INTRODUCTION AND TECHNICAL PARAMETERS OF SZQ SERIES AUTOMATIC PRECISE SHEAR MACHINE



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I. Brief Introduction

We selected SZQ210-70 automatic precision bar shear machine. The complete set of equipment includes the main machine, hydraulic station, console, 12-meter automatic feeder and 6-meter automatic unloading rack. According to the actual use records of the same type of equipment, it can fully meet customer demand.

The SZQ series automatic precision bar shear machine mainly includes the main machine, control console, hydraulic station, 6-meter automatic feeding rack (standard configuration) and feeding rack (optional).

The advantages of this equipment are:

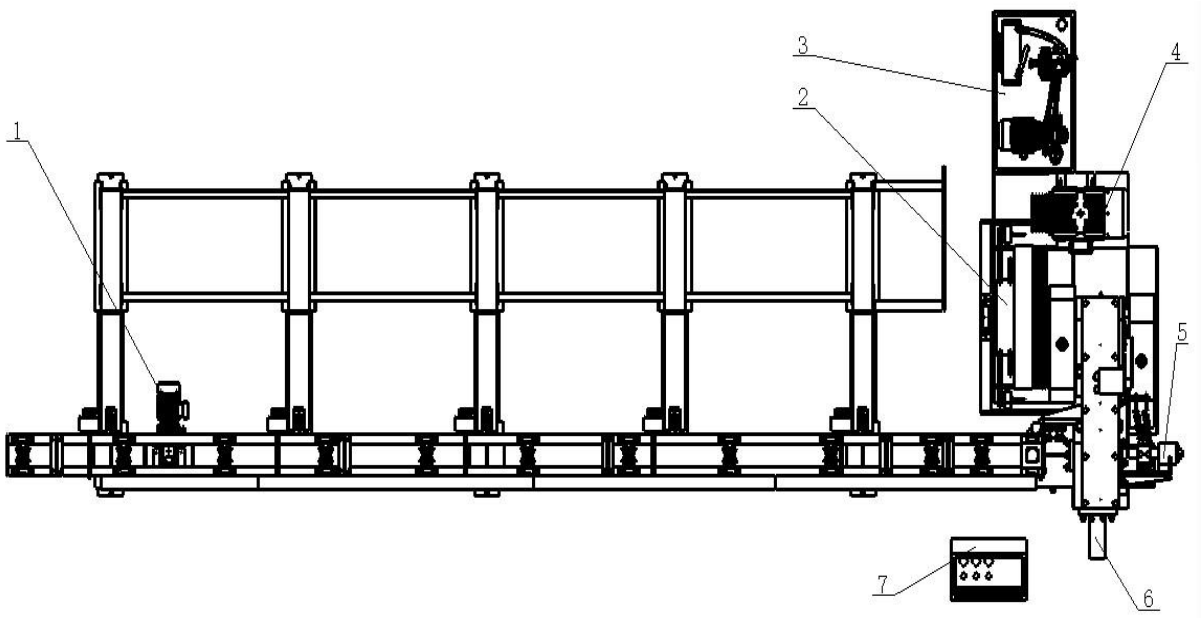
- Adopt the combined pneumatic dry friction clutch-brake to control the rotation and stop of the flywheel and realize the high-precision and high-efficiency shearing action.
- The transmission gear adopts helical gear to mesh, which is more stable, less noise and with higher strength.
- Adopt steel guide rail inlaid with copper which has strong wear resistance and ensures high density production.
- Adopt quick-change blade, the replacement is convenient and safe.
- The hydraulic cylinder pre-pressing mechanism is adopted to ensure that the section of shearing is flat, the weight is accurate, and the accuracy is high.
- Fully automatic feeding, automatic sorting of material head and tail（optional）, saving labor.
- Fully automatic unloading to improve efficiency.
- Adopting a mechanical length positioning mechanism, it can achieve the shearing of ultra long material (1-6m) by one-time positioning.

The environmental requirements of the equipment are as follows:

- The air cleanliness is good, the dust concentration shall not be more than 10mg/m3.
- There shall be no explosion hazard and no conductive dust in the workshop.
- The workshop should be no rain or snow falling on the equipment.
- There is no obstruction in the lane, the indoor light is sufficient.
- The machine tool shall be kept away from vibration, heat source and heat flow.
- Keep a minimum distance of 1M between its installation range and the original adjacent equipment, fixed wall, safe passage, etc.
- Power supply: 3 boxes, 380V, 50HZ.
- Compress air source: 0.6-0.8 MPa.

The appearance of the equipment (excluding 6m automatic blanking rack) and the description of each part are as follows:

Item	Description	Item	Description
1	Motor for feeder	5	Positioning device
2	Clutch	6	Hydraulic cylinder
3	Hydraulic station	7	Electric control box
4	Main motor		



Ⅱ. Features and Main parameters

2.1 Brief description of shearing process

The worker puts the whole bundle of materials on the feeding rack, set the shearing length, input the quantity of blanks, press the start button of shearing, and the first material will start to be sheared. It is necessary to manually observe the loading and shearing of the first material, and after the smooth running is completed, manually click the loading button to complete the subsequent feeding and shearing actions from the second material. The automatic running is started from this cycle. After the shearing action was completed, the induction solenoid valve will send a signal to the press cylinder, which will automatically release, and the feeding system will receive the signal to send the remaining tailings out of the blades. After the tail is sent out, the automatic feeding system receives the signal,

automatically turns into the next material, and starts the automatic shearing again. Shearing in ordered queues to realize fully automatic operation.

