Frame Oil Press

Certificate of Quality

Nominal force 8000 KN

No. _____

Nantong Metal Forming Equipment Co., Ltd

the People's Republic of China

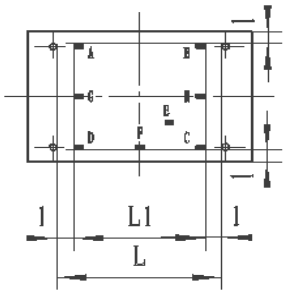
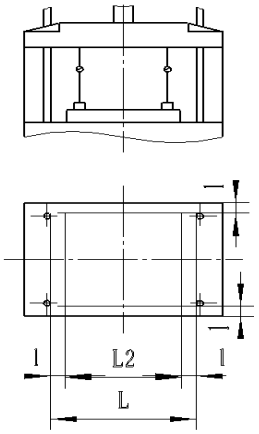
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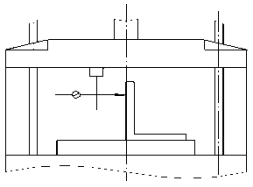
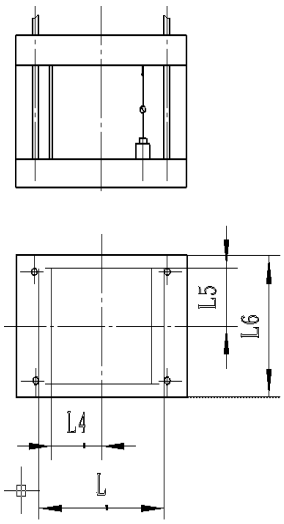
Quality Control:_____

QC Manager:_____

General Manager:_____

Date:

NO.	Item	Method	Sketch	Tolerance (mm)	Actual value
1	Flatness of the upper surface of worktable	1 Choose three datum mark A、B and C on the plane. Put three blocks which have the same height at each datum mark. 2 Put a level ruler on A and C. Then another block at point E, adjust its height to make the upper surface meet with the under surface of level ruler. 3 Put the level ruler on B and E. Then another block at point F, the same as step 2,adjust its height. 4 Put the level ruler on C and F. Then another block at point D, the same as step 2,adjust its height. Now the upper surface of block A、B、C、D、E、F are coplanar. So we can measure the vertical deviation between the level ruler's under surface and the plane. Use the same method to measure at datum mark G and H. The max difference between each deviation is the flatness error.(The height of block D、E、F are adjustable.)	 (L1:total measuring length, *l*: non-measuring length, L1=L-2*l* if L≤1000, *l*=0.1L; if L≥1000, *l*=100)	(0.1/1000)L1	
2	Flatness of the under surface of slide				
3	Parallelism a. left -right b. front -back	When the slide moves down to last 1/3 stroke, put a dial indicator on the worktable. Let the detecting head meet with the under surface of the slide. Measure four lines from left -right and front -back(except diagonal). Max difference is the parallelism.	 (L2: total measuring length, *l*: non-measuring length, if L≤1000, *l*=0.1L; if L≥1000, *l*=100)	0.04+(0.09/1000)L2, L≤1000; 0.06+(0.12/1000)L2, 1000<L<2000; 0.08+(0.15/1000)L2, L>2000;	

NO.	Item	Method	Sketch	Tolerance (mm)	Actual value
4	Verticality a. left- right b. front-back	Put a level ruler at the center of worktable, then put a square on the ruler. Fix a dial indicator on the under surface of the slide. The detecting head meets with measuring face of the square. When the slide moves up and down in the under 1/2 stroke, measure at left -right and front-back direction separately. Max difference is the verticality.	 (L3: actual stroke of slide which must be more than 1/4 of max stroke)	0.03+(0.025/100)L3, L≤1000; 0.04+(0.025/100)L3, 1000<L<2000; 0.05+(0.025/100)L3, L>2000;	
5	gradient a. left-right b. front -back	When the slide is between 2/3 and max stroke, put a support bar with splice joint to support the slide's weight on the worktable. Dial indicator with prop measure beside each supporting point and symmetric point at left-right and front-back direction separately. Max difference is the gradient.	 (L4=L/3, L5=L6/3)	(1/2000)L4	

Measure according to Standard《JB/T 7343-2010》.

Packing List

No. :			
YQK71-800		C Frame Oil Press	
Nominal force: 630 KN			
NO.	Name	Type	Qty.
1.	Press	including a main body, an electric box and a hydraulic system, etc.	1
2.	Tool Parts		
2.1	Special Wrench	ϕ 520	1
3.	Spare Parts		
3.1	Foundation bolts	GB799-88 M42×1000	4 个
3.2	Nuts	GB6170-86 M42	4 个
3.3	Washers	GB97.1-85 42	4 个
3.4	O ring [Relief Valve]	ID9.25X1.78(SAE J515)	5
	O ring [Fittings ϕ 14]	OD 16×2.4 (GB 1235-1976)	5
	O ring [Fittings ϕ 18]	OD 20X2.4 (GB 1235-1976)	5
	O ring [Fittings ϕ 22]	OD 24X2.4 (GB 1235-1976)	5
	O ring [SAE1-1/4"]	ID 37.5X3.55(GB/T3452-2005)	5
	O ring [SAE1-1/2"]	ID 47.5X3.55(GB/T3452-2005)	5
	O ring [SAE2"]	ID 56X3.55(GB/T3452-2005)	5
	O ring [SAE2-1/2"]	ID 73X3.55(GB/T3452-2005)	5
	O ring [Flange DN100]	OD 155X5.7 (GB 1235-1976)	2
	O ring [RCF100]	OD 200X5.7 (GB 1235-1976)	2
3.5	Composite Sealing washer	ϕ 14	5
	Composite Sealing washer	ϕ 18	5
4.	Technical Documents		
4.1	Manual		1
4.2	Qualified Certificate		1
4.3	Packing List		1

[The famous brand of

Jiangsu Province, China]

Frame Oil Press
YQK71-800

Instruction Manual

The People's Republic of China

NANTONG METALFORMING EQUIPMENT CO., LTD.

226578Rugao Economic Development Zone, Jiangsu Province
TEL：0513-82153815　FAX：0513-87203818

Safety Operation Tips

1. Please read the instruction manual carefully before starting the press.
2. The slide must be put down to keep the die closed when the machine does not work. Return the slide first after starting the press.
3. Forbidden to maintain or adjust the die when the press is in working process. Do not stand below the slide, or put hands or any parts of the body below the slide. Safety fences should be installed on the non-operating sides to avoid entering by mistake.
4. If the press must be repaired or the die should be adjusted, the press must be in a stop state and the slide must be supported safely to avoid accidents.
5. Only skilled electrical engineer can open the electric control cabinet, and must be careful to avoid electric shock.
6. Be sure that the hydraulic system has no pressure when removing the hydraulic valves, replacing the seals or checking the pipeline to prevent accidents.
7. Program in PLC controller can't be modified without permission of the press supplier.
8. Only skilled hydraulic engineers are allowed to maintain or adjust hydraulic valves in the hydraulic system.
9. The operator shall not leave the operation panel when the press is running.
10. The under surface of the main cylinder rod should be kept close contact with the slide. Keep 3 ~ 4mm gap between the flange and the slide and the connecting screws must be frequently checked.
11. Don't stand on the backside of the top oil tank in case of falling down.
12. Equip fire units near the press. Cut off the power immediately to

protect the hydraulic station when the fire breaks, prevent fire to oil tank.

13. The seal rings in the cylinders must be checked when the press works more than three years. If broken or much leakage, replace them immediately.
14. Forbidden to change the function of press. Forbidden to adjust the hydraulic safety valve higher than nominal pressure. Overload would damage the press and cause serious accidents.
15. The size of the die must be more than 2/3 area of the worktable.
16. Please choose the best way to operate when there is more than one operator and take out the switch keys to prevent accidents.
17. Please consider the safety support device when repairing the die.

If you have any other questions, please contact us.

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Requirements for Foundation of press

I、Requirements of design and construction

The stability of the foundation is very important for the normal use of the press. The thickness of the foundation, the number and layout of steel and shockproof ditches should be all well designed by professional construction company.

The foundation must be checked and accepted by the clients. For easy measurement, mark on the ground according to the requirements after finishing the foundation. The design and the construction of the foundation should conform to <GB50040-2020>and <GB50448- 2015>.

The depth of the foundation should be confirmed according to the soil, bearing capacity and so on. Taking measures to make the bearing capacity of the foundation strong enough to withstand the impact force of the press, such as deepen, piling and so on.

Take measures to avoid impact from the vibration of the press.

The groove of the power line shall be made as planned. If there are any changes, must notify the manufacturer and agree with the manufacturer to change the length of the electrical line.

The foundation should be completed at one time to ensure the integrity. Pre-press with 1.4-2 times weight of the press after the foundation is completed.

II、The requirements for the foundation and curing time

We need to grout two times before installing the machine. Please don't fill the grout holes fully during the first stage of grouting, because we can adjust the level precision of foundation during the second stage of grouting.

After the first grouting，the curing time depends on the grouting material. Guided by the practical experience: the curing time is generally 25 days - 45 days if using the good cement; but using the early strength admixture, the strength of cement can reach 95% after 7 - 12 days. The curing time is related to indoor temperature and humidity.

We can proceed with the second grouting after the first curing time. We must use the non-shrink and micro-dilatancy cement in second grouting, because we need to adjust the level precision of base component at the same time. The second curing time is almost the same as the first one or a little bit shorter .But the strength of foundation must reach the requirement. We recommend using high-strength material in the second grouting.

The requirements of grouting、curing and adjusting the level precision should be complied with strictly. Only after that, the precision of the press can be ensured.

If any questions, please construct with the press manufacturer or professional construction company.

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6. Side cylinder piston head drawing
7. Main cylinder guide sleeve
8. Side cylinder guide sleeve
9. Hydraulic circuit
10. Electric circuit

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I. Applications and Characteristics of the Press

This press is suitable for pressing operations such as drawing, punching, cutting of sheet metal.

It consists of mechanical structure, hydraulic system and electric system. The electric system is controlled by PLC, and it has an operation pad with buttons. The press has two operating mode, adjusting mode and semi-automatic mode.

The working pressure, stroke can be adjusted for different pressing process.

II. Main Technical Parameters

NO.	ITEM		UNIT	VALUE
1	pressing force【压制力】		KN	8000
2	return force【回程力】		KN	950
3	Max. working pressure of oil【工作压力】		MPa	25
4	Max. ram stroke【主缸行程】		mm	1500
5	Max. opening between worktable and slide 【最大开口】		mm	2000
6	Shut height【最小合模高度】		mm	50
7	Slide speed 【滑块速度】	fast approach【快下】	mm/s	30
		pressing【压制】	mm/s	10-40
		pressing【压制】	mm/s	5-20

		return【回程】	mm/s	10-40
		return【回程】	mm/s	300
8	Effective area of worktable【工作台有效台面】	Left-right【左-右】	mm	3200
		Front-back【前-后】	mm	2100

III. Brief Introduction of Construction

This press is a frame oil press. It consists of the body and control device, which are connected by the oil pipes and cables. The body consists of frame, slide, die cushion, main cylinder, jacking cylinders, guide rods, etc. The frame is welded together by upper beam, worktable，and four columns. The control device consists of hydraulic system, electric box and operating pad .The main parts of the press are described as follows:

（1） Body (see the attached overall drawing)

The body consists of frame, slide, main cylinder, etc. The frame is welded together by upper beam, worktable，and four columns. The slide is connected to the rod by the upper flange and guided by guiding plates on the four columns.

（2） Main cylinder (see the attached drawing)

There is one main cylinder. It consists of the body of cylinder; ram, rod, guide sleeve and seals etc. The cylinder body is fixed on the top

beam by the low shoulder and the up lock nuts, the lower end of the piston rod is connected to the slide by the flange and screw bolts. The ram is made of cast iron. There are inverse direction seal rings in the ex-circle of the ram and O-type seal rings inside, which can form two chambers in the cylinder. In the lower end of the cylinder seal rings are used to seal the rod chamber of cylinder.

（3） Lubrication device

Slide guide sleeves are lubricated with concentrated lubrication system. It is automatically controlled by PLC.

（4） Locking device

In order to prevent sliding down of the slide, a dead point locking device is arranged on the slide. This device is interlocked with the main control system to ensure personnel safety.

IV. Hydraulic System (see the attached drawing)

1. Hydraulic power station

The hydraulic power station consists of motors &pumps, valves, piping, oil tank and filters.

1) motors &pumps

The high pressure pumps are driven by AC Servomotor. The high pressure pump delivers oil to the cylinder through piping and 2-way cartridge valves.

2) 2-way cartridge valves

2-way cartridge valves are logic elements that have been designed for a compact block design. The power section with connections A and B is installed in a receiving hole of the manifold according to ISO 7368 and closed with a control cover.

3) Piping

Piping is assembled to the pumps and cylinders from 2-way cartridge valve.

4) Oil tank

The total oil volume is 3931L, about 19.7barrels (200L/barrel).

5) Cooling and filtering unit

The unit is fitted with a low-pressure filter and a plate heat exchanger. Electrical maintenance indicators signal when an element

of the filter has to be changed. The water consumption depends on the utilization of the power unit and the inlet temperature difference(recommendation: cooling water flow≥9m³/h, T＜30℃) .

2. Principle of the Hydraulic System

Referring to the hydraulic circuit and action sequence, the working principle is briefly described as follows:

Press the "motor start" button, all the solenoids are de-energized. The 2-way cartridge valves are open and the pumps deliver oil against the closing spring of the valves to tank.

1) Fast approach【快下】

The energizing of YA11(下腔锁) and YA10(快下) cause the pilot oil chamber of the 2-way cartridge valve to unload so that oil is able to flow to tank. Max. velocity is set by the stroke limiter on cartridge valve.

Solenoid YA10(快下) is de-energized and the fast approach valve is closed with the pressure which was set at the pressure relief valve. This means that the valve of the pressure set determines whether the ram and slide is decelerated harshly or gently to the press velocity. The deceleration pressure must be set higher than the holding pressure.

2) Pressing【压制】

Energizing of solenoid YA1,2,3,4(所有油泵和系统)、YA7(上腔进油) and YA11(下腔锁).At a Max. pressure set by pressure control valve, the cylinder executes the pressing stroke.

Pressure control valve prevents intensification in the rod end of the cylinder. This valve must be set 10% above the Max. working pressure and be sealed.

3) Pressure holding【保压】

On completion of the "Press" movement, pressure in the cylinder can be maintained by de-energizing the solenoids. Logic elements effectively seal the press line A. Pressure holding time is set by PLC.

4) Decompression【泄压】

Decompression of the system occurs after the press sequence and pressure holding via logic element by operation of solenoid YA12,13(泄压阀). Decompression time is set at the stroke limiter of the control cover and also set by time (1~3s) .

5) Return【回程】

Energizing of solenoid YA1,2,3,4(所有油泵和系统)、YA8(下腔进油)、YA6(充液阀控制) and YA12,13(泄压阀). The pump delivers oil to the rod chamber of the cylinder and the press lifts.

