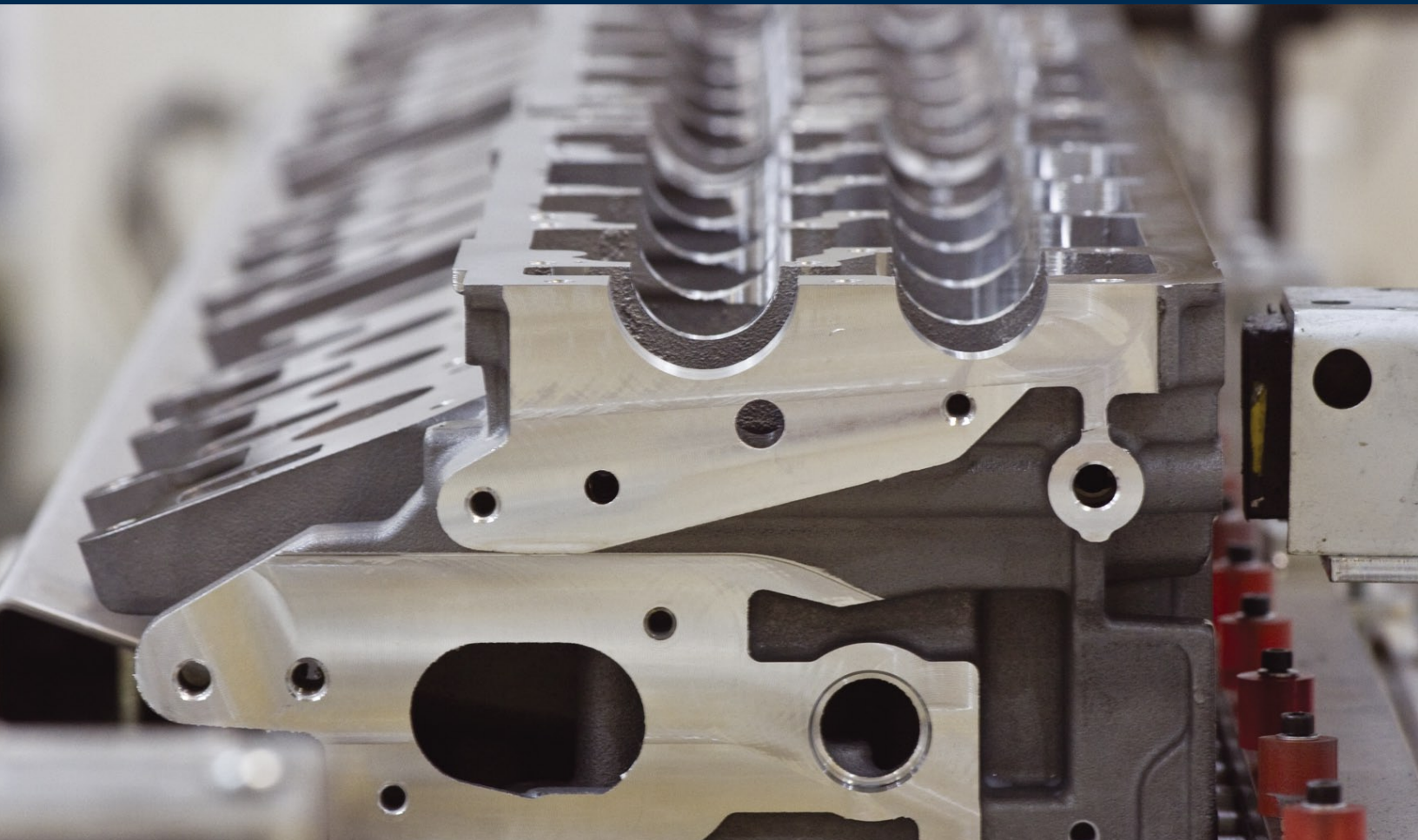


Fast and flexible

Audi





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Fast and flexible

Audi is seeking to reduce the number of its tool suppliers and cooperate more closely with those that remain

"The competition never sleeps," says Mr Jenő Pintér, head of the tooling technology department at Audi Hungaria Motor Kft, the second-largest engine plant in the world with an annual production of nearly 2 million engines. And this is why it is essential for the Audi plant to continue to optimise production.

Several thousand cylinder heads a day are produced here for a number of VW engines, and future plans include the launch of new variants of the 6-cylinder engines. With such volumes of production, even a small improvement in the process as a whole can produce major benefits. The Audi plant has been set the challenge of achieving savings of 15% in tool acquisition and this is already well in hand through the purchase of tools from companies such as Unimerco.

Cost per unit is the deciding factor

At first it sounds like a contradiction in terms, but over the course of several years Audi has achieved remarkable economic success through its cooperation with the tool developer and manufacturer Unimerco. At a superficial level the tools concerned do not seem to offer any savings, but on closer inspection (tool cost per component) they save Audi an enormous amount. "At the end of the day it is a question of the original tool cost per component produced," explains Mr Jenő Pintér, who points out that whilst one tool might cost ten times as much as another, it still pays off if it increases production one hundredfold.

One of the most recent tooling developments is a component for a new production line for manufacturing cylinder heads, including for the Audi

TT. Audi and Unimerco have worked very closely together to develop a complete tooling package for the bore machining of cylinder heads. This has led to a total reduction in production time of four minutes per cylinder head. With an output of 1,600 units per day at Győr in Hungary, this saves Audi 106 hours of production time daily, which represents an investment saving of around 20% in terms of the number of machines required. This results in further positive spin-offs in the form of lower expenditure on the purchase of tools, and savings in terms of electricity, cooling lubricant costs, personnel, space requirements and other costs.

Customised tools

The large engine plant in Győr is not only one of the biggest in the world; it is also state-of-the-art,

Facts:

AUDI HUNGARIA MOTOR Kft. in Győr is one of the most important suppliers of engines for Audi and the Volkswagen Group. The Hungarian subsidiary produces four-cylinder, V6 and V8 engines and, in cooperation with the Ingolstadt plant, assembles the TT Coupé and the TT Roadster. The company was founded in Hungary in February 1993, after production locations had been compared all over Europe. Within a few months, a site location comprising 250,000 square metres

had been acquired. The plant site has been extended to almost 1,660,000 square metres to date. With a workforce of 5,022 employees, the plant has been Hungary's biggest exporter for years. According to the annual production figure for 2005, a total of approximately 1.69 million engines were built at the engine production facility in Győr. The production total was made up of 1.4 million four-cylinder engines, 243,000 six-cylinder engines and 37,000 eight-cylinder engines.

focusing continually on cost effectiveness and high performance. Cooperation with Unimerco already goes back many years. However, the big breakthrough did not occur until Unimerco was able to focus intensively on certain machining problems. In the resulting close cooperation, Audi and Unimerco jointly developed a tooling solution that represented a step in the right direction for both companies. The solution consisted of a complete tooling package supplied by Unimerco to Audi, which is now also being used in Germany and Poland, and has also been implemented at Skoda in the Czech Republic.



Mr Pintér, head of the tooling technology department, Mr Kopton, responsible for tool planning, and representatives from Unimerco, Mr Tarcsai and Mr Cramer, meet in the foyer of Audi in Győr.

Production managers from VW sites from all over the world meet every three months to compare notes. The different sites within the company vie with one another to attract production lines to their respective countries, and they all therefore have an interest in constantly seeking the most efficient solutions applicable. Throughout the whole VW group, efforts are constantly being made to expand the best solutions and extend them to other sites.

On with progress!

The fact that Audi manufactures many hundreds of thousands of units a year does not mean it can rest on its laurels now that it has found a sound solution. On the contrary, it must continue to focus on production and further development. Workpieces, materials and tools as well as other factors

such as temperature, coolants and lubricants are all hugely important, likewise the machines which utilise the tools, as well as the individual machine operators. “We’ve already experienced a situation where a tooling concept runs smoothly on one production line and not at all on another despite the fact that the machines, workpieces and tools were all the same,” says Mr Kopton, who is responsible for tool planning. By the same token, the laws of physics and the production process – which could almost be described as organic – allow continual development of this process in that the numerous machining parameters are constantly re-examined and problems re-addressed. This requires close cooperation with the tool suppliers. “It is important for us to have the kind of partnership where we can

rely on sound technical support and flexibility on the part of the supplier,” Mr Kopton stresses.

Bigger isn’t always better

The fact that the Audi site is the biggest engine plant in Europe does not necessarily mean that its cooperation partners are as big. Indeed, Mr Kopton considers that there are advantages in working with smaller partners because they are more aware of their customers’ needs. In general, personal and direct contact with colleagues is very often instrumental in successful cooperation. According to Mr Kopton, the problem with the swarf residue in the cylinder heads at Audi was a good example of how it is quality, not quantity, that counts. Within a week Unimerco had designed, produced and supplied a new tool that was then tested at Audi. “OK, so it failed after an hour, but it only took a few adjustments to get to grips with the problem – and, to date, this tool has successfully produced nearly one million boreholes,” Mr Kopton said. Moreover, solving the longstanding problem has enabled it to operate twenty times longer than the original tool.

Fewer suppliers

In order to achieve the best tool prices for its company, Audi constantly challenges its suppliers. New development projects are always put out to tender to a number of suppliers before a decision is made. Audi sets great store by innovation and reliability when selecting suppliers. Working through the numerous bids is very time-consuming with the increasingly complex terms of reference. “If we already have a solution that we are working with very productively,” says Mr Pintér, “we thoroughly examine possible alternatives.” Part of Audi’s strategy is to reduce the number of tool suppliers, aiming to bring the number down from the original 78 to 50. The rest of the selection process is based on a series of parameters such as supplier security, reliability, innovation and willingness to cooperate – and also price, of course. One of the most important factors is whether the tool suppliers offer a sound technical service and continually support production on the ground.



The VW group as a whole strives to extend the best solutions and propagate them to other sites. For instance, the tools developed by Unimerco for Audi are currently being tested at VW in Germany and Poland. Here Mr Pintér, head of the tooling technology department at Audi, and Mr Cramer from Unimerco discuss details of cylinder head production.



UNIMERCO GROUP

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