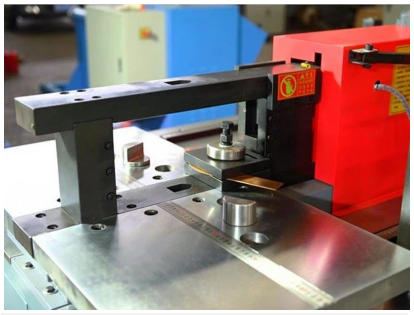
Multifunctional Economic Series

3 IN 1 BUSBAR MACHINE (BENDING-PUNCHING-CUTTING)

I. Product Description

3 in 1 busbar machine, also known as busbar bending, punching and cutting machine, is a power equipment used for processing busbars in high and low voltage switchgear and power distribution systems, such as copper busbars and aluminum busbars. This busbar machine integrates bending, punching and cutting, and allows 3 people to work at the same time. It has the advantages of multi-function, high production efficiency and economy, and is favored by small and medium-sized busbar manufacturing companies.

II.Product Features



Bending Unit

6 Bending Modes

■ Bending Unit

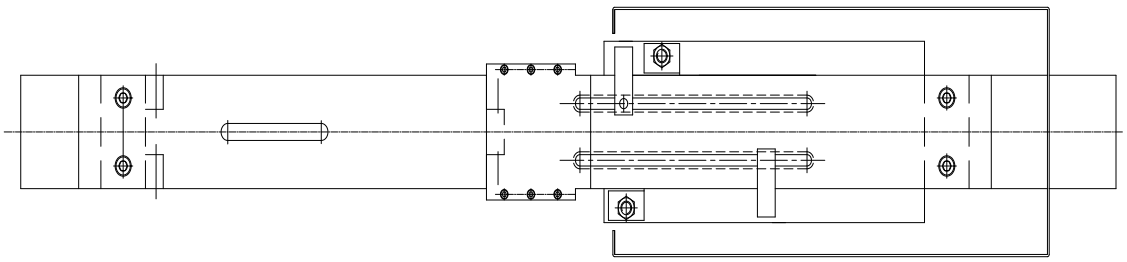
Adopt Siemens PLC system, support 6 bending modes including L-type, Z-type, U-type, etc.

The busbar bending unit supports two operation methods: automatic and manual. In the automatic operation method, the operator selects the corresponding bending mode, inputs the busbar parameters (such as length and thickness) and the bending angle through the HIM mobile panel, and then starts the program to bend the busbar.

The 6 bending modes cannot meet all bending needs, and operator may face more complex and repetitive bending work. For bending work with high repetitiveness or using customized bending molds, operator generally adopts the manual operation method.

Under manual operation, operator needs to set the forward limit stroke and reverse limit stroke parameters for the first bending, and manually press the forward or backward button for debugging. After the first debugging is completed, the bending operation can be carried out, and no secondary setting is required. The manual operation method solves the efficiency problem of unconventional bending and makes up for the shortcomings of the automatic operation method.

◒ Tip: Our equipment is generally configured with R3, R5, R10, R80 and U-shaped molds by default, which can meet the conventional busbar bending requirements in the world. However, if you have special bending requirements, or the distance between the two bends is less than 40mm, please contact our technical engineers for consultation.



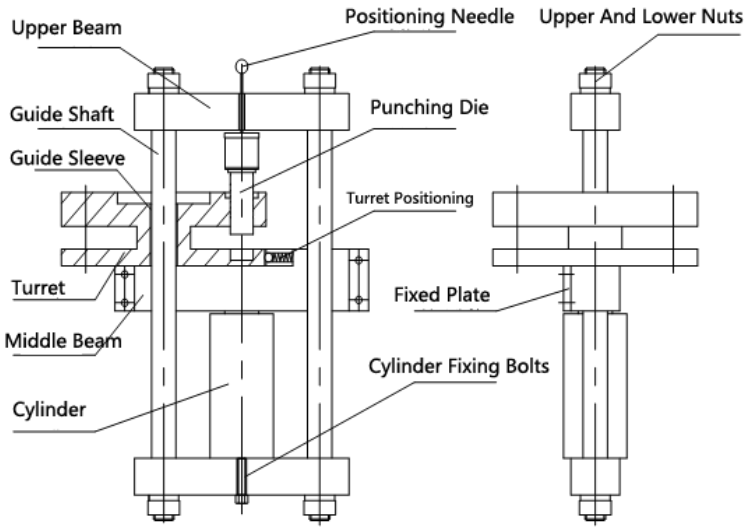
(Bending Unit Structure Diagram)