The oil from the full bore of the cylinder flows via the pre-fill valve

to tank.

6) Stop【停止】

The press stop working and all the solenoids are de-energized.

One work cycle ends.

Other auxiliary movements can be added into the work cycle according to the manufacturing process by PLC program.

1) *Slow return【慢回】

Energizing of solenoid YA1(慢回油泵和系统)、YA8(慢回下腔进油) and YA12(泄压阀或者充液阀). The pump delivers oil to the rod chamber of the cylinder and the press lifts slowly in die opening stroke.

2) *Safety locking cylinder【安全锁紧缸】

Energizing of solenoid YA28cause the safetylocking device work. Locking cylinder moves out.

Energizing of solenoid YA27cause the safetylocking device standby. Locking cylinder returns.

V. Electric System (see the attached drawing)

The machine is designed according to relevant national standards. Please carefully read the instructions and strictly abide by the operating procedures before operation. It is strictly prohibited to change the original design circuit and PLC control program at will. Change at will, which is easy to cause personal or machine damage!

1. Safety operation tips

1) Before switching on the power supply, the user should check whether the voltage, phase, frequency, total capacity and other parameters of the power supply are correct according to the parameters on the electrical data nameplate. Otherwise easy to cause damage to the machine.

2) The grounding of the machine must be firm and reliable. The grounding resistance must meet the standard; otherwise, personal injury may occur.

3) After connecting the power supply for the first time, check whether the motor's steering is correct. If it is reversed, please change the phase sequence of the power input line. Otherwise it will cause damage to the machine.

4) Do not start the machine without knowing the structure, performance and operating procedures of the machine.

5) Before starting the machine, carefully check whether the position of

each switch and setting data are correct. Otherwise easy to cause damage to the machine.

6) After starting the machine, the relevant buttons should be clicked in the adjustment state to check whether the switches are sensitive and reliable. It is strictly forbidden for machines to work while sick. Otherwise easy to cause damage to the machine.

7) Please run the machine for 1-3 cycles before working, and only after normal operation can it be allowed to work.

8) Hands or other parts of the body are strictly prohibited to enter the working area of the slider when the machine is working.

9) It is strictly forbidden to change or check the mold or machine when the machine is working.

10) When multiple operators, please select the number of two-handed operators. It is strictly prohibited to change the number of two-handed operators during operation. Otherwise, personal injury or machine injury may be caused.

11) In case of abnormal alarm, please stop the machine for inspection immediately, and ask professional and technical personnel to repair and restore the normal before it can work.

12) With servo drive please note the following:

A) Only disconnect the power supply to the driver reliably and wait for at

least 10 minutes before opening the driver cover.

B) Only after confirming that the charging indicator light inside the driver is off and the voltage between the main loop terminal +DC and -DC is below DC36V, can the internal wiring work be started.

C) Wiring and maintenance work inside the driver should only be carried out by qualified professionals.

2. Electrical System Overview

The electrical system is divided into power part and control part.

Power part: control the total power supply and the motor start and stop and protection switch.

This machine has special electrical control box and operating device. Electrical control box is equipped with power switch, miniature circuit breaker, thermal relay, AC contactor, time relay, PLC, transformer, small relay and intermediate relay and other control appliances.

According to the design requirements, the electrical operation device is usually divided into mobile button station, electric box control panel and fuselage control panel. The control panel of the mobile button station is equipped with the main button, two-handed button, emergency stop button, static button and other common operation buttons. Motor start and stop button, emergency stop button, time relay, various indicators and process selection knob and other operating devices are usually arranged

on the control panel of the electric cabinet. If the device has a touch screen display interface, it is usually installed on the fuselage control panel. (Installation positions of buttons and touch screens are subject to on-site machines)

When the power indicator is on, it indicates that the main power switch of the machine is closed and reminds the user that the machine is in the power state. When other indicators are on, it means that the corresponding oil pump motor, lubrication motor and auxiliary motor are in operation state, so as to prompt users.

The main power switch controls the power supply of the entire electrical system. When the current is overloaded, the main power switch can be automatically cut off to protect the safety of the equipment.

Hydraulic system main oil pump motor starting circuit is composed of servo driver, start and stop control of the oil pump motor, when the motor is abnormal, the driver will alarm and send alarm signal to protect the oil pump motor. When installing and debugging the machine, please pay attention to the rotation direction of the oil pump motor. If it is reversed, please adjust the wiring.

The main control electric box is equipped with PLC programmable control system, which can complete the control operation of all the movements of the machine.

The transition control loop is composed of small relays, controlled by the output point of the output module, and small relays control each AC contactor. The use of small relay can effectively protect the output point of the output module, easy maintenance, maintenance cost is small.

The safety control circuit consists of control transformer, miniature circuit breaker and emergency stop safety switch. Safety control loop can effectively cut off the whole machine control system when abnormal, effectively protect the human body and equipment from injury.

The lighting system consists of miniature circuit breaker, lighting switch and lighting lamp.

According to the pressing process requirements, the electric operation of the machine has adjustment, manual and semi-automatic three kinds. Adjustment is mainly used for machine adjustment and mold adjustment, adjustment action includes all kinds of cylinder ejector and return button, press the corresponding button to get the corresponding action, release the button to stop the action.

In manual mode, you need to press the specified function key once to realize the action of this function until it is in place.

In semi-automatic mode, just press the "two hands run" button to achieve a pressing process.

The "Two-hand operation" button must be pressed at the same time,

and the sequence of time should not exceed 0.5 seconds, automatic action can be carried out.

3. Electric drive device and electrical technical parameters

This machine adopts three-phase AC400V, 50Hz power supply, control circuit voltage is 220V, this voltage is provided by the transformer.

The electromagnetic directional valve of the hydraulic system of this machine is driven by DC wet electromagnet, and its power supply voltage is DC 24V.

The main technical parameters of electrical data label of this machine are:

Total power of motor	约 120*kw*
Voltage	～400*V*
Phase	3
Frequency	50*Hz*
Total breaking rated current	400*A*

The machine has six temperature control circuits, with power per phase less than or equal to 4KW and total heating power less than or equal to 72KW.Electrical heating device is supplied by user.

4. Stroke and pressure signal element

The role of each limit switch:

SQ1 -- master cylinder upper limit switch

SQ2 ¬ - lower limit switch of master cylinder

SQ3 ¬ - front limit switch of locking cylinder 1

SQ4 ¬ - rear limit switch of locking cylinder 1

SQ5 ¬ - front limit switch of locking cylinder 2

SQ6 ¬ - rear limit switch of locking cylinder 2

SQ7 ¬ - front limit switch of Auxiliary cylinder 1

SQ8 ¬ - rear limit switch of Auxiliary cylinder1

SQ9 ¬ - front limit switch of Auxiliary cylinder2

SQ10 ¬ - rear limit switch of Auxiliary cylinder2

SQ11 ¬ - front limit switch of Auxiliary cylinder3

SQ12 ¬ - rear limit switch of Auxiliary cylinder3

SQ13 ¬ - front limit switch of Auxiliary cylinder4

SQ14 ¬ - rear limit switch of Auxiliary cylinder4

SQ15 ¬ - front limit switch of Auxiliary cylinder5

SQ16 ¬ - rear limit switch of Auxiliary cylinder5

SQ17 ¬ - front limit switch of Auxiliary cylinder6

SQ18 ¬ - rear limit switch of Auxiliary cylinder6

5. Electrical operation instructions (see electrical schematic diagram)

Now according to the process of action procedures for a simple explanation:

Start the motor first, pay attention to the motor steering should be consistent with the pump steering, otherwise the system can not work, and may occur fault.

1) Initial position: adopt "adjust" action to make the slider in the return limit position; If the equipment has a top cylinder, the top cylinder needs to be returned to the lower limit position.

2) Operation sequence

Switch selector to "semi-automatic" working position.

According to the process requirements, set the process selection, pressure and relevant action delay on the operation panel, adjust the position of each travel switch, press the "two hands run" button at the same time with both hands. The press will perform the following actions according to the process action arrangement (taking manual operation of each auxiliary cylinder as an example) :

1) Slide down quickly
2) Slow down the slider
3) keep rolling time
4) Relief calendering
5) Slider return

At this point, that is to complete a semi-automatic circular action.

Press operation mode usually use adjustment and semi-automatic two ways, sometimes according to customer requirements also have manual and automatic mode. The following details the operation process and action flow of the two common modes:

a) Adjust the mode

Adjustment is mainly used for machine adjustment and mold adjustment, its specific actions are as follows:

1) Main Cylinder Pressing: Press the "Main Cylinder Pressing" button, slide down slowly and stop when the set pressure or position is reached.

2) Main cylinder return: Press the button "Main cylinder return". The slider first relieves pressure and then returns, stopping at the set upper limit or upper limit position.

3) Lock cylinder lock: Press the button "Lock cylinder lock" to lock cylinder lock.Stop at the front end position.

4) Lock cylinder release: press the button "Lock cylinder release" to release the lock cylinder.Stop at the rear end position.

5) Auxiliary cylinder 1 ejection: press the button "Auxiliary cylinder 1 ejection" to eject the auxiliary cylinder 1.When the ejection time, pressure or limit stop is reached.

6) Auxiliary cylinder 1 return: press the button "Auxiliary cylinder 1

return" to return the auxiliary cylinder 1.The return time, pressure or limit stop is reached.

7) Auxiliary cylinder 2ejection: press the button "Auxiliary cylinder 2ejection" to eject the auxiliary cylinder 2.When the ejection time, pressure or limit stop is reached.

8) Auxiliary cylinder 2return: press the button "Auxiliary cylinder 2return" to return the auxiliary cylinder 2.The return time, pressure or limit stop is reached.

9) Auxiliary cylinder 3ejection: press the button "Auxiliary cylinder 3ejection" to eject the auxiliary cylinder 3.When the ejection time, pressure or limit stop is reached.

10) Auxiliary cylinder 3return: press the button "Auxiliary cylinder 3return" to return the auxiliary cylinder 3.The return time, pressure or limit stop is reached.

11) Auxiliary cylinder 4ejection: press the button "Auxiliary cylinder 4 ejection" to eject the auxiliary cylinder 4.When the ejection time, pressure or limit stop is reached.

12) Auxiliary cylinder 4return: press the button "Auxiliary cylinder 4return" to return the auxiliary cylinder 4.The return time, pressure or limit stop is reached.

13) Auxiliary cylinder 5ejection: press the button "Auxiliary cylinder

5ejection" to eject the auxiliary cylinder 5.When the ejection time, pressure or limit stop is reached.

14) Auxiliary cylinder 5return: press the button "Auxiliary cylinder 5return" to return the auxiliary cylinder 5.The return time, pressure or limit stop is reached.

15) Auxiliary cylinder 6 ejection: press the button "Auxiliary cylinder 6ejection" to eject the auxiliary cylinder 6.When the ejection time, pressure or limit stop is reached.

16) Auxiliary cylinder 6return: press the button "Auxiliary cylinder 6return" to return the auxiliary cylinder 6.The return time, pressure or limit stop is reached.

b) Semi-automatic mode

In semi-automatic mode, when certain conditions are met, just press the "two hands run" button, that is, the pressing process can be realized once. "Two-hand operation" button must be pressed at the same time, and the sequence of time should not exceed 0.5 seconds, semi-automatic action can be carried out.

Note Before performing the action cycle, please select the number of hands to operate, otherwise it may cause personal injury or equipment damage!

The semi-automatic action cycle is as follows:

1) Slide down quickly

Slider fast Down When the fast slow down position is reached, switch to slider slow down.

2) Slow down the slider

When the slider reaches the lower limit or the pressure is set, the slider is transferred to keep the pressure. The press has two modes of constant process and constant pressure to choose. If constant pressure is selected, when the set pressure is reached, it is transferred to the slider to keep pressure; When the lower limit is first reached, the pressure relief return is directly carried out. If the pressure is reached first, the machine is stationary and manual return is required. The press is usually operated in "constant pressure mode".

3) Pressure retaining slider

After holding the pressure of the slider to the set time, turn into the pressure relief return of the slider.

4) Slide block pressure relief return

Slide block calendering 1.5-2.5s after the start of return. The slider stops when the return trip reaches the upper limit.

The end of an action loop is marked when all actions have been completed.

Note: The machine needs to meet certain conditions to work, if

equipped with touch screen display interface, it can display action prompt and fault alarm screen, convenient for users to troubleshoot the cause.

6. Other moves

1) "Emergency stop" : When the machine encounters an emergency during work and needs to stop all work immediately, press the "emergency stop" button and the machine will stop working immediately.

2) "static" : When the machine is working, it is necessary to stop the current action. Press the "static" button to stop the action, but the motor will not stop.

7. Electrical interlock and electrical protection device

1) The main power circuit uses automatic switch for short circuit protection, the motor uses thermal relay for overload protection, and the control circuit uses small high-break circuit breaker for short circuit protection.

2) Each electrical device has a reliable special grounding device to ensure safety.

VI. Installation and Trial Running of the Press

Unpack the machine and get rid of antirust grease. The machine should be installed on the concrete foundation duly prepared according to the foundation plan.

Installation sequence as follows:

1. First, put the frame(with cylinders inside) at the right position. Make sure that the worktable is in a good horizontality.

2. Prepare two or three cushion blocks of same height 50mm higher than shut height. These blocks can bear nominal force of this press. The parallelism of the blocks between top and bottom surface should be less than 0.02/1000mm. Put the blocks on the worktable from left to right. Then put the slide on top of the blocks.

3. Place right the hydraulic power system and electric cabinet. Connect all pipe lines, electric circuits and limit stroke devices etc. according to Overall Drawing, Hydraulic Circuit, Electric Circuit. Fill oil into oil tank after it is cleaned and the oil level should not be lower than the indicated line.

4. Open the pipe joint of pump leakage port, fill oil fully into the pump. Make sure that air in the pump should be all out. Then adjust the relief valve, the trial running preparation is done.

5. Power on and start motor for 2-3s ,then stop the motor. Check the

rotating direction of the motor, make sure it rotates clockwise same as the pump. If different, reconnect the electric wire and then start the motor.

6. Turn the switch to “adjustment” position. First, press the button SB to make the main cylinder ram move up. Then release the cylinder rod safety clips which are used to avoid the rod dropping out. Next, press the button SB to make the main cylinder ram move down. Then put the connecting flange between rod and slide and keep the clearance as 3-5mm. Adjust the pressure relief valve to make the pressure in the main cylinder rise to 5MPa and screw the connecting nuts while pressure maintaining.

7. Press the button SB to make the slide return. Move the pressure testing cushion blocks right below the main cylinders. Adjust the parallelism and verticality of slide to worktable as Certificate of Quality.

8. Trial running

See Hydraulic Circuit. Regulate the safety valve to avoid the slide sliding down at any position. The pressure in the main cylinder’s upper cavity should be less than 1Mpa when pressing down slowly.

The pressure adding range is from 20% to 100%, that means the pressure rises from 5MPa to 25MPa at five times.

