

# All automatic and all-electric

**A fully automatic, unmanned bending cell is cleaning up at a UK bathstand maker, saving electricity into the bargain. *Machinery* reports**

**A** fully-automated bending and punching cell developed by Unison has helped tubular metalworking contractor Olicana Products, Ilkley, to dramatically increase its capacity.

The cell features robot handling which supports unmanned "lights out" production, while an embedded "poke yoke" check ensures the cell cannot make a bad batch. Programmed to fabricate bathstands for four of Europe's leading bathroom product manufacturers, the cell produces a W-shaped tubular frame with up to six bends and fixing holes every 11 seconds.

Introducing a fully automated process has allowed Olicana to increase capacity by way of an unmanned overnight shift. The feed hopper is filled before staff leave for the day and the bending program for the required shape is selected from a menu.

## CELL-MATES

The cell consists of three major machines: a 5-axis, all-electric 25 mm tube bender from Unison's Breeze family, a robot arm and a punch press.

Unison designed the cell to operate fully automatically once the required fabrication program is selected and the hopper is stocked. A pneumatic cylinder mechanism built into Unison's tube feeder automatically centralises tubes as they are fed, ensuring that any minor variations in length allowed for in the tolerances are divided equally between each leg of the

finished W-shape frame. A servo motor-driven arm feeds a tube into the bender, which then performs up to six compression bends.

The machine has two electric servo motor-driven bend heads, mounted on two servo-driven carriages, plus a clamp and rotation unit. This arrangement allows the symmetrical W shaped stands to be produced very rapidly by making two bends simultaneously. The articulated robot arm then unloads the part and transfers it to a press, which punches fixing holes. The robot then grips and hangs the finished part on a rail, ready for shipment.

The all-electric nature of the tube bending machine was important for Olicana. Compared with a traditional hydraulic bending machine, all-servo control of bending axes provided by Unison's Breeze machine means that set-up for a batch is completely automatic. There is no manual tool set-up or pre-production trial parts.

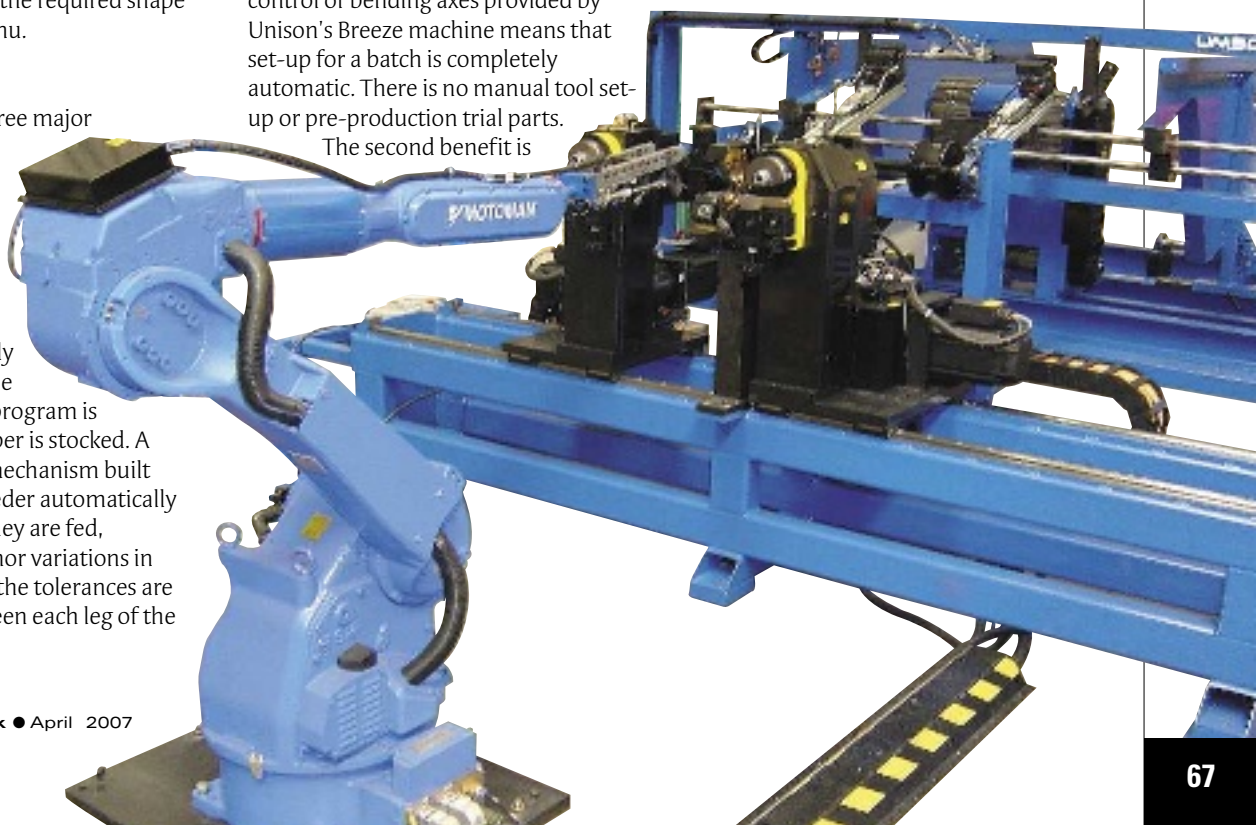
The second benefit is

reduced energy usage, as power consumption drops almost to zero as soon as bending is finished. With an equivalent hydraulic bending machine, the oil pump typically remains operational – wasting a lot of electricity.

