

CONTENTS

1. details technical data.....2

2. the main use,feature and characteristic.....3

3. hydraulic transmission system.....3

4. the structure of machine.....6

5. electric appliance system.....11

6. hangs and installment.....15

7. lubrication system.....15

8. adjustment and operation.....18

9. safety technology and maintenance.....19

10. detailed list of specification of bearing.....20

11. detailed list of specification of gear.....20

12. spare easy to damage parts list followed.....21

13. basic appendix table followed.....21

14. the easy to damage parts list of user’s made and attached chart.....22

enclosure: the chart sample of easy to damage parts

1.details technical data

See quote.

2. The main use ,feature and characteristic

This machine is used to cutting steel plate of that thickness is 0.5-4mm widths are less than 3200mm.

The intensity of the cutting sheet is 450N/mm^2 , attenuate the thickness of the sheet if cutting other solid sheet.

The machine body is complete steel-welded structure, hydraulic down-stroke structure, reliable and smooth.. The volume is small, weight light, with sufficient rigidity. The adjustment of cutting edge clearance rapid convenient.

It have front and rear bumper material, and the rear bumper material adopts mobile adjustment and the rotational speed of it shows adjustment number, and can make the manual trimming, the adjustment convenience is reliable. Front bumper material counts number adopted staff guage, stop piece localization, the strokes of upper knife rest can make non-limit adjustment, in order to efficiency. In front of the machine is loaded with the protective guard to ensure the operational safety.

3.The hydraulic transmission system

The hydraulic press system(chart 1) mainly consists of 25MCY14-1B axial plunger pump², electromagnetic relief valve³, pressure material cylinder⁶, nitrogen return trip cylinder⁷, main oil cylinder⁸ and gas dome.

25MCY14-1B axial plunger pump⁵ supplies the pressure oil, system's biggest working pressure is 32Mpa. return trip cylinder pressure of nitrogen is 4-5Mpa.

The work principle of hydraulic press system (chart 1)

The upper knife rest cuts downward: When the electromagnet YV_1 of electromagnetic relief valve³ gets electricity to work, ram pump² streams oil through electromagnetic relief valve³, meanwhile, enter the upper cavity of pressure oil cylinder and main oil cylinder, while the nut of pressure oil cylinder press down to sheet, the oil pressure starts to go high, while it overcomes the nitrogen pressure of return trip cylinder, this time, upper knife rest can cut downward, in this process, realize the procedure action between pressure material cylinder⁶ and upper knife rest.

The upward stroke of upper knife rest: when it go downward to nether starting spot, the Yv1 of electromagnetic relief valve3 lose Under switch's function, upper knife rest starts to go upward stroke under the nitrogen pressure of return cylinder. This time, the upper-cavity oil of main oil cylinder returns to oil box through electromagnetic relief valve. Meanwhile, the nut of pressure material cylinder also goes upward under spring pulling force. The oil of pressure material cylinder returns to oil box through electromagnetic relief valve3. All the cutting procedure is over while upper knife rest goes back to upper starting spot.

The method to elimination the normal problem of the hydraulic system

Breakdown phenomenon	Cause	Elimination method
The oil way cannot establish the pressure	Electromagnetic relief valve3, the chip can't turn off because the masses lock it.	The inspection takes apart and washes
Upper knife rest have no action	Owing to the bad contact has not commutated of the electromagnetism plug of electromagnetic relief valve3 or the chip can't commutate because the masses lock it.	The inspection takes apart and washes
Upper knife rest have no stroke The action between Upper knife rest and press material cylinder is uncoordinated Upper knife rest falls down automatically	return cylinder (7 the nitrogen pressure is insufficient)	Fill up nitrogen

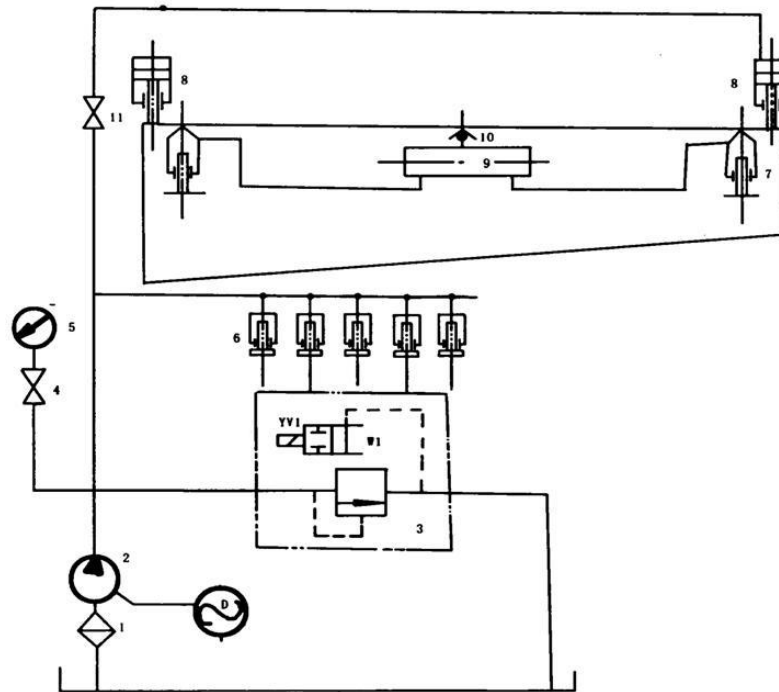


Chart 1 The principle of hydraulic system

11	Ball cock	P=32Mpa	QF-H16L	
10	Gas charging valve			
9	Gas storage valve		Self-produce	
8	Master cylinder		Self-produce	
7	Nitrogen pullback cylinder		Self-produce	
6	Pressure material oil cylinder		Self-produce	
5	Shock resistance pressure gauge	P=25Mpa ϕ 100	YN-100	
4	Pressure gauge switch	P=32Mpa d=8mm	KZF-L8H-S	
3	Electromagnetism overflow	P=31.5Mpa d=20mm	YFEH-B20H4-S	
2	Axial plunger pump	P=31.5Mpa Q=25L/min	25MCY14-1B	
1	Oil filter	Q=160L/mm	WU-100×100-J	
Sequence	Name	Specification	Model	Remark

4. The structure of machine

1. Frame

Steel-welded structure, with the good steel, two oil cylinder fixed on the right-and-left crutch, there are no assistant knife rest to make the micro turning conveniently, install the feed ball in the worktable, operate facilely.

