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PROJECT OF CNC HYDRAULIC PRESS BRAKE (Y1-Y2-X-R+V)
MODEL: WE67K-200/3200

 **keep improving**



WE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

Project of CNC Hydraulic Press Brake

1.Model: WE67K-200/3200

2. Appearance of the Machine



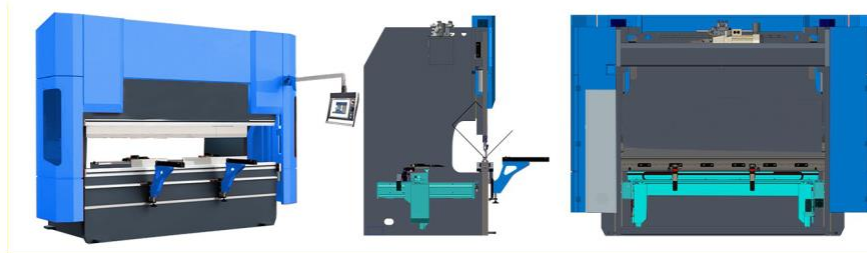
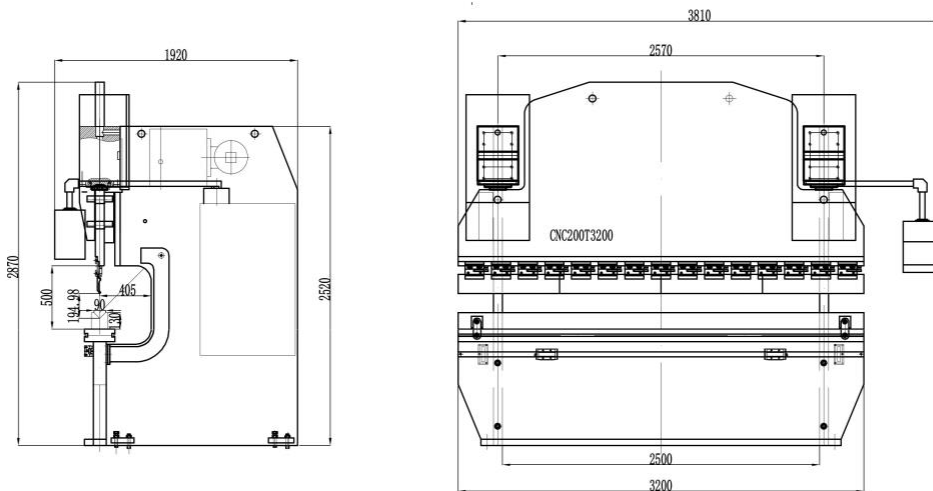
-- front side of this machine

3.Parameters and character

1	Nominal pressure	2000	KN	
2	Bending width	3200	mm	
3	Distance between uprights	2600	mm	
4	Stroke	200	mm	
5	Max. Daylight	500	mm	

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

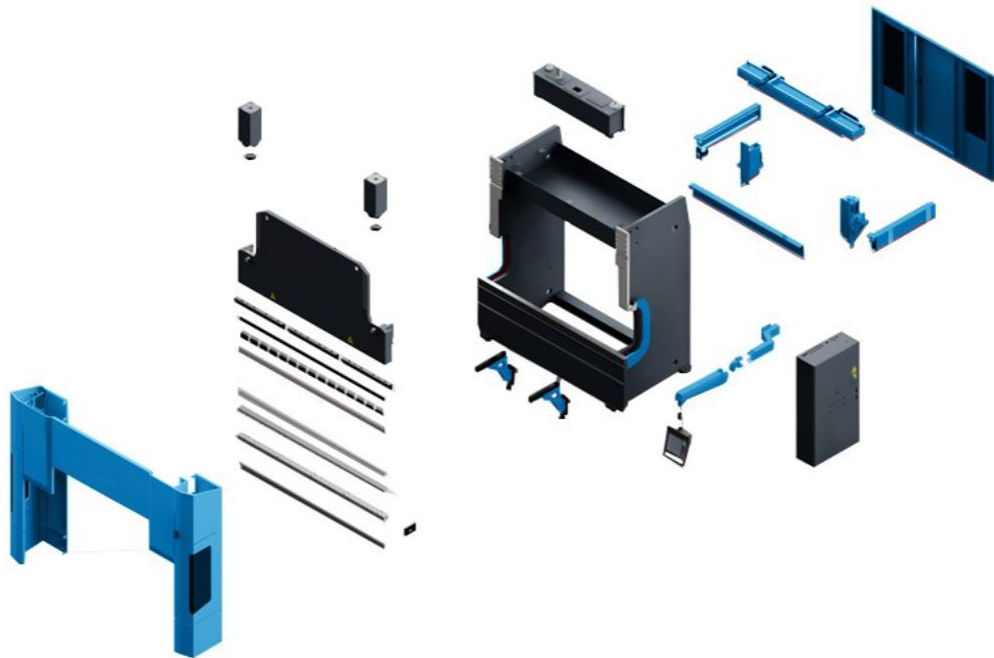
6	Throat depth	405	mm	
7	Working table length	3200	mm	
8	Approaching speed	100	mm/s	
9	Bending speed	8	mm/s	
10	Returning speed	80	mm/s	
11	Main motor power	15	KW	
12	Oil pump	25	mr/r	
13	Back gauge range	600	mm	
14	Machine length	3300	mm	
15	Machine width	1750	mm	Without front feeder
16	Machine height	2870	mm	
17	axis	Y1-Y2-X-R+V		CNC



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Features

- ▲ highly productive, accurate, and economical.
- ▲ close loop proportional hydraulics for beam synchronization
- ▲ BOSCH-REXROTH highly precise proportional valve to control accurate beam movement
- ▲ High alloy back gauge, with high rigidity in light heavy
- ▲ accurate & fine beam position control by micro limit switch.
- ▲ hydraulic cylinder with twin type sealing low & high pressure and hard chrome.
- ▲ moving control panel with on/off controls, emergency push button & selector for inching, single stroke & continuous stroke mode for easy operation & safety.
- ▲ three speeds shift automatically
- ▲ CNC controlled mechanical pulling-rod anti-crowning device(V) ▲ FAGOR light encoder to avoid the deflection bending ▲ DA58T touch screen control system
- ▲ liner motion bearings and AC servo drive for accurate position up to 0.05 mm.



