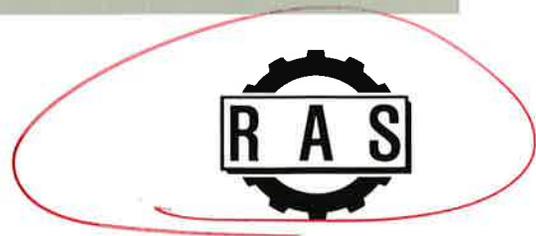


74 Series Servo-Hydraulic Folding Systems



*Intelligent Machines,
Intelligent Results*

Intelligent Machines, Intelligent Results



RAS (Reinhardt Maschinenbau of Sindelfingen, Germany)

For over 50 years, RAS has engineered and manufactured high precision, high productivity metal folding equipment. By delivering productivity increases of up to 800% compared to competing systems, RAS folding equipment has consistently maintained the leading edge in metal forming technology. And with its continued dedication to progress, RAS manufactures more than 160 production models for sheet metal working. The latest generation of CNC machines ensures maximum economy and automation potential with low maintenance and high energy-saving features.

You will find evidence of RAS' superior engineering in the details that make floor-to-floor productivity more efficient than you ever imagined possible—from incredibly user-friendly CNC controls, to astonishingly accurate tolerances, to hand-loaded "goat's foot" tooling...RAS metal folding equipment is the best investment you can make. Period!

IFT, Inc.

IFT, Inc. is the recognized leader in folding technology in North America, and is the exclusive importer and distributor of RAS metal folding systems here in the Western Hemisphere. The IFT applications development staff is fully qualified to analyze your current operations and recommend the exact RAS folding system for your needs. And with complete parts inventory, RAS factory-certified service technicians, and hundreds of machines successfully installed in the United States, IFT is there when you need them, with the finest in training and support.

It will cost you absolutely nothing to investigate the incredible potential that a RAS folding system could have on your operation. There is a RAS folding system for every application, and for every budget level. IFT will be glad to take you through the process from application development to finished part. Call us today!



IFT, Inc.
1606 Barclay Boulevard
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Change....

Someone once said, "The only true constant is change."

IFT, Inc. would like to introduce you to a technology that will literally change the way you look at metal bending, forever. It is called metal folding, and it comes to you from the world leader in fabricating equipment technology, RAS.

Metal folding is a technology designed specifically for those who run a wide variety of parts in a JIT or cellular environment, where material thicknesses, angles, and sizes change; and parts are complex.

Metal folding is also designed to eliminate the costs, quality problems, set up times, errors and safety hazards that accompany the more traditional press brake technology most companies employ to create their parts now.

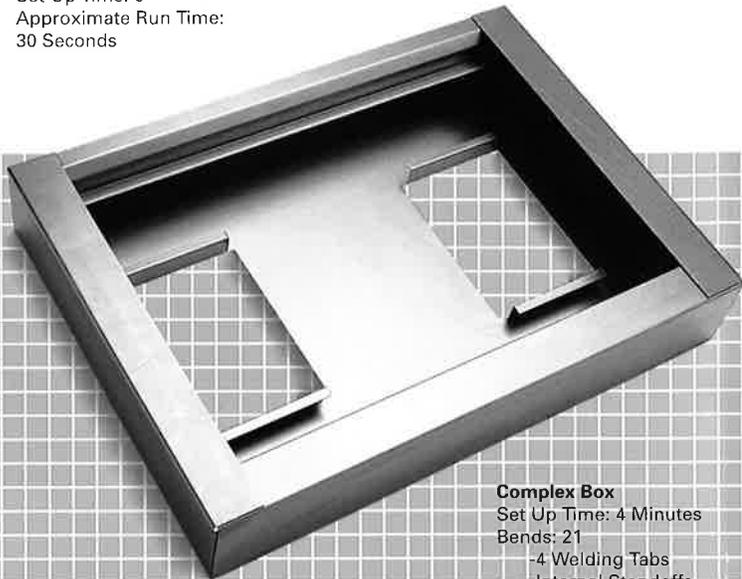
Metal folding is definitely a change from the way you bend metal...today. But you owe it to yourself to investigate metal folding so that your operation can profit from it....tomorrow!



