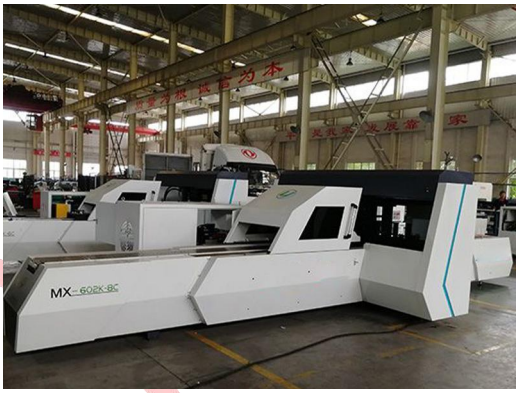
Fully Automatic CNC Series

MX602K-8C CNC BUSBAR PUNCHING SHEARING MACHINE

I. Product Description



The machine is a computer-controlled, high-efficiency, high-precision busbar processing special equipment **(6-axis CNC)**. It mainly performs CNC punching and shearing of copper and aluminum busbars, including: punching, shearing, corner cutting, and embossing. and other processes. No manual intervention is required during the processing, and it has the advantages of fast processing speed and high precision. It is widely used in high and low voltage complete sets, switch cabinets, box-type substations, intensive bus ducts and other industries.

II.Product Features

Feeding Device

■ Feeding Device

Servo motor drives two sets of power clamps to prevent the busbar from being damaged by clamp marks.

Feeding Device is equipped with two sets of main and auxiliary power clamps, X1 and X2. Both sets of power clamps adopt servo clamping mode, which can operate independently or cooperate with each other to complete the feeding and feeding work. It has great processing advantages for small-sized copper bars such as 15×3mm and 20×3mm.

◒ Tip: Different from other manufacturers, our power clamps are powered by servo motors instead of hydraulic systems. The servo motor power output is more stable and accurate through the PLC system control, and the clamps are not easy to damage the busbar.

■ Mold Library (Patent ID: ZL 2013 2 0804566.0)

Unique design patents and software intellectual property rights, smooth punching and shearing movements and burr-free cross-sections.

Mold library consists of 8 punching and 1 shearing, in a single row and inline. The shearing tool is a single-edged center-centered shearing type. There is no waste after shearing and the shearing effect is good.

Mold Library

Main Frame

■ **Punching Strike (Patent ID: ZL 2013 2 0804568.X)**

The maximum striking frequency is 150 times/min which makes the production efficiency higher.

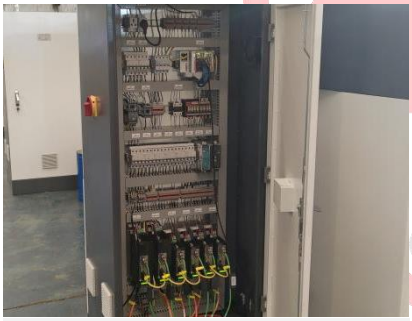
The punching movement is in the Z direction. The servo motor drives the lead screw to move in the Z direction. Under the condition of 20mm stroke, the fastest striking speed is 120-150 times/min.

■ **Hydraulic System**

Adopt Swiss ABB wide-frequency motor, the maximum output can reach 600KN.

The hydraulic power system uses a Swiss ABB wide-frequency motor, dual-speed dual-pressure fast oil supply, and the maximum output can reach 600KN. The oil temperature sensor on the machine can accurately transmit the oil temperature to the radiator. When the oil temperature exceeds the set value, the radiator automatically starts to dissipate heat, so that the hydraulic system of the machine can operate safely and effectively for a long time.

Hydraulic Center



PLC Control Cabinet

■ **PLC System**

Adopting German Beckhoff PLC system, the software and hardware are smoother, with higher precision and higher efficiency.

Using Germany's Beckhoff International advanced programmable controller, during the work process, you can choose:

- Program using the point coordinate input method (this operation method is simple to use and has lower requirements on the operator).
- Template calling method (input the data obtained after measurement directly into the template graphics to realize size driving and adding hole positions).
- Directly generate processing codes from CAD drawings (two-dimensional) in .dwg format.
- Directly generate processing codes from Solidworks drawings (3D) in .step format.

3D Drawing Compilation

■ **Compile software (Patent ID: 2014SR177566)**

Independently developed compilation software to achieve compatibility with CAD and Solidworks, and directly compiled into busbar processing program.

The software realizes the direct generation of CAD drawings into processing programs (directly generates processing codes from CAD drawings), and can directly perform bending and unfolding operations and processing program simulation operations in the software.

The equipment supports direct import of CAD and Solidworks, and supports data nesting and typesetting functions.

This software has the function of importing and exporting CAD files with the suffix .dwg, and the function of importing ug, sl, and pro-e files with the suffix .sat.stp.sldprt. The software can process the input material width, thickness, The length is automatically classified into a sorted list, and the generated programs are downloaded to the CNC busbar punching and shearing machine and the CNC busbar bending machine through the network port to automatically complete the processing.

