ESTABLISHED 1790
WILLIAM HUGHES LIMITED

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Shaping up

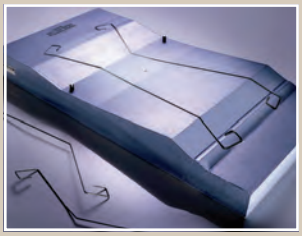
The latest news about springs & wire forms

William Hughes set RP benchmark

The traditional boundaries and expectations of rapid prototyping for bent wire forms and assemblies are being trounced by William Hughes.

With prototype quantities of 10-200 in increasing demand, the use of traditional metal jigs featuring go/no-go checks is often prohibitive as they can take 4-6 weeks to produce, with costs as high as £3,000 in some cases.

While simple 2D wire forms can often be checked visually against a printed CAD drawing, the industry has long sought a way of effectively checking 3D bent wire forms and assemblies without the lead-times and costs associated with conventional metal fixtures.



To meet this demand, William Hughes is pioneering the use of specially designed and manufactured MDF gauges. These can be produced in a matter of days and cost around a tenth of the figure commanded by their metal counterparts..

With our extensive CADCAM capability, customers need only send a CAD file of the product, from which a suitable MDF jig can be designed and machined.

Our Spring capability just keeps on growing

William Hughes continues to expand its product manufacturing capabilities with the announcement that it can now form compression springs in wire sizes up to 8mm diameter. and torsion springs in wire up to 6mm diameter. The new capabilities follow on from a significant investment in new machinery at our manufacturing facilities in the UK and Bulgaria.

The new coiling machine at our UK factory in Dorset means that we can now supply heavier duty compression springs using 5mm to 8mm dia. wire. These are typically used as return valves in products such as hydraulic valves. The new machine in Bulgaria has the capacity for torsion springs up to 6.0mm dia. These larger springs are widely used in the automotive industry and have applications in products such as chain tensioners.

"We continue to invest in the latest machinery and metal finishing technologies to meet customer demands in a tough market," says Managing Director, Max Hughes. "Our operations in Bulgaria have grown four fold from when we first opened the factory in 2004 and this extra capacity allows us to optimise our manufacturing resources. As a result we can provide our customers with quality products at highly competitive prices."

Here at William Hughes we specialise in solving problems for our customers using the extensive design and engineering facilities available at our Stalbridge factory. When a solution is agreed with the customer, we will manufacture high quality parts using our large capacity production plant, which is one of the most sophisticated in the world.

We have also introduced a number of new 'added-value' services for our customers including steel and glass shot peening and ultrasonic cleaning.

Our complete product range includes compression springs, tension and torsion springs in many bespoke configurations, wire forms, PCB test points and spring wire. Stringent quality checks to ISO 9001:2008, TS 16949 and AS 9100, combined with the latest design, production and distribution techniques ensure continuity of supply, rapid delivery and competitive prices across the range.

NADCAP accreditation for heat treatment and tensile testing

Following extensive investment in new technology, processes and training, we have gained a prestigious Nadcap accreditation for heat treatment and tensile testing, one of only a handful of UK companies to do so.

"We wanted to achieve manufacturing excellence with regard to heat treatment, tensile testing and other special processes for our aerospace customers," explains Shaun Tattershall, responsible for driving the project.

"We knew that Nadcap would be a tough journey requiring both dedication and capital investment, but we also realised it would better serve our existing customers and help attract new ones."

Necessary investment saw the company procure a new German-built industrial oven as well as a Zwick tensile testing machine and software.

The team behind Nadcap accreditation: (From L to R) David Brigg (Quality Manager), Max Hughes (MD) and Shaun Tattershall (Projects Engineer).

Bent wire parts rescue automotive OEM

We have been demonstrating our expertise in the supply of bent wire forms to the automotive sector with a recent project that provided the solution to a last-minute modification on a vehicle scheduled for imminent launch.

