

Electro-hydraulic Synchronized  
CNC PRESS BRAKE  
110 / 3100



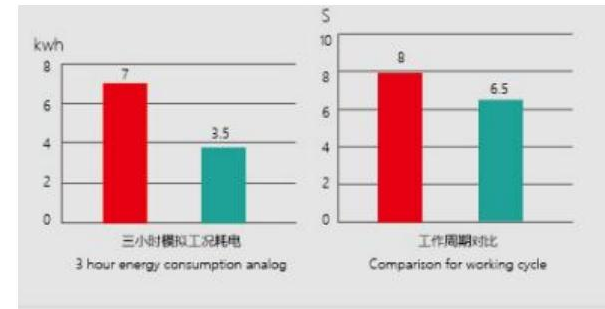
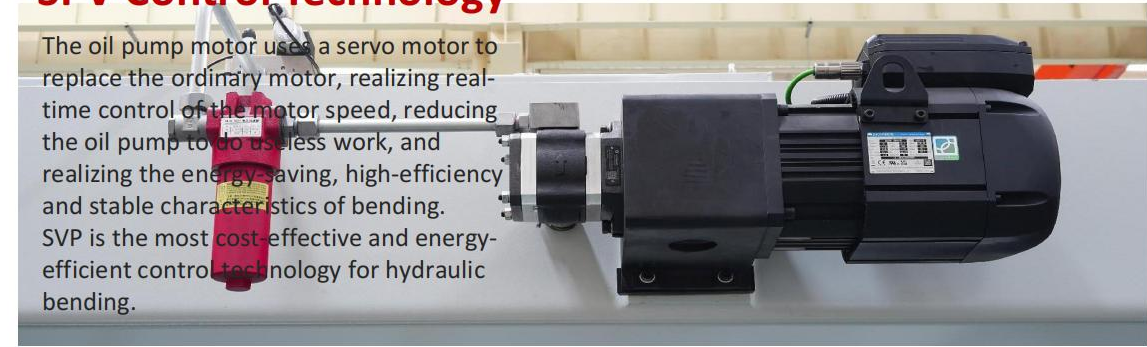
**Features**

- Streamline design, high speed, high precision, high steel CNC bending machine
- Electro-hydraulic servo synchronization technology for more precise control of slider accuracy
- Mechanical table deflection compensation and throat deformation compensation structure to ensure bending precision.
- The backstop is driven by digital AC servo motors, precision ball screws and guided by linear guide rails.



**SPV Control Technology**

- The oil pump motor uses a servo motor to replace the ordinary motor, realizing real-time control of the motor speed, reducing the oil pump to do useless work, and realizing the energy saving, high-efficiency and stable characteristics of bending.
- SVP is the most cost-effective and energy-efficient control technology for hydraulic bending.



- Energy-saving efficiency reaches more than 50%, to 110 tons, for example, save electricity 4000-6000 CNY per year, servo motor overload capacity, pump valve is unchanged, the work into the return speed can be faster using no overflow technology, the oil temperature control is obvious.
- Domestic servo motors pay for themselves in about 1-2 years

## RICH CONFIGURATION

### Flexible Match



#### Stable and Reliable Back Gauge

Imported grinding ball screw drive, linear guide rail guide double linear guide construction, to ensure the positioning accuracy. Multistage stops to increase the positioning range make the bending more convenient.

#### Schneider Electric Components

Schneider electric components, are up to the standards of DIN and ISO, safe and reliable.



#### High Quality Press Brake Tooling

After forging and quenching, it is durable. High precision, high straightness and high repeatability and finally obtain the ideal bending effect.



#### Quickly Clamping

It is convenient to quickly damp the upper die reduce labor intensity and improve production efficiency. The utility model has the advantages of high precision, easy clamping, no loosening, no tool dropping, etc.

