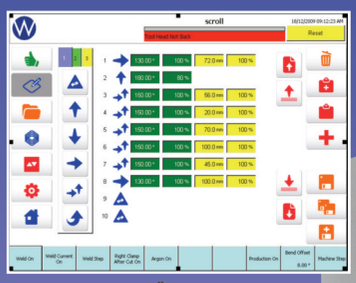
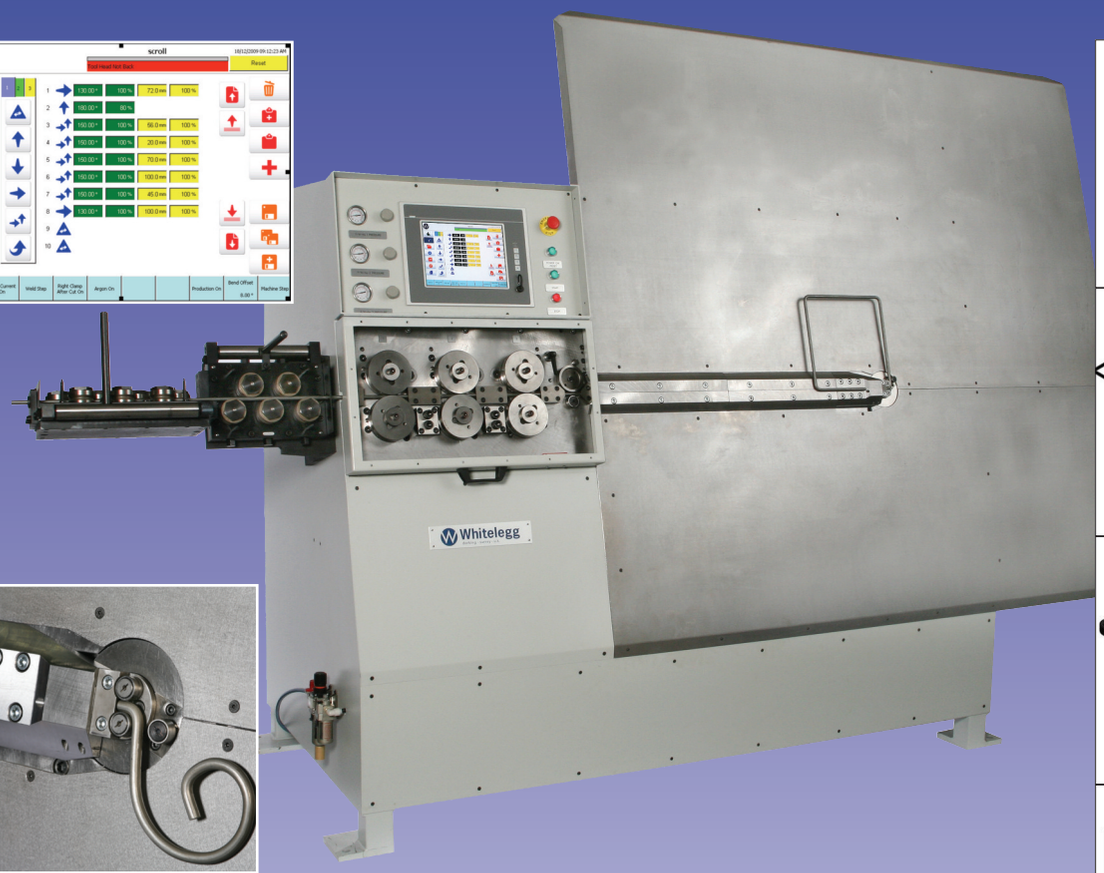
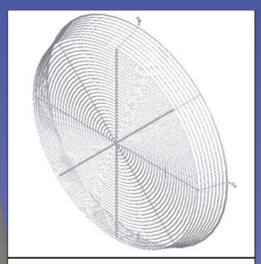
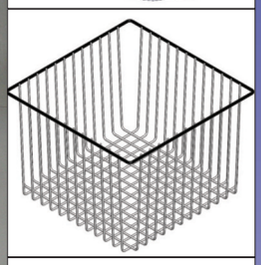
Bending for the world

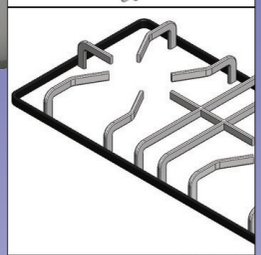
New advanced CFM 10/50 out-performing and out-selling all others...

