



Company Profile



STO Group was set in 2007 and is a Sino-Germany-Group with three branch companies. These are:

STO Engineering GmbH	Technical Support and Sale
Jinan STO Machinery Co.,Ltd	Producer and Sale
STO Mexico S De RL De CV	Service and Sale

Herbert Gerlach, CEO , has been working in the transformer industry for more than 30 years and is therefore quite familiar with these machines. Thus state-of-the-art products are ensured continuously.

Furthermore Yanchao Lee, Chief Engineer, has gained experience in the transformer industry for even more than 40 years. He is responsible for the machines design, the production and the technology. Compounding the competitive price due to the production in China with the German know-how which leads to outstanding quality, allows the STO group to be a leading supplier in the transformer and generator sector. STO-Products are high in number all over the big cities in the world such as Mexico, Italy or Indonesia, Germany and so on.



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Insulation Area
Taping Machine



Taping machine for splash rings, conductor bars and other similar parts.

Standard Equipment

- ⊙ Steplessly selectable speed of taping ring
- ⊙ Steplessly selectable speed of the feed
- ⊙ Programmable start and stop characteristics
- ⊙ Dialog input system
- ⊙ 4 tape supply coils on the taping ring

Technical Data

Taping Diameter: dia.750-3300mm
Speed: 0-250 L/min
Tape Width: Max.40mm
Elect. Connection: 3X400VAC
Load: Max.8kw

Insulation Layer Edge Folding Machine



Introduction

Insulation layer edge folding machine is mainly used for insulation layer edge folding of transformer coil.

Technical Data

Insulation paper width: 160 -- 800 mm

Insulation paper thickness: 0.1 -- 0.21 mm

Edge folding layer quantity: 4 layers (including bottom layer is 5 layers)

Edge folding width: 7mm/10mm (standard)

Power: 1.1 KW

Electrical power: 3 phase 4 wire, 380V, 50HZ

Air supply: air consumption 0.1M³/min

Air tube: PVC tube (or nylon tube) outer diameter ϕ 10

Whole machine covering area and size: 5m x 2m x 1.1m

Slitting / Cutting Machine



Main Technical Parameter:

--Slitting Material:	Film,Paper Roll etc
--Slitting Width:	25-1600mm
--Machine Speed:	100m/min
--Slitting Speed:	160m/min
--Unwinding Diameter:	1000mm Tension 100N.m 3" Air shaft
--Rewinding Diameter:	2x600mm Tension 100N.m 3" Air shaft
--Main Motor:	5.5KW frequency conversion motor
--Cutting System:	Adopt flat blade,slitting accuracy:±0.1mm, minimum slitting width:25mm
--Transmission:	Belt
--Guide Roller:	Dia.80 Hard Aluminum Alloy
--Machine Construction:	Alloy Iron
--Web guide scope:	120mm Accuracy:±0.3mm

Paperboard Batten Shaping Machine PBS-4012



i. The application

It is mainly for slitting and processing the three kinds of battens including the shapes of "T", dove-tail and rectangular for the transformer's insulators.

ii. The main technical parameters

- | | |
|--|--|
| 1、 The Dia. of cutter shaft | φ40mm |
| 2、 The Max. width of feeding batten/The Max. width of cardboard slit: | 120mm |
| 3、 The thickness of batten: | 5~20mm |
| 4、 The length of batten : | more than 500mm |
| 5、 The rpm of cutter shaft: | 6000r/min |
| 6、 The speed of feeding cardboard: | 6~24m/min stepless |
| 7、 The total motor power | 21.75KW |
| 7.1、 The motor power for dust collector: | 5.5KW |
| 7.2、 The motor power for lifting | 0.75KW |
| 7.3、 The motor power for feeding | 1.5KW |
| 7.4、 The motor power for the upper and down horizontal shafts (to process the upper and down planes slitted) | 2×4.0KW |
| 7.5、 The motor power for the left vertical cutter shaft (to process the left of the work-piece) | 3.0KW |
| 7.6、 The motor power for the right vertical cutter shaft (to process the right of the work-piece) | 3.0KW |
| 8、 The Dimensions: (L x W x H) | 2900×1350×1550mm |
| 9、 The weight | 2500kg |
| 10、 The power supply : | Three phase four wire system
AC380V50Hz to the ground securely. |

iii. The mode of drive to support is adopted the universal coupling structure so as to guarantee the stable operation and smooth feed. The up and down



horizontal shaft for slitting and chamfering is cantilever style. The feeding materials is automatic and the press force of the compressing roller is adjustable with pneumatic compression, the compressed air pressure is 0.5Mpa.The outer of the feeding roller is made of polyurethane rubber in order to feeding stably.

