



up grade

Newsletter for customers, employees
and partners
volume 24, issue no. 45, September 2021

■ LASCO TRENDS

Market has high hopes for EMO

The world of metalworking has high hopes for EMO 2021, scheduled for October 4-9 in Milan, Italy. LASCO will exhibit in Hall 7.

Page 2

■ LASCO KNOW-HOW

Into the digital age with DizRuPt

LASCO is making a key contribution to the German research project DizRuPt ("Data-based retrofit and generation planning"). It is focused on the product landscape in the digital age.

Pages 4-5

■ LASCO PRACTICE

THIELE makes record investment

With a state-of-the-art semi-automatic forging line, chain systems specialist THIELE (Iserlohn/Germany) expanded its manufacturing capacities and capabilities.

Page 8



Editorial



Solving the dilemma through innovation

The damages caused in some areas this summer by extraordinary rainfall and flooding, or record heat and drought, means that the issue of climate change is being discussed with even more vehemence. There is no clear answer to the reasons for these events. According to experts, rising global warming has something to do with it, but it is certainly not the direct trigger of these catastrophes. But ignorant would be those who do not perceive the political/economic changes triggered by climate change.

The European Union is trying to introduce extremely ambitious climate protection targets with the "Green Deal". Of course, climate protection is the goal of us all! And the economy is also capable and willing to use and continuously develop climate-protecting technologies.

In mechanical engineering, for example, parameters such as "energy efficiency", "emissions" and "resource efficiency" are becoming increasingly important. However, with today's know-how, higher demands on "Green Tech" can usually only be met with greater technical effort. In our market economy, however, investments of any kind must pay off. Market-based solutions are therefore needed, and the politically desired change for more climate protection can only be achieved with a strong economy.

Help is expected from research. The new "NoCARBforging 2050" initiative of the German solid forming industry, which brings together science, engineering and practical applications in a targeted manner, is addressing this issue. LASCO gladly answered the call to contribute to success with its expertise. The aim is to help the environment and climate faster through innovations and to maintain the technology leadership that customers rightly expect from us. Let's get to work!

Yours Lothar Bauersachs
CEO

LASCO TRENDS + MARKETS

Invitation to the "Magical World of Metalworking" LIGHT AT THE END OF THE TUNNEL

From October 4 - 9, 2021, EMO 2021 in Milan will welcome visitors and exhibitors from around the globe. LASCO is looking forward to welcoming interested guests at its booth F09 in hall 7.

Under the motto "Magical World of Metalworking", the trade fair brings together all areas of production, from the machine tool as the nucleus for industrial manufacturing to precision tools, interlinking equipment and industrial electronics. Exhibitors expect the exhibition event to ignite the light at the end of the tunnel so that we can return to the level of business we had before the COVID 19 pandemic.

LASCO will present, among other things, an innovative forging line for aluminum and automation technology. The interaction between the virtual world and real system automation will be demonstrated using a robotic forging cell. Authentic software is used to control a computer model of the aluminum forging line so that it cooperates



in real time with the robots at the exhibition booth.

The focus will be on energy-efficient LASCO drive technologies providing answers to the challenges of the mobility transition.

Solid forming industry faces up to political challenges UNDER PRESSURE OF EXPECTATIONS

The German Industrial Association for Solid Forming (IMU) has launched the industry initiative "NoCARBforging 2050". As a technology supplier, LASCO is among the 50 participating companies in the industry that help the project to be successful.

According to experts, the reduction of CO₂ emissions will no doubt be an important issue for the future of the solid forming industry. Under the impression of this forecast, IMU has declared CO₂ emission-neutral solid forming technology to be the goal of its initiative by 2050 at the latest.

The German Federal Cabinet adopted the German Sustainability Strategy on March 10, 2021. It is being implemented against the backdrop of the EU Commission's "Green Deal", which focuses on the goal of a climate-neutral EU by 2050 and sector-specific initiatives aimed at a decarbonization of the economy. The economic pressure to reduce climate-relevant emissions is increasing. Important customer industries such as the automotive industry see this as a future criterion for awarding contracts, and the financial sector sees it as an aspect for investments and lending.

Participants in the IMU initiative are 50 industrial member companies from among

solid formers, material producers, and manufacturers of machinery and systems for the production of formed components.



In an initial project phase, a validated method for calculating CO₂ emissions was developed by the end of March 2021 specifically for material production and processing of solid-formed components. This will be transferred into a specific tool to determine the Product Carbon Footprint (PCF).

In the second phase, approaches will be developed to reduce/eliminate CO₂ emissions in solid forming processes. The result will be "best practice examples" and concrete "follow-up research projects".

Fully automatic forge for small batch production in Großenhain

**RESOURCE INPUT HALVED
– CAPACITY DOUBLED**

The medium-sized Großenhainer Gesenk- und Freiformschmiede GmbH (GGF) has set itself the goal of comprehensively modernizing its production facilities within two decades. In July 2021, the first stage of the project was realized.

As technology partner in this project, LASCO supplied a fully automatic stretching line type AR 250/250 consisting of a hydraulic stretching press (press force 2,500 kN) and stretching manipulator with turntable. Further plant components are a feeding table, automation units and handling robots. The two robots transfer the workpieces with temperatures of up to 1,290 degrees Celsius between the feeding table, the loading and unloading device of the furnace, the stretching unit and the LASCO VP 630 preforming press faster, more precisely and more reliably than any human. The system was intended to automate the sequences and processes of the first of a total of five forging lines operated by the long-established company in Großenhain (Saxony/Germany), which was founded in 1896. The main forging unit is a counterblow hammer with 250 kJ blow energy.

The arrival of robots in the company marks the beginning of a new era at GGF, as the company previously operated as a manu-

factory. “We program the knowledge of our experts into the machine.” This is how Managing Director Wolfgang Pradella defined the central task in the digital transformation to the “Sächsische Zeitung” newspaper. By 2040, GGF wants to have completely converted production step by step to state-of-the-art technology. In terms of organization, logistics and business management, this represents a tour de force at every stage. Automation is an important aspect here, but not the only one. It is also about resource efficiency and, not least, sustainability. Other important points are the relief of staff and the improvement of working conditions.

Nevertheless, none of the current 150 employees need to be worried about losing their jobs. On the contrary, efficiency, profitability and sustainability consolidate GGF’s market position and thus also secure jobs. Additional staff have just been taken on from the closure of a competitor’s business. The Großenhain forge produces die forg-



With the automatic LASCO stretching system AR 250/250, GGF has now modernized the first of its five forging lines. The picture shows the system during assembly in Coburg.

ings of up to 180 kilograms and open-die forgings of up to 300 kilograms and three meters in length in various steel grades and, more recently, brake discs for a French high-speed train.

PERFORMANCE TEST

The retrofit project of the complex forging line for drive shafts at Hirschvogel Umformtechnik GmbH in Denklingen/Germany (see Upgrade 44) is on the home stretch.

530 million digital measuring points were combined into a digital model, that includes the entire system periphery, safety technology and a complete simulation model of the central four-stage hydraulic press. It was initially used for fieldbus development and revision of the inventory software. In the further course of the project, the model, control software and robots were dynamically linked. The performance of the resulting digital twin was successfully demonstrated at the Factory Acceptance Test in Coburg. In the interaction of the digital image and real hardware, all safety functions were tested and all product variants were tried out.



While production continues on the real forging system, the robots are programmed in active interaction with the digital model.

“DizRuPt” research project - acronym for “Data-based retrofit and generation planning”

DIZRUPT - “IN A NUTSHELL”

The DizRuPt research project enables companies to identify relevant indicators on their products, aggregate them at field level and use them in combination with other information streams from the product life cycle in strategic product planning.

The systematic analysis of the data obtained allows new features and functions to be derived. This enables customer-oriented planning of **retrofits** and **future product generations**. The following results are to be developed for this purpose:

- Methods for data acquisition and analysis
- Derivation of new product functions for retrofit and generation planning of new systems
- Operationalization of data-based product planning through processes and competencies
- IT tools to support organizational implementation

The research project is headed by the Heinz Nixdorf Institute and is funded by the German Federal Ministry of Education and Research. The accompanying consortium includes companies from industry as well as research and educational institutions (www.dizrupt.de).

Project-related research objectives of LASCO

LASCO will design the product landscape for the digital age as part of the DizRuPt project. Data will be collected, pre-processed and transferred to the digital machine image at forming machines and units with the help of EDGE devices. This digital twin enables LASCO to view the product life cycle holistically and to implement retrofit solutions and new product generations in engineering based on the latest findings. The connection of the digital counterpart with the associated ERP data leads to a realistic picture of the product life cycle.

The hydraulic LASCO double-acting hammer serves as research object, for which the drive concept was optimized on the basis of product hypotheses. The latest generation of control systems was installed to connect the forming unit with its digital counterpart. The interlinking of the physical and digital twin is made possible by an IoT gateway.

The current expansion stage of the machine data acquisition, enables an analysis of the product utilization in connection with the current machine condition.



The research objectives prioritize three use cases here:

Use-Cases 1 and 2 focus on the condition of the drive system, in particular the hydraulic system, where the data collected can be used for both product development and service. The recording of concise machine parameters enables the influences of geometric properties, installed components and utilization cycles to be identified with regard to the expected machine service life. This forms the basis for the development of update concepts and optimized product generations, among other things. The knowledge gained about the condition of the drive and, in particular, the hydraulics, will enable early identification of faults or declining performance in the future.

Use-Case 3 defines the enabling of the forming unit for data aggregation. For this work package, a construction kit for sensor retrofit concepts is being developed with the South Westphalia University of Applied Sciences. One application implemented from this modular system is the adaptation of MEMS sensors to measure accelerations of the machine. These measured values are used, for example, to increase repeatability and to monitor the machine's condition over its entire life cycle.

The transmission path from the forming machine to the digital twin is being established in cooperation with the project partner CONTACT Software. The digital counterpart is provided in the “CONTACT Elements for IoT Platform” and fed with data in the DizRuPt framework. The transmission path is shown in Figure 1. The individual use cases are entered here.

