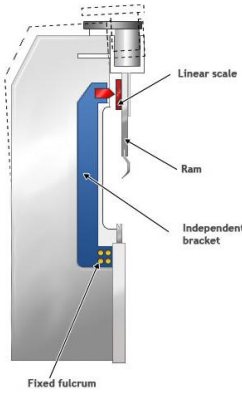
# UNION FABRICATION

**PBA Series CNC Press Brakes, 35T to 220T, 1250mm to 4100mm.**

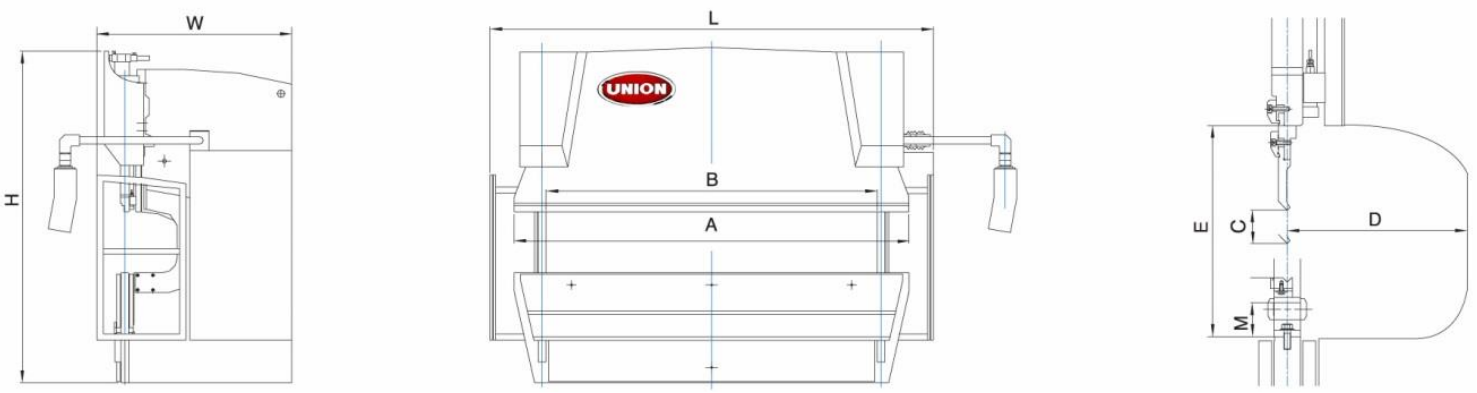




**FAST** · **SIMPLE** · **RELIABLE**

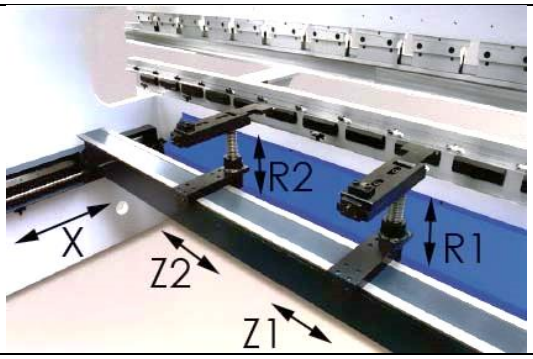
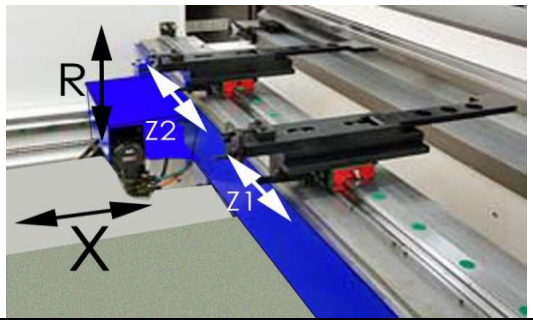
**Standard Three Axes of control, Gauging options Available to 6-Axis.**

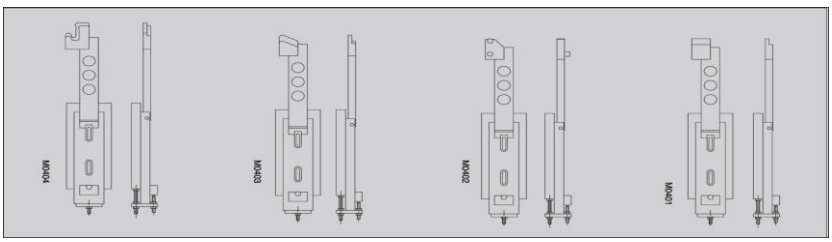
**Union's PBA Series press brakes are designed for efficient processing of sheet metal parts in a production environment. Simple programming of user-friendly CNC controllers allow fast and safe bends for one-off prototyping or high volume manufacturing.**

