



Eco Series All-Electric Servo Press Brake

Overview & Specifications



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info@yrs-industrial.com

Nanjing Lianpeng Machinery Technology Co., Ltd

Product Introduction

Eco Series All-Electric Servo Press Brake is a new generation of CNC press brake powered by an advanced servo drive system. It mainly consists of the machine frame, servo motors, transmission mechanism, worktable, and control system.

Working Principle

Bending parameters are input via the CNC system. The servo motor precisely controls the rotation speed, direction, and torque based on the programmed commands. It drives the transmission mechanism to move the ram, executing a vertical reciprocating motion of the upper die relative to the lower die to complete the sheet metal bending process.

Key Features

High Precision Driven by servo motors coupled with ball screw drives, the machine delivers exceptional accuracy. For instance, the fully loaded all-electric servo press brake can control the bending angle error within $\pm 0.5^\circ$, far outperforming traditional hydraulic press brakes.

High Efficiency The fast response time of the servo motor allows for high approach, working, and return speeds of the ram, significantly boosting overall processing efficiency.

Energy Saving The motor's input power is directly proportional to the load power. Power consumption is minimal when the ram is idling or stationary, saving a substantial amount of electricity compared to hydraulic press brakes of the same tonnage.

Eco-Friendly Operating entirely without hydraulic oil eliminates oil replacement, disposal issues, and potential leakage pollution, thereby reducing environmental compliance costs.

Low Maintenance Costs The simplified transmission system features fewer components, resulting in a low failure rate. There is no need for regular replacement of hydraulic oil or hydraulic parts. Additionally, it features automatic sheet thickness detection and compensation to reduce operational difficulty and human error.

Intelligent Operation Equipped with an advanced self-developed CNC system (such as the Kunlun CNC device), it features a touchscreen interface, USB, and Ethernet ports. It also integrates smart functions including tooling programming, interference detection, actual-value compensation, thermal expansion compensation, and multi-point start-stop acceleration/deceleration.

Energy Consumption Comparison: All-Electric Servo vs. Traditional Hydraulic Press Brake

1. Powertrain Energy Consumption

All-Electric Servo Press Brake: The servo motor consumes electricity *only* when actively working, precisely adjusting its output power based on the load requirements. Standby current is extremely low. For example, the Eco1003 (a 100-ton, 3-meter all-electric servo press brake) has a standby current of **only 1.3 A**.

Traditional Hydraulic Press Brake: The hydraulic pump must run continuously to maintain system pressure. This results in significant energy waste even during idling or standby states. A standard down-stroking hydraulic press brake typically draws a single-phase standby current of **up to 6.6 A**.

2. Operational Energy Consumption

All-Electric Servo Press Brake: Features a mechanical main transmission efficiency of **over 95%**, ensuring highly efficient conversion of electrical energy into mechanical energy. Taking a 100-ton model as an example, based on an 8-hour workday, the main machine consumes approximately **10 kWh/day**.

Traditional Hydraulic Press Brake: The hydraulic transmission efficiency is **below 80%**, which degrades further as hydraulic components age and wear out. For a hydraulic press brake of the same 100-ton capacity, the hydraulic system consumes approximately **30 kWh/day**.

3. Energy Recovery & Utilization

All-Electric Servo Press Brake: Certain models are equipped with energy recovery systems that capture and store the electrical energy generated during braking. This reclaimed energy is used for subsequent cycles, saving about **10% to 15%** of energy per bending operation.

Traditional Hydraulic Press Brake: During braking or deceleration, the kinetic energy of the hydraulic oil is typically converted into waste heat and dissipated into the environment, making energy recovery impossible.

4. Heating & Temperature Control Energy Consumption

All-Electric Servo Press Brake: Some next-generation all-electric models utilize advanced heating technologies such as electromagnetic induction heating. This delivers rapid heating speeds and high thermal efficiency, significantly cutting down energy consumption in temperature regulation.

Traditional Hydraulic Press Brake: Mostly relies on traditional resistance wire heating, which suffers from severe heat dissipation. Furthermore, the temperature control system is less precise, requiring continuous power compensation to maintain the necessary temperature, leading to higher energy consumption.

I. Main Parameters

Parameter	Eco4013
Overall Dimensions, L × W × H (mm)	2350 × 1350 × 2300
Working Length (mm)	1300
Distance Between Frames (mm)	950
Throat Depth (mm)	300
Open Height (mm)	535
Bending Stroke (mm)	120
Backgauge Stroke (mm)	500
Nominal Pressure (kN)	400
Total Power Capacity (kW)	19.8
Y-axis Fast Down Speed (mm/s)	1–180
Y-axis Working Speed (mm/s)	1–50
Y-axis Return Speed (mm/s)	1–180
X-axis Travel Speed (mm/s)	500
R-axis Lifting Speed (mm/s)	220
Z-axis Lateral Speed (mm/s)	600 (Optional)
Machine Weight (kg)	3460

II. Machine Configuration

No.	Component	Brand / Specification
1	Main Machine Frame	In-house manufactured and tempered
2	CNC System	INOVANCE
3	CNC Screen	INOVANCE
4	Servo Motor	INOVANCE
5	Servo Drive	INOVANCE
6	Electrical Components	Schneider
7	Ball Screw	Japan
8	Linear Guide Rail	SHAC–Dingrui
9	Clamping System	Senyuan
10	Tooling	YRS

For additional configurations or non-standard customization, please consult our sales team.

III. Standard Machine Accessories

No.	Standard Accessory
1	Main Machine
2	Tooling
3	Dust Cover
4	Adjusting and Fixing Bolts
5	Foot Pedal Switch
6	Front Support Arms

Section 4: Operating & Site Conditions Required by the User

Power Supply: Three-phase 380V $\pm$ 10%, 50Hz.

Note: Voltage and frequency can be customized according to your specific requirement.

Ambient Temperature: -5°C to 40°C (Operating temperature range).

Ambient Humidity: Relative humidity 20% – 80% RH.

Vibration & Interference: Must be kept far away from strong vibration sources and electromagnetic interference sources.

Air Quality: Safe operating environment free of harmful, corrosive gases, and dust.

Section 5: Service & Quality Assurance

Warranty Period: * **One-Year Warranty:** During the warranty period, in case of equipment failure, our company will respond (via video/remote support) within **4 hours** of receiving the user's phone call or Email.

Parts Replacement: Any component losses or damages caused by manufacturing quality issues will be fully covered and replaced by our company free of charge.

Lifetime Support: We provide comprehensive, lifelong maintenance and technical support services for the machine.

EXHIBITION HIGHLIGHTS

YRS Industrial Booth Showcase

