Our performance. **Your advantage.**

NetShape

2 | **2018**

www.hatebur.com

Personal

Dear business friends,

As a Swiss company with a strong foothold in Italy, **open markets are exceptionally important to us**. This is because most of our work with our customers takes place across all of the economically important markets outside of our own country, where we generate the lion's share of our turnover from our products and services. We are therefore hoping for continuing **free commercial relationships and rationality on the part of all politicians.**

Working in a challenging environment places demands on us all on a daily basis and calls for innovative solutions to support our customers in their value creation operations. Consequently, I am thrilled to be able to **present our latest innovation, with which we are reinventing hot shearing. For the first time, we are using our newly developed servohydraulic bar stop on an HM 75, and the results in series production have been superb.** You can read all about it in our focus topic section.

I can also recommend the articles about two of our other customers: **Ejot, an experienced former who has recently put its faith in our cold forming technology**, and **Cousin et Malicet, who has been successfully manufacturing using our forging presses for years.**

You can also read about how we are able to support our customers **with preventive servicing and maintenance contracts,** improving the reliability and availability of systems in the process. The magazine **is rounded off with an article about forging evaluation** and process and tool development.

I hope you enjoy reading your latest NetShape.

Kind regards,

Thomas Christoffel, CEO

Overview

Legal information

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Latest news

In their own words: New at Hatebur Metalforming Technology (Shanghai) Co., Ltd.

Name: **Daniel Köhler**
Position: **Business Operations Manager**
At Hatebur: **Since July 2018**

Daniel Köhler started his new position as Business Operations Manager at Hatebur Metalforming Technology (Shanghai) Co., Ltd. at the beginning of July. He will be responsible for operational concerns in tool manufacturing in Shanghai and lead the team on-site.

Daniel Köhler is a German citizen but since leaving education he has always lived in Asia; Shanghai has been his home for around eight years. In addition to German and English, he is fluent in Mandarin – something which makes communication with the local team and external partners far more straightforward. His previous work includes experience in supply chain management – expertise that we can put to good use at HMT as well. We are pleased to be able to welcome an experienced Asian markets expert to the team and we wish him lots of success and fulfillment in his new role.

In their own words – Family Day at the assembly plant

On July 8th we held a Family Day at our assembly plant in Brugg. Our staff were proud to present our new COLD*matic* CM 725, as well as a number of other Hatebur machines that are still under construction. The day was a bona fide social occasion, as well as an opportunity to learn about the machines and various Hatebur projects. With more than 100 people in attendance, we enjoyed the event and the excellent weather.

In their own words – a new design for our company cars

They're here! Our new company cars arrived during the summer.

The Skoda Octavias were then painted to round off our new look, reflecting our new outward appearance with a modern design. We're excited to now be able to show off our new look on-site at customer premises and on the roads as well.

Repair order form on the website

You can find the form for registering for repair work in the downloads section of our website www.hatebur.com. Returning the completed form to us helps us to process your inquiry efficiently and prepare the necessary shipping documents with the relevant data. Please send the completed form to spedition@hatebur.com.

Facts Swiss industry

600
Companies in the cheese industry

18
Companies in the chocolate industry

672
Companies in the watch industry

315
Companies in the automotive supply industry

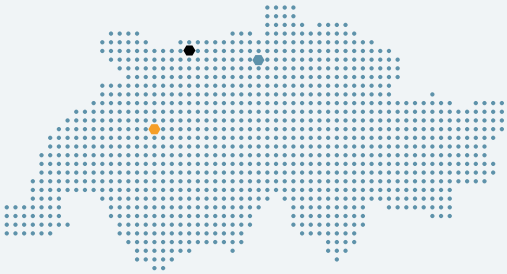
Switzerland at a glance

Capital city: **Bern** Largest city: **Zurich** Hatebur headquarters: **Reinach**

Official languages:
German, French, Italian and Romansch

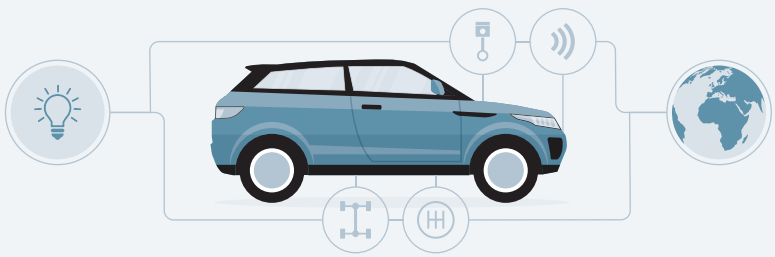
Area:
41 285 km²

Inhabitants:
8 482 152

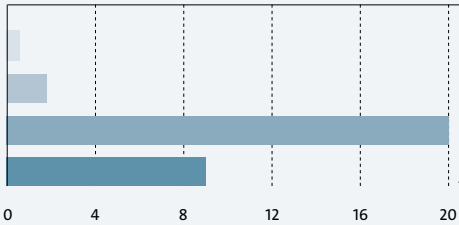


Made in Switzerland, used throughout the world

Swiss expertise can be found in almost every vehicle on the market. This means that Swiss companies are very well positioned as automotive suppliers, for example in the high-tech **sensor technology** or **surface engineering** sectors.