Metal Folding...Quality Up, Cost Out

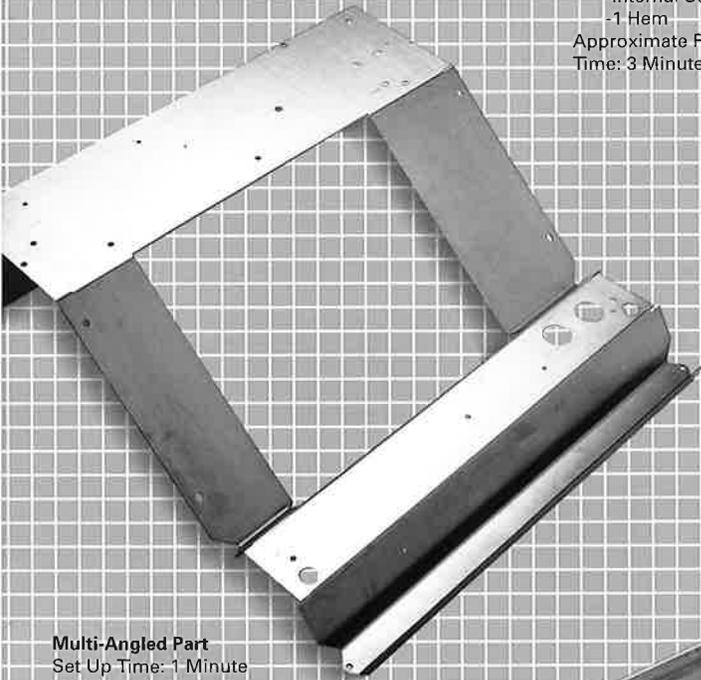
Multiple Radii

Set Up Time: 0
Approximate Run Time:
30 Seconds



Complex Box

Set Up Time: 4 Minutes
Bends: 21
-4 Welding Tabs
-Internal Standoffs
-1 Hem
Approximate Run
Time: 3 Minutes

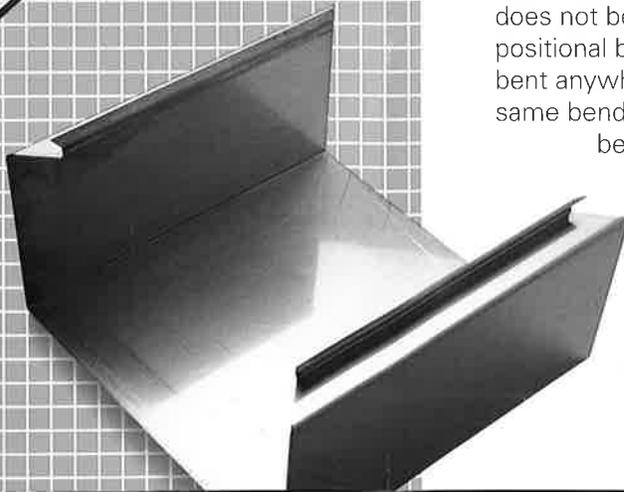


Multi-Angled Part

Set Up Time: 1 Minute
Bends: 9
Approximate Run
Time: 90 Seconds

NEMA Box

Set Up Time: 1 Minute
Bends: 8
Approximate Run
Time: 75 Seconds



Introducing one of the most significant innovations in metal forming ever made. It is called metal folding, and it can have a major impact on your business, especially if you bend large or complex parts in a short run environment.

And, if you currently use traditional press brakes in your operation, metal folding from RAS represents a technology that can literally change the way you create parts for your customers and offer you a method by which you can dramatically improve the quality of those parts, while reducing the costs and improving your profitability. Here's why:

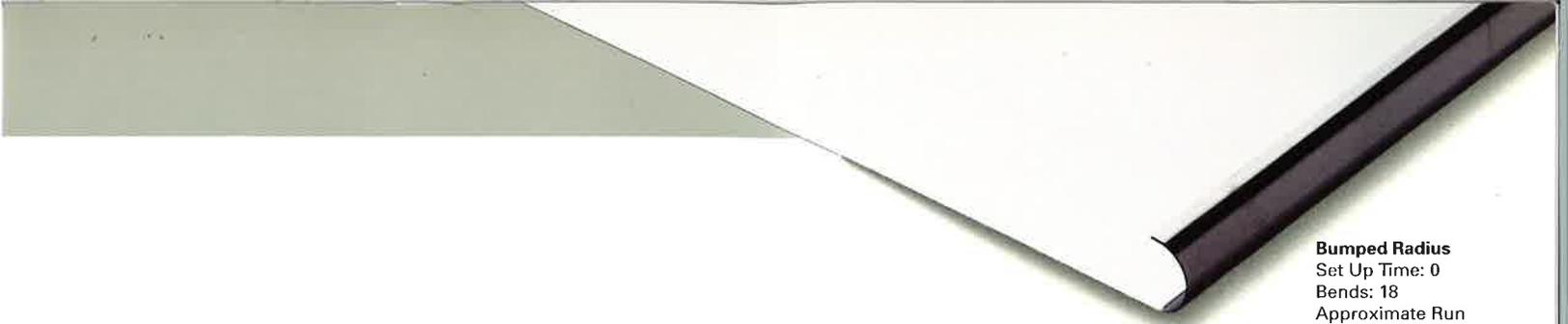
Reduced Tool Set-Up And Change Over

Because the folding system uses a folding beam instead of a V-die, only one set of tools is usually required to bend any angle from 0-180 degrees. And this one set of universal tools will typically bend any material, in any thickness without changeover. But even more remarkable, the folding system does all of this with incredible repeatability. You spend minimal time in set-up and change-over, and maximum time actually bending parts. Not so with a press brake.

Reduced Material Handling

Because the folding system is designed to create parts in a sequential mode without changeover, multiple part handling is seldom necessary. Unlike the press brake, the folder does not bend with tonnage. Rather, it is a true positional bender which allows a part to be bent anywhere on the bed with exactly the same bend result. Therefore, complex parts can be bent sequentially in one handling.

And the integrated sheet support and gauging system supports the entire piece during clamping and folding. Reduced material handling means consistency, higher quality and less cost. Not so with a press brake.



Bumped Radius
Set Up Time: 0
Bends: 18
Approximate Run
Time: 80 Seconds

Reduced Labor

With a reduction in material handling and sheet support requirements, reductions in labor follow directly. In the majority of cases, only one operator is needed to bend very large, or complex parts. That is because the entire bend sequence is done on top of the sheet support and gauging system, not outside of the machine. And with the resulting reductions in set-up, it can mean a huge labor saving in the production sequence. A press brake requires multiple operators on large parts, and lots of set up.

Reduced Risk

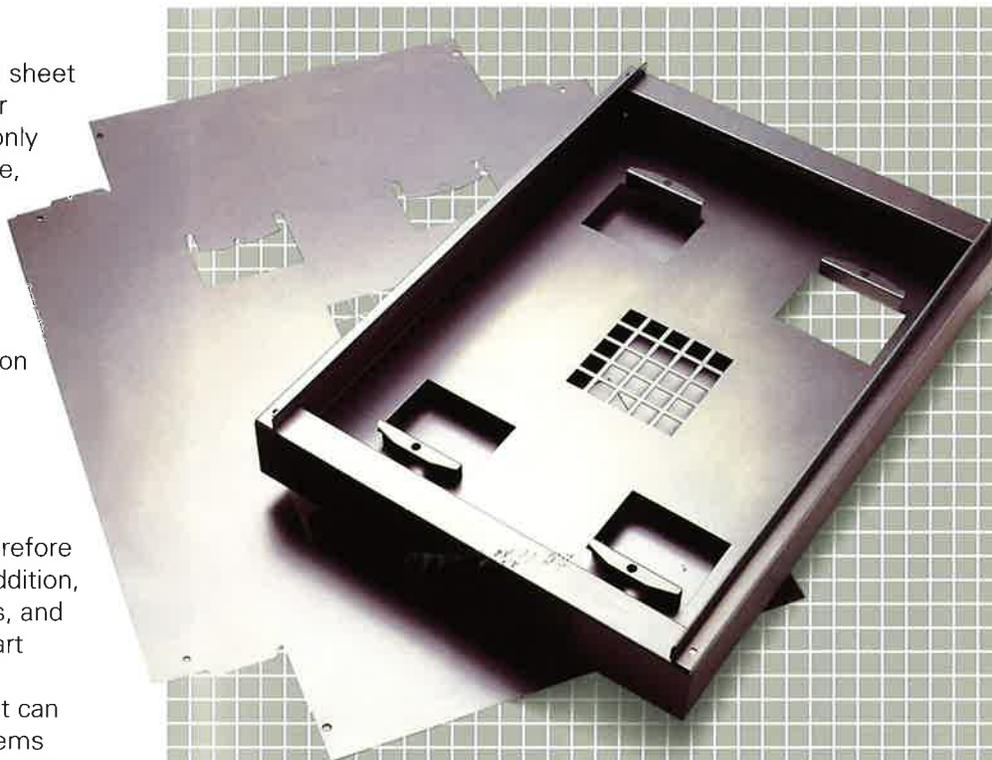
Metal folding eliminates "whip," and therefore the accompanying risk to operators. In addition, with the elimination of multiple handlings, and because the operators do not hold the part during bending, they do not risk as much fatigue and the subsequent mistakes that can lead to injury, as well as the health problems associated with repetitive motion. Not so with a press brake.

