NC Hydraulic Press brake

FBD III SERIES

AMADA

Press Brake FBD Ⅲ demonstrates its desired performance With a higher precision and More flexibly

Press Brake in a new age

FBD Ⅲ is the Press Brake that has aimed at meeting the customer needs,

Any and all operators want to secure precision in an easy manner,
Want to maintain the same angle,
Want to readily operate,
Want to machine any kind of work.
FBD Ⅲ realizes these customer needs successfully.

FBDⅢ LD

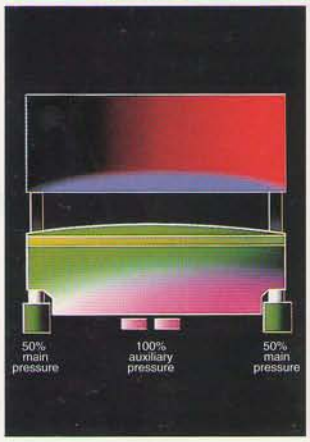
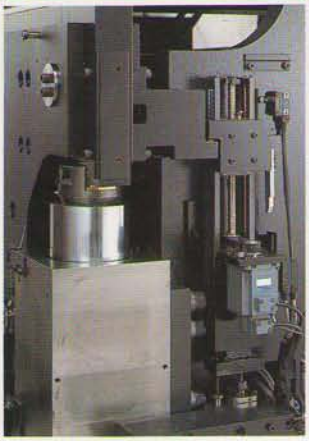
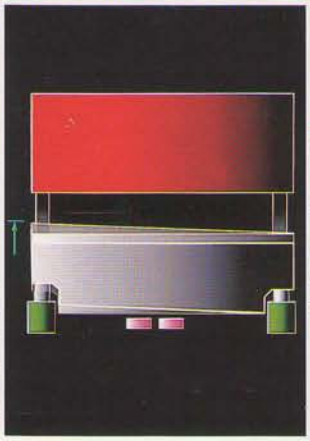
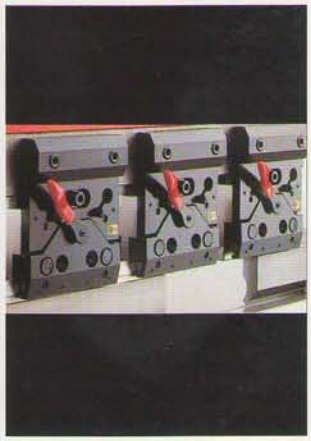
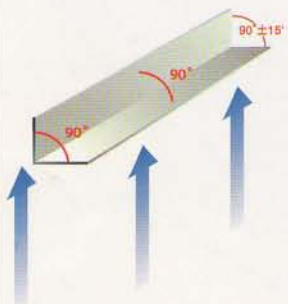
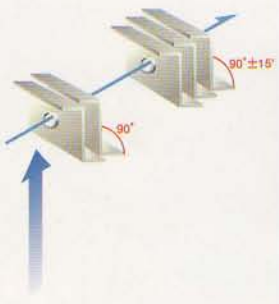
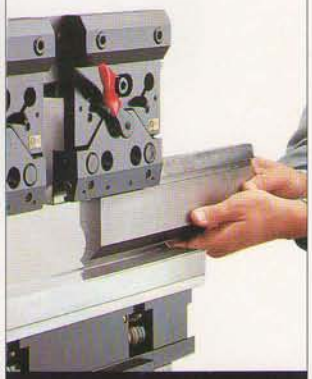
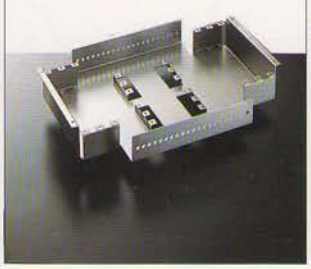
NC Hydraulic Press brake

FBD III SERIES

(The bar pedal is an option.)

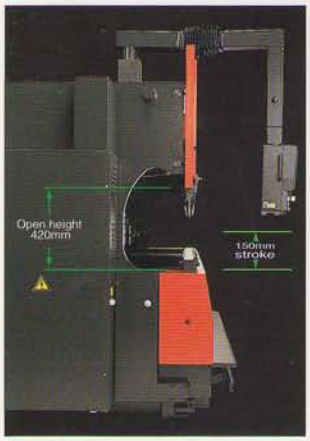
FBD III FS

Just fit for wide-range needs

	1. A higher longitudinal accurancy precision (±15')	2.Steady repeated precision	3.Offset load 50% and tilt operation (2.5mm)	4.One-touch tool effect
Solutions				
Mechanism				
Type of Industry	**Sashes, elevators and medical equipment** ● CT scanner ● Elevator **A higher logitudinal accurancy precision**	**OA, FA precision equipment** ● Cash dispenser ● Communication equipment ● Copying machine **Long-time bending**	**Industrial machine cover** ● Machine tool ● Construction machine **Offset load bending**	**One-touch punch holder** ● Sash building ● OA, FA precision equipment ● Industrial machine cover For other types of industry where tools often change. **Reduced set-up**
				
Products			**Step bending** ● Electrical parts 	

from a variety of industries

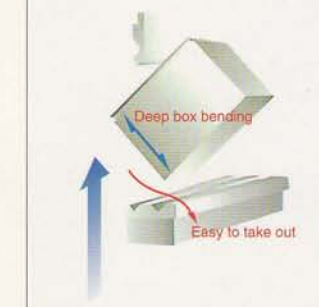
5. Long stroke and open height up



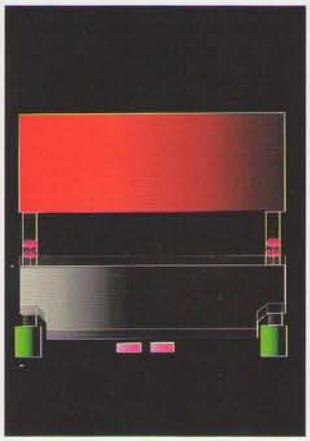
Switchboard, control board

- Switchboard
- Cubicle switchgear
- Control box

Deep box bending



6.High tact time and quite table drive



Steel products, home electrical appliances

- Steel furniture
- Game instruments

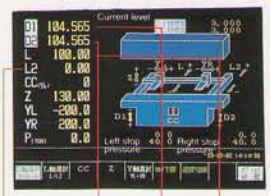
Bending with high productivity

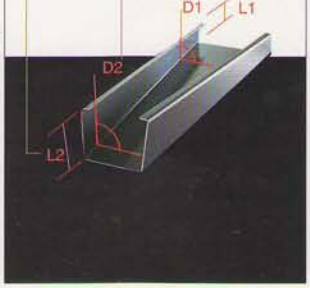
7.Increased production efficiency and data control

FBDⅢ-FS

- Data control
- Sharing of bending operations
- Type of industry seeking multi-functional, efficient operations of bending

Higher production efficiency





8.Facilitated operation

FBDⅢ-LD

- Emphasis put on basic functions
- Type of industry wanting the operator to fully demonstrate his ability, using the machine like a tool

Facilitated operation

Back gauge to pull back

Pull-back function

The table tilts for easier angular adjustments.

The table tilts to allow easy angular adjustments because of the difference in workpiece hardness.