In a comparative trial, Unison's Breeze machine consumed around 10 per cent of the power of a hydraulic bender during bending operations, as well as eliminating the energy wasted by the common practices of heating or cooling hydraulic oil (and/or leaving the machine on) for bending consistency.

Unison's team in Scarborough designed and produced the cell in just 20 weeks including programming the Motoman 6-axis UP-6 Series. □

[www.machinery.co.uk/bend](http://www.machinery.co.uk/bend)



**Perforating precision**

Perforated tubes are often used in the automotive industry and precise distance between each perforation is essential for racking systems. Semi-automatic solutions involve manual measurement of punched tolerances and adjustment of the length stop of the saw, returning a low yield. Fully automatic sawing achieves higher yields but requires a 100 per cent check and a higher rate of rejects. The Rasacut OC from RSA works faster, more precisely and more cost effectively. Tubes are automatically singled from the bundle and transported via gripper to the saw. Additionally, fully automatic deburring, cleaning and drying of the fixed lengths takes place. Parts in the material that show unsuitable tolerances between the pressings, are rejected and removed. The standard Rasacut OC is suitable for 10-90 mm tube diameters and fixed lengths from 30-3,000 mm.

**Versatile one-hit performers**

Fifteen BLM tube-bending machines supplied to TEAM Precision Pipework are designed for bending and end-forming straight length tubing and coil material. Working from coil, for example, a BLM Planet T3 planetary 5-axis CNC tube bending machine – part of a four-machine order – straightens, end-forms, deburrs, bends and cuts-off tube components in a single cycle. The Planet T3 is suited to producing the complex shapes typical of small diameter automotive air conditioning, fuel or hydraulic pipes. Components are bent using either conventional draw bending or compression bending.



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## Billington brings broad mix of structural steel bending in-house



The Stierli Bieger range of machines (Kaltenbach) supports the straightening, cambering, forming and bending of a broad mix of structural steels, including heavy-duty beams, plate and fabricated sections.

An example of their application is at Billington Structures Ltd, Wombwell, Nr Barnsley. "It only took one project to

pay for our machine," says Kevin Campbell, production director at the company. "The saving in time and benefits of in-house control of the straightening process, coupled with the elimination of any added transportation costs to an external contractor, have made ownership of this process very attractive", he added.

Billington Structures handles steel projects from 50 to 5,000 tonnes for all types of industrial and commercial properties throughout the UK. The Stierli Bieger machine processes beams up to 610 x 305 mm. The straightening function has also proved invaluable after the fabrication of heavily welded sections, which are prone to distortion.

Significant production time and cost reductions are claimed for Stierli Bieger machines which offer fully CNC controlled straightening and bending with manual override plus semi-automatic versions.

The cambering and straightening models use a horizontal press action, with an entry-level capacity of 200 tons, to handle plate up to 80 mm thick and a 300 tons option with a 100 mm capacity. The horizontal process, explains Stierli Bieger, greatly simplifies ease of loading, enabling a wide mix of profiles to be loaded from above using an overhead crane.

**Blast and paint**

A sheet metal and steel processing manufacturer has recently taken delivery of a complete shotblast and painting system with a total length of 72 m from Rösler.

Annually, more than 100,000 tonnes of steel, sheet steel, carriers and profiles, divided into more than 1,000 different types, with maximum widths of up to 3,300 mm and heights of up to 500 mm, will in future be processed in a Rösler continuous flow shotblast system. The process involves the removal of rust and scale and coating the steel with a temporary anti-corrosion paint (welding primer).

## New LT Combo laser switches from tube to sheet in 3 mins

It takes less than three minutes to change automatically from the tube machining configuration to flat steel sheet machining – and vice versa – when operating the new Adige LT Combo (BLM Group) UK.

The maximum sheet size that can be machined on the LT Combo is 3,000 mm by 8,000 mm, while maximum tube section sizes of 225 mm (round), 160 mm by 160 mm (square) and 200 mm by 100 mm (rectangular) can be machined along a maximum length of 6,500 mm.

An integral database of cutting parameters guarantees repeatability of cutting quality, with the machine control generating the optimum cutting power and speed at any point in the cycle. Flat sheet is machined to a positioning accuracy of 0.05 mm and a positioning repeatability of 0.03 mm, while 3D design and programming of tubular components and complex tubular structures is made simple with Adige CAD/CAM Tubework and Assembler software.