

## **WAFIOS showcases a host of new innovations at wire & Tube**

**A world first in tube forming – high-speed machines for compression springs**

**At this year's wire & Tube trade fairs in Düsseldorf, Germany, WAFIOS AG presented a whole host of new machines and technologies designed for wire and tube forming. They are helping the company set the bar for quality, productivity, and flexibility a good deal higher – and reinforcing its position as a leading light in technology.**

At the booth that WAFIOS AG occupied at wire, the new **FUL 166 large-scale CNC machine for compression springs** immediately caught the eyes of attendees. It represents the perfect top-end addition to the Reutlingen forming specialist's range of high-performance spring coiling machines. Available alongside the advanced FUL 183 and FUL 203, it now means that WAFIOS is able to provide machines for a full range of requirements in applications involving springs made from wires of up to 20 mm. In the FUL 166, WAFIOS developers have incorporated the latest drive technology and, for the first time, six pairs of feed rollers. This guarantees extremely quick production – making the process more cost-effective as a result. Spring coiling machines in this range of sizes are primarily geared toward applications in the automotive industry and the trend in favor of heavier vehicles. If a vehicle experiences more weight on its wheels due to the batteries that come with electric and hybrid cars – or SUV designs – then it requires more stable chassis springs. "Our new machines offer the ideal solution in these cases, as they deliver outstanding quality in high production quantities. This isn't always something that's easy to find in machines that deal with spring wires of up to 20 mm", explains WAFIOS Executive Board member Dr. Uwe-Peter Weigmann.

Turning to the other end of the spectrum and to machines that handle smaller springs with wire diameters of 0.12 to 0.8 mm, the **FUL 16** has been upgraded to accommodate new software/drive technology that is helping the machine set new benchmarks in high speeds – with a production output level that now reaches as much as **1,500 springs/min**. In this case, each spring is measured by a camera and then automatically removed from production if it has strayed outside the tolerance range.

The **FTU 2.5 CNC torsion spring coiling machine** is another new addition, delivering the next level up from the existing FTU 1.5 in this category. It too uses the very latest drive technology, and provides unit cost advantages for large-scale production volumes in particular. Additionally, state-of-the-art software makes the machine highly flexible, reduces tooling times, and – last but not least – ensures that outstanding quality standards are met.

These benefits can all be found in the latest generation of CNC wire bending machines too, and WAFIOS brought the **B 36 single-head machine** plus the **BMS 36 double-head machine** along to the trade fair to demonstrate this. The BMS 36 accommodates an extensive range of parts thanks to short mid-lengths, and it features a highly dynamic, rotating straightening system plus state-of-the-art servo-motor drive technology. A fast pneumatic cutting system, meanwhile, enables the machine to achieve high output levels.

The new **RE 40** and **RE 50** are expanding the range of **wire straightening machines** that WAFIOS has to offer. Both new additions are ideal for use in any standard straightening or cutting application, and feature a modern cutting interface that is based on the high-end models. WAFIOS partner IDEAL-Werk was also there to showcase just how easily WAFIOS straightening machines can be incorporated into other systems, and featured an **R 36 IC high-performance straightening machine** integrated into a mesh welding system at its booth.

### **Machine incorporates robot control**

Over at the Tube booth, it was the modular, flexible **TWISTER<sup>2</sup> robotic bending system** that in drew the crowds. Combining handling and bending tasks, the system marks a first by featuring a robot fully integrated into its control area. This makes it possible to perform bending tasks while the robot keeps a firm hold of the tube. The interpolating machine and robot axes move in synchronism with one another. The system makes producing three-dimensional geometries a much easier process, maintaining the utmost levels of productivity and process reliability as it does so. But its real highlight is the fact that users do not need to give the robot's control system a second thought – unlike conventional machine/robot combinations, in which the machine and robot elements need to be programmed separately. This WAFIOS solution makes it possible to control the entire system, including collision detection, using nothing but the WPS 3.2 EasyWay programming system interface. Not only that, but the modular concept underpinning the **TWISTER<sup>2</sup>** also allows third-party systems and downstream processes to be integrated.

"Through this system, we are showing the experts in this field a world-first innovation that we are extremely proud of, and it is reinforcing our position as a leading light in technology", states Dr. Uwe-Peter Weigmann.

The new **RBV 25 R tube bending machine**, meanwhile, is one example of how WAFIOS is combining energy efficiency with high operating speeds. With the new **iQconvert** software function, the machine is able to achieve significant reductions in programming and setup times. The system converts CAD data so that it can be used directly by the machine's control mechanism.

### **Intelligent software**

Intelligent software functions have become a common feature found in all of WAFIOS' state-of-the-art forming machines, as every single one is equipped with the standardized WPS 3.2 EasyWay programming system. "Since everything works on the basis of the

same piece of software, we are able to tap into several areas of synergy across all our machine categories, and that's a huge advantage", says Weigmann. "And the range of functions that we're able to provide is expanding all the time. For example, the ability to convert CAD data for programming with WPS 3.2 has become a standard feature in FUL spring coiling machines."

The significant benefit delivered by the software can also be seen in the **iQ** functions, which are optional software modules for process optimization. WAFIOS now offers more than 20 of these intelligent solutions as part of its range. One example is the upgraded **iQbendcontrol** function designed for the BM and BMU ranges of wire bending machines. The software uses a camera system to detect the bending angle directly after the wire has sprung back after bending – in other words, as part of the process. A signal that is sent to the control unit then corrects the bending angle if necessary. This makes it possible to uphold high standards of quality even when producing large quantities. The software is now able to control up to eight measuring channels or bending angles per component.

WAFIOS is also enhancing and producing the **bending tools** themselves: A new type 10 tube bending tool, designed to deliver a fully fledged left-handed or right-handed solution, features unique kinematics that allow it to achieve exceptionally high bending speeds plus quality that can be reproduced with outstanding results. The benefits of this solution are especially evident in stainless steel tubes that are otherwise difficult to form.

Finally, the Reutlingen forming specialist is engaging with the subject of **Industry 4.0** through its **WAFIOS Smartfactory** concept. This involves giving all machines that feature WPS 3.2 EasyWay control software a uniform external interface for servicing purposes. The OPC UA protocol, which is not tied to any specific platform or manufacturer, is used for this solution. In addition to benefiting from a convenient way to monitor production, customers can use further

data to optimize processes. A new web-based WAFIOS dashboard provides customers with an overview of the data used in their production machines.



Fig. 1 WAFIOS FUL 203 CNC spring machine



Fig. 2 WAFIOS TWISTER² tube bending machine



Fig. 3 Impressions from wire & Tube 2018