4. Instruction of structure

--Accuracy

Y1.Y2. axis re-position: $\leq \pm 0.05\text{mm}$

Y1.Y2. axis position: $\leq \pm 0.03\text{mm}$

X axis re-position: $\leq \pm 0.02\text{mm}$

X axis position: $\leq \pm 0.05\text{mm}$

Test bending angle: $\pm 1' / 3000\text{ mm}$

Test straightness: $\pm 0.75 / 1000\text{ mm}$

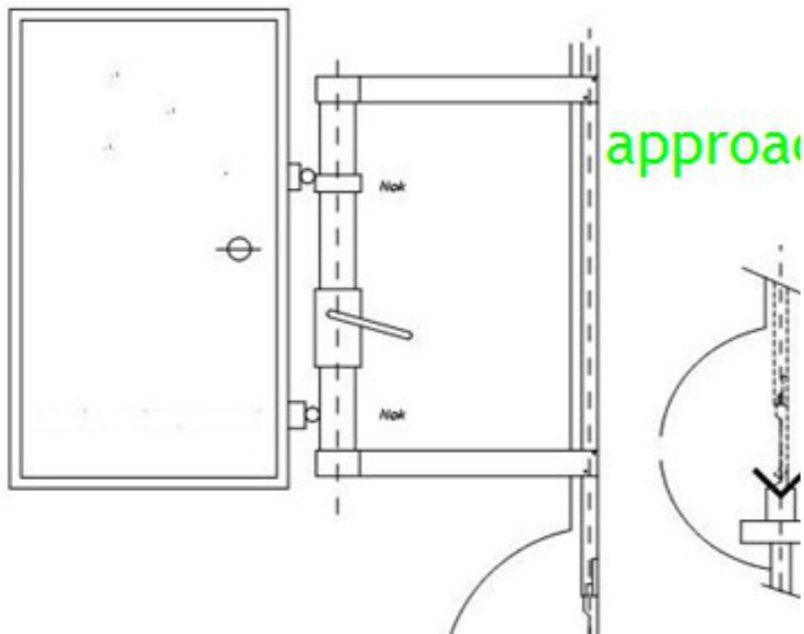
--Speed Controls

The beam reaches the bottom limit switch allowing the brake to go into work speed on contact with material.

▲ **Approaching speed:** when the beam move from the top dead center, the speed is fast

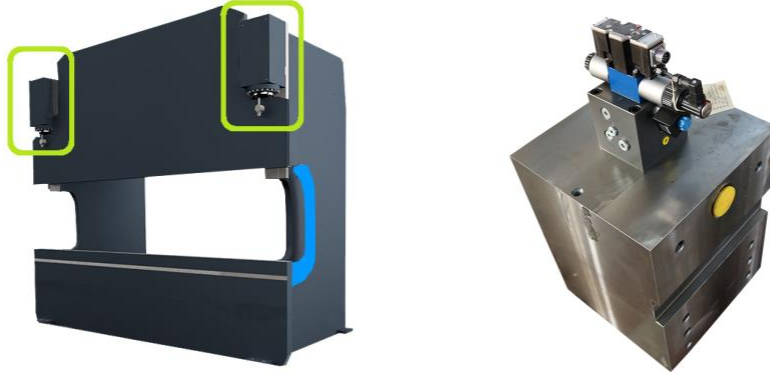
▲ **Bending speed:** when the beam touch the bottom dead center, the speed changed, and it's going to be the bending speed

▲ **Returning speed:** when finish the bending, the beam return to the top dead center speed: fast.



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

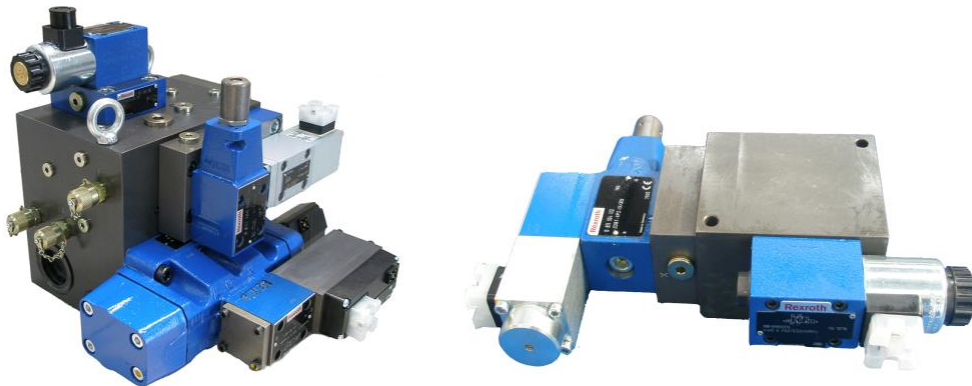
--Cylinder



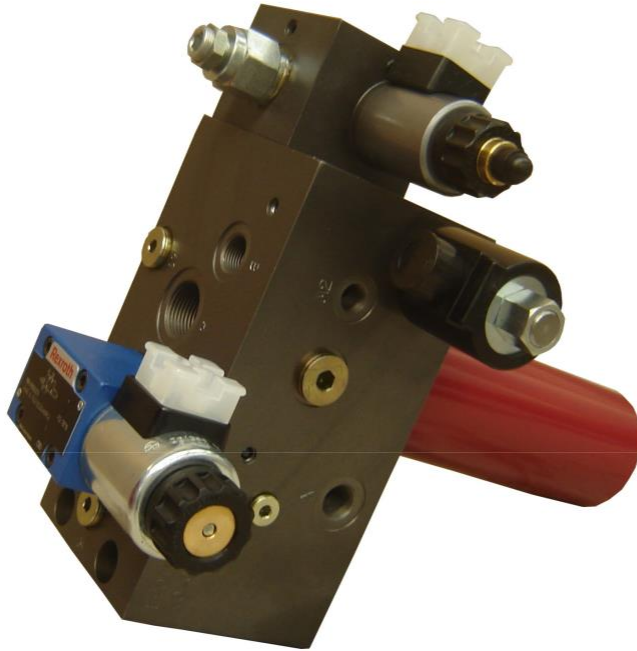
Overloading and damage to the press brake and tooling is prevented by a quick response relief valve system.