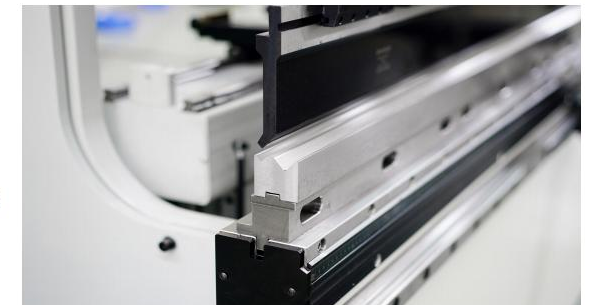
#### Moveable Front Support System

Moveable front support, moving along the Inerguide rail can be at any position with rotation and height adjustment functions to help you to bend.



#### Lower Tool Clamp

The lower mold adopts double V quick-change clamping method. Single V mechanical clamping or single V hydraulic clamping method is optional. Multi-V lower mold wide workbench clamping method is optional.

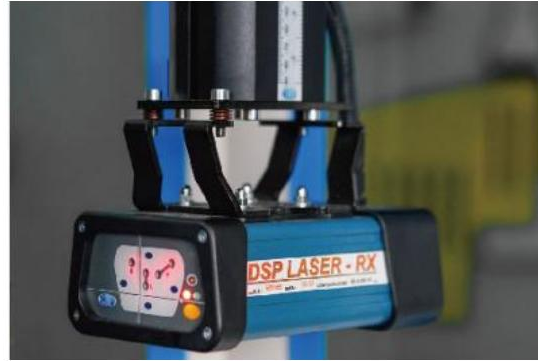


## RICH CONFIGURATION

### Flexible Match

#### Laser safety protection

Provide comprehensive protection for the operator in the place close to the workpiece.



#### CNC Follower Supports

When the workpiece is bent, the support plate can realize the turning following function. The following angle and speed are automatically calculated and controlled by the NC system and it can move left and right along the linear guide rail.

#### Laser check angle measurement

The use of laser angle measurement system can ensure a stable workpiece bending angle and improve the efficiency and stability of automatic machining.



#### Holland Wila Upper Tool Clamping System

The upper die is hydraulically clamped and the clamping and loosening action is automatically controlled by electricity. The clamping force is large and reliable. The die change is easy and efficient.



#### Holland Wila Lower Tool Holders

Lower die hydraulic clamping device, clamping and loosening action is automatically controlled by electricity. The die change is easier and more efficient.



#### Press Brake Productivity Tool Station

The specially designed bending machine efficient die station can safely replace and store (heavy) new standard dies.



## Electro-hydraulic Synchronized CNC PRESS BRAKE

110 / 4500



### Features

- Streamline design, high speed, high precision, high steel CNC bending machine
- Electro-hydraulic servo synchronization technology for more precise control of slider accuracy
- Mechanical table deflection compensation and throat deformation compensation structure to ensure bending precision.
- The backstop is driven by digital AC servo motors, precision ball screws and guided by linear guide rails.



**Throat heightening and widening**



**High Precision grating ruler**

Accurately measure the amount of deformation and feedback compensation, Ensure the precision of the bending machine. And it can effectively prevent non-standard workpieces from colliding with and interfering with the detection unit.



**Precise and stable back gauge system**

Novel and unique double linear guide rail structure. Ensures excellent positioning accuracy. The multi-level gear design increases the positioning range and the value for money is excellent.

## CNC System 数控系统

**Delem**



### 荷兰 DELEM DA53T

“热键” 触摸导航  
10.1寸高分辨率彩色 TFT  
4轴 (YLY2 + 2 辅助轴)  
最高的控制  
工具 / 材料 / 产品库  
伺服和变频器控制  
先进的轴控制算法闭环和开环阀  
TandemLink (选项)  
USB 记忆棒接口  
Profile-T 离线软件

“Hot-key” touch navigation  
10.1" high resolution colour TFT  
Up to 4 axes (YLY2 + 2 aux axes)  
Crowning control  
Tool / material / product library  
Servo and frequency inverter control  
Advanced Y-axis control algorithms for closed-loop as well as open-loop valves  
TandemLink (option)  
USB memory stick interfacing  
Profile-T offline software



### 荷兰 DELEM DA58T

2D 触摸式图形编程  
15" 高分辨率的 TFT 真彩显示  
折弯工序计算  
挠度补偿控制  
伺服和变频器控制模式  
先进的 Y 轴控制算法, 即可控制闭环阀, 也可控制开环阀  
USB 接口

2D touch graphical programming  
15" high-resolution TFT true color display  
Bending process calculation  
Deflection compensation control  
Servo and drive control modes  
Advanced Y-axis control algorithm, you can control the closed-loop valve can also control the open-loop valve  
USB interface



### 荷兰 DELEM DA66T

2D 触摸式图形编程  
3D 产品图形模拟显示  
17" 高分辨率 TFT 真彩显示  
存储器容量 1GB  
完整的 Windows 应用程序包  
兼容 DELEM 模块化结构系统  
USB, 外设接口  
大圆弧模具  
支持瞬时关机  
在线分析工具  
PLC 编程

2D Touch graphical programming  
3D Product graphical simulation display  
17" High-resolution TFT Color Display  
Full Windows application package  
Compatible DELEM modular structure  
USB, Peripheral Interface  
User program applications under multi-tasking environment  
Angle detecting sensor interface



### 荷兰 DELEM DA69T

2D 和 3D 触摸式图形编程  
3D 产品图形模拟显示  
17" 高分辨率 TFT 真彩显示  
完整的 Windows 应用程序包  
兼容 DELEM 模块化结构  
USB, 外设接口  
多任务环境下用户程序应用  
角度检测传感器接口

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

### KV-S640 (Italy ESA)

- 高清晰的 15 寸 TFT 彩显
- 内置 PLC
- 二维图形编程
- 展开长度计算
- 图形化上下模, 支持多边模、伸缩模、圆弧模、鹅颈模等模具
- 图形编程自动、手动优化
- 支持模拟折弯
- 支持图形或数值式圆弧折弯
- PS2 键盘和鼠标接口
- 支持双机联动功能, 无须另购同步卡

- High definition 15 inch TFT color display
- Built-in PLC
- 2D graphics programming
- Calculation of expansion length
- Graphic up and down mold, support multilateral mold, telescopic mold, arc mold, gooseneck mold, etc
- Automatic and manual optimization of graphic programming
- Support simulated bending
- Support graphic or numerical arc bending
- PS2 keyboard and mouse interface
- Support dual linkage function, no need to buy synchronous card



### 意大利 ESA VIS-860

- 支持多点触摸, 18.5 英寸
- 支持触控应用界面
- 外形采用无边黑框设计, 简约时尚
- 支持“手绘”工件
- 支持直接导入和管理模具库 (.dxf 文件格式)
- 支持上模夹和下模座库管理
- 支持 DataM 激光角度测量
- 支持 ESA 3D Bend 三维折弯软件
- 配备 Modbus TCP 总线接口, 可实现工业 4.0

- 18.5" designed for multi touch screen
- Support multi touch application
- No frame, simple but powerful
- Support finger-tip work piece design
- Support import of tools shapes (.dxf files)
- Support management of tool library
- Support tool and die holders' management
- Support datam angle measurement system
- Support ESA 3D Bend software
- Equip standard industry 4.0 Modbus TCP interface



### 意大利 ESA VIS-875

- 21.5 英寸多触屏设计
- 支持多点触控应用
- 没有框架, 简单却有力量
- 支持指尖工件设计
- 支持工具形状的导入 (.dxf 文件格式)
- 支持工具库的管理
- 支持模具夹具的管理
- 支持数据角测量系统
- 支持 ESA 3D Bend 软件
- 配备标准工业 4.0 Modbus TCP 接口

- 21.5" designed for multi touch screen
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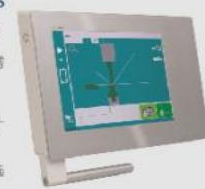


