

Lijian[®] Busbar Machine

Standard Maker of China's CNC Busbar Machine National Standard (GB/T 37946-2021)



Shandong Lijian CNC Machinery Co., Ltd.

ISO 9001 | CE | SGS | Certified | www.sdljmachine.com

MX602K-7/8C High-Speed CNC Busbar Punching & Shearing Machine

6-Axis CNC | Punching, Shearing & Embossing All-in-One | Zero-Waste Processing



Bullet points:

- **Dual-Power Intelligent Feeding System**

Features independent power drives for both X1 (Main) and X2 (Auxiliary) clamps. This completely eliminates the common structural defect where auxiliary clamps cause thin busbars to buckle or bend, drastically reducing material scrapping.

- **Patented "Zero-Waste" Shearing Technology**

Equipped with a unique single-knife centering shearing tool (Patent No: ZL 2013 2 0804566.0). It achieves clean cuts with **absolute zero waste material**, maximizing your ROI on copper/aluminum stock.

- **Seamless CAD-to-Mesh Software Integration**

Powered by Germany's advanced Beckhoff PLC and proprietary LJCAM programming software. Operators can import CAD drawings directly to generate machining codes. Features auto-unfolding and processing simulation—no programming expertise required.

- **World-Class Component Ecosystem**

Built with premium components from ABB, Rexroth, Beckhoff, and Siemens to ensure minimal downtime and an extended equipment lifecycle.

I. Introduction:

This machine is a computer-controlled high-efficiency and high-precision special equipment for bus bar processing (6-axis numerical control), which is mainly used for fully-CNC punching and shearing of copper-aluminum busbar, including punching, shearing, corner cutting, embossing and other processes. Manual intervention is not needed during the processing of the bus bar, which has the advantages of high processing speed, high precision and the like, and is widely applied to the industries of high and low voltage complete sets, switch cabinets, box-type transformer substations and the like.

II. Main features:

1. Feeding system: Dual-Power Synchronized Clamping

The feeding part is equipped with the main and auxiliary power clamps of X1 and X2. The main clamp and the auxiliary clamp can operate independently and can be matched with each other to finish feeding work. This clamp structure avoids the situation that the auxiliary clamp of the same kind in China needs to be pushed back and forth by the main clamp servo when moving due to the lack of power of the auxiliary clamp, thereby leading to equipment failure and workpiece scrapping caused by bulging and bending of the small busbar during movement due to insufficient rigidity.

2. High-Speed Mold Positioning (Y-Axis):

The mold movement part is in the spindle Y-axis and is mainly in the form of a servo motor driving ball screw to achieve reciprocating mold changing, thereby realizing the movement and positioning of the mold. The integral mold library has the characteristics of stable movement, accurate positioning and high speed.

3. High-Frequency Punching System (Z-Axis): [Patent No.: ZL 2013 2 0804568.X]

The punch striking part is in the Z direction, and the servo motor drives the lead screw to move in the Z direction. The maximum strike speed is 150 beats per minute.

4. Patented "Zero-Waste" Mold Library: [Patent No.: ZL 2013 2 0804566.0 — Exclusive in China]

The mold library part is a seven punching, one shearing, one embossing or eight punching, one shearing in-line mold library. The shearing tool is a single-knife centering-type shearing, and the shearing effect is good without waste materials after shearing.

5. Smart Dual-Pressure Hydraulic System:

The hydraulic power part adopts double-speed double-pressure fast oil supply, with the maximum output of 600KN. The oil temperature sensor on the machine can accurately transmit the temperature of the oil to the radiator. When the temperature of the oil exceeds the set value, the radiator automatically starts to dissipate heat, ensuring the hydraulic system of the machine can run safely and effectively for a long time.

6. Advanced Electrical Control System: Powered by Germany's premium BECKHOFF programmable controller.

The advanced programmable controller of Beckhoff is adopted. During the working process, the point coordinate input mode can be selected for programming (it is simple to use and has low requirements for the operator). It can also realize the direct generation of CAD drawing to processing program, and can directly perform bending and unfolding operation and processing program simulation operation in the software.

7. Proprietary LJCAM Industrial Software: [Software Copyright Registration: 2014SR177566]

This software realizes the direct generation of CAD drawing to the machining program (the machining code is directly generated by the CAD drawing), and can directly perform bending and unfolding operation and processing program simulation operation in the software.