■ **Punching Unit**

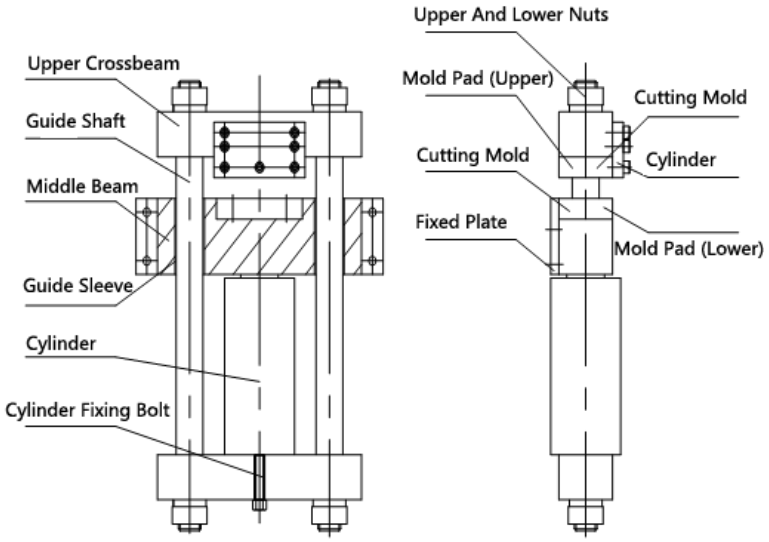
6 punching positions, the equipment is configured with 8 sets of punching dies by default, and supports customization of special specifications.

The punching unit can punch round holes, waist holes, rectangular holes and square holes, including busbar chamfers. The punching range is Φ4—Φ30, the punching section is smooth and burr-free, and the error is ±0.1mm.

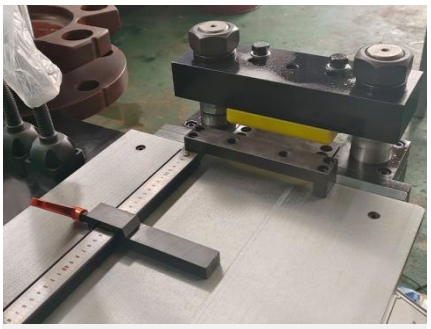
Punching Unit



(Punching Unit Structure Diagram)



(Cutting Unit Structure Diagram)



Cutting Unit

■ Cutting Unit

The cut section is smooth and burr-free, and the tearing area is less than 25%.

The cutting die is made of high-quality alloy steel with high hardness and good wear resistance. It is matched with a stable and powerful hydraulic system. The cutting section is free of burrs and the tearing zone is controlled below 25%.

■ Hydraulic System

Driven by 3 motors, corresponding to the bending, punching and cutting units, supporting 3 operators working simultaneously.

The hydraulic power is provided by a full copper high-power motor, which is stable and reliable, and the hydraulic system maintains excellent performance during long-term continuous operation. The unique solenoid valve design can make the valve core move quickly, with a short response time, improve the responsiveness of the operating unit, greatly reduce the loss rate of the busbar, and ensure the beauty of the busbar processing section.

Hydraulic Center

PLC Control Cabinet

■ Electrical Control Box

Adopting Siemens PLC system, the busbar processing accuracy is high and the operation unit responds quickly.