The Paperboard Batten Chamfering Machine PBC-60



- i. The application

It is designed specially for finishing burr into R edge or chamfer angle for the blocks in the transformer oil gap
- ii. The main technical parameter

1、 The processing width	30~60mm
2、 The thickness to process	1.5~5mm
3、 The tool spindle's rpm	6000r/min
4、 The feeding speed	0-8m/min VVVF
5、 The moving distance for the vertical tool shaft	30~60mm
6、 The milling spindle motor	1.5KW×2
7、 The feeding motor	0.75KW
- iii. The structure: the working table (body), the milling spindle. the active roller for pressure materials plate, the supporting frame, the electrical cabinet and the deducting hood
 - 1、 The working table is equipped with the guide plate and the pressure material plate
 - 2、 The milling spindle---there are two vertical spindles right and left, and using four edge forming milling cutter. One is a fixed axis, and the other is a transverse moving axis
 - 3、 The driving shaft of pressure material: two active rollers for pressure material

Paperboard Block Processing Machine PBP-35



i. The application:

It is used to process the straight, dove-tail or swallow-tail slots automatically at the two ends of the block for insulation inside the high-voltage transformers.

ii. The performance It is the necessary equipment for processing the blocks for the large scale transformers with high efficiency, good quality, convenient adjustment and high automatic level.

iii. The main technical specification and size

1. The range of size for the blank:

Length:	1000~3000mm
Width (Height):	30~60mm
Thickness:	1.5~10mm
The width of superimposed feeder for one time.:	150~300mm

2. The range of size for the blocks` :

Length:	30~350mm
Width (Height):	30~60mm
Thickness:	1.5~10mm

3. The additional drawings of the blocks

iv. The main technical parameters

The rpm for the circular arc cutter	4500r/min
The rpm for the slot cutter	7000r/min



The rpm for the saw blade	4000r/min
The total power of electricity	26.4 5KW
Motor output power	
Feeding servo motor	1KW (Mitsubishi)
Arc cutter motor	1.1KWx2
Slot cutter motor	1.5KWx2
The motor for the saw shaft	5.5KW
The servo motor for taking over	3.5KW (Mitsubishi)
Sawing drive motor	0.75KW
Dust collector motor	7.5KW
The motor for oil pump	3KW
The capacity of the compressed air and air necessary	0.5MPa 1000Nl/min C
The capacity of wind for dedusting	90m ³ /min
The external dimension L X W X H	6.0m×5.0m×1.8m
Weight:	4500kg
The power supply: 3-phrase 4-wire system AC380V 50Hz with safe ground.	

Paperboard End Ring CNC Milling Machine PERM-22



i. The application

This machine is designed for manufacturing pressing rings and end rings of big type transformer via processing a paperboard. It is mainly to mill and turn internal and external circles and also mill arc, straight and skew slots. The drilling and local plane processing can be realized as well.

ii. The main technical parameters:

- | | |
|--|-------------|
| 1、 The Dia. of working table | ø2200mm |
| 2、 The rotating speed of the working table | ≤ 10r/min |
| 3、 The speed of milling spindle | ≤ 6000r/min |
| 4、 The moving distance of the vertical tool carrier: | 260mm |
| 5、 The main motor power of milling spindling | 5.5kw |
| 6、 The milling spindle motor power | 5.5kw |
| 7、 The horizontal servo motor power: | 1.5kw |
| 8、 The vertical servo motor power: | 1.0kw |
| 9、 The dust collector motor power: | 5.5kw |
| 10、 The moving distance of main beam: | 500mm |
| 11、 The height between the beam and the working table: | 350mm |

iii. The main mechanism performance

It is mainly consists of three parts such as the spindle drive for the working table, the cutting feed drive and the electric numerical control system.

- 1、 The spindle drive for the working table: to direct coupling reducer by servo motor, and the working table is put in motion by the pinion driving the gear wheel.



