



# up grade

Newsletter for customers, employees and partners  
volume 19, issue no. 37, December 2016

## Trends

### Servo direct drive for deep-drawing presses

Hydraulic presses driven by servo pumps offer a range of advantages in sheet metal forming, too. LASCO was able to convince a lot of users of this benefit at the leading trade fair EuroBLECH in Hanover (25 – 29 October).

## Know-how

### Dimensioning machine sizes

The design of the machine size is a critical task to undertake when planning new equipment. Only units that prove to be optimally dimensioned over their whole operating time are economically optimal. Methods of rough calculation for practitioners will be presented in our new know-how series.

## In practice

### Hirschvogel is expanding cooperation

The Hirschvogel Automotive Group (Denklingen/Germany) is further expanding cooperation with LASCO as technology supplier for forming lines. LASCO has recently realized a fully automated aluminium forming line for the production site Marksuhl near Eisenach (Germany) and is currently delivering a cross-wedge roll QKW 700.





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

### Stimuli to the economy required

The International Monetary Fund IMF estimates a growth of only 3.1% in 2016 and 3.4% in the coming year. In the medium term the growth of industrialized countries will probably continue to be disappointing, predicted IMF experts in „World Economic Outlook“ for the fourth quarter 2016. Stimuli to the global economy are required.

These statements of highly reputed economists show clearly: Even if the German economy seems to be going well at first glance, the world economy is on shaky ground. For that reason alone such important plans for reducing trade barriers like the free trade agreement of the European Union with Canada (CETA) and the USA (TTIP) must not fail once and for all. They miss chances to secure the competitiveness and prosperity of Europe and to participate in creating the rules of global trade instead of leaving the field to other players of the global economy. Simplified and more efficient regulations for the exchange of goods and services would especially help small and medium-sized enterprises to gain access to transatlantic markets, too.

With their democratic decision to leave the European Union – if we like it or not – the British unmistakably pointed the way to the future. The BREXIT must not become a stress test in an economic climate that is very sensitive anyway, though. For this reason, the necessary negotiations must be concluded cooperatively, pragmatically and without delay with the aim of best balanced results on both sides. The EU is well-advised not to complicate Great Britain’s future access to the Single Market unnecessarily. As Europe is incomplete without Great Britain and nothing will last forever anyway, the door should be kept open for a return of our British friends. Until then, we should deal with each other in a fair manner.

I wish you and your families a peaceful festive season and a good start into the new year!

Yours Friedrich Herdan



None other industry is under such high innovative pressure for sheet metal working than the automotive industry. This became clear once again at the EuroBLECH exhibition in Hanover (Germany).

## 24<sup>th</sup> Int. Sheet Metal Working Technology Exhibition Smart production processes

**The general mood in the sheet-metal working industry is positive. New technologies in the field of smart production processes challenge the sheet metal forming industry, but offer chances, too.**

This became clear at the 24th International Sheet Metal Working Technology Exhibition EuroBLECH, which was marked by innovative production in the age of advancing digitalization. Numerous new solutions along the complete technology chain of sheet metal working were offered to increase cost efficiency, flexibility and process stability. 1,550 exhibiting companies from 40 countries showed their products at the world’s leading

trade fair for the sheet-metal working industry. With more than 89,000 m<sup>2</sup> of net exhibition space, EuroBLECH registered an increase in space of more than 3% compared to the preceding event.

LASCO focused on the option of equipping and retrofitting hydraulic deep-drawing presses with servo direct drives. The fact that some internationally leading automotive suppliers are already using LASCO servo direct drives very successfully attracted great interest among the experts. Hydraulic presses with servo direct drives reach an efficiency of more than 90% and stand out due to higher energy efficiency, shock-minimized operation, comprehensive control possibilities and simple diagnosis (even for complex lines) compared to conventional hydraulic drives.

### SENAFOR conference: Brazil is looking ahead

The Brazilian metal forming industry expects to overcome the economic and political trough soon and hopes for stability and growth. This became more than obvious at the traditional SENAFOR conference of the metal-forming faculty at the State University Rio Grande do Sul under the direction of Professor Dr. Lirio Schaeffer. 200 industry experts participated in the two-day congress in Porto Alegre from 5 to 6 October. The event took place for the

36<sup>th</sup> time already and is always divided into a series of lectures on solid forming, sheet metal forming and powder metallurgy.

LASCO gave a much-noticed talk on its new developments with focus on the product line of new „multi-axial presses“. As co-sponsor LASCO supported the important trade meeting for Brazilian forging experts.

## STUBAI KSBH opts for reliability

The Austrian forging company STUBAI KSBH GmbH (Innsbruck) opts for reliable, fully developed means of production and has therefore decided on LASCO technology once again. The enterprise has ordered another double-acting die forging hammer type HO-U 630.

The forming unit will be used universally for all kinds of forging tasks from the end of 2016 on. The main products in the range of production are vehicle parts and hand tools. The drive in block-type construction and the control are conceived for highest versatility. Other advantages of the die forging hammer are the low operating costs and the multi-purpose range of operation.



LASCO HO-U 630 at Stubai KSBH



## Field test: HWS convinces experts

The first hydraulic horizontal forging machine HWS from LASCO (see cover picture) has been commissioned successfully. In a comprehensive testing schedule under conditions of practice, all technical requirements were fulfilled brilliantly. The advantages of the hydraulic drive over traditional concepts are ground-breaking:

- High forming speed,
- rapid parallel movement of the rams,
- independent control of the vertical and horizontal movements,
- as well as additional forming work also in vertical direction

offer the best conditions for forming complex geometries. Such forming tasks have required several units with considerably longer cycle times so far.

## Highly satisfied with innovative LASCO technology Hirschvogel ordered another cross-wedge roll

**Hirschvogel Eisenach GmbH (HEG) has ordered another cross-wedge roll QKW 700 So in the year of its 25<sup>th</sup> anniversary.**

The company, which has its origins in the takeover of the "operating department forge" of the former Wartburg works by Hirschvogel Automotive Group (Denklingen, Germany), has already been using LASCO forming rolls of the same

type very successfully in pre-forming with automated steel forging lines. To optimize the process further HEG developed special tools and LASCO adapted the machine concept accordingly. At the copy deadline of this Up-Grade edition the QKW 700 So was just being installed in Eisenach.



LASCO QKW 700 So at Hirschvogel

## Fairs + dates

### Forge Fair

Cleveland (Ohio), USA  
04.–06.04.2017

### Hanover Fair

Hanover, Germany  
24.–28.04.2017

### Metalloobrabotka

Moscow, Russia  
15.–19.05.2017

### EMO Hanover 2017

Hanover, Germany  
18.–23.09.2017

### Annual Meeting of Cold and Hot Solid Forming

Düsseldorf, Germany  
22.–23.02.2017

### Meform

Freiberg, Germany  
15.–16.03.2017

### 22<sup>th</sup> UKH

Hanover, Germany  
15.–16.03.2017



LASCO technicians recently installed two more forming machines at the Leistriz plant Choburi (Thailand), which are used for forging engine blades.

## Screw press and multi-axial press in operation Leistriz is rapidly expanding production in Thailand

The site of the Leistriz Group (Nuremberg/Germany) in Thailand, which was opened a few years ago, records a very successful development. The enterprise invested in two LASCO forming machines again to expand its production capacity.

Until a few weeks ago LASCO technicians were still very busy in the plant at Nongkham Si Racha of Leistriz (Thailand) Ltd. to make sure the commissioning of the high-performance unit could be completed on time. At the end of October the production of engine blades from titanium alloys as well as nickel alloys for aero-engines started smoothly on the new machines.

Leistriz has considerably increased the capacity of the new equipment compared with



Typical turbine blades from Leistriz

the LASCO screw presses types SPR 630 and SPR 900 that have already been in use since 2011. The screw press SPR 1600 with a max. admissible press force of 25,000 kN is even roughly twice as big as the SPR 900. The new SPR 1600 is used for finish-forging in an interlinked process. Pre-forming is carried out by the new LASCO development „FLEX 40/60“. This multi-axial press provides forming forces of twice 4,000 kN (horizontally)

and 6,000 kN (vertically) via three separate, synchronized hydraulic drives.

The Leistriz Group manufactures demanding products with a workforce of approx. 1,800 at several national and international sites and cooperates closely with industrial partners from the aerospace sector, the automotive industry, shipbuilding as well as the plastics and the pharmaceutical industry.

# Series: Basics of solid forming (1)

# How to determine machine sizes

In a new series we want to help practitioners of the trade on the staff level of a forging company to calculate forming forces respectively required machine sizes quickly without wanting to substitute scientific calculation methods.

Let's start with the determination of the required hammer size for die-forging.

The diagram shown is based on empirical values of many years established in practice and assuming three to four blows (pre-forming blow, one or two forging blows and a calibrating blow) for normal forgings of commercial material quality according to DIN EN 10027.

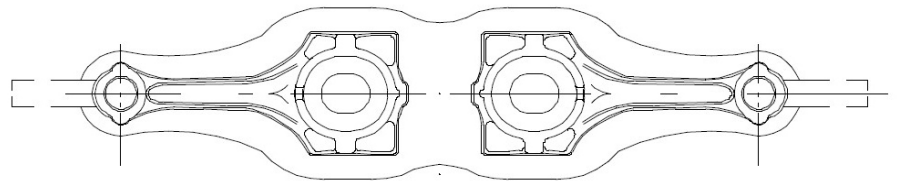
Heat-treated steel and higher steel alloys need some allowance. The differences in the  $k_f$  values according to the table shown on the right can be used as guidance.

First the complexity of the forging is selected according to the sketch below.

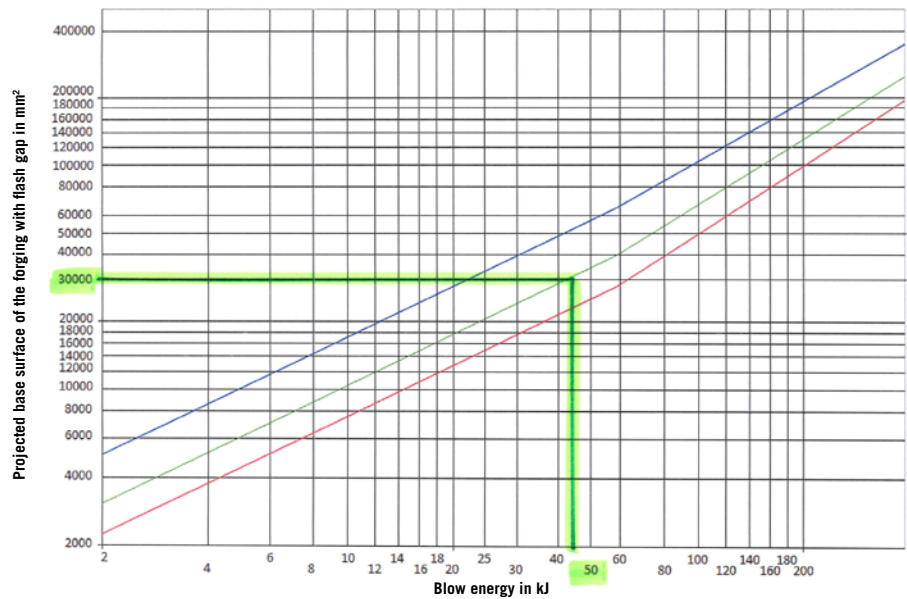
$k_f$ -values [ $N/mm^2$ ] depending on temperature and material						
material		forging temperature [ $^{\circ}C$ ]				
material no.	EN denomination	900	1000	1100	1200	1300
1.0401	C15	$k_f$ 160	140	110	70	50
1.0503	C45	$k_f$ 190	160	120	80	50
1.7220	34 Cr Mo 4	$k_f$ 200	170	120	80	60
1.4718	X 45 Cr Si 9 3	$k_f$ 240	190	170	120	/
1.4006	x 10 Cr 13	$k_f$ 280	220	170	h90	/

Then the projected surface of the forging is roughly determined and an allowance of approx. 25% is empirically added for the flash gap.

## Practical example: forging of con-rods



**Double con-rod with flash gutter**  
Projected surface of the forging approx. 30,000 mm<sup>2</sup>



**Conclusion:**  
The forging of the double con-rod with approx. 4-5 blows requires a hammer with an energy of approx. 45 kJ.

**Optimum unit:**  
**LASCO HO-U 500**



Slightly structured, compact parts with rounded edges

Line A



Structured parts with medium level of difficulty

Line B



Difficult thin-walled and flat parts with thin crosspieces, fins, pins and sharp edges

Line C



The LASCO apprentices with Lothar Bauersachs, CEO (2<sup>nd</sup> from left), the three training supervisors Luisa Wachsmann (3<sup>rd</sup> from left), Georg Pfeuffer (4<sup>th</sup> from right) and Björn Bühling (left) as well as David Hall, works council chairman (2<sup>nd</sup> from right).

## Additionally four refugees in vocational training Active contribution to integration

**LASCO accepts joint responsibility in integrating refugees. Four refugees – still without any knowledge of German – are training as industrial mechanics according to the so-called „1+3 apprentice model”.**

In the four-year training model for young refugees aged between 16 and 30, language acquisition and vocational training do not take place in stages, i. e. at different times, as done so far, but parallel. This should help to shorten integration into the working life. The 1+3 apprentices receive apprenticeship pay right from the start and can take charge of their lives themselves at an early stage. The pilot model from Coburg initiated by Friedrich Herdan, President of the local Chamber of

Commerce and Industry, combines dual vocational education at a vocational school and professional training in the company with language acquisition. (For more information please see [www.coburg.ihk.de/778-0-1plus3.html](http://www.coburg.ihk.de/778-0-1plus3.html)).

With 17 first-time employees – 14 (among them four refugees) in industrial-technical occupations and three in integrated degree programmes mechanical engineering, industrial economy and business administration – who started their apprenticeship at LASCO on 1 September, the enterprise has once again expanded its high commitment to qualified vocational training of young people. On total, LASCO employs 62 apprentices now. The training ratio went up from 15% in the previous year to 17% now.

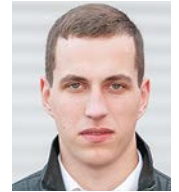


### Assembly hall becomes „classroom”

Once again, school students visited LASCO within the scope of their project „School physics meets mechanical engineering” in order to experience in „on-site lessons”, supported by engineers and technicians, how knowledge of physics leads to concrete solutions in tool making and mechanical engineering. Our picture shows the group with their teacher and LASCO executives in one of LASCO’s assembly halls. The project has been carried out in Coburg for a few years already to get high school students interested in technical jobs and studies.

## Spotlights

**Role models:** Once again three junior LASCO employees have been awarded the “Dr.-Kapp-Vorbildpreis”. **Johannes Seifert** (picture top), industrial mechanic apprentice doing an integrated degree programme in mechanical engineering since 2011, **Joachim Reinhardt** (picture middle), mechatronics apprentice since 2015 and **Adrian Wolf** (picture bottom), cutting machine operator apprentice since 2015, re-



ceived the award for their commitment and responsibility in charitable work they regularly do in the volunteer fire brigade, in the parish or in sports clubs in their free time outside their vocational training. The prize was already awarded for the 12<sup>th</sup> time by the Bavarian Employers’ Association of the Metal and Electrical Industries (bayme vbm) in Coburg. It is named after its donor and entrepreneur from Coburg, Dr. Bernhard Kapp, and shall motivate apprentices in these industries to do voluntary work.



ceived the award for their commitment and responsibility in charitable work they regularly do in the volunteer fire brigade, in the parish or in sports clubs in their free time outside their vocational training. The prize was already awarded for the 12<sup>th</sup> time by the Bavarian Employers’ Association of the Metal and Electrical Industries (bayme vbm) in Coburg. It is named after its donor and entrepreneur from Coburg, Dr. Bernhard Kapp, and shall motivate apprentices in these industries to do voluntary work.



### 10 years with LASCO

<b>Ralf-Gerd Appenrodt</b>	01.08.2016
<b>Björn Bühling</b>	01.09.2016
<b>Daniel Albert</b>	01.09.2016
<b>Wladimir Keller</b>	01.09.2016
<b>Marçal Welsch</b>	01.09.2016
<b>Gabriele Gruschwitz</b>	01.09.2016
<b>Christoph Rapczynski</b>	18.09.2016
<b>Sebastian Zach</b>	01.11.2016
<b>Waldemar Scheller</b>	01.11.2016

### 25 years with LASCO

<b>Andreas Weber</b>	01.01.2016
<b>Ute Pfeuffer</b>	01.08.2016
<b>Wolfgang Bätz</b>	01.09.2016
<b>Lothar Bauersachs</b>	16.09.2016

### 40 years with LASCO

<b>Thomas Albert</b>	01.09.2016
----------------------	------------

Five employees honoured for 40 and 25 years with LASCO

# Remarkable professional biographies

**Five employees who have been working for the enterprise for many years were honoured for their performance and loyalty in a ceremony at LASCO, and as outstanding example for continuity and career prospects Lothar Bauersachs, CEO, for his 25<sup>th</sup> anniversary.**

In a ceremony Friedrich Herdan, Chairman of the Board of LASCO Langenstein & Schemann, Holding, honoured the performance of Lothar Bauersachs in prominent position in the company for over 25 years. Following this, CEO Lothar Bauersachs thanked Thomas Albert for 40 years at LASCO as well as Wolfgang Bätz, Ute Pfeuffer and Andreas Weber for 25 years' commitment to the company. In the presence of the Managing Directors Thomas Götz and Robert Welsch as well as David Hall, Works Council Chairman, the long-time employees were presented certificates, loyalty bonuses, honorary certificates of the Chamber of Commerce and Industry as well as decorations of the Board of Trustees of Bavarian Employers.

**Lothar Bauersachs** had the opportunity to get to know LASCO already during a practical semester and when writing his diploma thesis, before he joined LASCO as a graduate engineer in electrical engineering on 16 September 1991.

Right from the start his career turned out to be remarkable. As early as 1998 Bauersachs became Deputy Manager of the electrics/electronics division and took over full responsibility for this part of the engineering department in 2004. He was able to collect practical experience in designing over many years and to contribute his excellent knowledge of electrical and mechanical engineering. In addition he was able to see for himself the

customer benefit of his conceptions in numerous commissionings of lines at home and abroad and to integrate knowledge gained as feedback into technical innovations. In 2008 he was given power of attorney. Due to his outstanding competencies and knowledge of operational procedures for many years, but especially due to his high empathic ability, he was appointed Managing Director Engineering/Sales in September 2009 and CEO on 1 February 2015.

## 40 years in the company

**Thomas Albert** trained as an industrial mechanic at LASCO. After having completed his apprenticeship successfully Thomas Albert established himself as indispensable specialist and senior worker at home and abroad and soon qualified as a sought-after service technician both with German and international customers. Albert has been teaching young skilled employees in the highly demanding field of external installation and commissioning for many years and willingly passes on his knowledge to junior workers.

## 25 years commitment to LASCO

**Ute Pfeuffer** is the first point of contact in reception, face and first impression of LASCO for visitors, customers and suppliers. When dealing with German or international visitors, welcoming business partners, arranging meeting rooms or at the switchboard, her friendly and obliging manner has become highly appreciated among all LASCO partners.

**Wolfgang Bätz** already trained as cutting machine operator at LASCO with focus on turning and contributed his knowledge gained and skills since he started work in mechanical production. In the following years Bätz was able to qualify as specialist in CNC controlled machining centers due to his skills and has become a qualified expert e.g. in radial drilling operations.

**Andreas Weber** joined LASCO as a machine fitter in 1991 and has become an indispensable qualified expert as service technician in external installations. From the start Weber has been very committed and has soon become a specialist in the installation, maintenance and repair of LASCO machines and lines at home and abroad. Weber is highly esteemed by LASCO's customers, especially in the field of hydraulic press technology for the production of sand-lime bricks.



**In the picture (from right): Lothar Bauersachs, CEO, Friedrich Herdan, Chairman of the Board of Directors LASCO Langenstein & Schemann, Holding, Wolfgang Bätz, Andreas Weber, Ute Pfeuffer, Thomas Albert and David Hall, Works Council Chairman.**

## up grade

Volume 19, issue no. 37 – December 2016

**Publisher:** LASCO Umformtechnik GmbH  
Hahnweg 139 - 96450 Coburg

**Senior Editor:** Jochen Günnel

**Photos:** LASCO Umformtechnik, Mack Brooks Exhibitions Ltd, Leistritz AG, Hirschvogel Aluminium AG, Georg Weber



**Volker Mans**  
Technical Management,  
Hirschvogel Aluminium  
GmbH, Marksuhl  
(Germany)

## State of technology

**up grade:** Mr. Mans, as a project leader you have been in charge of planning and realizing the new aluminium forming line at HAG in Marksuhl. What were your set targets – and where they reached?

**Volker Mans:** Besides the basic aspects of project management, the biggest challenge of this project was to realize a fully automated forming line in a minimum of time. The solution, which was found and realized jointly with LASCO, served primarily to expand the production capacities for steering knuckles for the international market. Since March 2016 aluminium steering knuckles for reputed premium OEMs have been produced with the forming line AMP58 whose conceptual design represents state-of-the-art technology and thus helps secure the position of the Hirschvogel Automotive Group in the international aluminium forming market. As regards the tight schedule, the project has proved to be a great success due to the excellent cooperation of all suppliers and team members involved.

**up grade:** A similar line has been in operation in your sister plant in Pinghu/China (Hirschvogel Aluminium GmbH/HAC) for almost two years now. Did this fact simplify the planning or did you meet completely different challenges?

**Mans:** LASCO recently realized a similar project in our sister plant in Pinghu. LASCO's scope of supply there not only comprised the supply of a forging roll, but also the responsibility for the master control of the forming line. Thus it was very helpful to draw on experience gained with a comparable forming line and at the same time on the project team involved. That way we were able to plan efficiently and already contribute technical improvements to the forming line.

**up grade:** What makes the production of solid vehicle parts from aluminium so difficult that only few manufacturers can provide the desired quality?

**Mans:** These are the general requirements of the production process that must be strictly met, if you do not only want to get the complex geometry of the component but also the required mechanical component properties. This can be achieved in a complicated process, which Hirschvogel has perfected with the forming line AMP58.

**up grade** LASCO 37/16



## Hirschvogel expands aluminium production

# Investment for future

**The Hirschvogel Automotive Group (Denklingen/Germany) has invested in the future prospects of its production site in Marksuhl (Thuringia/Germany). A fully automated aluminium forming line was put into operation there last summer, which not only enthused experts for innovative solutions in mechanical engineering.**

Hirschvogel Aluminium GmbH (HAG) uses the new line – internally called „AMP58” – for the production of steering knuckles from aluminium or aluminium alloys with part weights of up to 9 kg. As marked „safety components” of the steerable front axle they connect the wheel with the chassis and must withstand all operating conditions without being damaged. Pre-forming is carried out by a LASCO forging roll type RCW 560 So in special design optimized for specific requirements of the production process and equipped with a quick set-up device for rolling tools and a replacement pair of rollers. The unit is provided with heating and tool lubricating systems for the rolling of aluminium materials.

LASCO's scope of supply clearly included more than this component of the line: Due to the positive experience the automotive supplier had gained in the cooperation regarding the planning and realizing of a comparable line in China, Hirschvogel once again placed the complete automation and control technology into the hands of LASCO. The tasks of the machine builder thus also included the integration of units from other suppliers such

as heating devices, main forging press, trimming press, industrial robots as well as cooling and heat treatment devices.

As regards technology and investment volume, the start-up of the fully automated line was seen by the trade press as a clear statement in favour of the production site Marksuhl. By incurring a total expenditure in the tens of millions of Euros the Hirschvogel Automotive Group had also demonstrated that it would meet future requirements of the automotive industry and invest for the future, wrote e. g. the trade publication „massivUMFORMUNG” (Bamberg/Germany).

From LASCO's point of view the project documents another stage in the further development of long-standing cooperation with Hirschvogel based on partnership, who had shown their confidence in the machine builder as supplier of the automation system of an aluminium forging line with integrated LASCO forging roll for a plant in Pinghu (China) for the first time. The pilot plant has reliably met the expectations set into it since early 2014. Further projects have been driven forth (cf. page 3) also in the field of joint developments under the heading „Industry 4.0”.



**The production line „AMP58” with integrated LASCO forging roll at the Hirschvogel Aluminium GmbH (HAG) in Marksuhl (Thuringia/Germany).**