2. Upper knife rest: It is a steel-welded structure, with the good steel, take the eccentric bushing (8) as the pivot, It finishes the cutting under the function of the right-and-left oil cylinder and accumulator's return cylinder. (picture2)

The bit plumb bearing surface's base plate of upper knife rest becomes an arc curve, in order to maintain the uniformity of bit's interval.

3. Pressure material's equipment: It consists of many pressure material oil cylinder which install before the frame, after the oil enters pressure material oil cylinder, the head of pressure material presses downward to impact board sheets through overcoming the spring pulling force. After cutting completes, with the aid of spring pulling force to restore the former position.

4. Front and rear bumper material:

Front bumper material: Lay the work-table floor, with the staff gauge to display data, in order to adjust the active bumper to reach required bumper material value. It is convenient for cutting thin board sheets to use front bumper material.

Rear bumper material (picture6) installs upper knife rest, It high- and-low swinging following upper knife rest, the adjustment of rear bumper material is driven by 0.55KW electromotor, it is transmitted by lead screw after gear reduction. Later press down adjusting button "+"(or "-"), therefore can make the bumper material board forward adjustment, when the mobile adjustment cannot achieve the adjustment value which needs, can circumgyrate manual regulating wheel for manual micro turning to insure the required adjusted value, so the adjustment of rear bumper material is safe and reliable.

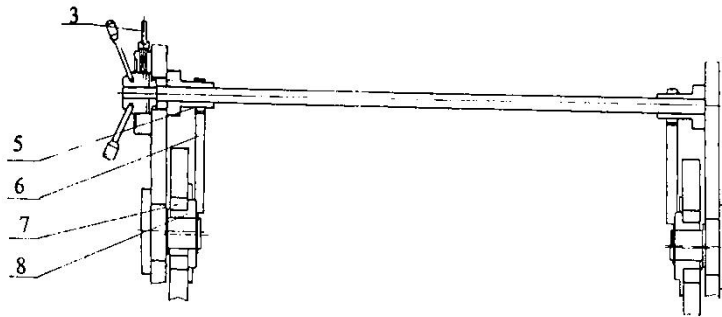
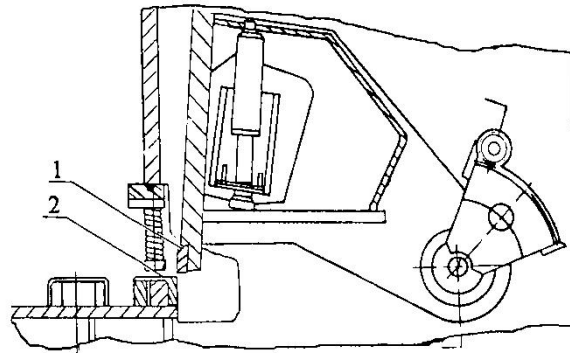