Machine form and mechanism to

1 Hydraulic crowning device under CNC control

Computer based analysis produces the best intervals of cylinders to generate uniform pressurizing power applicable all over the table to the full.

2 Top limit set up by servo control

The table is set at the top limit by linked servo control without being followed by the cylinders. The table is accurately positioned right and left under NC.

3 Table control without vibration

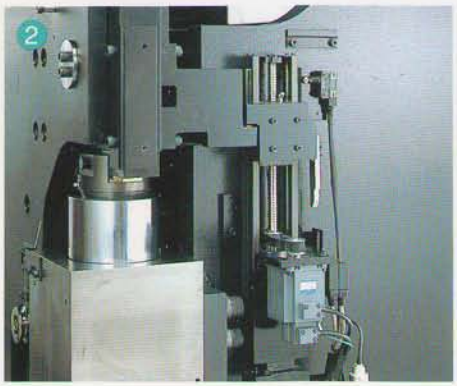
The servo motor used table drive causes no vibration when speed changes or when the table is at the lowest limit. This assures pleasant operations of bending.

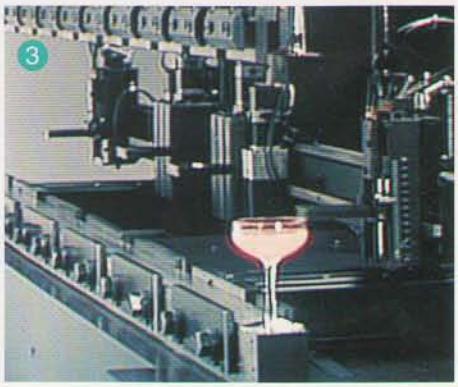
4 Highly rigid table and sandwich compound construction

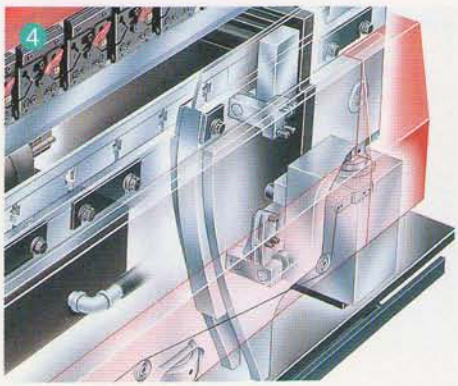
The lower table is of a monolith type thicker than the conventional type, and prevents it from warping. The table is of a triple compound construction having two auxiliary, built-in cylinders to generate uniform pressure all over the table.

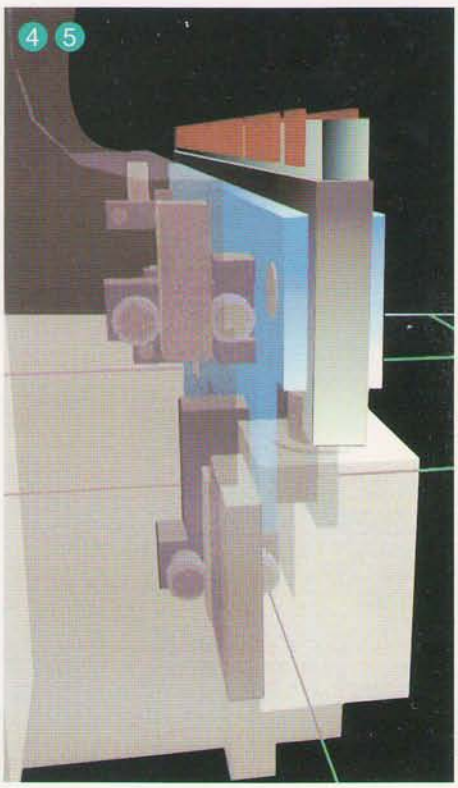
5 Large rear and front roller guide

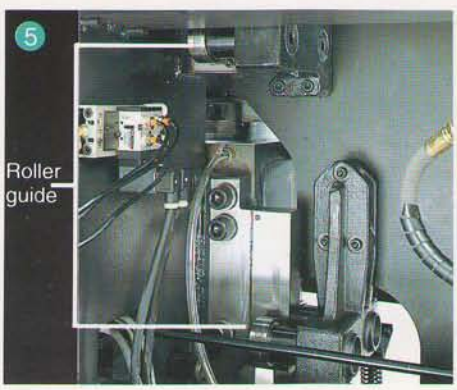
Larger roller guides are mounted to the frame guide to support rear and front uneven load. They do not need lubricating for a long period of time, and there is no need for maintenancing.



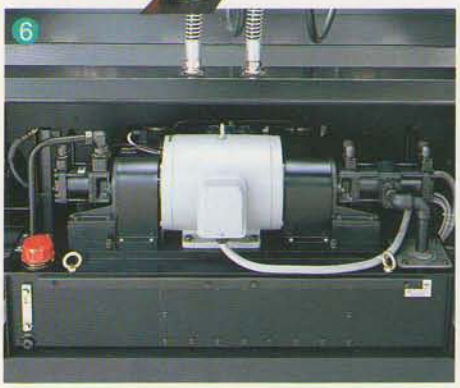


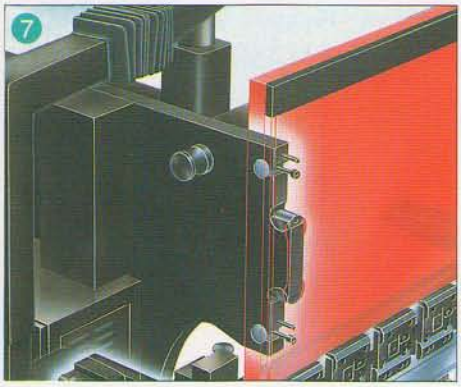


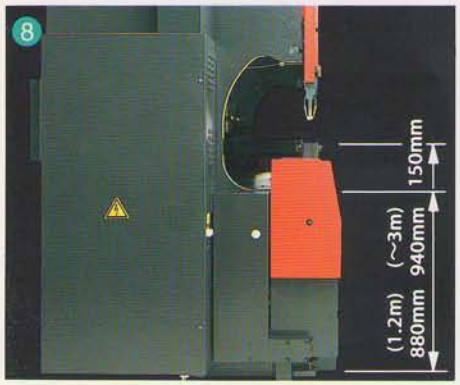




go with every type of workpiece







⑥Steel hydraulic pipes
Steel hydraulic pipes are used to secure safety in case excessive pressure occurs. They enjoy a long service life, preventing oil leakage.

⑦Interlocking upper table
Amada's originality find another expression in the interlocking system of the side frame with the upper table, which maintains accuracy for a long period of time without any welding distortion.

⑧A 150mm-long stroke and a table height facilitating operations.
The 150mm-long stroke, the best in the class, allows high upper and lower dies and V-dies of a large scale to be readily attached, and material handling and workpieces to be taken out with ease. The table height is limited to be 940mm (1,2m:885mm 2.5/3m:940mm)

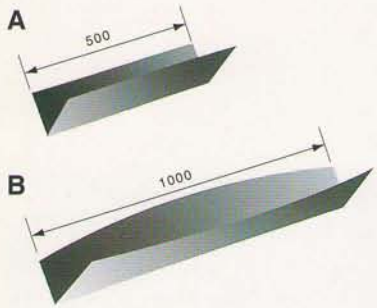
⑨Table tilt (2.5mm)
The table tilts by a maximum of 2.5mm by means of D1.D2 independent control. The right cylinder is freely coupled with the table.

