



# up grade

Newsletter for costumers, employees and partners  
volume 14, issue no. 26, August 2011

## Trends + Markets

### EMO premiere

LASCO will be presenting its novelties at the leading trade fair for metal working technology EMO (Hanover) such as the stretching line AR-D and the hydraulic servo direct drive.

## Know-how



### Promising

The servo direct drive is taking off on its victory lap also in the field of hydraulic presses. The combination of servo drives and hydraulics leads to a significant increase in efficiency among others.

## Internal

### New responsibilities

Friedrich Herdan is transferring the operational management of LASCO after 32 years in corporate management and is taking over the chairmanship of the parent company Langenstein & Schemann Holding.



# LASCO technology backbone of science and research

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**Friedrich Herdan**  
Partner and  
Chairman of the Board  
Langenstein & Schemann GmbH

**Personal note**

Having spent 32 years on corporate management – mainly in sole responsibility – I have now transferred the operational management of „LASCO Umformtechnik“ to the responsibility of two well-proven, experienced managers of our own enterprise and taken over the chairmanship of the parent company “Langenstein & Schemann”. In this new function I will continue attending the affiliated companies “LASCO Umformtechnik GmbH, Coburg”, “LASCO Engineering Services L.L.C., Detroit” and LASCO (Beijing) Forming Technology Co. Ltd., Beijing” actively.

During my life in business so far I have always been fortunate to turn a lot of things into positive directions enjoying the support of skilled people. In this way the required profits as well as the competitiveness of the company have been generated sustainably. Nevertheless I do hope that – in performing these primary tasks of corporate management – I have always been able to stick to basic ethic belief and to have acted humanely.

The overall positive business situation of the company gives me reason for thanking all those I have been in direct contact with, and above all you, dear business partner, for the good co-operation, the confidence you have shown me and our personal relationship.

Please do also place this confidence in my successors in the corporate management of “LASCO Umformtechnik GmbH”, Mr. Lothar Bauersachs and Mr. Gernot Losert, who will also strive to strengthen the reputation and prosperity of LASCO.

May your and our company flourish in future success.

Friedrich Herdan

Lasco inviting for visit to leading trade fair

# High expectations for EMO

**Hanover has proved to be a good stage for LASCO: After the successful Hanover Fair in April LASCO has high expectations for EMO that will take place there in September.**

The leading trade fair for metal working technology EMO (19 – 24 September in Hanover) is LASCO’s main focus in the exhibition season 2011. LASCO will be pleased to welcome visitors to its stand no. C15 in hall 14, where it will be presenting its latest developments to trade visitors: the stretching line AR-D and the hydraulic servo direct drive for presses. An electro-upsetter EV 63 and an automation of a forging hammer will be demonstrated in simulated operation.

In April this year LASCO and 30 other member companies of the Industrieverband Massivumformung e. V. (Industrial Association Solid Forming) – the highest number ever – were taking part in the Hanover Fair, the world’s leading exhibition “Industrial Supply”, where

they presented their products on their joint exhibition stand. With its 850 square metres it covered the largest area of one industrial sector.

Special attention was devoted to trends and technical innovations in light-weight construction with their main focus on material savings and resource efficiency. “The number of member companies exhibiting at the Hanover Fair is growing every year. This trend reflects the increasing importance of solid forming”, said Dr. Theodor L. Tutmann, President of the Association. In his opinion the theme park “solid forming” provided them with an excellent opportunity to demonstrate their market and technology leadership and to establish manifold contacts.



About 40 representatives of French forges were taking part in a symposium organised by LASCO

Forming symposium in France

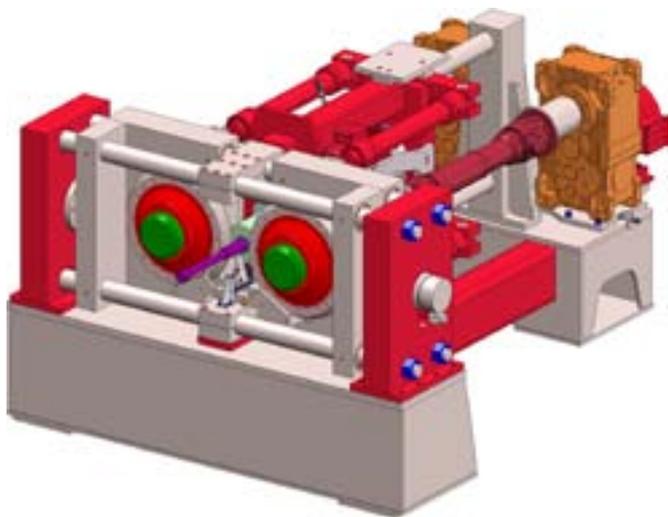
# New trends for experts

**A symposium about new trends in technology brought together French forging experts in April.**

LASCO invited professionals to take part in the event at Château Chassagne-Montrachet near Beaune to present them new ways to increase efficiency in the production of quality components.

After an opening speech held by LASCO’s sales director, Dr. Stefan Erleben, the two LASCO sales engineers Emile Fortanier

(“Trends and new developments – material and energy savings”) and Thierry Lebailly (“Increase in quality and productivity – Automated screw press line/Modern hammer forging”) as well as F. Chevalerey from the AFF - Association Française de Forge (“Magnesium forging”, “Medium-sized business promotion in France and the EU”) and Prof. Bigot, Arts et Métiers - ParisTech (“Re-designing parts for the requirements in the forge”) gave their lectures. The response we received was very positive throughout so that we are thinking of organising this symposium regularly in the future.



The axial feed cross roll from LASCO in 3D view. The prototype of the new forming roll is being produced at the moment.

Prototype near completion

## Axial feed cross rolling (AVQ) – a new method

**LASCO has completed its range of forming rolls with the axial feed cross rolling. In contrast to cross-wedge rolling and roll forging the tool geometry of the AVQ is not product-dependent.**

This method is suitable for the production of rotationally symmetrical pre- and finish forms, especially if flexibility is required.

The reduction of the unformed blank in sections is effected by two radially advanced rotating disks (tools). At the same time the work piece is axially pulled through the roller gap by tongs that grip the blank end.

The program-controlled movements of radial feed (tool) and axial feed (blank) produce the desired steps of the blank.

The prototype of the first LASCO AVQ is near completion. After commissioning it will be used in a research project at the Fraunhofer Institute IWU Chemnitz for gathering process parameters for high-tensile materials.

Polish forge expanding its production

## Five LASCO hammers in operation

**The Polish forge „KUZNIA” is continuing on its successful course with technology from LASCO.**

“KUZNIA” S.A., Sulkowice (Kraków region) commissioned its first two LASCO die forging hammers over three years ago, and three state-of-the-art units of the series HO-U have been added in the meantime. But this, too, is just a snapshot. The order books of the enterprise are full and further investments are planned if the economic trend continues to be positive. Being the leading manufacturer of scaffold couplings and supplier to renowned

European manufacturers of scaffolding systems, the forge, that was founded in 1887, has excellent business perspectives and has undergone a very dynamic development. The annual amount of billets forged by KUZNIA is at around 11 million - with 70% produced for the German market.

Besides die-forging KUZNIA also offers further machining on CNC lines as well as heat treatment in a modern hardening shop. Recently the enterprise gave again proof of its outstanding reputation, when it was chosen to host the annual conference of the Polish forging association in 2010.

## Berco producing with a VPE 3000 in future

At the end of this year the Italian Berco group is commissioning a new fully automatic forging line for the production of sprocket wheels for construction machinery at their plant in Copparo (near Bologna), for which LASCO is providing a hydraulic multi-purpose press type VPE 3000. The press with a press force of 30,000 kN will be used as pre-forming unit. The pre-forms will then be fed to a screw press with a press force of 160,000 kN for finish-forging via manipulators. The LASCO unit features high pressing speeds and a hydraulic accumulator drive. (Details in our next issue)

## NMF Institute uses LASCO technology for research

In the presence of about 200 representatives from politics, economics and science the Institute “Neue Materialien Fürth” (NMF) (New Materials Fürth) recently inaugurated its third technology hall. In this building covering 950 square metres research shall be done on materials of the future such as innovative sheet metals for lighter vehicles and aircraft. This will also be done with the help of a LASCO press type TZP 400/3 which is “unique worldwide” according to the director of the institute, Professor Marion Merklein. The special feature of the unit with a press force of 4,000 kN is its functionality. The press is equipped with drawing cushions in the ram (four-point) and in the table. In addition the functions of maintaining the parallelism between ram and table surface, cutting impact dampening and orbital forming are integrated and driven by four additional cylinders.



HO-U 400 of “KUZNIA” S.A. in Sulkowice (Poland).

# Concept for energy-efficient hydraulic presses

# Servo direct drive with excellent prospects

**After the striking success of mechanical servo presses the servo drive technology is about to find its way into hydraulics.**

At a hydraulic servo direct drive a servo motor is directly coupled with an unregulated hydraulic pump. The positioning of the hydraulic pistons, the adjustment of the pressing speed as well as the setting of force values are done without control or proportional valves.

The availability of efficient electric servo drives is giving this drive concept more and more momentum.

Contrary to this concept the conventional press drive is normally effected via an asynchronous motor running at constant speed and a pump with variable delivery rate that

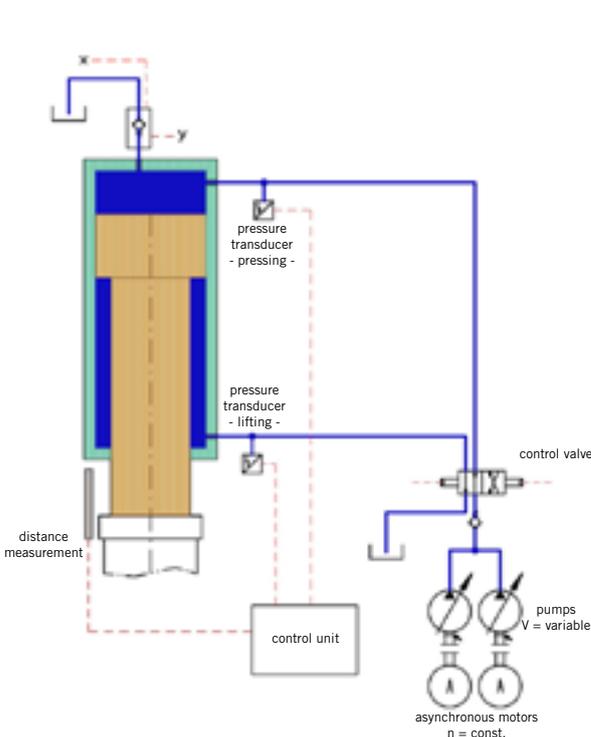
can be adjusted mechanically, and it is controlled by control or proportional valves.

But still the new technology cannot do completely without valves. Valves that can be switched and partly also controlled are required for safety functions or the filling of large cylinder chambers for quick movements. In addition the safeguarding of the pressure circuits against a maximum value must also be maintained.

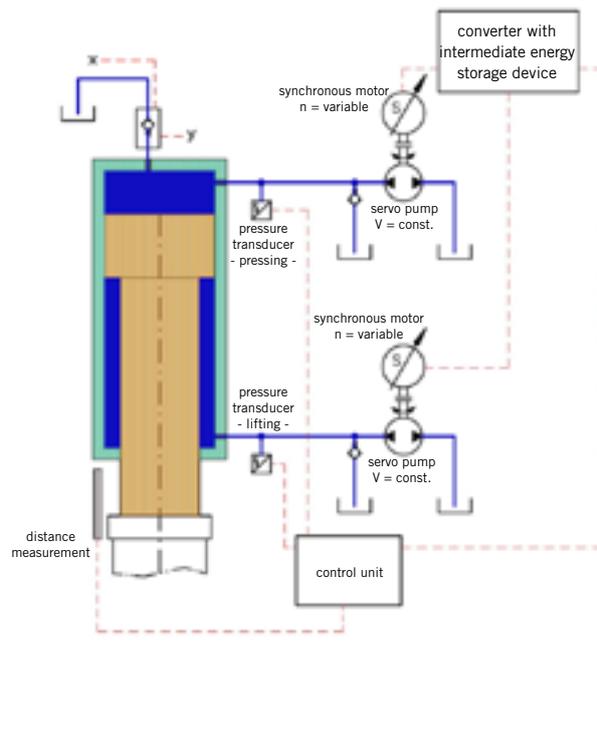
This drive technology shows its strengths especially in positioning tasks. The value of the actual position for the press ram is

transferred to the position controller of the axis control. Then the servo drive moves the hydraulic piston to its desired position by feeding the required quantity of hydraulic oil into the cylinder. In addition compressibility and leakages are compensated automatically. For machines with several press cylinders a simple and highly efficient synchronization control can be realised even with changing loads.

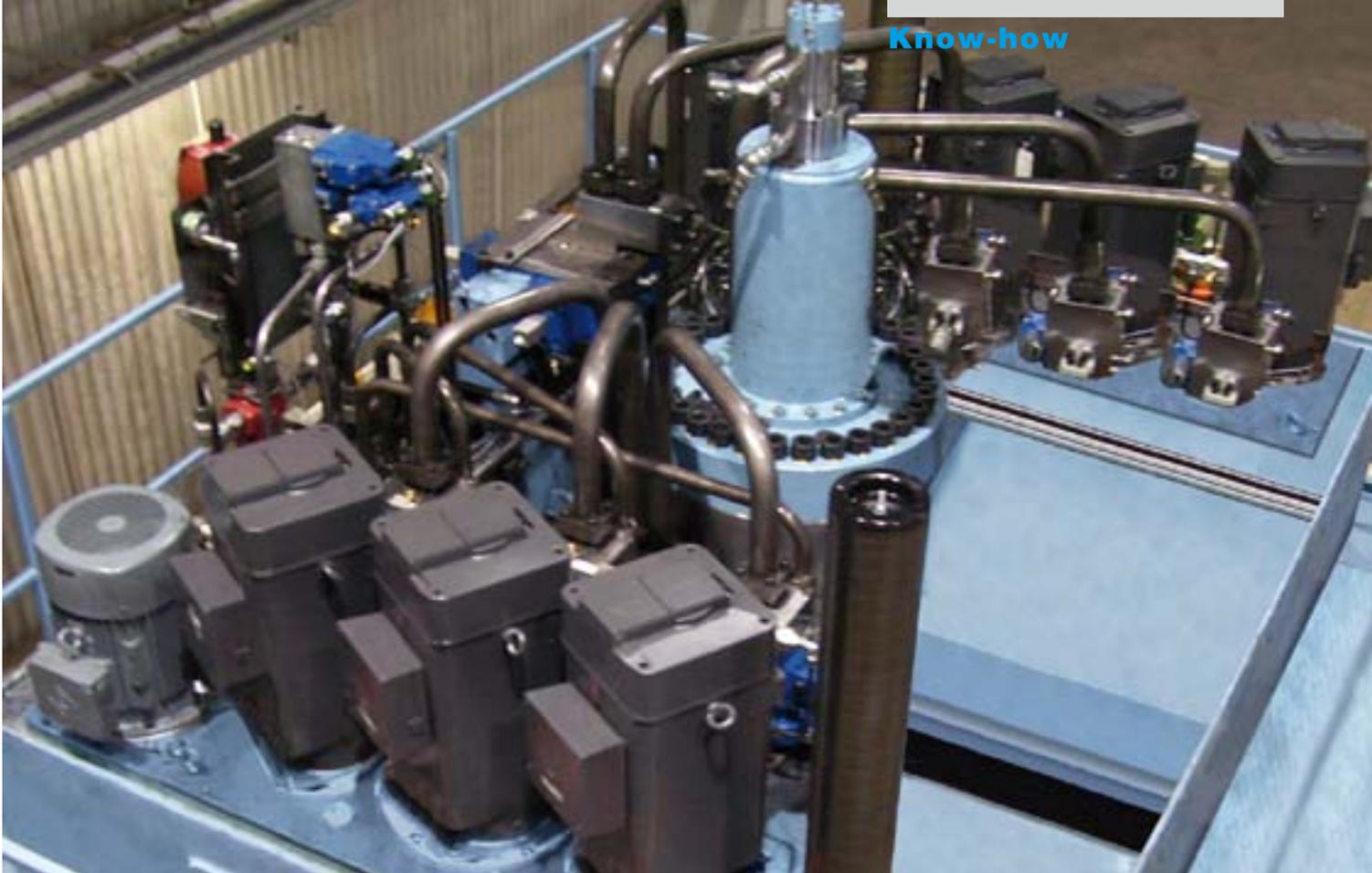
Press area and draw-back area are provided with hydraulic oil by separate pump drives. During the fast down-movement of the press ram the hydraulic oil flows from the draw-back area via a pump into the oil reservoir. The speed is controlled by the servo motor, electric power is stored in the intermediate circuit of the servo system during the generator operation of the servo motor. The braking function is also effected by the servo motor.



Conventional hydraulic press drive



Hydraulic servo direct drive



View of the new servo direct drive of a hydraulic LASC0 press. The new drive concept will be presented at the EMO in Hanover.

For the subsequent pressing function the motors take braking energy from the intermediate circuit of the servo system that has been fed in before.

The spring energy that is stored in the compressed hydraulic oil at the end of the press cycle is also used for driving pump and servo motors in the relief cycle generatively storing energy in the intermediate circuit.

Both internal gear pumps and axial piston pumps can be used for the drive of the servo hydraulic press.

Due to the scalability of the drives (number of the motor/pump combinations) almost any driving power can be realised.

Servo technology allows almost perfect control not only of the main press cylinders but also of ejectors and drawing cushions. In the displacement operation of the drawing cushion the servo motor counteracts with its flanged pump. The drawing pressure is determined by the torque of the servo motor in generator operation. The generated energy partly feeds the drives of the drawing punch, thus leading to an immense increase in efficiency.

Even the control oil pressure circuits are fed via a servo pump. Here the servo motor is operated by torque regulation to maintain the required control pressure. The pump is then rotated exactly at the rotational speed required to supply the quantity of control oil plus leakage.

Such hydraulic systems have an uncomplicated design and allow very quick and simple diagnosis. With the automatic pump check the hydraulic pumps can be checked for wear at regular intervals..

The servo direct drive can be optimally adapted to the requested forming task. Extrusion or drawing operations require nearly constant

pressing force over a long distance. In this case power control operation is abandoned. Upsetting or even stamping is characterized by a non-linear force path with a short, steep force increase at the end. Here power control operation suggests itself to limit the motor torque. This can be done with a pump with adjustable delivery. The pump is adjusted down during the force increase towards the end of the pressing cycle to limit the required torque. Thus lower forces still allow relatively high speed.

*Author: Dipl.-Ing (FH) Herbert Rüger*

### The advantages at a glance

- Hydraulic presses with servo pump drives have a coefficient of efficiency of > 90% (cos phi = 1).
- Efficient energy input into the forming process.
- During a standstill of the line drive motors and pumps also stop.
- The operation of the hydraulic system is almost pulsation-free.
- Multi-axial lines – especially with tight functional connections of the axes – can be controlled reliably.
- All setting data allow digitized storage and documentation.
- Simplified diagnosis even of complex line structures due to clear drive design.

# “Leonardo” project Young guests visiting plant

**Two apprentices from Belgium gained know-how and made contact during their internship at LASCO.**

LASCO hosted Demsey Deconick (18) and Simon Decordier (18) for two working weeks. Within the scope of the “Leonardo” project of the European Union the two students from the Vrij Technisch Instituut in Waregem (Belgium) were delegated to get some insights into the work of a recognized training company and make friends with colleagues that might prove to be useful in the international cooperation for years to come.

The contents of the internship focused on the field of electrical engineering. The young guests gained knowledge of electric wiring and its commissioning, measuring with gauges such as multimeter and oscilloscope, equipping and soldering up electronic components, installing and wiring of line components. A comprehensive curriculum for



**Demsey Deconinck and Simon Decordier working on electronic circuits in the LASCO training centre.**

two short weeks! “We got to know our Belgian guests as nice, highly motivated colleagues who were eager to learn”, said instructor Georg Pfeuffer. “Their solid technical knowledge made it easier for them to access and master new tasks. They also managed to integrate themselves in the team of our young people in a friendly and cooperative way.”