2.2 Equipment feature

- The main machine frame is an integral cast steel structure, and has been aging treated, with sufficient strength and rigidity.
- The equipment adopts two-stage transmission. The primary drive drives the flywheel drive through belt drive (primary reduction), and then driven by gear and decelerated by the second and third stages to drive the eccentric shaft (crankshaft). The crankshaft drives the connecting rod, and the connecting rod drives the slider to move repeatedly: the movable die is installed on the slider, and the fixed die is installed on the main body. Because the fixed die is pushed by the connecting rod, the workpiece between the movable die and the fixed die is sheared by the force. The clutch and brake are used to realize the actions of the mechanism, thus realizing automatic, manual, single control modes.
- Controlled by PLC, equipped with a touch screen with both Chinese and English interfaces, and the buttons on the operating platform have English instructions. It has a friendly human-computer interface, high degree of automation, and is safe and reliable.
- The head and tail sorting device is optional, which can automatically sort the head and tail of the bar as required.
- Adopt a positioning mechanism to adjust the length of the shear workpiece, which can adjust the shear length of the bar manually by coarse positioning and fine positioning, which is simple and convenient.
- The material of blade is DC53. Each pair of tools can be sheared for 300000 to 400000 times and polished per every 40000 times. The tool is designed with quick-change, which can be used repeatedly to save the tool cost.
- The feeder is characterized by fast speed and simple operation.
- The hydraulic auxiliary pressing function is used during shearing to prevent the material from flying and bursting occasionally when shearing high hardness materials.
- This series of products have automatic feeding, automatic shearing, and automatic counting. They have the functions of automatic alarm for insufficient air pressure, abnormal lubrication display and alarm, material blocking protection, etc.





2.3 Main technical parameter

ID	Items	Unit	Model			
			SZQ125-50	SZQ210-70	SZQ500-100	SZQ630-120
1	最大剪切力 Maximum shearing strength	Ton	125	210	500	630
2	最大剪切直径 Maximum shearing dia	mm	Ø40	Ø70	Ø100	Ø120
3	最大剪切方钢尺寸 Maximum shearing size (square)	mm x mm	30X30	60X60	85X85	100X100
4	每分钟剪切次数 Shearing times/minute	pcs/min.	35	25	20	15
5	端面圆度 Roundness of the section		98%	98%	95%	95%
6	端面剪切斜度 Shearing slope of the section	degree	< 2°	< 2°	< 3°	< 4°
7	重量误差 Weight tolerance		±0.2%	±0.2%	±0.5%	±0.5%

8	切断长度范围 Cutting length range	mm	30-500	40-500	50-500	60-500
9	主机工作空气压力 Compressed air pressure min.	MPa	0.7	0.7	0.7	0.7
10	主电机功率 Power of the main motor	Kw	9	18.5	30	45
11	主机重量 Weight of host (estimated)	Ton	3	5	11	15
12	设备外形尺寸 (主机) Overall size (host)	mm	6000x2000x960	6000x2700x1500	6200x3000x1600	6700x3400x1900

Note: The specific configuration of the equipment changes with the technical batch, which is for reference only, and the details are subject to the contract.

2.4 Main equipment configuration

序号 Serial No.	名称 Name	型号或规格 Model	数目 Qty	品牌 Brand
1	主机 Main machine	SZQ	1	Made by factory
2	自动送料架 Automatic Feeding rack	Length 6m	1	Made by factory
3	自动出料架 Automatic discharge rack	Opitional	1	Made by factory
4	操控台（电气箱） Control console (electric box)	There are devices such as PLC and touch screen inside.	1	Made by factory
5	润滑系统 lubrication system		1	Beisheng, China
6	液压站 Hydraulic station		1	Made by factory

Note: The specific configuration of the equipment changes with the technical batch, which is for reference only, and the details are subject to the contract.

2.5 List of spare parts

序号	名称规格	单位	数量	备注

Serial No.	Name	Unit	Qty	Note
1	滑板 Guide plate	件 pc	3	
2	限位感应器 Position sensors	件 pc	4	TW16
3	测料感应器 Material measuring sensor	件 pc	2	TW20
4	离合器摩擦片 Clutch friction plate	件 pc	6	
5	刀片 blade	套 set	2	

Note: The specific configuration of the equipment changes with the technical batch, which is for reference only, and the details are subject to the contract.

Ⅲ. Quality assurance and training

1. The warranty period is 12 months. During the warranty period, in case of equipment failure due to the manufacturing quality of the equipment and materials supplied by our company, our company will respond to the foreign customers within 24 hours after receiving the notice from the buyer and provide technical guidance for troubleshooting and repair free of charge. If parts need to be replaced, we will replace them free of charge, and bear the costs related to transportation, insurance, installation, etc. arising from the replacement.

2. During the warranty period, in case of equipment failure due to improper use of the customer, our company will respond to foreign customers within 24 hours after receiving the buyer's notice and provide technical guidance such as troubleshooting and repair free of charge. If it is necessary to purchase parts, we will charge the reasonable cost. If it is necessary to send technicians to the customer's site, the specific costs will be negotiated separately.

3. During the warranty period, the warranty period of the equipment will be shortened correspondingly if the equipment fails and has a negative impact on the service life of the equipment because the buyer replaces the reused equipment parts not provided by our company without our approval.

4. After the expiration of the warranty period, if the equipment fails, the seller shall respond to the foreign customers within 48 hours after receiving the buyer's notice and provide technical guidance such as troubleshooting and repair for free. If it is necessary to purchase parts, the cost shall be charged as appropriate. If it is necessary to send technicians to the customer's site, the specific costs will be negotiated separately.

5. Our company provides life-long wide preferential technical support.



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