⑩LD
Programming is carried out readily by any operator in the shop as if he entered into an electronic calculator while maintaining the FBDⅢ functions as they are.

⑪CNC system with color crystal liquid screen
The TFT (active matrix) color crystal liquid screen (10.5) provides information on bending clearly and beautifully, enabling NC more compact and increasing operation efficiency. (NC9-FS specifications)
(The IC card unit is optional.)

1. Did you take time for wedge adjusting to produce longitudinal accuracy?

Pressurizing force changes as the bending width, quality and thickness of a workpiece change.



Suppose that the operator bends Product B after bending Product A, and it will happen that the table warps because there is difference in pressurizing force between Products A and B. The table will warp more when Product B is handled.

Even a combed product can be bent without any difficulty (parallel pressurizing without causing the product to be warped)

Bending combed shape products as shown in the picture often results in seeing irregularity in accuracy.
Unless these products are evenly pressurized as against their length, the combed portions suffer inevitably irregularity. FBDⅢ is provided with four supporting points for overall pressurizing, one each at right and left, and two in the center, minimizing the level of warping and actualizing a uniform distribution of pressure. The lower table is made of monolithic steel plate, more rigid than the conventional type. It least distorts.

"Automatic crowning" under CNC control

FBDⅢ provides a 100% crowning level of the capacity tonnage at maximum. The level of crowning is automatically calculated and an optima longitudinal accuracy is automatically set according to the bending conditions (such as V width, material type, thickness and bending width).

A longitudinal accuracy of ±15' is realized on the following conditions:

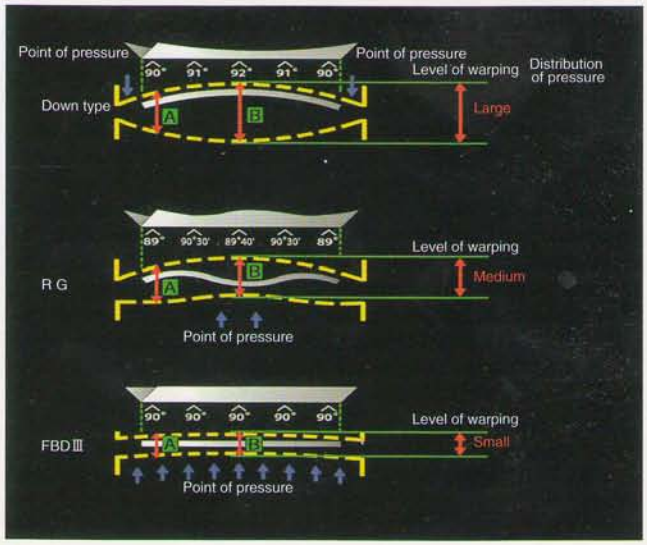
Bending width—○	Bending position—○	Die V width/T=6 or over
Material type Thickness	SPC 0.8~3.2 mm	(equivalent to first-class)
	SUS 0.8~3.2 mm	(equivalent to first-class:without vinyl)
	A ℓ 0.8~3.2 mm	(equivalnet to first-class:without vinyl)

Punch:No.4 high-precision type. Lower die high precision type (others are the same in length as the bending width:SUS 84*)

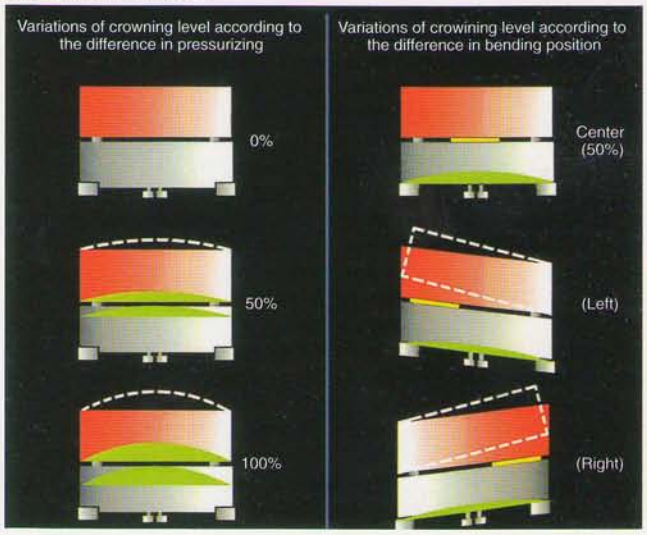
*The punch holder is not subject to adjustment according to the above conditions. It is necessary, however, to adjust the table D axis and crowning pressure.

○ No condition

■ Distribution of pressure



■ Variations of crowning level



2. Did you give a check to the angle many times in a short period of time?

The angle changes as:

①oil viscocity changes;
②mechanical parts such as valve expand;
③Irregularities in depressing the foot pedal;
Is it inevitable to give a check to the angle in the course of long bending operations?

Servomotor used accurate positioning

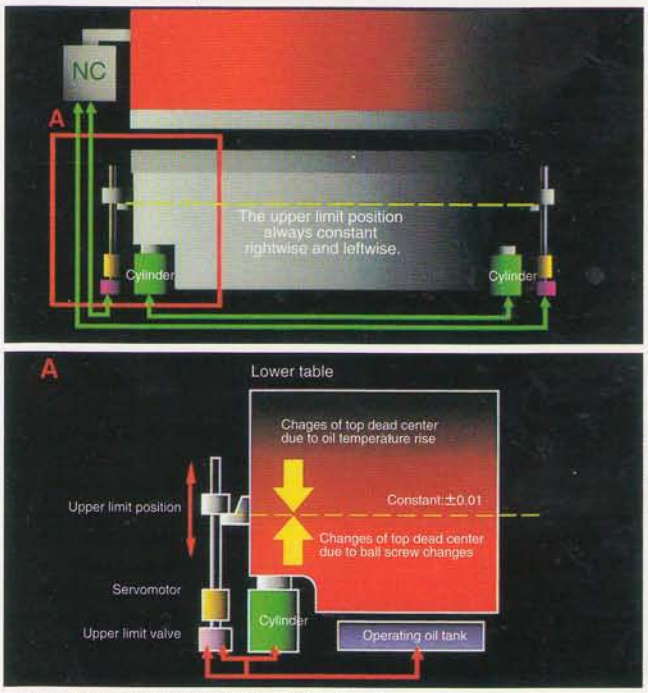
It is essential to synchronize the right position with the left position of the table to maintain an accurate precision. FBDⅢ does not let the table follow the position as selected, but it synchronizes the lower table with the servomotor motion to the upper limit. The table which is going up is put to the NC control, keeping the table position always constant rightwise and leftwise as well.