VII. Trouble shooting:

No.	Trouble	Cause	Methods
1	Actions failure	1.Wrong or loose electric wiring. 2.Pressure is too low. 3.Oil level is too low.	1.Check the wire connecting. 2.Check the relief valve. 3.Add oil to the tank.
2	Slide creeping	1.There is air in the hydraulic system or the suction port of the oil pump sucks air. 2.The accuracy is not fit or the column guide sleeves are lack of lubrication.	1.Check the suction pipe of the pump and make the slide move up and down several times then pressurized. 2.Readjust the accuracy and fill the lubricate oil to vertical columns.
3	Pressure in the main cylinder is above 2MPa When moving down with no load	support pressure in the rod chamber is too high	Adjust lower the support relief valve to make the pressure less than 1MPa.
4	Slide descending down when stop	1.There is leakage at the seal ring of the	1.Replace seal ring； 2.Adjust pressure and check

		cylinder. 2.The support relief valve is too low or not well sealed.	valve.
5	The pointer of the pressure gauge swings badly	1.There is air in the oil route of the pressure gauge. 2.Pipe line vibrates. 3.Pressure gauge is bad.	1.Release air after loosening the coupling; 2.Fix the tube line 3.Replace pressure gauge.
6	The speed is slow in high pressure stroke and pressure rises slowly	1.The pump is bad or burnt; 3.Too much leakage inside the system.	1.Check the oil pump； 2.Check if pre-fill valve is closed; and then check all the seal rings.
7	When pressure holding, it reduces quickly	Valve port not closed or leakage in pipe lines Seal rings inside cylinder are not good.	1.Check pre-fill valve, pressure holding valve and pressure relief valve. 2.Change seal ring.

The above are just for reference. When the press cannot work well, Maintenance engineers should find the causes, then check it one by one.

VIII. Maintenance and the Safe Operation Rules

The operator must be familiar with the construction performance and the operation sequences of the machine before running it. It can ensure the safety operation and get the longest service life.

1. Maintenance

a) We recommend ISO 46# hydraulic oil for this press. You can choose hydraulic oil according to local temperature or consulting local oil supplier. Oil's working temperature should be controlled between 15◦C and 60◦C.

b) Oil must be filtered precisely before being filled into the oil tank.

c) The oil should be changed every 2-3 years when the oil turns bad, but the first time should be within three months or filtered precisely again.

d) The slide should be lubricated regularly. The outside part of the guide rods should be kept clean and well lubricated every time before operation.

e) The maximum eccentricity of 30mm is allowable at the nominal pressing force. If more, it is much easier to damage the machine.

f) Check the pressure gauge once every half a year;

g) If the machine is unused for a long time, its machined surface should be cleaned and lubricated with antirust oil.

2. Safe Operation Rules

a) Those people who are not familiar with its construction performance and operation sequence are not allowed to operate the machine.

b) It is prohibited to maintain the machine or adjust the die during its running.

c) When you find serious oil leakage or other abnormality of this machine（such as the unsuccessful action，some bad noise and vibration）, you should stop it quickly, then analyze the causes and try to find out the trouble shooting method. It is not allowed to run the machine with troubles.

d) It is prohibited to run the machine overload or beyond its eccentricity limitation.

e) It is prohibited to run the machine beyond its slide stroke range. Usually the Min. opening between worktable and slide should be 50mm above the shut height for safety.

f) The electricity equipments must be earthed reliably and firmly.

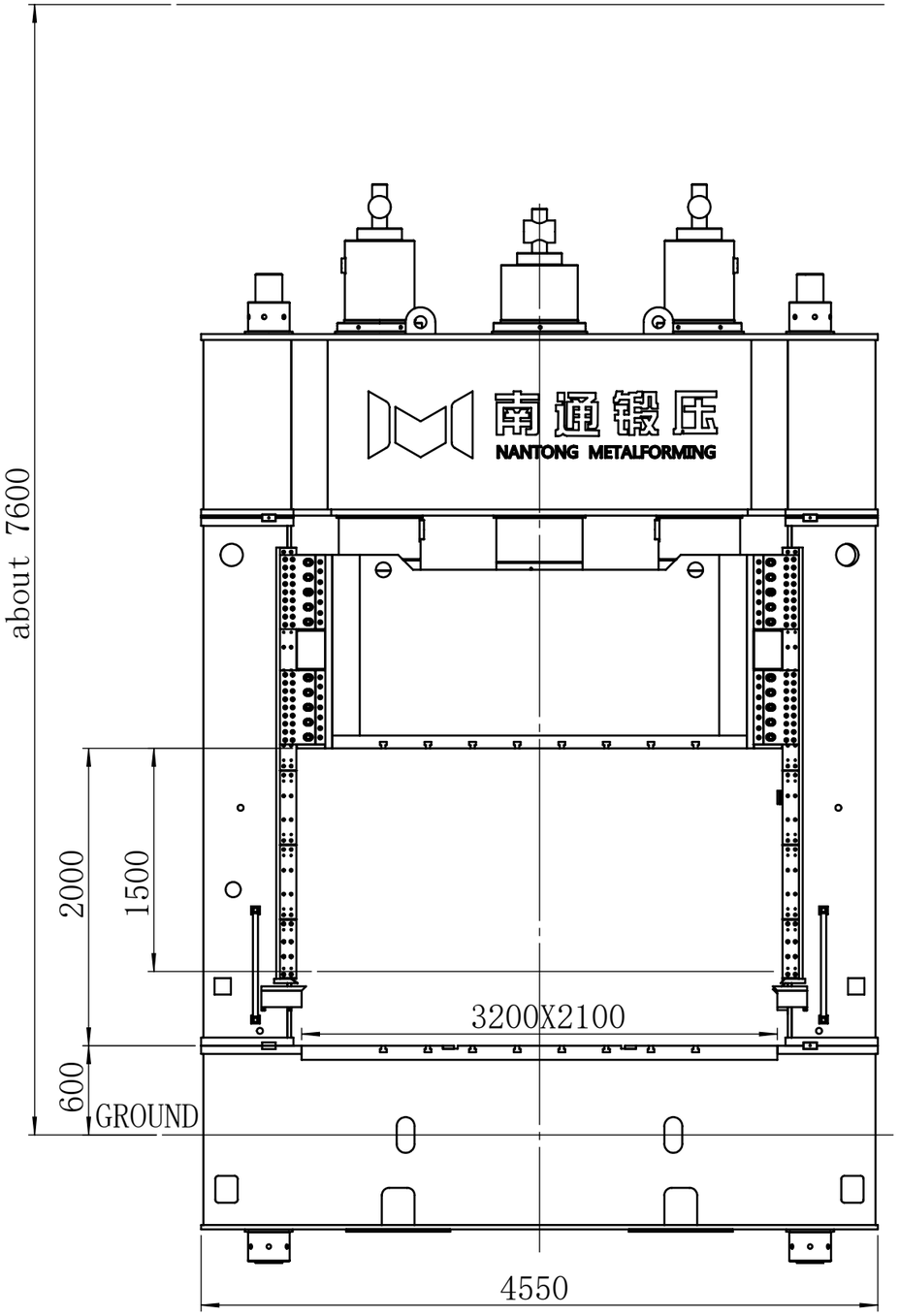
IX. Wearing parts

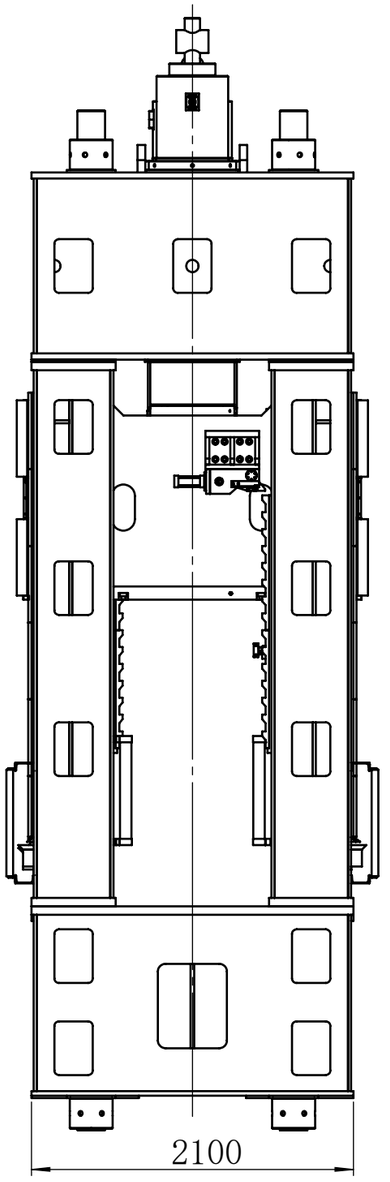
List of wearing parts of the press:

part	model	name	material	Qty.	note
Main cylinder	D440Xd416XL26.5	YX-D-type ring(RAM)	PU	1	
	D440×5.7	O-type ring	NBR	1	
	d380XD395XL20	Y-type ring(ROD)	PU	2	
	d380	JA-type ring(ROD)	PU	1	
	Attached drawing	Rod guide sleeve	HT250	1	
Side cylinder	D360Xd3455XL20	YA-type ring(RAM)	PU	4X2	
	D400Xd385XL20	YA-type ring(RAM)	PU	1X2	
	D260×5.7	O-type ring	NBR	2X2	
	d320XD335XL20	Y-type ring(ROD)	X-PU	2X2	
	d320	JA-type ring(ROD)	PU	1X2	
	D400×5.7	O-type ring	NBR	1X2	
	Attached drawing	ram	HT250	1X2	
	Attached drawing	Rod guide sleeve	HT250	1X2	

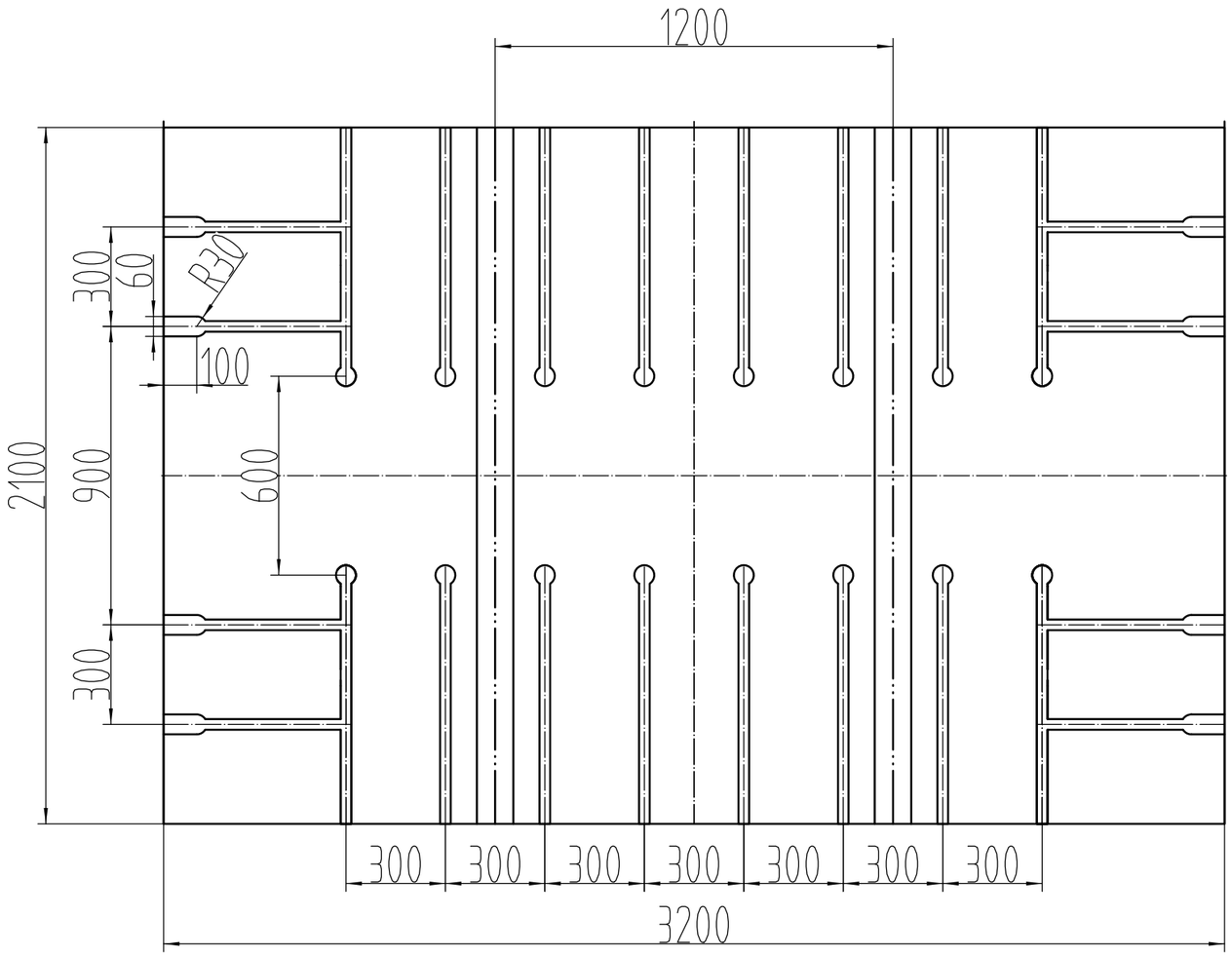
X. Attached Drawings

See the attachment.



