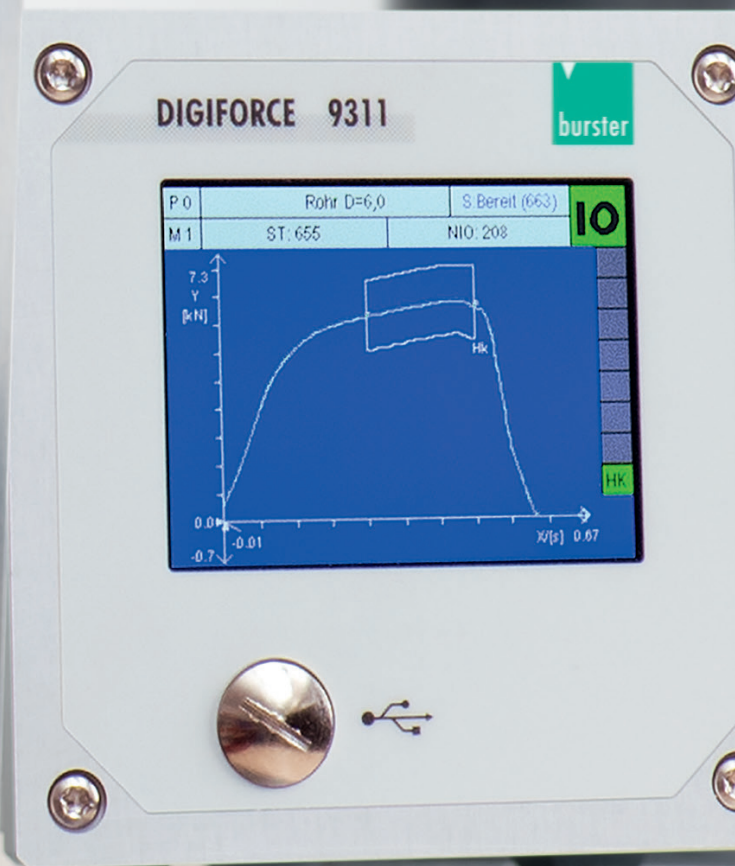


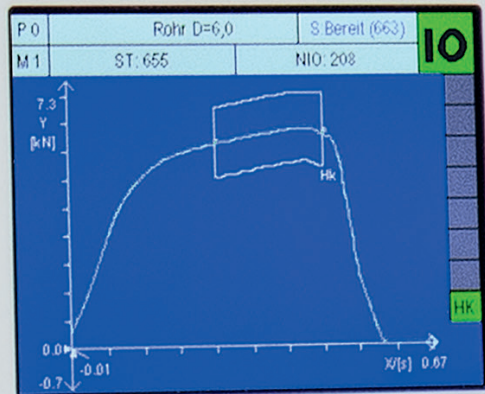


THE MEASUREMENT SOLUTION.



DIGIFORCE 9311

burster



SUCCESS STORY

100% quality and reliability
are not negotiable

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SUCCESS STORY

100% quality and reliability are not negotiable

Arriving at FICHTER formtec in March-Buchheim, just outside Freiburg South Germany, it's clear at first sight that this is a small but sophisticated mechanical engineering firm. FICHTER formtec GmbH specialises in manufacturing machines for the cold forming of rotationally symmetrical parts.

Mass production has no place here. Bespoke work that meets customers' special requirements is what FICHTER formtec is all about. That they set to their task with the utmost precision becomes immediately apparent upon meeting founder and owner Otmar Fichter, who puts it like this: "Having emerged from FICHTER Maschinenbau with decades of experience in conventional mechanical engineering, since 2010, at FICHTER formtec, we have focused on manufacturing crimping units and rolling units, which are mainly used for the interlocking joining of parts and components such as sensors. But, in my opinion, the term 'joining' – or 'crimping' as the process is often called – is still too general. What we are specifically talking about is two areas of technology which are becoming increasingly important in the mechanical production of a countless variety of components: pressing and rolling."

In both cases, two parts of an assembly – for example a sensor sleeve and the connecting cable – are joined to each other so that they cannot be separated manually, e.g. by pulling out the cable. Pressing is used in particular for strain relief between a sleeve and the cable. And rolling is mainly used where it

is important for the join to be sealed against liquids or gases.

FICHTER formtec machines generate the required pressing force via a servo motor; its linear movement acts via two toggle levers on a round module which incorporates the pressing jaws. In the pressing process for interlocking joining, a toothed ring transfers this force to the concentrically closing pressing jaws. These pressing jaws – depending on the type of pressing between 4 and 16 pressing jaws are used – impress defined contours into the component, forming the interlocking connection within the assembly. In the case of rolling, there are rotating rollers which

form a circumferential groove with a defined contour and depth. The number and spacing of the grooves can also be specified.