Changes with the passage of time to be within ±0.01mm

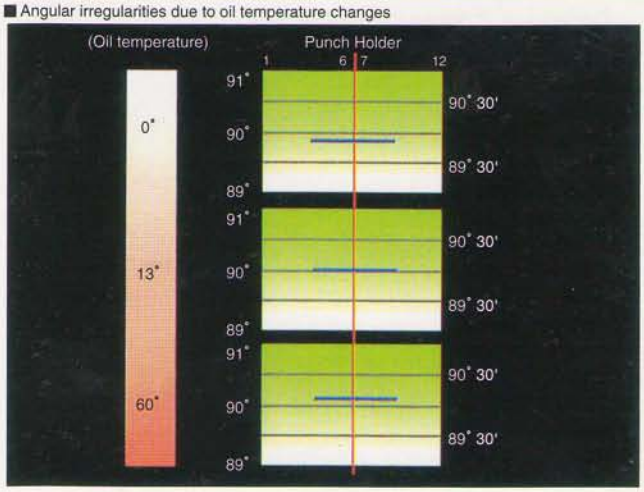
FBDⅢ successfully eliminates angular changes due to the temperature of oil.Upper limit devices are provided at right and left, one each, and valves which are least affected by the temperature of oil, which highly enhances the level of repeated precision. In addition, downward changes of the top dead center due to oil temperature rise (making the angle more dull) are offset by upward changes of the same due to oil temperature rise in ball screw (making the angle more sharp), so that changes with the passage of time are kept within ±0.01mm (oil temperature 10°～ 60° C, origin pressure or over).

The set-up time before starting work can be reduced and the precision of products be stabilized. These ensure that the working ratio remarkably increases.

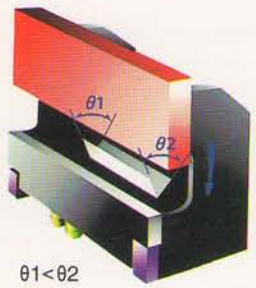
■ A new servomotor drive system



■ Angular irregularities due to oil temperature changes



3. It seems difficult to secure precision in offset bending. Have you given up offset bending?



θ1<θ2

It is because the table does not warp evenly and the workpiece is not uniformly pressurized due to frame distortion that it is difficult to secure precision in offset bending. And uniform longitudinal precsion is difficult to obtain even if the table is positioned uniformly rightwise and leftwise. This is why center bending is basic to any bending machine.

Tilt operation

If bending by offsetting is carried out using a conventional bending machine for uneven load bending, no precision will be secured. It is necessary to adjust the punch holder or the table for parallelism each time. [Tilt operation] is such that the bending pressure of a workpiece is read at teaching after inputting the level of offsetting and the table is positioned rightwise and leftwise according to NC-based calculation.

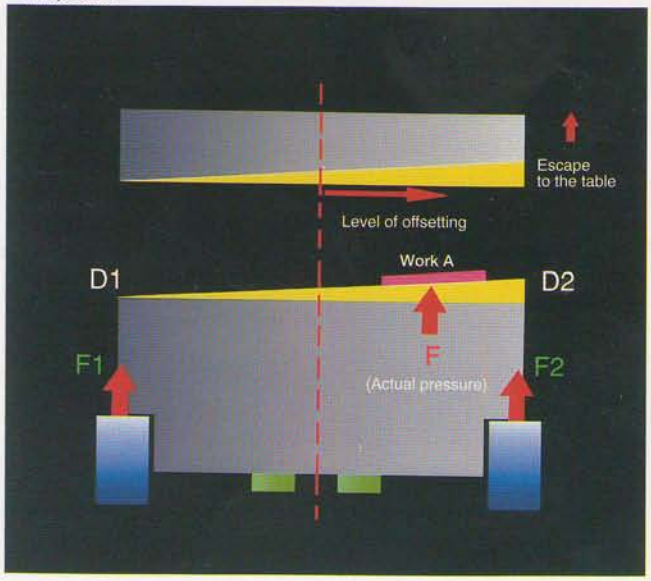
When bending the workpiece offset as shown as right, the pressure F is divided unevenly into F1 and F2 to be applied to the workpiece and D2 is automatically tilted for positioning.

Step bending with a single bending machine to handle a workpiece of a complicated shape

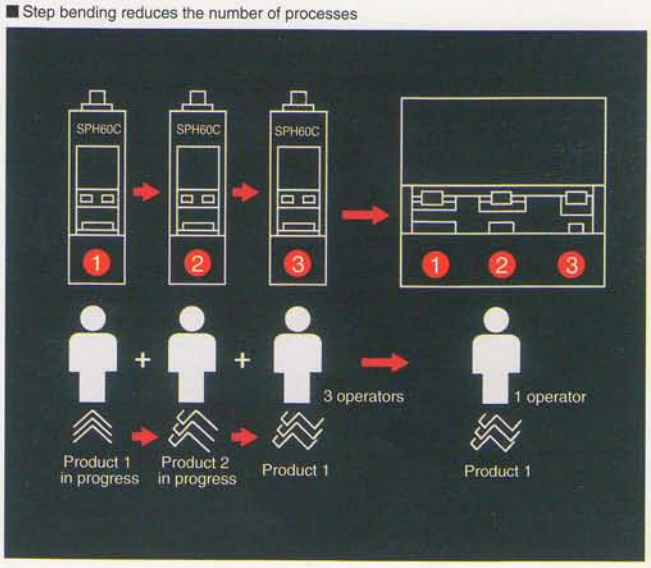
Did you think it impossible to secure precision with a NC press brake if bending set-up are made per process? It is natural to think that way if the press brake is a conventional type which carries out offset bending and to which center bending is basic. Use the tilt operation, and play-back (teaching) will be possible for the offset die position as if you were conducting center bending.

Drastic labor saving and reduction of time:
from a plurality of machines
to a single machine;
a plurality of operators to a single operator

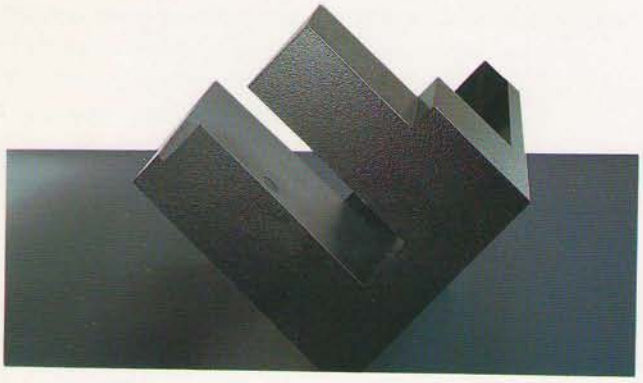
■ Tilt operation



■ Step bending reduces the number of processes



4. Have you experienced any difficulty lately in bending products which can not be processed with standard tools?



Deformed products

Stroke of 150mm and a larger open height (420mm)

Welding is essential to sheet metal work. If welding is reduced even a little, the product will be stereoscopic in a complicated manner. Work material handling taking-out and attaching a special tool may be carried out in a different manner.

- With two punch holder, deep bending is readily carried out.
- With a high split die holder, it is possible to bend any product that hangs.

