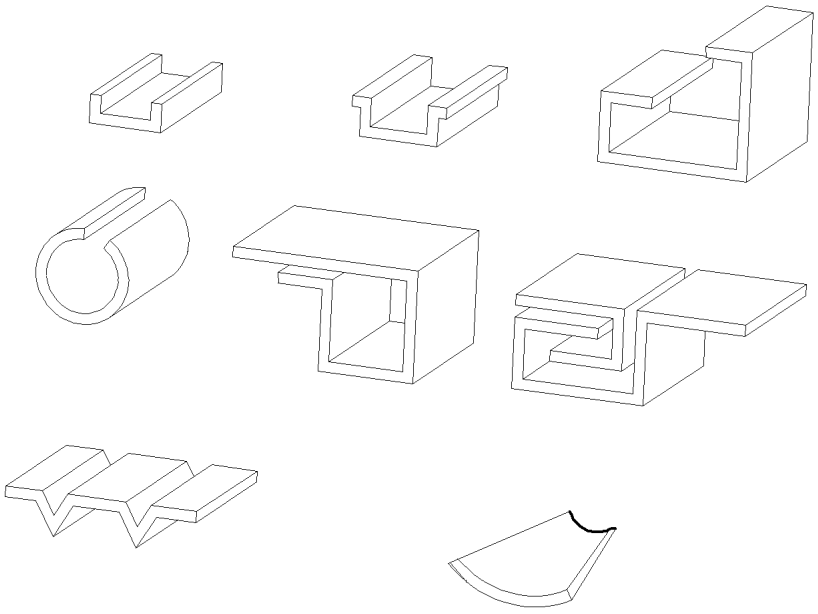
1. CONTENTS

3.THE MAIN USE OF MACHINE

It uses in bending at many kinds of metal sheet, users provide the different molds to be able to bend at the different shapes of work piece， its also can be used as punching when matches corresponding equipments.

It can be used in the factory of aviation, automobile, ship building, household electrical appliances and so on, the production efficiency is very high.

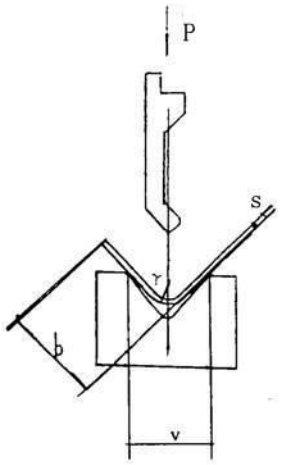


4. Function and Characteristic

It has the high production efficiency and certain bending precision to bending metal sheet.

When you bends the metal sheet of different thickness or size， you should choose the different upper mould or the V form slot different size.

Owing to adopting hydraulic drive , Therefore when work, not because the sheet thickness change or the nether mould's V form slot choose ,cause seriously overload accident. In addition, the work is steady, the mechanical noise is small, the ease of operation, specially has the same level rated pressure in the entire process.



Caculate formula

$$P=\frac{650S^2L}{V}\ KN$$

S ——the thickness of bended sheet(mm)

L ——the width of bended sheet(m)

V ——nether mould open dimension(mm)

Table 1 list of plate bender

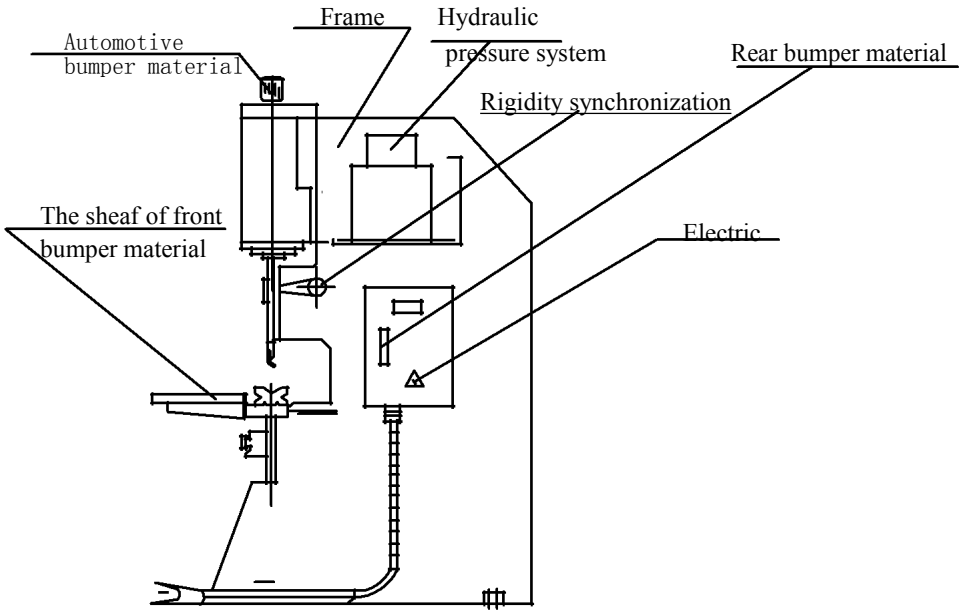
v		4	6	10	10	12	14	16	18	20	24	28	32	36	40	45	50	55	60	65	70	80	90	100	120
b		2.8	4	5.5	7	8.5	10	11	12.5	14	17	20	22	25	28	31	35	38	42	46	49	56	65	70	85
r		0.7	1	1.3	1.6	2	2.3	2.6	3	3.3	3.8	4.5	5	6	6.5	7	8	9	10	10.5	11	13	14	16	19
S	0.5	4	3																						
	0.6	6	4	3	3																				
	0.8		7	5	4	3																			
	1.0		7	8	7	5																			
	1.2			12	10	8	7	6																	
	1.5				15	12	11	9	8																
	2.0					22	19	17	15	13	11														
	2.5							25	22	20	17	15	13												
	3.0								33	29	25	21	18	16											
	3.5									40	33	29	25	22	20	18									
	4.0										44	37	33	29	26	23	21								
	4.5											47	41	37	33	30	27	24							
	5.0												51	45	40	36	33	30	27	25					
	6.0															52	47	43	39	36	34	30			
	8.0																		70	64	60	52	46	42	
	10																					81	72	65	
	12																							95	
	14																							130	

