



SPHINX
MACHINES

SPH2500/80T



APOLLO Hybrid Series

International Brand | European Standard | Local Service



(Picture shown for reference only)

Model Features

- Electro-hydraulic servo CNC bending machine.
- SVP one-way servo pump control technology, high efficiency, energy saving and stability.
 - Brand new industrial design, providing a friendly and safe environment.
- Workbench mechanical deflection compensation, higher accuracy and more stable
- Optimized parameters and configuration, powerful functions and easy operation

Installation
&
Training

Sphinx L.L.C will handle installation & training

Technical Data

Bending force	ton	80
Bending length	mm	2500
Distance between columns	mm	1700
Slider stroke	mm	200
Max open	mm	500
Throat Depth	mm	400
Worktable length	mm	2500
Y-axis advance speed	mm / sec	140
Y-axis working speed	mm / sec	4~15(adjustable)
Y-axis return speed	mm / sec	115
Working speed	mm / sec	10
Power of main motor	kw	8.5
Cnc system		DELEM DA53T
X-axis BackGauge Travel	mm	0-500
Controlled axis		4+1
Slider repetition accuracy	mm	≤±0.01

Slider positioning accuracy	mm	≤±0.02
Workpiece linearity	m	0.3
Error of bending Angle	degree	<0.5
Graster ruler resolution	mm	0.005
Sliding Front Arms	pcs	2
Backgauge Finger Block	pcs	4

Operation Requirement

Equipment working environment.

- (1) Power requirements: 380V, 50Hz, three-phase four-wire system; voltage fluctuation is ±10%.
- (2) Ambient temperature: 0~+45 °C (working temperature)
- (3) Environmental humidity: 20%~75% (non-condensing)
- (4) Installation site: far away from strong seismic sources and electromagnetic interference sources, away from dusty, harmful and corrosive gas environments;

Bending sheet requirements.

- (1) The material of the plate is uniform and smooth.
- (2) There is no foreign matter on the surface of the board.

The purchaser shall prepare it by himself.

- (1) Hydraulic oil: low-condensing anti-wear hydraulic oil, the oil quantity is determined by following the technical parameters of the machine tool;
- (2) Unloading equipment and tools

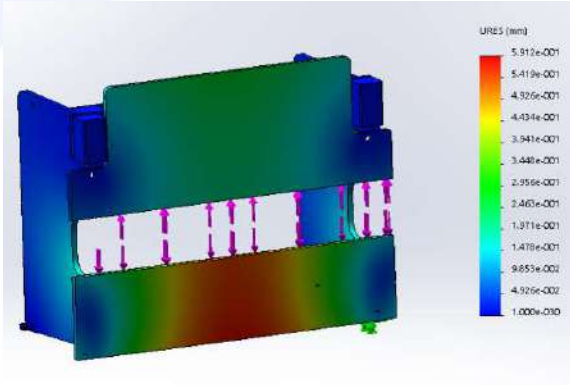
Main Configuration

Transmission	<i>Ball screw</i>	<i>Taiwan Brand</i>
	<i>Liner guide</i>	<i>Taiwan Brand</i>

	<i>Grating</i>	<i>Italy GIVI</i>
	<i>Servo motor and drive</i>	<i>Inovance</i>
Control	<i>CNC Control system</i>	<i>DA53t ,4+1 Axis</i>
	<i>Hydraulic Valve</i>	<i>Bosch-Rexroth form Germany</i>
	<i>Proportional valves</i>	<i>Chinese Brand</i>
	<i>Electrical components</i>	<i>Schneider</i>
	<i>Hydraulic oil pump</i>	<i>ECKERLE form Germany.</i>
Sealing	<i>Seal components</i>	<i>Italian kafong</i>
	<i>Dust ring</i>	<i>Italian kafong</i>
	<i>Sealing Ring</i>	<i>Italian kafong</i>
Cylinder	<i>hydro-cylinder</i>	<i>HEYAN Company</i>

Note: Technical proposal is valid until 30th May 2024

Machine Composition



This part is composed of left and right upright columns, fuel tank, workbench upright plate, cylinder support plate, etc. The materials are all high-quality carbon steel. Welded into one body, with good strength and rigidity.

After the finite element analysis of the frame, the deformation is small. The frame is clamped once, and the machining center is processed as a whole to ensure the machining accuracy.

Beautiful appearance, fine workmanship and attention to detail.



This part is mainly composed of slider, main cylinder, guide plate, guide rail pressing plate, grating ruler, etc.

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Adopt advanced electro-hydraulic servo technology. The Y1-Y2 axis is the independent motion parameters of the two cylinders controlled by the CNC system. Two Magnetic Grating Rules are installed at both ends of the machine tool to determine the exact distance between the sliding block and the worktable. The Magnetic Grating Ruler is connected with the worktable through the C-shaped frame, which eliminates the influence of the deformation of the column on the position of the slider to the maximum. The real-time position data of the slider movement is immediately fed back to the control system, and the output flow of the two electro-hydraulic servo valves is controlled to synchronize the two oil cylinders. This position measurement process is closed-loop control.

Pressure closed loop control during the whole bending process.

Double closed-loop control of position and pressure provides and ensures high-quality bending accuracy.

Airframe System

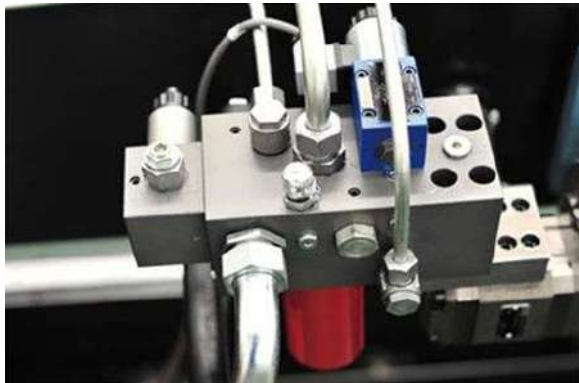
The system adopts German electro-hydraulic ratio to control the synchronous movement of the piston rods of the two cylinders, which effectively guarantees the accuracy of synchronous control.