Chart 2 The adjustment structure between knife rest and blade clearance

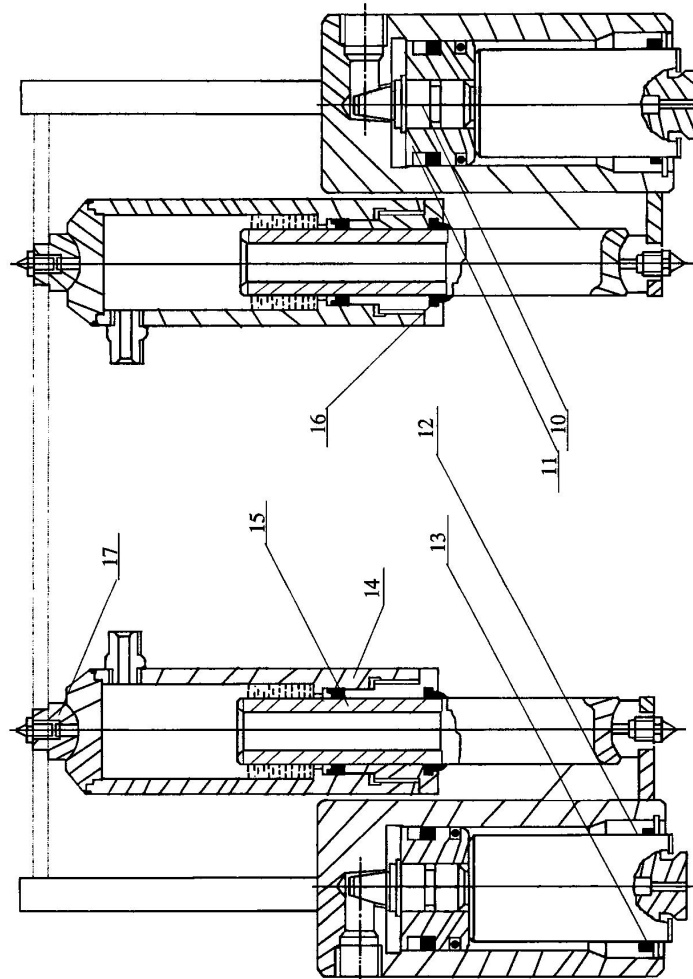


Chart 3 The oil cylinder and return cylinder

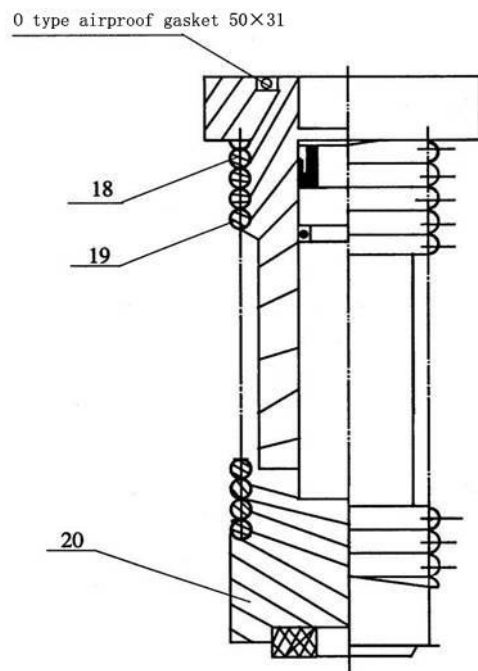


Chart 4 The pressure material oil cylinder

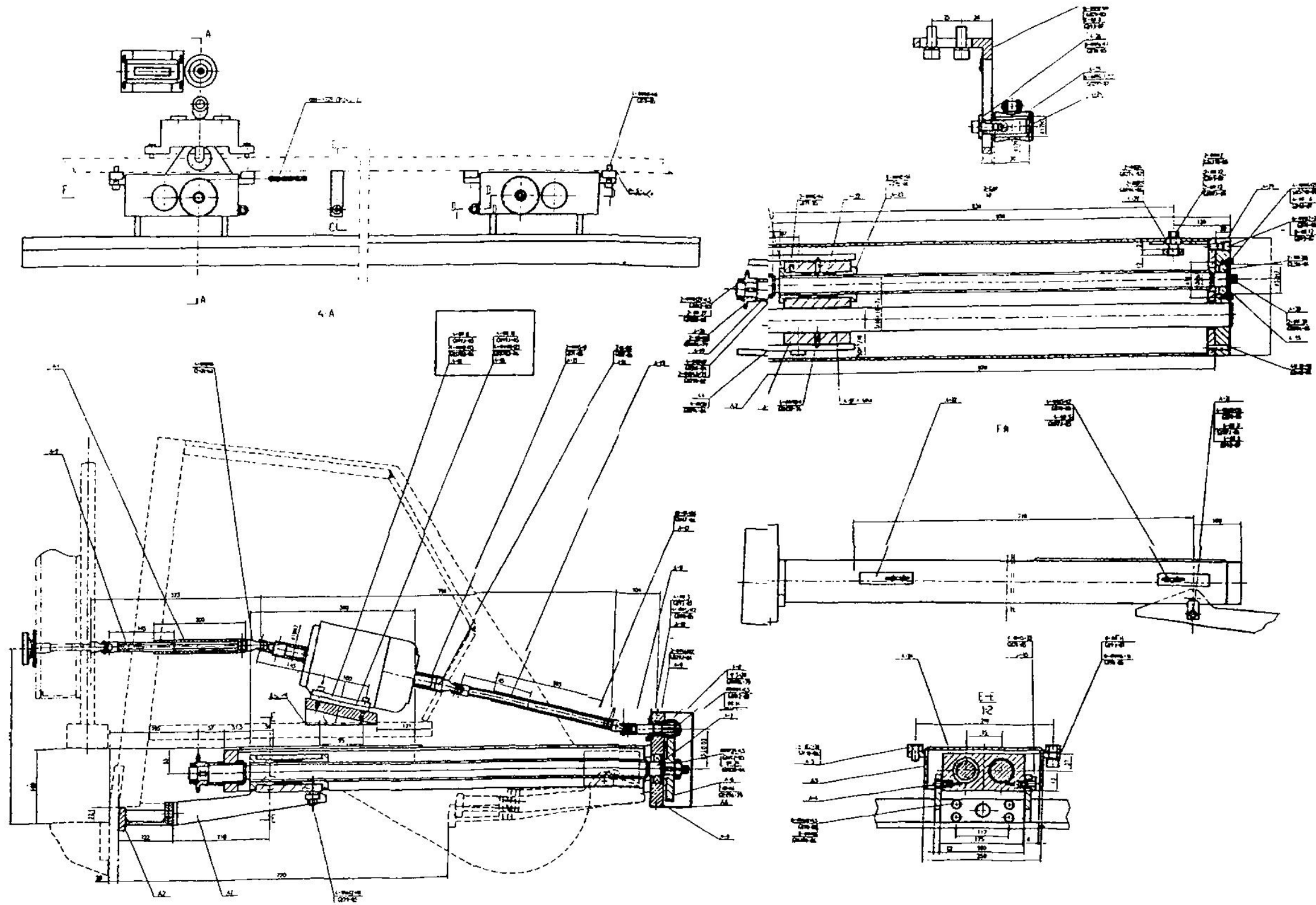


Chart 5 The equipment of rear bumper material

5. Electric appliance system

The machine adopts 50HZ, 380V three-phase four-wire power supply. The electrical machine of it adopt three-phase 380V, spotlight adopt single-phase 220V. Controls the transformer to use two-phase 380V. 24V used as control, 29V through rectification supply for the electromagnetic directional valve. 6V used as indicator light.

The machine's executive components all collect at the button station front of the tool expect the food switch SA5, the function of each other executive component is marking with letter on each other.

Here is the sequence of operation:

Open the electronic box with key. Twist the breaker's grip the place of "close", switch on the power source, this time, press the key-button SA1 (controlling lock), switch on the power source of the control circuit. Indicator light HL2 (indicated by power source) becoming light, means the power source has switch on.

Press the button SB3 or SB4 (turn back material + , turn back material -) to make the open distance of the rear bumper material get bigger or smaller to requirement. The detailed dimension of that is note by the counter under the button station. Travel switch (SQ4, SQ5) Installed there to limit its open distance from 20mm to 500mm.