The electrical control cabinet uses Siemens electronic components, which are internationally renowned brands that are more durable, versatile and have low maintenance costs. Customers from any country or region can purchase backup components in the local market to reduce downtime losses caused by the difficulty in purchasing components.

III. Technical Parameters

Mold	MAC-303CN	MAC-503CN	MAC-803CN
Max Bending Thickness/Width	12mm/160mm	16mm/250mm	20mm/300mm
Max Cutting Thickness/Width	12mm/160mm	16mm/250mm	20mm/300mm
Bending Error	±0.3°	±0.3°	±0.3°
Punching Diameter	Φ4.3－Φ30	Φ4.3－Φ30	Φ4.3－Φ30
Punching Unit Turret Station	6	6	6
Punching Error	±0.1mm	±0.1mm	±0.1mm
Cylinder Pressure	300KN	500KN	800KN
Motor Power	4KW*3	5.5KW*3	7.5KW*3
Voltage	380V 50HZ	380V 50HZ	380V 50HZ
Having PLC Controller	1 set(Bending)	1 set(Bending)	1 set(Bending)
HIM Mobile Panel	1 set	1 set	1 set
Language	Chinese/English	Chinese/English	Chinese/English
System	Siemens	Siemens	Siemens

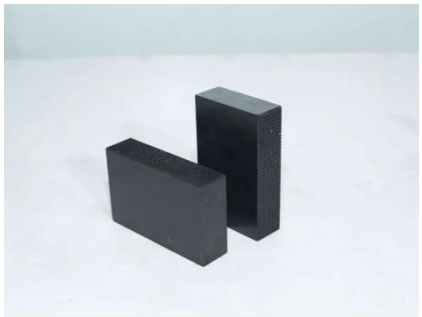
Note: If the industrial voltage in your area is not 380V 50HZ, please inform our technical engineer when placing an order. Our factory can customize special voltage for you, such as 400V 60HZ, 415V 50HZ, 220V 60HZ.

IV. Mold and Accessories

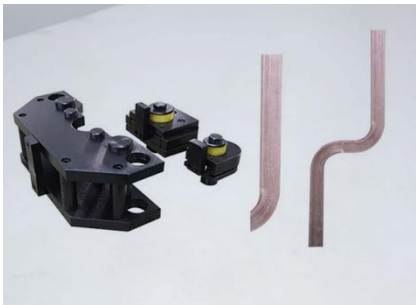
Round Punching Mold	Ø7, Ø9, Ø11, Ø13, Ø17
Oval Punching Mold	Ø11×15, Ø13×18, Ø17×21
Bending Mold	R3, R5, R10, R80 or R50, U-SHAPE Mold
Embossing Mold	1 set
Cutting Mold	1 set
Twist Mold (option)	1 set