2、 The cutting feed motion mainly finishes the processing by horizontal and vertical servo motors, consisting of the horizontal slide plate, the vertical slide plate, the Linear guide rail, the ball screw and the milling spindle, which controlled by selection of the push buttons of the CNC system .

3、 The characteristics of the CNC system

3.1、 Equipped with the color screen of 8.4 inches with resolution 640×480.

3.2、 The real-time and all round self diagnosis function, and real-time display of various status for the system.

3.3、 The machine back to the reference point.

3.4、 The tool compensation function

3.5、 The Max. stroke, soft and hard limit function.

3.6、 The USB removable U disk copy function

3.7、 RS232 communication interface

3.8、 To configured hanging hand-wheel.

3.9、 The real-time adjustment for the spindle and feeding speeds.

The Paperboard Step-wood CNC Milling Machine PSWM



i. The application

This equipment is designed for milling and processing the step-woods in the transformer industry, which has a high speed spindle unit for clamping tool to ensure the smooth finish of the workpiece. It is very quickly and more easily to make change the tool with the pneumatic disassembling tool function and improves work efficiency. The CNC numerical control system controls each servo motor to process automatically as per the manual programming input

ii. The main technical parameters

1、 The longitudinal servo motor	1 KW
2、 The vertical servo motor	1 KW
3、 The transverse servo motor	1.5 KW
4、 The spindle motor	3.7 KW
5、 The taper hole of spindle	7:24 (BT40)
6、 The spindle speed	6000 rpm
7、 The working table dimension	460×1000 mm

iii. The structural description

- 1、 The spindle part: The motor drives the spindle by the toothed belt to make the milling tool high speed rotation, and the unloading tool device is installed on the spindle
- 2、 The vertical movement: The spindle part is installed on a vertical slide plate to drive the ball screw by the servo motor through the toothed belt, which makes the spindle part moving vertically along the linear



guide to finish the vertical positioning.

- 3、 The clamping part : The clamping way is to fix one end and the other end is pressed by the gas liquid pressure cylinder, and the whole clamping part is fastened on the top of the working table
- 4、 The longitudinal movement : The servo motor drives the ball screw by the toothed belt, and makes the longitudinal slide plate and the working table to move longitudinally to finish the longitudinal positioning
- 5、 The horizontal movement : The clamping part and the longitudinal slide plate are fixed on the horizontal slide plate together, and the servo motor drives the ball screw by the toothed belt to move the horizontal slide plate along the linear guide
- 6、 The frames:
 The horizontal frame is to support the lateral movement and the longitudinal movement
 The vertical frame is to support the vertical movement and the spindle part
- 7、 The electrical cabinet and the console are mainly composed of the electrical cabinet, the servo motor, actuator, the spindle servo motor, CNC I/O switching plate, motion control switching board, operation panel, etc
- 8、 The CNC system is adopted the Guangtai CNC system, the Chinese famous brand with the multiple groups of coordinate system settings, the processing simulation, the fault diagnose, the alarm functions, RS-232 interface and the USB interface. The data processing system is for human-computer interface, and the language can be switched from English to Chinese. It is configured 8.4 inches color display with the touch screen and membrane keypad as well as the electronic hand wheel (MPG) to achieve the precise manual positioning. The international ISO machining code is applicable

The Paperboard Cylinder Rolling Machine PCR-32



- i. The application
It is designed especially for rolling the insulation paperboard into a cylinder or arc shape
- ii. The main technical parameters and specification:

1、 The roller Dia.	ø140mm
2、 The roller's length	3200mm
3、 The paperboard's thickness	1.5~6mm
4、 The Dia. of rolling cylinder:	Ø400~Ø3000mm
5、 The main drive motor	2.2KW
6、 The elevating motor	1.1KW
- iii. The main equipment components: the upper roller, the lower roller, the pedestal, the drive system and the electrical system
- iv. The technical requirement
 - 1、 No any damage on the surface after rolling the insulation paperboard cylinder, safe operation, reasonable design, strong and durable, which is suitable for the production in batch of insulation paperboard cylinders
 - 2、 No any burrs and deformation on the surface of the insulation paperboard cylinder rolled
 - 3、 No any oil and rust on the surface of the insulation paperboard cylinder rolled
 - 4、 The polyurethane adhesive is coated on the outer surface of the roller

The Paperboard CNC Insulator Processing Center PIPC-33



i. The application

It is designed for processing the insulating components, the wood board and paperboard laminated for the large-scale transformers as a CNC equipment. With the functions of automatic changing tools, fixing work-piece by vacuum adsorption and to make the work-piece's drawing by operator through computer, it is really to achieve to a fully automatic operation from design drawings to the processing of forming.

ii. The specifications and technical parameters

- 1、 The size of working table 3300 mm×3300mm
- 2、 The effective processing size 3300 mm×3300mm×120mm
- 3、 The load –bearing 4800kg
- 4、 The rpm of high-speed spindle 1800-12000r/min
- 5、 The Max. power of spindle 15kw
- 6、 The spindle taper 7:24
- 7、 The stroke X=3300mm; Y=3300mm; Z=280mm
- 8、 The speed of the cutter's fast moving : X.Y directions : 0~20m/min Z director: 0~5m/min
- 9、 The processing speed 0~6m/min
- 10、 One time programming, and to complete by multi-times circulation.
- 11、 The accuracy required:
 - 1) 、 The roughness of the processing surface: Ra 6.3
 - 2) The positioning accuracy: ≤0.05mm
 - 3) 、 The repeat positioning accuracy: ≤0.025mm
- 12、 The conditions required for installing at factory:
 - 1) . The environmental conditions: The ambient temp. : -5℃ ~ 40℃ The relative humidity : ≤95%



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- 2) . The power supply: three-phase five wire system. 380V ($\pm 10\%$) , 50Hz
- iii. An overview of composition, structure and performance for the equipment.
- 1、 Composition: bed-plate, working table, mobile gantry, cantilever vertical spindle, Tools changer device, vacuum absorption system, dust collecting system, Lubrication system, cooling system, pneumatic system and CNC system, etc.
 - 2、 The structure and performance
 - 2.1、 The bed-plate: Steel welding and assembly, to fixed the working table and the mobile gantry by adjusting the shims on the ground, on which the leading screw, guide rail and servo motor of Y axis are installed
 - 2.2、 The working table: It includes pedestal, platen, vacuum tubes and joint. The pedestal is made by steel weldments, which is fixed on the bed-plate. The platen is made by high density phenolic plates and fastened on the pedestal by screws. There are 9 vacuum joints under the pedestal, which is connected to the vacuum system with vacuum tubes, hoses, etc.
 - 2.3、 The mobile gantry is made by steel plate welding and assembly. Its shape looks like the "gate". There is a beam on the top, on which are installed X-axis lead screw, guide rail, servo motor, etc.. The lower two ends are fixed with screws and connected to the supporting legs that is in the base of the Y-axis guide rail and connected to the Y-axis ' lead screw.
 - 2.4、 The cantilever vertical spindle: The big slide plate body is installed on the guide rail of the beam the mobile gantry connected by screws with the X-axis' lead screw. The small slide plate is mounted on the guild rail of the big slide plate connected to the lead screw on the big slide plate by screws, this lead screw is driven by a servo motor and pulleys to reach the Z-axis motion. The small slide plate has high speed spindle, high speed motor, cylinder, etc.. When changing tool, the spindle rises, the X-axis moves to the changing position. And the spindle rotates vertically with the working table without any vibration.
 - 2.5、 The tool changer device: A tool changer is installed in the left side of the gantry's frame with the disc of 10 tool hole locations. The changing is realized through the motor selector
 - 2.6、 The vacuum absorption system includes vacuum pump, vacuum pipeline, vacuum pressure gauge and vacuum chuck. The work-piece is on the vacuum chuck. The number, size and shape of the chuck is



depend on the work-piece's size. The chuck is adsorbed the work-piece by the negative pressure through a vacuum pump

2.7、 The dust collecting system includes air blower, dust collecting hose, a filtering bag, dust pocket, sealed curtain, etc.. Around the main spindle with a sealing curtain of a lateral suction hole, the cutting dust with the blower suction into the vacuum hose, and finally falls into the dust pocket.