Annual turnover



Cheese industry: **> 1400 000 metric tons**

Chocolate industry: **> 1800 billion Swiss Francs**

Watch industry: **> 20 billion Swiss Francs**

Automotive supply industry: **> 9 billion Swiss Francs**

Swiss industry in comparison

Switzerland is famous for its delicious cheeses, fine chocolate and precision watches.

However, despite being less well known, its automotive supply industry encompasses 315 companies that generate an annual turnover of 9 billion Swiss Francs – and in a very competitive market to boot.

This is roughly equivalent to:

Fifteen times more than Swiss cheese manufacturers.

Five times more than chocolatiers.

And **almost half** of the watch industry.

Employees in the individual industries

- Cheese industry: **9100**
- Chocolate industry: **4608**
- Watch industry: **59 000**
- Automotive supply industry: **34 000**

Hatebur picks
others give up

Text: **Kim Weber**
Images: **Hatebur**

Reinach The process and tool development team is an expert partner for solutions-oriented implementation of forging evaluation or procedural issues.

Your advantage:
The process engineers support the customer throughout, from consultation to process simulation and beyond.

Hatebur is able to provide excellent assistance to its customers thanks to the decades of experience gathered by its process engineers and machine operators, culminating in commissioning the forging.

Forging evaluation
Hatebur offers a brief evaluation for new forgings. This checks forging viability on one of our machines, such as the HOT*matic* or COLD*matic*. For this purpose, our specialists need access to the corresponding drawings in order to start the examination. The customer thereby receives an impression of what stroke rate and geometry can be used to produce the forging in the machine later on.

Process optimization
Furthermore, the team in Reinach provides support in the event of procedural malfunctions or forging geometry faults. In order to gain an insight into the issue, the process and tool development team checks the relevant documentation, such as the sequence of operations, tool layout, individual part drawings and machine settings data. In this context, reviewing the individual part drawings is an indispensable part of understanding the process. However, the machine settings data

s up where
p...

is also of utmost importance, allowing the team to investigate the forging's progress through the machine accordingly.

In the event of a procedural issue, various data has to be examined:

Simulation
There is also the option to simulate individual stages or the complete process in 2D or 3D. This allows the team to check tool load, temperature, substance flow and many other factors. Potential mold filling errors affecting the forging can be adapted in the preliminary stages to ensure that mold filling is optimized.

Tool layout
Based on the documents submitted, the process and tool development team can design or calculate potential improvements to the layout, such as reinforcement, tool divisions, ventilation, materials used and tool treatments (coatings/hardness).

Service life and process
Is the service life of the tools not turning out as intended, or is the tool not viable?
Hatebur has recourse to a pool of substitute materials with suitable hardnesses and surface coatings in order to minimize wear. In addition, a low service life can be traced back to incorrect or insufficient cooling or ventilation.

Kinematics
Hatebur is also able, in just a few steps, to successfully make adjustments with regard to issues with transferring and transporting complex forgings. The process team therefore offers customers greater process reliability, improved cooling conditions for wear tools and a compact tool.

Our performance. Your advantage.

Technology can be purchased anywhere – but the quality and experience it is based on is harder to find. Optimum production processes can only be guaranteed by a perfectly tailored combination of the right process technology and first-class tools. Hatebur supplies all tools and places a particular focus on the customer's production parameters. In the end, a solution emerges that provides maximal performance and economic efficiency. Your advantage.

Customer inquiries are discussed within the team. As a result, expertise from a range of areas is used to solve the problem. **Your advantage.**

XXL forming technology made even better –

HM 75 XL with servohydraulic bar stop

Text: **Jürgen Fürst, SUXES GmbH**
Images: **Hirschvogel, Germany and Hatebur**

Reinach **When Hatebur's largest machine is used in one of the largest forming plants in the world, it's only natural to expect the best. A tool that has worked extremely well for over a decade in the production of drive and gear parts for vehicles has been given yet more impetus thanks to the addition of a servohydraulic bar stop. Improved cut-off quality ensures more OK parts and easier quality control. Staff at Hirschvogel would hate to have to manage without it.**

When Hatebur's largest machine is used in one of the largest forming plants in the world, at Hirschvogel's premises in Denklingen, it's only natural to expect the best.

Company: **Hirschvogel**
Location: **Denklingen, Germany**
Staff: **Approx. 5300**
Machine: **HM 75 XL**

The Hirschvogel Automotive Group is one of the largest automotive suppliers in the field of steel and aluminum massive forming, as well as subsequent processing. The company operates all around the world and has subsidiaries in China, Germany, India, Poland and the USA.