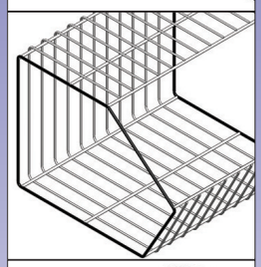


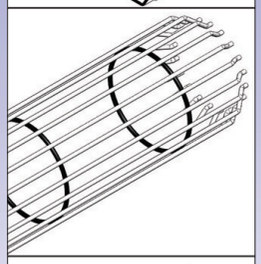


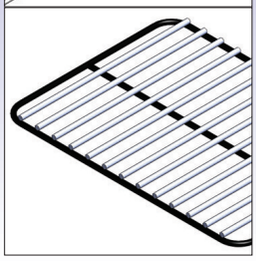












Whitelegg Machines has specialised in the manufacture of 2D wire forming machines with automatic butt welding for over 30 years.
Machines are in use world wide bringing accuracy, repeatability and precision to the production of finished components and sub assemblies.
Now the new CFM 10/50, incorporating advanced software, new bend head and intuitive operator control offers manufacturers even greater speed and reliability, helping them to meet the challenge to lower costs and improve quality.

- Lowering production costs
- Advanced forming head for production of very flat components
- Parallel, burr-free cut reduces the need for secondary operations and improves butt weld strength and finish
- Quickest set up times
- High output
- Available with automatic high precision pulse butt welding
- Tooling for strip
- Whitelegg world-wide support

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Whitelegg

CFM 50 Series

Whitelegg

CFM 50 Series of wire forming machines with automatic butt welding

FEATURES	ADVANTAGES	BENEFITS
Three roller wire feed	50% more grip on the wire	Makes generating radii at the upper wire diameters easy
	Greater wire control	Flatter, more consistent parts throughout the production run, less wire twist
	Reduced pressure required for each pair of rollers	Less stress on the wire – greater wire forming consistency.
		Less stress on the shafts and bearings giving a longer working life
Enclosed vertical wire cutter	Allows for low profile tooling	Produces flatter wire goods
	Produces parallel, burr free wire cut	No need for secondary cleaning operations of the cut
		Provides two parallel surfaces ready for butt welding
		Produces an even, clean butt weld
Low profile tooling	Very small parts can be made	Extends machine versatility and range
Forming rollers	Smooth bending surface	No marking to the wire
	Low friction	Ideal for generating bends
	Different diameter rollers can be used	Better bending tolerances
All tooling changeable from the front of the machine	No requirement to go inside the machine	Easier tool changes taking less time
Both wire ends clamped before cutting	100% positive part transfer to the butt welder	No missed parts regardless of wire quality
Wire ends are always in exactly the same position before welding	Improved butt weld consistency	Improved finish quality – reduces secondary operations
The exact position of the welding grippers in relation to the weld point can be adjusted	Area under weld can be adjusted to minimise discolouration	Improved finish quality – reduces secondary operations
Icon based software	All commands easily understood	Quicker part programming
USB port on command console	Software updates via this port and part programs can be stored.	Any software updates or revisions can be emailed and then easily updated via a USB stick
Latest generation ALLFORM version 3	Very stable and fast control system	Quick production with minimal downtime and excellent diagnostics

Made in Britain

CFM 50 Series Wire Cutting and Welding

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Above and below shows a clean, burr free parallel cut