--Hydraulic Manifold Control Block

All main operating valves are incorporated into one side is a compact manifold control block. The manifold block permits quick replacement. The possibility of fluid leaks are greatly reduced since interconnecting valve piping is eliminated. Germany BOSCH-REXROTH valves, electric-hydraulic servo valves, compact structure, high impervious, high synchronization, long service life. Overloading protect system for hydraulic system. Advanced closed-loop hydraulic technology.



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)



--Accurate, Dependable, Affordable

This type of Hydraulic Press Brakes is highly productive, accurate, and economical. Through advanced design and construction,

This type of Hydraulic Press Brakes is easy to operate and provide simplified and easily accessible controls for optimum operator efficiency and output.

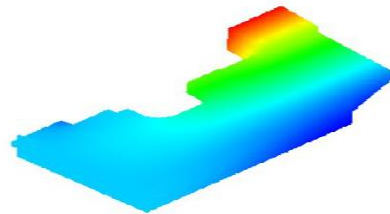
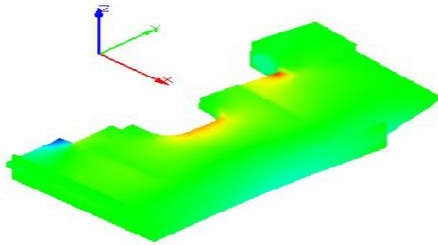
The frame construction features stress-relieved, heavy, rolled steel plates and is designed for optimum rigidity and cross-system alignment.



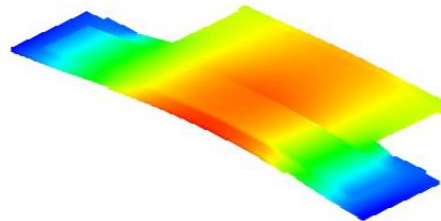
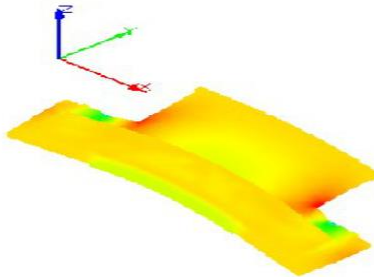
VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Main mechanical structure

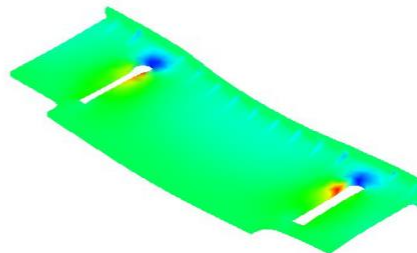
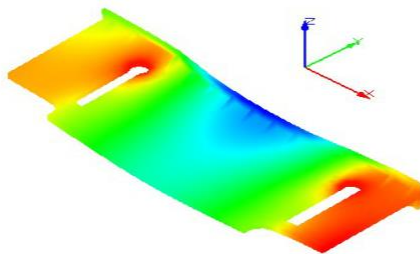
The main mechanical structure is including the uprights, work table, beam, cylinders, back gauge, front sheet support and side transferring system.



Uprights



Beam



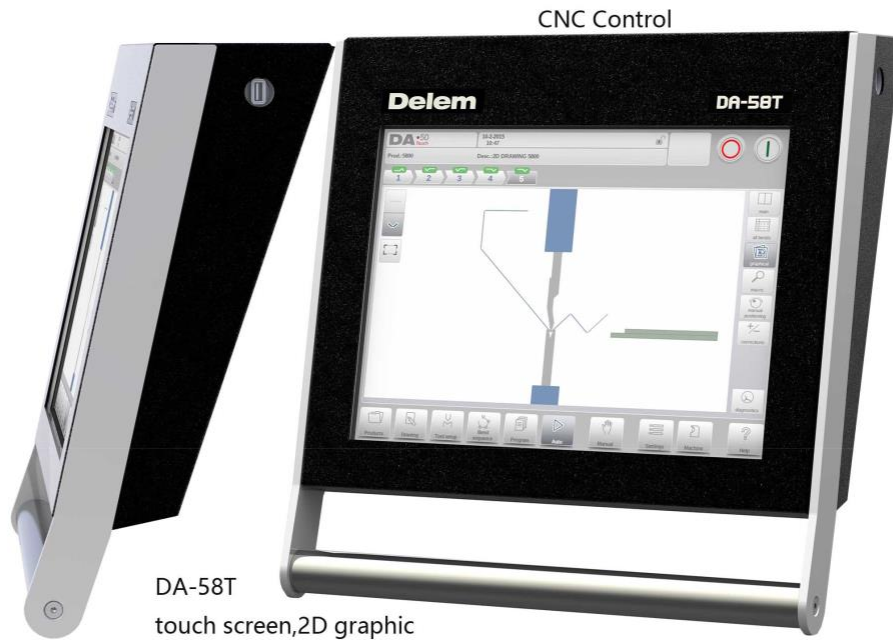
Worktable

Process progress:

Metal sheet purchasing---Test---Surface process--- CNC plasma cutting---Process of the welding surface---Welding organization---Welding---Vibrating treatment--- Boring & milling (the whole structure)--- Installation

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

-- CNC controller DELEM-DA58T



The DA-58T is a state of the art complete 2D graphical control solution for synchronized press brakes.