Bending Mold

Punching Mold

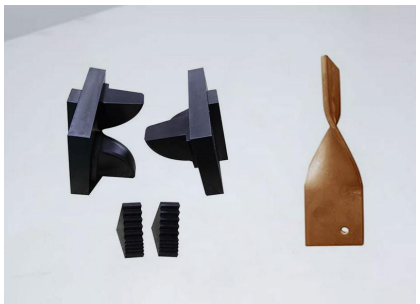


Embossing Mold



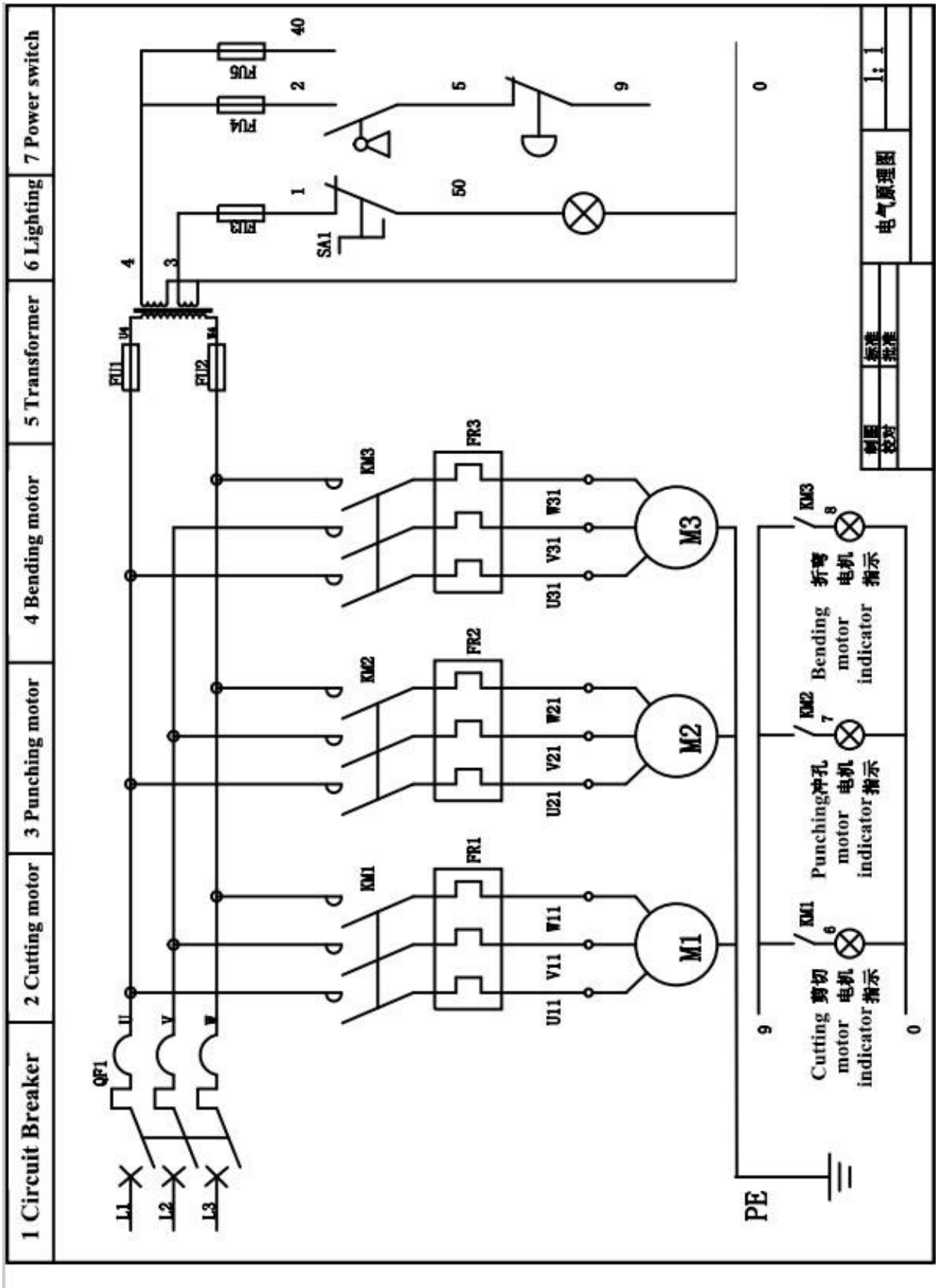
Bending Mold R80

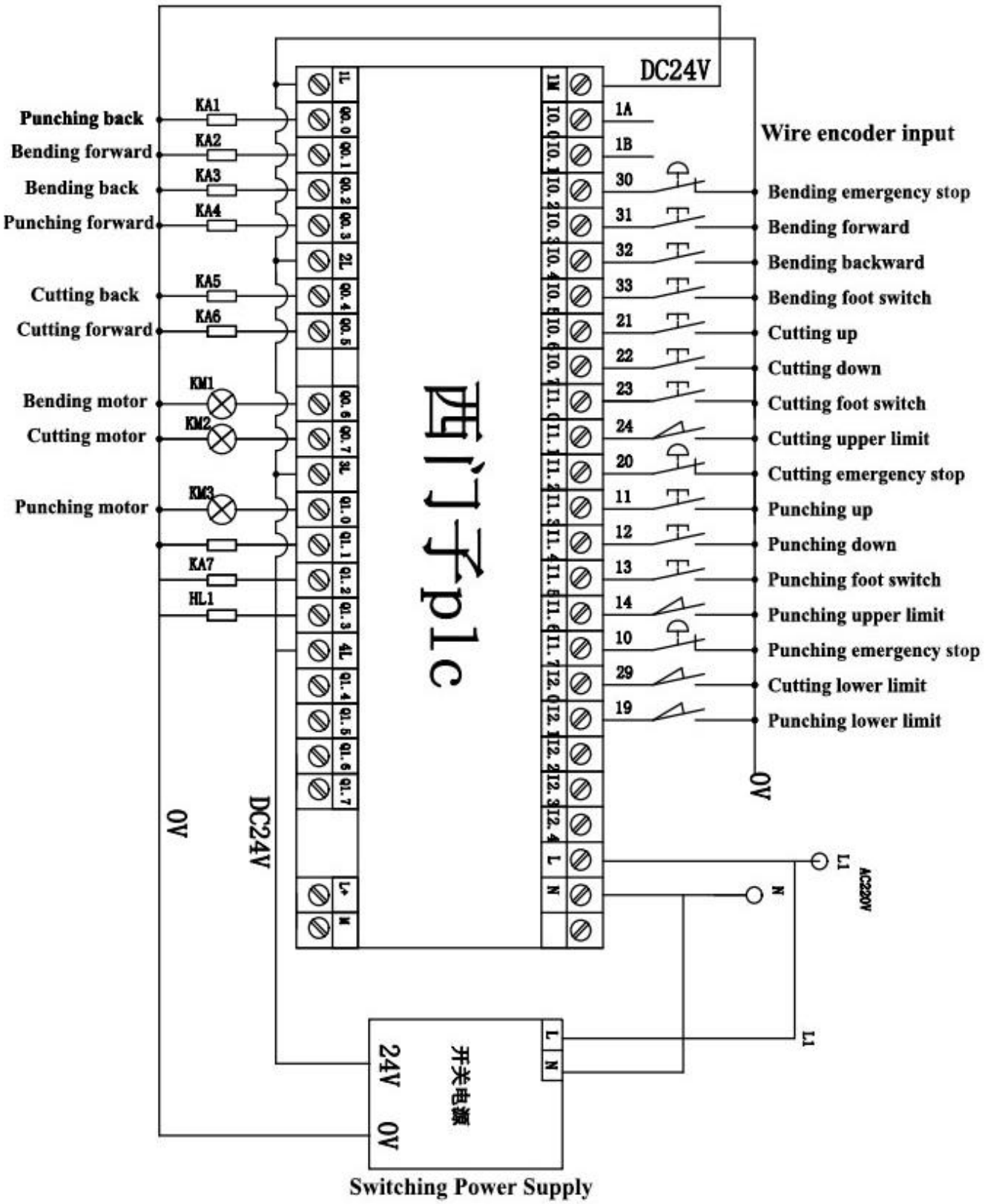
Cutting Mold



Twist Mold

V. Circuit Diagram




Punching back
Bending forward
Bending back
Punching forward
Cutting back
Cutting forward
Bending motor
Cutting motor
Punching motor
KA1
KA2
KA3
KA4
KA5
KA6
KM1
KM2
KM3
KA7
HL1
0V
DC24V
西门子plc
DC24V
1A
1B
Wire encoder input
30 Bending emergency stop
31 Bending forward
32 Bending backward
33 Bending foot switch
21 Cutting up
22 Cutting down
23 Cutting foot switch
24 Cutting upper limit
20 Cutting emergency stop
11 Punching up
12 Punching down
13 Punching foot switch
14 Punching upper limit
10 Punching emergency stop
29 Cutting lower limit
19 Punching lower limit
0V
L1
N
AC220V
L1
开关电源
24V 0V
Switching Power Supply