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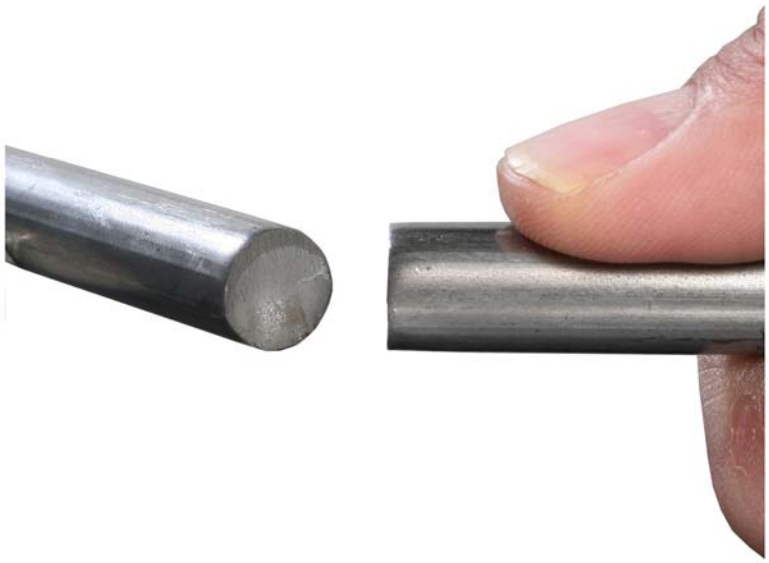


This provides the necessary state to achieve an even, clean weld…..

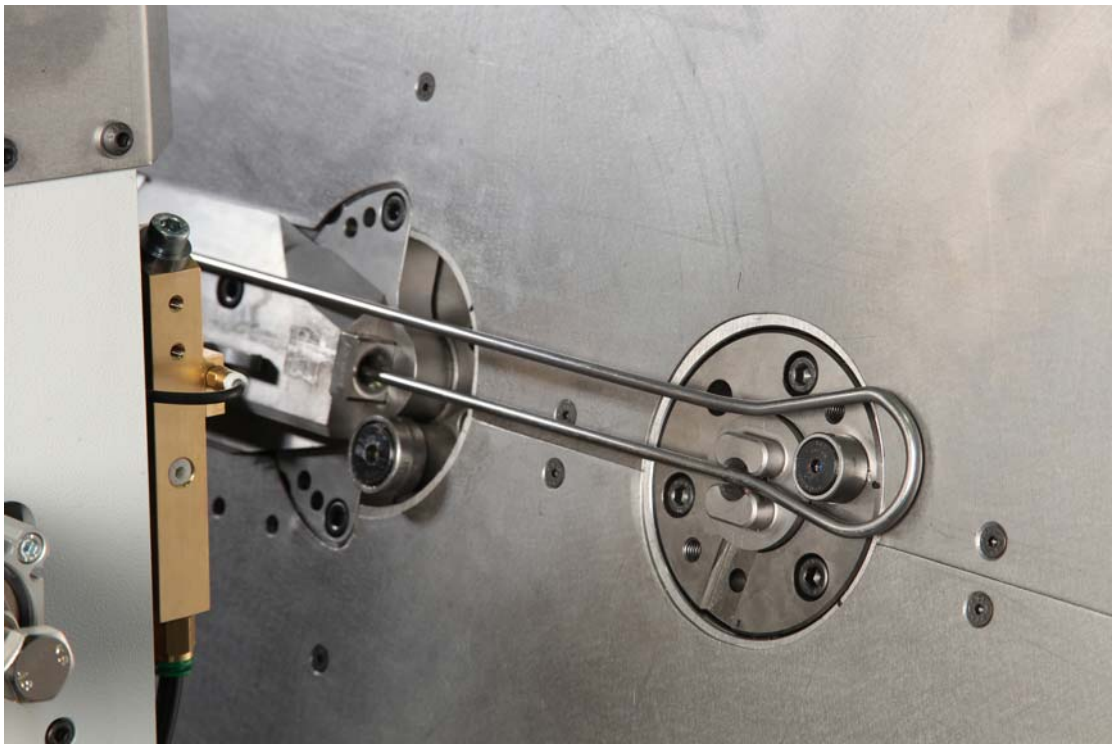
…which is strong

CFM 50 Series Wire Forming

Low profile tooling means that closed form can be manufactured with minimal offset. Above shows a 100mm diameter scroll in 12mm wire.

Above are Christmas tree stand scrolls in 8mm wire. Despite the shape being formed back on itself, it is made with only a very small deflection of the wire

Bends are made around rollers or pins giving a smooth inner radius



Whitelegg has enlarged the CFM series to bigger sizes: For frames up to 2m x 2m and wire diameters up to 10mm.