2.8、 The lubrication system includes a lubricating pump, filter, oil separator, high pressure hose, fittings, etc.. The lubricating pump can fill the lead screws and guild rails of X, Y and Z directions with lubricating oil in the concentrated, timing and quantitative ways

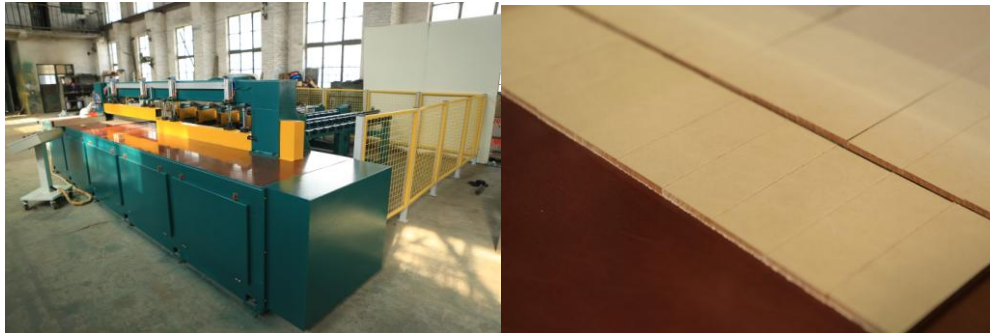
2.9、 The cooling system includes cooler, cooling hose, fitting, etc. for cooling in case of the spindle overheating and damaged

2.10、 The pneumatic system consists of combined filtration pressure regulating valve, pressure reducing valve, reversing valve, precision filter, throttle valve, cylinder, etc., which is to complete balance of the weight of the shaft, main shaft blowing and unloading tools action

2.11、 The CNC digital control system is adopted the famous CNC system in China, configurated the high performance computer to realize equipment's biaxial half linkage with the functions of tool compensation, fault diagnosis, recording, monitoring, alarm, etc. as well as RS-232 interface and USB interface. The data processing system is for human-computer interface, and the language can be switched into Chinese or English with 8.4 inches display. The membrane keyboard is put to use in this system.

The control system with the integration of CAD/CAM digital machining programming software ,by which CAD layer file of standard graphics drawn can be converted to ISO machine processing code and transmit to the control system to process automatically. And it also has the functions of zoom and measurement online. The electric hand wheel can be used to realize manual positioning accurately

Paperboard Sawing Machine PSM-4210



i. The application

It is designed especially for high speed cutting the laminated insulating paperboard and the laminated electrical plywood.

ii. The main technical parameters

The Max. processing length	4200mm
The Max. processing thickness	100mm
The sawing speed	VVVF
The diagonal accuracy error of the work-piece's dimensional precision	
1000×1000mm	±1mm
The error within 1000mm of the saw bite straightness	±0.5mm
The rpm of the saw spindle	3000r/min (approximately)

iii. The main performance requirements

1. There is no colonization on the processing surface of the work-piece ,and smooth without obvious tool marks.
2. The work-piece is placed horizontally on the feeding table and positioned and clamped by a claw before feeding.
3. The saw blade is made by hard alloy imported from Italy, which works in the closed condition during the whole sawing.
4. The saw blade is totally closed for protection and equipped with dust collecting device.
5. The sawing head part is running with the linear guide ,the guide of the feeding frame and the guide of the cutting mainframe keeps vertical.
6. The main structural component is processed by VSR, and the main driving components are heat treated as per the provisions.



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7. Each operating handles runs flexibly without any blockade and sticking.
 8. The work-piece is clamped pneumatically.
 9. The electrical part: to feed and cut by PLC control, and the accurate feeding controlled by the servo motor. The step-less speed is by the frequency converter.
 10. The converter, PLC, touch screen and electrical parts are all selected with the world famous brands.
 11. There are the induction switch located at the terminal of cutting and feeding to prevent offside, and the mechanical stopper followed for the secondary anti offside.
 12. There are the intermediate stop button/situ parked button on the operation panel. The intermediate stop button is selected when the sheet is shorter to shorten idle motion, save time and improve efficiency.
 13. There is a touch screen on the operation panel into which many group of feeding width can be input, and each group can set any number for one time. The machine will close down until all the cutting is finished.
 14. The clamping claw for automatic feed is positioned by the servo control, and can be moved by certain distance, at this moment it can also be used as keep-off.
 15. The machine can be stop automatically when the pressure is insufficient due to equipped with the owe pressure protection device.
 16. The emergency stop button can be pressed in case of accident happens and the machine is all power failure.
 17. The PLC control
- The whole cutting for the CNC horizontal sawing machine is controlled by PLC. to execute the next feeding and stops until all the cycle is finished.