Its 15" high resolution color TFT, with industrial grade multi touch screen technology, gives access to the proven Delem user-interface. It enables direct navigation between product programming and actual production. Functions are directly located where needed, offering optimized ergonomics throughout the entire application.

Machine adjustment and test bends are reduced to a minimum with a quick and easy program-to-production work sequence. CNC programs are generated with a single touch.

The DA-58T offers 2D programming including automatic bend sequence

STANDARD

- Colour high brightness LCD display
- 15" TFT - LED backlight
- 1024 x 768 pixels
- Industrial grade touch screen
- Storage capacity 1 GB
- USB flash memory drive
- Data backup / restore via USB
- Integrated valve amplifier
- Power-down memorization

COMPUTED

- Tooling safety zones
- Press force
- Bend allowance
- Crowning adjustment
- Developed length
- Bottoming force
- Hemming force
- Auto bumping calculation
- Bend allowance table
- Learned angle correction database

PROGRAMMING

- Alphanumerical product naming
- Real-scale product programming and visualization
- Automatic bend sequence calculation
- Graphical bend sequence swap and move
- Hemmed products programming
- Radius programming (bumping)
- One page programming table
- Graphical product and tool selection
- Programmable material properties
- Programmable axis speed
- Free material programming
- Product & tool search filter
- Millimeters/Inches, KN/Ton selection
- Stock counter

Tooling

- Tool library 30 punches / 60 dies
- Alphanumeric tool identification
- Free graphical tool programming
- Hemming tools - Radius tools

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Working conditions of the CNC controller

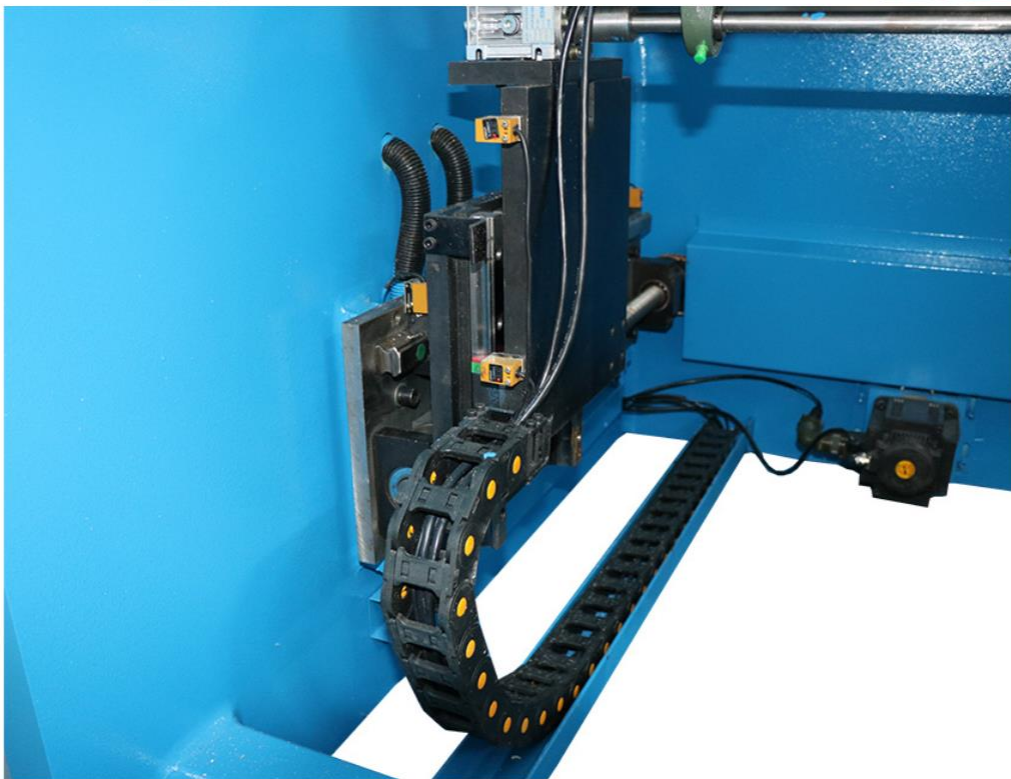
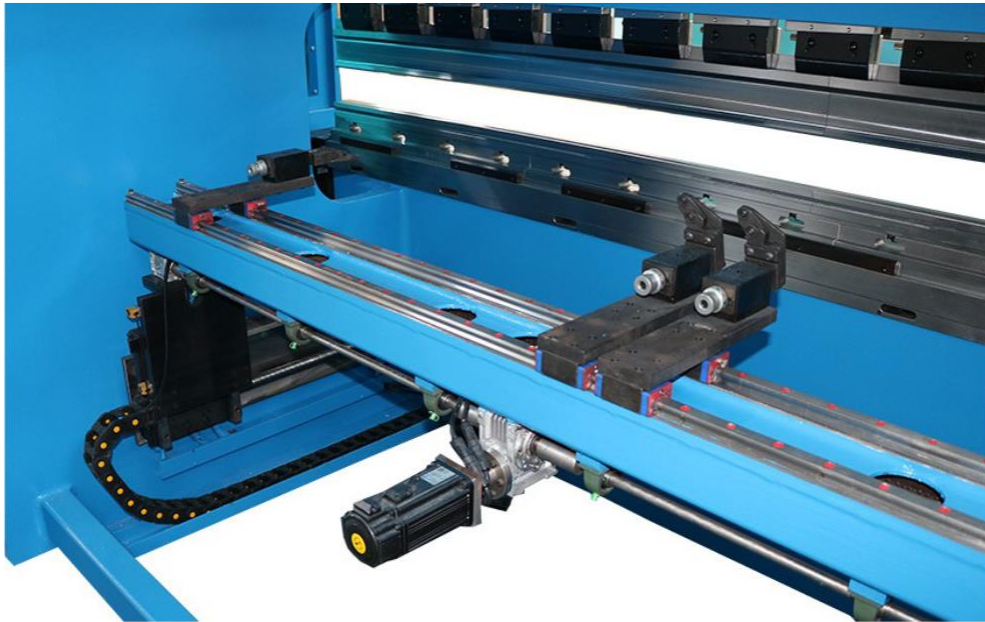
Power-supply fluctuation	±5%
Working temperature	-5°C-40°C
Working humidity	55%-85%, without dew
Vibrancy	10-55 HZ 0.7mm (Max. 2G)
Concussion	10G XYZ
Anti-jamming	1000 Vp-p 1 YS 30-100 HZ
Working Surrounding	Without harmful gas, without metal fragment, without metal Dust, without strong electromagnetic interference