Wire forming and welding unit in king-size format

Wire forming and welding machine specialist, Whitelegg Machines has launched the model CFM-1010SE-TWR. This is the largest machine of this type that the company has produced since the CFM marque's introduction 11 years ago.

This latest CFM unit is designed to produce an infinite variety of welded and unwelded components direct from the coil, such as welded rectangular frames up to 2m x 2m in Ø 10mm mild steel wire.

One of the major features of the new equipment is an automatic frame unloader (AFU) that takes the welded frames and places them in predetermined batches on wagons or other transfer devices.

Two bend heads

Also new to the CFM is a servo-controlled secondary bend head which, by fitting one of a variety of bending plates, can form tight bends as small as 5mm with 10mm wire, or 2mm with 4mm wire, forming intricate shapes around pins or blocks, to suit customers' requirements. Tooling changes are effected in a few minutes with no special tools required. Programming complex shapes is achieved in just a few moments and, once stored, can be recalled in seconds.

There are a host of performance-enhancing mechanical features built into the CFM 1010 including superior quality drive motors that provide 20% more power than previously attainable and an improved cam design for quieter operation and longer life.

A new feed wheel shaft design eliminates backlash and the pneumatic system and unit framework has been updated. Using the latest design of air cylinders, the number of moving parts has been substantially reduced with a simplified circuit; the framework design allows easier assembly and access.

To ensure accurate and operator-friendly function, the unit's electronic controls and computer have also undergone a significant makeover. All electronics are housed in a sealed cabinet inside the machine to prevent contamination by dust and oil. The computer is mounted on a swing arm to give improved visibility and operator access. The latest software is even more reliable and easy to use. A new high definition LCD touch screen eliminates the need for a separate keyboard and avoids any problems of visual interruption for the operator.

Modem connection via landline provides full tele-service capabilities allowing Whitelegg engineers remote access to customer machines for trouble shooting and upgrades. ■

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Why Two Heads Are Better Than One!

by:
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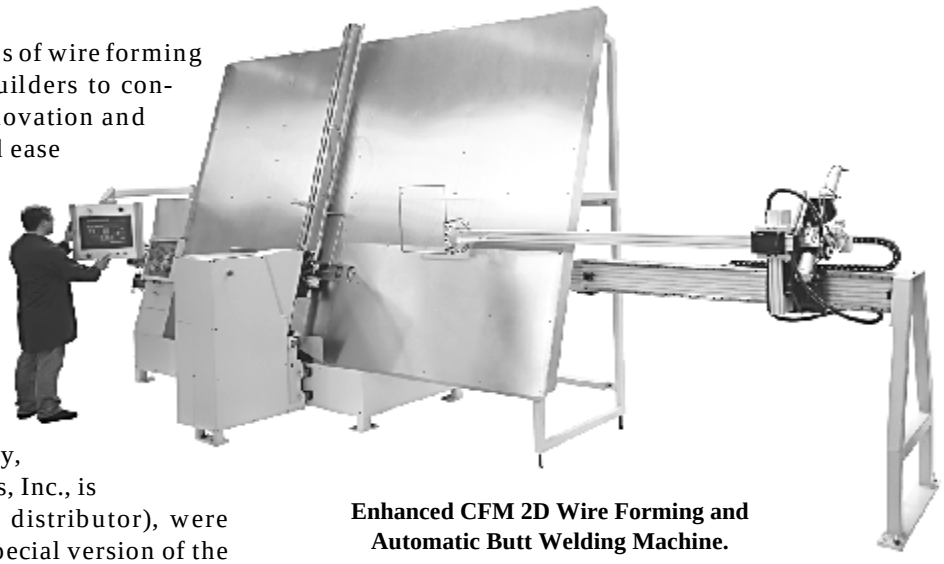
A forming and welding machine with the flexibility to make complex parts with the shortest possible distances between bends.

Increased productivity demands of wire forming customers requires machine builders to continuously improve through innovation and design expertise. Flexibility and ease of operation play major roles in today's marketplace. And machine design concepts must reflect this trend.



Enhanced CFM 2D Wire Forming and Automatic Butt Welding Machine.