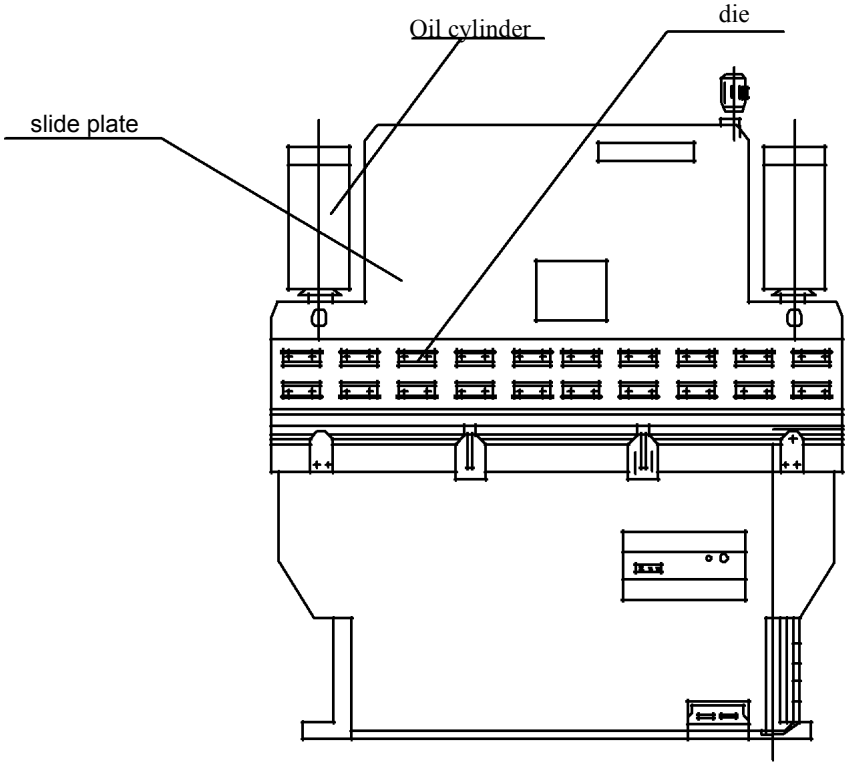
Notice : 1.this formula and numerical value of the table calculated according to the material of σ_b =45KN (KG/mm^2)

2. the numerical value results of above table is calculated from the bended sheet width 1 m

3. Its bending force can be calculated according as the proportion when bending other strength materials.

4.THE MAIN CHART AND INSTRUCTION OF MACHINE'S





This machine is weld structured with whole steel, hydraulic pressure uploads to move, with double oil cylinder. Steel synchronization structural style， the pressure size may adjust, ease of operation and operation reliable, According to the operation request, satisfy that the upper slide runs "the spot move" "single circle" and "continuous circle".

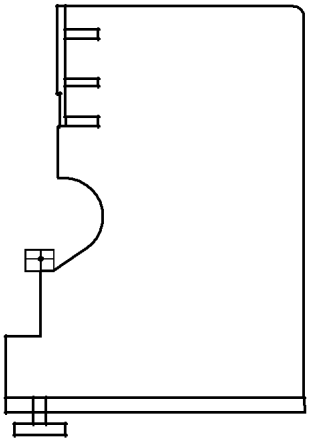
5.STRUCTURE

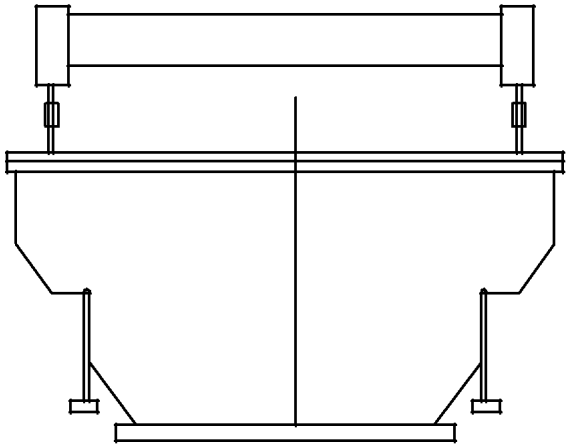
Weld structure with whole steel, it has enough strength and rigidity.

The parts:

1. Frame :

   It consists of right-and-left wall boards, worktable, spacer, etc. weld structure with the whole steel.

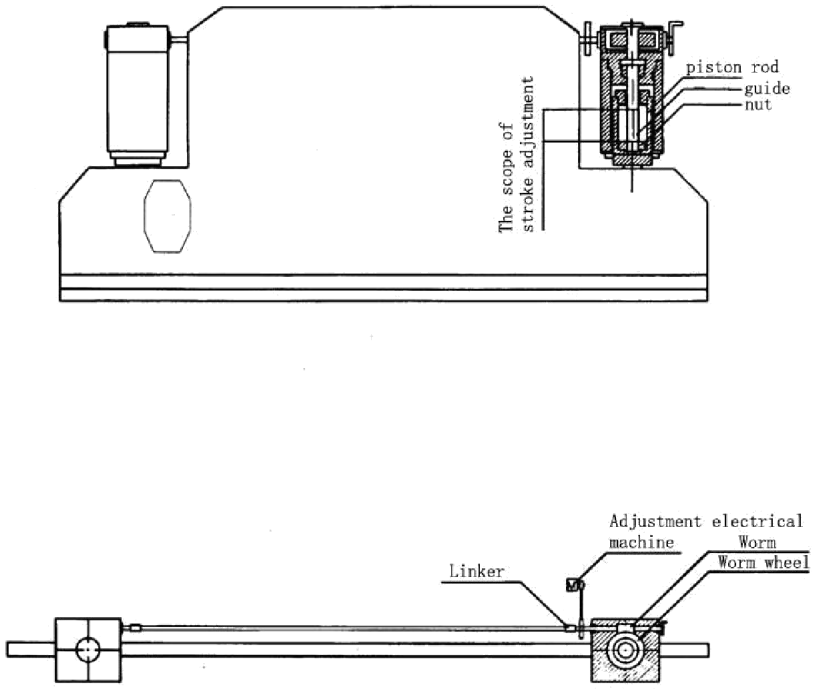




2.Slide block :

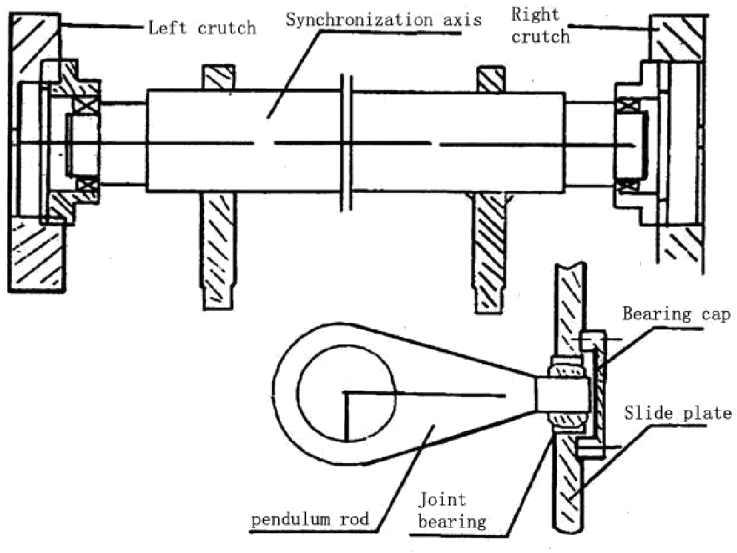
It is made with whole steel and connected with piston rod.

The oil cylinder of the two ends of machine tool settles on slide block, directly drive to slide to work.



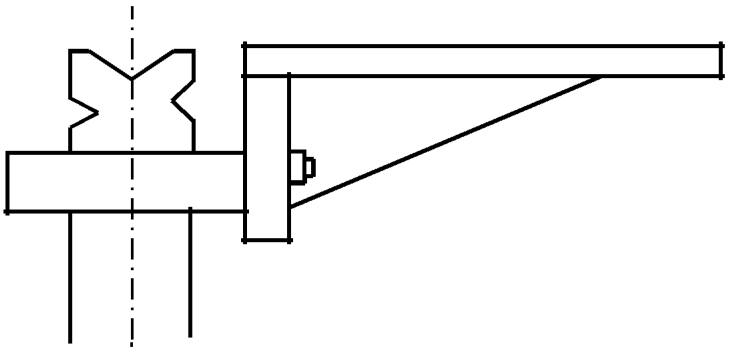
The chart about adjustment of strokes

3.Synchronization framework



Synchronization framework of this machine consist of main bearing , pendulum rod ,joint bearing ,reasonable structure , Dose not need to adjust, get with guarantee higher fold curved precision.

4. the set of first holds the material



5. The shelf of back gauge range

The machine has the electrically operated back gauge range disposition, press work table's button to be possible to cause he shuttle and to note the data by counter. The machine's hand wheel can satisfy the gauge range position. The shelf of gauge range can go high and down, first, loosen the bolt of fluctuation lead screw nut and upper fasten-nut, in order to round the upper nut, the lead screw go high-and-down can make the back gauge range go high-and-down., after adjustment, fasten it according to the former way.

The adjustment of slide stroke

The adjustment of slide stroke achieves through the control cylinder piston travel, put the lead screw and nut of tailor-made trapeziform screw thread into the two oil cylinder, change the position to change the piston rod's interval. Load adjusting knob in the electric appliance box, through the control in cylinder electric motor's back and forth revolution to realize.

Attention: The slide plate can be adjusted in the upper end-point, the data-sheep in the front of it shows, certainly cannot the over-travel adjustment avoid damaging electrical machinery.

6.Mould:

The top die installs on the slide, depending on pressure board to fix it. (Has the different length partition top die, according to working piece's request to composite certain width, bend seal frame shape components for user special orders).

The nether mould installs the worktable by adjustment bolt, use the handle (22) (23) to make packing block shuttle with the nether mould, in order to aim at the center of top die.

The flying rings (21) used as lifting nether mould, hang in nether mould bolt or put into the toolbox.

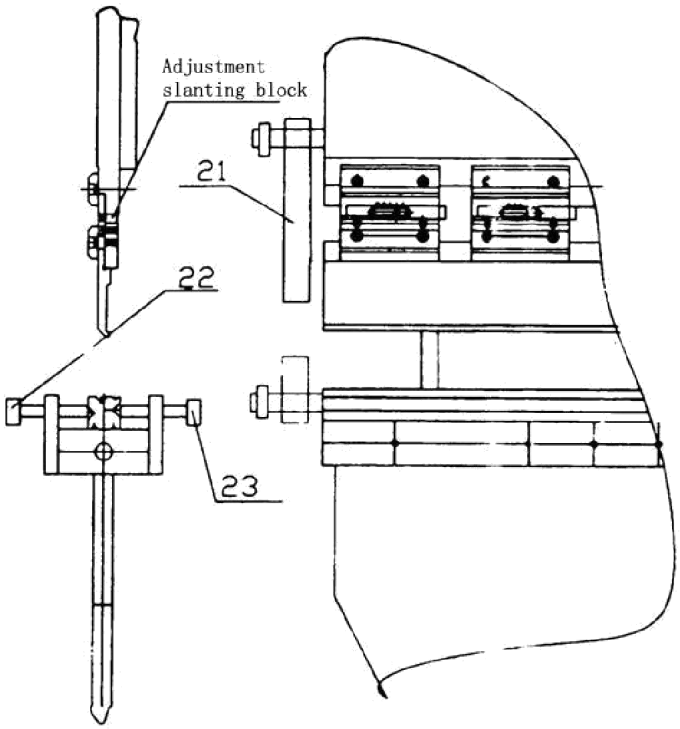


Chart 7: the chart of mould installment

6．THE ELECTRICAL SYSTEM OF MACHINE

Installment

1. Put the power supply of three-phase AC 380v,50hz and ground electrode into the inside of electric.

Adjustment and operation

1. Put the three-phase power source to the advance wire terminal of electric box, let SA3 circumvolve to “0” of the operation panel. Close the power source switch of electric box , the machine power source already put through, then closes the box gate.

2. In the operation panel operate pump electrical machine in short time, observe the electrical machinery's change is correct or not, if need to proofread, please change power's advance wire phase. Certainly don't change inside connection.

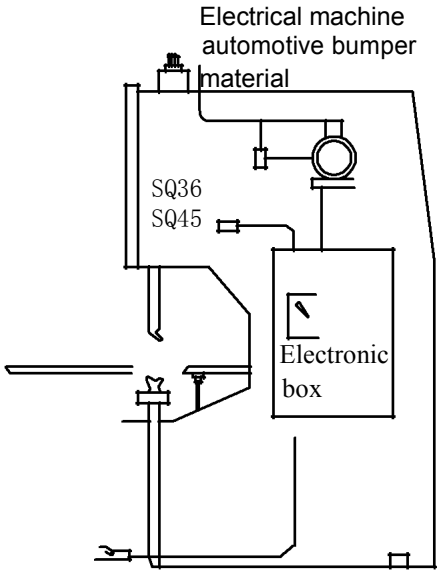
3. After operating several minuets of pump electrical machine, adjust pressure holded time relay KT48 to the small position. let SA3 circumvolve to "The spot move" , step on the button "down"

Then the slide makes the movement of "quick down". As a result of time relay's effect, the slide shall stop after moving down a distance, make it go on moving down, need to loosen foot switch to step on again, KT48 can adjust pressure holded time , step on the foot switch "up" ,the slide stop at dead center.

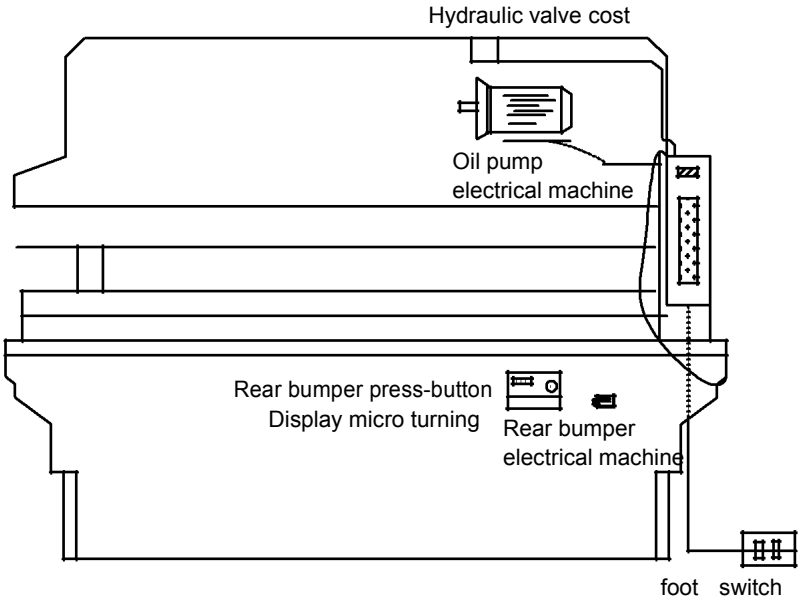
4. After above finished, let SA3 circumvolve to "single", step on the foot switch "down " in series, the slide go down and keep the pressure, after guaranting pressure time finished, the backhaul of hydraulic pressure discharge automatically, the length of guaranting pressure time adjust KT48 time relay. later loosen foot switch, the slide go back above end-point ,SA3 circumvolve to "continuous", step on the foot switch "down", the slide reciprocal remove high and low, step on the foot switch "up" , it stop in above end-point.

List of electric equipments

Mark	Name	Specification	Quantity	Remark
QF1 QF2	Breaker	DZ47—63/3P	2	
FU10 FU11	Breaker	DZ47—63/2P2A	1	
FU12 FU13 FU28	Breaker	DZ47—63/1P2A	1	
VC	Bridge model silicon rectifier	KBPC—35	1	
TC12	Transformer	JBK3—250 380/220V 26V 6V 120V 120V 10VA	1	
KM31	Contactor	3TB44—22 AC220V	1	
KM32 KM33 KM34 KM35	Contactor	3TH44—44 AC220V	4	
KA38 KA43 KA45 KA47	Contactor	37H82—44 AC220V	4	
KT44 KT48	Time relay	ST3PC— BAC220	2	
SA3	Change-over switch	LW26—20	1	
SQ3612	Stroke switch	JW2—11/HL	2	
SQ34 SQ35	Stroke switch	LXW5—11G2/F	2	
SB1	Press-button	LAY3—11Y	1	
SB4	Press-button	LAY3—11D	1	Green
SB5 SB6 SB7 SB8	Press-button	LAY3—11	4	Black
SB2 SB3	Press-button	LAY3—11ZS/1	2	Red



Electric lay-out drawing



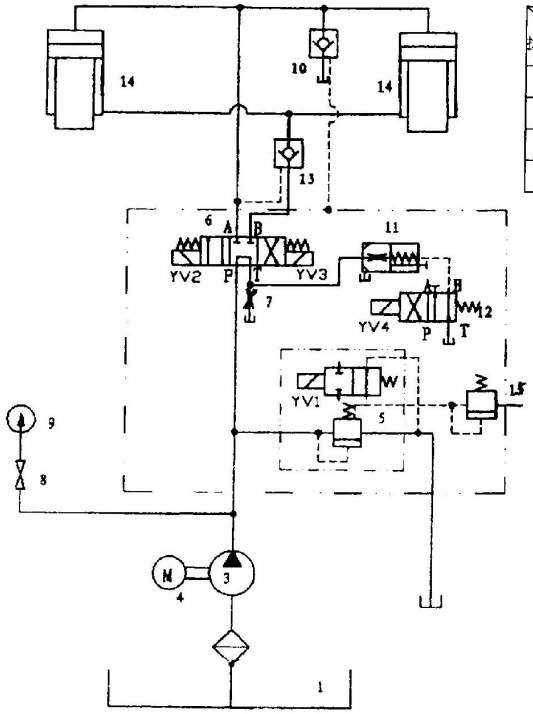
7. THE HYDRAULIC PRESS SYSTEM

The chart's axial plunger pump 9 is the system's energy, By constant current capacity and pressure to supply oil for system, the tri-bit cross electromagnetic directional valve is less than 6MPA, the tri-bit cross electromagnetic directional valve 1 changes the direction of main oil way's oil flow, electromagnetic throttle 3 changes working speed, electromagnetic directional valve 4 runs switching hydraulic-control one-way valve 13 specially. Safety value 6 protects nether sap cavity tubing head pressure which does not surpass 10MPa.

The oil liquid must keep clean, after using a period of time, exchange and depurate piping and oil filter while the oil liquor or the precision are not normal, the lowest temperature is not lower than 10℃, the highest is not bigger than 70℃, or it will effect machine's normal work.

Indicate all the position of hydraulic pieces In the 16th page, all the systems have adjusted before leaving plant, don't adjust easily, just adjust the housing's long-distance valve, later

Attention: The pressure gauge only demonstrate its pressure when it works, it does not demonstrate the pressure in the backhaul.



动作 / 执行元件 / 规范	空运转	滑块		
		滑块快下	滑块慢下	滑块回程
YV1	–	+	+	+
YV2	–	+	+	–
YV3	–	–	–	+
YV4	–	–	+	–

注：在滑块回程时，YV1 失电 2 秒时，以实现泄压，随后 YV1、YV3 得电，滑块回程。

	Name	Model	quantity	Weight		
				Unit	Total	
1	Oil box		1			Self produce
2	Reticulation oil filter	WU-160×100J	1			
3	Axial plunger pump	10MCY14-1B	1			
4	Electromotor	Y132M-4-B35	1			
5	Overflow valve	Y2EH-Hd10	1			
6	Electromagnetism Magnetic exchange	34EM-H10B--T	1			
7	Throttle		1			
8	Pressure gauge switch	KzF-L8H-S	1			
9	Pressure gauge	YTN-Iφ100	1			
10	Hydraulic one-way valve	A1Y—Hb32F	1			
11	Valve core pieces	Y2-H10	1			
12	Electromagnetism Magnetic exchange valve	24EI1-H6B-T	1			
13	Hydraulic one-way valve	A1Y—Hb10B	1			
14	Oil cylinder		2			
15	Overflow valve	YF-L8H4	2			

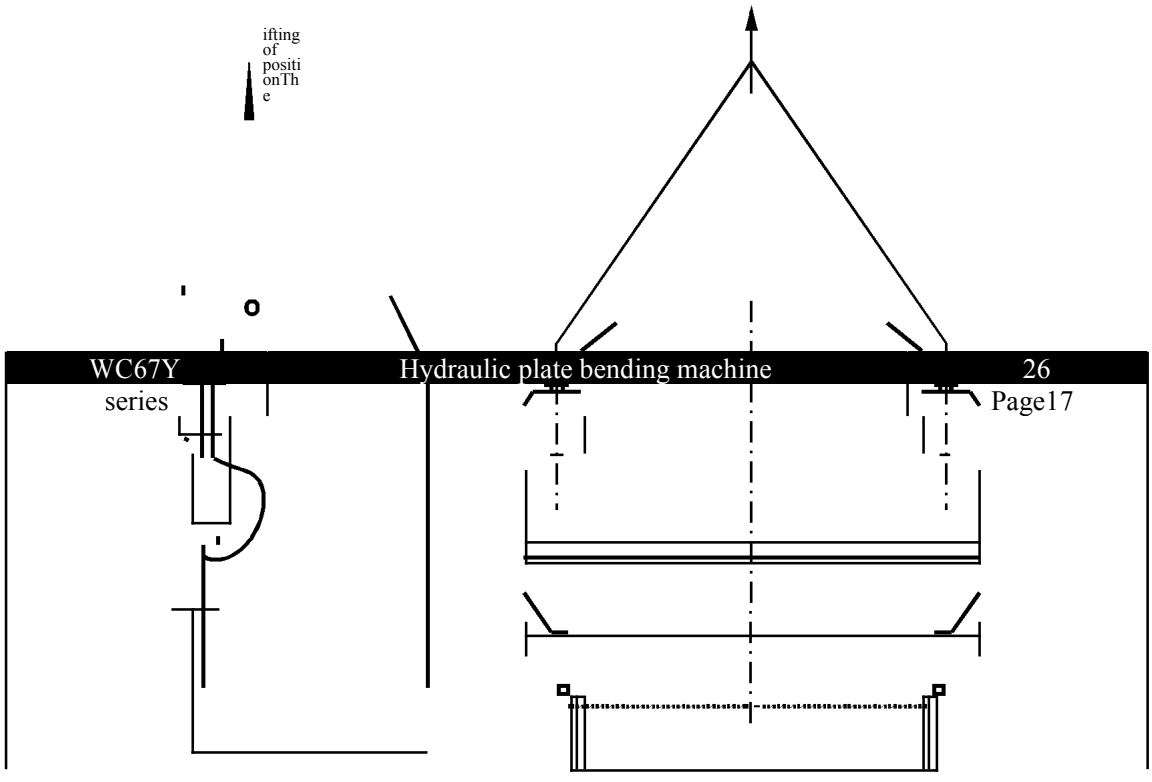
8.THE READY OF MACHINE'S SWING INSTAIIMENT AND ADJUSTMENT

1.The swing of machine:

The machine's barycenter is very high and the fore and after part's weight isn't equal.