--Rear side



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Back gauge(X-R axis)



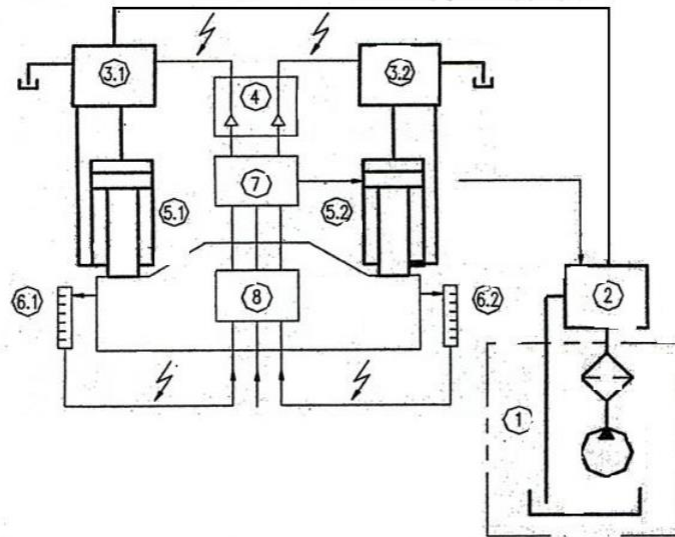
Servo driven back gauge, ball screw and linerail.

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Synchronization control system

This synchronization control system can keep the beam parallel with the working table when the beam is approaching, bending, bending finishing and returning. When the beam is inclining by the other disturbance or partial loading force, the light encoder will detect the synchronization error of the beam and feedback it to the CNC control system, the electric-hydraulic servo valve will correct this synchronization error through controlling the servo valve to adjust the oil volume that flows to the cylinder and the pressure to keep the two pistons synchronous to let the beam be parallel with the working table. The beam synchronous accuracy: $\leq \pm 0.05\text{mm}$.

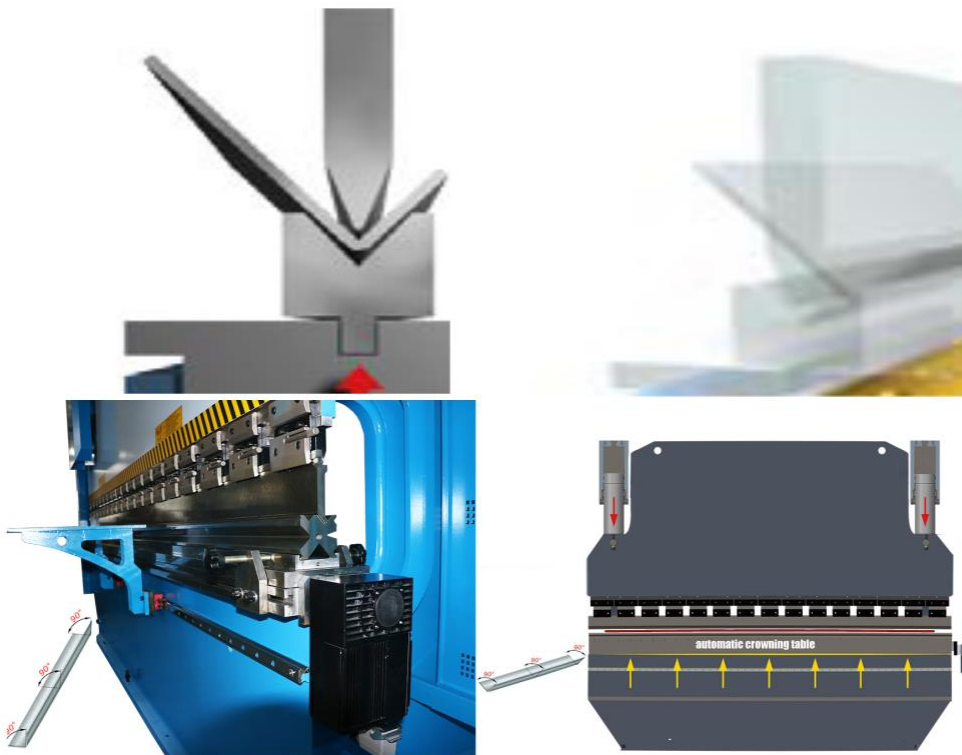
Two pieces of German HEIDENHAIN light encoders are equipped at the beam's right side and left side. It can detect the exact distance between the beam and the working table, the light encoder is soft linked to the uprights, so it doesn't affect the location when the uprights are transmutated. The position data will be feedback to the CNC system, and the CNC control system will calculate the signal (S1-S2) that outputs the servo valve. Beam position accuracy: $\leq \pm 0.03\text{mm}$, re-position accuracy: $\leq \pm 0.01\text{mm}$.



Motor 1 drives the pump to supply the oil to the two cylinders through the pressure control part 2 and close-loop part 3. The cylinders 5.1 & 5.2 drive the beam to move down and up, the action is detected by the encoders 6.1 & 6.2 and feedback to the CNC control part 7 and the electric control system 8. The CNC will send signals to the proportional valve magnifier 4 and the valve part 3 to divide the hydraulic oil into the two cylinders 5.1 & 5.2. The process will help the ends of the ram to be synchronized. The CNC control system is a professional CNC control system for press brake.