More Precision, Quality and Flexibility

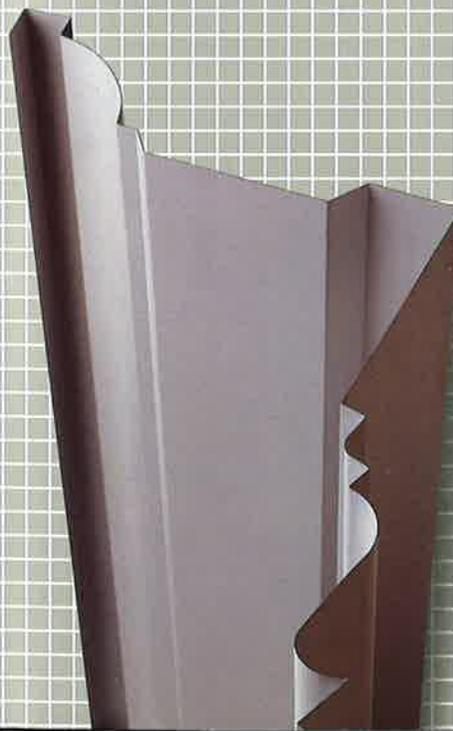
RAS folding systems are precision engineered, and are controlled by the most sophisticated CNC on the market. For instance, bend angle accuracy to $\pm 1/3$ degree on any material of any length is common, and without set up. This results in astonishing quality in a wide array of very complex shapes, and a repeatability that will virtually guarantee a significant reduction in downstream welding and assembly problems. Not so with a press brake.

Floor-To-Floor Productivity

The bottom line in any metal fabricating operation is how fast you can go from floor-to-floor, on different parts, with minimum cost and maximum quality. A RAS metal folding system is the answer if you bend complex parts or flat panels in a JIT or cellular environment. Period.



Complex Box
Set Up Time: 4 Minutes
Bends: 20
-Welding Tabs
-2 Open Hems
-Internal Standoffs
Approximate Run
Time: 3 Minutes



Cornice
Set Up Time: 30 Seconds
Bends: 68
-2 Radii
-7 Different Angles
Approximate Run Time:
7 1/2 Minutes

The Revolutionary RAS 74

The Six Major Components Of A Folding System

The Benefits Of Metal Folding

Metal folding can bring your operation better quality, more flexibility, increased productivity and significant improvement in profitability if you currently bend complex parts or large flat panels on a press brake. And RAS metal folding systems are engineered like no other folding systems in the world. Quite simply, they are the best you can buy.

Take a look at the six key components that make the RAS metal folding system the world leader:

The Integrated Sheet Support And Backgauge

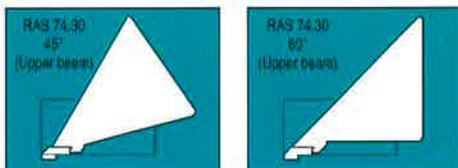
One of the most significant advantages of folding over press brakes is the integrated sheet support and backgauge system. The backgauge and sheet support is where the blank is gauged and manipulated by a single operator. The backgauge positions the workpiece to astonishing accuracy while the sheet support provides an intelligent work surface. Both features contribute to a dramatic increase in productivity and quality, while helping take labor and overhead costs out.



Pop-up finger stops are programmed to drop below the sheet supports for collision free part rotation without waiting for the gauge to move.

The Upper Clamping Beam

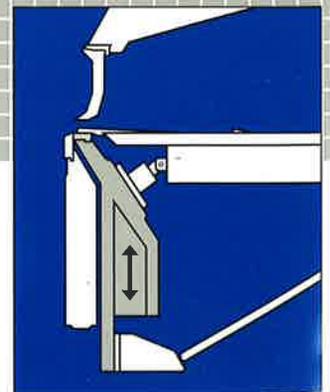
The upper clamping beam is designed to hold RAS' Flexifold tooling and, in combination with the lower clamping beam, firmly grip the workpiece during the bending sequence. With twin servo-hydraulic drives, the upper beam exerts consistent pressure all along the length of the bed. This allows for the sequential creation of very complex parts without multiple handling and without shimming.