"Being able to further optimize a well established and reliably functioning process after more than a decade vindicates our approach of periodically reviewing all of our manufacturing processes," explains Oliver Maurer, Plant Manager at the world's largest cohesive forming plant, owned by Hirschvogel in Denklingen, Bavaria (DE). He takes some time to show us around the plant, the Hatebur system and the improvements to the machine. We can't wait.

Superlative everywhere you look

Every day at this 300 000 square meter plant site in Denklingen, with a total of 16 halls and around 2200 employees working across three shifts, approximately 1100 metric tons of carbon steels are transformed into around 650 000 parts using cold, semi-hot and hot forming processes. Thanks to a sophisticated logistics concept, around half of the parts are sent to OEMs and first-tier suppliers, while the other half are destined for other Hirschvogel plants for further processing.
A Hatebur HOT*matic* HM 75 XL has been in operation in hall 15 since 2006. The largest machine from the Hatebur range was installed at that time as a central component of an automated and autonomous production line. Since 2017, it is the first machine to have been retrofitted with the newly developed servohydraulic bar stop. This substantially improves the surface quality of raw parts on shearing surfaces.

HOT*matic* HM 75 XL in operation for over ten years
Various parts are manufactured using a 20 000 kN press load in the four forming stations: Upsetting, preforming, final forming and piercing. Around 12 million parts per year – predominantly wheel hubs, gear wheels and shafts – are hot formed at high speeds of 60 or 70 strokes per minute. "On Hatebur's tenth anniversary in 2016, they even managed a record figure of 14 million parts," recalls Maurer. Steel bars of twelve meter lengths, with a diameter of up to 90 mm and a bright yellow-red glow after being inductively heated to 1250 °C, are drawn into the machine by the servo infeed. These are then used to forge wheel hubs for Porsche vehicles, for example. After being cooled, the scale layer is removed from the components by a sandblasting system, before the wheel hub is sent for a complete visual inspection for cracks. Depending on customer requirements, a blacklight inspection then takes place. In most cases, the bearing seat is then machined using a broaching technique in order to produce the toothing.

Eliminating shearing break-out and scuffing
However, before the HM 75 XL's HFE functionality can produce forwards extruded forgings, the glowing steel bars must be precisely sheared off. For many years, this has been handled by Hatebur's innovative shearing concept. And this is precisely where the new servohydraulic bar stop now comes in, improving the surface quality of the shearing surface. It used to be impossible to avoid the cut-off being slightly tilted and shaped angled in the shearing process. The two sheared surfaces were therefore not completely parallel.

More serious was the fact that the shearing produced a fracture towards the end of the process, meaning that the material was rather partly broken than sheared. This result, known as a shear break-out, could vary in depth and width depending on the material. Furthermore, a type of scuffing occurs, as well as a type of fracture known as a "Dali wedge" or "Dali mustache" in individual cases. Simple scuffing can sometimes be removed by sandblasting the finished part. However, this was complicated if the nature of the process meant that scuffing were pressed on top of each other, producing a type of fold. These defects were up to 0.4 mm deep and previously had to be machined off.

The servohydraulic bar stop has substantially reduced both the tilt and the angle of the cut-off. The two surfaces are practically parallel. Scuffing occur only rarely and folds have been virtually eliminated. Konrad Schöpf, Production Supervisor on the Hatebur line at Hirschvogel, explains: "At times, we used to see this scuffing on up to 20% of the shearing surface, whereas now we only see it on around 1 to 1.5% – if at all. That's negligible." In addition, the weight of the cut-offs is more consistent. Previously, cut-offs could fluctuate by ten grams each, but now this has fallen by roughly 50% to just five to six grams. Oliver Maurer notes: "At a cut-off weight of around seven kilos, that's not a world of difference, but it clearly has a positive impact on our commitment to quality."

Sheared workpiece with fracture, produced using a mechanical bar stop (left)

Sheared workpiece without fracture, produced using the new servohydraulic bar stop (right)

20% reduction in scuffing to around 1 – 1.5% – a negligible factor.

Fracture minimization as a result of adjusting the force control on the servohydraulic bar stop.
The figure shows a progressive increase in force during active production on a bar diameter of 65 mm.

Dr. Mihai Vulcan, Strategic Projects staff member at Hatebur, developed the servohydraulic drive with his project team.

The servo-hydraulic bar stop: Fast, precise and reliable in a fraction of the time it takes to blink.

The right operating mode for optimal cut quality
Still, what we want to know first is how exactly the servohydraulic bar stop functions, so we ask Carsten Sieber, Project and Product Manager at Hatebur: “The shearing process is so fast that only a servohydraulic drive can provide the necessary dynamics and power density in the smallest space. Depending on the diameter of the bar and speed of the machine, the process on the HM 75 XL lasts just 60 to 100 milliseconds.» «That’s less than a fraction of the time it takes to blink,” explains Dr. Mihai Vulcan. Dr. Vulcan was responsible for developing the solution, and he takes a moment to assure us that the servohydraulic bar stop works “quickly, accurately and reliably, despite its speed.” The compressive stress generated by the bar stop during the shearing process has a positive impact on the plasticity of the material, whereby the appearance of fractures in the shearing surfaces is minimized or even eliminated. Depending on the operational parameters, the operator can choose between the servo-hydraulic bar stop working on a position control or force control basis, ensuring that the highest possible shearing quality is achieved.

Identifying and correcting changes in position at the micrometer level
At the end of the infeed movement, the bar meets the bar stop. This is compressed by several hundredths of a millimeter, thereby deviating from the setpoint position. This deviation is identified by the high-resolution measuring system on the differential cylinder with an accuracy of 1 micrometer, at which point the control unit instantaneously offsets the position of the bar stop via the servo valve. This position control keeps the effective distance between the blade and bar stop constant throughout the shearing process.

Alternating position control and force control for even cut-offs
Immediately after shearing starts, the control system switches to force control with position monitoring. This changeover results in a buildup of counteracting force that presses the cut-off against the remaining bar, preventing tilting and angling. Just before the shearing process ends, the cylinder switches back to position control. The cut-off must then be brought to the first of the four forming stations via the transfer unit.

The results are impressive. Thanks to the new bar stop technology, fracturing is reduced to a minimum if not entirely eliminated. Component quality is improved to the extent that the visual inspection of the completed formed part is simplified and therefore sped up after sandblasting has taken place. “We haven’t specifically measured that increase in speed, but even if it’s just half a second per part, anyone can figure out the impact that has once you’re processing twelve million parts a year,” Maurer tells us. What’s more, reworking processes that used to be necessary can be omitted entirely. At any rate, staff at Hirschvogel would hate to have to manage without the servohydraulic bar stop in the Hatebur HOT*matic* HM 75 XL.

A servohydraulic bar stop on the Hatebur HOT*matic* HM 75 XL provides improved cut-off quality and therefore a greater number of OK parts and easier quality control at Hirschvogel Umformtechnik.

The servohydraulic bar stop will soon be available for all machines

The foundations for this development at Hatebur were provided by Dr. Mihai Vulcan and a interdivisional project team. The thoroughly convincing shearing test results made it possible to bring Hirschvogel on board for initial operation in a practical environment. “This led to a superb developmental partnership,” emphasizes Thomas Christoffel, CEO of Hatebur. The servohydraulic bar stop was first installed and later integrated into the existing system at Hirschvogel’s premises in 2017. Mounting the device did not require additional machining work to be performed on the machine frame. Thomas Christoffel concludes by assuring us that “In future, we want to offer this technology to our customers on other machine models as well.”

Getting into shape with cold forming – Hatebur brings additional growth for Ejot

Text: **Jürgen Fürst, SUXES GmbH**
Images: **Ejot GmbH & Co. KG and Hatebur**

Company: **Ejot GmbH & Co. KG**
Location: **Bad Berleburg, Germany**
Staff: **Over 3500**
Machines: **CM 4-6**

EJOT is a medium-sized corporate group and fastening technology specialist. EJOT customers predominantly come from the automotive and supply industry, the electrical and electronics industry and the construction industry.

Reinach **COLD*matic* CM 4-6 paves the way for formed parts with larger dimensions.**

When globally renowned and respected fastening specialist Ejot decided to set up a formed parts division, nobody could have guessed that the product group would see such superb growth, with the division even establishing its own production hall in 2017. Since 2018, the next step in the division's growth has been provided by a Hatebur CM 4-6 six-station coldformer. This machine enables the production of products with larger dimensions and heralds a new era for the EJOFORM® division – and not just in quantitative terms.

"It's not just the dimensions of the Hatebur machine that make it a highlight of the new production hall," stresses Gerd Schöneborn, Technical Director and Authorized Officer of the Cold Forming business division at Ejot GmbH & Co. KG in Bad Berleburg. "It brings the EJOFORM® product division a significantly broader range in terms of complex formed part dimensions and marks our entry into a new era," he explains.

More options in cold forming

Since January 2018, a production hall built in 2017 for the Cold Forming product division has housed a Hatebur COLD*matic* CM 4-6 six-station coldformer. In that hall, Ejot – a fastening specialist, known for its self-tapping screws – manufactures custom, multistage formed parts for its customers. Schöneborn sets out the advantages: "Our many other forming machines allow us to manufacture large numbers of primarily small, short parts. Thanks to the Hatebur machine, we can now produce parts with a larger diameter and length and shorter parts, as well as more complex parts with tighter tolerances." This means that Ejot can successfully increase the value added in their parts manufactured to customer specifications, while introducing greater technological expertise. Schöneborn also explains the reason why: "This allows us to better set ourselves apart from some of our competitors."

Forming with a 2300 kN press load

With its six forming stations, the imposing CM 4-6 coldformer can form wire with a maximum diameter of 20 mm and cut-off length of 8 – 125 mm into parts with an outer diameter of up to 30 mm. With a total press capacity of 2300 kN, 110 to 160 parts can be manufactured per minute. The stroke rate is continuously adjustable. Dies and punches measure 80 mm in diameter and their ejectors can also be continuously adjusted, between 2 – 125 mm for the dies and 17 – 50 mm for the punches.

Dependable and precisely repeatable high-precision cut-offs

Before the machine feeds in the raw material, the grappler jaws are set to the wire diameter to be processed by a servo motor. This is done by the operator using the operating terminal. The wire is fed in via a mechanical drivechain that works in the machine cycle. The grappler jaws hydraulically clamp the wire. Together with an integrated mechanical motion limiter and electronic measuring unit which monitors the length, high-precision cut-offs can be successfully produced in a dependable and precisely repeatable manner. "This is a pre-

requisite for accurately formed parts in large quantities," explains Carsten Sieber, Project and Product Manager at Hatebur. "The operator has the practical option of adjusting the infeed length during operation."

Once drawn-in, the raw material is sheared off at high speed by the Hatebur shearing system using the closed stationary and shearing blade. The high speed is crucial for accurate cut-offs. It is achieved by means of a double cam, which "chases" the shearing blade through the wire at a high, constant speed. The cut-off is then dependably transported through all six forming stations. The machine maintains this precision during the transfer even where complicated part geometries are involved. In addition, a seventh gripper at the end ensures that the completed formed part is output with care.

Staff at Ejot are enthusiastic about the "exceptionally high precision of the gripper. We'd never seen that before now," says Torsten Lückel, EJOFORM® Product and Project Manager. The fact that the gripper is so easy to change – by swiveling the transfer unit all the way up – appeals to the operators as well.

Threaded bolts, manufactured on the COLD*matic* CM 4-6

Ball head screws, manufactured on the COLD*matic* CM 4-6

Customers including global market leaders in the automotive supply industry

The parts produced are mainly used in the automotive industry. “The parts we manufacture include those for ABS and ESP systems, as well as electronic parking brakes or seat adjustment systems,” explains Andreas Blecher, Marketing Group Leader at Ejot. In this context they transfer torque or open and close valves, for example. Over time, simple formed parts developed into multistage parts undergoing an increasing number of forming stages. Eventually, through the integration of additional, elaborate process steps and re-machining work, these multistage parts evolved into EJOFORM® FORGINGS. Roughly half of the parts are ready for installation. The other half undergo additional forming stages until they are ready to be put into operation. For example, these include machining, heat treatment, surface finishing, assembly and packing. The parts can even be subjected to precision cleaning and packing in a clean room when the highest cleanliness requirements have to be met.

This is how, from the initial spark of a large project for a global leader in the automotive supply industry, this division developed into one of the most important and fast-growing building blocks of the Ejot product portfolio. “Thanks to this individual, customized project business, we have managed to build up a significant growth segment outside of fastening technology over recent years,” explains Blecher. And anyone who understands the requirements of these customers also understands what that means: Uncompromising quality and unbeatable process reliability in conjunction with cost-effective prices. “The Hatebur machine has enabled us to take a big step forward, especially when it comes to manufacturing complex parts with tight tolerances,” says Schöneborn happily.

Performing tool changes with short tooling times

The Variblock quick-change system ensures high productivity as well. “This allows the user to change tools quickly and smoothly,” promises Sieber. In this way, punches and dies are pre-assembled outside of the machine, without interrupting operation and reducing tooling times. In order to change the tool, the entire Variblock quick-change system is then

COLD*matic* CM 4-6 at Ejot

From left to right: Torsten Lückel (Product and Project Manager), Robin Sonneborn (Head of Production), Sascha Peuker (Machine Operator), Peter Saßmannshausen (Tool Designer), Pia Silberg (Quality Management), Dennis Becker (Machine Operator).

swiveled into the machine using a gantry crane, inserted and hydraulically clamped at the push of a button. The COLD*matic* CM 4-6 therefore also makes a convincing case thanks to its ease of handling, as well as its impressive stats relating to manufacturing technology and productivity-raising operation.

And there's something else Gerd Schöneborn is keen to mention, even if most buyers or controllers wouldn't necessarily take it into account in their decision matrix: "I'm impressed by the accurate if not perfect engineering displayed by Hatebur here. For example, this is evident in the way that the supply lines for power, signals, oil, etc. are laid." This is something that Hatebur CEO Thomas Christoffel is glad to hear: "Our aspiration to always deliver the very best work is ultimately reflected in our commitment to perfection, even where secondary aspects like this are concerned."