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--CNC controlled mechanical pulling-rod anti-crowning device



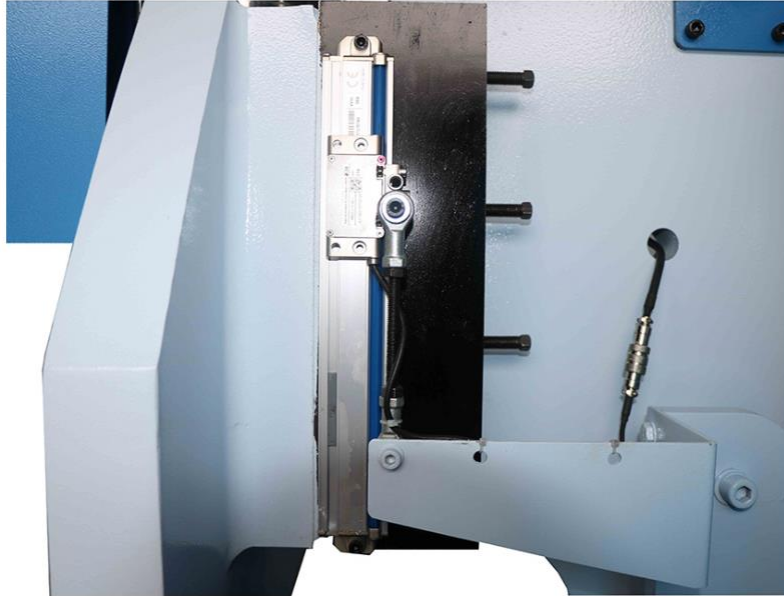
--Partial loading

Partial loading is overloading at the right side or left side of the beam. This machine has the function of anti-partial loading.

There will be a slant between the beam and working table during the partial loading, the two pieces of light encoder will detect the error and feedback this error to the CNC system, the electric-hydraulic servo valve will correct this synchronization error through controlling the servo valve to adjust the oil volume that flow to the cylinder and the pressure to keep the two pistons synchronous to let the beam be parallel with the working table.

Note: No partial loading if there is no special bending works.

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)



There are two linear scales, which supplied by FAGOR(Spain) installed on “ C” plates on both sides, to inspect the positions of beam (Y1, Y2) and send out signal to the CNC control system. Then the CNC will control the volume of oil that flow into cylinders. So the parallelism between beam and worktable could be controlled within $\pm 0.01\text{mm}$