The Upper Clamping beam comes in either the 45 degree or 60 degree configuration, depending on your specific requirements. (Eg: A 60 degree version is essential for rear operation to provide visibility.)

The Lower Clamping Beam

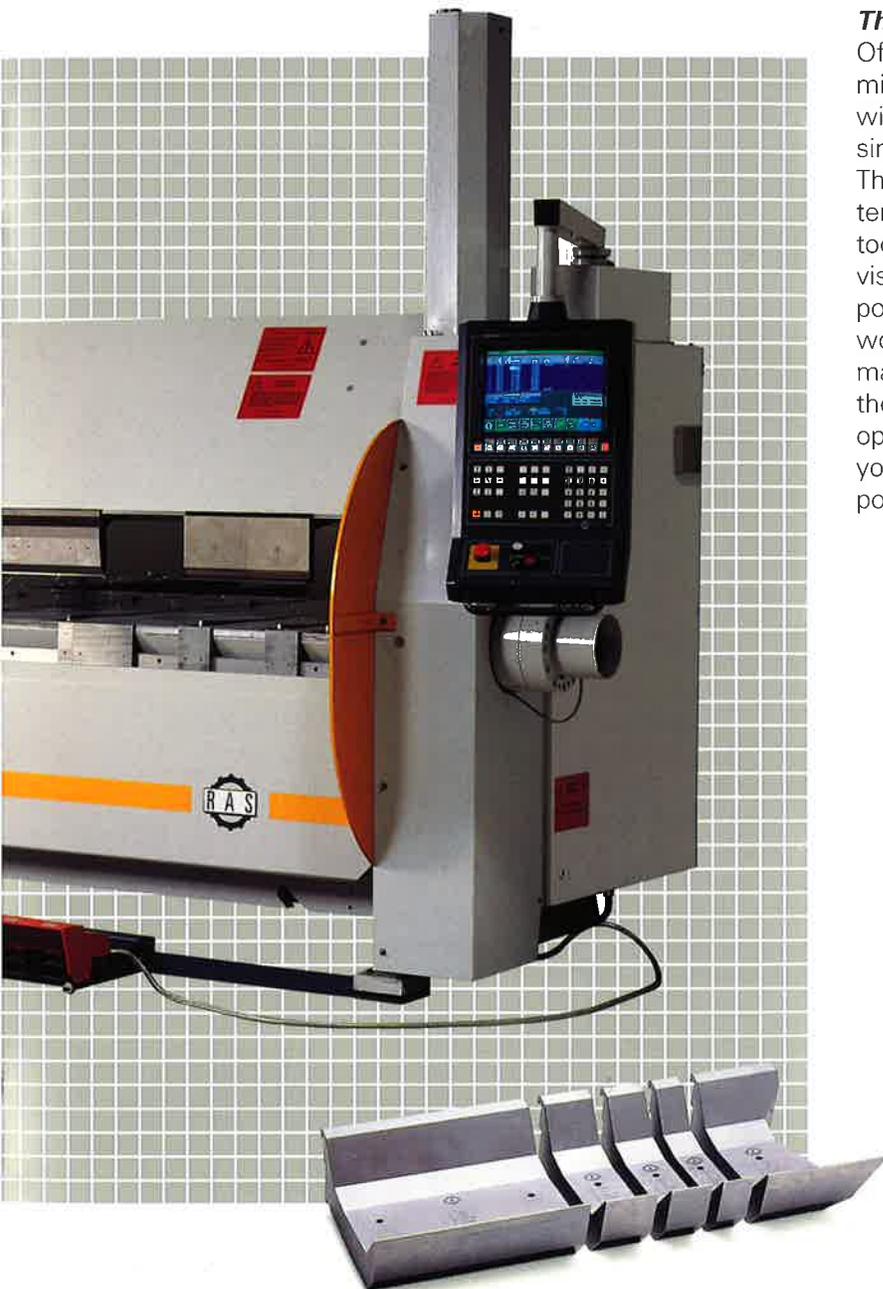
The lower clamping beam acts to resist deflection over the entire length of the workpiece so that you can achieve totally consistent bend angles on any material length, which is essential to precision bending.



Unlike some folding systems with fixed lower beams, the RAS system moves up and down automatically to compensate for differing material thicknesses. This assures you of tight inner bend radii and exceptional quality from any material thickness, without set-up.