Deep bending

Long pendent

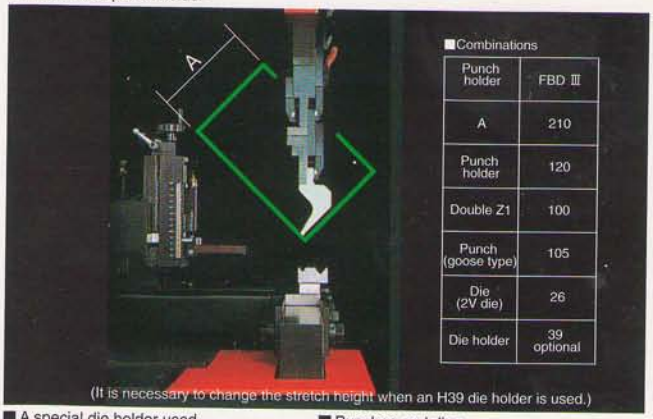
Positioning available along a stroke length of 150mm

Any and all types of tool including standard, goose neck punch, and deep bending jigs are used within the stroke.If the operator works more in a varied manner, a sense of bigger safety will be gained and better products will be produced. (There is a limit on the adjustment of back gauge for height.)

One-touch punch holder equipped

The press brake is equipped with a punch clamp mechanism which enables any operator to readily secure the punch only by turning the lever. The set-up time to attach/detach tools is largely reduced. Loosen the clamp and slide the punch, and it will be readily replaced since it has a key way.

■ Two-decker punch holder

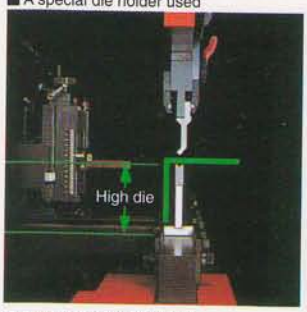


■Combinations

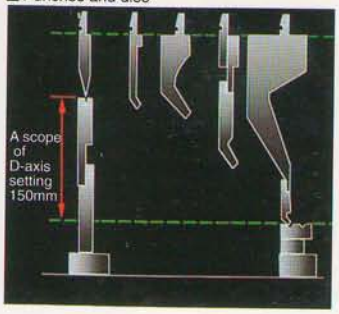
Punch holder	FBD Ⅲ
A	210
Punch holder	120
Double Z1	100
Punch (goose type)	105
Die (2V die)	26
Die holder	39 optional

(It is necessary to change the stretch height when an H39 die holder is used.)

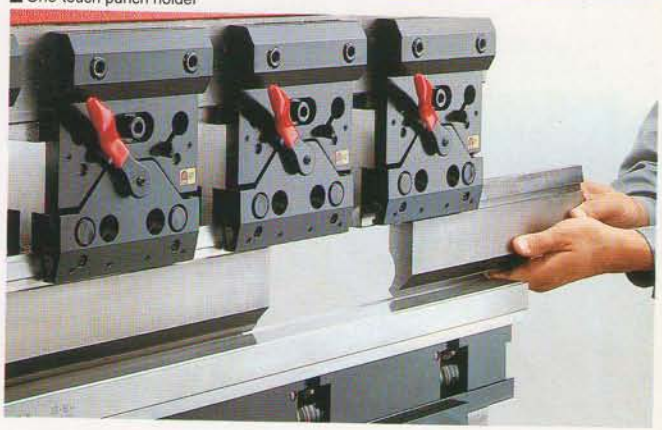
■ A special die holder used



■ Punches and dies



■ One-touch punch holder



5. Satisfied with productivity at site?

Productivity is not related to ram speed alone.
① The table goes up immediately after the pedal is depressed.
② The table goes down immediately after bending is over.
③ Stroke can be set arbitrarily.
These, when repeated, make a big difference in productivity. It takes the bender of a down stroke type much time to switch the valve from going up to going down and vice versa. It also needs a big stroke.

Tact time reduced. More speedy going-up and-down Foot pedal which responds well

For vertical motions, FBD Ⅲ is wholly under NC control, including upper and lower limit positions, going-up speed, and going-down speed. Oil is circulated upward even when the ram is at pause, so foot pedal motions directly interlock with the table's vertical motions with almost no time lag.

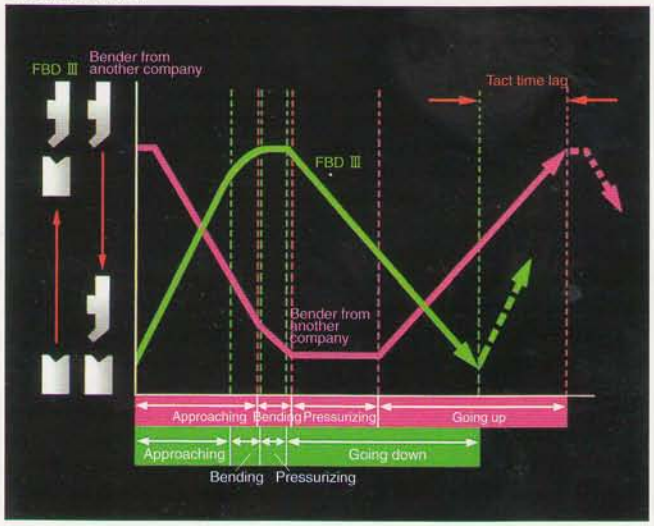
Rhythmical bending

The ram can be freely controled by servo control in response to how the foot pedal is depressed. The operator may feel as if he operated the machine in RG. FBD Ⅲ will enable the operator to operate it in one, including "set to marking", "re-depressing in the course of going up".
(The bar pedal is optional.)

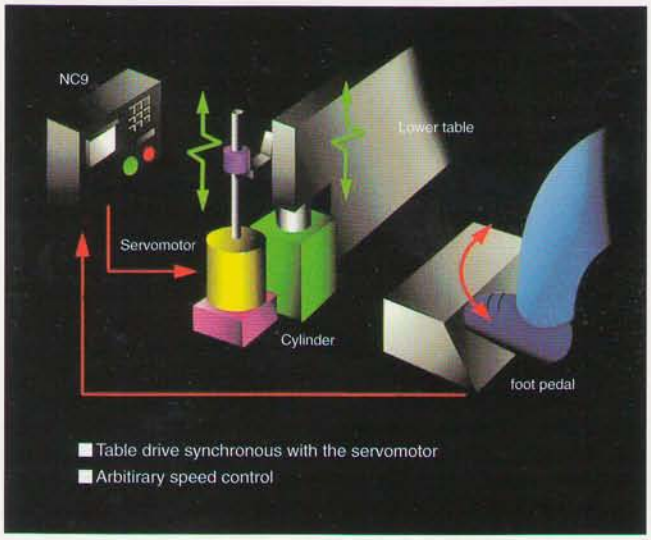
Attenuated shock when speed switches

It will give the operator a sense of anxiety psychologixally when speed is rapidly switched from approaching to bending. FBD Ⅲ minimizes table vibration by NC speed switch instructions and oil level control. (0.3 G or less)

■ Recycle tact view



■ Table drive synchronous with the servomotor



6. Don't you think you can leave bending to another operator?

Bending needs skilledness. Do only able operators bear burden?
①I'll make set-up, but I want to leave actual bending.
②operations to other operators.
→part-timer, young operator, biginner
③I want every operator in the shop to be engaged in bending.
→One operator can perform multiple functions. A higher efficiency. I want to raise young operators to be work force as soon as possible.