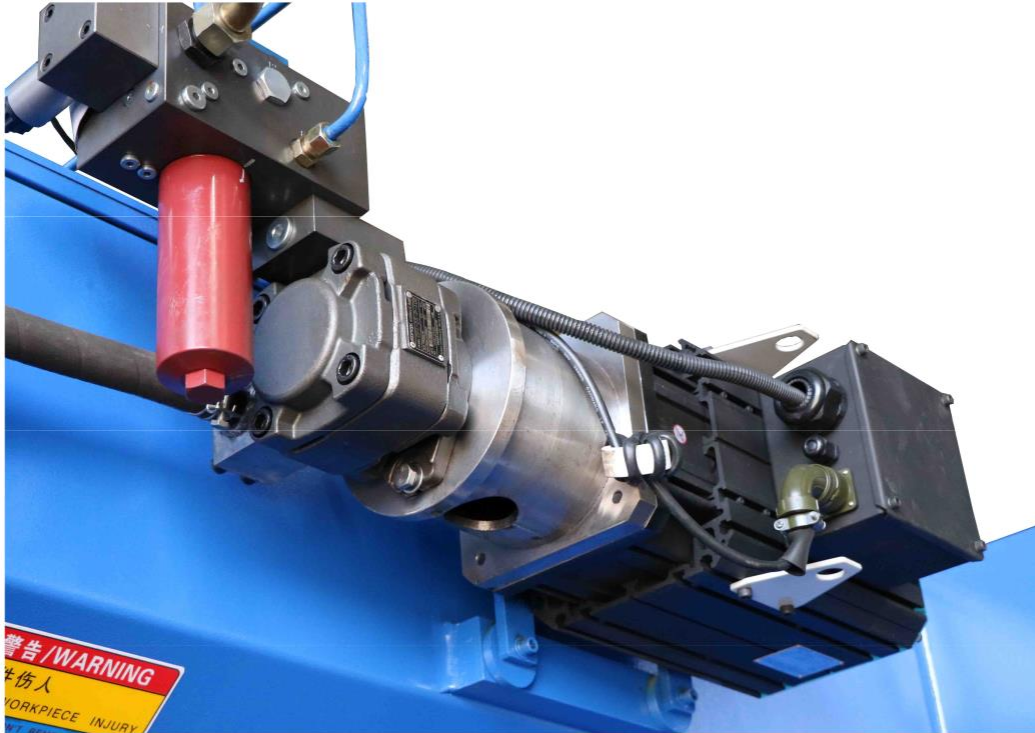
--Quick clamp system



Quick clamping system help to improve the punch change speed

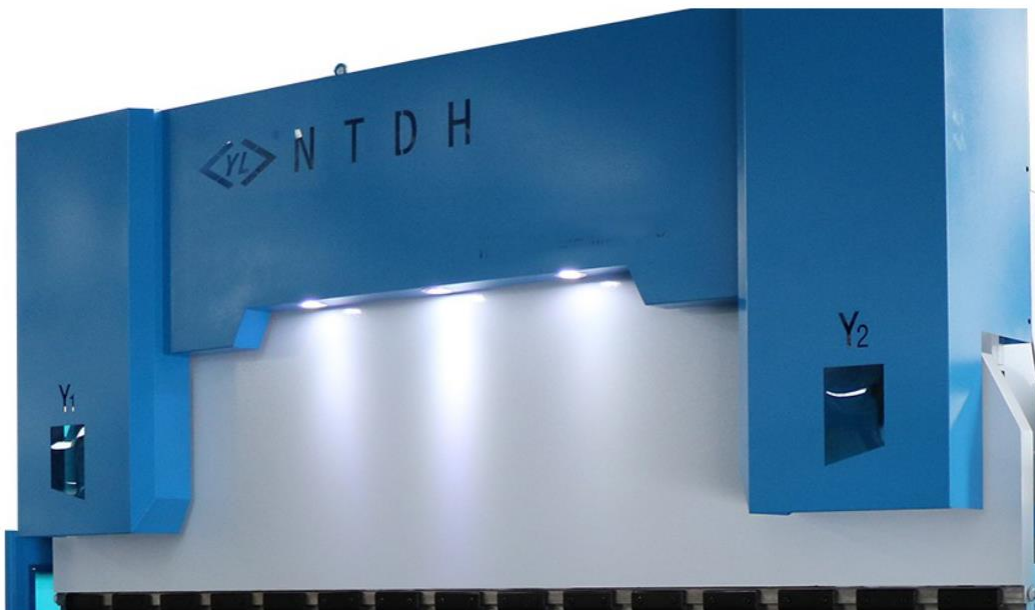
VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Servo motor



It use servo motor to instead of the asynchronous motor, to help to save power

--LED light



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

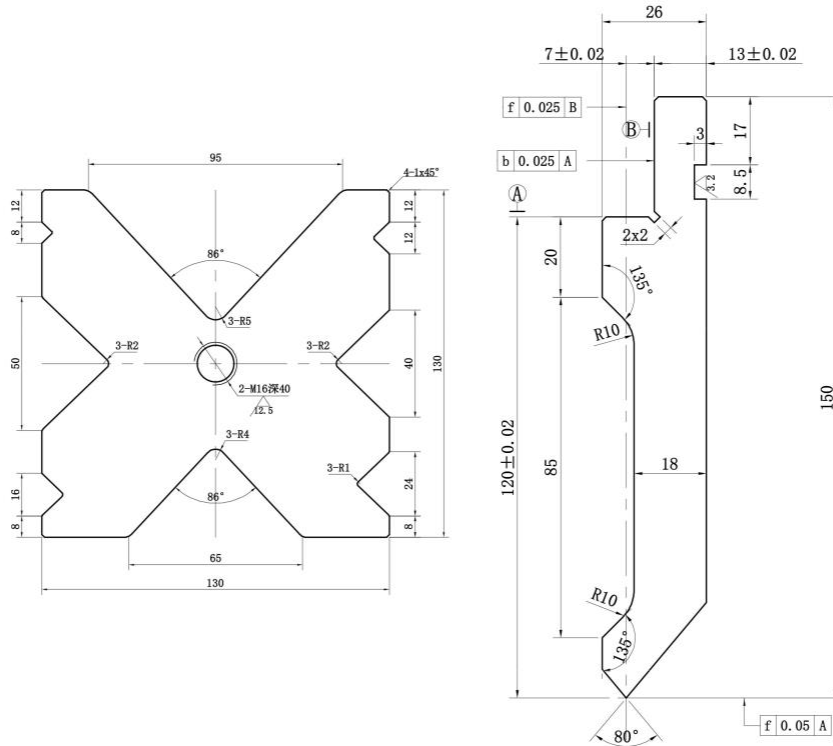
--Sheet support



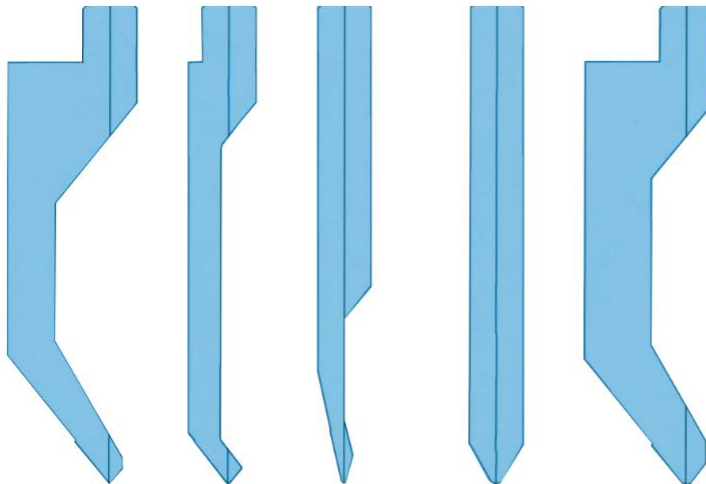
--Punch & Die



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)



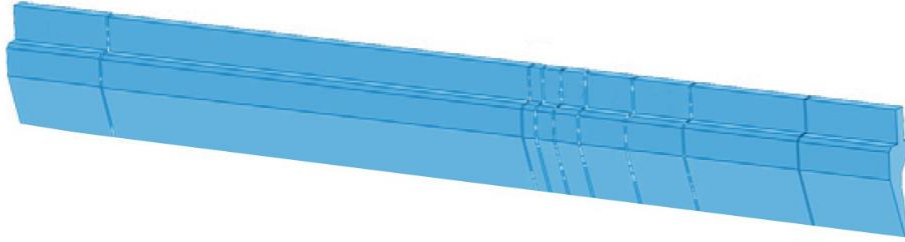
Optional choice:
--Different types punch



Different types of punching tool and lower die can be supplied,

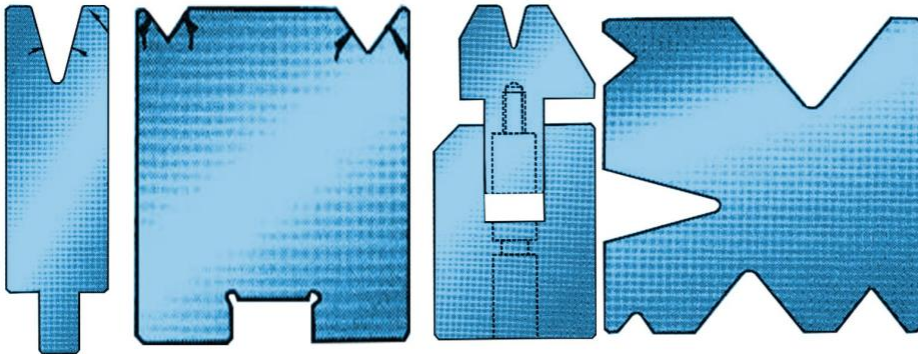
VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