Within the scope of the so-called “Leonardo” programme the European Union supports job and training-related activities in EU countries. LASCO and the Belgian Vrij Technisch Instituut have been cooperating for years and have exchanged apprentices repeatedly.



LASCO apprentices once again reached good results and an average overall mark of 2.2 (1=best/6=worst mark) in their final exams of commercial-technical jobs. Whereas their colleagues in commercial jobs still have to take their exams the following apprentices already received their certificates as skilled workers: (rear from left) Kevin Reißweber, Daniel Klimm, Dominic Heidl, Kai Bauersachs and Rene Müller as well as (front from 2nd left) Annemarie Galle, Frank Riedel, Timo Schramm, Fabian Schurz and Jörg Lehmann. The instructors Heiko Opel (left) and Georg Pfeuffer (rear right) congratulated them on their career start.

## Spotlights

**New ERP system:** LASCO wants to react to its customers’ demands even more quickly and meet their individual and additional requirements with even higher flexibility. The enterprise had this aim in mind when it introduced a new ERP (Enterprise Resource Planning) system. This central data administration software speeds up administration and business processes by simple operation of



an intuitive graphic user interface, with which LASCO expects to achieve more efficient planning and administration of resources and a gain in time in administration work by e.g. simpler data acquisition and automated processes within the plant. With this LASCO also intends to upgrade its service activities for the customer.

### 10 years with LASCO

**Henry Zwilling** 01.04.2011  
**Bärbel Pohler** 01.05.2011

### 25 years with LASCO

**Annette Klebeg** 01.01.2011  
**Reinhold Jenke** 12.05.2011  
**Uwe Hoffmann** 01.07.2011

### Recently retired

**Günter Ehrlicher** 31.12.2010  
**Wilfried Heß** 28.02.2011  
**Dr. Hans Kühnlenz** 30.04.2011  
**Joachim Niller** 31.05.2011  
**Ulrich Hofmann** 30.06.2011

# Operational management in new hands

**Friedrich Herdan has placed the responsibility for the operational management of LASCO to his former members of the management board Gernot Losert and Lothar Bauersachs and is taking over the chairmanship of the parent company Langenstein & Schemann Holding.**

Friedrich Herdan has handed over the group, which produces machine tools, production lines and automation technology for solid and sheet metal forming, powder metallurgy and building materials, after 32 years in corporate management – mostly in sole responsibility – in excellent condition. The company (established in 1863) with a qualified staff of about 450 stands on a very solid financial foundation and has high-potential future prospects.

Herdan's successors are the graduate engineer Lothar Bauersachs (47) and the commercial executive Gernot Losert (57) who have both proved themselves in managerial functions at LASCO for years. They were already members of the extended board that was created in 2009 under the chairmanship of Friedrich Herdan.



**Lothar Bauersachs**  
Managing Director Engineering and Sales

Lothar Bauersachs joined LASCO in 1991 and was in charge of the design department Electrics/Electronics before his appointment. He has now taken over responsibility for the divisions Engineering and Sales.



**Gernot Losert**  
Managing Director Administration and Production

Gernot Losert has been working for LASCO since 1982 and was – among other things – Chief Purchaser. In the new dual leadership his responsibilities are Administration and Production.

**Friedrich Herdan – here making a speech in his position as President of the Chamber of Commerce and Industry in Coburg – will continue to take care of the companies of the group.**



Keen interest in job information

## Target group: Youth

**Economy is investing in the recruitment of junior staff to secure the availability of skilled personnel.**

45 local companies – more than ever before – presented their vocational training programmes at the Vocational Training Exhibition organised by the Chamber of Commerce and Industry in Coburg. LASCO, a regular exhibitor, was surprised at the keen interest

of school students, parents and teachers, though. Obviously young people recognize more and more that good information is the pre-condition for an optimum start in the desired job, even if the chances of an apprenticeship have clearly grown for applicants due to sinking numbers of school leavers. The Coburg area offers vocational training for skilled workers in about 200 jobs, after all. Obviously companies are also trying more and more to interest girls for commercial-technical jobs.