The main oil pump servo motor is a servo motor with strong and stable power.

The sealing ring adopts imported brand, which has good sealing performance, reliable work and long life.

The reversing valve adopts the German brand to ensure the stability of the hydraulic system.

Servo motor is used as the main power source of hydraulic pump instead of asynchronous motor, and proportional valve control technology is retained, which is mature and reliable. The servo-controlled variable pump technology can significantly reduce machine tool noise, reduce oil temperature heating and save energy by more than 40%.



The electrical components adopt imported brands, conform to international standards, are safe and reliable, and the electric control cabinet has a heat dissipation function.

With a movable foot switch control station, with the functions of starting, shutting down and emergency stop.

The wiring of the electric cabinet is reasonable and clear, which is convenient for maintenance or troubleshooting;

It has the characteristics of compactness, sturdiness, low inertia, fast speed and high precision.

The forward and backward movement (X axis) and the up and down movement (R axis) are driven by the servo motor.

Equipped with 4 positioning fingers.



Control System



Delem DA-53T

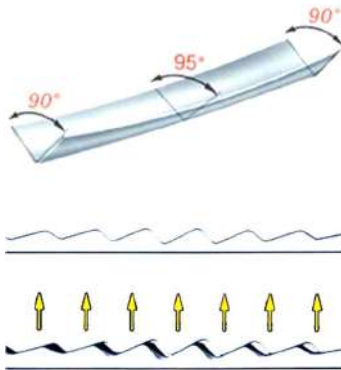
17" high resolution color TFT

Bend sequence calculation

Crowing control

Servo and frequency inverter control

Advance Y-axis control algorithms for closed-loop as well as open-loop values.



The automatic mechanical deflection compensation system effectively compensates the deflection and deformation of the worktable when it is working. The compensation principle is as follows:

The mechanical compensation is a two-way adjustment structure, which can meet the compensation adjustment of the machine tool's transverse and longitudinal directions:

This structure adopts the method of dense point compensation, so that the bending accuracy is more accurate:

Use special reducer and high-precision potentiometer to control, accurately control the compensation accuracy value



Movable front bracket, linear guide rail sliding, fast and convenient. It can be lifted and rotated to reduce the labor intensity during bending, Increase productivity



Stand-By-ECO CNC Genius Press Brake provides energy saving up to 50%
Genius CNC Press Brake has 50% energy saving compared with hydraulic press brakes.



Stand-By-ECO CNC Press Brake provides high productivity
Stand-By-ECO has high acceleration, high deceleration. The quick change of the moving direction is an advantage for high productivity and efficiency and has less maintenance cost.



Stand-By-ECO Press Brake is ECO - friendly machine
The STAND-BY combines high accuracy, flexibility and reliability, this concept offers low power consumption, less maintenance.

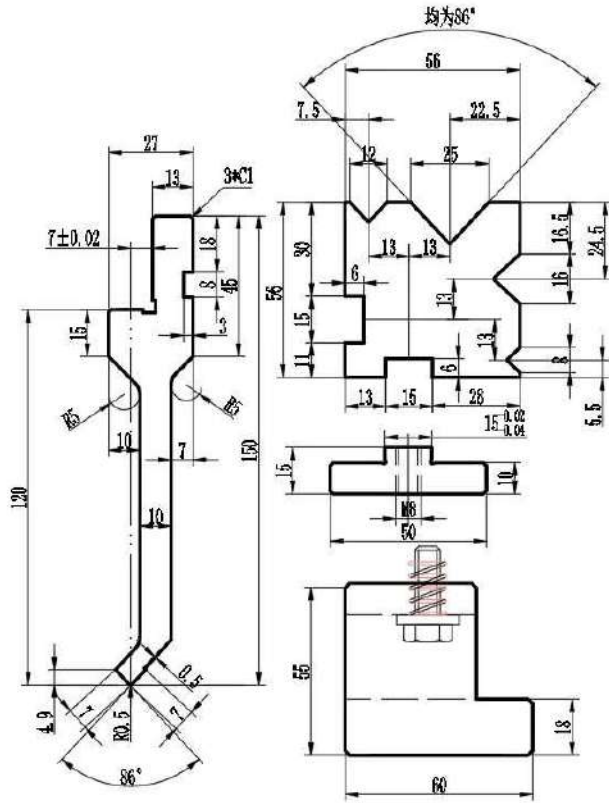


Stand-By-ECO CNC Press Brake works quietly
Stand-By working system has no noise and provides silently working conditions.



*This part is composed of upper mold assembly and lower mold assembly.
The upper mold is installed on the quick mold clamp and fixed by the pressing plate; there are segmented upper molds of unequal length, which can be assembled to the required length according to the requirements of the workpiece.*

The standard configuration of the lower mold is the same core mold, which is composed of an L seat, a T block and a double V mold



- | Punch (Upper tools) | Mold (V dies) |
|---------------------|---------------|
| 835mm x 3pcs | |
| 300mm x 1pcs | |
| 200mm x 1 pcs | |
| 100mm x 3pcs | |
| 40mm x 1pcs | |
| 30mm x 1pcs | |
| 20mm x 1pcs | |
| 15mm x 1pcs | |

Sample Display





Remarks: Above cutting samples & speed are for reference only, the real cutting finish will be influenced by laser power, running condition etc.

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