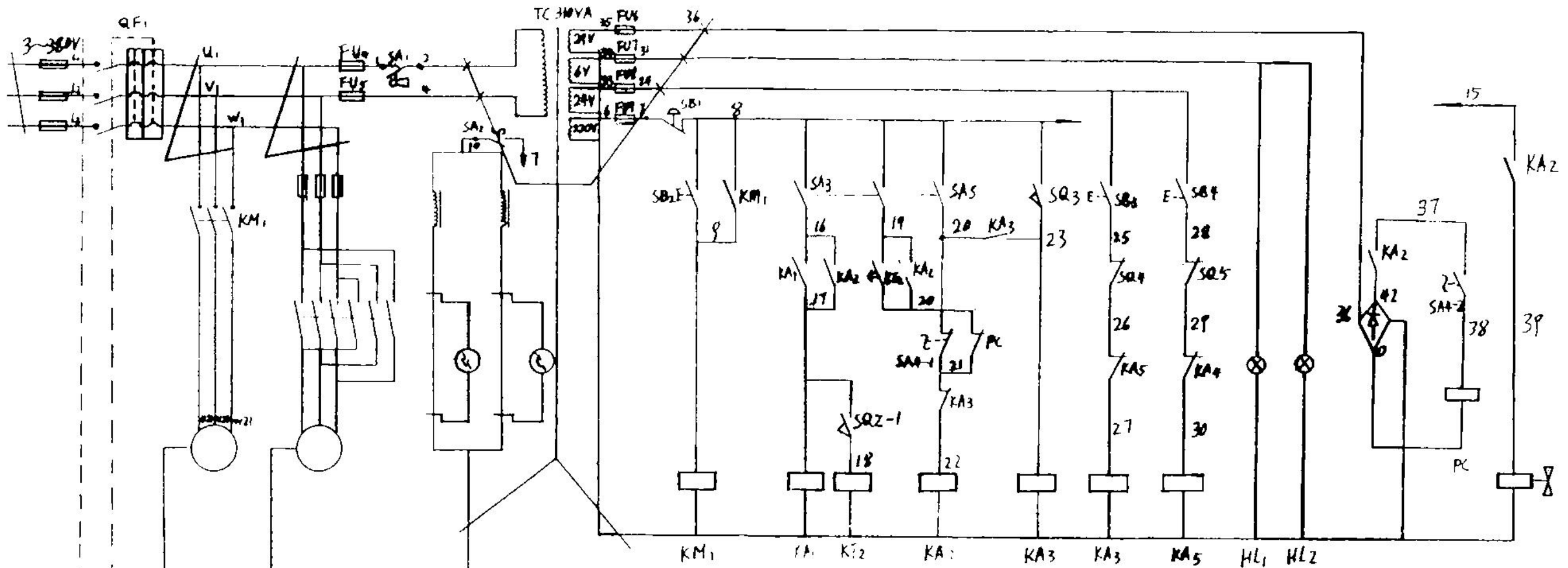
Press the button SB2 (electrical machine start) , electrical machine of oil bump starts, button SB2 itself has indicator light to indicate electrical machine of oil bump to work.

Press the eddy button SA3 (Single continuously), choose the shearing criterion. It is "one stroke" when turning SA3 to the single place and it's "continuously" when turning SA3 to the continuously place. Trample the foot switch SA5 to make the upper knife rest cut down when SA3 reach at the place of "one stroke". Upper knife rest stop cutting down and rise to the top die quickly when loosing SA5. Try it again when need to cut again. Notice that don't loose SA5 when the shearing sheet doesn't cut to avoid destroy the sheet. Trample the SA5 when SA3 reach at the place "continuously stroke" (Don't trample it too long, otherwise it becomes disposable) , the machine will cut continuously, trample SA4 to stop it.

Press the eddy button SA2. Turn on alignment light, move the shearing sheet to make it reach to the processing line in order to achieve the required shearing result.

Don't forget to lock the key switch SA1 and electricity box. The machine must connect the earth reliably.

The breaker of power switch	Oil pump Electrical machine	Bear material electrical machine	Control protection	Key switch	Spot light	Control transformer	Two Times protection	Stop oil pump	Open oil pump	Cutting control			The control of bumper material		Power source indication	Working indication	Electric current transformation	Counter	Electromagnetic valve
		Positive and negative reversing								Single Continuously Choice	Foot switch	Stroke control	Advance	Backlash					



The table of electricity components

Code number	Use	Name	Specification	Quantity	Remark
QF1	Power switch	Breaker	DZ47-40/63 20A	1	
KM1	Motor control	AC contactor	3TB4422 220V	1	Simens
KA4, 5	The motor control of back gauge range		JZC182-44AC24V	2	
FU4 ,5	Control protection		DZ47-D60/IP2A	2	
SA1	Electricity lock		LAY3-11Y/2	1	
SA2	Illumination switch		LAY3-22X/2	1	
TC	Voltage transformation		JBK3-250,380 220V 29V 24V 6V 150 70 70 10	1	
FU6.7.8.9	Twice protections		DZ47-D60/2P 2A	4	
FU1.2.3	The motor protection of back gauge range		DZ47-D60/3P 3A	3	
SB1	Stop anxiously, stop		LAY3-11ZS/1 red lock	1	
SB2	Electrical machinery start		LAY-11D 6.3V green	1	
SA3	Single singular cycle		LAY3-22X/2	1	
QS1.2	Stroke spacing		JLXK3-20H/L	2	
SA5	Cut the switch		YDT1-11	1	
SB3.4.6	桌动 button		LAY3-11 black	3	
KA1.2.3	Cut the control		JZC182-44AC 220V	3	
VC	AC-DC exchange		QC-3. 100V.3A	1	
HL1	Direction		XD11-6.3, 6.3V red	1	
ED	Illumination		40W		
YV	Oil way control		24EI-H6B-T=24V	1	
M1	Main motor		Y160M-4, 7.5KW	1	
M2	The motor protection of back gauge range		Y2-90L-8	1	