Series Folding System



The 9000 Series CNC

Offering six-axis automation, powerful 32-bit microprocessor, and 14" color monitor with windows, the 9000 series is the ultimate in simplicity, versatility and performance. The 9000 will take your part parameter input and automatically compute tool configuration, tool geometry and visually show the operator where to position the tools at the various workstations along the width of the machine. As it runs a part program, the 9000 will also prompt the operator, in English, with each step in your specific part creation. Sophisticated, powerful, yet totally user friendly.



The Folding Beam

The folding beam performs the act of bending the workpiece, eliminating the V-die, dangerous whip, and even the die marks you get with press brakes. The folding beam's highly accurate and repeatable movement to position, from 0-180 degrees in 1/10 degree increments, is the single most important factor in determining consistent accuracy in the finished pieces. This is true positional bending. And, the RAS folding beam is driven by twin servo-hydraulic closed loop feedback rotary drives which deliver the ultimate in speed and precision to a positioning accuracy of 1/10 degree increments, repeatably.

Flexifold Tooling

Flexifold tools are remarkable. They are engineered to exacting standards, and can last up to ten years. They load and unload using only the human hand. They are available in a wide array of inventive geometry that allows you to design and select only one set of universal tools that can usually bend all of your applications.

Flexifold tooling is segmented (each tool weighing an average of only 15 pounds) and precision ground to allow a single operator to configure and load any combination required.



The Integrated Sheet Support And Backgauge

The sheet support and backgauge system is a major contributor to the "quality up, cost out" factor in metal folding.

First, the large worksurface is engineered to hold and manipulate

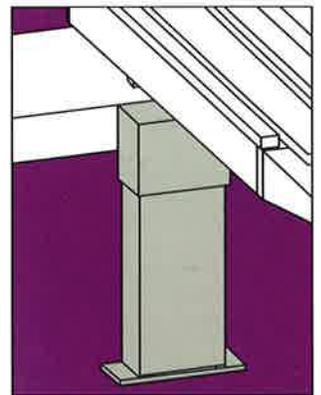
the workpiece during clamping and bending. Usually only one operator is needed, thus reducing labor costs. And, using high-speed screw drives, and multiple pop-up stops, the CNC can move a blank to any position within .4" (10 mm) to 159" (4050 mm) in less than three seconds to an accuracy of .004" and repeatability to .0015" (.1 mm to .04 mm). This insures exacting quality, in sequence, piece after piece.

Second, with the workpiece flat on the worksurface, dangerous whip is eliminated along with the safety risks, and operators become less fatigued with less handling. Operators who are not tired make better parts, and make them for a longer time.

Third, since the majority of the part is positioned on top of the sheet support system during bending, the folding system gauges the part instead of the flange. This eliminates any inaccuracies in the part itself, and gives you perfectly square parts. Square parts significantly reduce downstream welding and assembly problems.

Fourth, as the lower beam adjusts for varying material thicknesses, the backgauge automatically adjusts with it, in parallel. Self-leveling legs are used on very long gauges to make sure the entire system stays in perfect parallelism to the bending moment. This insures higher part quality.

Finally, the sheet support system is equipped with pop-up finger stops that programmably disappear below the surface when parts are rotated. Couple these with the ball or brush bearings that float the part without scratching, and you have an integrated, intelligent worksurface that you just can't get on a press brake. And, the backgauges come in "J", "L" or rectangular shapes for front or rear operation, depending on the parts you run.



The Upper Clamping Beam

In addition to holding a wide variety of Flexifold tooling and gripping the workpiece during bending, the upper clamping beam is designed to bring astonishing versatility to the shop floor. For instance, the upper beam is programmable for speed, height and pressure. This tremendous flexibility

gives you incredible latitude in the production of complex parts. The upper beam also opens to a height of 15.75" (400 mm), allowing for the creation of deep boxes.

A combination of the folding beam's ability to bend an occluded angle (150 degrees) and the clamp being able to clamp to any position downward, allows for the production of closed hems or even open hems without a tool change or without insertion of shim stock.

Additionally, the upper clamping beam is responsible for collision avoidance during the bending sequence. The programmable height and speed capability means that the beam automatically adjusts for clearance and maximum speed configuration (3.6"/91 mm per second) to ensure peak performance in floor to floor part creation.