III. Technical Parameters

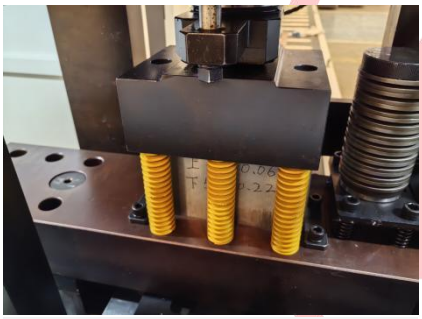
Project		Unit	Parameter
Pressure	Punching Unit	KN	600
	Shear Unit	KN	600
	Embossing Unit	KN	600
Number of mold positions	Punching Unit	Piece	8
	Shear Unit	Piece	1
	Embossing Unit	Piece	0
Strike frequency		HPM	120-150 Times/min（20mm route）
Number of control axes		axis	6
Hole distance control accuracy		mm/m	±0.20
Max punching diameter		mm	Ø4.3-35（round hole）
Max embossing area		mm^2	200×50
X-axis maximum positioning speed		m/min	75
Maximum valid itinerary of X-axis		mm	2000
X-axis accuracy(error)		mm	0.20/500
Y-axis maximum positioning speed		m/min	40
Maximum valid itinerary of Y-axis		mm	960
Y-axis accuracy(error)		mm	0.20/500
Maximum valid itinerary of Z-axis		mm	310
Stamping cylinder stroke		mm	45
Maximum allowed plates		mm	6000×200×15（Length×width×thickness）
Minimum allowable panels		mm	15×3（Width×Thickness）
Host site area		mm	10500×2900（length×width）
Total power of power supply		KW	25
			380V 50HZ/60HZ

Note: The equipment motor adopts dual-frequency motor, supporting 50HZ and 60HZ. If your local industrial voltage is not 380V, such as 400V, 415V, 220V, etc., our factory supports motor customization.

IV. Mold and Accessories

Round Punching Mold	Ø7, Ø9, Ø11, Ø13, Ø17
Oval Punching Mold	Ø11×15, Ø13×17, Ø17×21
Shear Knife Mold	1
Allen Wrench	1
Phillips Screwdriver	1
Slotted Screwdriver	1
0pen End Wrench	1
Grease Gun	1
Sealing Ring	1
Foot Switch	1
Manual	1
Certificate	1
Software Driver	2

Note: Punching die specifications can be customized according to customer requirements, free of charge within 8 sets.



