

PRESS RELEASE

From Sylke Becker
Telephone +49 69 756081-33
Telefax +49 69 756081-11
Email s.becker@vdw.de

Verein Deutscher
Werkzeugmaschinenfabriken e. V.
Corneliusstraße 4
60325 Frankfurt am Main
GERMANY
Telefon +49 69 756081-0
Telefax +49 69 756081-11
E-Mail vdw@vdw.de

www.metav.de

**How much energy does a machine tool require?
METAV 2012 brings users' and manufacturers' skills together**

Frankfurt am Main, 2 February 2012 - Sometimes everything simply fits together so neatly: we're talking about Volkswagen AG with its ecological strategy called "Think Blue. Factory" and Brunswick University of Applied Science, which was recently awarded the German Raw Material Efficiency Prize by the country's German Federal Ministry of Economic Affairs and Technology. Commissioned by Volkswagen's plant in Baunatal, the award-winning scientists from Lower Saxony are researching the potential energy savings achievable with machine tools.

With its "Think Blue. Factory" campaign, Volkswagen is optimising its manufacturing operations worldwide in terms of resource-economy and energy-efficiency. As exemplified by Baunatal: the automaker is installing a transparent energy management system there, scheduled for completion by 2013. Dirk Sauermann, who heads the energy team, prioritises a "transparent depiction of energy consumption" at machinery and component manufacturers.

Scientists from the IWF performing research for Volkswagen

Volkswagen is receiving assistance from the Product and Life-Cycle Management Department of the Institute for Machine Tools and Production Technology (IWF) at Brunswick University of Applied Science, which Professor Christoph Herrmann has headed since 2000. From 2010 onwards, the IWF team has been working together with Volkswagen's facility in Baunatal in the field of energy-efficiency and resource-economy. "The plant possesses around 5,000 machine tools, with plenty of relevant data available. This means that for the first time we can use trend analyses to derive statements on how the energy consumption of machine tools has developed over time", reports scientist André Zein. "Our analyses show that the energy requirements of different machinery concepts for the same machining job can differ by a factor of five. This forms the motivation for our research into efficient solutions."

"We addressed the key question: what exactly is an energy-efficient machine tool?", explains Professor Herrmann. "This enabled a benchmark to be determined: what does the minimum achievable energy consumption look like?" For this question, the plant in Baunatal proved to be the right partner, since thanks to the large number of machines there the people from IWF could use time-series analyses, for example, to determine how the electrical connected load has developed historically since the first machine tools were purchased in 1930.

51 approaches for saving energy

The experts from Brunswick have developed 51 approaches for saving energy at the plant in North Hesse, 19 of which have already been successfully verified in the plant itself, and another 32 are still in trialling status awaiting further exploration. What's involved here are not merely the obvious and familiar measures, such as more energy-efficient motors, but also some approaches that are fundamentally new. "Together, we have found out how much energy can be saved if less material has to be removed, because the component concerned is preformed significantly closer to the final contour", explains the Professor.

“In times where the user is not running his machines at full load, there are several levers available for saving energy”, says Professor Hermann. “One option in concatenated production operations is to plan the process chain so skilfully that no waiting times occur.” Here, he explains, a lot of energy can be saved, since up to 70 per cent of the total energy consumption is accounted for by the basic requirement. “So one measure consists of shutting down the machine as far as possible when no production runs are ongoing”, explains André Zein. “This means the mission statement for the sector is to design a machine tool with a minimised base load that is ready for operation and reaches its operating temperature within a very short time-frame.”

What feedback and conclusions has Volkswagen’s plant in Baunatal derived from the project’s results? “The analyses obtained during the course of the project and our daily empirical feedback show that existing lines can be optimised for enhanced energy-efficiency only with substantial expenditure of time and money”, says Dirk Sauermann, who heads the energy team. “What we’re targeting here is cooperation with the machinery and component manufacturers. Besides optimising the machines’ energy consumption, since 2011 we have also been focusing on systematically factoring energy-efficiency into new machinery procurement.”

Simply measure and evaluate

But how can machine tool users proceed who does not have the options of a large corporation open to them? “Here we have developed a standard procedure geared to the capabilities of small and mid-tier companies, for acquiring the requisite data when they possess only machines with relatively old control systems, for example”, explains Professor Herrmann. “My advice is: they should use simple, sturdy measuring instruments with a simple, standardised evaluation program.” He is also hoping for more transparency from the machinery manufacturers. “I really like the idea of an energy passport, stating how much energy a machine will consume in a particular application, and how it performs there”, he comments. He thinks it’s vital that users practice mutual feedback not only with each other, but also with the manufacturers in this field. “The METAV is an obvious opportunity for this, since it’s particularly conducive to exchanging ideas, and the networks function exceptionally well.”

Background

Institute for Machine Tools and Production Technology (IWF), Brunswick, Germany

The IWF's capabilities subsume all important research and development disciplines required for comprehensive modernisation of technical production processes: from the manufacturing technologies involved, the machines and control systems, handling and assembly, all the way through to product and life-cycle management. In the IWF's "Factory for Research", with its state-of-the-art equipment, around 70 staff are currently working on topical problem areas for the manufacturing sector. The institute's work is much appreciated: at the end of November, the IWF, in conjunction with the Fraunhofer Institute for Process Technology and Packaging, Freising, Germany, and Carl Bechem GmbH, Hagen, Germany, was awarded the German Raw Material Efficiency Prize, as an accolade for developing a new polymer-based lubricant containing no mineral oil.

www.iwf.tu-braunschweig.de

Volkswagen's plant in Kassel

Volkswagen's plant in Kassel, with a workforce of 15,500 people, is the Volkswagen Group's second-largest facility in Germany, producing not only transmissions, but also exhaust gas systems and bodywork sections. In addition, spare parts for all the group's models are dispatched from here to destinations all over the world.

www.volkswagen.com

METAV 2012 in Düsseldorf

The next METAV will be held from 28 February to 3 March 2012 in Düsseldorf. In the even years, it has firmly established itself as an important technology shop window for the entire gamut of manufacturing technology and automation in Germany for manufacturers and customers from Europe. The METAV will be showcasing the entire spectrum of manufacturing technology, focusing on machine tools, production systems, high-precision tools, automated material flows, computer technology, industrial electronics and accessories. The METAV's visitor target group includes all major industrial sectors, particularly plant and machinery manufacturers, the automotive industry and its component suppliers, aerospace, the electrical engineering industry, the metalworking sector, medical technology and the craft sector. Approximately 620 exhibitors from 26 different countries have meanwhile registered for the METAV 2012, on over 35,500 m² of net exhibition area, aiming to showcase their products, solutions and services for the European trade public. The last METAV in 2010 attracted approximately 45,000 trade visitors from 26 different countries.

Number of characters (with spaces): 8 111

Your contact person

Brunswick University of Applied Science
Institute for Machine Tools and Production Technology (IWF)
Product and Life Cycle Management
André Zein
Langer Kamp 19 B
38106 Brunswick
GERMANY
mobile+49 176 23133423
a.zein@tu-braunschweig.de
www.iwf.tu-braunschweig.de



<http://twitter.com/METAVonline>



<http://facebook.com/METAV.fanpage>



<http://www.youtube.com/user/MetalTradefair>