Paperboard Beveling Machine PBM-3214



i. The application

It is specially designed for milling the bevel, which is to glue insulating paper cylinder.

ii. The main technical parameters:

The Max. cardboard length (cylinder's height):	3200mm
The cardboard thickness:	1.5~6mm
The Beveling width:	30~140mm
The tolerance allowed of beveling width :	±5%
The Min. thickness for beveling :	0.5±0.1mm
The adjustable angle of milling cutter:	0~10°
The Dia. for the disc of milling cutter:	Φ160mm
The rpm of the spindle for the milling cutter:	2000r/min
The feeding speed (Mitsubishi VVVF) :	0~5m/min
The return speed of the on-load milling cutter:	5m/min

There is a graduated scale for adjusting the angle of the cutter head, and a dial indicator head is equipped for vertical lifting as well as a ruler for lateral movement.

The working table is made of phenolic cloth board, combined by fixed workbench and additional.

The working compressing way: to be pneumatic and sectional for compressing the contact position of the insulation work-piece, for which the stickup rubber is



used to guarantee the work-piece clinging on the workbench during processing.

The exhaust duct device and suction device equipped. One dust collector.
The main mechanism performance.

1. The processing surface must be smooth without any napping or carbonization as well as no any edge damage when starts or ends the processing, which is the way to form one time.
2. There is a front baffle before milling, which will automatically retract after compressing cardboard.
3. The pressure of the compressed air is 0.5~6Mpa, and the power supply is three-phase 380V, 50Hz.
4. The installation should be guaranteed not to loosen caused by the milling reaction, vibration and other reasons.
5. There is a compressing material device around tools that moves with the milling head.

Paperboard Cylinder Cohesion Machine PCC-32



i. The application

It is designed especially for bonding the large insulation press-board cylinder in the field of transformer, i.e. the hot sticking on the juncture of the insulation press-board rolled to cylinder under certain pressure and temperature conditions

ii. The main technical parameters

- | | |
|--|-----------------------|
| 1、 The pressboard's thickness | 1.5—6mm |
| 2、 The Max. Length of cylinder | 3200mm |
| 3、 The Max. width of overlapping part: | 140mm |
| 4、 The range of Dia. for cylinder | Ø400mm~Ø3000mm |
| 5、 The system pressure | 8MPa |
| 6、 The heating method: Electrical heating, and the bonding temperature | 70c°-110c°,adjustable |

iii. The performance of the main structure

- 1、 This machine has four major components such as mechanical part (pedestal and beam), hydraulic system, electrical control system and heating system. The pedestal and beam is with steel plate welded after VSR treatment. And the hydraulic station and the hydraulic cylinder are selected with the high-quality Chinese products.
- 2、 The cylinder is on top type, the number of cylinders should guarantee the beam and mold have enough strength and stiffness. The visual deformation and leaking oil are not permitted.
- 3、 This machine has the setting of temperature, pressure and time coefficient as well as the control function
- 4、 The machine has the cylindrical support frame

The Paperboard Circular Shears PCS-25



The Paperboard Circular Shears

i. The application

This machine consists of the tailstock, the bedside, the bed and the electrical part. The two shears rotate relatively to cut by taking the central press device as the center point and the center distance between the mouth of scissors and the press device as the radius. In the meantime, the paperboard is rotated by the friction force and be processed to rounds or rings.

ii. The technical parameters

The thickness of the paperboard to shear:	1~3mm
The Dia. range of the paperboard to shear:	600mm~3000mm
The Min. width of the ring to shear:	20mm

The Max.tolerance allowed for the size of the paperboard to shear: $\pm 0.5\text{mm}$

The Max.tolerance allowed of the ovality for the paperboard to shear
 $\pm 0.5\text{mm}$