Finally, the upper beam's twin servo-hydraulic drives, with linear encoders, clamp to dimension all along the length of the bend for perfect parallelism. This ensures perfect quality for any part at any tool station along the full width of the bed. And RAS clamping beams come in widths from 80" to 159" (2050 mm to 4050 mm) for virtually any application. The upper clamping beam really brings the ultimate in versatile and repeatable performance to your operation. And that means true productivity in either JIT or cellular environments.

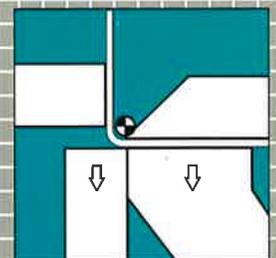
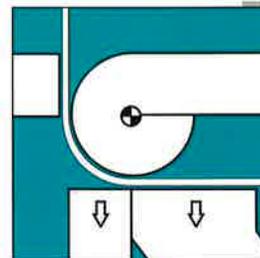
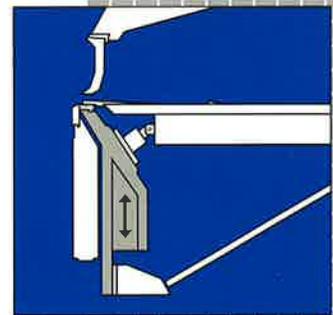
The Lower Clamping Beam

The lower clamping beam serves a number of critical functions:

First, it holds the lower tooling. Second, it grips the workpiece. Third, it ensures exacting quality across the full width of the work surface.

Designed by computer driven finite element method (FEM), the lower clamping beam is built of solid steel, 40 mm (1.57") thick and 730 mm (28.75") deep. It is engineered specifically to resist deflection over the entire width of the beam, which means that your workpiece will be bent to precise angularity and inner bend radius, regardless of length.

In order to provide the optimum quality in all bending configurations, the lower beam must also raise and lower to accommodate different material thicknesses or different tooling. The RAS folding system automatically raises and lowers the beam to allow for tight inner bend radii with a minimum inner bend radius of 1.25 times the sheet thickness. This means that the folding beam will contact the workpiece at the exact moment of bend, ensuring consistent inner bend radii, with no set up or changeover for material thickness...and that means more parts in less time.

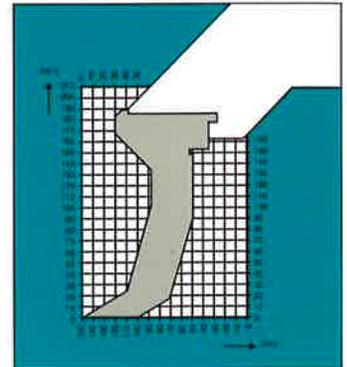


Flexifold Tooling

Segmented tooling is available for the upper beam, the lower beam, and the folding beam to accomplish a huge variety of bending operations.



Upper beam tooling, called Flexifold, comes in a unique geometric configuration allowing a wide variety of parts geometry to be produced from a single set of tools.

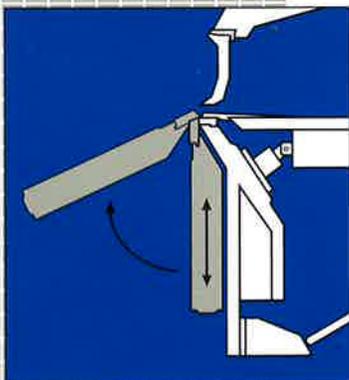


But the real secret to the incredible flexibility of the tools lies in the ability to mount and change tools using only the human hand. The average weight of a Flexifold tool is only 15 pounds, and once positioned by hand, the 9000 controller pneumatically locks the tools in place. And since they are universal in design, you don't have to change Flexifold tooling for differing material thicknesses or material types. Very productive.

Further, Flexifold tooling comes in both front free and rear free designs to offer the ultimate in free space flexibility as parts become more complex, so you can accept more applications, for more productivity, and profit.

It's a small point, but all tools are laser-marked with height, width, clearance, maximum sheet thickness and part number. This makes for happier operators, and increased productivity.

And all RAS tools are precision ground to allow for an infinite variety of perfect fit combinations. The tools are hardened by plasma nitriding and quenching, and can last up to 10 years. A solid investment.



The Folding Beam

The repeatable movement of the folding beam to position is the most important factor in obtaining accurate bend angles on your parts. The motion drive and control systems used determine bending accuracy and repeatability.