While this may seem simple on paper, what FICHTER formtec produce are custom-tailored solutions each as demanding as FICHTER formtec's customers themselves. 100% quality and reliability are just not negotiable, especially in the automotive industry and other safety-relevant fields and sectors where countless micro-components have to function perfectly while being subject to intensive use and associated wear and tear. Otmar Fichter explains: "Starting from developing the ideal contour shape, then providing the first sample to



THE MEASUREMENT SOLUTION.

the customer on-site, to manufacturing the final product, we are the leading specialists offering equally special machines entirely according to customer needs.”

High up on the list of these needs, along with error-free execution of the production process, is maximum possible reliability in its monitoring.

You can sense Otmar Fichter’s enthusiasm when he speaks: “We have numerous well-known customers who are automobile manufacturers or suppliers to the automotive industry, and whose production processes have to be documented. But of course they’re not the only ones who want zero-error production without downtime or even product recalls – which are every manufacturer’s nightmare. Ultimately this applies to all industries. That’s why, to accompany

our highly specific custom-built machines, we value precise and efficient quality control. We equip our machines with burster process controllers that achieve high process reliability and high customer satisfaction.”

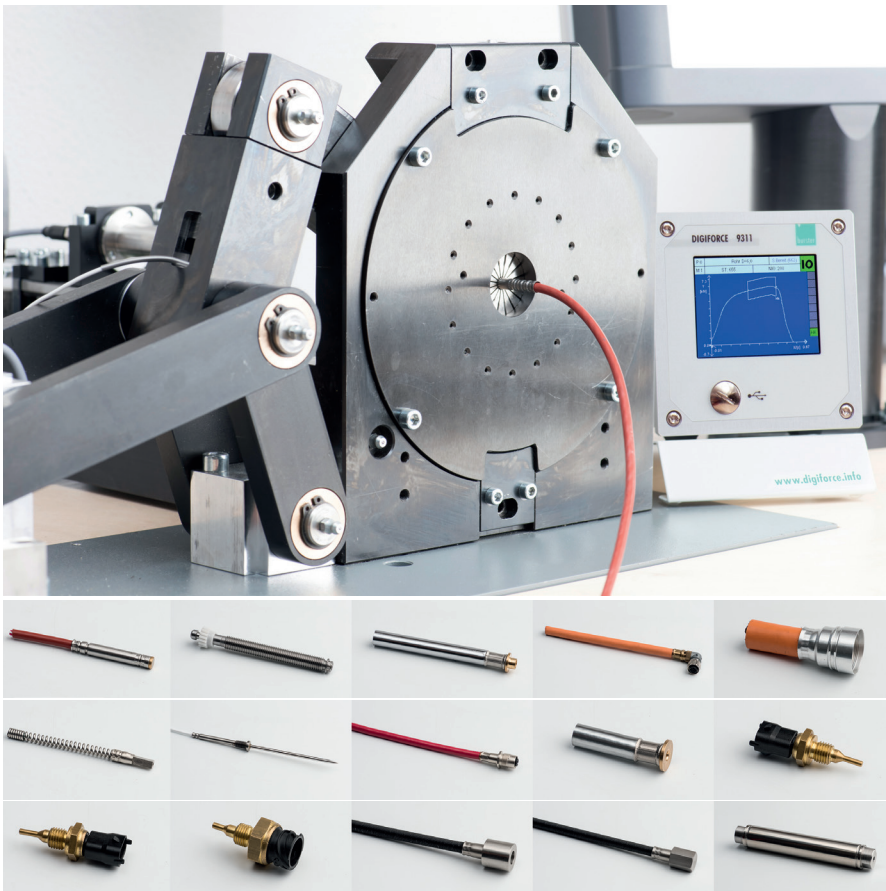
Making the invisible visible – DIGIFORCE® sees it all

When the workpiece is pressed in the machine, all of the predefined parameters for the pressing process need to be perfectly applied. It is essential that none of the mechanical components fail, and the pressing process has to be performed 100% for every single assembly. Even if the pressing looks OK to the eye, it is not possible to tell from the outside whether the interlocking connection has been correctly formed,

and will therefore be able to withstand the anticipated loads in use. DIGIFORCE® 9311, the X/Y controller from burster praezisionsmesstechnik Germany, is the ideal solution for FICHTER formtec for continuous and flawless production process monitoring. It delivers high-precision and fast evaluation results for press-insertion, joining, riveting, stamping, compressing and – as in this case – pressing and rolling forming processes. In all of these processes, DIGIFORCE® verifies precisely defined functional relationships between two process-relevant measurement variables. This verification pays off wherever high quality requirements meet high production rates, as production processes become ever more demanding.