## Fairs + dates

**ChinaForge Fair**  
Shanghai, China

**23.08. – 26.08.2011**

**EMO**

Leading trade fair for metal working technology  
Hanover, Germany

**19.09. – 24.09.2011**

### up grade

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**The stands at the Vocational Training Exhibition were surrounded by crowds of people.**





**Professor Dr.-Ing. Bernd-Arno Behrens**  
Head of the Institute for Forming Technology and Forming Units (IFUM) at Leibniz University Hanover

## Enormous potential

**up grade:** Professor Behrens, since 2009 your institute has been operating a LASCO screw press SPR 500 among others. What is the unit used for in research?

**Prof. Behrens:** As the screw press allows very fine and exact adjustment of the provided forming energy, it is ideally suited for precision forging tasks, one of the topics we are focussing on intensively within the scope of our Special Field of Research 489.

**up grade:** What goals does this special field of research pursue with the project “precision forging”?

**Behrens:** The Special Field of Research 489 deals with the complete process chain for the production of precision-forged high-performance components. Some typical components in this field are e.g. camshafts, con-rods, valves, sprockets, gear wheels, pinion shafts and crank shafts. The main aim is to identify and exhaust all possibilities to produce such parts more efficiently. After all, our task is to innovate the processes to help industry to save costs, energy and time.

**up grade:** Are there already any results within reach?

**Behrens:** The conventional process chains e.g. for gearing and long parts consist of up to 13 or 15 steps. The alternative process chains we are working on by using precision forging as well as a number of innovations of key parameters (e.g. material, tools, quality assurance) reduce them to 7 or even 6 steps. Without going into details these figures give impressive proof of the enormous efficiency potential that can be opened up. We are convinced that we will succeed.



# Research Institute IFUM Innovation driver

**The Institute for Forming Technology and Forming Units (IFUM) in Hanover is considered to be the innovation driver for metal forming processes. Based on LASCO technology it also does research in possibilities to produce high-performance components more efficiently.**

A LASCO precision screw press SPR 500 is expanding the research range of the Institute for Forming Technology and Forming Units (IFUM). In the research field of the IFUM at the Hanover Centre for Production Technology at Leibniz University Hanover (PZH) the SPR 500 is particularly popular with those scientists who are developing new processes in the Special Field of Research 489 “Process chain for the production of precision-forged high-performance components” to allow resource-efficient forming of components in such a way that they leave the forging process near net shape and without flash.

The “new one” has two decisive advantages over its also energy-dependent pre-decessor. This previous type, which has been in operation in the institute since 1982, is equipped with an energy-storing fly-wheel which is connected with the screw via a coupling. The new SPR 500, however, is directly driven by the motor. This allows ideal control and very precise and repeatable processes. “The blow energy can be adjusted from 1% to 100%. The precision of the energy setting is + 1% for gross energies of > 10%”, said enthusiastically Andreas Puchert and Dirk Odening, who were responsible for the procurement of the press at IFUM. “Thus the press opens up excellent possibilities for us regarding future research work.”



Also the head of the institute, Professor Bernd-Arno Behrens, is pleased about the longed-for addition in the forming hall that offers a unique equipment variety nation-wide for research in hot solid forming, but also for cold and sheet metal forming, with two energy, stroke and force dependent lines each. Behrens emphasized the second big advantage of the new press that had been equipped by LASCO with a special interface as an individual feature. “Here we can connect a computer for measurement and control. All data that are processed in the process control can thus be documented and read out, evaluated right in the computer and adapted to the data of the forging process.

The Hanover Centre for Production Technology (PZH) originated from an idea of Leibniz University Hanover to bring together university research, industry and enterprises in the field of production technology. Therefore those six institutes of the mechanical engineering faculty that deal with production technology and logistics have teamed up with the PZH GmbH and numerous enterprises to set up the Hanover Centre for Production Technology. The GmbH (limited liability company) as a subsidiary of the university has taken over responsibilities in the field of technology transfer and consulting services for the foundation of new companies besides the administrative work of the centre in Garbsen (Hanover). Currently the PHZ employs about 450 engineers/scientists and clerks in engineering and administration as well as about 400 student research assistants. It has become a research and teaching centre in which basic as well as mission-oriented research are done on the highest international level.

**The arrival of the new screw press from LASCO at the IFUM was precision work. The SPR 500 has been strengthening the section hot solid forming there since the end of 2009.**