### 瑞士 CYBELEC CybTouch 12 PS

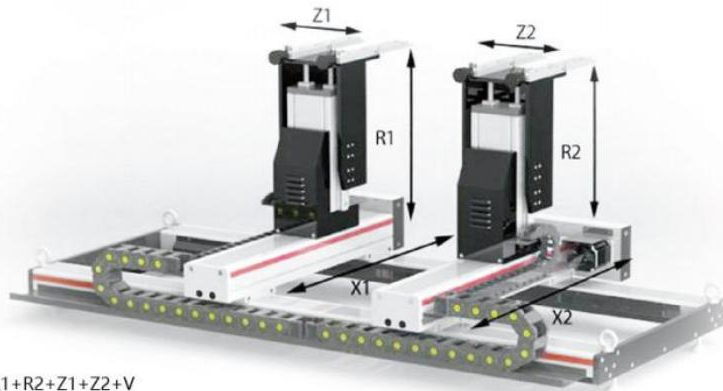
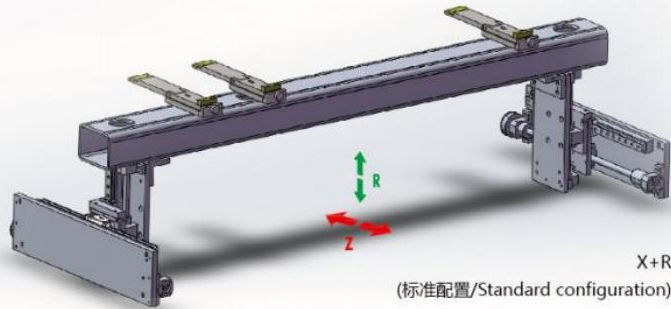
12" 彩色液晶显示, 触摸屏, 图标化识别功能  
“EasyBend” 页面进行轻松单次折弯加工;  
完全高效的折弯编程满足大批量生产加工需要;  
自动计算折弯角度、主压力和挠度补偿;  
折弯数据自动计算;  
压力和挠度补偿自动计算; 上模深度自动计算;  
角度, 后挡料校正; 2D 图形编程;  
自动模拟折弯步骤, 提供最优折弯方案 (选项)。

### 瑞士 CYBELEC CybTouch 15 PS

15" 现代流线型玻璃镜面触摸屏, 可戴手套使用。  
用户友好的人机界面, 直观编程和易于设置的导航功能 (自动优化机床参数)。  
2D 手指画圈编程 (触摸文件) 和精确地 2D 程序创建。  
自动折弯步序计算。  
便于单零件折弯的 EasyBend 页面。  
存储容量更大。  
内部备份和存档功能。  
用于诊断和升级的无线通讯功能 (使用笔记本电脑)。

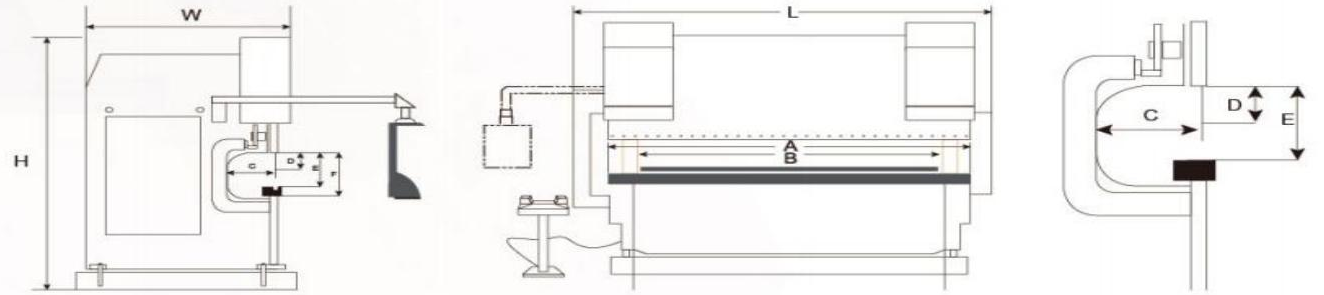


## Powerful Back Gauge System 更多功能的后挡料系统



多种后挡料可供选择, 更高的配置, 功能更强大, 操作更简便。  
A variety of back gauge are available, higher configuration, more powerful functions and easier operation.

## Technical Parameter 折弯机参数



Model 机床型号	Bending Force 公称压力	Bending Length 折弯长度	Distance Between Columns 立柱间距	Throat Depth 喉口深度	Slide Travel 滑块行程	Open Height 开启高度	Main Motor 主电机功率	Tank Volume 油箱容积	Approaching Speed 快下速度	Progress Rate 工进速度	Return Speed 回程速度	Machine Length 机床长度	Machine Width 机床宽度	Machine Height 机床高度
	KN	mm	mm	mm	mm	mm	KW	L	mm/s	mm/s	mm/s	mm	mm	mm
HPA-35-1250	350	1250	950	300	150	440	3.7	80	260	22	260	1970	1430	2300
HPA-65-1500		1500	1150	350	180	450	7.5	100	240	20	240	2170	1450	2360
HPA-65-2050	650	2050	1700	350	180	450	7.5	150	240	20	240	2720	1450	2360
HPA-65-2500		2500	2150	350	180	450	7.5	200	240	20	240	3170	1450	2400
HPA-110-3100	1100	3100	2600	410	220	490	12.4	200	220	18	200	3660	1540	2610
HPA-110-4100		4100	3600	410	220	490	12.4	200	220	18	200	4660	1540	2610
HPA-160-3100	1600	3100	2600	410	220	490	17.8	200	180	15	160	3680	1560	2700
HPA-160-4100		4100	3600	410	220	490	17.8	200	180	15	160	4680	1560	2700
HPA-220-3100		3100	2600	410	220	490	21.4	200	150	13	150	3700	1820	2790
HPA-220-4100	2200	4100	3600	410	220	490	21.4	200	150	13	150	4700	1820	2790
HPA-220-5000		5000	4000	410	220	490	21.4	200	180	13	150	5300	1920	3190
HPA-220-6000		6000	5100	410	220	490	21.4	200	180	13	150	6300	1920	3290
HPA-300-3100		3100	2600	410	280	540/510	25.1	200	140	12	130	3400	1890	3040
HPA-300-4100	3000	4100	3600	410	280	540/510	25.1	200	140	12	130	4400	1890	3040
HPA-300-5000		5000	4000	500	280	540/510	25.1	200	150	12	130	5400	2130	3350
HPA-300-6000		6000	4800	500	280	540/510	25.1	200	160	12	120	6400	2130	3550
HPA-400-4000		4000	3100	500	300	610	32	700	100	8	80	4300	2640	3800
HPA-400-5000	4000	5000	3800	500	300	610	32	700	100	8	80	5300	2640	3800
HPA-400-6000		6000	4800	500	300	610	32	700	100	8	80	6300	2640	4000
HPA-500-4000		4000	3100	500	300	610	37	800	100	8	80	4300	2700	3500
HPA-500-5000	5000	5000	3800	500	300	610	37	800	100	8	80	5300	2700	3700
HPA-500-6000		6000	5100	500	300	610	37	800	100	8	80	6300	2700	4500
HPA-600-4000		4000	3100	600	320	650	52	1000	90	8	90	4300	3300	3900
HPA-600-5000	6000	5000	3800	600	320	650	52	1000	90	8	90	5300	3300	4200
HPA-600-6000		6000	4800	600	320	650	52	1000	90	8	90	6300	3300	4500
HPA-800-6000		6000	4600	600	320	800	60	1500	90	8	90	6300	3500	4000
HPA-800-8000	8000	8000	6600	600	320	800	60	1500	90	8	90	8300	3600	4500
HPA-1000-6000		6000	4600	600	400	900	2*37	1800	90	8	90	6300	3600	6400
HPA-1000-8000	10000	8000	6600	600	400	900	2*37	1800	90	8	90	8300	3600	6600