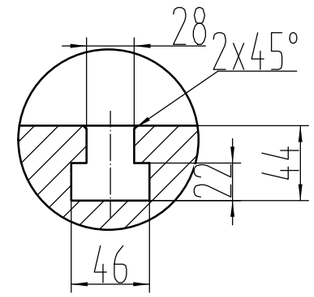


YQK71-800	INSTRUCTION MANUAL	1
		overall drawing

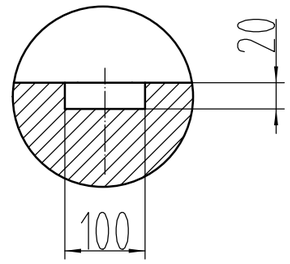


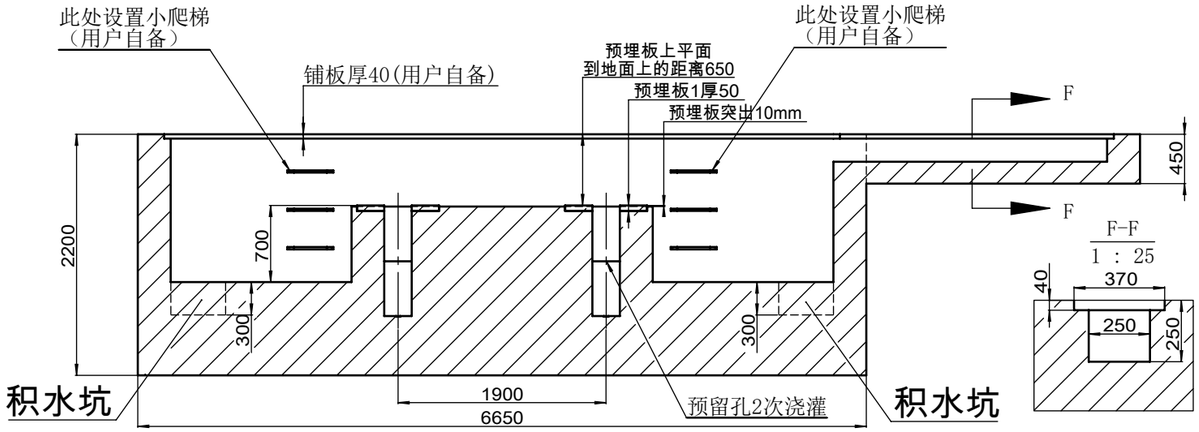
T-slot size

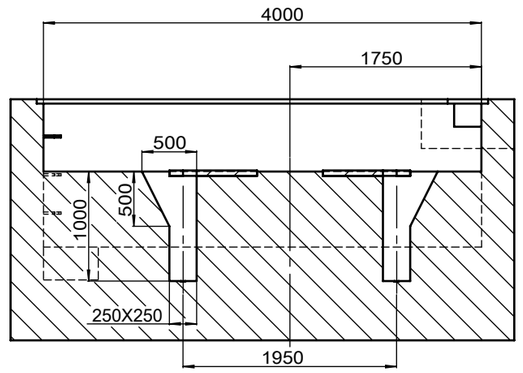
The size and position of the slide block are the same

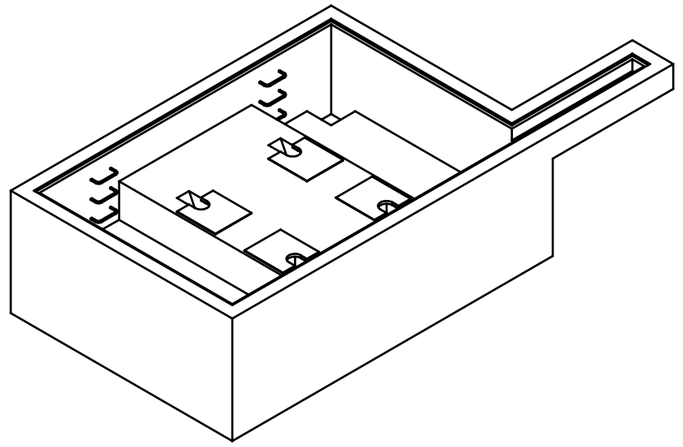


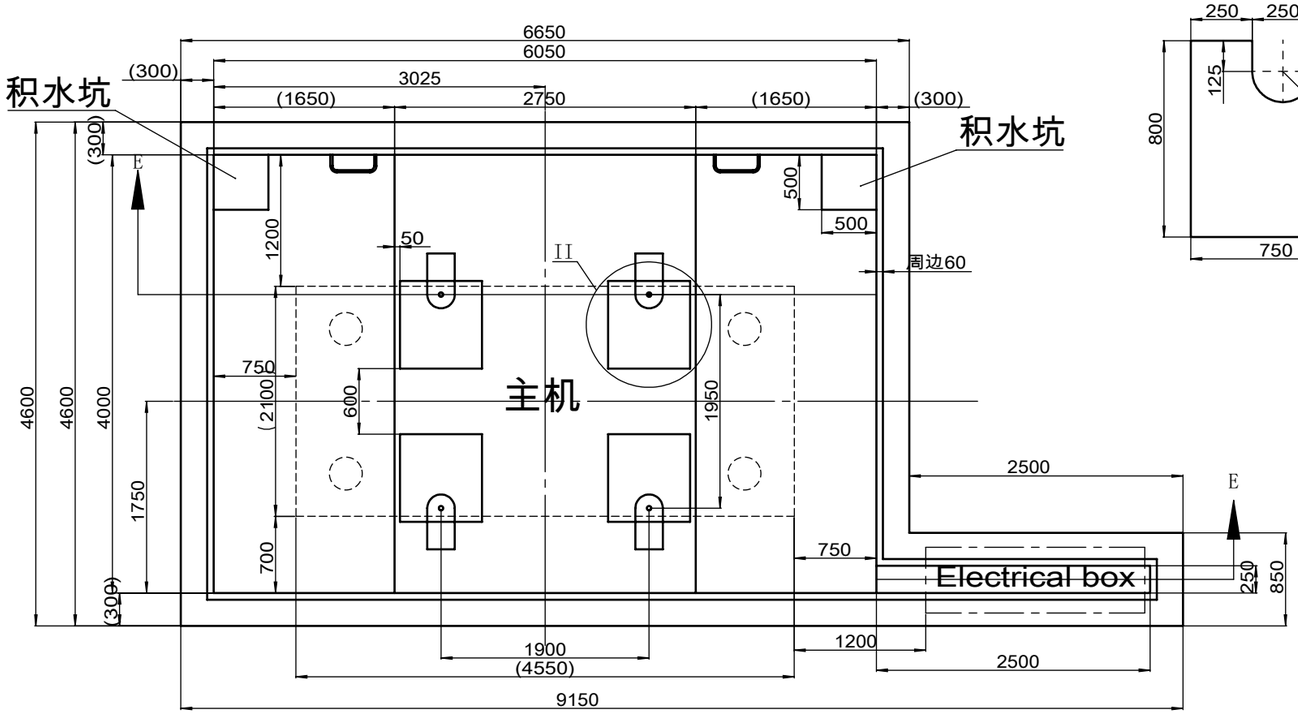
Quenching plate Grove size











↑压机正面

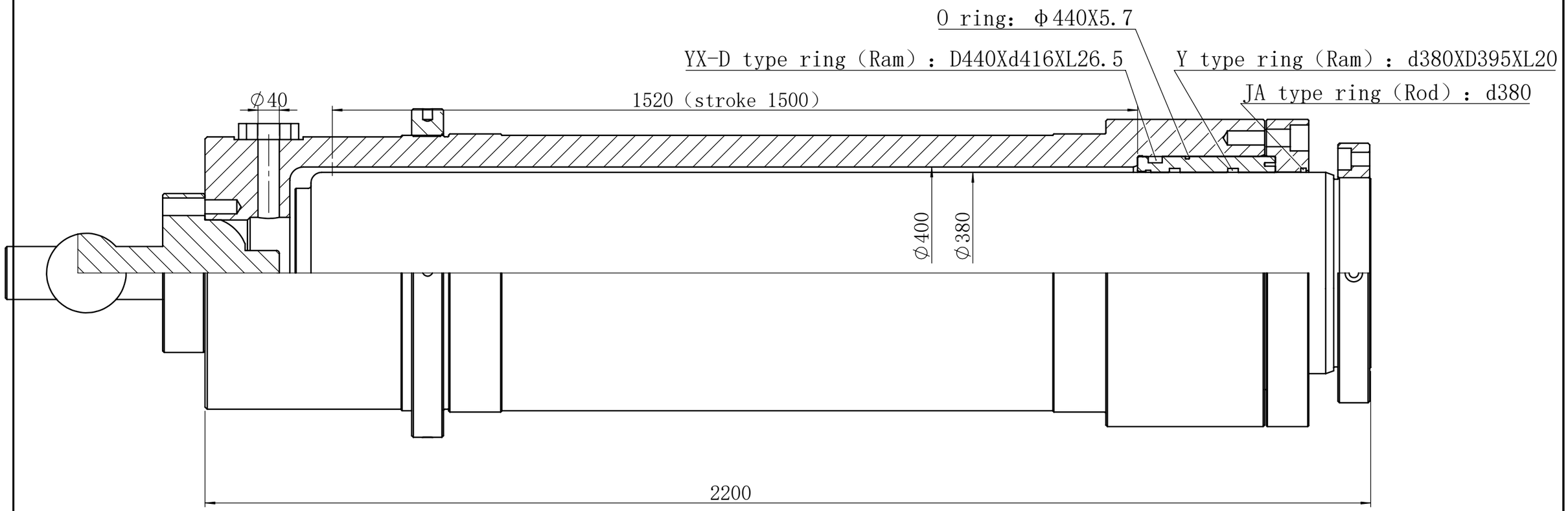
II
1 : 25(预埋板1，用户自备4块)

Explanation:

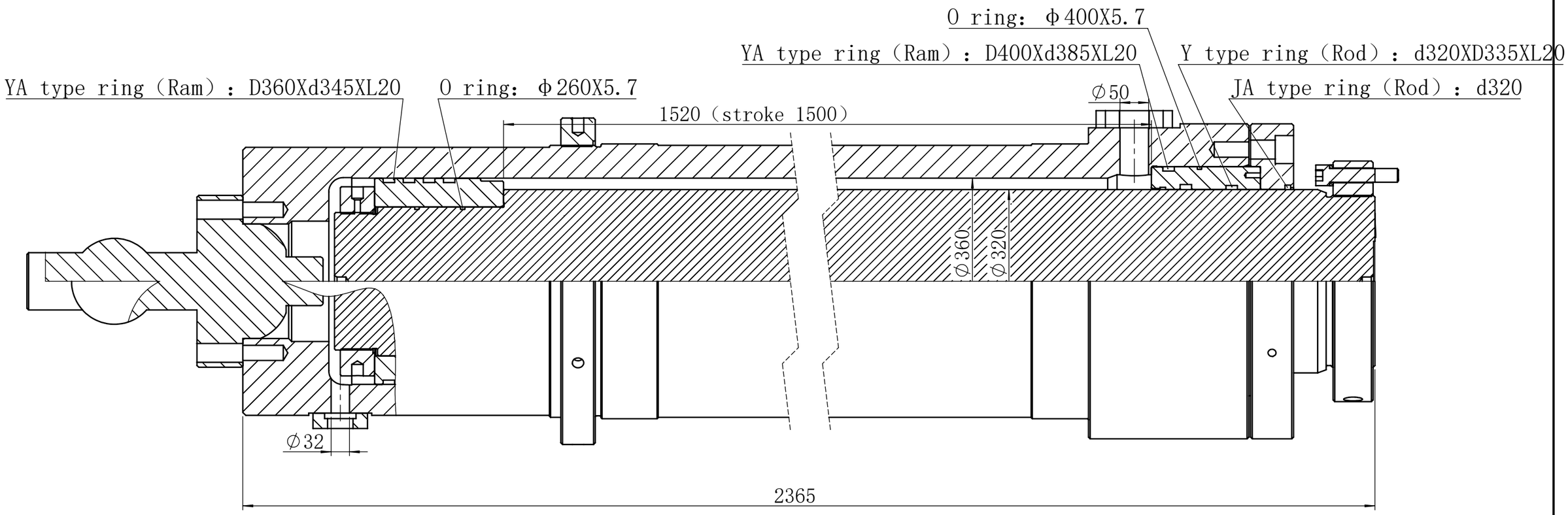
1、The customer can by oneself design the foundationaccording to the on-the-spot circumstance.

2、Drain to equip,power supply circuit the customerby oneself consider the construction。

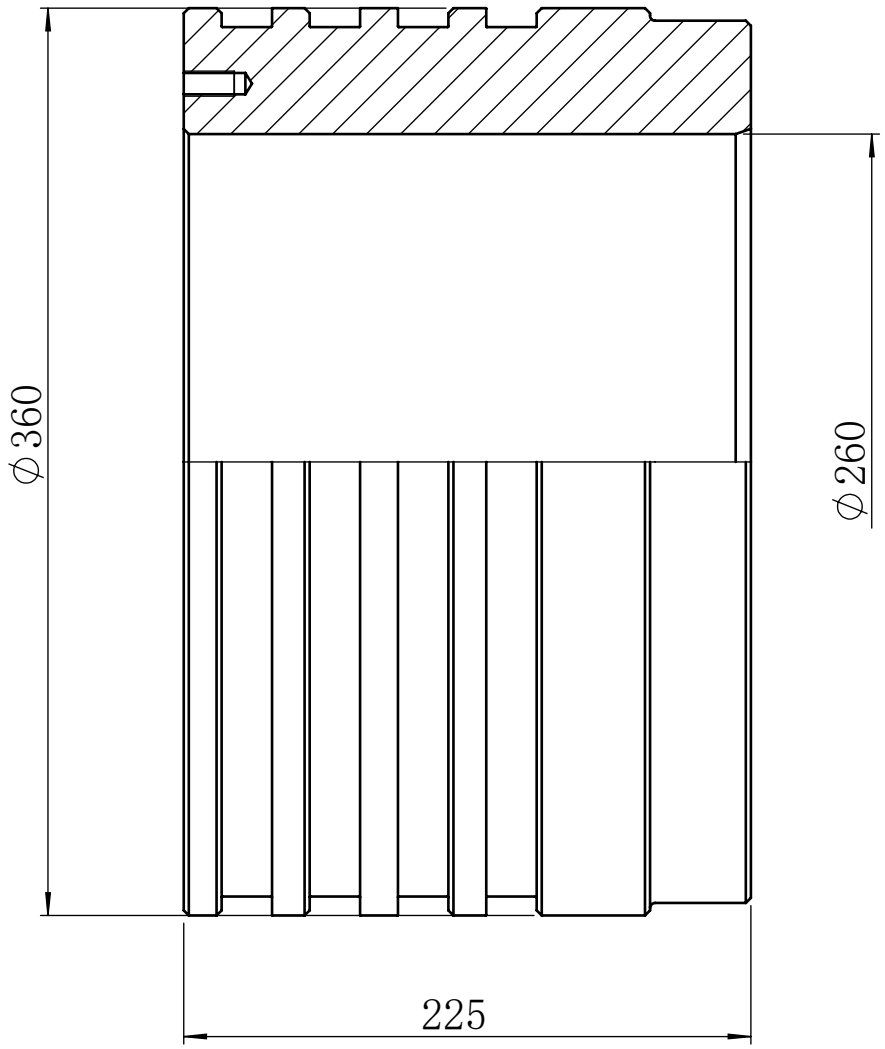
YQK71-800	INSTRUCTION MANUAL	3
		Foundation drawing