8. Modern Industrial Aesthetic: [Design Patent No.: ZL 2014 3 0448531.8]

The appearance design is novel and generous. (Patent No.: ZL 2014 3 0448531.8)



III. Main technical parameters:

Name		Unit	Parameters	
Nominal Force	Punching unit	kN	600	
	Shearing unit	kN	600	
	Embossing unit	kN	600	
Number of mold positions	Punching unit	Piece	7	8
	Shearing unit	Piece	1	1
	Embossing unit	Piece	1	0
Max. Stroke Frequency		HPM	120-150bpm (20mm stroke)	
Number of control axes		AXIS	6	
Hole spacing control accuracy		mm/m	±0.20	
Maximum punching diameter		mm	Ø4.3-35 (circular hole)	
Maximum cross-sectional area		mm ²	200×50	

Maximum positioning speed of X-axis	m/min	75
Maximum effective stroke of X-axis	mm	2000
X-axis accuracy error	mm	0.20/500 (not accumulated)
Maximum positioning speed of Y-axis	m/min	40
Maximum effective stroke of Y-axis	mm	960
Y-axis accuracy error	mm	0.20/500 (not accumulated)
Maximum stroke of Z-axis	mm	310
Stroke of punching cylinder	mm	45
Maximum allowable size	mm	6000×200×15 (L×W×D)
Minimum allowable size	mm	15×3 (W×D)
Area of main station:	mm	10500×2900 (L×W)
Total power of power supply	kW	25

IV. Selection of main accessories:

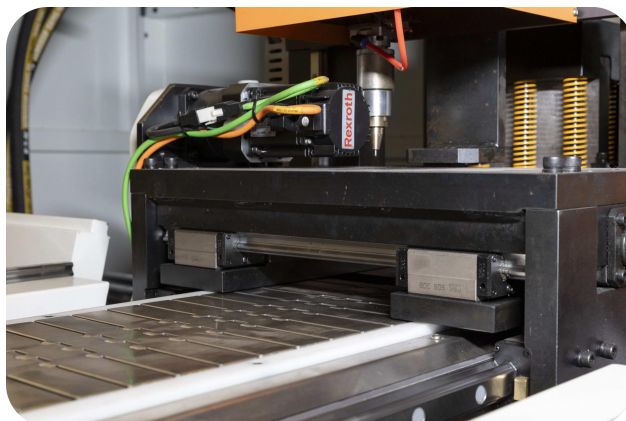
Electrical part:					
Serial No.	Name	Brand	Serial No.	Name	Brand
1.	Main motor	ABB	2.	Programmable controller	BECKHOFF, Germany
3.	Servo motor	Rexroth	4.	Intermediate relay	Honeywell
5.	Servo driver	Rexroth	6.	Computer	Beijing Qiyang
7.	AC contactor	Siemens	8.	Thermal relay	Siemens
9.	DC power supply	Phoenix, Germany	10.	Circuit breaker	Siemens
11.	Inductive switch	Salz Automation	12.	Linear displacement sensor	BALLUFF, Germany
Transmission and hydraulic system:					
Serial No.	Name	Brand	Serial No.	Name	Brand
1	Electromagnetic reversing valve	Rexroth, Germany	2	Proportional valve	Rexroth, Germany
3	Precision ball screw	HIWIN/TBI	4	Precision linear guide rail	HIWIN/PEK

5	High pressure oil pump	Albert, the United States			
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Machine Display



X1: Main clamp (Feeding direction)



X2: Auxiliary clamp (Conveying direction)



Feeding table



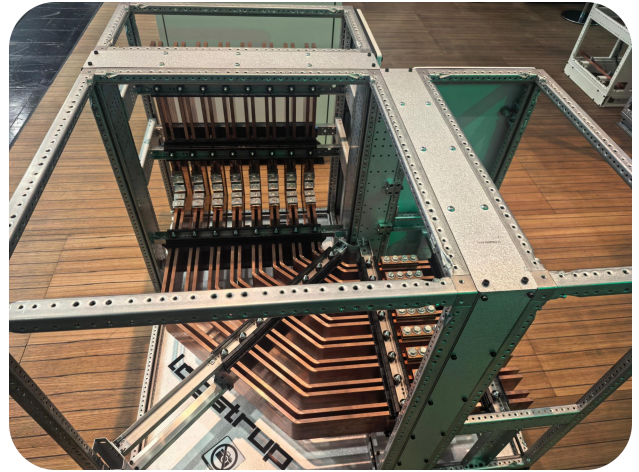
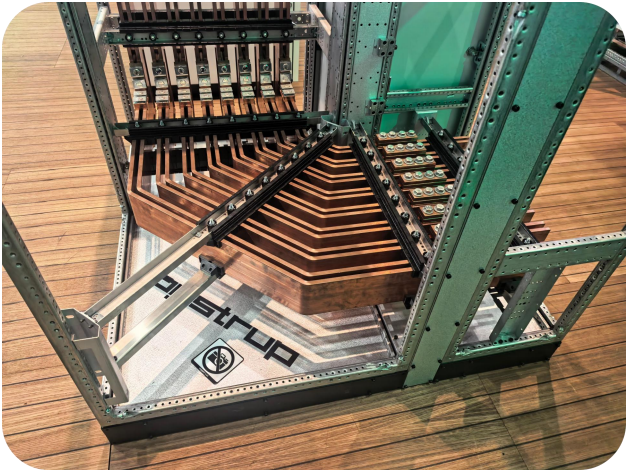
Conveying table



Mold library



Customer Reference:



Cooperation Partner:



Let's Shape the Future of Power Automation Together.

Inquiry Email:

Phone/WhatsApp:

Factory Address:

Website: