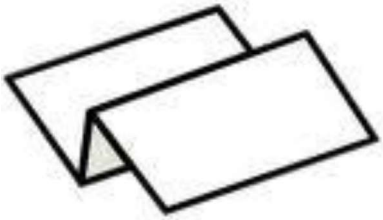
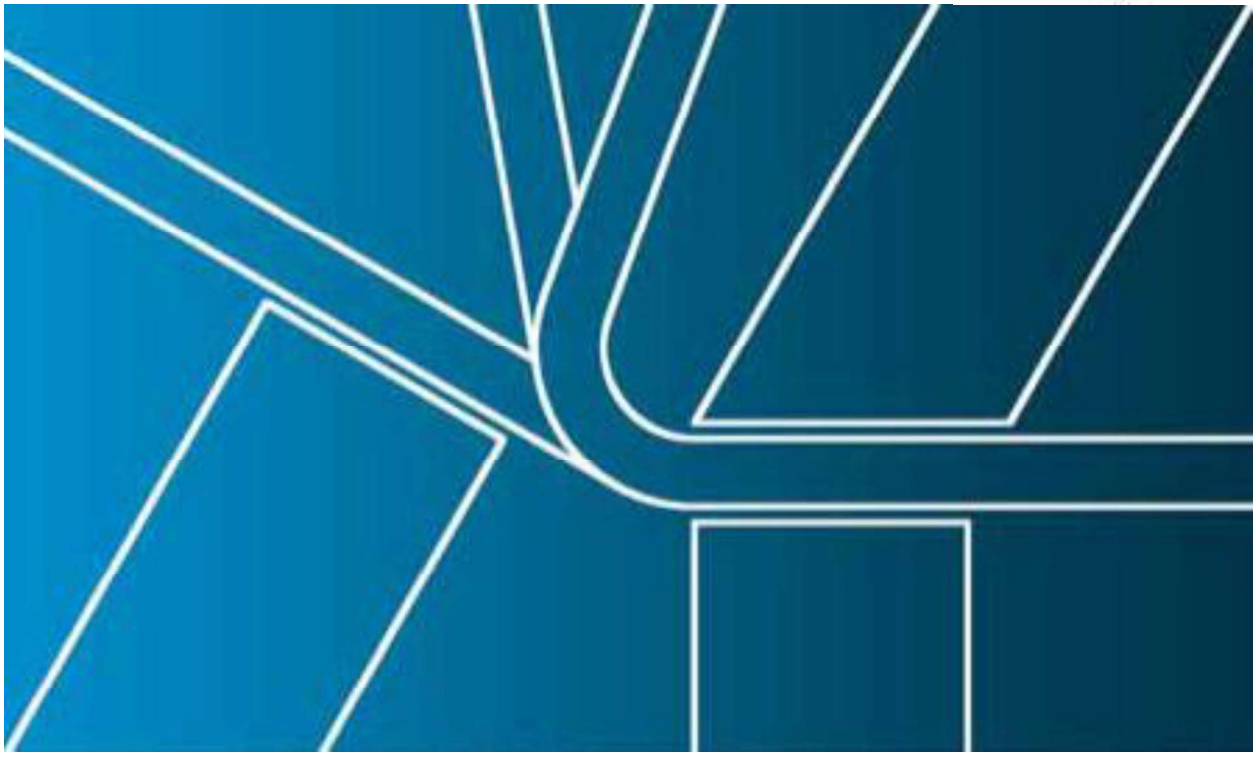
HYDRAULIC (UP & DOWN) FOLDING MACHINE

OPERATING MANUAL





Original instructions Model

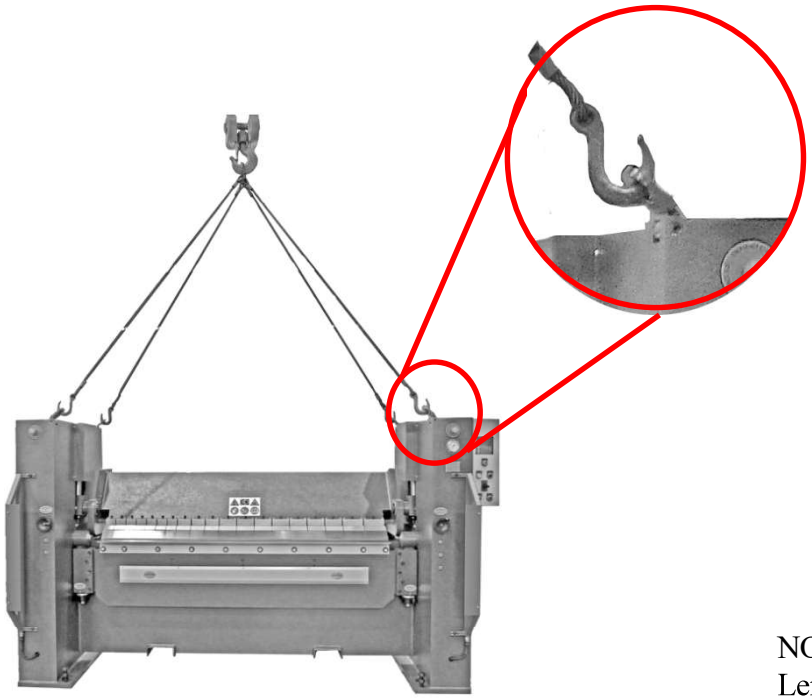
MODEL	:	**VHS-0635**
SERIAL NO	:	**8532**
MAIN	:	**5HP / 3Φ**
VOLTAGE	:	**400V / 50Hz**
DATE	:	**Jul . 2021**

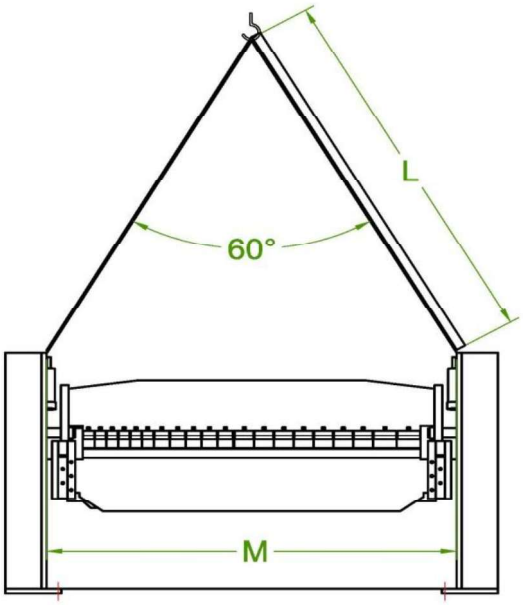
TEKWELL MACHINERY CO.,LTD
No. 9-4, Shiao Chong Liao, Tamsui Town, Taipei Hsien Taiwan, R.O.C
Tel: 886-2-2801-2003 Fax: 886-2-2801-5232 E-Mail: tekwell@ms27.hinet

Transportation after unpacking

By traveling crane

1. The carry capacity for the crane must over the total weight of the machine.
2. The carry capacity for the wire steel hook must over the total weight of the machine, and mind if there is any damage on the wire steel.
3. According to the following drawing shows, let the wire steel cross four corner hooks. And put the center of gravity to the middle of the crane. (Four wire steel hooks will be needed.)
4. When operation, mind the surface between wire steel and the machine painting, please use some paper or cloth to isolate, prevent damage on the painting surface of machine.
5. Mind the wire steel to avoid touching with the machine, please maintain balance and level.

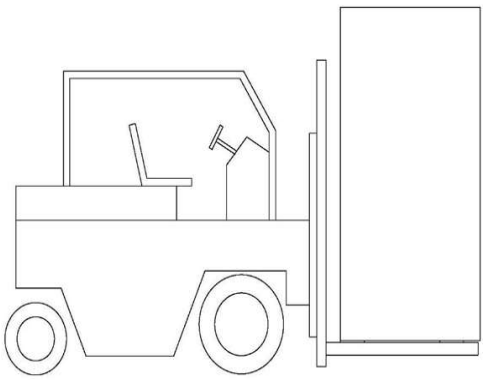




NOTIC:
Length of Wire Steel L ≥ M
Included Angle ≤ 60 degree
Please use forklift for mainly transportation.
(Wire steel hook is suggested when the environment is negative.)

By forklift.

1. when use forklift to transportation, please move the center of gravity to the middle, the length of fork for forklift should be at least 500mm over the center of machine.
2. In transporting, please use the tool which strong than total weight of the machine
3. In transporting, machine position on the forklift, refer to the drawing as right, mind the stable of machine and balance of the gravity as well.



“CAUTION”-HYDRAULIC OIL SPECIFICATION”

1. USE HYDRAULIC OIL AW46 SHELL BRAND or EQUIVALENT SPECIFICATION OF OTHER BRANDS.

2. FILL HYDRAULIC OIL INTO HYDRAULIC TANK UP TO 90% FULL.
   (BEFORE RUNNING THIS MACHINE, PLEASE DO NOT FORGET TO FILL HYDRAULIC OIL AW46 SHELL BRAND 60 LITERS INTO OIL TANK.)

DO NOT RELY ON OIL GAUGE WHICH SOMETIMES GIVE INCORRECT OIL-LEVEL INDICATION.
DOUBLE-CHECK TO OIL TANK AND MAKE SURE OIL TANK IS, AT LEAST, 90% FULL.

SHORTAGE OF HYDRAULIC OIL WILL CAUSE HYDRAULIC SYSTEM/PUMP BREAK-DOWN AND DAMAGE TO MAJOR MECHANICAL PARTS BECAUSE OF OVERHEAT.

3. CHANGE HYDRAULIC OIL EVERY 6 MONTHS.

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ELECTRICAL DIAGRAM

HYDRAULIC CIRCUIT

FOREWORD

For the satisfactory performance of **VHS** series and the high level of their product, it is essential that all personnel concerned with their operation, maintenance and production management be fully familiarized with the specifications and capabilities, constructions and functions of the machines, their components and related equipment as well as the correct methods for their operation, maintenance, etc.

This Manual has been prepared as a guide not only for shop workers but for shop managers to meet the above mentioned requirements. The Manual covers the specifications, constructions, operations and lubrication, etc.

As the policy of **MANUFACTURER**, is one of progressive in prove in design and construction, the machines referred to in this Manual may be subject to change in keeping with this policy. The manufacturers therefore, reserve the right to make these changes without giving prior notice.

CAUTION: THIS MACHINE MIGHT BE DANGEROUS, IF NOT USED PROPERLY.

SAFETY PRECAUTIONS

SAFETY RULE

WARNING

BEFORE OPERATING, PLEASE READ CAREFULLY THIS MANUAL, AND FULLY UNDERSTAND THE PROCESS AND MAINTAINCE PROGRAM.

THIS MANUAL WITH MACHINE, CAN PROVIDE OPERATOR BASIC OPERATING REFERENCE.

Prohibition

Untrained operators are prohibited to use this machine.

Modifications that change the function or specification of this machine should be prohibited.

Lighting

Appropriate lighting must be provided, according to local regulation.

Environment

Ambient air temperature:

+5˚c ~ +45˚c in free air, and the average ambient air temperature over a period of 24 hours shall not exceed +50˚c

Humidity: 30%~95%.

Altitude: up to 1000m above mean see level.

Transportation & Storage condition:

—25˚C ~ +45˚C, and for short periods not exceeding 24 hours up to +70˚c.

1. In order to maintain the initial machining accuracy and performance, the machine must correctly used under the favorable environmental conditions.
2. Inadequate operation may cause damages to the machine itself and extreme cause serious accident to operator.
3. To prevent such troubles, please read this instruction manual carefully until you reach complete understanding and then operate the machine.
4. The following cautions are particularly important to be observed for safe operation.
5. Use proper lifting device to lift the heavier components (weigh more than 25 kg).
6. The machine is prohibited to be used in potentially explosive atmosphere.
7. Other purpose of working is prohibited. It is not applicable to process flammable materials such as magnesium and, wood, glass and poisonous materials, etc.
8. Unqualified operators are not allowed to operate the machine before they received a training course (including suitable and sufficient instruction in press mechanisms, the maintenance of fluid quality and filter changes, protective devices, accident causation and prevention, the work of the tool-setter, tool design and the use of closed tools and fixed enclosing guards). Unauthorized and un-qualified personnel are not allow to access to areas such as electrical cabinet, motor, transformers, and work area.
9. Keep area around machine well light (>500 lux) and dry.
10. During handling, installation or cleaning, anyone should wear helmet for protection.
11. Wear safety shoes during operating, handling, installation or cleaning.

12. The key switch of mode selection should be kept by authorized person.
13. Don't remove any safety guards or devices during operation and maintenance.
14. Don't put any part of the body on the machine during the slide is downing stroke.
15. The actual noise measuring results in factory is about 78.8dB under without production. (condition: leave machine body 1m distance and at 1.6m height from the floor, and 80% of maximum speed). If the noise pressure is over 80 dB(A) while operating, please wear proper ear defender.
16. The disposal of wastes, such as oil, coolant, and chips, must comply with the local regulations.
17. Wear leather gloves or similar protection device during handling, installation or cleaning.
18. if user want to repair, fix or change the component or broken things, need to use the safety measure form the Manufacturer and wear PPE(Personal Protection Equipment).
19. The disposal of wastes, such as oil, coolant, and chips, must comply with the local regulations.
20. Other purpose of working is prohibited. It is not applicable to process flammable materials such as magnesium and, wood, glass and poisonous materials, etcIf the personal is trapped by axes movement, then the release procedure is shown as below:

    Power ON:

    1. Press the EMG STOP button to stop all movements.
    2. The power of motion movement will be removed.
    3. Then the interlocking doors (front door, magazine door) can be opened and light curtain would be activated.

    Power OFF:

    1. Make sure the EMG STOP is pressed.
    2. Turn on the main breaker switch
    3. Then the interlocking doors (front door, magazine door) can be opened and light curtain would be activated.

SAFETY RULES DURING AND/OR BEFORE OPERATION

Tools and any unnecessary items are not allowed on the machine, moving parts, or similar locations.

Before pressing/switching any button/switch always confirm that the button/switch is the correct one and never touch a switch accidentally. Malfunction and potential danger might result.

Do not operate when wearing gloves or loose clothing. Malfunction and potential danger might result.

Do not touch switches with wet hands, an electric shock could occur.

If a work requires two or more operators, the cooperation among each operator must be well organized; every step of each operator should be clarified to avoid potential danger.

Tools should be consisting with the machine's specifications, such as dimensions, weight and types.

Grip work pieces carefully to minimize movement and vibration between work pieces. Too much movement/vibration might result in injuries of personnel, or damage the machine or work piece.

Stop the machine before replacing work piece, and reserve sufficient distance between work piece and machine.

SAFETY FOR THE ELECTRICAL CONNECTION/DISCONNECTION

Electrical connection:

A cable with four wires is supplied to connect your machine into the 3 phase power supply.

The exact power source voltage, frequency, and number of phase shall be checked according to the installation diagram and circuit diagram.

The correct direction of spindle should be checked after connecting.

Electrical disconnection:

Be sure to disconnect this machine from power source, when you want to stop the job for maintenance or adjustment.

Grounding

The grounding of this model is carried out by connecting the yellow/green terminal of supply cable to the grounding terminal of power source. Be sure to ground your machine before connecting machine to power source in any situation.

> **Warning!**
> Do not disconnect grounding terminal before disconnecting power source!

The emergency stop device:

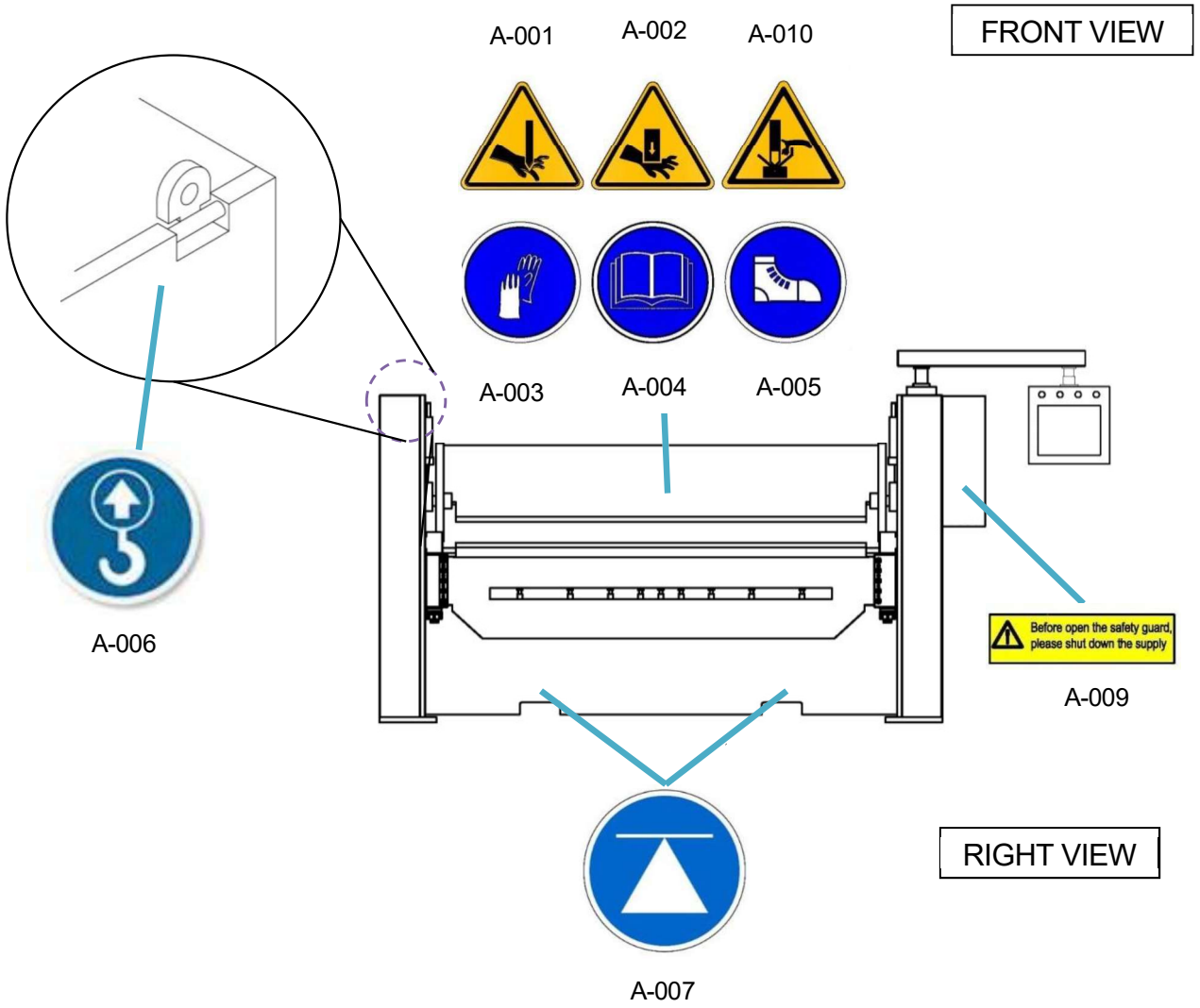
The machine is designed to be immediately stopped under emergency situation. As soon as this device is actuated, any movement will be stopped in a short time after the actuation of emergency button.

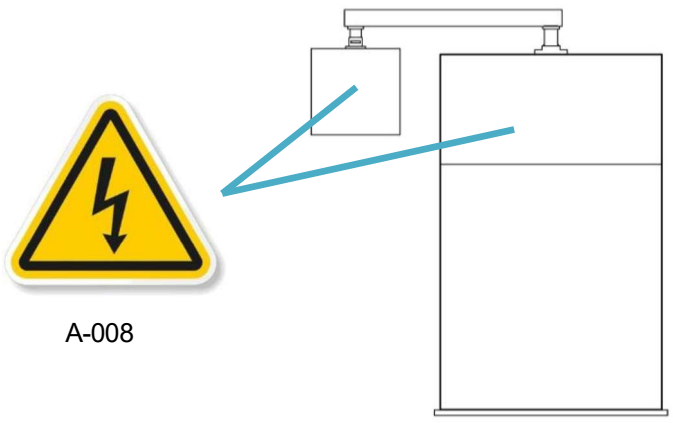
Be sure to check that machine action will stop immediately after this button is pressed and will not cause any action when this button is disengaged.

Safety inspection

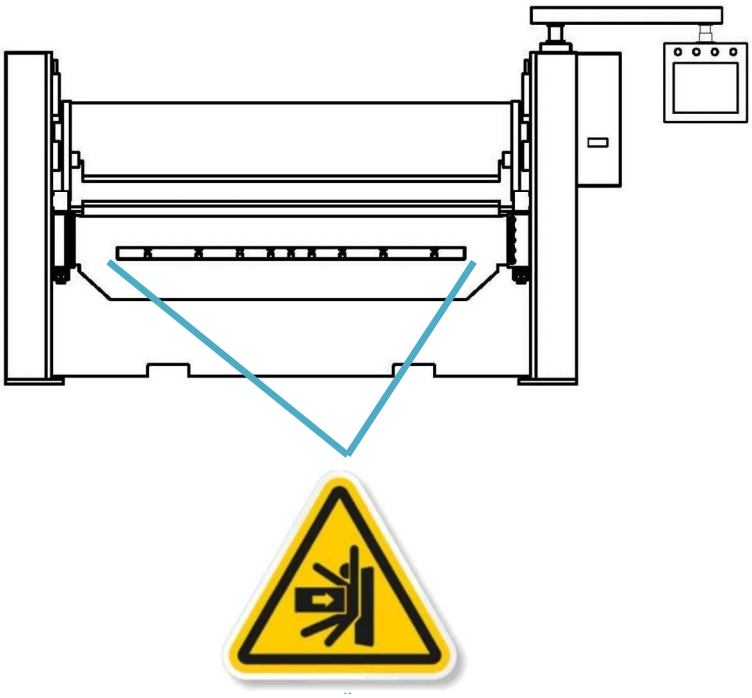
- To ensure safety, it is necessary to do the following inspections for this machine after installation.
- Check if the transportation procedure has influenced the accuracy and functions of the machine.
- Check if the foundation of the machine is appropriate.
- Check if the factory has the correct thunder - preventing system under 25. The machine's main power switch should also have earth wiring connected.
- Use the multi tester to check the stability of the three-phase voltage
- Check if the control panel functions and push button are functioning
- Check emergency stop function.
- Check if safety protection accessories are functioning well
- Check if other accessories, including hydraulic and pneumatic ones, are connected well (including transformer etc.)
- Check if the oil amount indicator and air pressure indicator are normal.
- Make sure no obstacle is around machine and control system.
- Make sure no personnel are in dangerous area.

WARNING PLATE POSITION



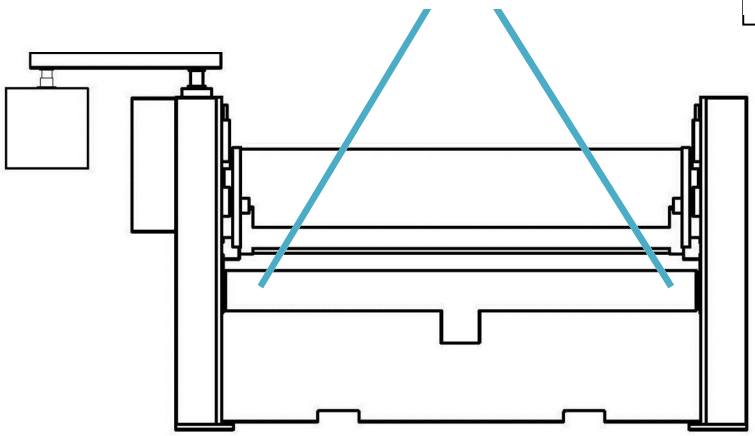


FRONT VIEW



A-011

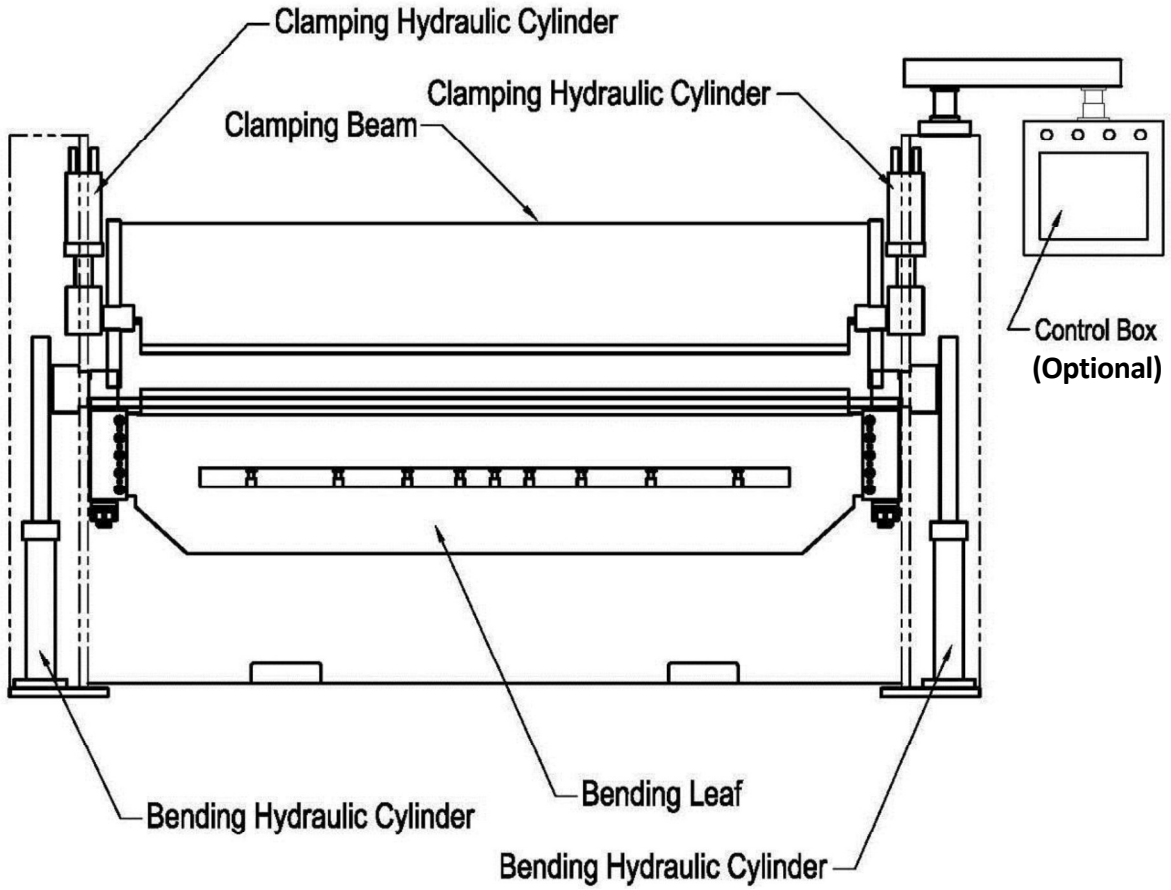
BACK VIEW

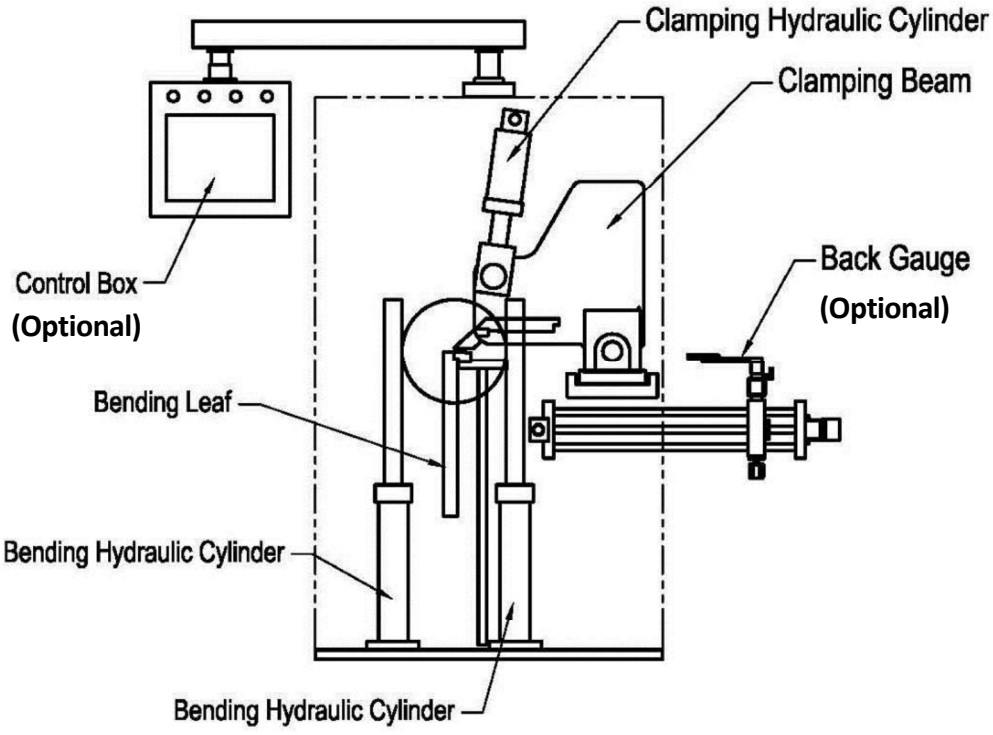


A-001. Be careful clamps hands when machine running
A-002. Watch up the workpiece falls down
A-003. Wear gloves before the operation
A-004. Read the operation manual before turn on machine
A-005. Wear safety shoes before the operation.
A-006. Crane hanging off point
A-007. Forklift handling point
A-008. Hazardous voltage
A-009. Before open the safety guard,please shut down the supply
A-010. Under operation, watch up the workpiece clamped your hands
A-011. Under operation, keep away from moving part of machine

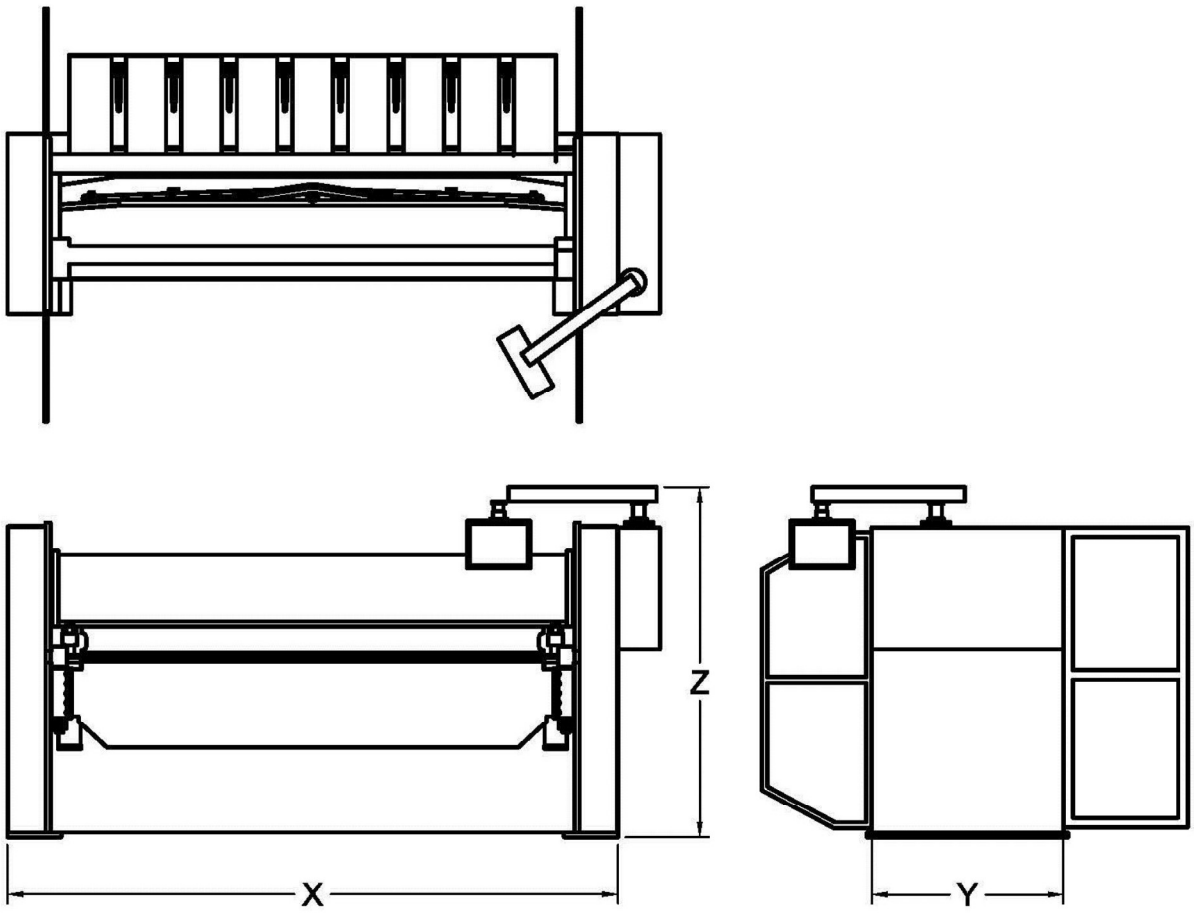
MACHINE INSTRUCTION

EACH PART NAME





MACHINE DIMENSION



UNIT: CM

MODEL	VHS-0635	VHS-0835	VHS-1035
X	300	385	430
Y	100	100	100
Z	185	185	185

MACHINE CAPACITY

MODEL	Bending Capacity(mm)			Bending angle	Max open height (mm)	Min. reverse bend (mm)	Motor (HP)
	Bending length	Mild steel	Stainless steel				
VHS-0635	2035	3.5	2.2	0-150°	25	35	5
VHS-0835	2540	3.5	2.0	0-150°	25	35	7.5
VHS-1035	3100	3.5	1.8	0-150°	25	35	7.5

MACHINE DELIVERY AND INSTALLATION

WEIGHT LIST

MODEL	VHS-0635	VHS-0835	VHS-1035
WEIGHT(KG)	2540	3900	4520

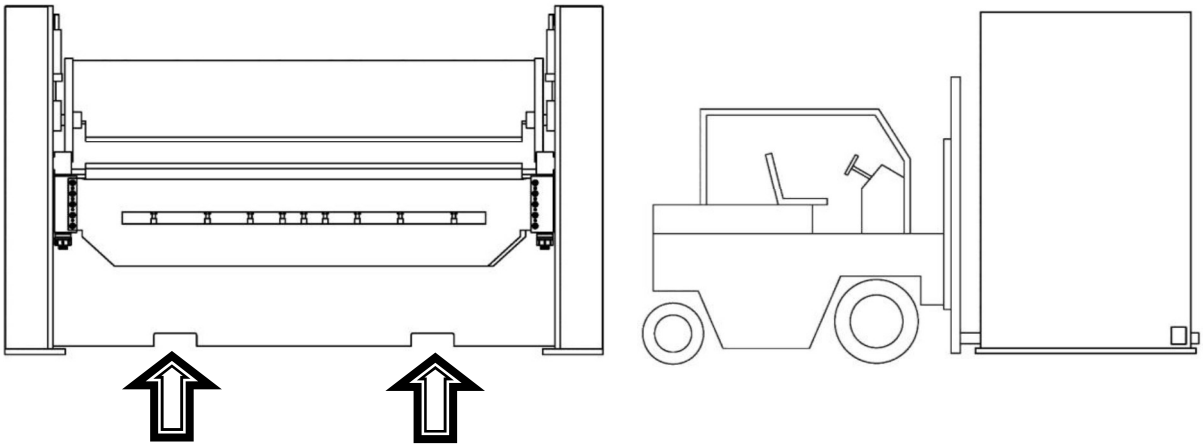
NOTE: Working capacity is based on mild steel approximately 55,000 PSI tensile.

We reserve the right to modify specifications of change design without notice.

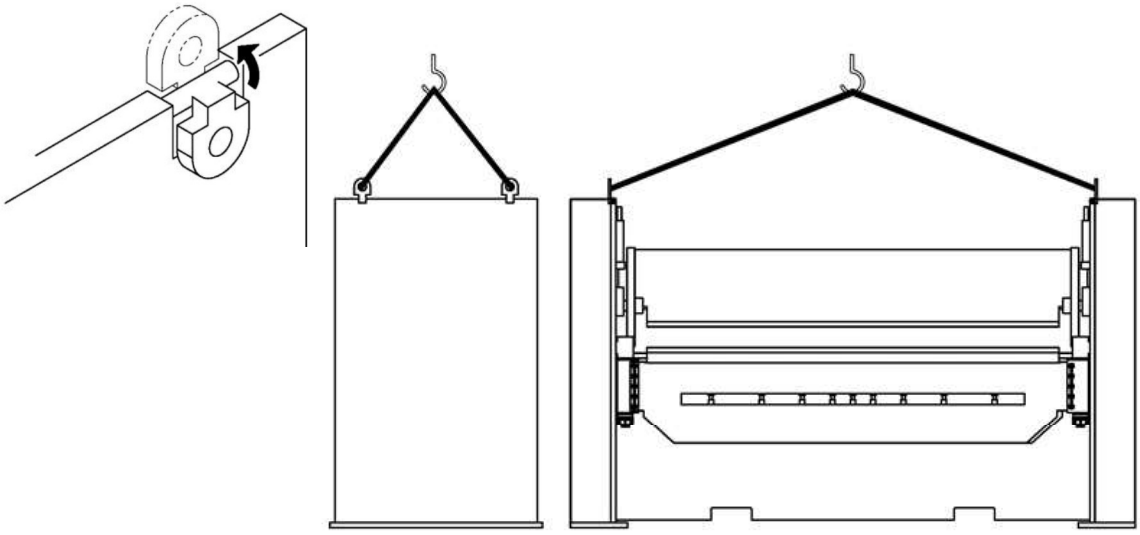
For security reason, please read weight list first.

FORKLIFT MOVEMENT POSITION

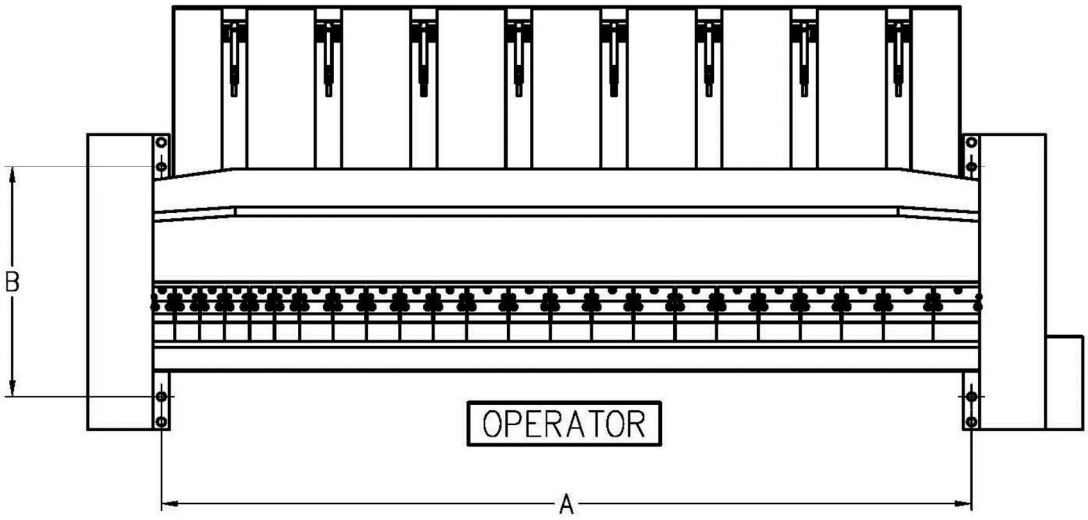
When using forklift move machine, please refer to arrow on the drawing, careful on center of gravity

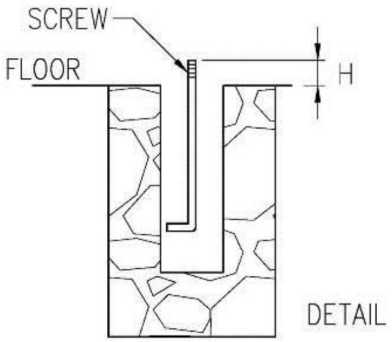


CRANK WAY



FOUNDATION PLAN





UNIT: CM

MODEL	VHS-0635	VHS-0835	VHS-1035
A	227	278	334
Y	71	71	71
H	10	10	10
SCREW	3/4”	3/4”	3/4”

SAFETY RELATED FUNCTION DESCRIPTION

Light curtain

The light curtain is one of safety devices which checks if the light is interrupted, and it sends out an urgent stop signal to press machine. For human safety reason, the slide will immediately execute stop, once light curtain is interrupted. Once the light is interrupted, the resetting procedure is to take away the part of body from detection zone, then to press the reset button so that the machine is ready.

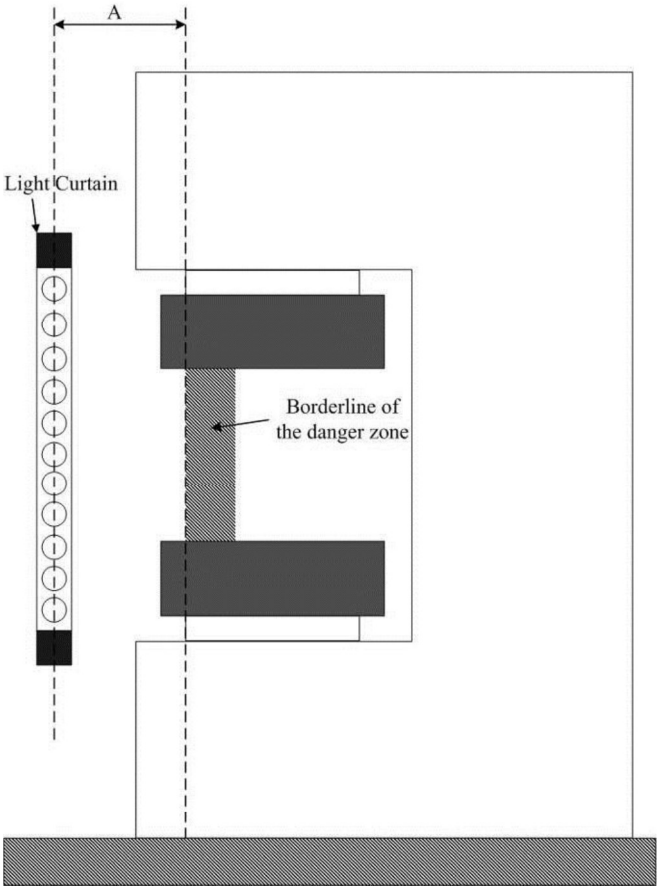
The light curtain must be positioned at a distance exceeding or equal to the minimum safety distance S (refer to figure 1, A≧S) so that a dangerous point can be reached only after stopping the dangerous action of the machine.

The minimum safety distance S is calculated according to the following formula:

S = 2000 (t1 + t2) + 8(d-14) through the actual measurement and calculation, the safety distance is recommend at least 180mm, unauthorized altering of the position is prohibited.

(d=resolution of the light curtain, t1+t2=90 ms=overall response time which including the mechanical and electrical response time).

MODEL	A(mm)
VHS-0635	600
VHS-0835	600
VHS-1035	600



INSTALLATION

SLINGING

Make sure of the followings before slinging:

Make sure that the sling is of adequate load-carrying capacity.

Adjust the position of carriage for balancing.

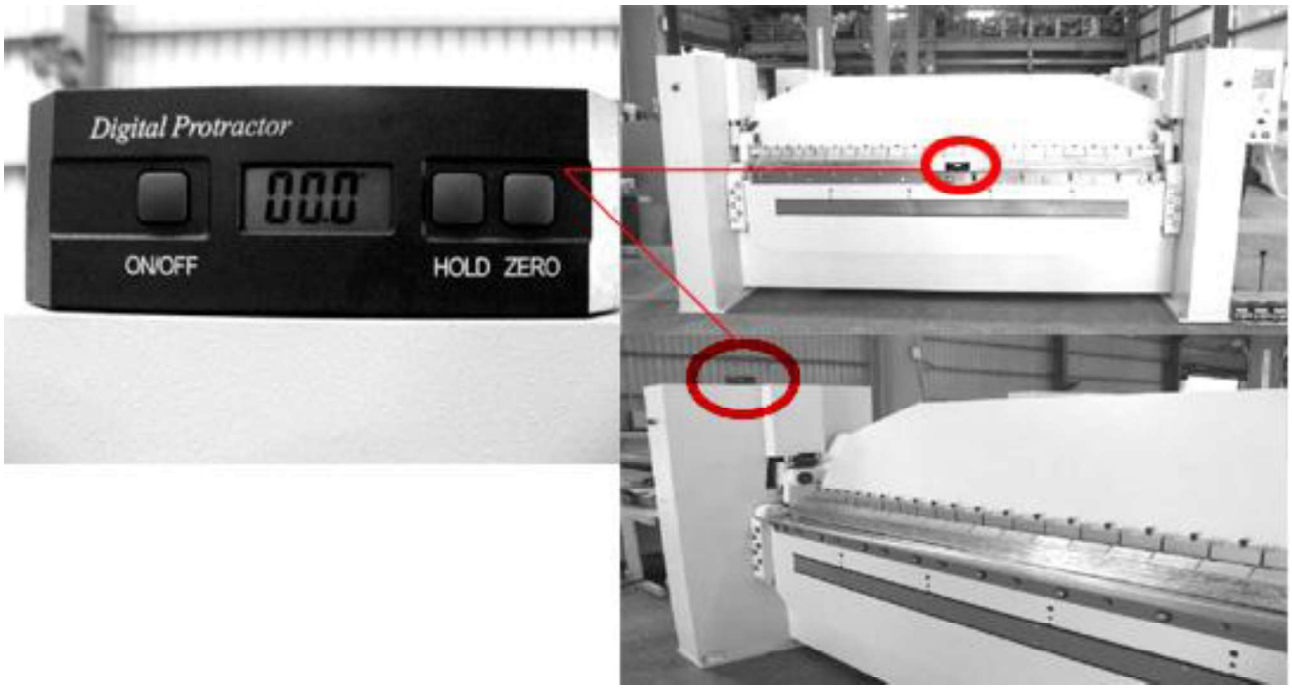
LEVELING

The machine should be sited on a level, concrete floor foundation. Provision is made for securing the machine with foundation bolts which should be in position prior to machine installation. The production accuracy of all precision machinery depends on the accuracy with the machine is installed.

Install the machine according to the followings:

1. Lower the machine on the prepared foundation.
2. Place the machine on the leveling plates.
3. Adjust the level using Jack Bolts.
4. Put Anchor Bolt and mortar into pits, and fasten the nuts only when the mortar is thoroughly hard.
5. When you adjust the machine level, you should use a level gauge so that the machine has the accuracy with 0.1 mm / 1000 mm.

Adjust the level in the front-rear direction; you check it at the both sides of the table, and in the right-left direction, check at the center.



LUBRICATION

The machine tools in service will as long and will work smoothly, when its lubricants are of those types specified by the manufacturer and if lubricating attentions are given at regular intervals are prescribed.

Lubricant specifications and prescribed lubricating procedures for the present Press are as follows:

LUBRICANT SPECIFICATIONS

Lubricants must be mineral oils: this is a fundamental requirement. Never use any vegetable or animal oil as a lubricant. Such a lubricant used on bearings, for example, will soon result in seized bearings due to overheating. Guide points for selection of a lubricant are:

- A good lubricant does not change its properties when left in storage.
- A good lubricant does not present a cloudy appearance.
- A good lubricant is neutral in chemical reaction.
- A good lubricant does not mix with water, that is, is hard to emulsify.
- Carbon forming tendency is low with a good lubricant.
- Viscosity does not very widely with temperature in a good lubricant.

Lubricant color is no yardstick for judging the quality. Each brand of lubricant has its own color.

HYDRAULIC OIL

The hydraulic oil is primarily the medium of transmitting pressure, but has to function as a lubricant for the various parts of the press. It has to satisfy a number of conflicting requirements: it must be viscous enough to minimize internal leakage within the pump and valves; it must be thin enough to flow in the pipe with minimize hydraulic friction; and it must lubricate the running parts of the pump.

The type of hydraulic oil to be used in the present press brake equipment is specified in the table below. In selecting the oil from a host of oils commercially available, in order to meet the itemized requirements included in the manufacturer's type specifications, the following quality tractors must be referred to:

- Viscosity number (The oil must be of the specified viscosity number.)
- Viscosity index (A high viscosity index oil is a better oil)
- Low pour point.
- Importing the oil film building up and anti-wear protective properties
- Resistant to emulsification
- High oxidation stability
- Low foaming tendency
- Non-corrosive property

GREASE

Select a heat-resistant, water-resistant, non-corrosive and stable grease having a high film strength and capable of being applied with the grease gun.

STANDARD LUBRICATING PROCEDURES

How often the hydraulic oil and grease should be inspected, and examined for quality, is indicated in Table 7.1 & 7.2.

1. Have a complete understanding of the lubricated parts as to their locations, methods of giving lubricating attention and type of lubricant used. This understanding must be had before placing the equipment in initial operation.
2. Cleanliness must be utmost in the mind of one giving lubricating attentions. The filler, level inspection point, grease nipple and lubricating tools must be clean when adding oil, pour through a 60 mesh strainer screen.
3. When refilling and oil tank, take care not to overfill. Too much oil in the tank can result in leakage. Be sure to refer to the level gauge. Leakage of oil can lead to trouble.
4. When refilling the hydraulic oil tank, be sure that the ram is up at upper limit. Filling this tank to the level with the ram down might cause the oil to overflow from the tank.
5. Overcharging the grease is just as bad as undercharging.
6. Do not allow different brands of oil to be mixed in the oil tank. If a different brand has to be used, remove the existing lubricant completely and add the new oil. This applies to the grease, of course.
7. Where the ambient temperature varies widely from one season to another, the lubricant must be changed to suit the current condition. The factor for this change is "viscosity" for oil or "consistency" for grease.
8. To replace the oil by a new supply, effect the replacement in the following sequence:
   a. Drain out the existing oil when the equipment has just been shut down after the day's work.
   b. Contaminated oil drains out more quickly and thoroughly.
   c. If possible, flush the oil circuits with a flushing oil. Do not allow the flushing oil to enter the pump and hydraulic cylinders. Remove the flushing oil completely after flushing.
   d. Whether the flushing oil has been used or not, clean the interior of the oil tank and other accessible parts.
   e. Fill the tank up to level with the fresh supply of oil.

TABLE 7.1 LUBRICATION STANDARD (OIL)

Lubricate point	Level check	Adding	Oil quality check
Main oil tank	Daily	Every six months	Every year

TABLE 7.2 LUBRICATION STANDARD (GREASE)

Lubricate point	Check	Adding	Application
Main motor	Every 4000 / hours	Every 4000 / hours	Grease gun

TABLE 7.3 OPERATING OIL

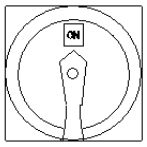
(For use under normal operating conditions and at normal temperatures)

Operating oil	ESSO TERESSO 68	MOBIL DTE 25	SHELL TELLUS oil S68

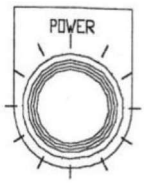
OPERATION MAUNAL

POWER ON

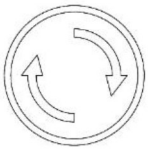
Open main power



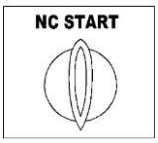
Power is "ON"



Emergency stop turn clockwise



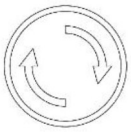
Start NC control system



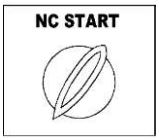
Touch screen shows manual display, controller system prepare finished

POWER OFF

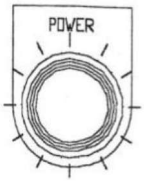
Press emergency stop



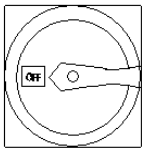
Shut down NC controller



Power is "OFF"



Shut down main power



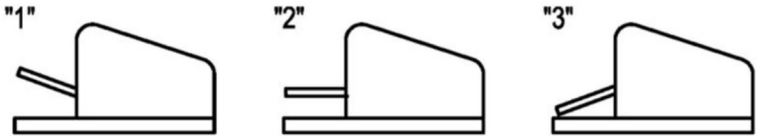
FOOT SWITCH

A foot pedal with a single actuator having the following positions:

1st position: stop;

2nd position: run;

3rd position: stop.



MANUAL

Bend: not active

Clamp: clamp work piece（activated when stepped on）

Unclamp: release work piece（activated when stepped on）

AUTO

Bend: Step on Bend pedal once to complete the folding and then it reverse back to origin.

Clamp: Step on the foot pedal once, and the upper beam will start clamping until the upper beam is around 15mm(1s) away from the lower beam, the upper beam will automatically stop
Step on the foot pedal again to clamp the work piece

Unclamp Release work piece（activated when stepped on）



EMERGENCY STOP PUSHBUTTON

Emergency Stop Pushbutton is used to stop the machine immediately in case of emergency. Once this button is pressed, it remains latched in the STOP position. To release the button, turn it clockwise. When an emergency stop takes place, the power to the motors is interrupted, and all axial movements and spindle rotation are stopped.

Note be sure to remove the cause of emergency stop before releasing Emergency Stop button.

After releasing this button, pressing reset pushbutton until “EMG” message disappears.

When the operation is restarted, all commands for axial movement before the Emergency Stop occurred are lost.

CAUTION All personnel must know the locations of all Emergency Stop buttons and how to use them in case of emergency.

WORKPIECE SETTING

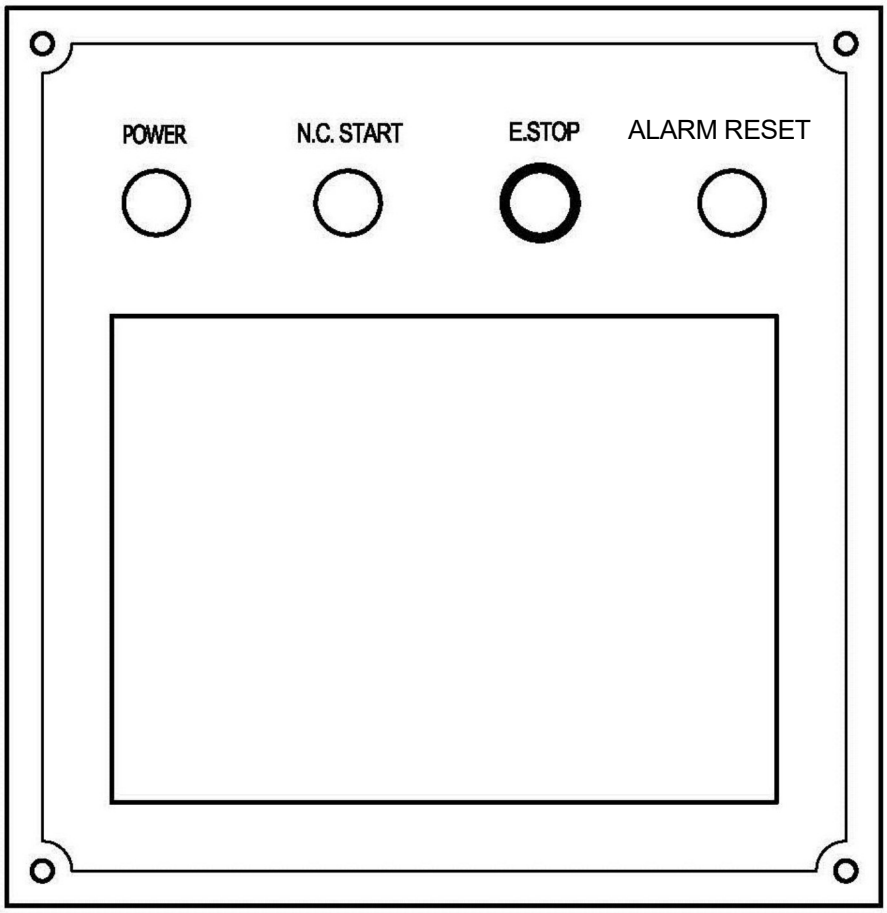
When using a manually tightened fixture, always remove the clamp handle or tightening tool from the fixture after tightening.
When clamping a workpiece on the table or in the fixture, take note of the rigidity of the workpiece. Make sure that the workpiece will not be loosened or distorted due to the clamping force.
Do not leave articles such as tools and rags inside the machine. If the machine is operated with such articles inside it they may become entangled with a tool and thrown out of the machine, and this could cause serious injuries or damage to the machine.
This Machining Centre is designed to machine non-hazardous metals only.

MUNTING DESCRIPTION

When machine in clamping operation (unclamp material) for bending operation, MUTING function unavailable; so it's means the machine stop all operation immediately.

When machine clamp the material or clamp beam (upper beam) no any works, MUTING function available; it’s means the machine operation continued.

OPERATION PANEL DISCRIPTION



POWER	Machine power light.
NC. START	To start controller power
E.STOP	To stop the machine immediately in case of emergency.
ALARM RESET:	Safety control alarm reset

PASSWORD DESCRIPTION

- In any page into the "MANUAL pages" without entering a password to enter.
- In any page into the "AUTO page" need to enter a password before entering.
- In any page any page to enter "PROGRAM EDITOR page" need to enter a password before entering.
- In any page any page to enter "PROGRAM page" need to enter a password before entering in any page, if used directly in the " PROGRAM EDITOR

Page" "PROGRAM DOWNLOAD" without entering a password to enter the "PROGRAM page."

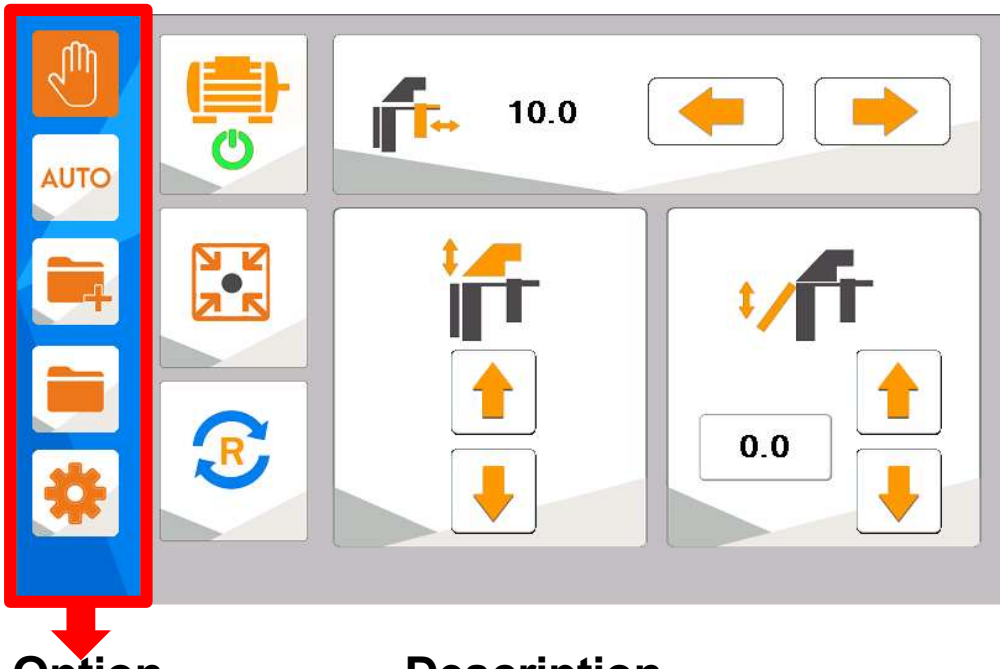
- In any page into the "SETTING page" need to enter a password before entering.
- Enter the "Advanced Settings" need to enter a password before entering.

INITIAL DISPLAY NC START

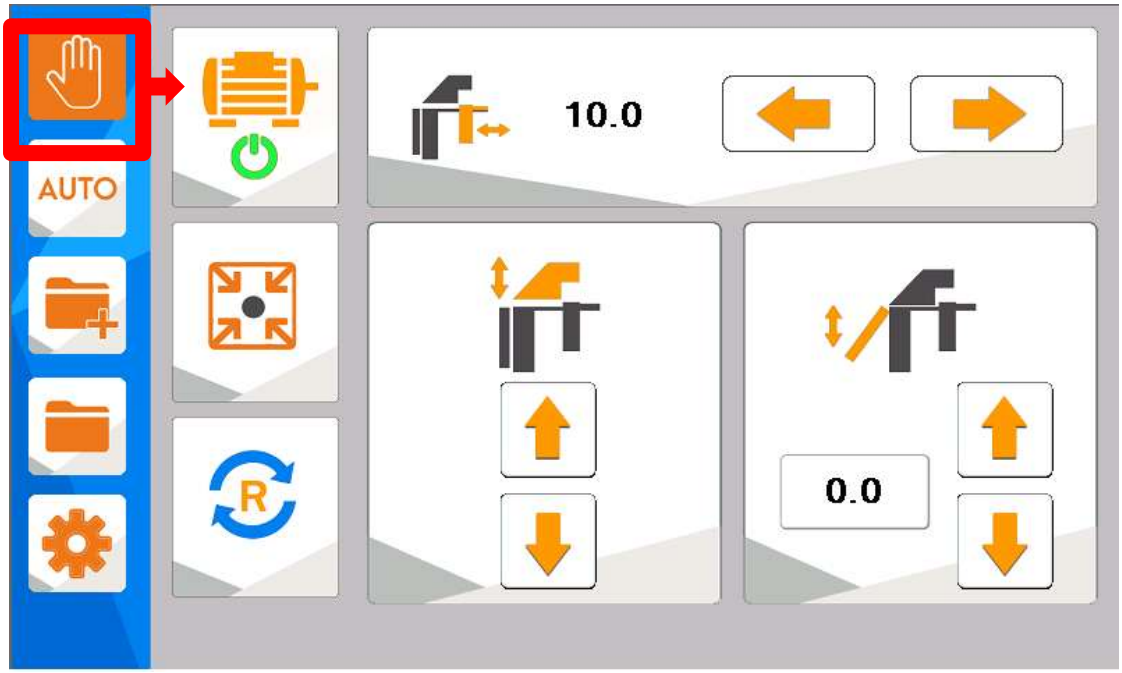


Touch screen to start operation

Touch the icon of red mark position to select the machine mode.



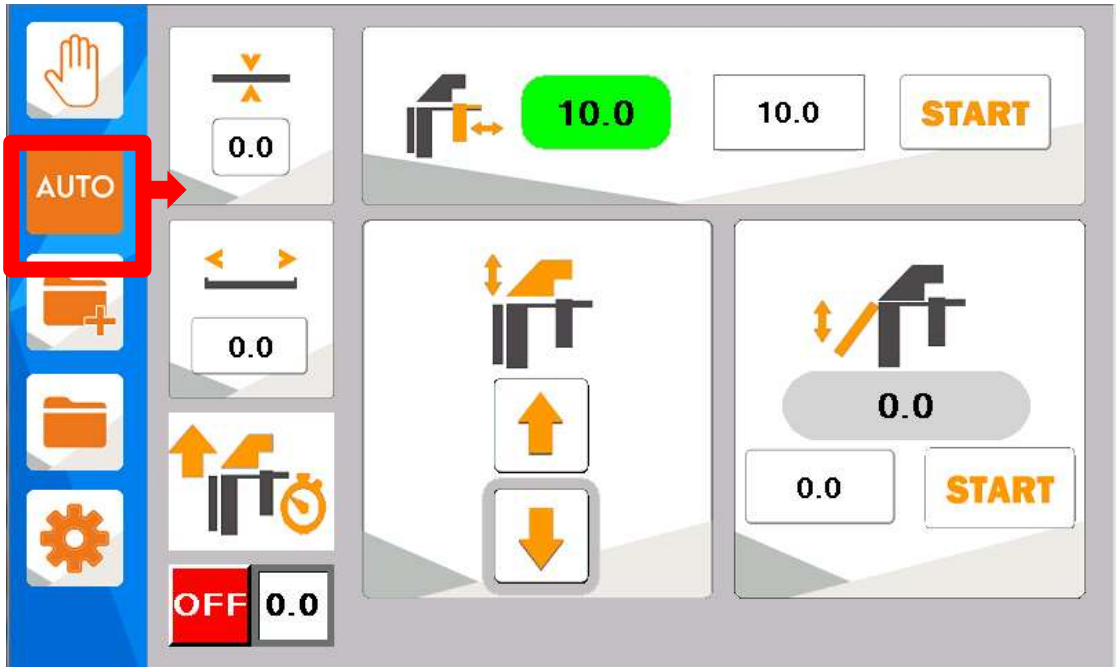
Option	Description
	**Manual mode**
	**Auto mode**
	**Program edit mode**
	**Program mode**
	**Setting mode**
	**MANUAL MODE**



Option	Description
	Motor pump start
	Motor pump stop
	Original return
	Reset
	Back gauge forward  / backward 
	Clamping Up  / Down 
	Bending Up  / Down 



AUTO MODE



Option	Description
	Bending thickness set, 0.0 is setting value
	Bending length set, 0.0 is setting value
	Clamping tools automatic open
OFF	ON：Automatic open function - On / OFF：Automatic open function - Off
0.0	Setting Value
	Open time setting ------ (2 - 8 sec)
	Remark: The automatic open function will not remember your last setting status after reboot the machine
	Back gauge forward / backward
10.0	Current Value
100.0	Setting Value
START	Start



Clamping Up  / Down 

Bending Up / Down



Current Value

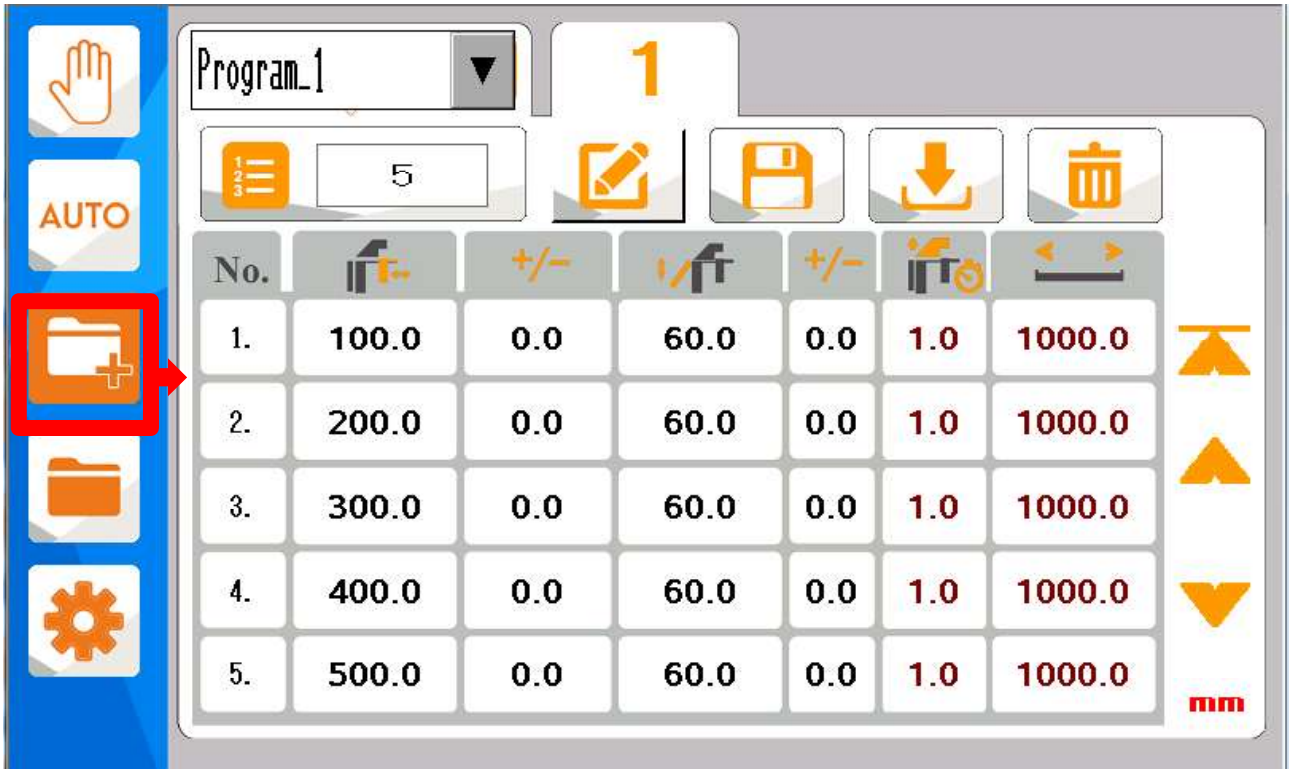


Setting Value



Start

PROGRAM EDIT MODE



Option	Description
Program_1 ▼	Edit / Program name, Drop down menu
5	Program steps set, Maximum 50 steps
	Add new program (Maximum 255 new program)
	Save Program
	Program Download
	Delete Program, Show

window



Clamp delay open time



Return to first page



Previous page



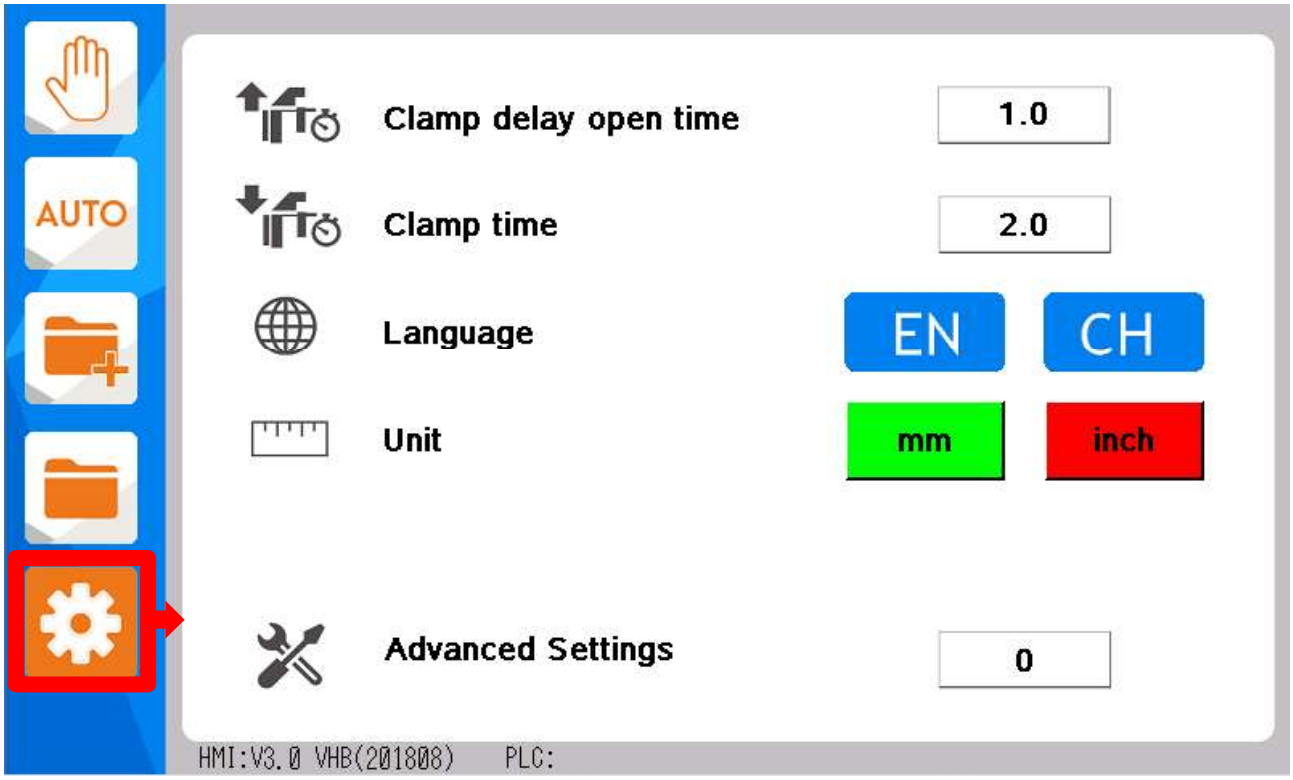
Next page

PROGRAM MODE



Option	Description
Program_1	Program name
10	Total steps of this program
0	Current processing step
	Input the thickness value 0.0
START	Start
STOP	Stop

SETTING MODE



X axis pluse	0	Y axis pulse	0
Back gauge(X) Jogging speed	300	Bend(Y) Stroke distance	2000
Back gauge(X) Position speed	500	Bend(Y) Total angle	360
Back gauge(X) Min value of distance	9.5	Bend(Y) Min value of angle	0
Back gauge(X) No1 Min of distance	50.0	Bend(Y) Max value of angle	140.0
Back gauge(X) Max value of distance	800	Bend(Y) Position angle time	1.0
Back gauge(X) Origin distance	11.2	Bend(Y) Angle return of slow speed	6.0
Back gauge(X) Servo compensatory	2.0	Bend(Y) Angle position of slow speed	8.0
Material thickness set	3.5	Bend(Y) Angle tolerance	ON 0.5
Material length set	2035.0		
Bend(Y) down press	700		

TRUOBLE SHOOTING

ERROR MESSAGE	POSSIBLE CAUSE	SOLUTIONS
Data error	Error data of programming	Select on program editor and ensure if there is any value or data in 0 (Without compensation value)
Motor overload	Overload of pump	Open electric cabinet and reset motor protector
Safety control alarm	1. EMS button be depressed	Release EMS button and press down ALARM RESET on panel for reset safety controller
	2. Front/Rear lightcurtain alarm	Clean sensoring area on Front/ Rear lightcurtain move out forrign matter, press ALARM RESET button on panel for reset safety controller
	3. NC control system is in process loading	Press ALARM RESET button on panel for reset safety controller
Servo alarm	1. There is distance over minimum/ maximum software limit made the Front/Rear sensor alarm	On manual page, click RESET key and resetting AC servo controller push back gauge departing of Front/ Rear sensor
	2. Power cable/ connect wire is departed from AC servo motor	Check all wires and connect points in correct, and AC servo motor connector pins in correct also without any loosen
Zero return	NC controller start processing (under AC servo alarm, can't be Origin start)	On manual page, click Origin START then back gauge going back origin zero point
Homing	Click Origin START key	Origin zero point processing, when the process completed

BENDING GAP ADJUSTMENT

Direction:

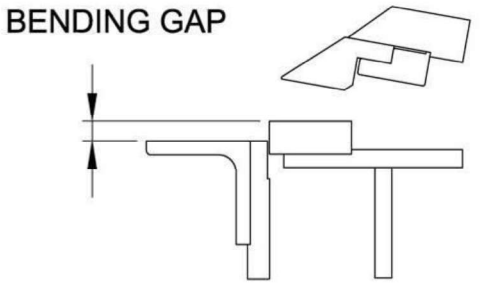
Adjust the bend gap according to the difference of the thickness of workpiece.

Bending Gap ≒ Metrical Thickness X (1.2~1.5)

Please follow the following steps:

1. Open the top beam.
2. Use the hook wrench to adjust the two sides of bending leaf indicator as below drawing. Assume the thickness of workpiece is 3mm, then the guideline will point to 3.6~4.5

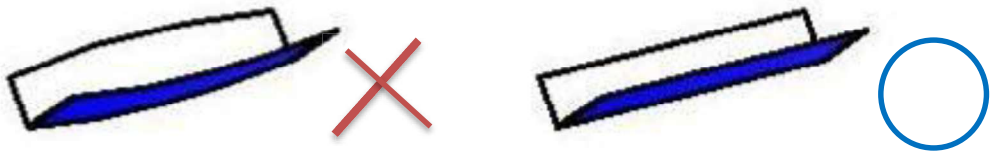






BENGING GAP INDICATOR

TABLE CROWNING COMPENSATION



Please follow the instruction to do adjustment:

1. Firstly, loosen the middle screws of INSERT BAR.
   ATTENTION: the end at both side screws DO NOT MOVE THEM AND KEEP FIXING.
2. Divide the table crowning compensation into three parts before start adjusting (see Figure 3).
3. The first part is been adjusted by priority (see Figure 10-2), use a wrench and clockwise or anticlockwise rotating the screws, the compensation value will increased alone with rotating the adjust-knob in clockwise direction
4. After done of first part, then start adjusting the 2ndpart and make both them crowning up to touch bending beam as well (There is no need to have same adjustment like the first part)
5. After above steps and adjustments are completed, tighten all of screws in bending beam.
6. In case, when bending a thing/shorter material got the over-bend result in the middle side, you can reversely operating the above steps (Release crowning power).



Figure 1



Figure 2

Figure 1-1

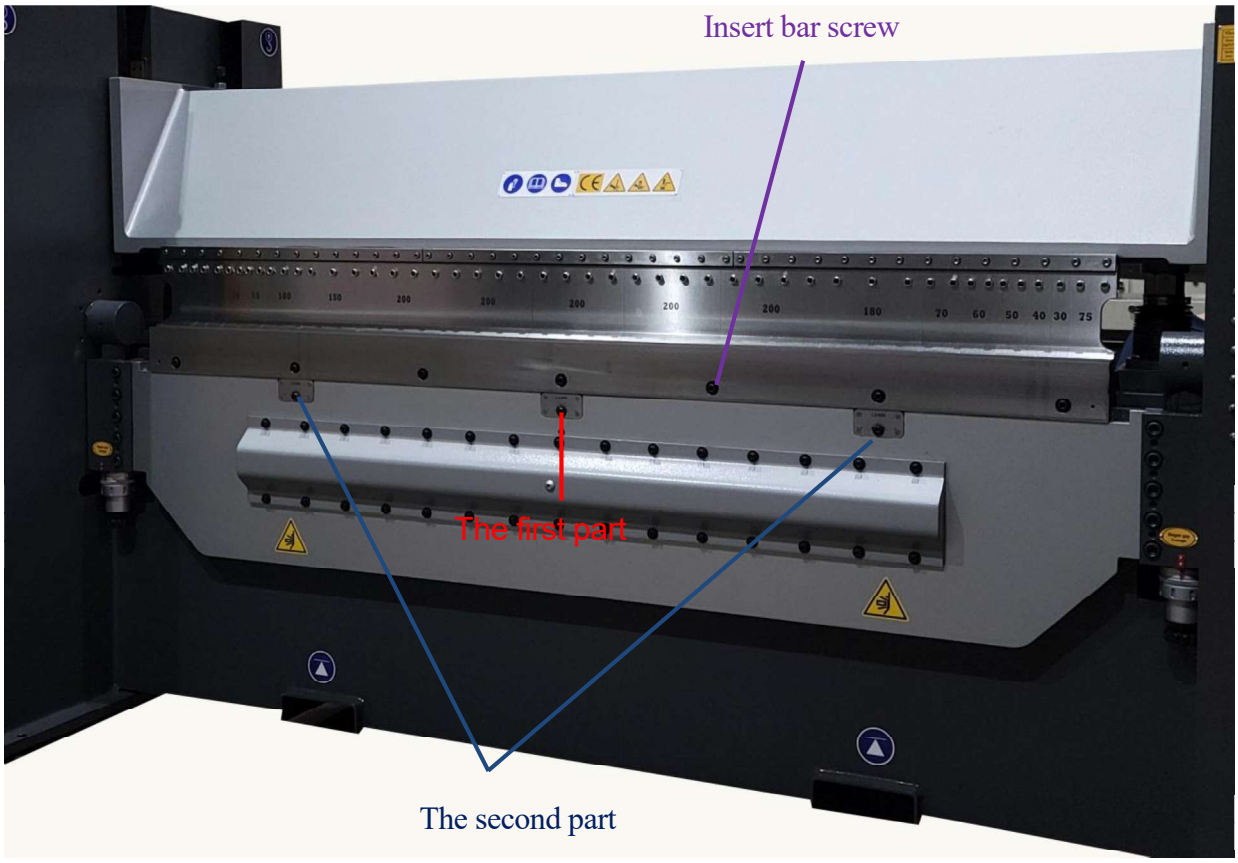


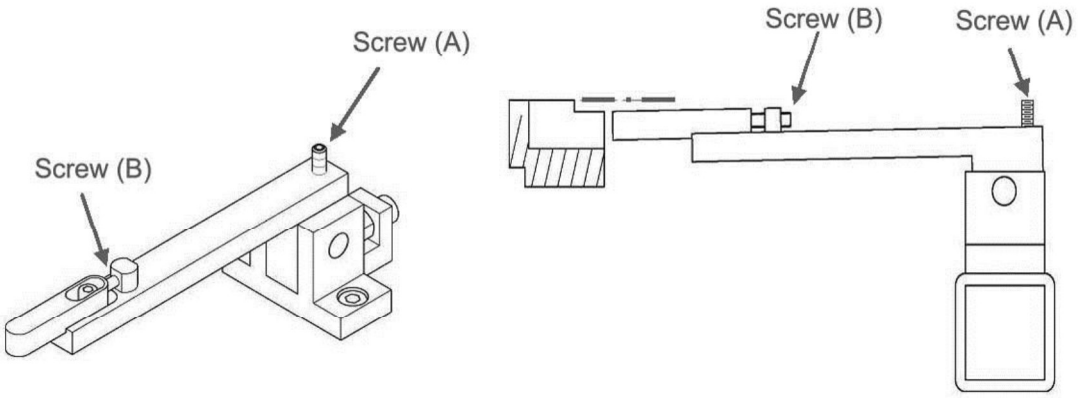
Figure 3

Figure 10-2

POWER BACK GAUGE OPERATION

ADJUSTMENT

1. Select two sets of stopper in accordance with the material's length
2. Tighten screw (A) on all the other stoppers, make sure that the stoppers are lower than the surface of bottom die
3. Adjust the screw (B) on the two selected stopper, set size



TIMING BELT

The accuracy of back gauge will be affected when the timing belt is too tight or too loose.

Loosen the screw on back gauge's motor, adjust the stress of the timing belt, and make sure the back gauge can operate smoothly.



UPPER TOOLING QUICKLY DEPART & SETUP

DEPART



Use a special pin inserted a gap between upper tooling and tool holder.



Left hand hold on the tooling and another hand flip down the pin for unlock segmented tool.

SETUP



Two hands hold on the bottom of tooling then targeting the space on tool holder.



Push up to top end locked into tool holder itself.

CE SAFETY BARRIERS

DIRECTION

CE safety barriers are the safety model depends on the clients need.

CE safety barriers has detection eye device in the back and front, also can be quip to the side electronic box.

FRONT SIDE BARRIERS

If the front detection eye is blocked before bend. Meanwhile, the machine cannot do the bending move, but it can still press the workpiece. Once remove the blocker. Machine can start to bend the workpiece.

If the front detection eye is blocked when its bending, the machine shall automatic stop immediately. Remove the stop as below.

1. Select **Schneider** controller in manual page
2. Press bend(Y) DOWN, let the bend leaf back to origin point (0°).

BACK SIDE BARRIERS

If the back detection eye is blocked, the machine cannot move at all.
Remove the stop as below.

1. Press RESET ALARM button
2. Select **Schneider** controller in manual page
3. Follow the screen display message to exclude the error

MAINTENANCE DURING OPERATION

MAINTENANCE ITEM	MAINTENANCE PROCEDURE
1. Check each solenoid valve for function	If any abnormality is observed, investigate.
2. Check changes in instrument readings : check pressure drop.	If any abnormality is observed, investigate causes and adjust or repair by overhaul if necessary.
3. Check oil leakage.	In case of remarkable leakage, take emergency stop and repair after operation.
4. Check temperature of bearings rubbing surfaces and other parts: a. Bearings max. 50°C b. Pump surface max. 80°C c. Motor bearings max. 60°C d. Motor surface max. 70°C e. Solenoid valve max. 120°C f. Operating oil max. 80°C	If temperature is higher than standard, the necessary care should be taken.

DAILY MAINTENANCE

MAINTENANCE BEFORE MOTOR START UP	
MAINTENANCE ITEM	**MAINTENANCE PROCEDURE**
1. Check oil level in the main oil tank.	Supply if oil is not sufficient.
2. Check if bolts and nuts in individual parts are loosened or not. Pay attention to the slide, movable parts, valves.	Tighten or install additionally if require.
3. Check oil leakage in individual parts.	Investigate causes of leakage and remove, tighten or replace packing.
4. Check cracks, damage, deformation and other abnormality of individual parts.	Investigate causes and repair or replace.
5. Check operation panel and control panel, especially loosened or disconnected terminals and wiring.	Investigate causes and repair or replace.
6. Check filter.	Wash if necessary.
7. Check Emergency stop button	Release the button before starting machine, ensure function normally
8. Check Interlock	Ensure interlock keep locked, ensure function normally
9. Check safety light curtain/ sensors	Not thing be putted on safety sensoring area, ensure function normally

WEEKLY MAINTENANCE

MAINTENANCE ITEM	MAINTENACE PROCEDURE
1. Oil and grease supply to required parts.	Refer to lubrication section.
2. Check abnormal wear, damage, looseness of parts as well as oil leak.	
3. Check electrical equipment : a. loosened terminals, etc. b. contact condition c. poor insulation d. sticking oil e. pulsation and vibration	Check more carefully than daily maintenance. Tighten if loosen. Replace extremely worn contact. Repair faulty insulation. Clean. Investigate causes and repair if necessary.
4. Check electric wiring for troubles: a. Broken coating. b. Burned out. c. Loosened connection.	 Wind tape. Replace. Tighten.
5. Clean individual parts check cracks and damage as well as remove leak oil, dust, scraps.	Repair cracked or damaged parts
6. Check abnormal vibration, deviation of condition, abnormal sound, and abnormal sound especially in pump.	Stop operation and check for repair, if necessary.
7. Check if any bolts and nuts are loosened.	Tighten if necessary.

MONTHLY MAINTENANCE

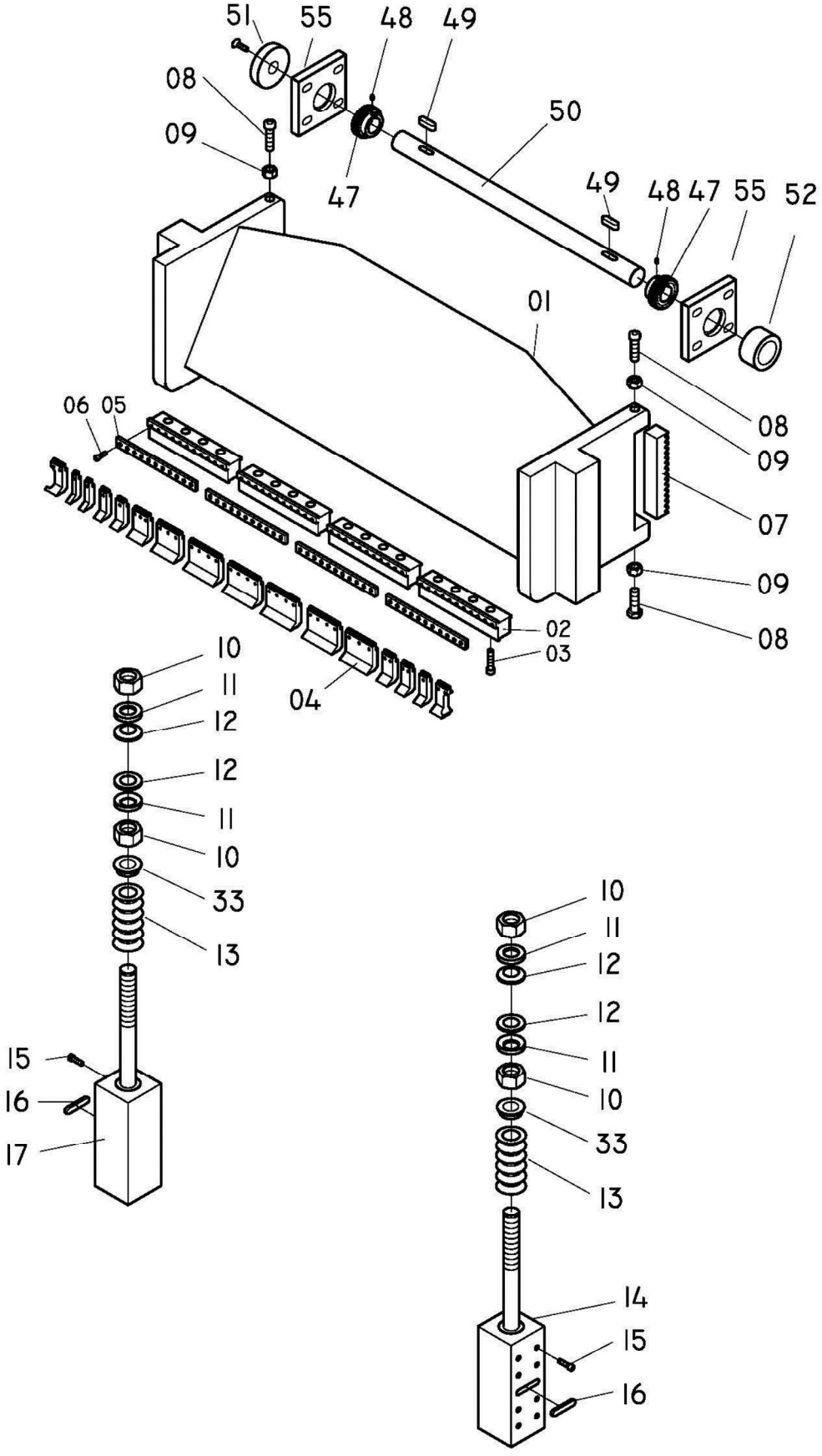
MAINTENANCE ITEM	MAINTENACE PROCEDURE
1. Oil and grease supply.	Refer to lubrication section.
2. Inspection of main motor coupling, location of motor and pump.	Adjust motor base location.
3. Inspection of cylinders.	Replace if necessary.
4. Inspection of loosened bolts and nuts.	Replace if necessary.
5. Inspection of signal lamps.	

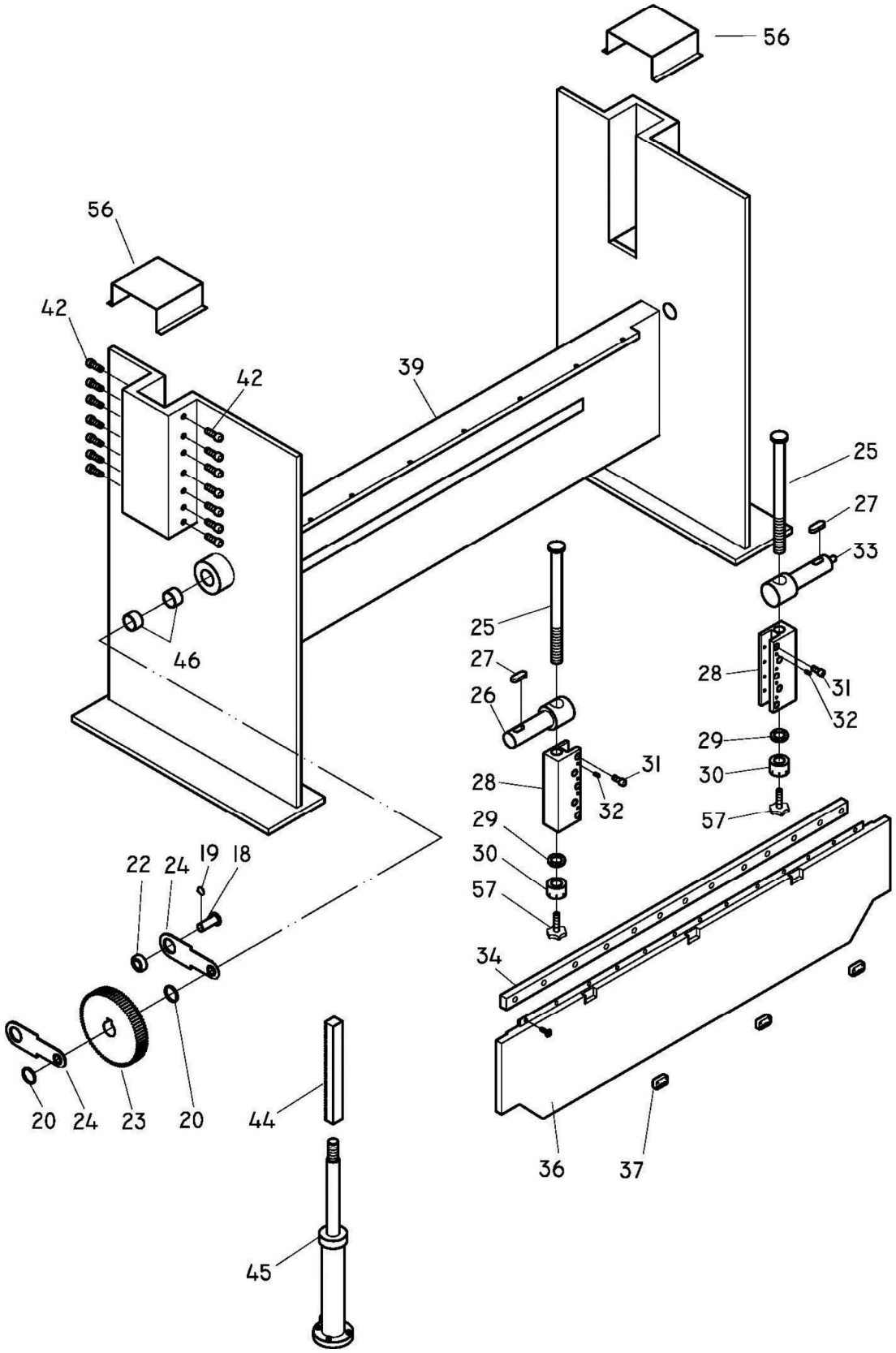
SIX MONTHLY MAINTENANCE

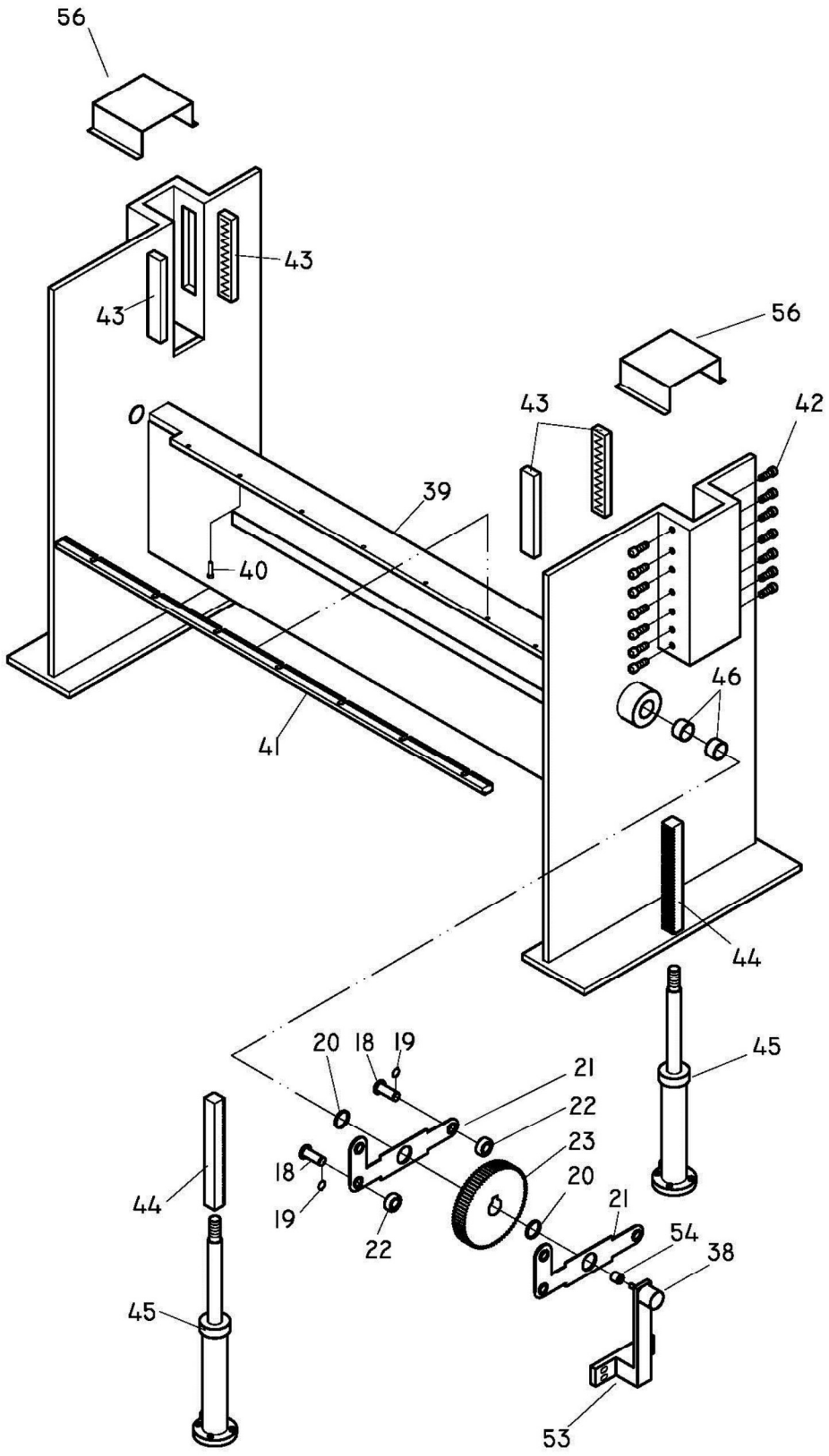
MAINTENANCE ITEM	MAINTENACE PROCEDURE
1. Oil and grease supply to individual parts.	Refer to lubrication section.
2. Inspection of pumps for oil leakage and working	
3. Conditions by sound. Inspection gauge for Accuracy：Check oil Pressure gauge.	Adjust for replace faulty gauge.
4. Inspection of oil seals and O-rings for leakage.	Replace faulty parts.
5. Inspection of packing for oil leakage.	Tighten and adjustment replaces faulty parts.
6. Inspection and adjustment of solenoids: a. Repair of burrs. b. Loosen of core clamping. c. Other faults.	
7. Oil filters element replacement.	

ANNUAL MAINTENANCE

MAINTNEANCE ITEM	MAINTENACE PROCEDURE
1. Oil and grease supply to individual parts.	Refer to lubrication section.
2. Disassembly and inspection of pump, if necessary. a. damage of bearings b. wear, damage and oil leakage in pistons and cylinders c. faulty springs d. looseness of bolts and nuts	
3. Inspection of electrical equipment. Carefully check especially auxiliary relays for contacts and functions, as this inspection is made at a half of warranty.	Renew it necessary.
4. Inspection of cylinders. a. for damage on cylinder surface b. for damage and wear of packing	Repair or replace if necessary.
5. Looseness of foundation bolts and nuts.	Tighten.
6. Internal cleaning of piping, valves.	Once loosen, and then tighten.


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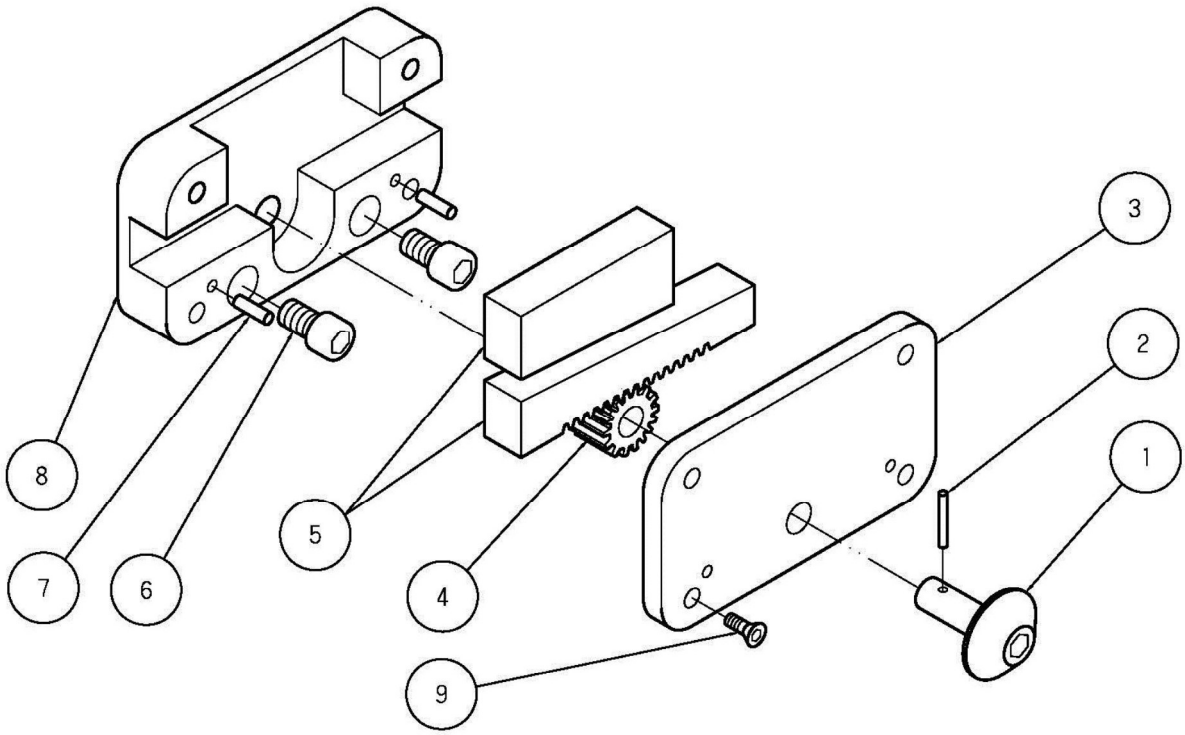
BASIC UNIT

INDEX NO.	DESCRIPTION
1	Clamping Beam Assy.
2	Upper Blade Base
3	Screw
4	Upper Blade
5	Upper Blade Clamping Plate
6	Screw
7	Rack
8	Screw
9	Nut
10	Nut
11	Locating Washer
12	Locating Washer
13	Dust Cover
14	Clamping Hydraulic Cylinder Assembly
15	Screw
16	Key
17	Clamping Hydraulic Cylinder Assembly
18	Rack Set Pin
19	Spring Hook
20	Bushing
21	Rack Set Plat
22	Bearing
23	Gear
24	Rack Set Plate
25	Oscillating Rod
26	Bending Leaf Hinge Pin - Left Side
27	Key
28	Bending Leaf Side Plate
29	Copper Washer
30	Dial
31	Screw
32	Set Screw
33	Bending Leaf Hinge Pin - Right Side
34	BUSHING
36	Bending Leaf
37	Bending Leaf Deflect Compensation
38	Screw
39	Machine Bottom Base
40	Screw
41	Bottom Die
42	Screw
43	Slide Plate
44	Rack
45	Bending Hydraulic Cylinder Assembly
46	Bushing
47	Gear
48	Set Screw
49	Key
50	Connecting Rod

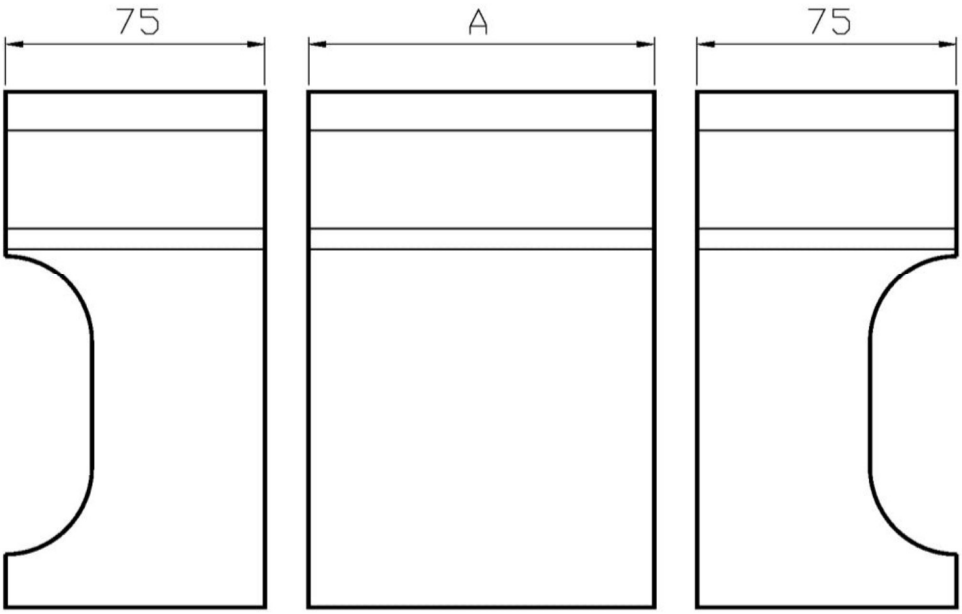
INDEX NO.	DESCRIPTION
51	Shaft Filler Washer
52	Bearing
53	Encoder Supporting Stand
54	Sensor
55	Bearing Base
56	Cover
57	Knob
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59	
60	

BENDING LEAF DEFLECT COMPENSATION DEVICE

INDEX NO.	DESCRIPTION	REMARKS
37-1	Adjustment Screw	
37-2	Round Shaft	
37-3	Cover	
37-4	Gear	
37-5	Gear Rack&Blokc	0.5
		0.8
		1.0
		1.5
		2.0
37-6	Screw	
37-7	Locking Pin	
37-8	Mounting base	
37-9	Screw	

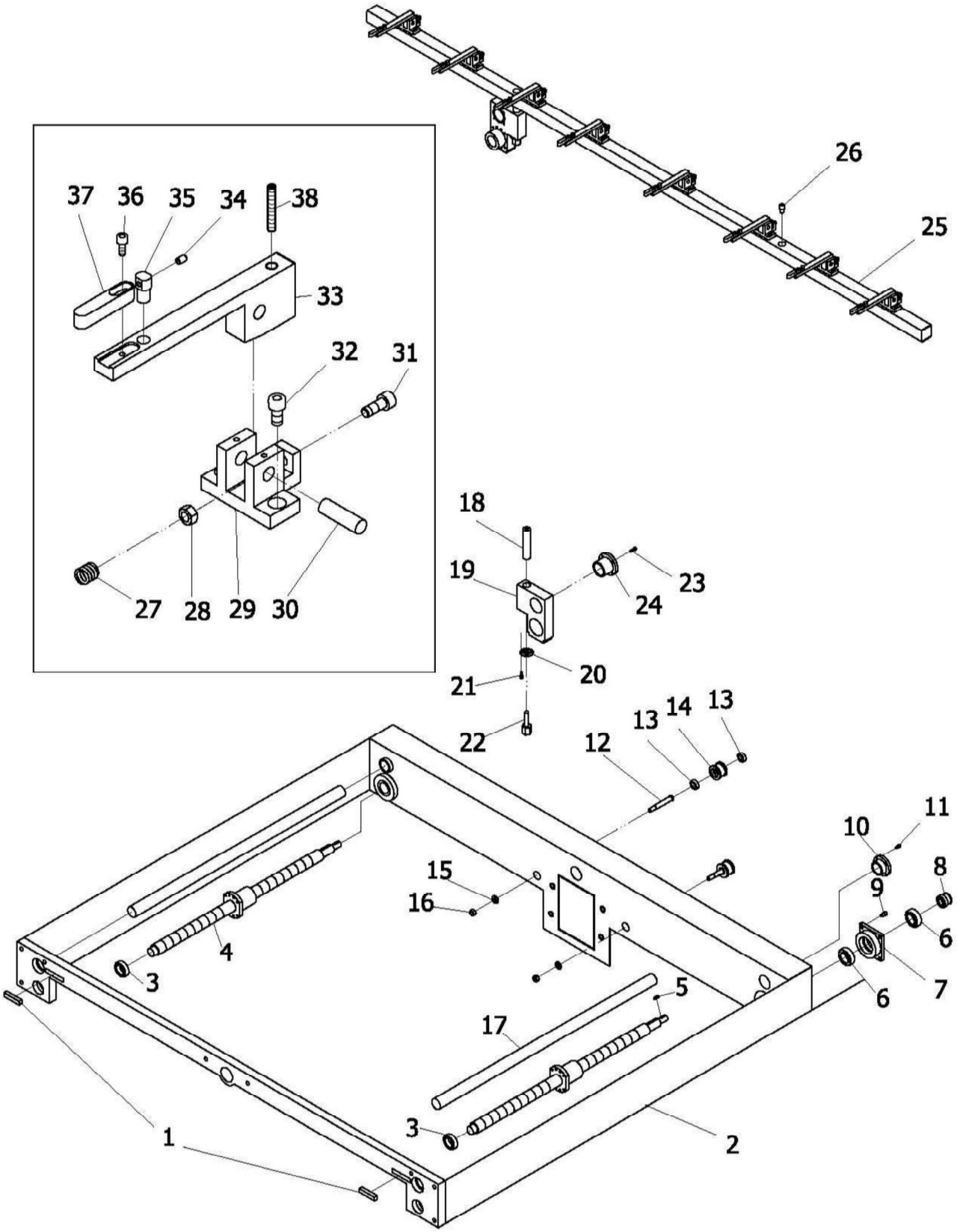


UPPER BLADE



A (mm)	25	30	35	40	45	50	55
QTY.	1	1	1	2	0	2	1

A (mm)	60	70	75	100	150	180	200
QTY.	1	1	2	1	1	1	5


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NC. BACK GAUGE ASSEMBLY

INDEX NO.	DESCRIPTION
1	Key
2	Back Gauge Base
3	Bearing
4	Ball Screw
5	Key
6	Bearing
7	Bearing Base
8	Tim Belt Wheel
9	Screw
10	Rod Rear Base
11	Screw
12	Axle Of Idle Wheel
13	Bearing
14	Idle Wheel
15	Washer
16	Nut
17	Guide bar
18	Supporting Rod
19	Ball Screw Bearing Block
20	Bushing
21	Screw
22	Adjusting Nut
23	Screw
24	Bearing Base
25	Square Pipe
26	Screw
27	Spring
28	Nut
29	Stopper Unit Base
30	Hinge Pin
31	Screw
32	Screw
33	stop finger
34	Screw
35	Adjusting Rod
36	Screw
37	Stop Finger
38	Screw
39	Time Belt Wheel Of Motor
40	Time Belt
41	Motor