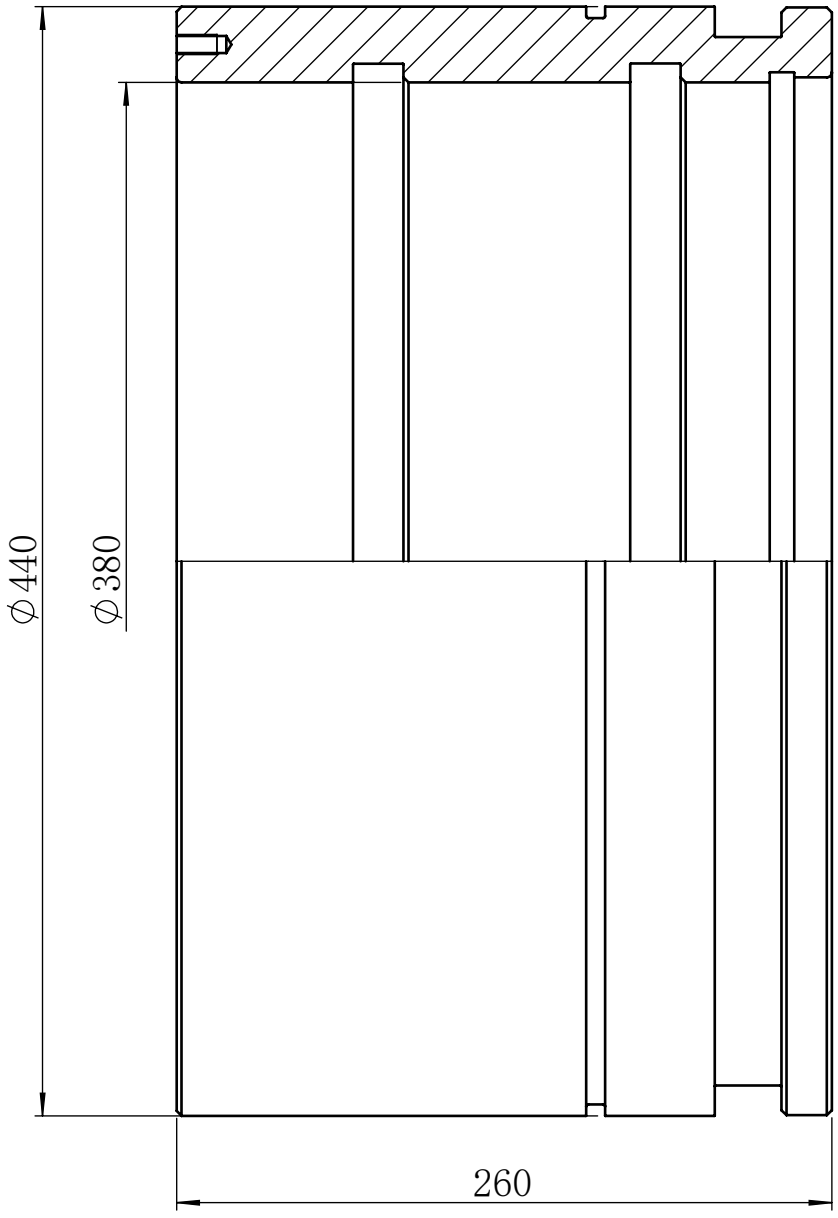


YQK71-800	使用说明书	4
		Main cylinder drawing

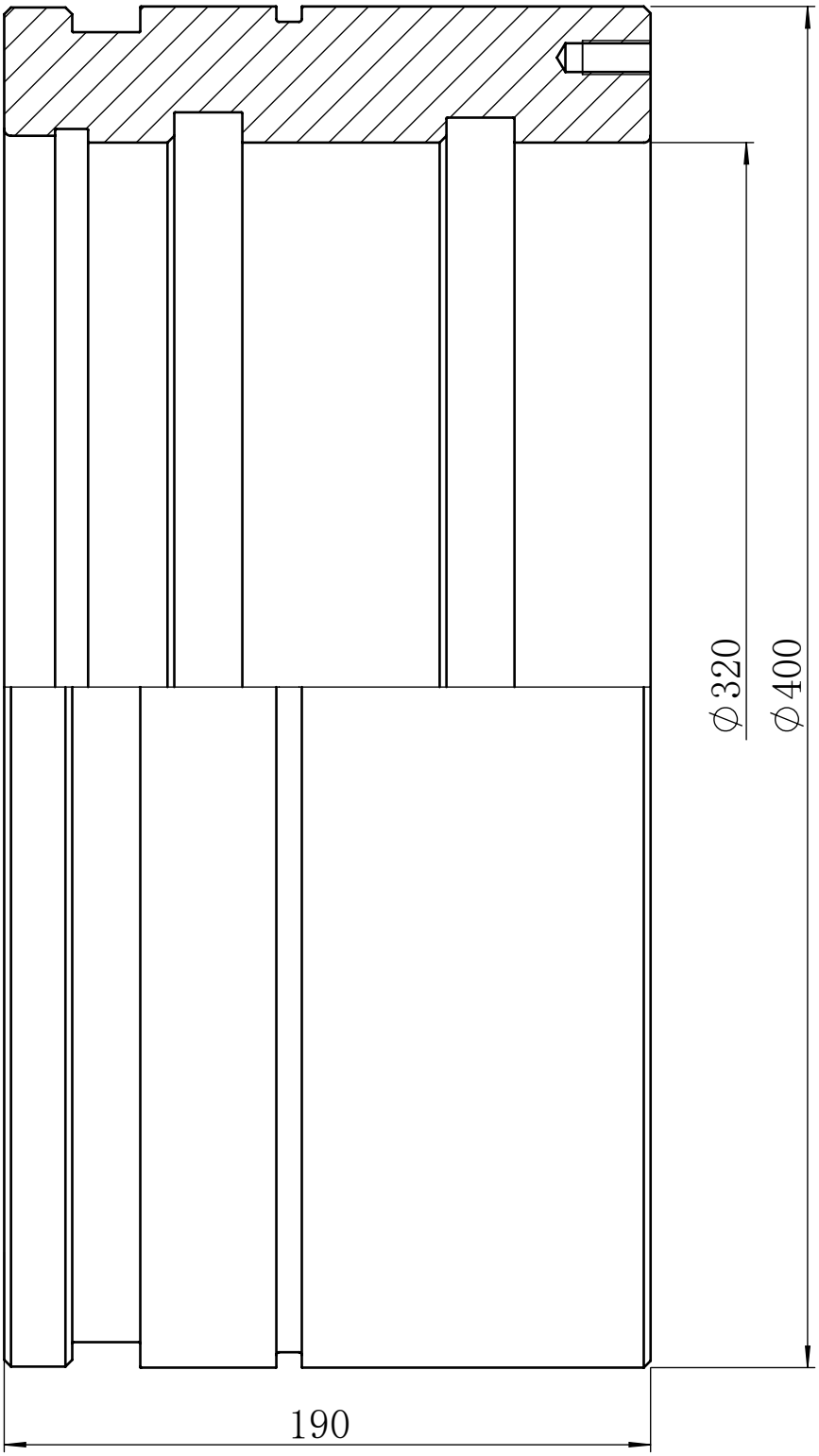


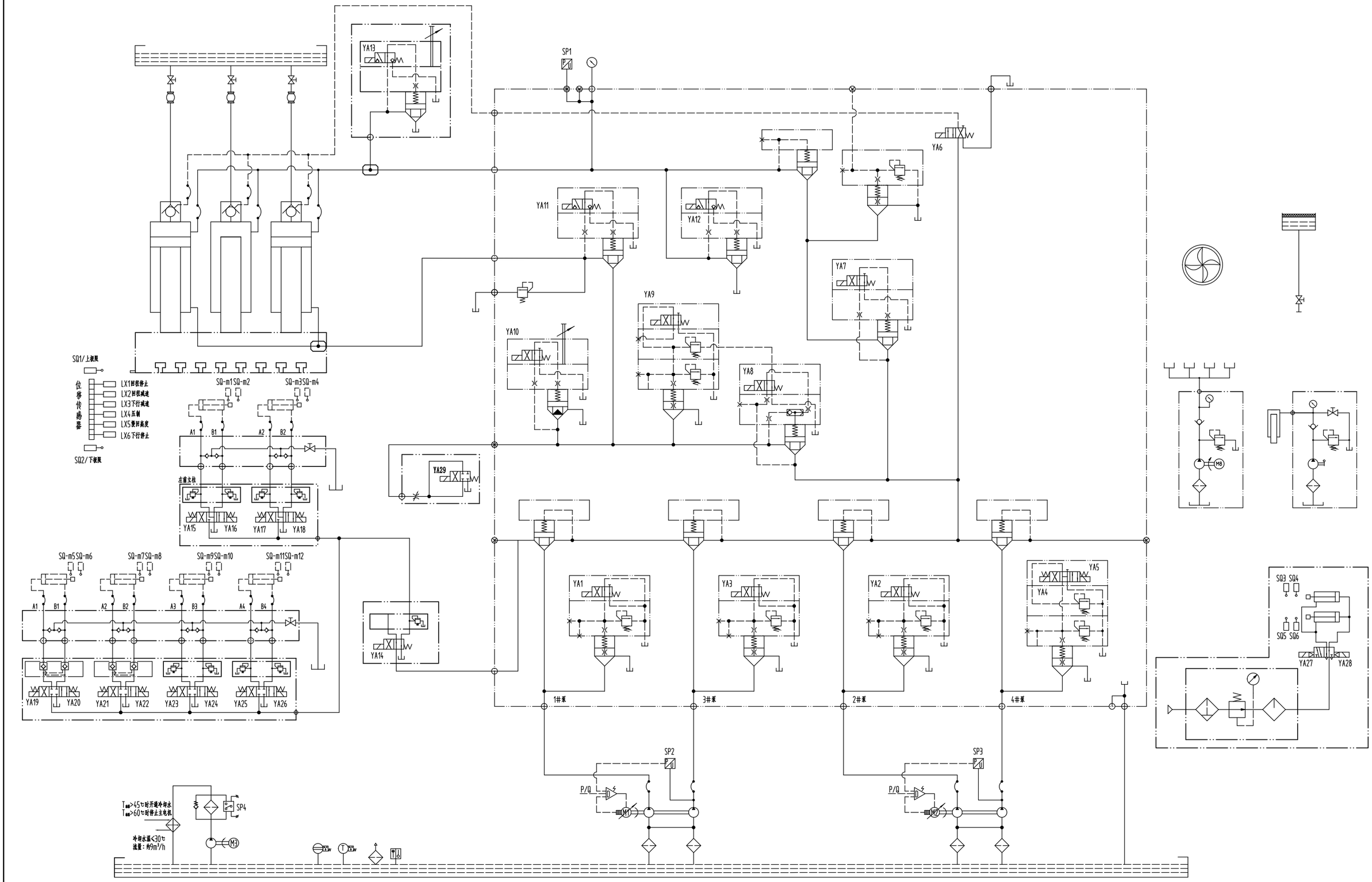
YQK71-800	INSTRUCTION MANUAL	5
		Side cylinder drawing


∅360
∅260
225



YQK71-800	使用说明书	7 Main cylinder guide sleeve drawing


ϕ320
ϕ400
190



YQK71-800	INSTRUCTION MANUAL	9-1 Hydraulic Circuit

工作方式	序号	动作名称	发讯元件	电磁铁-YA																											电动机M1		电动机M2		M3	备注
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	转速/r/min	压力/MPa	转速/r/min	压力/MPa		
调整	1	压制	SB2	1P	2P	3	4			7				11																			1000	P	1000	P		P≥10Mpa,YA1/2失电
	2	回程	SB3	1	2	3	4		6		8				12																		1000	P	1000	P		
	3	辅助缸1前进	SB4				4										14		16														500	P	500	P		
	4	辅助缸1后退	SB5				4										14	15															500	P	500	P		
	5	辅助缸2前进	SB6				4										14				18												500	P	500	P		
	6	辅助缸2后退	SB7				4										14			17													500	P	500	P		
	7	辅助缸3前进	SB8				4										14						20										500	P	500	P		
	8	辅助缸3后退	SB9				4										14					19											500	P	500	P		
	9	辅助缸4前进	SB10				4										14								22								500	P	500	P		
	10	辅助缸4后退	SB11				4										14							21									500	P	500	P		
	11	辅助缸5前进	SB12				4										14										24						500	P	500	P		
	12	辅助缸5后退	SB13				4										14									23							500	P	500	P		
	13	辅助缸6前进	SB14				4										14												26				500	P	500	P		
	14	辅助缸6后退	SB15				4										14											25					500	P	500	P		
	15	锁紧缸锁紧	SB16																												28						
	16	锁紧缸松锁	SB17																											27							
	17	无压下行	SB18											11																		29						

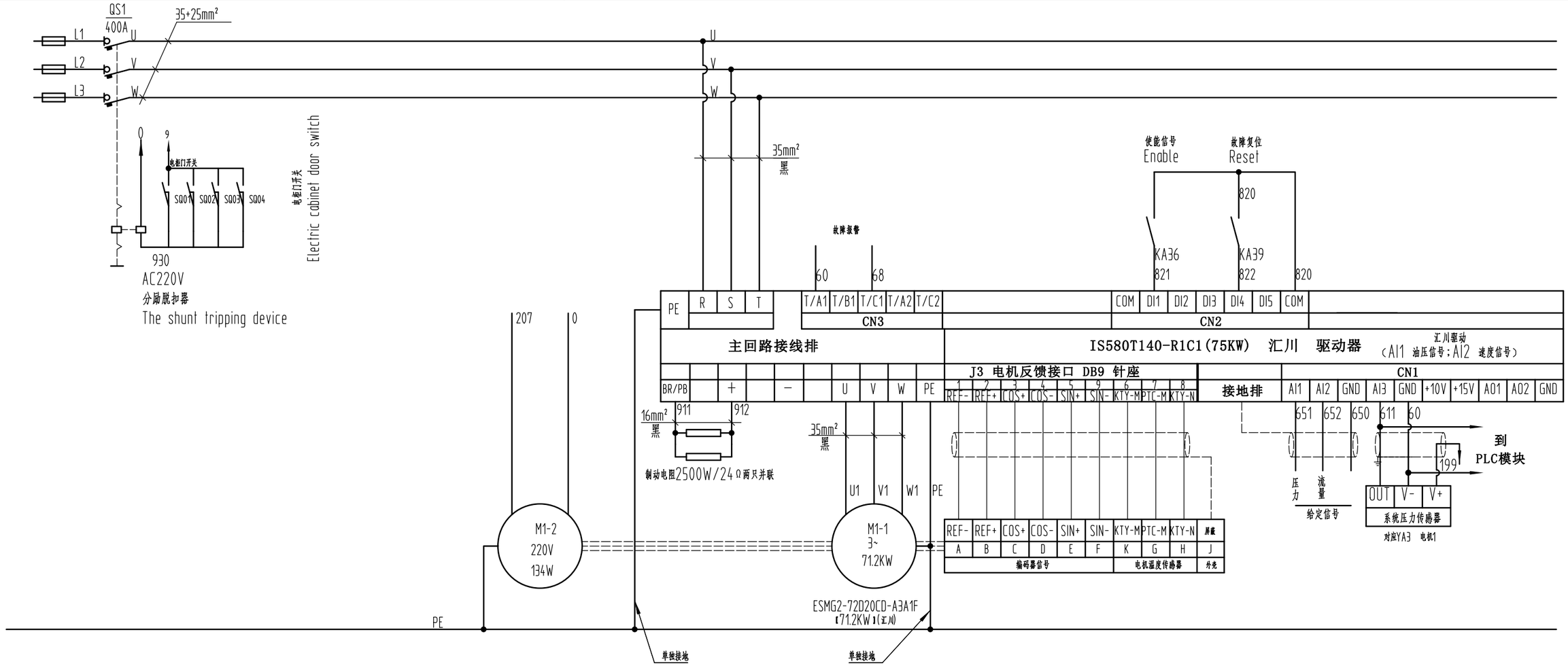
工作方式	序号	动作名称	发讯元件	电磁铁-YA																											电动机M1		电动机M2		M3	备注
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	转速/r/min	压力/MPa	转速/r/min	压力/MPa		
半自动-成型冲切	1	锁紧缸松锁	双手按钮SB1																											27							
	2	快下	SQ4 or SQ6	1	2	3	4			7		9	10	11																		1000	5	1000	5		
	3	快下减速	LX3	1	2	3	4			7		9		11																		1000	5	1000	5		
	4	加压	LX4	1P	2P	3	4			7				11																		2000	P	2000	P		P≥10Mpa,YA1/2失电
	5	保压	LX6 or SP1																																		
	6	慢回	KT1	1							8				12	13																	1000	P	1000	P		
	7	加压	LX5	1	2	3	4			7				11																		2000	P	2000	P		P≥10Mpa,YA1/2失电
	8	保压	LX6 or SP1																														0	0	0	0		
	9	补压	SP1″				4			7				11																			500	P	500	P		
	10	泄压	KT2					5T	6T						12																		500	5	500	5		
	11	快回	LX5	1	2	3	4		6		8				12																		2000	P	2000	P		
	12	回程减速	LX2	1	2	3	4		6		8				12																		1000	P	1000	P		
	13	锁紧缸锁紧	LX1																												28						
	14	停止	SQ3 or SQ5																																		