Punch in section

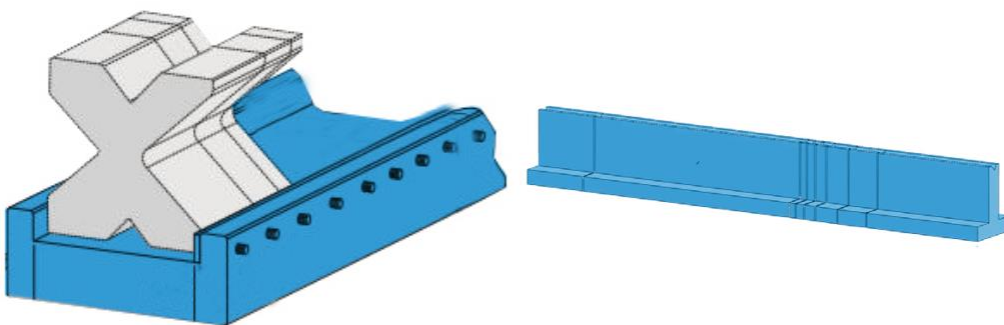


The punch can be proceed in section so that the machine can bend small piece.

Different type of V die

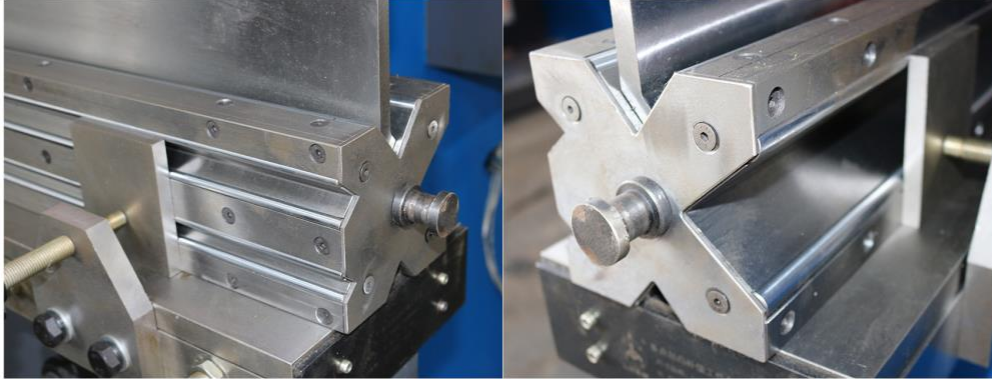


Die in section



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

Anti-friction lower die



Anti-friction lower die

Cooler or heater



VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

DA-66T Touch Screen 2D Graphic



The new generation DA-Touch controls offers an even higher grade of efficiency in programming, operation and control of today's press brakes. Ease of use combined with state-of-the-art technology go hand in hand, improving productivity

The touch screen gives access to the proven Delem user-interface and enables direct navigation between programming and production. Functions are directly located where you need them, offering optimized ergonomics throughout the application.

The DA-66T offers 2D programming that includes automatic bend sequence calculation and collision detection. Full 3D machine set-up with multiple tool stations giving true feedback on the product feasibility and handling.

Features:

- 2D graphical touch screen programming mode
- 3D visualization in simulation and production
- 17" high resolution color TFT
- Full Windows application suite
- Delem Modusys compatibility (module scalability and adaptivity)
- USB, peripheral interfacing
- Open system architecture
- Sensor bending & correction interface

Programming

- Alphanumeric product naming
- Real-scale product programming and visualization
- Automatic bend sequence calculation
- Easy graphical bend sequence swap and move
- Hemmed products programming
- One page programming table
- Graphical product and tool selection
- Programmable material properties
- Programmable axis speed
- Free material programming
- Product & tool search filter
- Millimeters/Inches, KN/Ton selection
- Stock counter - Product notes

Standard

- Colour LCD display
- 17" TFT, high brightness
- 1280 x 1024 pixels, 32 bit colour
- Full touch screen control (IR-touch)
- Storage capacity 1 GB
- 3D graphics acceleration
- Standard Windows® networking
- Emergency switch
- Integrated OEM-panel
- USB flash memory drive

Computed

- Tooling safety zones
- Press force
- Bend allowance
- Crowning adjustment
- Developed length
- Bottoming force
- Hemming force
- Auto bumping calculation
- Radius programming
- Bend allowance table
- Learned angle correction database

VE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)

--Component list

	Part	Brand name
1	Main electric components	SIEMENS & Schneider or OMRON
2	Main motor	SIEMENS BEIDE
3	Oil pump	SUNNY
4	Valve	BOSCH-REXROTH
5	Seal	Parker
6	CNC controller	DELEM—DA-53T
7	Synchronous control	DELEM
8	Light encoder	HEIDENHAIN or FAGOR
9	Linder guider	ABBA
10	Ball screw	ABBA
11	Servo driver	ESTUN

--Spare list

Component	Quantity
Front extensive arm	1 set
Anchor bolt	1 set
“o” gasket	2 sets
Foot pedal	1 piece
Foundation drawing	1 piece
Manual book	1 set
Hydraulic drawing	1 piece
Electric drawing	1 set

--Delivery/payment/warranty

Payment	Down payment	30%
	Balance payment	70%
	L/C	100% L/C at sight
H.S code		8462299000
Delivery		35 days
Warranty:		14 months after shipment

WE67K-200/3200 Servo CNC Press Brake(Y1-Y2-X-R+V)



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