备注: 300吨开启高度540是对应窄工作台, 510是对应260宽工作台

## Sheet Bending Force Table

v	4	6	8	10	12	14	16	18	20	24	28	32	36	40	45	50	55	60	65	70	80	90	100	120
b	2.8	4.24	5.7	7.1	8.5	9.9	11	12.7	14	17	19.8	22.6	25.5	28	31.8	35	38.9	42.4	46	49.5	56.6	63.6	70.7	85
R	0.7	1	1.3	1.7	2	2.3	2.7	3	3.3	4	4.7	5.3	6	6.7	7.5	8.3	9.2	10	10.8	11.7	13.3	15	16.7	20
S	0.5	41	27.1																					
	0.6	59	39	29	23																			
	0.8		69.3	52	42	35																		
	1		108	81	65	54	46																	
	1.2			117	94	78	67	59																
	1.5				146	122	104	91	81.3															
	2					217	186	163	144	130	108													
	2.5						290	254	226	203	169	145	127											
	3							325	293	244	209	183	163											
	3.5								398	332	284	249	221	199	177									
	4									433	371	325	289	260	230	208								
	4.5										470	411	366	329	300	263	239							
	5											508	451	406	360	325	295	271	250					
	6												585	520	468	425	390	360	334	293				
8													832	756	693	640	594	520	462	416				
10														1083	1000	929	813	722	650	542				
12																	1170	1040	936	780				
14																			1416	1274	1062			

Figures in this Chart is based on following parameters: material strength  $\sigma_b=450N/mm^2$  and length  $L=1m$ . Force for material with different strength and length can be calculated proportionally.

本表数值是以材料强度  $\sigma_b=450N/mm^2$  及长度  $L=1m$  计算而得。不同强度的材料及长度所需的折弯力可按相应的比例计算而得。

Sorry no notice if parametre change! 样本参数如有更改恕不另行通知!

### 板料折弯力计算方法:

Force Calculation Formula for Press Brake:

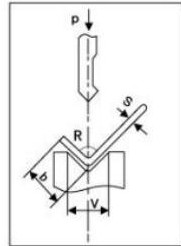
板料折弯力计算方法:

P-折弯力 (千牛) S-板厚 (毫米)

L-板宽 (米)

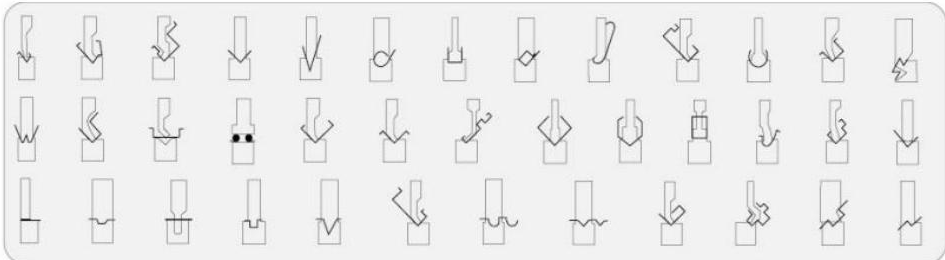
V-下模槽口宽 (毫米)