FS features

Instructions on the work to be done

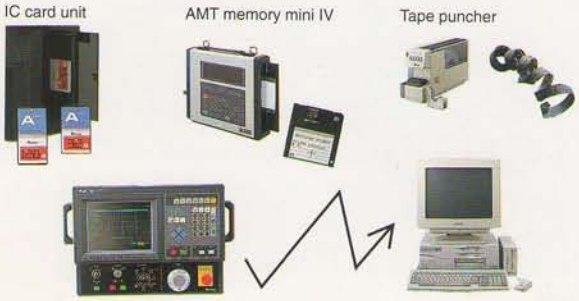
Prior check on the data control screen. Give instructions to the operator on the work to be done, and any part-timer or young operator can readily understand visually. Work shape, material, tool, bending order must be checked before bending. Manpower can be efficiently used by dividing operators for making set-up and those who actually bend.

Technical know-how on bending turning to numerical data

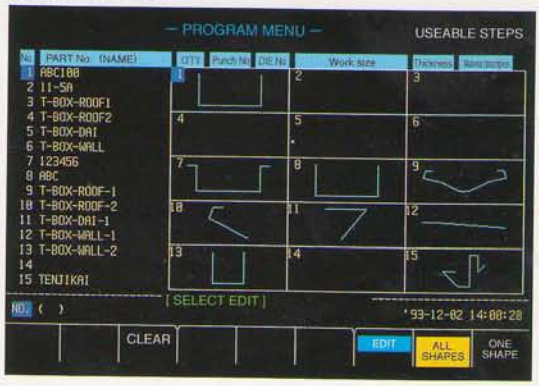
Precious data given from skilled operators must be turned to numerial data to make the best use of such data in the shop. NC conveys technology to computer-generation workers and improves production efficiency.

Bending data to the outside

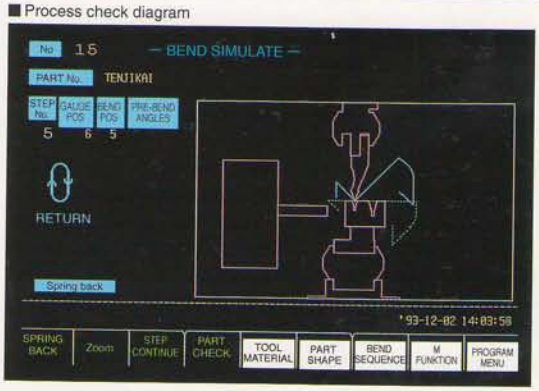
Enormous bending data can not be well controlled on NC. Select suitable media from among IC cards, floppy disks and paper tapes. (Any and all external output devices are optional.) A way to AMACOM-AP, ASIS Series networking is opened.



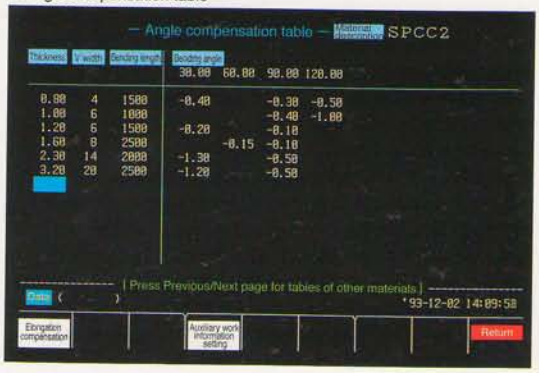
■ Data control monitor



■ Process check diagram



■ Angle compensation table



7. Don't you think it ideal that every operator can handle the press brake with ease ?

NC is more troublesome to use for the bending of work according to the shape each time unless it allows any operator or operator at any post in the shop to operate the machine only by using basic functions upon entering data like an electronic calculator.

LD features

You can use it like a tool

One-touch entering sends basic settings to the parameters. Changes after setting can be directly entered into the parameters.

Longitudinal precision readily secured

The adjustment of angle for right and left is readily carried out while bending.

Further, the table center can be adjusted

Precision can be secured even when an uneven material is bent in a right and left reverse manner.

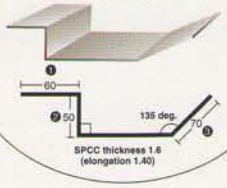
LD merits

①Operable with ease by any operator　②Continuous bending availabler
③Steady precision　④Angles can be modified while checking visually

■ **LD specifications**

Specifications＼LD		
Display		7-segment LED display
Control axis		3 axes D1, D2, L Plus CC pressure
Unit setting	mm	D axis 0.01, L axis 0.01
Feed rate	m / min	15
Tilting	mm	± 2.5
Back gauge	mm	500
Memory capacity		198 processes　Simplified mode 99 processes Direct mode　99 processes
Entering		L axis　Keyboarding for the entering of numerals D axis　Teaching by manual pulser CC pressure　Teaching by manual pulser

Example
for Produce 5 products.



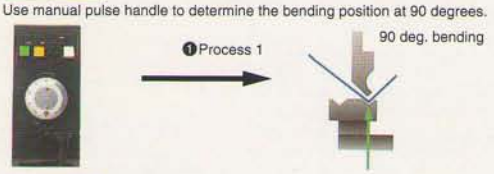
As an auto-back gauge (simplified mode)

Step 1

Calculate the elongation of material and enter it into LD.
❶ Process 1　60-(elongation 1.40)=58.6
❷ Process 2　50-(elongation 1.40)=48.6
❸ Process 3　70-(elongation 1.40)=68.6

Step 2

Use manual pulse handle to determine the bending position at 90 degrees.

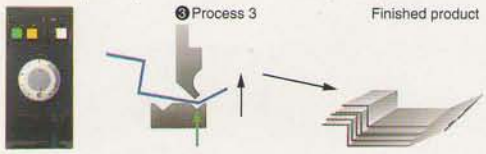


Step 3

90 deg. bending
❷ Process 2
Pull-back function
Back gauge to retreat.
Product in progress which was bent at 90 degrees only.

Step 4

Make another set-up
Set to 135 degrees by handle.
135 deg. bending
❸ Process 3
Finished product



Back gauge unit

As NC (direct mode)

Step 1

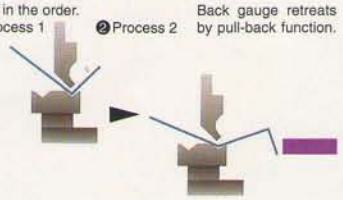
*Give a check to the first piece for angle.
The other pieces need no adjusting.

❶ Process 1　60-(elongation 1.40)=58.6
Check and decide the bending angle by manual pulse handle in each process.
❷ Process 2　50-(elongation 1.40)=48.6 Calculate the elongation of material and enter it to LD.
Check and decide the bending angle by manual pulse handle in each process.
❸ Process 3　70-(elongation 1.40)=68.6
Check and decide the bending angle by manual pulse handle in each process.

Step 2

90 deg. bending
Bend in the order.
❶ Process 1　❷ Process 2
Back gauge retreats by pull-back function.

1 .9 8
The distance between punch and die is automatically adjusted.



❸ 135 deg. bending
Process 3
Finished products
Finished one by one

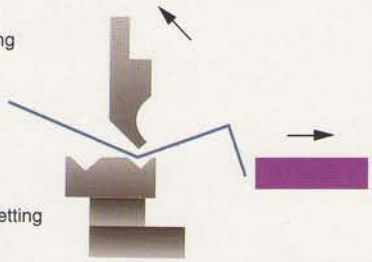
2 .5 6
The distance between punch and die is automatically adjusted.