- Use-Case 1
- Use-Case 2
- Use-Case 3

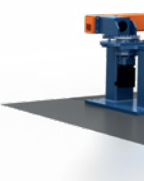
LASCO ERP



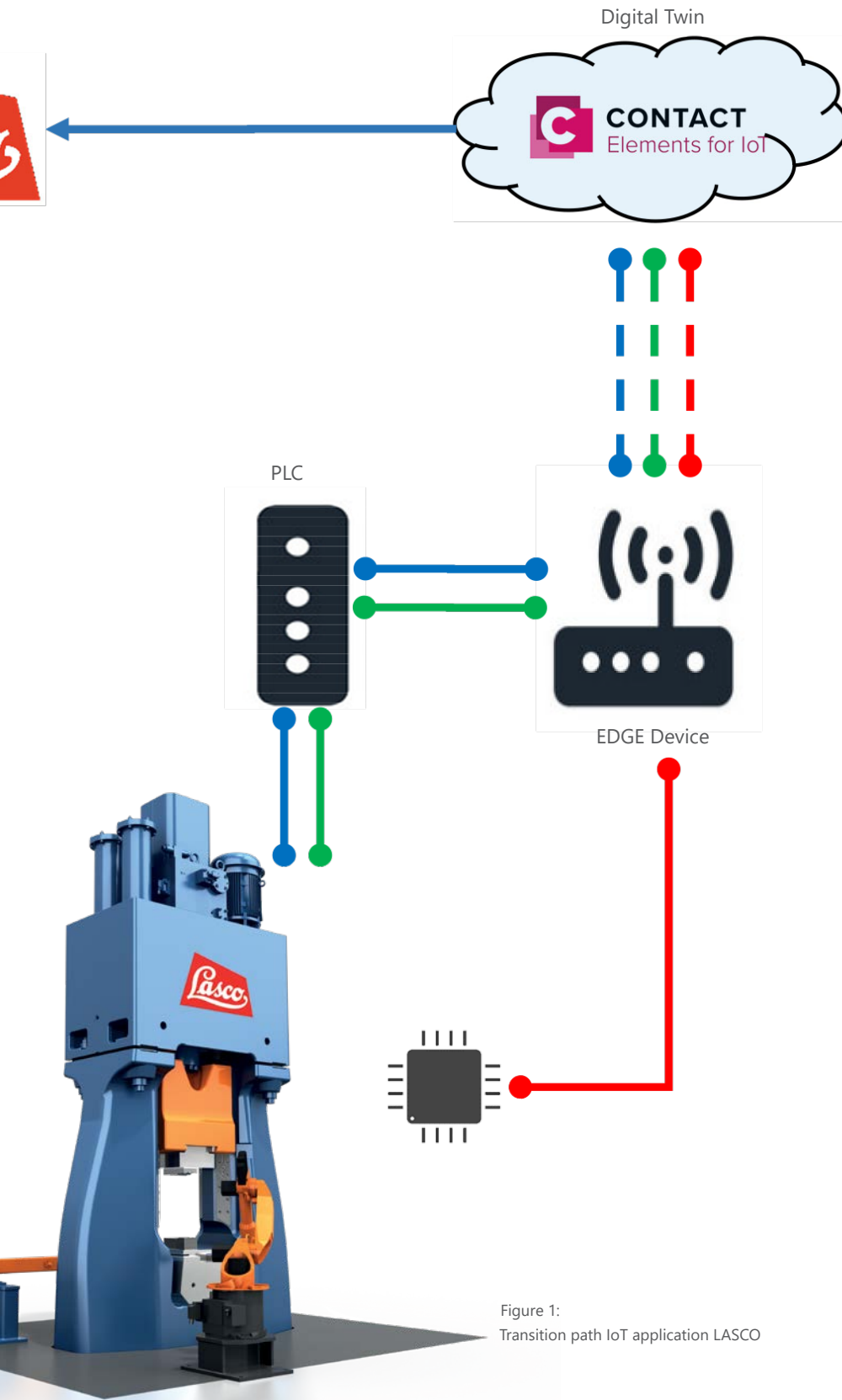
ERP/PLM level

PLC level

Actor/sensor level



ng”



Current status

In the current project status, the product hypotheses have been identified and transferred into three use cases. Furthermore, the drive concept of the hydraulic LASCO double-acting hammer has been optimized and is currently being tested.

Commissioning has been completed. The connection of the hydraulic hammer with the digital twin, which is mapped in the cloud, is currently being implemented.

A sensor node was developed as a retrofit concept for sensor technology to record machine accelerations. The validation of the electronic function is provided by adaptation to the machine and integration of the IoT system. In the current planning progress, the research unit is delivering the first results. At the same time, the retrofit concept for sensor technology is now being further detailed and the selected application is being transferred from prototype status to industrial applicability.



Figure 1:
Transition path IoT application LASCO



■ LASCO INTERNAL

CONTRIBUTION TO CO₂ REDUCTION

You could almost say LASCO has planted a forest on the roof - at least in terms of the effect, because like a forest, the solar cells operated there relieve our planet's atmosphere of carbon dioxide. While trees bind CO₂ during photosynthesis, electricity generation in the flat solar power plants does not produce the harmful greenhouse gas after all. LASCO installed the first photovoltaic system of 2,163 square meters and a total output of 256.8 kWp at the beginning of 2012. At the end of 2019, a second system with 1,622 square meters of usable area and total installed power of 328.9 kWp was put into operation. According to the company's own calculations, this has saved a total of around 1,110 metric tons of carbon dioxide since 2016. To capture the same amount of CO₂, 105,422 trees would have had to be planted. However, they would not have fit on the roof.

Young professionals for LASCO TRAINING ACCOMPLISHED?

The LASCO work force has been reinforced: All training graduates from the fall of 2020 are continuing their careers in-house.

A total of eight industrial-technical trainees in the professions of mechatronics technician, electronics technician, cutting machine operator and industrial mechanic took their final examinations at the Coburg Chamber of Commerce and Industry. But even as freshly graduated skilled workers at LASCO, they have by no means finished their training. Continuing professional development and advancement qualifications are fixed components of the company's personnel development and culture of innovation.

In any case, Jannik Hofmann has only reached one stage finish. He is completing an integrated degree program and, after his practical training as an industrial mechanic, is now beginning his mechanical engineering studies at Coburg University of Applied Sciences.

Maximilian Gäbelein (mechatronics technician, examination average 1.7) and Julian Düsenberg (electronics technician, 1.8)

attracted attention with outstanding performances as the best of the year in their professions.

In addition, both of them completed the "Industrial Programming Specialist Qualification (CCI)" together with their colleagues Nico Hirt and Louis Binder during their vocational training.

This additional qualification is the aim of a state-funded pilot project run by the vocational school and the "Competence Center 4.0" of the Chamber of Commerce and Industry in Coburg. The 20-day course provides in-depth knowledge of PLC programming, sensor technology, image processing, RFID, network technology, safety technology, process visualization, and trains the efficient creation of solutions with market-leading systems (SIMATIC, PROFIBUS, TIA Portal).

Spotlights

Trailblazers: Industrial mechanics Giwan Mardinli (pictured above) and Omar Bozo (pictured below) are the first two migrants to successfully complete



the CCI "1+3" pilot project for training and integrating refugees at LASCO. They have now been working for the company as skilled workers since September

2020. Previously, they completed a classical apprenticeship in the dual system, which was extended by one year and combined with additional German lessons. This model is characterized by accelerating the



development of language skills essential for the integration success of refugees through close practical orientation to the work environment. The training period for industrial mechanics, toolmakers, cutting machine operators, machine and plant operators, mechatronics technicians and electronics technicians is 54 (instead of 42) months and is paid at the standard rate right from the start. The combination of on-the-job training, attendance at vocational school and language training is a concept developed by the Chairman of the Board of LASCO Langenstein & Schemann, Holding, Friedrich Herdan, who is also President of the Coburg Chamber of Commerce and Industry. The model project has been successfully carried out in Coburg since 2016 and in the meantime in several German federal states (CCI Paderborn and Bielefeld, CCI Oldenburg, CCI Passau and CCI Munich).



Yesterday's trainees, today's accomplished LASCO specialists: six of the recent graduates with their training supervisors Georg Pfeuffer (second from left) and Björn Bühling (second from right).

WE CONGRATULATE :

10 years with LASCO

Igor Trischkanow	01.04.2021
Andreas Kling	04.04.2021
Christian Brückner	01.07.2021
Heinrich Reindt	11.08.2021
Rene Reißenweber	01.09.2021
Maximilian Vogler	01.09.2021
Frederik Wegener	01.09.2021

25 years with LASCO

Tanja Appenrodt	01.09.2021
-----------------	------------

40 years with LASCO

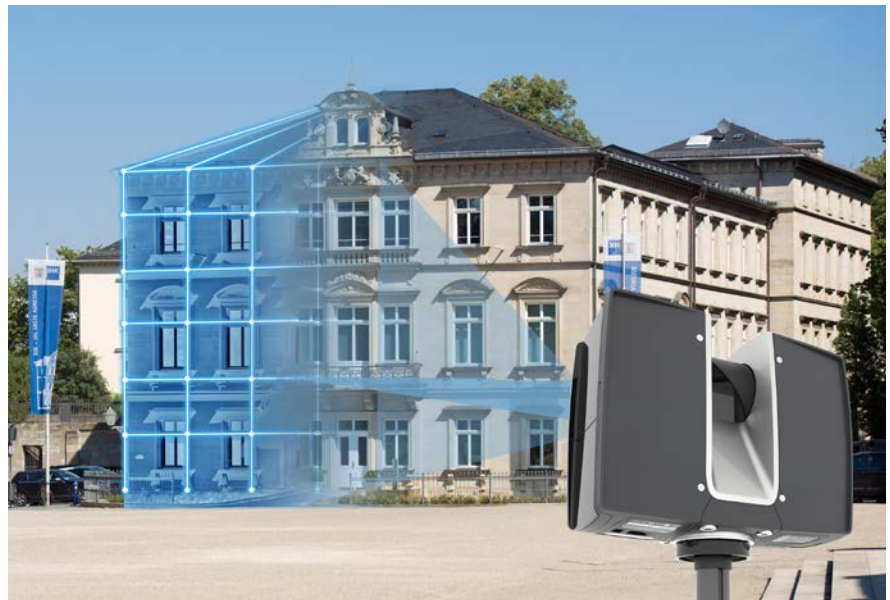
Michael Kessel	02.02.2021
----------------	------------

Service for three-dimensional high-precision measurement of objects PROGRESSIVE MEASUREMENT TECHNOLOGY

LASCO uses the most advanced laser measurement technology and 3D visualization in the solution of mechanical engineering tasks, e. g. in modernization projects of older production systems (see also article on page 3). With "LASCO LASER MEASUREMENT", technology and know-how are also provided separately as a professional service on request now.

Long planning times, the risk of measurement errors, and the associated high project risks in construction have always been of concern to builders, developers, architects, construction planners and site supervisors. Up to now, measurements have often been generated in a time-consuming manner by manually determining individual measuring points and then transferred to 2D drawings or the 3D CAD system in the design office, with the risk of measurement and/or documentation errors creeping in.

LASCO now provides a remedy with the new service „LASCO LASER MEASUREMENT“. This progressive measurement technique consists of three-dimensional scanning of objects, subsequent processing of resulting raw data and digital provision of the scan results. Thus, an exact three-dimensional model (scatter diagram) of the environment is created from several million



The use of laser technology saved several weeks of time-consuming measurement work in the image creation of the Palais Edinburg in Coburg.

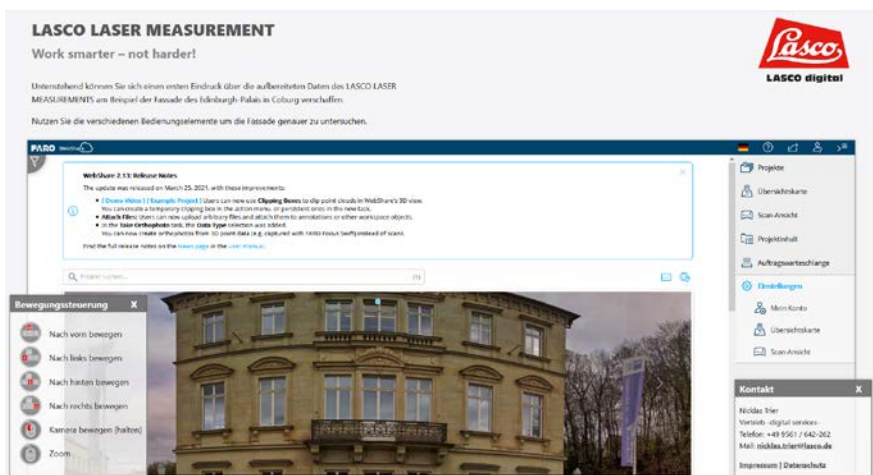
measurement points, which can then be used in a wide variety of software applications. All dimensions can be taken from the digital image regardless of location, and the scanned environment serves as a highly precise basis for efficient planning and digital optimization.

At the beginning of February, „LASCO LASER MEASUREMENT“ was used at the Chamber of Commerce and Industry in

Coburg, since the Chamber is planning to expand its premises. Currently vacant premises need to be modernized and the challenge is that it is old building stock, thus requiring the capture of irregular and complex geometric structures.