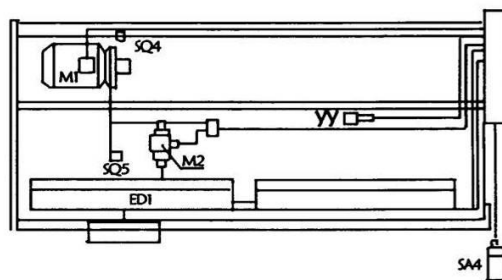
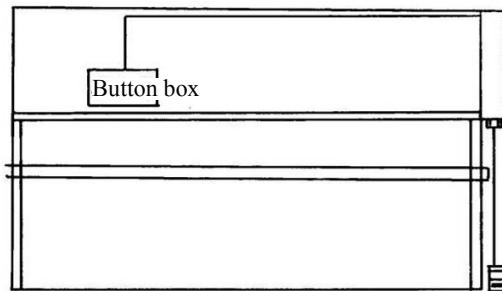
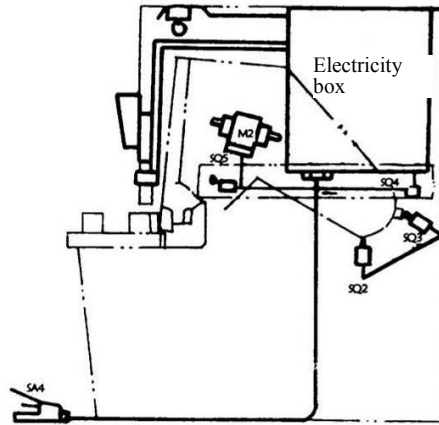


Chart 6 Electricity site plan

6. Hang and installment

1. The machine hangs according to the transporting chart method(chart 7).
- 2.The base of machine
 - (1) The foundation size may refer to the installment foundation drawing(chart 8).
 - (2)Tamp the earth around base, the depth decides according to the soil special details.
- 3.The installment:

Cracking-off the grounder's encloser of the worktable while fixed and installed, use the straightedge of 1m to measure in the two gasket, later proofread every 1000 mm in errors are not bigger than 0.2mm in the vertically and horizontally direction with gradiebter.

7.The lubricate of machine

This machine's main lubrication points adopt oil gun injecting to dispersion lubrication.
Here is the lubrication points

lubrication points number	lubrication points name	Oil mass size	Trades the oil time	The trademark and class of lubricating oil
1	Right-and-left return cylinder's high-low vertex	Small	16	Calcium-Based grease
2	Rear bumper slip nut of two sides	Medium	8	ZG-3 GB491-65 Automobile oil N46GB443-84
3	Upper knife rest swing pivot of two sides	Small	24	
4	The shaft sleeve of adjusting rift's axes of two sides	Small	48	
5	Right-and-left oil cylinder piston rod	Medium	8	
6	Right-and-left oil cylinder gasket	Medium	8	4# black lead lithium base fat Q/SY1000-65

- Hints:
1. 50% Calcium-Based grease mixed with 50% automobile oil to use.
 2. Black lead lithium base fat must be mixed with 30% automobile oil to use.
 3. The row oil in the oil cylinder should be exchange every other 6 months.