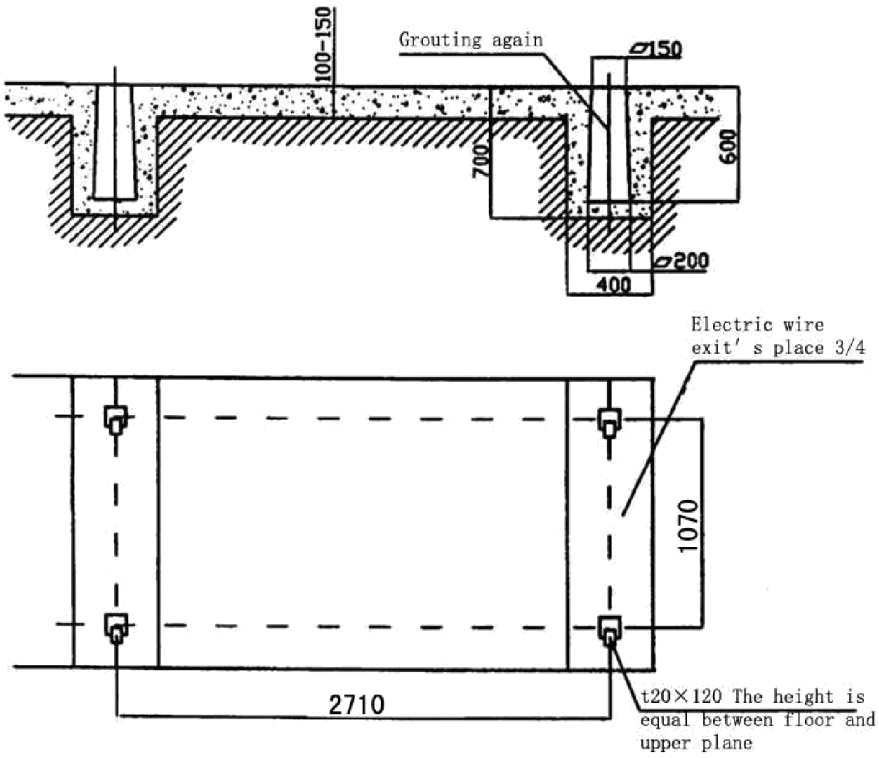
So, Pay attention to the barycenter's position in the process of swing, convey and installment in order to prevent overturning.

Suggest using cross arm to swing to guarantee the machine precision is invariable.

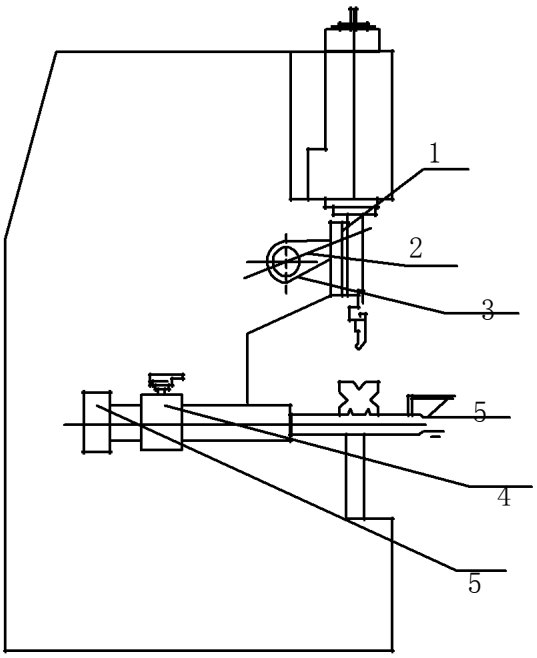


2. Machine's installment

Takes the machine’s work table-board (right-and-left column place) as the norm of survey level. Vertically and horizontally direction are both 1000:0.3.mm. The machine completes in advance and install the machine in the foundation, then install foundation bolt , finally is grouting. Proofreading the level after the cement coagulates completely.



9. LUBRICATION SYSTEM OF MACHINE



Picture 8 The oiling chart of machine

lubrication points number	lubrication points name	Oil mass size	Trades the oil time	The trademark and class of lubricating oil
1	Leadrail(left, right)	Small	8h	Calcium-Based grease ZG3
2	Link rod(left, right)	Small	8h	Calcium-Based grease ZG3
3	Link rod(left, right)	Small	8h	Calcium-Based grease ZG3
4	Slidebase(left, right)	Small	8h	Calcium-Based grease ZG3
5	Bushing(left, right)	Small	8h	Calcium-Based grease ZG3

Hint: Calcium-Based grease ZG3.GB491-87,mixed with 50% automobile oil to use

10. THE ADJUSTMENT OF MACHINE

1. Owing to the difference of table-flap's thickness and nether mould's size, the distance of stroke need to adjust according to needs, press down the worktable's high-low button to make small electrical machine turn around to control the swinging radius of piston which can control the stroke, meanwhile, the count's machine installed in the slide displays it. Attention: The slide need to presses in the stroke switch, the adjustment will be effective.

2.The adjustment of slide upper limit

When slide rise, because hits the block Ⅰ to touch the limit switch, causes the slide to pause in needs position, so that it can reduce the idling running of the stroke and raise the production efficiency.

When "continuously" standard may also send out the consecutive action the instruction.

3. Slide" idling speed" movement adjustment

Slide downward when hits the block Ⅱ to touch the limit switch, causes the slide to make the slow movement.

4. High-and-low mold gap adjustment

Works as the mold downward close under mold 6 shapes to decide the gap observable, afterward revises the slide again the heave height.

5. Work piece bend angle adjustment

Machine's slide and work table when work has the amount of deflection inevitably, down to sometimes bends at the knees the work piece middle angle to be bigger than the both sides angle，by now let slide downward, made upper mould contact nether contact, and slightly relax top slide's follower bolt (the principle is that the above mould doesn't fall down), Afterward on the mold will electroplate on slanting agreement to strike slightly., in order to make center rise high, then firmly reinforce the pressing board to try again, make the angel equally.

6.The adjustment of the machine's pressure:

Look-up table or according to the pressure's formula to count the pressure of bending board, subsequently, adjust the hand wheel of long-range pressure regulating valve, in order to the pressure is bigger than the tonnage of bending board, this may reduce machine's load.

7. The adjustment of parallelism between the slide's underside and the work-table floor: Refer to page 7.

After using period of time, deviate the connecting piece(7) or circumrotate worm (9) or (10) while both sides angle is inconsistent, in order to the distance between screw and nut, maintain the parallelism between the slide bottom and the floor of worktable.(The machine leaves the plant after adjustment, please changes at will).

11. MACHINE'S ADJUSTMENT AND OPERATION

Append lubricant grease in the lubricating points before adjustment, meanwhile, append the hydraulic fluid of new tab V30.（Replace it after one month the first time, Later will act according to the special details, The lowest temperature is not lower than 10℃of oil liquor.）

For the first adjustment, Test machine's movement using "The spot moves" at first, later test the feature of single and consecutive act, stroke ,the control of back gauge range and electromagnetism overflow valve . When prove machine movement is unmistakable, press down next step operation.

1. Account or consult bending tonnage and nether mould size.
2. Aim at high and low mold center.
3. Definite stroke.
4. Definite fore and after gauge range position.
5. Definite high and low gauge range position.
6. Definite movement standard "The spot moves" "Single" or "Continual".
7. Place work-piece into the machine work-table center position for adjustment。
8. Adjusting slide stroke or upper Italics again.

