

Swiss Quality Production



2014

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→ **AUTOMATION**

5-axis machine is the heart of automated production from a batch size of one up // Page 11

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40xD deep hole drill reduces machining time to one-third // Page 24

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Grinding oil increases productivity and process reliability // Page 45



THINK PARTS THINK TORNOS



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5-axis machining centre Mikron HPM 1350U

Giving shape to design

Two micron milling machining centres from GF Machining Solutions are helping to double productivity in the BMW toolmaking facility in Munich.

1 Giving shape to design: the BMW 2 series



→ As part of a continuous optimization programme in BMW's Munich-based toolmaking facility, every process is regularly reviewed and improved. Since the beginning of 2012, there have been two micron machining centres from GF Machining Solutions permanently at work in the production of precision components which are mounted in large-scale forming and trimming tools to create bodywork parts. Their use has not only improved part quality, but also extended machine running times and doubled the productivity of the department within a year. And there are more improvements in the pipeline.

»The continuous optimization of all processes has become second nature to us«, says Herbert Winkler, talking about the attitude of his team to the continuous

improvement process. »The fact that we have been able to achieve such an effect with two new machines did actually come as something of a surprise – but also as confirmation that we are on the right track«, explains the Head of Mechanical Tool Production in the BMW toolmaking facility in Munich.

Giving shape to designs for BMW, Mini and Rolls-Royce

Responsible for these improvement are two 5-axis Mikron HPM 1350U machining centres from GF Machining Solutions. Equipped with tool changers, pallet magazines and zero-point clamping systems, they have been instrumental in helping to double the productivity of small component manufacture within a year as part of an overall program optimization meas-

ures. And the productivity increase is set to continue through 2014.

As one of three BMW Group toolmaking locations, the Munich facility employs a workforce of 220 to develop and produce tools for the outer bodywork and structural components of the new BMW models, working in close collaboration with the development department. »We see our role as that of the forming and bodywork technology partner and supplier, it is our job to give shape to the design«, summarizes Winkler. This includes the whole product creation process including planning, prototype construction, engineering, mechanical production and tool design. The team of around 80 toolmakers are able to call on a pool of five large-scale milling machines and a number of smaller ones. Tools are tested on six trial presses with a



2 Daniel Princip and Herbert Winkler (left to right) are impressed by the efficiency of the two Mikron HPM 1350U centres



3 GF Machining Solutions adjusted the two Mikron HPM 1350U centres to work with the dry milling method customary at BMW

pressing force of up to 23,000 kN before being commissioned in pressing plants around the world. Together with the Dingolfing and Eisenach locations, the Munich facility produces around half of all BMW tools. The other half is produced by partner companies.

Around 500 tools, with an average of four to five work sequences per tool set, leave the three locations every year. The

time required to produce the tool sets has been drastically reduced over recent years, due to improved interlinking of all the processes involved. Unproductive mechanical production processes have been separated out from the main runtime and outsourced to other units working in parallel. This applies not only to set-up and clamping processes but also programming and tool pre-setting. Another improvement

was achieved by extending low-manned and unmanned productive time.

At the same time, there has been a continuous improvement in the quality of all workpieces produced. This is a vital development according to Winkler, who explains: »Our schedule no longer has room for an »intermediate assembly« stage.« All the parts have to be delivered ready for tool mounting to the Installation and Com- >>>



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