The parameter of the main motor: Y112M-6-B3



The shearing speed :	35m/min(VVVF)
The scissor's Dia.:	100mm
The parameter of driving motor for the tailstock:	HC-SFE102(1KW)
The working stroke of the tailstock:	1200mm
The travelling speed of the tailstock:	(0~1.5) m/min
The accuracy of the tailstock's positioning repeated:	±0.1mm
The parameter of the feed motor for the tools:	HC-SFE102(1KW)
The feed speed of the tools:	(0~0.3) m/min
The air pressure:	0.5MPa~0.8MPa
Dimension	4500x900x1300 (mm)
The total power	4.2kw

iii. The structural overview

The tailstock part is composed of the tailstock, the central compressing device, the base, the ball screw assembly, the gear pair, etc., in which the ball screw rotates by the servo motor to make the tailstock moves back and forth, so the workpiece can move along the X axis and fixes its position accurately. The central compressing device is to loose and compact the insulating paperboard by the up and down movement of the upper compressing plate driven by the cylinder. In addition, the height of the down compressing plate is adjustable so as to guarantee to be in the same plane with the tool nose. And the upper compressing plate enables to compact the workpiece to ensure the accurate position as well as the good shearing precision.

The bedside part is composed of the upper and down shears, tool carrier, gear reducer case, etc.. And the upper and down shears' rotation is driven by the motor, V belt and gear speed reducer and also drags the paperboard for shearing, in which the down shear is fixed for rotating, and the upper shear moves up and down along the vertical track (Z-axis) through the servo motor, the lead screw and the slide plate besides its rotation, therefore the precise feeding is achieved. In addition, there are the supporting bars on both side of the machine in order to support the paperboard for ensuring the good shearing precision, when the workpiece of big Diameter is sheared.

Cutting & Bending Area

Bending Tools



For bending and transposition of copper conductors

The bending tool is required for bending copper conductors for making cross over bends. The bending operation is performed with minimal stress on the isolation.

It is suitable for copper conductor dimensions of 1,5 x 4 mm and 6 to 18 mm wide.

Bending Stroke max. 20 mm

The movable hydraulic power pack make the system easy to use.

The bending tool is hydraulic operating with a hydraulic pressure of 300 bar.

The complete tool is fitted on a spring balancer for easy handling.

Bending Tool for L-Shape & S-Shape

Busbar Processing Machine



This type MXJ-303ESK CNC double table busbar processing machine is mainly used for different types of processing copper or aluminum busbar. It is easy to operate and high production efficiently. So it is an ideal processing equipment for electrical appliance manufacturing of high and low voltage.

1. Main Characters:

A: It has three units: Punching unit, shearing/ cutting unit and bending unit. The three units can work at the same time without any interference. The working stroke of each processing unit is adjustable to save time and improve the work efficiency.

Punching unit:

- 1) United six-dies turn-plate structure, make sure the upper die and the lower die are absolutely in the center.
- 2) 6 punching dies can punch 6 kinds of holes, no need to replace the dies frequently.
- 3) Three location modes: locating pin, locating ruler and light.
- 4) No pressing mark on the workpiece surface.
- 5) Can punch non-standard holes with special dies, for example, square hole, oval hole etc.
- 6) 2 limit switches. (foot switch & press button)



6 punching dies turret punching working station.



The punching dies

Shearing/ cutting unit:

- 1) Use sharp shearing, flat incision interface, no droops, no burrs, no waste.
- 2) Two pressure type to make sure no apex angle.
- 3) 2 limit switches. (foot switch & press button)



Shearing/cutting work station



shearing blade (T10)

Bending Unit:

With double work table. Three processing unit (shearing, punching and bending unit) can work at the same time without interference. To complete the horizontal bending and vertical bending by replacing the die.

- 1). Horizontal bending.(2 sets bending dies)
- 2) Vertical bending. (2 sets bending dies)
- 3) U bending. (1 set)
- 4) Embossing dies. (1 set)
- 5) PLC control. Input the copper thickness and angle directly.

*Input height and length directly in order to process the required parts (such as Z type bending), the bending precision $\pm 1^\circ$, repeat bending precision $\pm 0.3^\circ$



Vertical bending (L, Z shape)



horizontal bending



U bending



CNC Control panels

B: It has double work tables which makes the three units work at the same time without interference.

C: The machine has 4 foot-wheels, easy to move.

D: There are two operating modes: manual button and foot switch, which is simply operated.

E: Mode can be achieved by replacing multiple processing functions, such as embossing, pressing cable connectors, twisting etc.