Forwarded to the later processes one by one

No product in progress stocked

Main functions

Pull-back setting
Timer setting
D axis tilting
CC pressure setting



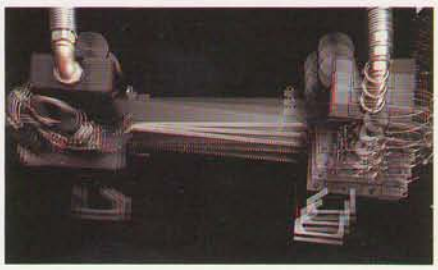
Input mode switching　Simplified mode (auto-back gauge)
Direct (NC inputting)

FS merits

① Data can be controlled
② Quicker and easier continuous bending
③ Steady precision
④ Any operator can bend

■ **NC9FS specifications**

Specifications＼NC	FS II	FS I
Display	10.5' color crystal liquid	
Control axis	4 axes D1, D2, L1, L2	8 axes D1, D2, L1, L2 YR, YL, ZR, ZL
Unit setting mm	D axis 0.001, L axis 0.01	
Feed rate m / min	D axis 8 (mm/sec), L axis 30.0	
		Y axis: 30, Z axis: 2.4
Tilting mm	D axis 2.5 L axis 80	
Back gauge mm	500	
Memory capacity	50 workpieces 20 processes (500 processes at max.)	
External memory device	IC card, AMT memory, tape puncher (optional)	
External connection	RS232C	



Back-gauge tilting
The back gauge tilts, using the pulse handle at the manual or play-back mode. 80mm common to FS I and FS II.

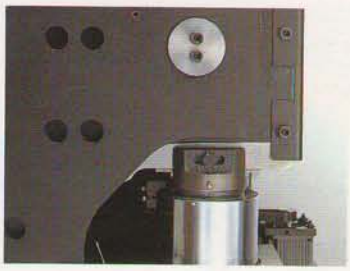
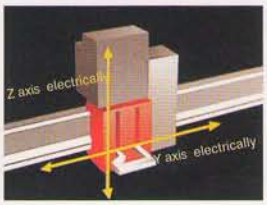


Table tilt
±2.5mm common to FS I, FS II, LD

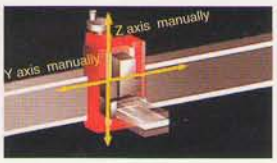
FS I back gauge electrically (Y axis)

Y axis Z axis electrically
Z axis displacement 80～165mm



FS II back gauge manually (Y axis)

Y axis manually
Z axis pneumatically
Position change level 10mm upward and downward each from the datum position. The datum position can be manually moved.



■ **NC 9FS main functions**

Items		Remarks	Items		Remarks
1 Input mode selection	Angle : direct Shape : simplified	The simplified mode is changed by key S/W switching	14 Multi-lower limits	○Stepless	Stroke setting in each process
			15 FR bending	○(IR setting)	
2 Play-back	D.L*(Y)(Z) CC	Teaching by pulse handle	16 Hemming calculation	○	Angle 0 input
3 D axis origin memory	○	Origin to be stored at the time when power is shut off.	17 Automatic operation	D.L*(Y)(Z)	Calculation of elongations, angles
4 Automatic bending order set-up	◎	According to bending software (material handling,important dimensions)	18 Work name input	Alphnumeric 20 letters	Shapes may be controlled.
5 Automatic tool selection	◎		19 Compensation table (elongation)	6 screens	Tolerance from automatic operation is registered by the user.
6 Interference check	◎		(angle)	6 screens	
7 Zooming	○	Work and tool to be enlarged for display	20 Stopper selection	○	To prevent dies from hitting
8 Material handling display	◎	Work rotation, turn process display	21 Setting of No. of workpieces	○	Integration stop/reduction stop
9 Box bending input	○	It is possible to display by section.	22 Automatic stop pressure setting	○	
10 Unfold length calculation	◎		23 Stroke counter	○	Integrating how often the table reaches the upper limit (by mode)
11 Idle timer	◎	1～99 sec.	24 Integrating timer	○	Timer for power on/off (by mode)
12 Slow-down	◎	Temporary stop function	25 Help	○	A description of auxiliary functions will be given on the window.
13 Pull back	◎	Back gauge retracts away from the material			
(simplified mode)	(○)				

*(Y)(Z) available only with FS I. ◎automatic setting (when inputting shapes)

Specification

Options list

FBD Ⅲ-FS

Specifications options list

Specification	Model / NC	FBD Ⅲ 3512 FSⅡ	FBD Ⅲ 3512 FSⅠ	FBD Ⅲ 5012 FSⅡ	FBD Ⅲ 5012 FSⅠ	FBD Ⅲ 5020 FSⅡ	FBD Ⅲ 5020 FSⅠ	FBD Ⅲ 8020 FSⅡ	FBD Ⅲ 8020 FSⅠ	FBD Ⅲ 8025 FSⅡ	FBD Ⅲ 8025 FSⅠ	FBD Ⅲ 1025 FSⅡ	FBD Ⅲ 1025 FSⅠ	FBD Ⅲ 1030 FSⅡ	FBD Ⅲ 1030 FSⅠ	FBD Ⅲ 1253 FSⅡ	FBD Ⅲ 1253 FSⅠ
❶ No. of stopper	Top, middle and bottom stpper	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×
	YZ stpper	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)	×	○(2)
	Top, middle and bottom swing detaching	△(2)	×	△(2)	×	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)	○(2)
	150mm+90mm receiver	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	Stretch shift	×	×	×	×	△	△	△	△	△	△	△	△	△	△	△	△
❷ Punch holder	One-touch punch holder (dual)	○(6)	←	←	←	○(10)	←	←	←	○(12)	←	←	←	○(15)	←	←	←
	Dial type (dual)	△(6)	←	←	←	△(10)	←	←	←	△(12)	←	←	←	△(15)	←	←	←
	αs (dial type)	△(6)	←	←	←	△(10)	←	←	←	△(12)	←	←	←	△(15)	←	←	←
	αw (dial type)	△(6)	←	←	←	△(10)	←	←	←	△(12)	←	←	←	△(15)	←	←	←
❸ Die holder	H=75	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
(for 2V)	Others (39~180)	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
(for 1V)	H=81.5~180	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
High precision type	(75H for 2V)	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	(81.5 for 1V)	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❹ B/G extension	700mm	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❺ Scale	FSI spec.	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❻ Color designated	(except for NC)	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❼ Foot pedal for two operators		×	×	×	×	△	△	△	△	△	△	△	△	△	△	△	△
❽ Bar pedal		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❾ High body 100mm up		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
❿ Material support (2-piece set)		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
⓫ PR front gauge (1m)		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
⓬ External output	IC card (built-in) 64M,128M,1 each	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	Tape puncher	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	AMT memory(3.5FD)	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
⓭ Both-hand operation		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
⓮ Beam safety device		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
⓯ Follower WFN150		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

