

At home in the automotive industry

For about three years, the Huron machining centre at the tool shop of Forges de Courcelles has been equipped with BLUM measuring technology. Under the constant pressure of having to optimise its production processes, the department has to reduce its cycle times continuously. Against the background of strong competition and rising demand, especially of crank shafts, the laser measuring systems and TC52 touch probes of BLUM facilitated the reduction of lead times and an increase in precision.



From left to right: Cyril Martin (engineer in the field of methods and tools), Régis Varney (head of the tool shop), Guillaume Rey (technical merchant at Blum-Novotest), David Grimonet (workshop engineer) and Guillaume Thenon (former Head of the Blum-Novotest Sarl in France)

The Nogent area located in Haute-Marne was known for its cutlery-producing industry for a long time. Another industrial sector that also originated in the middle of the 19th century has held its ground in the industrial landscape: the operation of steel mills. Also today, the operation at the Forges de Courcelles site is running at full speed. Being a subsidiary of the SIFCOR group, the company is specialised in hot pressing safety parts.

Market leader in crank shafts

Forges de Courcelles actually benefits from the upturn in the European automotive market, which accounts for 95 % of its turnover. The remaining 5 % concern trucks. "We mainly produce steering boxes, shifting forks, drive shafts, chassis components such as king pins for cars and triangular control arms for trucks," explains Régis Varney, head of the tool shop at the site. "A large part of our production, however, concerns the crank shafts, the demand of which has dramatically risen ever since the introduction of direct injection diesel motors (HDI)." With 470 associates, a turnover of € 116.6 million and an annual tonnage of 53,600 tons, Forges de Courcelles has maintained its position as a European market

leader in the production of crank shafts. Every year, three million of them are being produced. And the company, which works with cutting-edge production machines, also equipped its tool shop with modern machining centres. This enables them to supply up to twenty dies a day for their own use.

Huron machines with Blum-Novotest measuring technology

The tool shop consists largely of horizontal machining centres with pallet-changing devices which allow short production changeover times. The machines also include a station with 3 MAKINO A88 machining centres equipped with 13 pallets.

In addition, the tool shop contains a robot-welding station for certain processes. Endeavouring to expand its equipment and to further modernise its production resources in order to meet the rising demand, Forges de Courcelles opted for a vertical Huron K2X10 machining centre. The special thing about this machine is that it has been equipped with a laser measuring system for tool measurement and a touch probe for workpiece measurement – both of Blum-Novotest. We chose this solution

because – considering the fact that this machine is not palletised – we had to win some time elsewhere. Thanks to Blum-Novotest, we realised the savings in the measuring time."

Time is money

Time is always of great significance and this is where the Blum-Novotest touch probes come in. After placing the workpiece on the magnetic plate, all the user needs to do is start the measuring cycle. The touch probe measures the workpiece or acquires the workpiece zero point in record speed. "The optoelectronic measuring mechanism developed by Blum-Novotest allows a significantly higher probing speed. Up to 2000 mm/min are possible with the TC52, and this with higher accuracy as compared to other touch probes," explains Guillaume Thenon, former head of the French Blum-Novotest branch. "Together with the BLUM FormControl software, users can recognize machining errors directly in the process, which enables them to rework the part in its original clamping."

The BLUM MicroCompact NT laser measuring system is integrated directly in the Huron machine. Thanks to the optical system, tools can be measured under working speed while the

current chucking situation as well as the spindle expansion are taken into consideration. "A finishing tool will reach about 24,000 rpm while a roughing tool is used only at approx. 2,000 rpm. This difference inevitably results in a speed-dependent expansion of the spindle, which, thanks to the laser system, does not pose any problem for the user anymore," explains Thenon.

Various applications are possible: Of course, all functions of an optical system, such as non-contact tool setting in length and radius, shaft breakage and cutting edge monitoring, examination for chucking and concentricity errors as well as wear monitoring are available.

Régis Varney adds: "With the LaserControl systems, we can also check the shape of the cutting edge, for instance. So we can detect even miniscule errors in the cutting edge before we commence machining. We thus increase process safety and eliminate the risk of workpieces being damaged or becoming rejects." The BLUM-systems integrated in the Huron machines entirely convinced the production manager of Forges de Courcelles. This is why he already ordered a second machine with the same equipment without hesitation.

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