		CM 4-6
Working ranges		
Forming stations		6
Max. wire diameter at 600 N/mm²	mm	20
Cut-off length	mm	8 – 125
Max. length of the part for transfer	mm	125
Max. outer diameter [1]	mm	30
Performance		
Stroke rate (infinitely variable) [2]	spm	110 – 160
Total press capacity	kN	2300

1 For round parts made of steel, depending on forming degree, sequence of operation, material and temperature.
2 Stroke rate reduced at a cut-off length of 90 – 125 mm.

Preventive maintenance – for greater profitability

Text: **Matthias Prischl**
Images: **Hatebur**

Reinach **Following the successful commissioning of a new machine, Hatebur strives to guarantee that production on the machines runs as smoothly as possible. For this reason, Hatebur offers all its customers machine inspections at regular intervals.**

Whether a Hatebur HOT*matic* or a Hatebur COLD*matic*, our systems are always subjected to very high-pressure production work. In order to make this possible in the first place, it is necessary to ensure that the machine itself is ready for production, although this is, of course, hardly a new insight, and is equally applicable to other manufacturing facilities.

The Hatebur maintenance and servicing philosophy is demonstrably tried and true in this regard.

At certain intervals, whether after a certain time or a certain production volume, machines should be inspected in order to identify and document wear processes on the basis of specified tolerances or visual signs.

The resulting inspection report contains the data and measurements obtained and is consequently used as a basis for recommending maintenance work.

The incidents and observations reported by the customer during the inspection are taken into account in producing a comprehensive assessment of the machine's condition.

Your advantages:

Improved machine availability

Customers who regularly perform preventive maintenance report markedly higher machine availability, which has drastically improved their competitiveness in some cases.

Predictable repairs and costs

Of course, it's not just repair times – the anticipated costs can also be planned and budgeted for. For the most part, signs of wear can be identified on the basis of the comprehensive inspection report, and can be remedied in following years as well. Costs and expenses are usually precisely predicted.

Optimized maintenance costs

The ability to plan on its own allows maintenance costs to be optimized to a considerable extent. One of the ways in which Hatebur supports this is by offering savings on the provision of required spare parts, in accordance with the inspection contract.

Machine inspection

Service technicians inspect the machine annually

Report to the customer

Customers receive a detailed report, a machine inspection report and a quotation for spare parts for maintaining the machine.

Customer's decision

Customers make their decision, order the necessary spare parts and receive a tailored schedule.

Scheduled maintenance

Maintaining the machine according to the customer's suggested repair procedure.

Hatebur uses this to devise a plan of action together with the customer, tailored to:
_ Urgency
_ Prioritization
_ Machine utilization
_ Production pressure.

This means that machine availability times can be planned, all but eliminating unplanned downtimes. This benefit is supported by feedback from our customers. Ultimately this approach enables a significant reduction in overall maintenance and servicing costs.

Expenses
The machine must be ready for operation for the purposes of an inspection, and is then unavailable for production. Furthermore, the Hatebur engineer must be provided with support staff so that the inspection can be carried out efficiently.

Inspection contracts
By establishing inspection contracts, customers have a helpful planning tool to hand and receive additional services that will benefit them. Annual inspection cycles are specified in the inspection contracts and are carried out on-site with the collaboration of Hatebur specialists.

Another advantage for customers is the special prices they receive for all spare parts ordered for a planned overhaul. At the same time, spare parts not required for the completed overhaul are taken back and refunded.

You too stand to gain from the benefits an inspection contract offers. Your customer advisor will be happy to provide further information.
Your advantage.

Your benefits from preventive maintenance based on an inspection contract:
Special rates on all spare parts
Return stocked spare parts that are not required
Planned inspections

Advantages for Hatebur:
Resource planning and usage with positive impacts on effort and costs, benefiting the customer.

Cousin & Malicet, FR – HOT*matic* AMP 20 & AMP 30: Production runs from 5000 to 500 000 parts

Company: **Cousin & Malicet**
Location: **Bogny sur Meuse, France**
Staff: **25**
Machines: **AMP 20, AMP 30**

Part of the Beck Industries group, Cousin et Malicet is a manufacturer and distributor of premium elements for highly secure screwed joints. Arising out of the company Beck Crespel, founded in 1918, Beck Industries has since grown into an international corporate group with a turnover of around 90 million euros. With nine locations around the world, the corporate group has a large and flexible production and storage capacity.

Text: **Marc-Alain Meyer, Hatebur**
Images: **Cousin and Malicet**

Bogny Sur Meuse **Cousin et Malicet is based in France and is a well-known specialist in the production of hot formed DIN and ASTM hexagon nuts. We learnt more about this French company in an interview.**

***Hatebur*: How many staff does Cousin et Malicet employ and how high is its annual turnover?**
Fabien Frère, C&M: 25 staff and three million euros, one million of which comes from exports.

