

Version diversity under control

Suppliers for the automotive and electrical industry face challenges such as increasingly sophisticated components, more product versions and shrinking batch sizes. Baumann in Lichtenstein/Germany, is mastering them with the help of two servo-controlled production systems from Bihler.



Servo-controlled "BNC 4" production system with the "VC 1" control panel.

If you live and work on the Swabian Alb and in the adjacent valley, two buildings catch your eye every morning: the fairy tale Lichtenstein Castle towering on a steep rock and the factory building of Baumann GmbH directly by highway B313. Established in 1964, the company has 220 employees today producing technically advanced high-quality stamped and formed parts, assemblies as well as technical springs for international customers. For this purpose, Baumann GmbH has a modern machine park including seven machines from Otto Bihler Maschinenfabrik, also come from an area with a fairy tale castle.

1 basic tool, 12 product versions

The cooperation of the two companies started in 1972 with a high-speed mechanical stamping and forming machine. Recent additions are two servo-controlled machines: a "Bimeric" manufacturing and assembly system with a "SP 800" servo press as well as a servo-controlled "BNC 4" stamping and forming machine. "Bihler servo-technology opens up completely new possibilities", says Andreas Pill, Head of the Sales Division Stampings Europe at Baumann. "We manufacture sliding plates on the machine, so-called spring pads for vehicle brakes (calipers).



Thomas Voehringer and Felix Freudigmann, installers of "Bimeric BM 4500" and "SP 800" at Baumann: precisely plannable setup times provide flexibility for processing orders.

With only one basic tool we implement twelve different versions of the complex component made of 0.4mm thick 1.4310 strip material with and without a rubberized surface as well as with a Teflon coating." Baumann uses single and dual acting tools for this process. Depending on the respective design the output is over 100 spring pads per minute. "Thanks to the structured tool design and simple handling we can quickly change the setup from one component version to the next", says Pill. "We replace only the component-specific active tool parts on the units. Then all that needs to be done is call up the parameters

stored in the "VC 1" control system, and the production starts with 100% reproducibility."

Other benefits in addition to the extremely short setup times: The Bimeric allows for changeable directions for the difficult bends and an almost unlimited number of bending operations. The division of the processing stations guarantees excellent accessibility to each individual station during maintenance tasks. In addition to the twelve sliding plates, a version of a pad retaining spring (pad clip) made from C67 (strip thickness of 0.6mm) is being set up on the machine. With the second servo-controlled system, Baumann manufactures traditional stamped and formed parts with higher productivity and more flexibility.

Output quadrupled

On the BNC 4, shaft retaining rings for joint shafts are produced in, believe it or not, 25 different versions. In the past, these rings have been produced on MRP machines type "UB2" and "UB4". The mechanical machines no longer were state-of-the-art technology.

Baumann was looking for a modern alternative. "With the servo-controlled BNC 4, we have found the right solution. We just adapted and optimized the existing MRP tools for the Bihler machine before the start of production. This means we were immediately able to produce 200 rings per min-

ute with constant quality", says plant manager Ulrich Nann. "That's 150 rings more per minute. We can now process the individual batches demand-oriented and a lot faster." In addition, the servo-controlled drives of the BNC 4 offer more machining freedom and ensure the highest precision. Working location and motion profile can be programmed freely across the entire op-



Left Ulrich Nann, plant manager at Baumann GmbH and Andreas Pill, head of the sales division Stampings Europe: Can now deliver more favorable offers and further strengthen their competitive position. Photos: Baumann

erating range. Thus the wire material is processed with the optimum speed at each station. This increases product quality, process safety and tool life. Thanks to the short setup times, reduced to a third compared to the MRP machines, smaller batch sizes can be produced profitably in-between product versions. "The ability for exact planning of setup times creates an enormous flexibility in order processing and reduces storage costs at the same time", says Nann. Furthermore, Baumann can now submit more favorable offers.

Setup times reduced to a third

This strengthens our competitive position. "The servo-controlled Bihler system increases the confidence of our customers and helps us today to successfully generate new orders."

Baumann also benefits from the control technology. "The Vari Control VC 1 makes simple and safe operation of the two servo-controlled machines possible", explains Andreas Pill. The integrated "bAssist" online diagnosis and help system supports machine operators with help features such as video clips, descriptive texts, manuals, pictures and diagrams. These can also be updated by the customer. The integrated remote maintenance guarantees short response times and support from the Bihler Hotline

Team. Pill casts a glance into the future: "We are excited about the possibilities of Bihler servo technology. Therefore we plan to implement more products on the two new machines as well relocate existing products."

Baumann in the German city of Lichtenstein has 220 employees producing high-quality stamped and



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formed parts as well as technical springs. Since 1964, the company is part of the Baumann Group and has become the competence center for stamping and forming technology including in-house tool-making and prototype construction. The customer base is international. Focal points are automotive, sanitary, furniture and electrical industries.

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