The RAS 74 series folding system uses a unique twin rotary hydraulic drive system with closed loop control to offer the ultimate in speed and accuracy in folding beam movement. The folding beam can be driven at

programmable speeds of up to 74 degrees per second to an accuracy and repeatability of 1/10th degree on every bend. This means common bend accuracies of +/- 20 minutes (1/3 degree) on any material of any length. All done with no set up! In addition, twin servo drives mean true parallelism in bend angle accuracy over the entire length of the workpiece, as the folding beam has no "following" motions on heavy gauge materials.

Finally, the RAS folding beam is engineered to automatically adjust for differing material thicknesses so that the beam stays close to the bend moment for consistently tight inner bend radii, or it can automatically change position for an open radius bend. Without this flexible capability, precision quality is impossible.

The 9000 Series CNC

A closer look at the 9000 series CNC reveals that it offers total, six-axis control over the entire bending operation, controlling the upper, lower, and folding beams, the backgauge and the sheet support system.

To program the 9000, the operator has only to complete a simple, step-by-step menu. The 9000 even computes and chooses tool geometry and graphically displays it's set-up without human involvement. It also provides the multi-lingual operator prompts that will be displayed with each step in the process. Soft keys automatically tell the operator which functions are operational during each step, and the screen can switch from metric to inches instantly.

For even greater productivity, the 9000 can instantly recompute an entire program so you can bend parametric families of parts from the same program with no re-programming.

There are separate screen displays for each function, including tool positioning, tool geometry, an onboard calculator, and even a service diagnostics program.

The 9000 also employs flash E-proms so that all future upgrades can be made without hardware changes. All program storage is diskette based on 3 1/2" floppy disks, and a very popular off-line programming system is available.

The 9000 Series CNC is the most sophisticated, easy to use, and powerful controller on the market, and it brings the ultimate in speed, accuracy and repeatability to your operation.



74 Series Specifications

74 SERIES SPECIFICATIONS		74.40	74.30	74.25	74.20
IN. MM.	Working Width	159 4060	126 3200	100 2540	80 2040
GAUGE MM.	Max. Sheet Thickness Mild Steel 58,000 PSI Full Width	11 3	9 4	8 4.5	3/16 5
	Smallest Permissible Inner Bend Radius	1.25 X Sheet Thickness			
	Minimum Flange Height	6 X Sheet Thickness			
IN. MM.	Working Height	35.4 900	35.4 900	35.4 900	35.4 900
IN. MM.	Clamping Beam Opening Height	15.75 400	15.75 400	15.75 400	15.75 400
IN. MM.	Folding Beam Adjustment Range	3.15 80	3.15 80	3.15 80	3.15 80
IN. MM.	Lower Beam Adjustment Range	3.15 80	3.15 80	3.15 80	3.15 80
DEG.	Angle Setting Range Increment	0-180 .1°	0-180 .1°	0-180 .1°	0-180 .1°
IN./SEC. MM./SEC.	Clamping Beam Max Speed Up	3.6 92	3.6 92	3.6 92	3.6 92
IN./SEC. MM./SEC.	Clamping Beam Max Speed Down	1.57 40	1.57 40	1.57 40	1.57 40
DEG. /SEC.	Max Folding Speed	74	74	74	74
HP KW	Drive Power	10 7.5	10 7.5	10 7.5	10 7.5
LBS. K.G.	Weight	14960 6800	12760 5800	11440 5200	10340 4700

MACHINE OPTIONS	
The 74 Series Folding System comes with a vast array of options to custom tailor your operation for maximum return on investment:	
Upper Clamping Beam	<ul style="list-style-type: none"> • 45 degree or 60 degree configuration • Special 19.68" (500 mm) opening height for four-sided boxes up to 9.8" (250 mm) deep • Dual operator foot switches for multiple operators (if necessary) • Rolling operator foot switch
Tooling	<ul style="list-style-type: none"> • Over 1,000 different tools available to meet exact part requirements • Upper and lower beam solid, segmented "goat's foot," and reverse flange tooling • Folding beam solid and segmented tooling • Rear free and front free geometry • Radius, box, and corner tooling
Backguage	<ul style="list-style-type: none"> • "L" shape, "J" shape, rectangular shape • 80" (2050 mm), 100" (2550 mm), 120" (3050 mm) or 159" (4050 mm) lengths • Sheet support with ball casters or brushes • Adjustable squaring arms in right or left configurations • CNC rotation arm extensions for rear operation
CNC	<ul style="list-style-type: none"> • Offline software
<p>Talk with IFT about the set of options that best customizes your 74 Series folding system to the exact requirements of your parts production.</p>	



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