How many countries does the company supply, and which?
The majority of our customers are based in Europe, in particular France, Germany, the Benelux countries and the UK. Nonetheless, it's important to note that our parts are generally retaining elements intended for installation on our customers' inserts before they are exported around the world.

Who are your most important customers?
Our most important customers are the companies within the Beck Industries group, but in broad terms we supply the petrochemicals market, the rail sector and the structural and civil engineering industries.

What does the company produce and where are these products used?
Our core competence lies in the production of every shape and grade of nut, in accordance with relevant standards or customer drawings and specifications. We also manufacture derivate forgings, bushings with and without threads, various blanks and special parts.
Our manufacturing program comprises a spectrum of parts weighing between 30 grams and 750 grams on Hatebur hotformers, as well as parts weighing up to 5 kilos on conventional screw presses. This corresponds to a range of nuts from M12 to M76.
All our products can undergo heat treatment and further processing, as well as being furnished with a thread or surface coating.

What are the parts used for?
Our products are all intended for applications where the safety of equipment and individuals is at stake. In practice, our parts are used in systems for oil extraction and processing, gas transportation and storage, in lines for the TGV high-speed train in France and in buildings like the Stade de France.

What materials are used?
We primarily forge alloyed carbon steels (e.g. 25CrM04, 42CrMo4, etc.), but we are also proficient at forging stainless steels (e.g. 304, 316, etc.) or special steels (e.g. Super Duplex).

From a production perspective, we value the comprehensive range of available settings that enable both, a simple nut and a special part with advanced shaping to be forged.

How often is part production switched and how large are your production runs?
This is another area where there are no fixed rules or an established average. We can manufacture two different production runs on one and the same day, but we might also operate a production run for the same part type for one or two weeks. Our production runs can therefore comprise between 5000 and 500 000 parts.

What volumes are produced on the machine each month?
Each of our two Hatebur machines produces around one million parts each month. In the past our AMP 20 was able to manufacture between three and four million parts each month, but we have adapted to demand in Europe by moving towards smaller production runs of high-quality products.
Our AMP 30 has therefore produced around 700 million parts since the 1960s. As far as our AMP 20 is concerned, the total far exceeds one billion manufactured parts.

How did your collaboration with Hatebur come about?
Cousin et Malicet was originally equipped with domestically manufactured headers. Material waste was around 50%. The introduction of the Hatebur AMP header in the 1960s was able to reduce the level of waste to around 15%, as well as increasing shaping speed. The original gas heating was soon replaced by an induction heating unit, allowing annealing losses to be lowered and forging temperatures to be optimized. These technologies have helped the company to secure a crucial advantage. Since then, we have continuously optimized our processes, our machines and our tooling.

What does Cousin et Malicet appreciate most about Hatebur machines?
Their reliability, which our machines' long service lives bear witness to. We perform maintenance on our headers internally. Hatebur keeps spare parts available in stock, but has proved equally capable of providing technological developments suitable for the machines we already have.

Their parts are manufactured from carbon steel, stainless steel or special materials such as Super Duplex.

AMP 20 N
Discharge from the new HOT*matic*

Text: **Carsten Sieber**
Images: **Hatebur**

Our performance. Your advantage.

Benefits provided by using the AMP 20 N:

Low investment costs compared with the HOT*matic* AMP 30 S
–
Ability to manufacture forged parts with a larger diameter than those that can be made on the HOT*matic* AMP 20 S
–
Cover at least 95% of off-the-shelf cam sizes

Reinach Increasing numbers of forgings are not re-machined on all surfaces, and machining allowances are kept as low as possible. This makes it even more important to be able to discharge parts smoothly. These requirements are met on the Hatebur HOT*matic* AMP 20 N thanks to the following measures:

1 Fewer impact marks as a result of lower fall height
Discharge through the side wall of the frame has been tried and tested on the next largest hotformer, the AMP 30 S, meaning that this discharge concept has been adopted and honed once again. This made it possible to reduce the fall height from almost 800 mm to around 220 mm, consequently satisfying the requirement for parts with as few impact marks as possible.

2 Interplay of the cooling concept and discharge system
When processing steels for ball bearings or cam lobes (100Cr6), it is essential that the forging is not quenched using water after the forging process. The water from the stripper plate in the final station is therefore collected under controlled conditions and removed from the ejection shaft area. Water that reaches the ejection area from neighboring stations or the final forming station is drained away via a targeted water drainage system, ensuring that the finished forgings are not quenched.

Superior surface quality, outstanding wear resistance and precise geometries.

3 Timed air
At production speeds of up to 200 parts per minute, the parts do not fall down quickly enough. The header is therefore fitted with a timed air blast system which accelerates parts out of the critical stripper plate area and into the ejection shaft. This type of timed air has been tried and tested on coldformers in practical conditions and consequently allows the parts to be quickly removed from the tool area and transfered onto the conveyor belt via the ejector.