工作方式	序号	动作名称	发讯元件	电磁铁-YA																													电动机M1		电动机M2		M3	备注
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	转速/r/min	压力/MPa	转速/r/min	压力/MPa		
半自动-成型	1	锁紧缸松锁	双手按钮SB1																											27							
	2	快下	SQ4 or SQ6	1	2	3	4			7		9	10	11																		1000	5	1000	5		
	3	快下减速	LX3	1	2	3	4			7		9		11																		1000	5	1000	5		
	4	加压	LX4	1	2	3	4			7				11																		2000	P	2000	P		P≥10Mpa,YA1/2失电
	5	保压	LX6 or SP1																																		
	6	补压	SP1″				4			7				11																			500	P	500	P		
	7	泄压	KT1					5T	6T						12																		500	5	500	5		
	8	快回	LX5	1	2	3	4		6		8				12																		2000	P	2000	P		
	9	回程减速	LX2	1	2	3	4		6		8				12																		1000	P	1000	P		
	10	锁紧缸锁紧	LX1																												28						
	11	停止	SQ3 or SQ5																																		

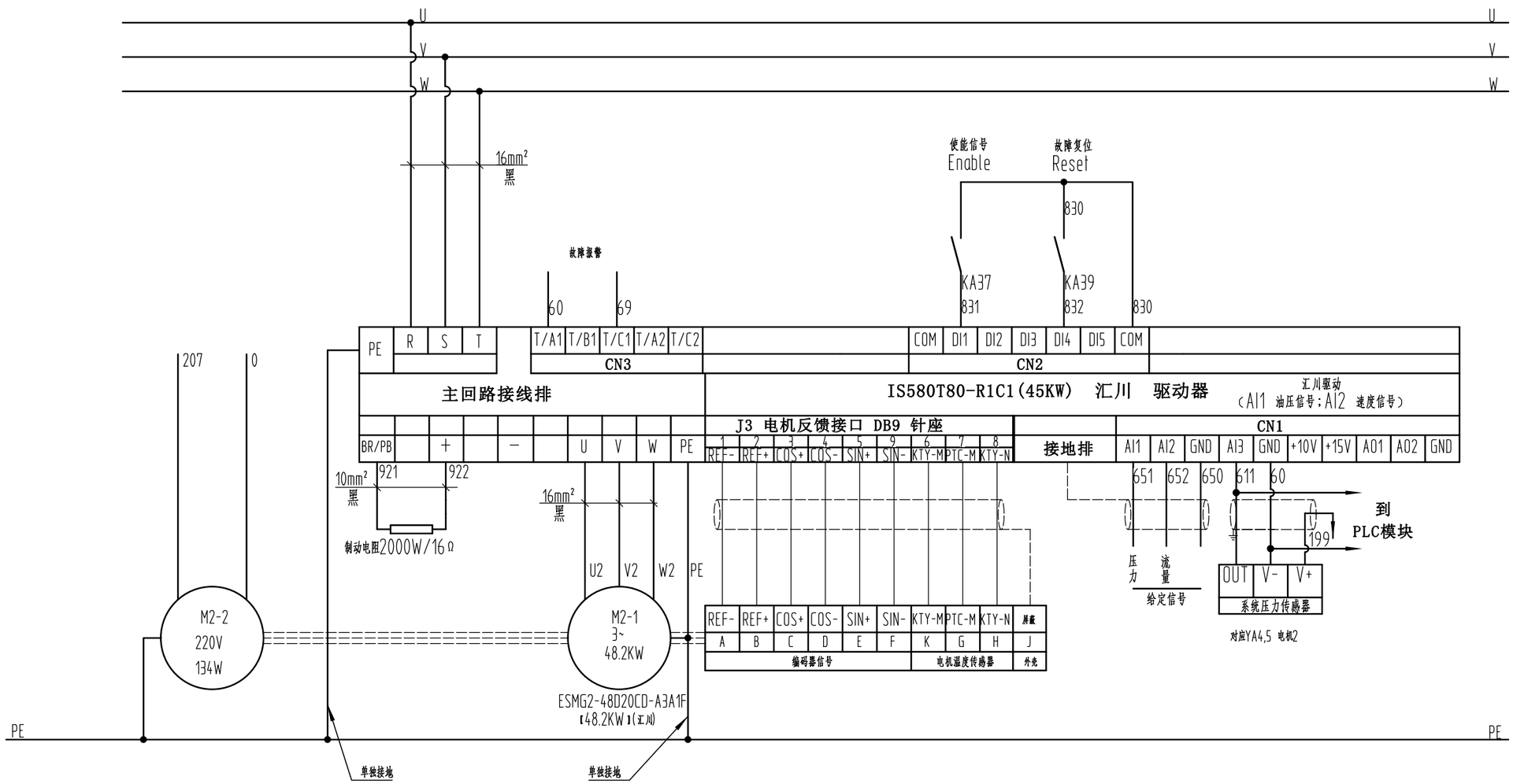
空气开关
Air switch

电机1风扇
Servo motor1 fan

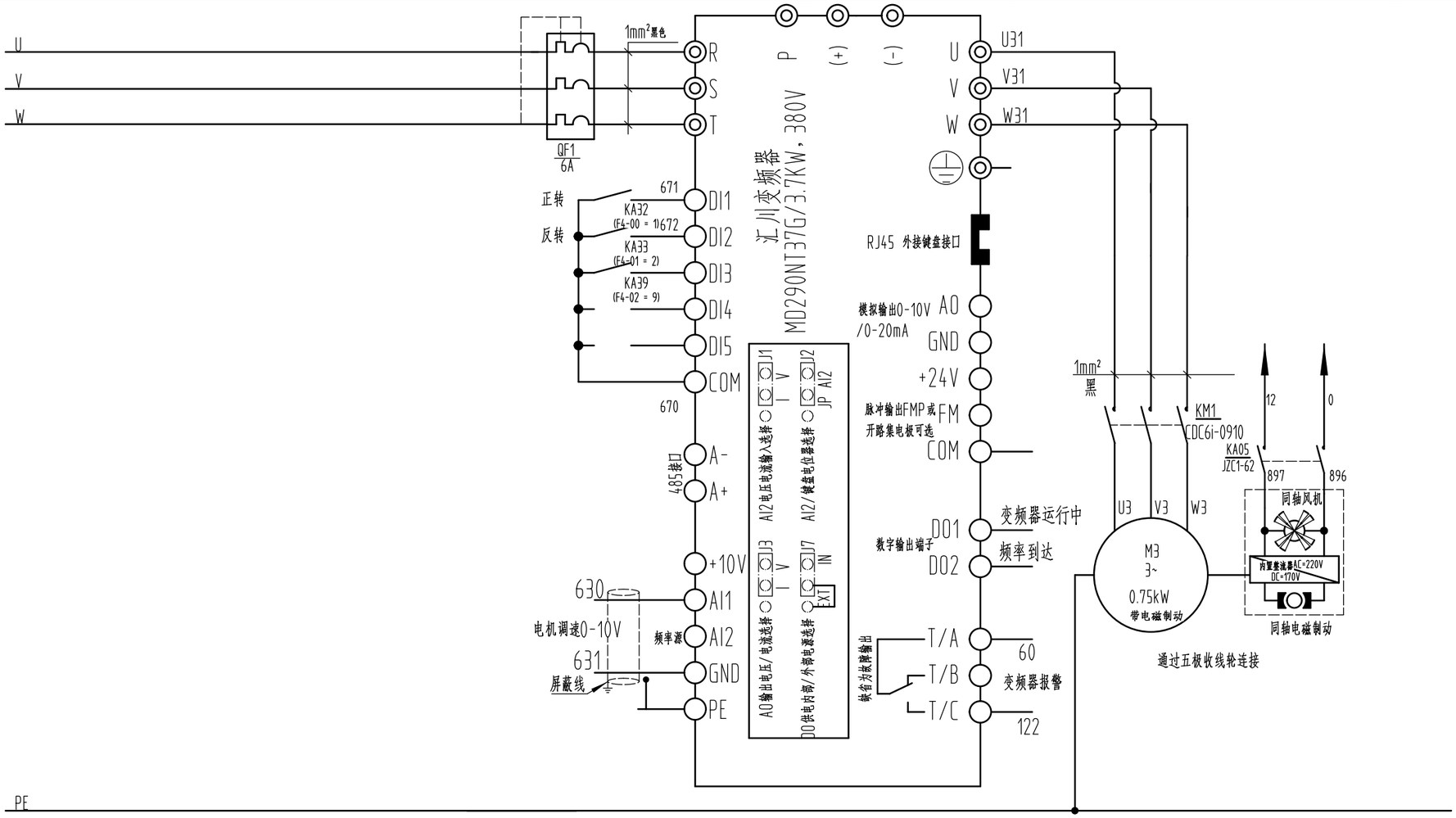
驱动器1
Servo 1 driver



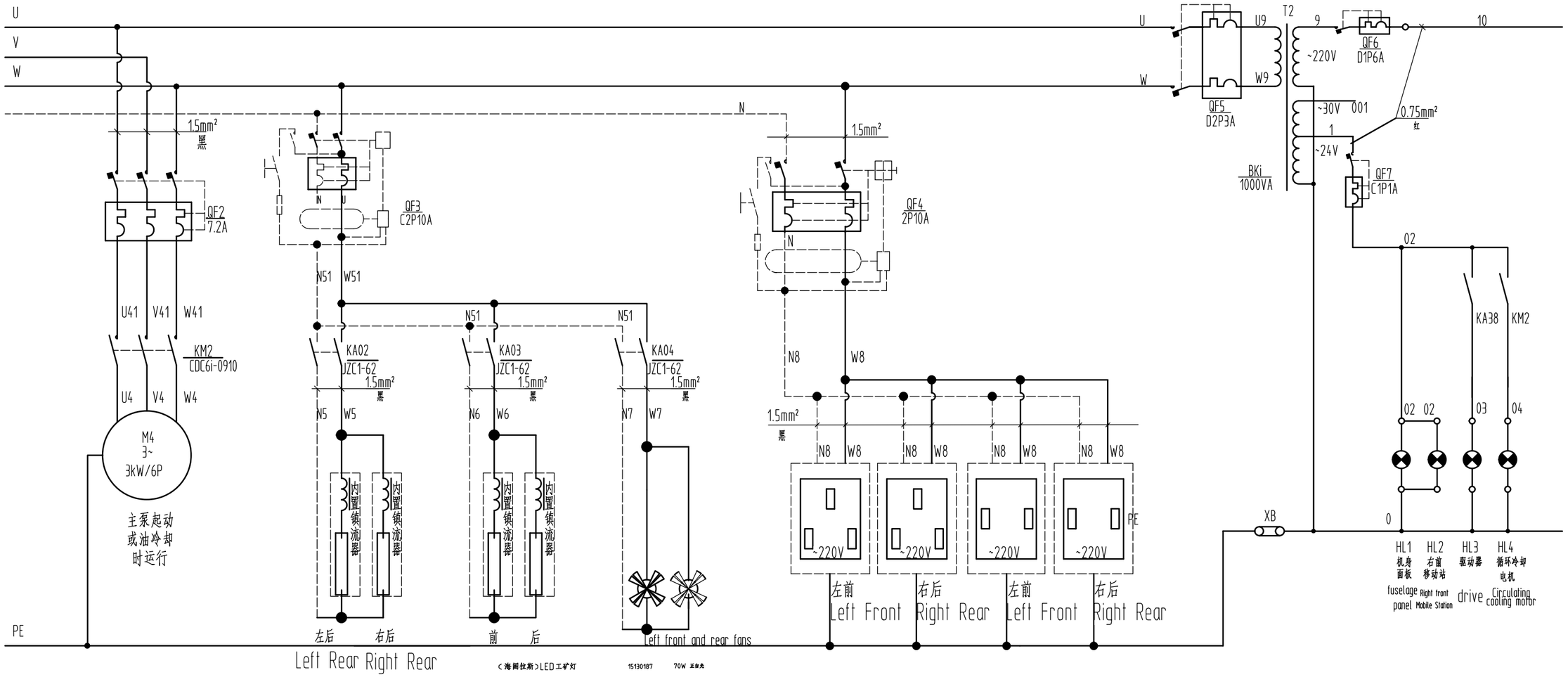
	电机2风扇 Servo motor2 fan	驱动器2 Servo 2 driver



变频器保护	变频器	换模小车电机（预留 客户自备）	
Frequency converter protection	frequency converter	Motor for mold changing trolley (reserved for customer to provide)	