A Customer Request Drives New Technology

In 2002, engineers at **Whitelegg Machines Ltd.**, of Dorking, Surrey, UK (for which Forming Systems, Inc., is the exclusive North American distributor), were given the task of producing a special version of the CFM 2D Wire Forming and Automatic Butt Welding Machine. The goal was to manufacture a machine with the largest possible wire range, a maximum frame size of 2 x 1 m (6.6' x 3.3') and the capability of producing demanding parts with very short distances between bends such as hooks and eyelets. The client required the most flexible machine possible for a wide variety of current and future business opportunities.

The Whitelegg engineers took this opportunity to introduce new mechanical and electrical systems throughout the machine. With over 200 CFM machines running in the field, all mechanical, electrical and control system aspects were assessed to maximize reliability and performance.

Larger Frame Size. Initially, the machine frame was stretched to allow a theoretical maximum frame size of 2 x 2 m (6.6' x 6.6'), giving the machine an overall height of 3.3 m (10.8'). Equipped with a servo unload and stacking system essential for the production of these large frames, the overall length of the installation came to 14.5 m (47.6').

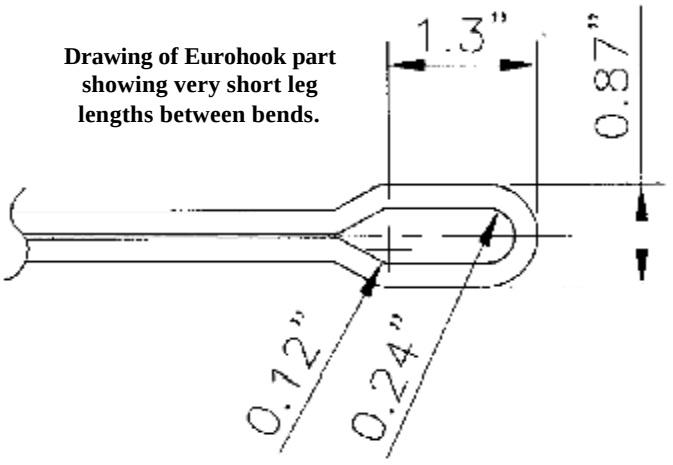
Capability to Produce Small Complex Parts. The stretching of the machine was of course a relatively simple exercise. The real technical challenge was to be able to produce and handle small and complex parts with such a large machine.

The answer was determined to be an additional forming head that addressed all of the limitations of the standard head. And in addition to making parts that used both bend heads, the machine is capable of making surprisingly small products with different bend radii and very short leg lengths between them (see accompanying Eurohook drawing).

Achieving this form and maintaining the production tolerances for leg alignment was the real challenge.

The standard bend head is very flexible and can make all popular shapes such as rings, frames, card pockets and stars, all butt-welded. It can also make an infinite variety of unwelded shapes, but is limited by the tooling type when making products with very close and acute bends such as hooks, loops and other intricate forms. This is where the secondary bend

Drawing of Eurohook part showing very short leg lengths between bends.

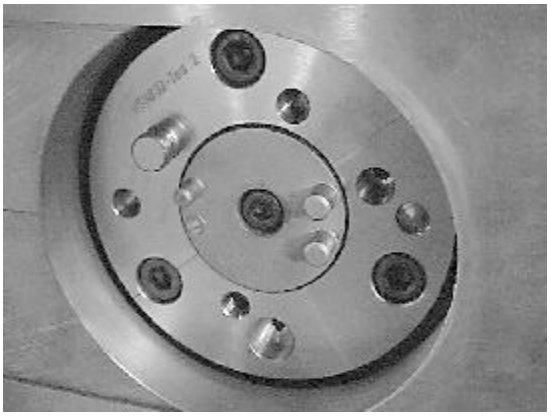


head comes in. It has both inner and outer revolving members, and the unique exchangeable tooling heads can be fitted with a combination of bending pins and shaped blocks that can produce the tightest bends in both directions. The drive system allows the wire in the forming head to be fed forward and backward an infinite number of times in one cycle.

Both forming heads have independent servo control for maximum flexibility. And with some software revision, the functionality and ease of programming was perfected.