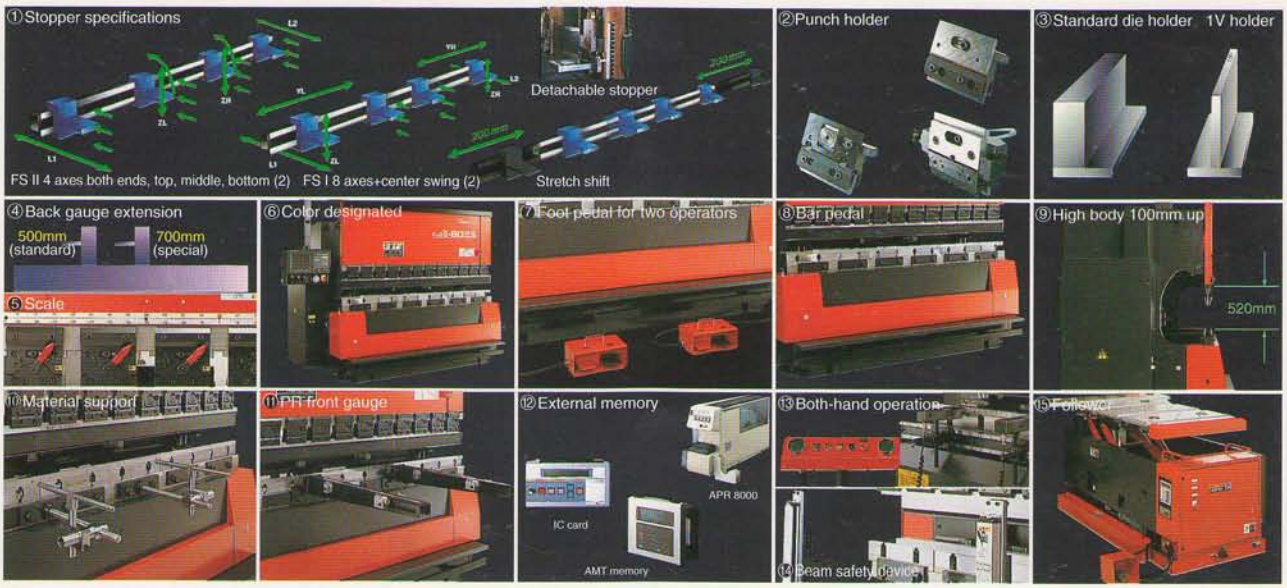
△ Optional ○ Standard × Not available

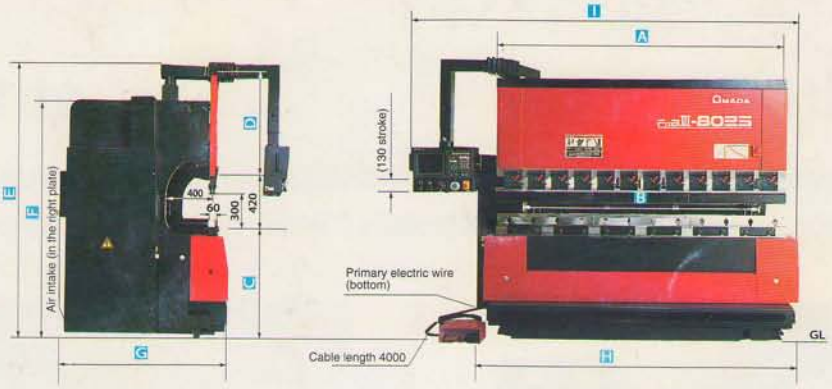
FBD Ⅲ-LD

Specifications options list

Specification	Model / NC	FBD Ⅲ 3512 LD	FBD Ⅲ 5012 LD	FBD Ⅲ 5020 LD	FBD Ⅲ 8020 LD	FBD Ⅲ 8025 LD	FBD Ⅲ 1025 LD	FBD Ⅲ 1030 LD	FBD Ⅲ 1253 LD
❶ No. of stopper	fixed stopper	○(2)	○(2)	○(4)	○(4)	○(4)	○(4)	○(4)	○(4)
❷ Punch holder	One-touch punch holder (dual)	○(6)	←	○(10)	←	○(12)	←	○(15)	←
	Dial type (dual)	△(6)	←	△(10)	←	△(12)	←	△(15)	←
	α type ZⅡ type	×	×	×	×	×	×	×	×
❸ Die holder	H=75	○	○	○	○	○	○	○	○
(for 2V)	Others (39~180)	△	△	△	△	△	△	△	△
(for 1V)	H=81.5~180	△	△	△	△	△	△	△	△
High precision type	(75H for 2V)	△	△	△	△	△	△	△	△
	(81.5H for 1V)	△	△	△	△	△	△	△	△
❹ B/G extension	700mm	△	△	△	△	△	△	△	△
❺ Scale		△	△	△	△	△	△	△	△
❻ Color designated		△	△	△	△	△	△	△	△
❼ Foot pedal for two operators		×	×	△	△	△	△	△	△
❽ Bar pedal		△	△	△	△	△	△	△	△
❾ High body 100mm up		△	△	△	△	△	△	△	△
❿ Material support (2-piece set)		△	△	△	△	△	△	△	△
⓫ PR front gauge (1-piece set)		△	△	△	△	△	△	△	△
⓬ External output	only internal memory	×	×	×	×	×	×	×	×
⓭ Both-hand operation		△	△	△	△	△	△	△	△
⓮ Beam safety device		△	△	△	△	△	△	△	△
⓯ Follower WFN150		△	△	△	△	△	△	△	△

△ Optional ○ Standard × Not available





Unit:mm

FBD Ⅲ		3512	5012	5020	8020	8025	1025	1030	1253
A	Table length	1200	1200	2000	2000	2500	2500	3000	3000
B	Distance between frame	1020	1020	1700	1700	2200	2200	2700	2700
C	Lower table height	885	885	885	940	940	940	940	940
D	Upper table height	560	560	730	780	850	870	1000	1000
E	Overall height	2220	2220	2220	2365	2365	2415	2515	2515
F	Side frame height	1850	1850	1845	2015	2015	2065	2065	2115
G	Depth	1250	1250	1250	1285	1285	1425	1425	1495
H	Installation width	1630	1630	2345	2370	2865	2870	3370	3390
I	Overall width	2270	2270	2980	3055	3625	3625	4335	4360

FBD Ⅲ		3512	5012	5020	8020	8025	1025	1030	1253
Capacity	kN (tonf)	343 (35)	490 (50)	490 (50)	784 (80)	784 (80)	980 (100)	980 (100)	1225 (125)
Bending length	mm	1200	1200	2000	2000	2500	2500	3000	3000
Stroke length	mm	150	150	150	150	150	150	150	150
No. of cylinders (auxiliary)		2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)
Rising-up speed (common to 50/60Hz)	mm/s	77	77	77	77	77	77	77	77
Bending speed (common to 50/60Hz)	mm/s	8	8	8	8	8	8	8	8
Lowering speed (50/60Hz)	mm/s	90	90	90	90	90	90	90	90
Mass of machine	t	3.0	3.2	4.0	5.0	6.2	6.5	7.6	8.8
Tank capacity	L	70	70	70	70	70	90	90	90
Motor	kW	5.5	7.5	7.5	7.5	7.5	11	11	11
Power capacity (FS/LD)	kVA	8.1/6.2	9.7/7.7	9.7/7.7	9.7/7.7	9.7/7.7	13.0/11	13.0/11	13.0/11

( ) Reference only

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