$$P = \frac{650S^2L}{V} (\sigma_b=450N/mm^2)$$

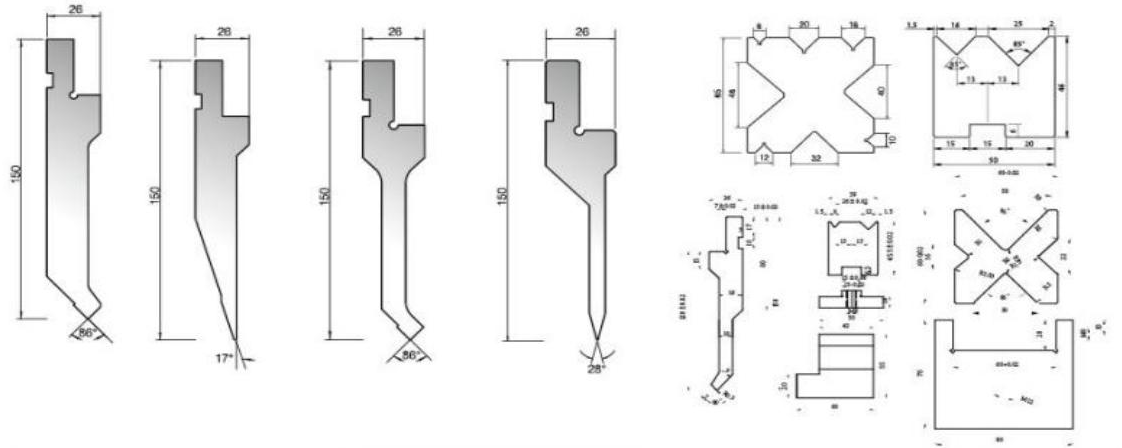


折弯示意图

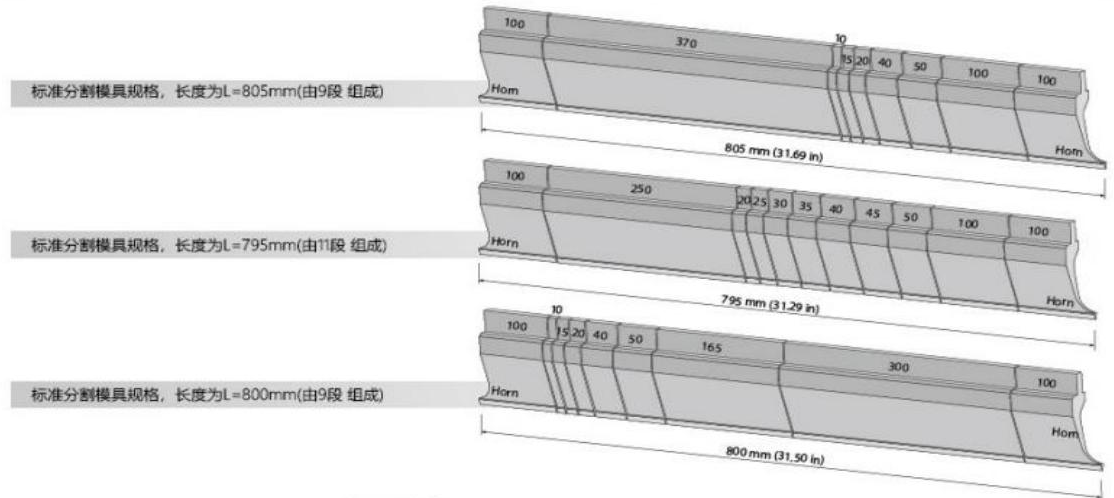
## Processing Workingpiece Drawing



## Die Drawing For Press Brake



415 mm (16.34 in)      835 mm (32.87 in)      900 mm (35.43 in)

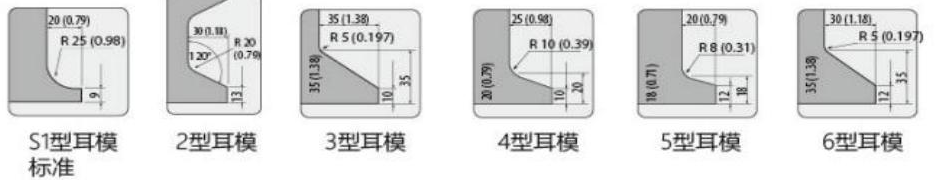


标准分割模具规格, 长度为L=805mm(由9段 组成)

标准分割模具规格, 长度为L=795mm(由11段 组成)

标准分割模具规格, 长度为L=800mm(由9段 组成)