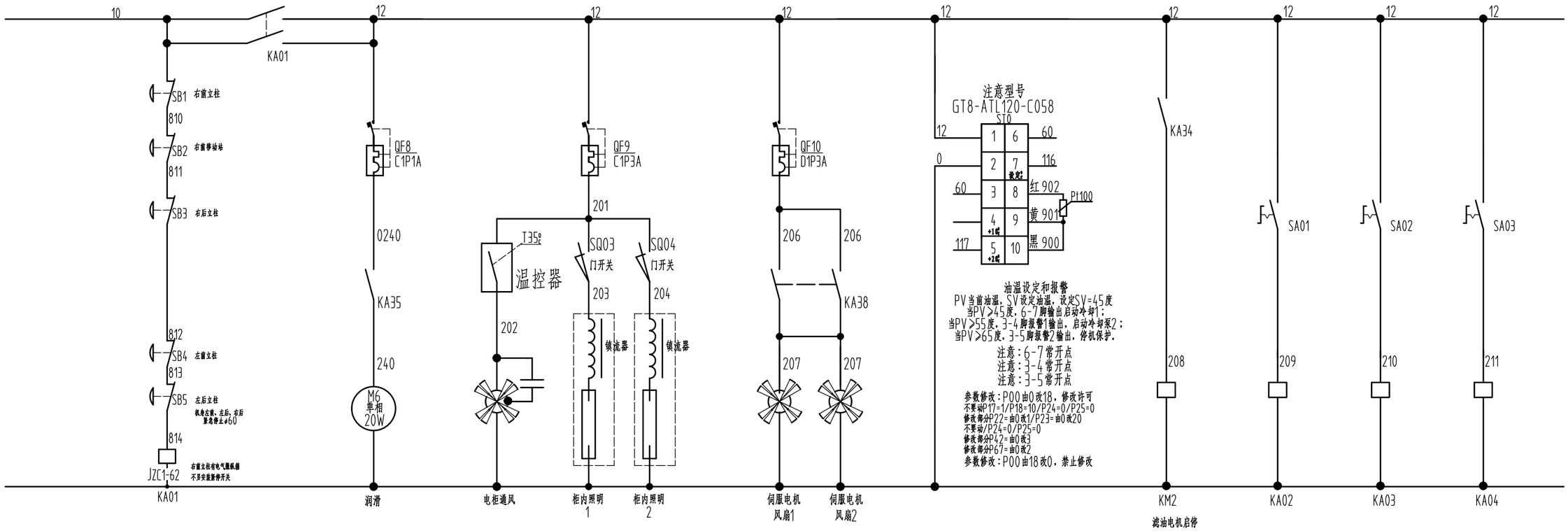


循环滤油电机	模区照明	工作区照明	机身风扇	左前、右后 220V 插座	控制保护	控制变压器	断路器	信号灯	
								有电指示	电机指示
Circulating oil filter motor	Modal lighting	Workplace lighting	Body fan	Left front and right rear 220V sockets	control protection	Control transformer	Circuit breaker	signal lamp	
								Electric indication	Motor indication



〈海阔拉斯〉LED工矿灯 15130187 70W 正白光

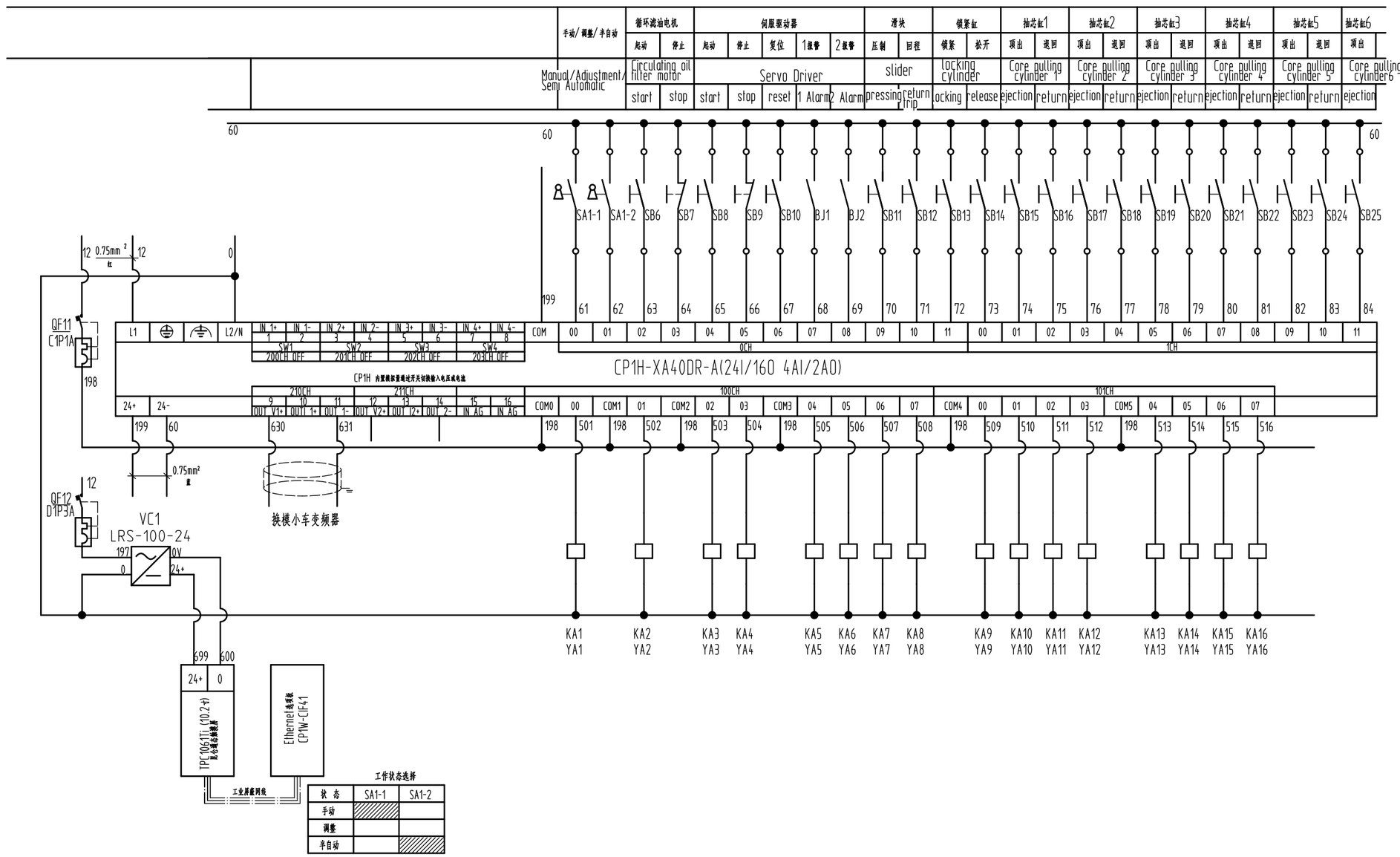
紧急停止	润滑启动	柜内通风/照明	伺服风扇	油温检测	循环滤油电机启停	模区照明	工作区照明	机身风扇
emergency stop	Lubrication start	Ventilation/lighting inside the cabinet	Servo fan	Oil temperature detection	Circulating oil filter motor start stop	Modal lighting	Workplace lighting	Body fan



模区照明	
状 态	SA01
断开	
接通	

工作区照明	
状 态	SA02
断开	
接通	

机身风扇	
状 态	SA03
断开	
接通	


手动/调整/半自动
循环滤油电机
起动
停止
伺服驱动器
起动
停止
复位
1报警
2报警
滑块
压制
回程
锁紧缸
锁紧
松开
抽芯缸1
顶出
退回
抽芯缸2
顶出
退回
抽芯缸3
顶出
退回
抽芯缸4
顶出
退回
抽芯缸5
顶出
退回
抽芯缸6
顶出
Manual/Adjustment/ Semi Automatic
Circulating oil filter motor
Servo Driver
slider
locking cylinder
Core pulling cylinder 1
Core pulling cylinder 2
Core pulling cylinder 3
Core pulling cylinder 4
Core pulling cylinder 5
Core pulling cylinder6
start
stop
start
stop
reset
1 Alarm
2 Alarm
pressing
return trip
locking
release
ejection
return
ejection
return
ejection
return
ejection
return
ejection
return
ejection
60
199
SA1-1
SA1-2
SB6
SB7
SB8
SB9
SB10
BJ1
BJ2
SB11
SB12
SB13
SB14
SB15
SB16
SB17
SB18
SB19
SB20
SB21
SB22
SB23
SB24
SB25
12
0.75mm²
红
12
0
QF11
C1P1A
198
L1
L2/N
IN_1+
IN_1-
IN_2+
IN_2-
IN_3+
IN_3-
IN_4+
IN_4-
SW1
200CH OFF
SW2
201CH OFF
SW3
202CH OFF
SW4
203CH OFF
COM
00
01
02
03
04
05
06
07
08
09
10
11
0CH
1CH
CP1H-XA40DR-A(24I/16O 4AI/2AO)
CP1H 内置模拟量通过开关切换输入电压或电流
210CH
211CH
100CH
101CH
24+
24-
OUT V1+
OUT I1+
OUT I1-
OUT V2+
OUT I2+
OUT I2-
IN AG
COM0
COM1
COM2
COM3
COM4
COM5
199
60
630
631
0.75mm²
黑
换模小车变频器
12
QF12
D1P3A
VC1
LRS-100-24
197
0
0V
24+
699
600
24+
0
TPC1061Ti (10.2寸)
真彩变态触摸屏
Ethernet通讯板
CP1W-CIF41
工业屏蔽网线
工作状态选择
状 态
SA1-1
SA1-2
手动
调整
半自动
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
KA1
YA1
KA2
YA2
KA3
YA3
KA4
YA4
KA5
YA5
KA6
YA6
KA7
YA7
KA8
YA8
KA9
YA9
KA10
YA10
KA11
YA11
KA12
YA12
KA13
YA13
KA14
YA14
KA15
YA15
KA16
YA16

抽芯缸6	换模小车（预留）						滑块		锁紧缸1		锁紧缸2		抽芯缸1		抽芯缸2		抽芯缸3		抽芯缸4		抽芯缸5		抽芯缸6			首移动站		首侧光电	后侧光电	油箱液位低	润滑液位低	滤油报警	油温		紧急停止	静止	循环滤油电机过载	变频器											
退回	移入	移出	连接检测信号	移入前限	移出后限		上极限	下极限	前限	后限	前限	后限	顶出到位	退回到位	顶出到位	退回到位	顶出到位	退回到位	顶出到位	退回到位	顶出到位	退回到位	顶出到位	退回到位		双手运行	双手运行							45℃	60℃				保护	报警										
Core pulling cylinder 6 return	Mold changing trolley (reserved)						slider		Locking cylinder 1		Locking cylinder 2		Core pulling cylinder 1		Core pulling cylinder 2		Core pulling cylinder 3		Core pulling cylinder 4		Core pulling cylinder 5		Core pulling cylinder 6			Front Mobile Station		Front side photoelectricity	Rear side photoelectricity	Low fuel tank level	Low lubrication level	Oil filter alarm	Oil temperature		emergency stop	stop	Circulating oil motor overload	frequency converter											
	Move in	Remove	Connection detection signal	Move in front limit	Remove rear limit		Upper limit	Lower limit	prosodelic	Pasterior limit	prosodelic	Pasterior limit	Ejection in place	Return in place	Ejection in place	Return in place	Ejection in place	Return in place	Ejection in place	Return in place	Ejection in place	Return in place	Ejection in place	Return in place		Running with both Hands	Running with both Hands							45℃	60℃				protect	alarm										

模具上的辅助油缸及限位信号均由用户提供！

60 60 60

199 199

SB26 SB27 SB28 LJJC SQ1 SQ2 SQ3 SQ4 SQ5 SQ6 SQ7 SQ8 SQ9 SQ10 SQ11 SQ12 SQ13 SQ14 SQ15 SQ16 SQ17 SQ18 SQ19 SQ20

SB29 SB30 1HL 2HL YW2 YW2 SP01 WJ1-1 WJ1-2 KA01 SB31 QF2 QF1 BJ3

199 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108

199 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132

COM 00 01 02 03 04 05 06 07 08 09 10 11 | 00 01 02 03 04 05 06 07 08 09 10 11

2CH 3CH

CP1W-40EDR(24I/160)

COM 00 01 02 03 04 05 06 07 08 09 10 11 | 00 01 02 03 04 05 06 07 08 09 10 11

4CH 5CH

CP1W-40EDR(24I/160)

102CH 103CH

COM0 00 COM1 01 COM2 02 03 COM3 04 05 06 07 | COM4 00 01 02 03 COM5 04 05 06 07

198 517 198 518 198 519 520 198 521 522 523 524 198 525 526 527 528 198 529 530 531 532

104CH 105CH

COM0 00 COM1 01 COM2 02 03 COM3 04 05 06 07 | COM4 00 01 02 03 COM5 04 05 06 07

198 533 198 534 198 535 536 198 537 538 539 540 198 541 542 543 544 198 545 546 547 548

162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177

0

KA17 YA17 KA18 YA18 KA19 YA19 KA20 YA20 KA21 YA21 KA22 YA22 KA23 YA23 KA24 YA24 KA25 YA25 KA26 YA26 KA27 YA27 KA28 YA28 KA29 KA30 KA31

JZC1-62 JZC1-62

ERACL-A220•SYFHA1

KM1 电机 KA32 正转 KA33 反转 KA05 制动器 — 换模小车电机

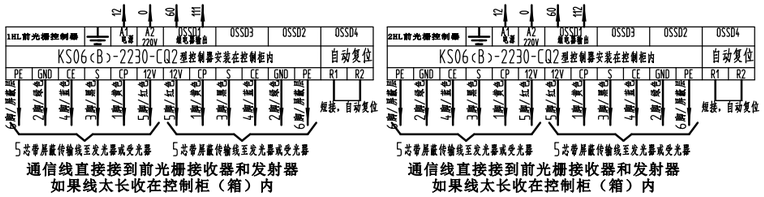
electrical machinery coroation reversal brakes — motor for mold changing trolley

