioning, clean the site and do not leave any installation residues that may affect the operation;
- (2) Check whether the installation dimensions of each component are correct;
- (3) Check whether lubrication points, oil grooves, and running joints are filled with lubricating oil (if not, it must be filled);
- (4) For no-load operation, first conduct a trial run of a single equipment, observe its action, and make appropriate adjustments as needed;
- (5) If the single equipment operates well, a linkage test run can be carried out to check whether the electrical interlocking function is correct and the PLC control program is correct. Repeat the no-load test run for multiple times;
- (6) After the no-load operation is qualified, the loaded operation can be carried out, that is, cutting the aerated concrete body after static shutdown and conducting productive experiments to check the cutting performance and product dimensional accuracy.

五、安全操作和使用规程 Safe operation and use regulations

警告 :

- ① 操作人员必须经过严格培训才准上岗;
- ② 操作人员必须带安全帽;
- ③ 操作人员必须严格按照操作规程操作;
- ④ 严禁乱按电钮;
- ⑤ 严禁非操作人员操作 PLC 等控制器;
- ⑥ 机组开始工作后, 操作人员不得随意离开岗位;
- ⑦ 机组开始工作后, 严禁非操作人员靠近切割机组;
- ⑧ 生产结束, 维修和清理时, 切断电源;

Warning:

- ① Operators must undergo strict training before taking up their posts;

- ② Operators must wear safety helmets;
- ③ Operators must operate in strict accordance with operating procedures;
- ④ It is strictly prohibited to press the button arbitrarily;
- ⑤ Non-operating personnel are strictly prohibited from operating PLC and other controllers;
- ⑥ After the unit starts working, the operator shall not leave the post at will;
- ⑦ After the unit starts working, non-operating personnel are strictly prohibited from approaching the cutting unit;
- ⑧ Cut off the power supply at the end of production, maintenance, and cleaning;

(一)开机前准备:

- (1) 对整个机组进行全面认真检查, 检查机组各部分是否有影响机组运行的障碍物, 检查电路、油路、水路是否畅通;
- (2) 检查所需注油的部位和部件上是否有油, 发现缺陷或油量不足时, 均应按规
定加油;
- (3) 根据生产计划安排, 明确制品规格、种类、调整或挂好并拉紧切割钢丝, 并
经复验确保无误;
- (4) 检查确认各操作手柄和 PLC 按钮都在停止位置时, 接通电源, 启动油泵, 将机
组空运行 1-2 周期, 检查各运动部分是否灵活正常(如油缸的同步、到位情况
等)。

(1) Preparation before startup:

- (1) Conduct a comprehensive and careful inspection of the entire unit, check whether there are any obstacles affecting the operation of the unit in all parts of the unit, and check whether the circuit, oil, and water channels are smooth;
- (2) Check whether there is oil on the parts and components that need to be filled with oil. If defects or insufficient oil are found, add oil according to regulations;
- (3) According to the production plan, specify the product specification, type, adjust or hang and tighten the cutting steel wire, and ensure that there is no error through re inspection;

(4) When checking and confirming that all operating handles and PLC buttons are in the stop position, connect the power supply, start the oil pump, run the unit idle for 1-2 cycles, and check whether all moving parts are flexible and normal (such as the synchronization and positioning of the oil cylinder, etc.).

(二). 操作顺序:

- 1) 开启电源、油泵，气缸；
- 2) 检查各运动部件是否在起始位置，如果不在，要按规定调整到起始位置；
- 3) 在 PLC 控制器上进行自动化操作；
- 4) 及时清理轨道、限位、支承位、刀具上的废料。

(2) Operation sequence:

- 1) Turn on the power supply, oil pump, and air cylinder;
- 2) Check whether each moving component is in the starting position, and if not, adjust it to the starting position according to regulations;
- 3) Automatic operation on PLC controller;
- 4) Timely clean the waste materials on the rails, limit positions, support positions, and cutting tools.

六、设备保养 Equipment maintenance

- (1) 工作结束停机后应迅速打扫机组上的灰尘和地面上的废料清理各轨道、支承点上的灰垢、废料等；
- (2) 用水冲净废浆沟槽槽、管路、泵内的余料，以免结垢堵塞；
- (3) 定期检查减速机轴承、链条、链轮、轨道的磨损及润滑情况；缺油的要加注润滑油，经常检查机器各部位螺栓是否松动，并及时紧固；
- (4) 用棉布揩净切割钢丝、标尺、链轮、链条的尘垢；
- (5) 松弛切割钢丝；
- (6) 每班检查油路、阀等各部位是否有松动及漏油情况，并及时处理；
- (7) 链条的使用更换周期为：18 月（若磨损严重，需及时更换）；

(8) 钢丝绳使用更换周期：根据 GB/T5972-2016 进行报废更换；

(9) 切割机组加油部位：

(1) After the work is completed and the machine is shut down, quickly clean the dust on the unit and the waste on the ground, and clean the dust and waste on each track and bearing point;

(2) Flush the remaining materials in the waste slurry grooves, pipelines, and pumps with water to avoid scaling and clogging;

(3) Regularly check the wear and lubrication of the reducer bearings, chains, sprockets, and rails; If there is a lack of oil, add lubricating oil, frequently check whether the bolts at various parts of the machine are loose, and tighten them in a timely manner;

(4) Wipe off the dust and dirt on the cutting steel wire, scale, sprocket, and chain with a cotton cloth;

(5) Slack cutting steel wire;

(6) Check each shift for looseness and oil leakage in various parts such as oil pipelines and valves, and handle them in a timely manner;

(7) The service and replacement cycle of the chain is 18 months (if it is severely worn, it needs to be replaced in a timely manner);

(8) Service and replacement cycle of steel wire rope: scrap and replace according to GB/T5972-2016;

(9) Cutting unit lubricating oil position:

加油部位 Lubricating oil position		油品名称 Lubricating oil name	加油周期 Lubricating interval
切割小车 Cutting trolley	链条 Chain	润滑脂 Lubricating grease	7 天一次 Once every 7 days
	减速机 Gearbox	根据减速机保养说明书 According to the gearbox maintenance instructions	根据减速机保养说明书 According to the gearbox maintenance instructions
横向切割机 Vertical cutting machine	链条 Chain	润滑脂 Lubricating grease	7 天一次 Once every 7 days
	减速机 Gearbox	根据减速机保养说明书 According to the gearbox maintenance instructions	根据减速机保养说明书 According to the gearbox maintenance instructions

		instructions	
	轴承座 Bearing seat	40#机油 40 # engine oil	7 天一次 Once every 7 days
水平切割机 Horizontal cutting machine	无 Non	无 Non	无 Non

注意：

1. 电气使用保养见电气控制使用保养说明书；
2. 液压使用保养见液压保养使用说明书；
3. 减速机及电机见减速机及电机保养说明书；

Be careful:

1. For electrical use and maintenance, see the electrical control use and maintenance instructions;
2. For hydraulic maintenance, see the hydraulic maintenance instructions;
3. For the gearbox and motor, see the maintenance manual for the gesrbox and motor;