### 耳型模



S1型耳模 标准

2型耳模

3型耳模

4型耳模

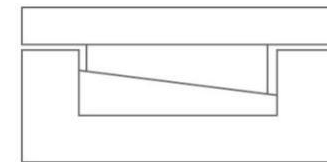
5型耳模

6型耳模

## HPA Series Heavy Duty Press Brake



- High-quality steel plate raw materials and large-scale pentahedral processing center are the guarantee of high quality
- Electro-hydraulic servo system, fully closed-loop control slider synchronization
- The slider has a double guide rail structure and self-lubricating guide rails to ensure long-term and accurate operation of the slider.
- Mechanical deflection compensation of the worktable and throat deformation compensation mechanism ensure bending accuracy
- The spherical floating support structure of the oil cylinder and the special guide structure of the piston rod have strong anti-eccentric load ability.
- The backgauge is driven by digital AC servo motor, precision ball screw transmission and linear guide guide



### Sectional View Of Mechanical Crowning Compensation

Mechanical deflection compensated tables that allow accurate deflection compensation over the full length of the table. The cambered table consists of a set of cambered wedges with beveled surfaces, each of which is designed according to the deflection curves of the slider and the table plate finite element analysis. The numerical control system calculates the required compensation amount according to the magnitude of the workpiece bending load force (which will lead to the deflection deformation of the slider and the table plate), and automatically controls the relative movement of the cambered wedges, thus effectively compensating for the deflection deformation of the slider and the table plate, and obtaining an ideal bending workpiece.



## RICH CONFIGURATION Flexible Match



### Multi -V Bottom Die

The multi-V lower mold can be designed with different openings and dimensions. It is easy to change molds and can meet the needs of conventional plate bending processing. It is highly cost-effective.



### Heavy Duty Backgague 3C

Professional sheet metal equipment manufacturer Horizontal shell installation structure, high stability Single shell double guide rail guide high precision. Equipped with X-axis, servo drive, and automatic control system. The blocking finger moves left and right along the guide rail and has strong impact resistance.



### SVP Control Technology

- The oil pump motor uses a servo motor to replace the ordinary motor, realizing real-time control of the motor speed, reducing the oil pump to do useless work, and realizing the energy-saving, high-efficiency and stable characteristics of bending.
- SVP is the most cost-effective and energy-efficient control technology for hydraulic bending.



### High Precision grating ruler

Accurately measure the amount of deformation and feedback compensation, Ensure the precision of the bending machine. And it can effectively prevent non-standard workpieces from colliding with and interfering with the detection unit.



### Mechanical Crowning

The compensation amount is automatically calculated and set by the NC system to ensure the consistency of the full-length bending angle.





## HPA Large Double Machine Tendam Technical Parameter



Model 机床型号	Bending Force 公称 压力	Bending Length 折弯 长度	Distance Between Columns 立柱间距	Throat Depth 喉口 深度	Slide Travel 滑块 行程	Open Height 开启 高度	Main Motor 主电机 功率	Tank Volume 油箱 容积	Approaching Speed 快下 速度	Progress Rate 工进 速度	Return Speed 回程 速度	Machine Length 机床 长度	Machine Width 机床 宽度	Machine Height 机床 高度
	KN	mm	mm	mm	mm	mm	KW	L	mm/s	mm/s	mm/s	mm	mm	mm
2-400-4000	4000	5000	3100	500	300	610	30	700	65	8	80	4300	2700	3500
2-400-5000		6000	3800	500	300	610	30	700	65	8	80	5300	2700	3700
2-400-6000		4000	4800	500	300	610	30	700	65	8	80	6300	2700	3900
2-500-4000	5000	5000	3100	500	300	610	37	800	100	8	80	4300	2700	3500
2-500-5000		6000	3800	500	300	610	37	800	100	8	80	5300	2700	3700
2-500-6000		4000	4800	500	300	610	37	800	100	8	80	6300	2700	4000
2-600-4000	6000	5000	3100	600	320	650	45	1000	90	8	90	4300	3300	3900
2-600-5000		6000	3800	600	320	650	45	1000	90	8	90	5300	3300	4200
2-600-6000		6000	4800	600	320	650	45	1000	90	8	90	6300	3300	4500
2-800-6000	8000	8000	4800	600	320	800	60	1800	90	8	90	6300	3500	4000
2-800-8000			6600	600	320	800	60	1800	90	8	90	8300	3600	4500