**Each machine is custom configured to a customer's requirements, with a variety of tool holding, gauging and controller options available.**




| Specifications | | UNION Model **PBA-35/1250** | |
|---|---|---|---|
| Nominal Tonnage | | 350 KN/35 Tonnes | 38.5 US Tons |
| Length of work table | A | 1250 mm | 49.25 inches |
| Distance between uprights | B | 950 mm | 37.43 inches |
| Throat depth | D | 300 mm | 11.82 inches |
| Ram stroke | C | 120 mm | 4.728 inches |
| Ram speed, rapid approach | | 150 mm/s | 5.91 inches per second |
| Ram speed, pressing | | 13 mm/s | 0.512 inches per second |
| Ram speed, rapid return | | 140 mm/s | 5.516 inches per second |
| Motor Output power | | 4 kW | 5.5HP |
| Tank volume | | 70 L | 18 US Gallons |
| Riser Block Height | M | 80 mm | 3.152 inches |
| Max daylight, no tooling | E | 420 mm | 16.548 inches |
| Overall dimension | (LxWxH) | 1800x1450x2050 mm | 70 x 57 x 80 inches |
| Weight | | 2700 kg | 6000 Lbs |

| Available axes of control, PBA Series: | | |
|---|---|---|
| Standard:<br>$Y^1$ $Y^2$ and X | CNC controlled **$Y^1$ $Y^2$** (pressbeam) and **X** (backgauge in,out on precision high speed ballscrews on linear guide), with manual **$Z^1Z^2$** and **$R^1R^2$** (independent backgauge fingers moving left+right on single dovetail slideway) and up+down on individual heavy ACME screws)<br><br>Backgauge beam remains at fixed height.<br>500mm Backgauge travel in X direction. |  |
| Available:<br>$Y^1$ $Y^2$ and X + R | CNC controlled **$Y^1$ $Y^2$** (pressbeam) and **X** (backgauge in,out on precision high speed ballscrews on linear guide) and **R** (entire backgauge beam moving up+down on precision high speed ballscrews with manual **$Z^1Z^2$** (independent backgauge fingers moving left+right on precision linear guide) with manual fine adjustment of **$X^1$ $X^2$**<br>**Controller** can move entire backgauge up and down 200mm (7.8”), following material edge and allowing accurate CNC-controlled bumping of large radii. |  |
| Extra Backgauge fingers available. Customer choice of finger shape. All fingers have hardened replaceable inserts at tip. Tips flip up to avoid damage to gauge or workpiece. | | |



Toolholding Configuration, Union PBA Series CNC Pressbrakes:

| **Upper tool clamping:** | |
|---|---|
| Standard individual top punch holders allow for adjustment of parallelism along the upper beam and can compensate for unevenly worn tooling or upper tooling sections of slightly differing height. In addition, the effective depth of upper tooling is increased which permits closure of adjoining sides of deeper boxes. Upper tooling is of widely-available precision European style, always ground to a higher precision than planed American style tooling. |  |
| Available Quick Lever Clamping allows tool-less upper punch changes while maintaining individual adjustability |  |
| **Lower Tooling**: | |
| Standard Single-V lower tooling configuration allows use of inexpensive lower tooling. Front-to-back adjustable slotted riser accepts 12mm and ½" shoulder-supported narrow tooling for tight returns in both directions |  |
| Available Double-V lower tooling (Amada-style) allows a close return in one direction and changing of opening by rotating the lower die upon its tongued support. Front-to-back adjustable and provides some front support for small parts if the rear opening is in use. |  |

**Controllers, Union PBA series CNC Pressbrakes:**

Standard Delem DA52 CNC pressbrake controller:
http://www.delem.com/user_upload/LinkedBrochures/Pressbrake%20Controls/DA-50%20Series/DA-52

Tooling is graphically represented and a library of upper and lower tooling allows quick configuration.

The DA52 can be used as an NC (Numerical input) control, whereby the operator enters the desired position of the pressbeam (Y axis) and the backgauge (X axis).

It can also be used as a CNC controller, with numerical input of tooling height and die opening, along with material type and thickness, distance of bend from backgauge fingers and desired angle, allowing the DA52 controller to calculate correct positions of the pressbeam and backgauge for accurate, repeatable bends. The tonnage required to make the bend is also controlled, preventing damage to tooling and material. Backgauge fingers retract during bending to avoid any stress to the backgauge mechanism.
A sequence of bends can be stored in a library of "products" for future use.
All common bend parameters are located on one page. For advanced parameters an additional page can be selected.

The machine's pressbeam is kept parallel by the controller both during pressing and at the bottom of each bend. The controller knows the exact position of each end of the beam relative to the lower table at all times, even when loads are off-center or the material's resistance to bending is inconsistent. Precision linear encoders mounted to an independent frame at each end account and compensate for machine deflection under load.
If desired, the operator can choose the bending and approach speed and the dwell time at the bottom of each bend, along with a safe and slow return of the beam after each bend, useful for large or heavier workpieces.
With the addition of the optional R axis of the backgauge up and down movement, large radius bumping is enabled without having to bend to scribed lines; the controller will move the fingers in two directions to divide a bend into several "bumps" and produce closely spaced bends that can approximate the appearance of a rolled curve.


Upgrade to Delem DA56 Graphical CNC pressbrake controller:
http://www.delem.com/user_upload/LinkedBrochures/Pressbrake%20Controls/DA-50%20Series/DA-56s/DA-56s_english.pdf

In addition to the above functions, the DA56 allows graphical product design on the controller's large screen. The part to be bent is represented in 2 dimensions and can be viewed at any stage of bending.
Also shown on screen can be both upper and lower tools and the backgauge of the machine.
The ability to visualize a part before it is bent can assist in product design and tool selection, in addition to greatly adding to operator safety by illustrating the orientation of the part in the machine and the position of the moving machine parts at each stage of bending.

The DA56 can calculate the length of blank the operator must supply to produce the desired part, automatically calculating bend allowances by considering thickness, tooling and material type. It is a remarkably capable and simple control that adds to production capability, ease of use and the safety of operator, machine, tooling and material.

Offline software is available that allows 3-D visualization of the part and the machine with the ability to “fly” around the part and view it from any perspective. Both Cybellec and Delem controllers are available according to customer preference.