KA34 循环冷却电机 KA35 润滑运行

circulating cooling electrical machinery lubrication working

KA36 1使能 KA37 2使能 KA38 启动 KA39 复位 — 伺服电机

1 Enable 2 Enable firing reset — servo motor

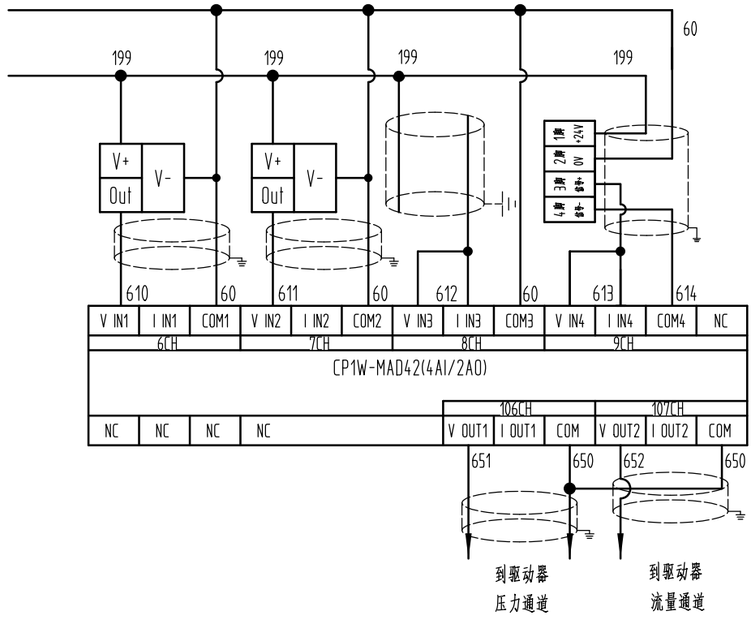


通信线直接接到前光栅接收器和发射器
如果线太长收在控制柜（箱）内

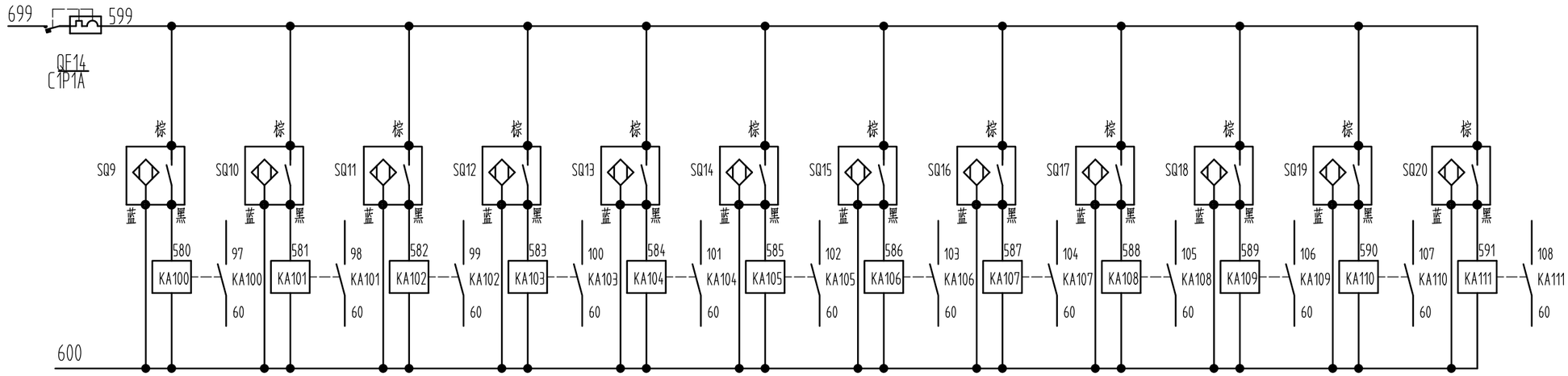
通信线直接接到前光栅接收器和发射器
如果线太长收在控制柜（箱）内

YQK71-800	INSTRUCTION MANUAL	10-7
		Electrical schematic diagram

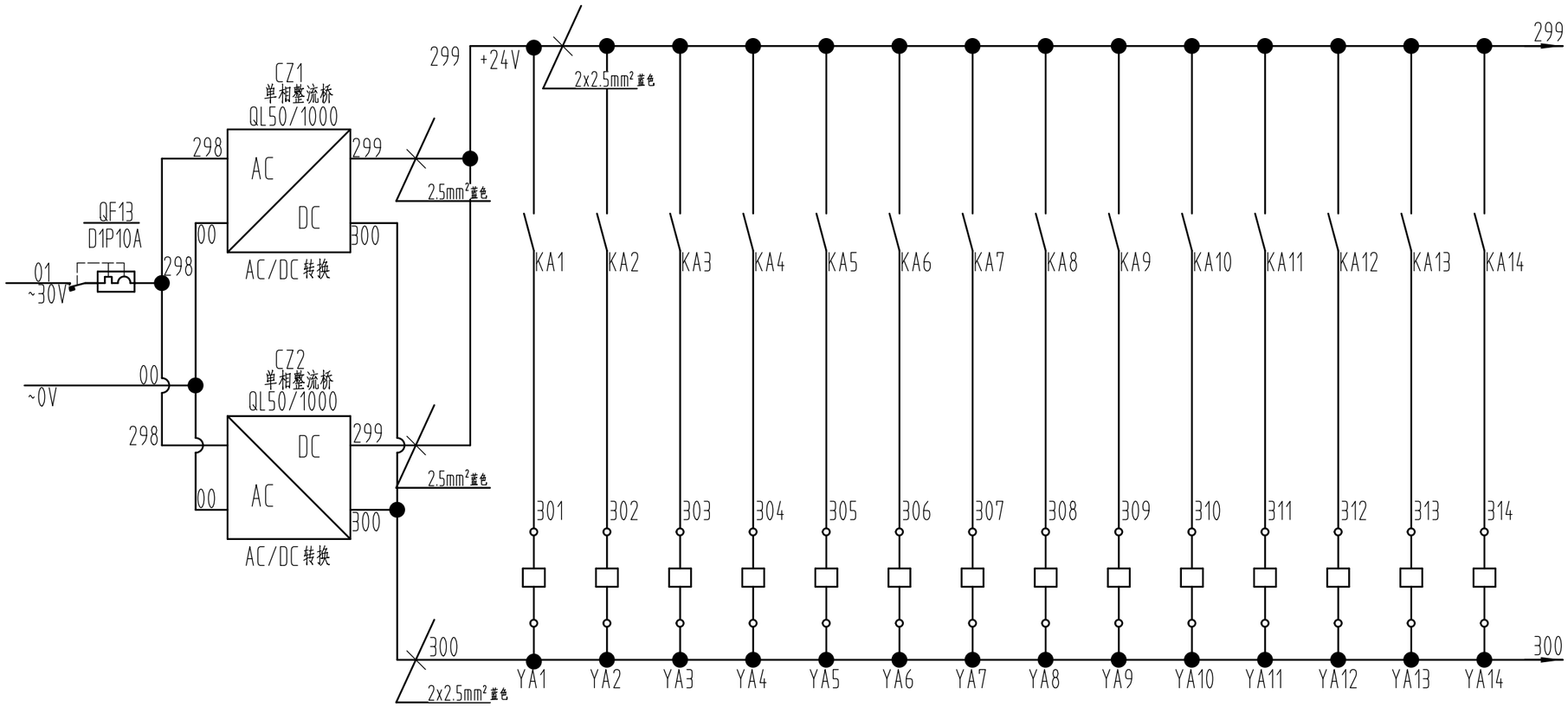
	模拟量输入输出模块			
	系统1压力传感器	系统2压力传感器	滑块压力传感器	滑块位移传感器
	Analog input/output module			
	System 1 pressure sensor	System 2 pressure sensor	Slide pressure sensor	Slide displacement sensor



	Core pulling cylinder 1		Core pulling cylinder 2		Core pulling cylinder 3		Core pulling cylinder 4		Core pulling cylinder 5		Core pulling cylinder 6	
	prosodetic	posterior limit	prosodetic	posterior limit	prosodetic	posterior limit	prosodetic	posterior limit	prosodetic	posterior limit	prosodetic	posterior limit

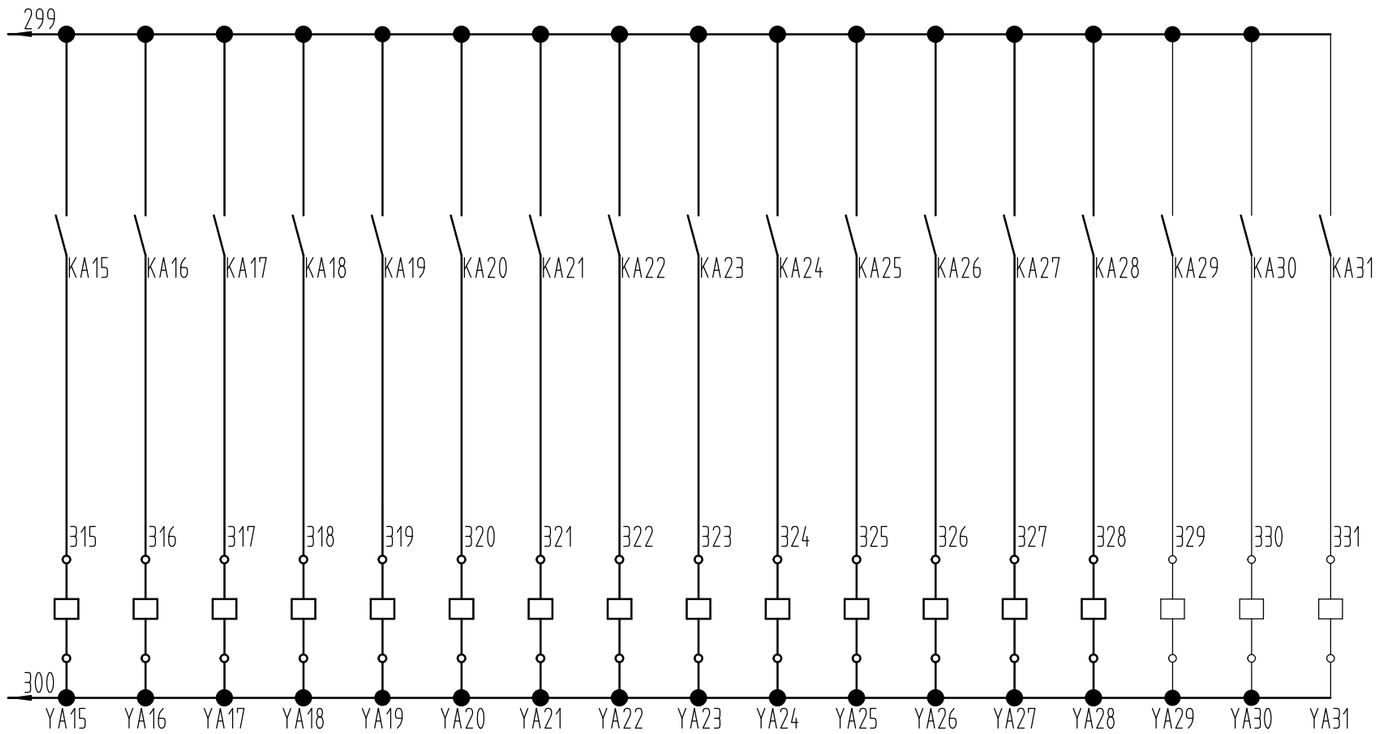


30V交流转换24V直流 电磁阀电源	YA电磁阀
30V AC conversion 24V DC solenoid valve power supply	YA solenoid valve

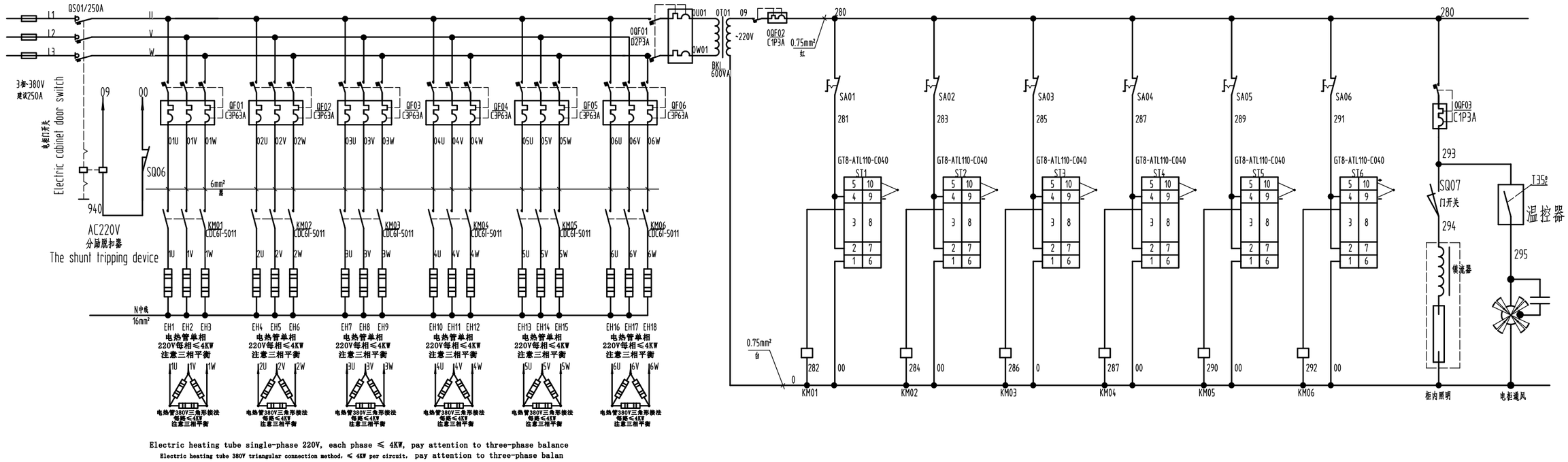


YA电磁阀

YA solenoid valve



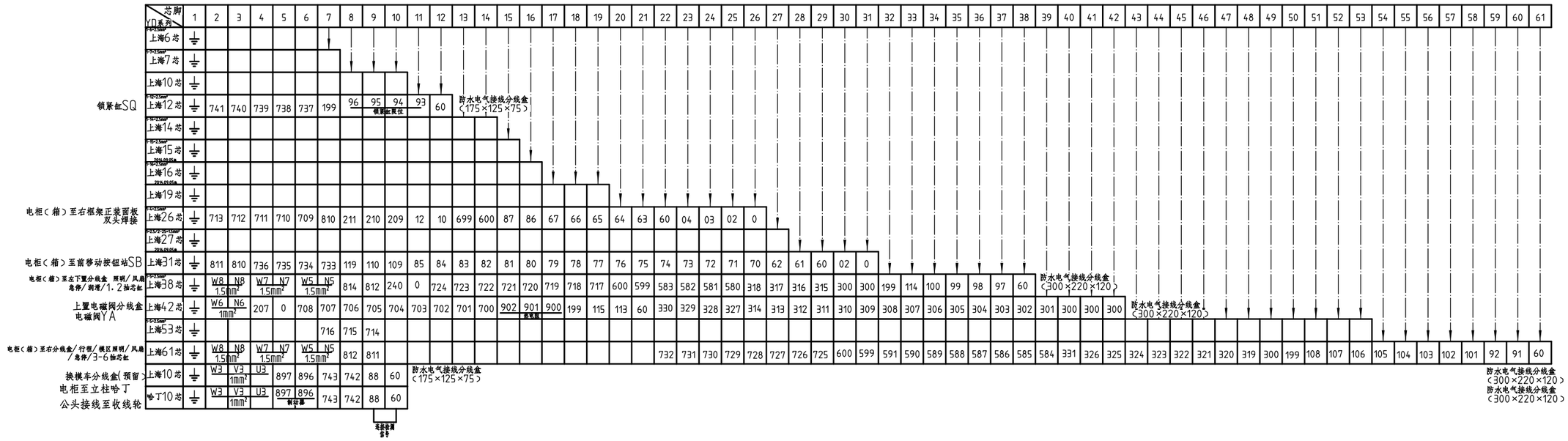
车间电网	空气开关	加热区1	加热区2	加热区3	加热区4	加热区5	加热区6	自动开关保护	变压器	保护	温度控制1	温度控制2	温度控制3	温度控制4	温度控制5	温度控制6	柜内照明通风
Workshop power grid	Air Switch	Heating zone 1	Heating zone 2	Heating zone 3	Heating zone 4	Heating zone 5	Heating zone 6	Automatic switch protection	Transformer	protect	Temperature Control 1	Temperature Control 2	Temperature Control 3	Temperature Control 4	Temperature Control 5	Temperature Control 6	Lighting and ventilation inside the cabinet



Electric heating tube single-phase 220V, each phase ≤ 4KW, pay attention to three-phase balance

Electric heating tube 380V triangular connection method, ≤ 4KW per circuit, pay attention to three-phase balan

YQK71-800	INSTRUCTION MANUAL	10-12
		Electrical schematic diagram



YQK71-800	INSTRUCTION MANUAL	10-13
		Electrical schematic diagram