Shearing Mold

Punching Mold

Embossing Mold

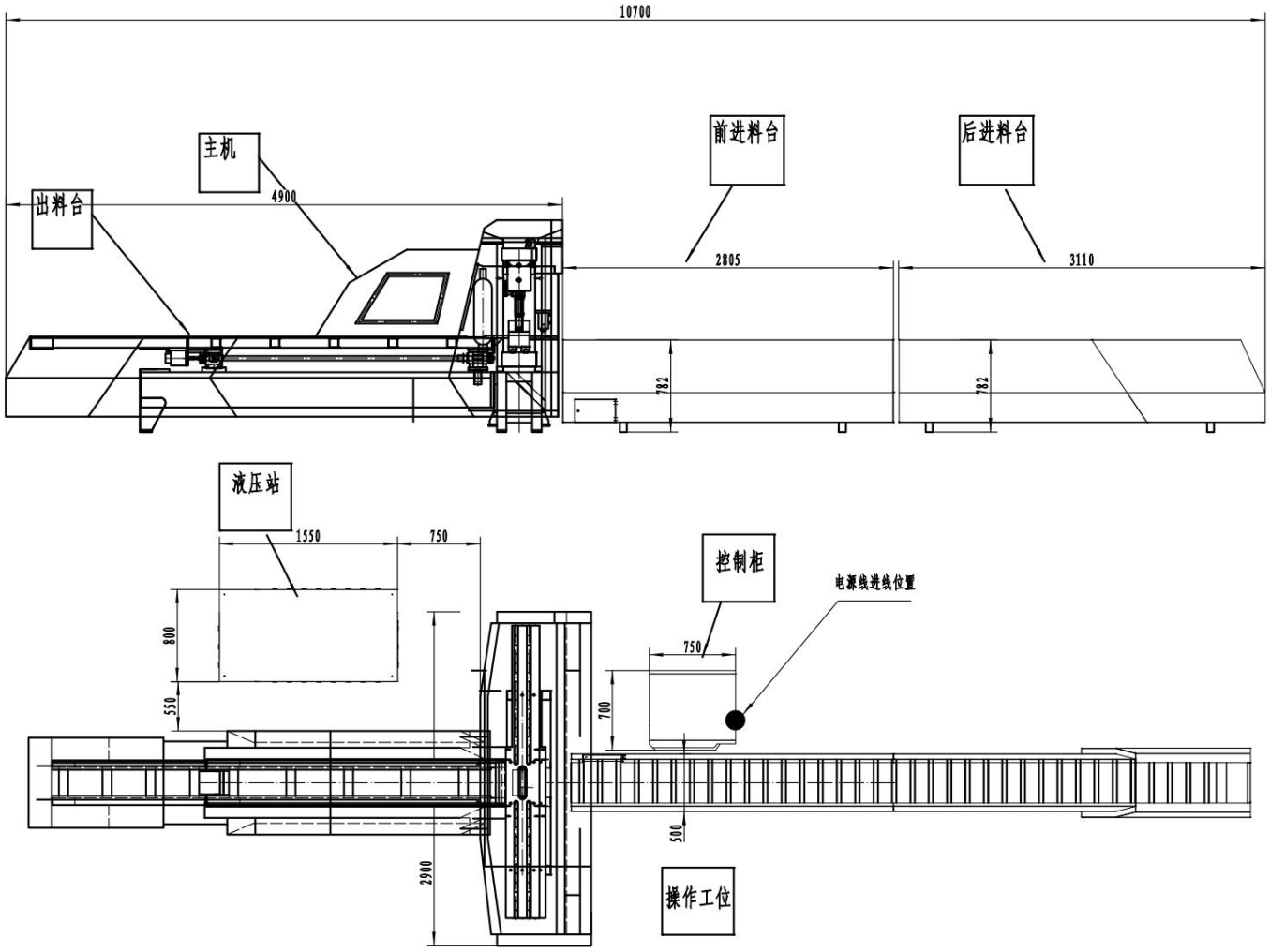
Punching Mold Structure Diagram

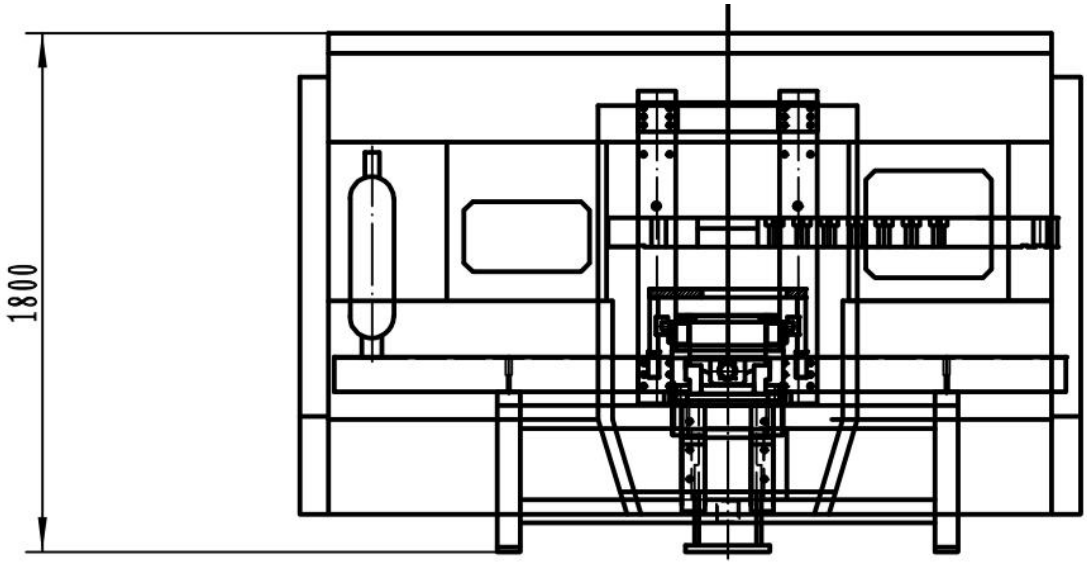
Mold Sleeve **Upper Mold** **Connecting Rod** **Disc Spring** **Gasket** **Bottom Mold**

V. Component Brand

Electrical Parts					
No.	Name	Brand	No.	Name	Brand
1	Main motor	ABB	2	Programmable Controllers	BECKHOFF
3	Servo motor	Rexroth	4	Middle relay	Honeywell
5	Server Driver	Rexroth	6	computer	Beijing Qiyang
7	AC contactor	Siemens	8	Thermal relay	Siemens
9	DC power supply	Phoenix	10	Breaker	Siemens
11	Sensory Switch	BALLUFF	12	linear displacement sensor	BALLUFF
Transmission and hydraulic systems					
No.	Name	Brand	No.	Name	Brand
1	Solenoid directional valve	Rexroth	2	Proportional valve	Rexroth
3	Precision ball screw	TBI	4	Precision linear guide	Taiwan Silver
5	High pressure pump	Albert			

VI. Equipment Drawings

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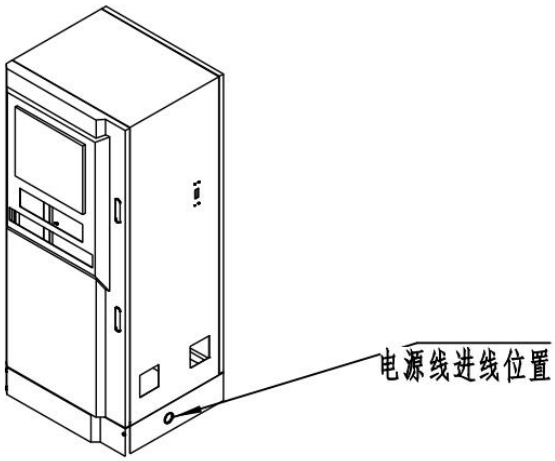
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