Relevant measurement values – from the sensor on the colour display

Otmar Fichter points to the machine’s toggle lever: “The burster 8526 compression load cell sits inside this lever, and is connected directly to the DIGIFORCE® 9311. The load cell measures the compression force applied by the segment jaws and sends this data to the process controller, which evaluates it and shows it on the colour display as an X/Y graph. Now, if a pressing jaw is damaged or fails completely, the DIGIFORCE® 9311 will show a drop in force, and the measurement curve will leave the value range that is predefined in the DIGIFORCE®. Depending on the production process and the evaluation methods used, this range is all that we are interested in. If the value is outside of this range, DIGIFORCE® will show a ‘not OK’ instead of an OK result. This allows the operator or system control to immediately take the pressed component that is not

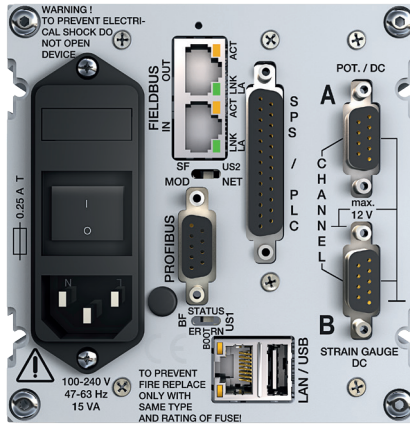




100% OK out of circulation. But that's not all – the new DIGIFORCE® 9311 can do even more!"

Replace distance with time – and save time!

"This here is exactly what I mean," Fichter continues, indicating the motor system on the crimping unit. "Because the toggle lever is servo-driven, the movement is constant and therefore a repeatable value for the measured displacement. As a result, we can dispense with conventional force-displacement monitoring, which for the measurement logging leaves us free to concentrate on the pressing force and the force curve. If one or more of the pressing jaws fails in any way, this enables inferences about disruptive factors in the pressing of the component, which is ultimately what we want. The evaluation principle applied here allows us to replace the measured variable of displacement with time. So here the DIGIFORCE® 9311 employs this smart force-time measurement principle. It's a detail that represents a clear benefit for our customers: thanks to the DIGIFORCE® 9311 and its fast time-based sampling, our machines permit a significantly faster production cycle time – with equally high-precision monitoring and total reliability!"



Reliability supported from all angles

The DIGIFORCE® 9311 is a fully autonomous test controller that not only displays status information and evaluation results in its process environment but can also transmit this data to a controller. Where necessary, and to further increase process availability and reliability, DigiControl is a software package that has many additional functions, such as creating data backups and reading out measuring curves and evaluation results including statistics data, to name but a few.

Just as quick and easy – setup, integration and handling

Thanks to automatic sensor recognition with burster TEDS and intelligent auto-setup of evaluation elements, the DIGIFORCE® 9311 is quick to get started. It not only saves time during setup but also proves to be a high-performance and innovative all-rounder when it comes to system integration, with an Ethernet port as well as Fieldbus interfaces such as PROFINET, PROFIBUS and EtherNet/IP. Other interfaces include USB slave as a front-panel service port and USB master, which enables rapid data logging on a USB stick.

Conclusion and outlook

Production processes involving mechanical joining and pressing – whatever the configuration – can be evaluated with high-level, reliable and convenient quality assurance. The DIGIFORCE® 9311 test controller offers all the necessary performance aspects, from X/Y monitoring and a visual process evaluation display to efficient integration of the DIGIFORCE® portfolio into higher-level systems.

But technology isn't the whole story – behind it are people and their tasks

Finally you can tell that Otmar Fichter's life revolves around his machines, as he runs his hand across one of them and says: "Every customer comes to us with their highly specific task, which they need to solve for their business to succeed. Most of the time, they are also under immense cost and quality pressure. At FICHTER formtec, we are proud that we can respond flexibly to customer requirements with our machines, and offer customers reliability both in the production process and with regard to documentation and accountability. The customer's wishes are everything to us. As they are for burster too. That's why, as a machine-building specialist, I am pleased to work in partnership with these measurement technology specialists. With fellow uncompromising quality-obsessives, so to speak."

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