Maintains the margin of flimsy parts.

Pay attention to the thing of seal components, exchange seal components while finding leak.

The machine should keep leaving the plant standard after the machine overhauls.

Attention:

(1) It cannot the unilateral load, in order to avoid effecting sheets and machine's precision, if need, the load should be less than 150KN, suggest using two sides the same time to solve unilateral carry's question.

(2) When the length of bending board is less than 800mm, forbid do full load bending work（Its bending load is less than 100KN）

(3) Pay attention to the oil bumper turning while trying the machine.

12.THE SECURITY CONTROL AND MAINTENANCE OF MACHINE

You must be familiar with the machine’s structure. Feature and usage method if you operate it. Completing regular maintenance work and the daily note for use in order to inquire.

Using machine's working instruction correctly and checking calculation table-flap tonnage.

Neither do unilateral works nor single load work.

Keep the oil liquid clean and oil way well. Adding lubricating oil frequently.

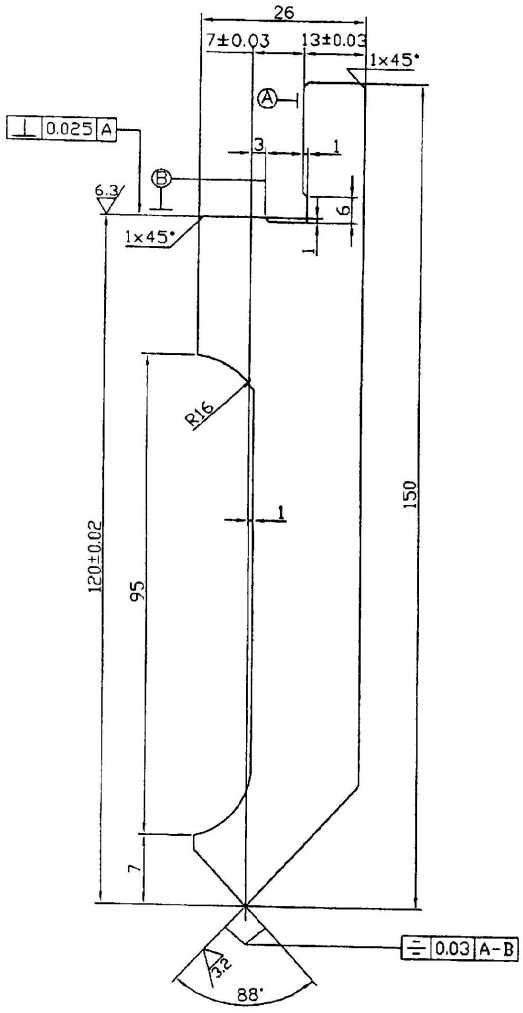
The electricity and the hydraulic element must keep flexibly, keeping normal position.

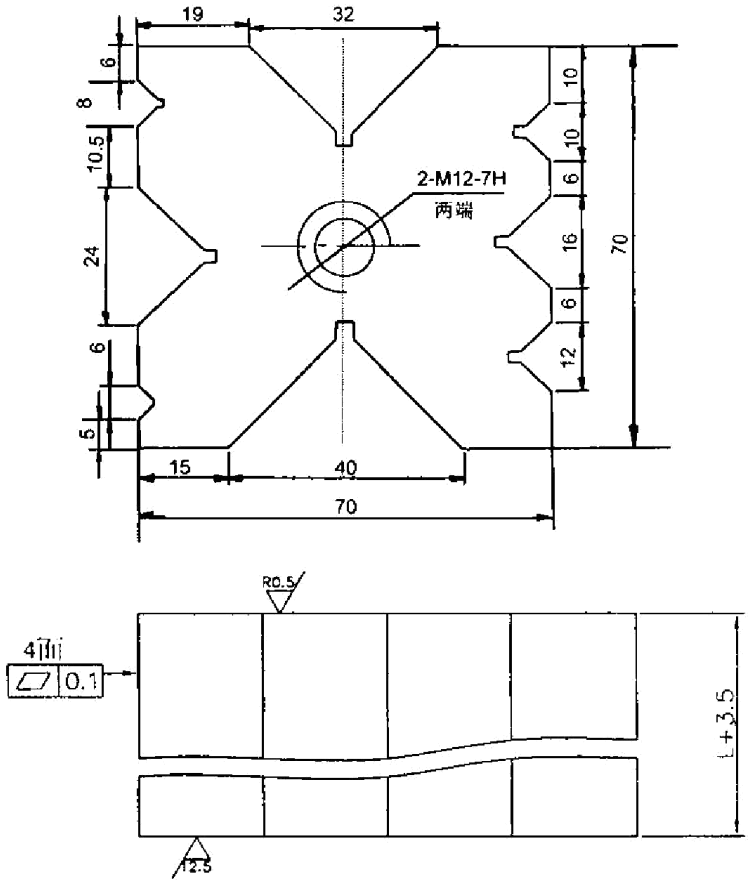
You must stop working to check while deviant phenomenon occurs.

Pays attention to the personal safety.

13.ENCLOSURE、SPARE PART LIST

Sequence number	Code number	Name	Specification	Unit	Quantity	Spare part
1	GB6170-86	Hexagon nut	M16	Piece	4	
2	GB697.1-85	Gasket	¢16	Piece	4	
3	GB799-88	Foundation bolt	M16*400	Piece	4	
4	GB1165-79	Oil gun	100	Piece	1	
5	GB3452.1-82(92)	O type airproof gasket	11*1.9	Piece	9	
6	GB3452.1-82(92)	O type airproof gasket	20*2.4	Piece	16	
7	GB3452.1-82(92)	O type airproof gasket	24*2.4	Piece	6	
8	GB3452.1-82(92)	O type airproof gasket	35*3.1	Piece	4	
9	GB3452.1-82(92)	OO type airproof gasket	40*3.1	Piece	2	
10	GB3452.1-82(92)	O type airproof gasket	45*3.1	Piece	4	
11	GB3452.1-82(92)	O type airproof gasket	155*3.1	Piece	4	
12	JP982-77	Gasket	14	Piece	7	
13	JP982-77	Gasket	16	Piece	2	
14	JP982-77	Gasket	22	Piece	9	
15	JP982-77	Gasket	27	Piece	2	
16	JP982-77	Gasket	33	Piece	4	
17	JP982-77	Gasket	42	Piece	4	
18	Serves as the hole UN125Model	Airproof gasket		Piece	8	
19	Serves as the axis UN125Model	Airproof gasket		Piece	2	
20	DH125	Dust ring		Piece	2	