Current restrictions due to the Covid-19 pandemic made a walk-through with architects and craftsmen difficult. Thanks to „three-dimensional measurement technology,“ the CCI can now digitally access the geometric properties of the new premises and share them with all potential project partners via the Internet to drive modernization forward based on the shared planning data. This saved the Chamber of Commerce and Industry several weeks of time-consuming measurement work, and with the new LASCO service, the digital image was generated within a few hours.

In this context, the exterior facade of the Palais Edinburg was also scanned. You are welcome to get an impression of the results of the „LASCO LASER MEASUREMENTS“ yourself.



The LASCO LASER MEASUREMENT website (address: 3dscan.lasco.com) provides public access to the results of this project.

Interview

Dipl.-Ing. Ulrich Thiele,
Ulrich Thiele Foundation,
Chairman of the Board of Trustees

Potential expanded

up grade: Mr. Thiele, what is the significance of the new forging line for Thiele?

Dipl.-Ing. Ulrich Thiele: We are very proud of having made this investment, which is so important for the site. It is the largest single investment in the company's history and represents a technologically innovative milestone for us.

up grade: What exactly reflects the progress?

Thiele: Efficiency, flexibility, production range, capacity – just to name the key words. We produce faster and with less use of resources, measured per piece. We can also perform product changeovers much faster, operate within closer quality tolerances, and produce additional more complex part geometries. We expect this to improve our market penetration and generate innovative products. This should not only secure our corporate success in the long term, but also increase it beyond that.

up grade: What made you choose LASCO as your technology supplier?

Thiele: We have been using LASCO hammers very successfully for over 40 years. However, this time it was not just about a new hammer, but about a complex production line. Therefore, we evaluated all possible suppliers from among the manufacturers of hydraulic die forging hammers and hydraulic presses. In the end, we were convinced that with LASCO, we would find technological leadership and a broad experience from similarly demanding projects. This gave us the necessary certainty that the technical and commercial requirements we set for the plant would be met. Today we know that our assessment was justified. We are convinced that we have found the best partner for the future in LASCO.



Bird's-eye view of the Thiele Schmiedetechnik plant in Iserlohn-Kalthof/Germany.

THIELE GmbH & Co. KG

PROMISING FUTURE

The state-of-the-art semi-automatic forging system was commissioned in the first quarter of 2021 in Iserlohn-Kalthof at Thiele GmbH & Co. KG and, according to the company, is the largest single investment in the company's history. Realization and key units of the system are from LASCO.

The forging system consists of a hydraulic LASCO VPE 400 stretching press, a hydraulic LASCO HO-U 1600 die forging hammer with 1,600 kN blow energy as the main forging unit, a downstream mechanical press for trimming, punching and calibrating, as well as automation technology and peripheral equipment (e. g. induction heater). While the stretching line and calibrating press are fed semi-automatically, the hammer is operated manually.

THIELE produces scrapers, link plates, stoppers and chain links on the line with unit weights between 8 and 90 kilograms. Steels of various alloys heated to up to 1,250 degrees Celsius are processed for this purpose.

The realization of the production line proved to be a challenge in terms of mechanical engineering, construction, business management, organization and logistics. A new hall was specially built for optimum

installation and process sequences. The 160-ton anvil block of the hammer had to be delivered by a 52-meter-long 20-axle truck, and the 60-ton additional anvil block by another nighttime heavy haulage. On site, it took around four hours of millimeter work to accurately insert the hammer frame into the foundation.

Founded in 1935 by August Thiele and based in Iserlohn-Kalthof/Germany, THIELE is one of the world's leading manufacturers of chain systems. The forging of failure-critical components is one of its core competencies. In addition to the traditional markets of conveying and lifting equipment, future-oriented industries are among the target markets. Shareholder of THIELE GmbH & Co. KG is the Ulrich Thiele Foundation.