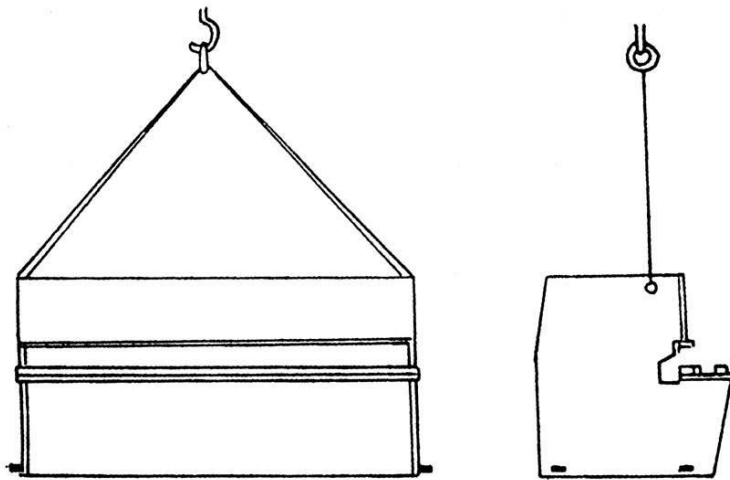


Chart 7 the swing of machine

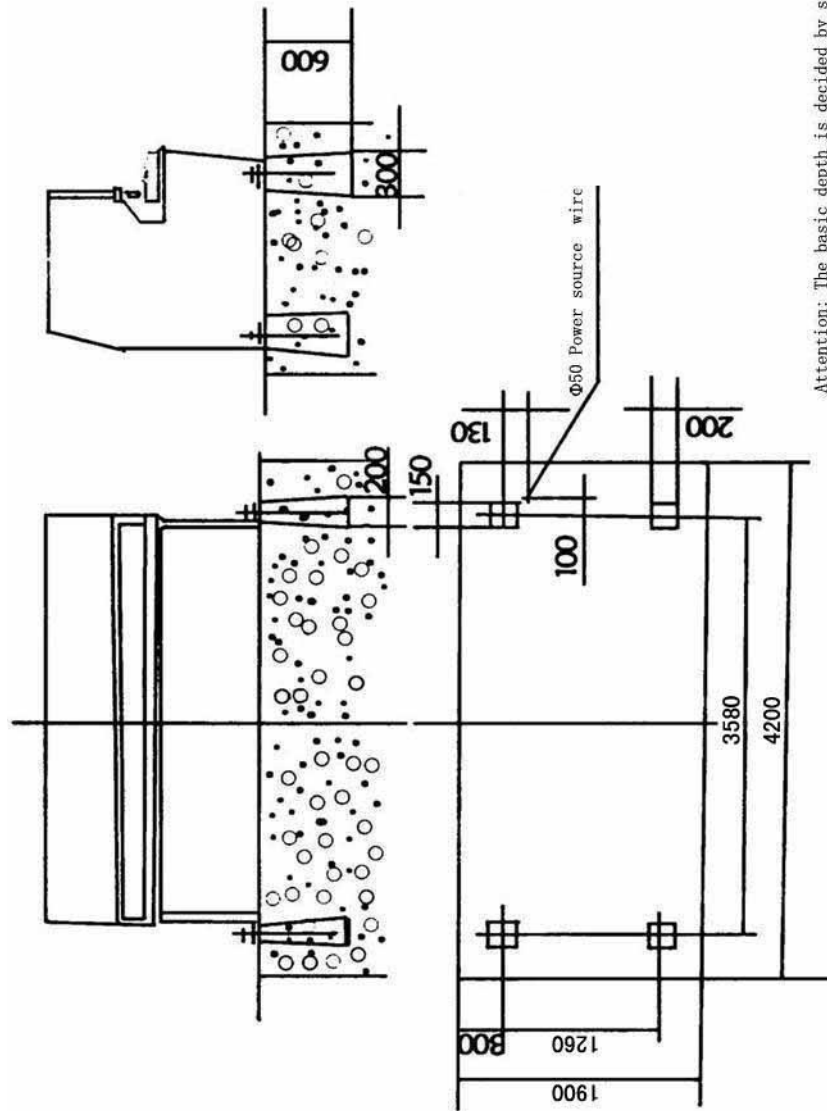


Chart 8 The basic chart of installment

8. adjustment and operation

1. Cutting edge gap adjustment:

Chooses the reasonable cutting edge gap, the system working pressure reduces relatively, is helpful to the machine's life and the machine precision's maintenance. it is beneficial to lengthen bit's service life, the most important is that it can obtain perfect cut quality, suggest adopting the gap value is thickness of board sheet 8~12% time, Shearing strength is big and rigidity is high and use the minimum value in sheet metal.

Loosen locking screw (3) while adjust gap (chart 2), later rotate scale interval which the handle arrives needs, lock the bolt at last.

Ball cock (In right side of tool, outside of cylinder) serves as measuring the degree of homogeneity of the gap between the upper and nether knife rest cutting edge.

Concrete method: By single traveling schedule, while upper knife rest reaches nether limit-point, rapid rotation ball valve and turn off oil duct to make it reaches nether limit-point, later go on open-and-close ball cock slightly, in order to upper knife rest rises gradually, this time ,can measure the degree of homogeneity of the cutting edge gap.

2. The arrangement before operation

- (1) Rinse all work pieces' oil soil, make tick mark of ball cock refers to open position .
- (2) Fill grease in lubricant housings.
- (3) Plus N40 Lowly congeal pressure oil into oil box.
- (4) Connect machine to earth, puts through the power source.

3. Operation:

(1) Starts the machine to revolve several cycles, guarantees normally, later try to cut different thickness sheets (from thin to thick).

(2) Turn on the switch of pressure gauge in the cutting procedure ,in order to observe oil way's pressure value, if finding unusual , adjust the overflow valve to make it conforms with the stipulation.

(3) If discovery not normal soufflé or fuel tank overheated phenomenon, stop it to check rapidly, the highest temperature of oil box does not surpass 60 Degree Celsius.

9. Safety technology and maintenance

1. Operator must be familiar with its structure and feature ,its can be operated by many people the same time , so require professional take charge of instructing .
2. Don't stretch out your hand to the high-and-low blade in order to avoid accident.
3. Take all the masses tool away from the worktable, in order to avoid causing accident.
4. Check the knife point at a fixed time , exchange or polish if blunt, only its thickness.
5. Check all the parts of machine at a fixed time , keep the machine and the ground clean , The electric wire insulation is good.
6. Netty oil filter installed oil pump mouth must be checked frequently, in order to keep the oil filter having oil mass , If the oil filter is blocked to make the oil mass small , it will effect the oil pump's life.
7. The accumulator don't imitate oxygen, constringent air and the flammable gas, when sufficient nitrogen should carry on slowly, in order to avoid bursting the glue.
8. Gasify first, then sufficient the fluid of the accumulator, use the gasification tool to gasify nitrogen, puff pressure is 5Mpa.
9. Discharge pressure oil, later discharge accumulator.

Hydraulic pendulum plate

25
Page21

12. spare easy to damage parts list followed

Sequence	Name	Specification	Quantity	Remark
1	O type airproof gasket	GB1235-76 50*3.1	4	
2	O type airproof gasket	35*3.1	4	
3	O type airproof gasket	24*2.4	6	
4	O type airproof gasket	20*2.4	2	
5	O type airproof gasket	11*1.9	2	
6	Gasket	JB 1002-77 ϕ 27	3	
7	Gasket	ϕ 14	2	

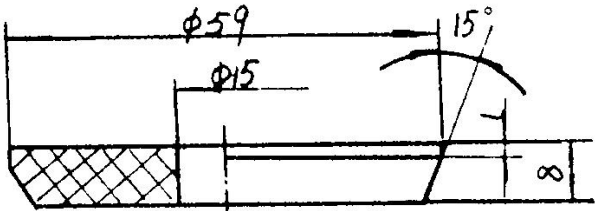
13. basic appendix table followed

Sequence	Name	Specification	Quantity	Remark
1	Foundation bolt	GB799-88 M18*500	4 sets	
2	First carriage		3 pieces	
3	Foot switch	YDT1-11	1 piece	
4	Key of electronic box's gate		1 set	
5	Key of button's stage		1 set	
6	Feeler		1 hold	