26
7±0.03
13±0.03
1×45°
0.025 A
3
1
6.3
6
1×45°
R16
150
120±0.02
95
1
7
0.03 A-B
3.2
88°



Technical requirement:

1. Heat treatment T235
2. The rabbet of V style tool angle R0.5，
   In the span may allowance error 0.05
3. The rabbet of V style is 88 degrees

down mould	T7A	Quantity 1	80t/3200

QUALIFIED CERTIFICATE

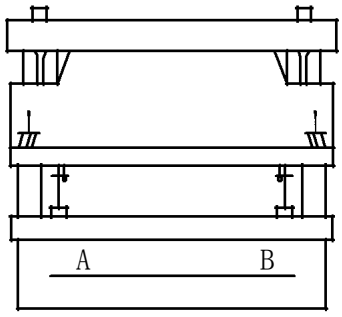
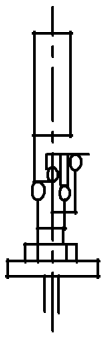
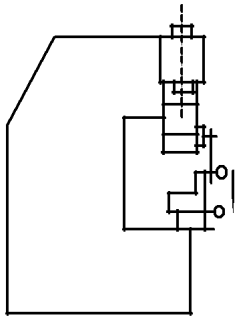
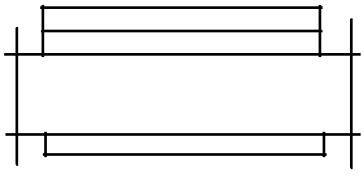
The name of machine tool:Hydraulic plate bending machine

The model of machine tool: WC67Y-

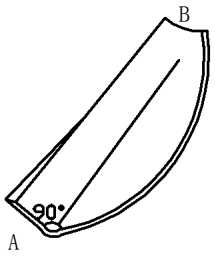
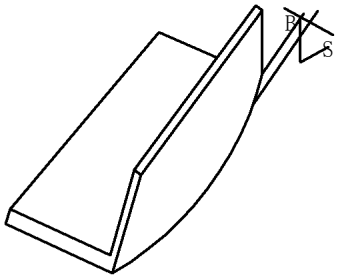
Number:

Certificate	3
The machine tool is qualified after the examination, permits leaving the plant. Checker: Examines section chief: Date:	Page1

Certificate

<table>
<tr><td>Serial number</td><td>Detecting item</td><td>Scheme</td><td colspan="2">Tolerance</td><td>Actual measurement</td></tr>
<tr><td rowspan="11">G1</td><td rowspan="11">The Parallelism between worktable and Upper mould bearing surface
a: portrait
b: landscape orientation</td><td rowspan="6">  </td><td>Worktable length</td><td>aralle lism</td><td></td></tr>
<tr><td>≤1600</td><td>0.12</td><td></td></tr>
<tr><td>>1600-2500</td><td>0.16</td><td></td></tr>
<tr><td>>2500-4000</td><td>0.18</td><td></td></tr>
<tr><td>>4000-6300</td><td>0.20</td><td></td></tr>
<tr><td>>6300-8000</td><td>0.22</td><td></td></tr>
<tr><td rowspan="5">  </td><td>Horizontal bearing surface width</td><td>Parall elism</td><td></td></tr>
<tr><td>≤50</td><td>0.04</td><td></td></tr>
<tr><td>>50-100</td><td>0.10</td><td></td></tr>
<tr><td colspan="3">(The front-end of slipper only permits downward)</td></tr>
<tr><td rowspan="5">G2</td><td rowspan="5">The verticality between stroke and work table</td><td rowspan="4">  </td><td>Stroke</td><td>Height</td><td></td></tr>
<tr><td>≤100</td><td>0.2</td><td></td></tr>
<tr><td>>100-250</td><td>0.25</td><td></td></tr>
<tr><td>>250-500</td><td>0.4</td><td></td></tr>
<tr><td colspan="3">(Only permits inward to rack while slipper move downward)</td></tr>
<tr><td>G3</td><td>The parallelism between upper mould and stock stop</td><td>  </td><td colspan="2">d_1-d_2=-0.5~+0.5</td><td></td></tr>
</table>

Certificate	3
	Page3

Sequence number	Inspecting item	Scheme	Tolerance	Actual measurement
P_1	Bending angle		±1° 30′	
P_2	Bending straight line		1.00/1000	

Packing List

serial number:

Sequence number	Code number	Name and specification	Unit	Quantity	Remark
1．Main engine					
1.		800KN plate bender	set	1	
2．Enclosure					
2.	YDT1-14	Foot switch	piece	1	With shield
3.		The sheaf of front bumper material	Piece	2	
4.	GB1165-79	Butter gun	piece	1	A type
5.	GB799-88	foundation bolt M24	piece	4	
6.	GB170-86	Nut M24	piece	4	
7.	GB971-85	Gasket Φ24	piece	4	
3．Spare parts					
8.	GB1235-76	O type airproof gasket 11*1.9	piece	9	
9.	GB1235-76	O type airproof gasket 20*2.4	piece	16	
10.	GB1235-76	O type airproof gasket 24*2.4	piece	6	
11.	GB1235-76	O type airproof gasket 35*3.1	piece	4	
12.	GB1235-76	O type airproof gasket 40*3.1	piece	2	
13.	GB1235-76	O type airproof gasket 45*3.1	piece	2	
14.	JP982-77	gasket 14	piece	7	
15.	JP982-77	gasket 16	piece	2	
16.	JP982-77	gasket 22	piece	9	
17.	JP982-77	gasket 27	piece	2	
18.	JP982-77	gasket 33	piece	4	
19.	JP982-77	gasket 42	piece	4	
20.		Instruction	share	1	
21.		Qualified certificate	share	1	
22.		Packing list	share	1	

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.