In addition to the new bending head, the CFM forming and welding machine was fitted with a new design of standard bend head in order to achieve faster cycle times, smoother operation and increased time between maintenance periods.

Similar redesign procedures were applied to the feed gearbox assembly that resulted in less mechanical machine stresses.

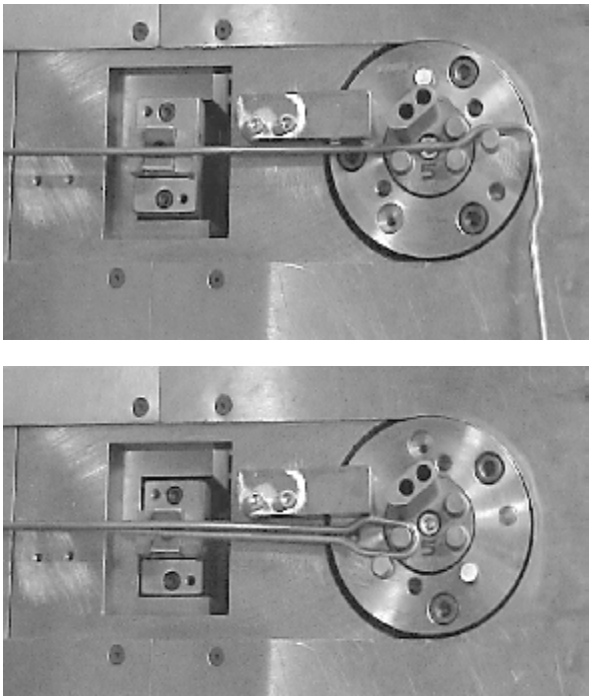


Second bending head developed for CFM 2D forming and welding machine.

Enhanced Control Section

A new user-friendly touch screen man-machine interface was also added to the CFM forming and welding machine to enhance parts programming capability and machine operation. To further enhance the machine specification, condition monitoring of the drives and motors has also been added. This means that while the machine is running, the characteristics of the motors and drives such as temperature and utilization percentage can be monitored with any potential problems identified before breakdown and valuable loss of production occurs.

To date Whitelegg Machines is happy to announce that no such failures have occurred.



Closeups of hooked part being formed on CFM machine's second bend head.

Conclusion

Whitelegg Machines Ltd., achieved a "world first" with its patented Ring Forming and Butt Welding Machines in 1972, and then another "world first" with its computer-controlled Universal Wire Forming and Butt Welding Machine type RR in 1985. The introduction of the CFM forming and welding machine range in 1993 together with the latest design developments in 2003 demonstrates Whitelegg Machine's continued commitment to design innovation.

The company's long and extensive experience in the automatic butt welding of wire and 2-dimensional forming in general are continuing to provide real production benefits to CFM forming and welding machine users worldwide.

To learn more about CFM 2D Wire Forming and Automatic Butt Welding Machines, contact the author at the address on the first page of this article, see the Forming Systems, Inc., advertisement on the Inside Back Cover of this magazine or **Circle 202.** WFTI

Company Profile...Forming Systems, Inc. *is a full service distributor of springmaking, spring testing, wire forming, wire bending, wire forming and welding, slide forming and strip forming machines. Also provided is training, tooling, service and spare parts for all machines offered. The company's strength is its ability to provide the best wire forming and spring making technologies and solutions from around the world. Forming Systems Inc. is the exclusive distributor in the USA, Canada and Mexico for the machines manufactured by* ***Whitelegg Machines Ltd****.*

The CFM is the best selling 2 axis machine worldwide !

WHY?

The CFM from Whitelegg is proving itself internationally as the most popular machine of it's type. Latest developments include the production of components direct from coil. At least a 10% increase in production speed. Touch screen computing and remote on-line diagnostics.

- **CFM cuts production costs dramatically**
- **Higher productivity than other 3 axis machines**
- **Output: 1000 welded rectangles or 1200 rings or 600 display pockets per hour**
- **High quality pulse butt-welding**
- **Tooling for strip up to 20mm wide available**

And that's why our customers are laughing all the way to the bank!Find out how a CFM can put a smile on your face, contact Whitelegg now !