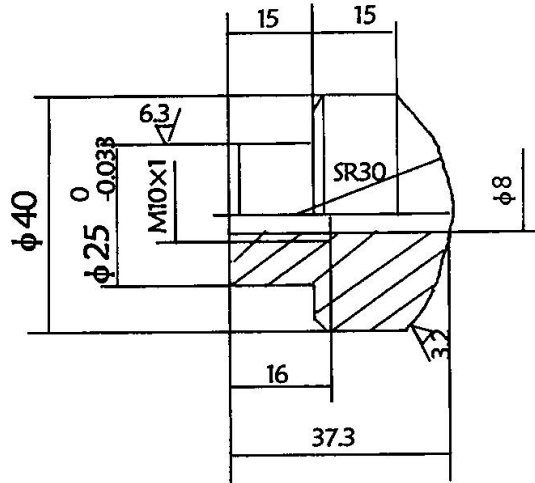
14. The easy to damage parts list of user's made and attached chart

Sequence	Name	Material	Weight	Unit/set	Parts
20	Packing block	醚型聚氨脂	0.03	10/12/15	Pressure sheet
2	Upper blade	6CrW ₂ Si		2. 3. 4	Knife rest
1	Nether blade	6CrW ₂ Si		2. 3. 4	Spider
3	Half cob	4# zinc metal	0.24	4	Return cylinder