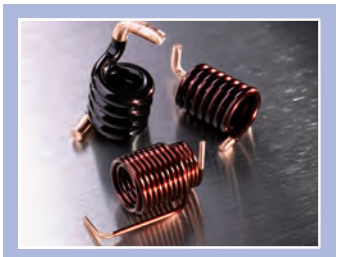
Bent wire components are used commonly in automotive seat frame assemblies. While most projects for the supply of parts to automotive OEMs are planned meticulously months in advance, a recent project saw William Hughes provide an urgent response to a request from a major European automotive OEM to address a problem in a soon-to-be-launched five-door hatchback. Shortly before launch, a review by company executives had highlighted a shortage of knee-room in the rear of the vehicle, which was hindered by the positioning of a map pocket in the rear of the front seat.

We were asked to set about redesigning the framework required for the map pocket so it could be positioned in such a way as to provide an extra 2-3 inches of legroom when sitting in the rear.

One of the principal bent wire parts created to solve the problem started life as a 6.5mm diameter piece of straight mild steel bar. A short series of bends was created to negotiate a path around the existing wire frame of the seat – the need to alter other existing parts had to be avoided so that extra cost was not incurred. At either end of the bent part, the wire was planished (flattened) to a thickness of just 2mm. Here, a 5mm diameter hole was punched – again, one at either end. The relationship between the planes of the planished sections and the positioning of the holes was vital to ensure ease of assembly. For this reason, precision press tools were designed and manufactured. In fact, two types of the bent wire part have now been developed by ourselves for supply to the customer.

Due to the impending launch date of the vehicle and the late discovery of the need for a modification, the automotive OEM decided to adopt our solution on a temporary basis until a "volume" solution could be sourced. Initially, a quantity of 6,000 parts was requested. However, such was the success of our proposal that the very same bent wire parts have now been adopted for production runs. A total of 7500 parts a week are currently being supplied (3750 of each variant).

Of course, bent wire parts and welded wire assemblies are not just supplied to the automotive sector. Components ranging from cooker parts and furniture frames through to steel baskets are produced for a multitude of industrial needs. If any company has a requirement for a 2D or 3D wire form that involves twists, turns, spirals, protrusions, indentations – or just plain bends – William Hughes has both the expertise and the state-of-the-art automation to meet requirements exactly.



Coiled & Ready for Action

We are enjoying increasing success with the manufacture of special copper coils for use as part of trip fuse/circuit breaker mechanisms within domestic and commercial properties.

When a current passes along the specially designed conductive copper, a magnetic force is created through the middle of the coil. In the event of a current surge or spike, the magnetic force increases so that a spring is pulled to trip the main switch.

Already a huge variety of copper coils is in production - a small change to the coil can affect the magnetic force produced to suit different currents, making it a very efficient mechanism.

The copper coils are built on extensively modified CNC machines fed with 3mm diameter copper wire coated with enamel. The coating is stripped from each end to reveal the conductive copper before coiling operations take place. Bends can then be created at either end to suit mating components before the part is trimmed to length. All operations are completed in a single set-up.

At present the company is shipping around 50,000 copper coils a week, although at peak times this can hit 100,000.

8 years of major growth in Bulgaria

In 2004, sensing the growing need to provide off-shore manufacturing facilities, we opened our own factory in Bulgaria.

The factory, located near Plovdiv, Bulgaria's second city, at that time comprised a modest 1,000 square metres but has expanded four-fold over the intervening period to the 4,320 square metres it occupies today. Staffing too has grown from the original 7 pioneers to over 100 dedicated employees today.

Current manufacturing facilities include 25 CNC wire bending machines capable of bending wire from 1.5 - 8.0mm. There are 2 nylon plastic coating lines and multiple spot and MIG welding stations including 6-axis robotic welding.

This exciting venture secures not only a much needed expansion of our UK production facilities but, with many of our customers operating on a European platform, it provides us with a base in central Europe.

We also have an office in Berlin to service our European Operations.

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