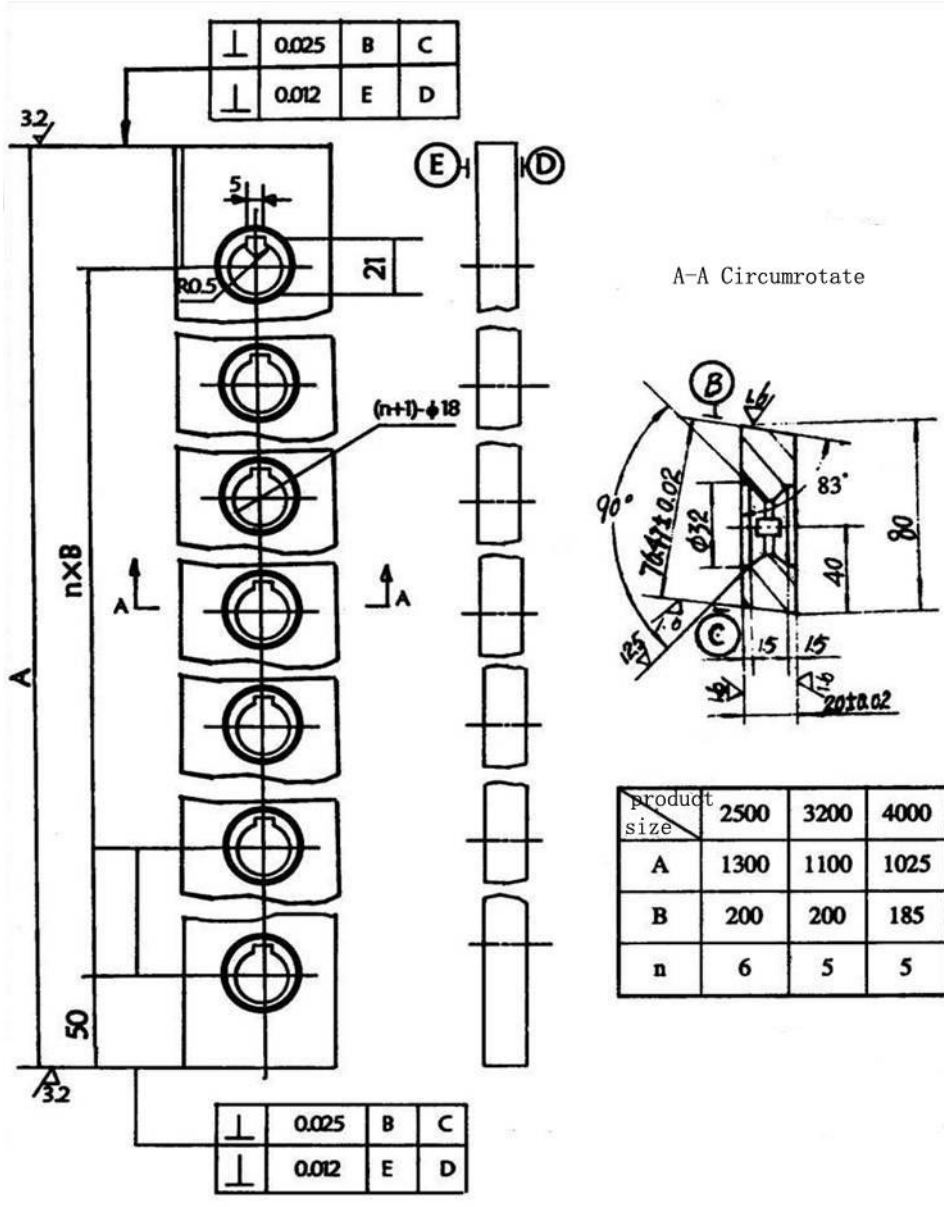
Hydraulic pendulum plate



Sequence number	20	Name	Packing block	Material	醚型聚氨酯



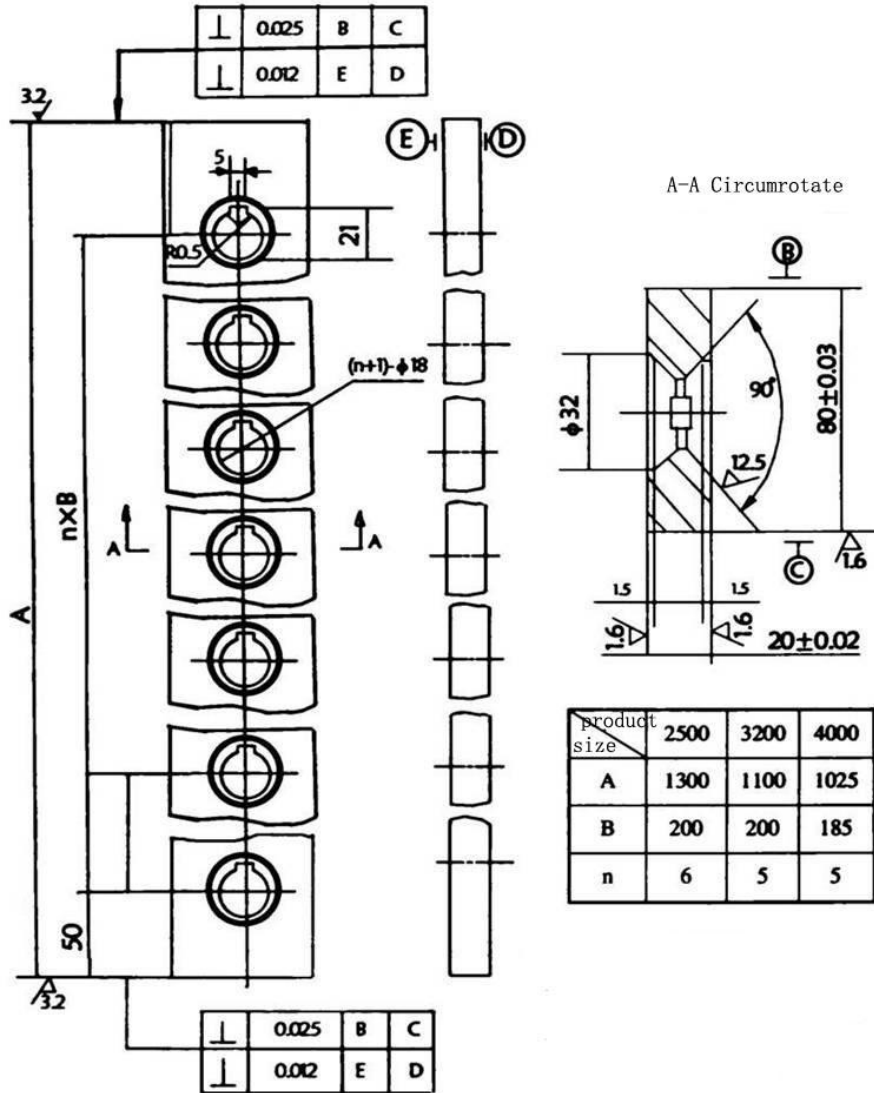
3	Half cob	4# zinc metal	1:1
Sequence number	Name	Material	Proportion



Technical requirement:

1. Heat treatment (1) Anneal
(2)HRC55-60
2. Crack detection
3. Cutting edge forbid abate

1	Nether blade	6CrW2Si	1:2
Sequence number	Name	Material	Proportion



product size	2500	3200	4000
A	1300	1100	1025
B	200	200	185
n	6	5	5

Technical requirement:

- Heat treatment (1) Anneal
(2)HRC55-60
- Crack detection
- Cutting edge forbid abate

2	Upper blade	6CrW ₂ Si	1:2
Sequence number	Name	Material	Proportion

QC12Y-6×2500 HYDRAULIC PENDULUM PLATE

Qualified certificate

Sheared thickness: 4 mm

Sheared width: 2500 mm

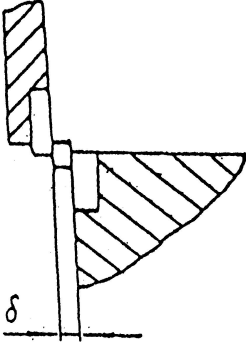
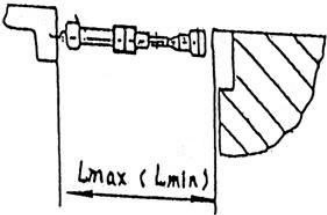
The machine tool is qualified after the examination, permits leaving the plant.

Checker:

Examines section chief:

Date:

Geometry accuracy test

Sequence	Examination project	Inspection procedure and diagram	Precision(mm)	
			Allowance error(mm)	Actual measurement(mm)
1	The clearance degree of homogeneity between upper and nether knife edges	 <p>Use feeler to measure clearance several points of two bit edge along nether bit vertical direction (Each meter is more than three spots). Error is calculated by the biggest reading D-value</p>	0.06	
2	Parallelism between nether edge and bumper material	 <p>Adjust the bumper material to forefront and finally side, Use feeler and deep vernier caliper to measure the distance between nether edge and bumper material in many places. Error is calculated by the biggest reading D-value by random 1 meter</p>	I class precision : In 1000 lengths is 0.10; II class precision: In 1000 lengths is 0.20; III class precision: In 1000 lengths is 0.50.	

Packing list

serial number: _____

model: QC12Y-6×2500 hydraulic pendulum plate

Container NO: _____

Measurement: _____

Net weight: _____ KG

Gross weight: _____ KG

Sequence	Name	Code number	Specification	Quantity
1	Main engine			1 set
2	The use of instruction booklet			1 share
3	Foundation bolt	GB799-88	M18×500	4 group
4	O type airproof gasket	GB1235-76	50×3.1	4 piece
5	O type airproof gasket		35×3.1	4 piece
6	O type airproof gasket		24×2.4	6 piece
7	O type airproof gasket		20×2.4	2 piece
8	O type airproof gasket		11×1.9	2 piece
9	Gasket	JB1002-77	(φ 27)	3 piece
10	Gasket		(φ 24)	2 piece
11	First bracket			3 piece
12	Foot switch			1 set
13	Electricity box gate key			1 set
14	Power source key of the button box			1 set
15	Feeler(feeler gauge)		200cm	1
16	Inner hexagon spanner		5~12	1 set
17	Butter gun		200cm ³	1 piece
18	Charge tool			1 set

Inspector:

Date:

Post-sale service scope

1. The warranty period is one year, lifelong services
2. In the maintenance time, if does not belong to the manufacture quality, but the damage which creates improper, then the replacement fitting expense undertakes by the customer.
3. Outside the maintenance time, the customer besides bears the replacement fitting expense, but must undertake servicemen's travel expense and a man-hour of expense.