HOT*matic* AMP 20 N

Interview
with Sotirios Andriopoulos

Reinach **Please tell us a little about your role at Hatebur.**
I've worked at Hatebur since June 2005 and I have three different areas of work.

The first area is testing tools until they are suitable for production. Some of the tools are ordered by customers, and others are ordered by our process and tool development team. Where orders from our process and tool development team are concerned, this usually involves developing new tool technologies and processes on our machines.

The second area is testing newly developed assemblies for our forming machines. This requires me to build and maintain test benches.

The final area is training our customers on our cold and hotformers. This usually takes place over the course of a week-long training session, either at our premises or on-site at the customer's premises if required.

What sort of training and experience is required to undertake the tasks in the demonstration center?
I am a trained industrial mechanic, but I've worked in toolmaking for a long time. I find the combination of those two fields very helpful. Good people skills are needed for training sessions as well.

You work with horizontal hot- and cold-forming machines. Which machine is your favorite to operate and why?
The hotformer has a slight edge – it's always very impressive seeing the power and speed used to form the glowing red material. The appeal of coldformers, in contrast, is the precision and the huge number of different setting options.

Many customers have the initial testing for producing new parts carried out at Hatebur's premises in Reinach. When does your involvement start?
I'm involved from very early on in the process, starting with the forging evaluation and first simulations.

What materials do you generally use in your tests and are there tests with new materials as well?
For the most part, it's normal forming steel and brass. However, requests for exotic materials like Waspaloy and stainless steel materials on coldformers and hotformers are becoming increasingly common. For example, we just recently received an order from a customer for shearing copper bars on our hotformer.

You also provide training sessions on machine handling. How do you approach those?
Where new customers are concerned, I stick to the curriculum developed by Hatebur. It's more challenging for existing customers. In that case, it's very important to discover the level of knowledge and experience brought by each participant. The groups are often a real mix. You can only individually tailor the training session once you've established both of those levels – by getting the most out of the available time and conveying the necessary knowledge to the customers.

You also work at customers' own production premises abroad. What are your responsibilities there?
If there are issues with tools at customers' premises, I try to help them by phone or in person on-site. It's mostly a question of troubleshooting with regard to the tool, timing and the settings on the machine.

Trade fairs and events

19. – 22.09.2018
MetalForm China

Location: **Dongguan, China**
Company: **Hatebur (Shanghai) Technology Co., Ltd.**

Please see our in-depth report on Hatebur's experience at the fair on the next page of this magazine for more information.

26. – 27.09.2018
Fastener Fair Italy

Location: **Milan, Italy**
Company: **Carlo Salvi S.p.A.**

Carlo Salvi had its own booth at this year's Fastener Fair in Milan. Visitors were able to learn more about the latest innovations at Carlo Salvi at the leading trade fair for providers of joining and fastener products, services and manufacturing technologies.

21. – 23.10.2018
International Fastener Show, China

Location: **Shanghai, China**
Company: **Carlo Salvi S.p.A.**

Carlo Salvi staff were also on hand to greet visitors to their booth at the International Fastener Show in China. The International Fastener Show is the most influential fasteners trade fair in China.

13. – 15.11.2018
1st Euroforge conFAIR

Location: **Berlin, Germany**
Company: **Hatebur Metalforming Equipment Ltd.**

Hatebur had its own booth at the first Euroforge Fair & Exhibition in Berlin. Staff greeted visitors from the fastener industry and provided guests with information about the company's newest HOT*matic* AMP 20 N machines in person.

21. – 24.11.2018
Thai Metalex 2018

Location: **Bangkok, Thailand**
Company: **Hatebur Metalforming Equipment Ltd.**

As is the case every year, Hatebur's representative Munger Machine Tools also had its own booth at the Thai Metalex trade fair in Bangkok. Visitors were able to find out about the latest ranges with regard to services and tool production.

28. – 29.11.2018
Fastener Fair France 2018

Location: **Paris, France**
Company: **Carlo Salvi S.p.A.**

Carlo Salvi was once again represented with its own booth at the Fastener Fair held in France at the end of November. The trade fair offered manufacturers, dealers, suppliers and end users of fastener and fixing systems a platform for developing contacts or finding out about associated products and services.

3. – 4.12.2018
VI Brazilian Forging Technologies Seminar 2018

Location: **Fei – São Bernardo do Campo (SP), Brazil**
Company: **Hatebur Metalforming Equipment Ltd.**

For the first time, Hatebur was present at the Forging Technologies Seminar in Brazil with its representative EINS Soluçoes em Engenharia Ltda. The public had the opportunity to learn more about Hatebur's range during a presentation. The face-to-face meetings that followed were an excellent opportunity to establish new contacts and develop existing ones.

Together as one

Text: **Reinhard Bührer**

18. – 21.09.2018

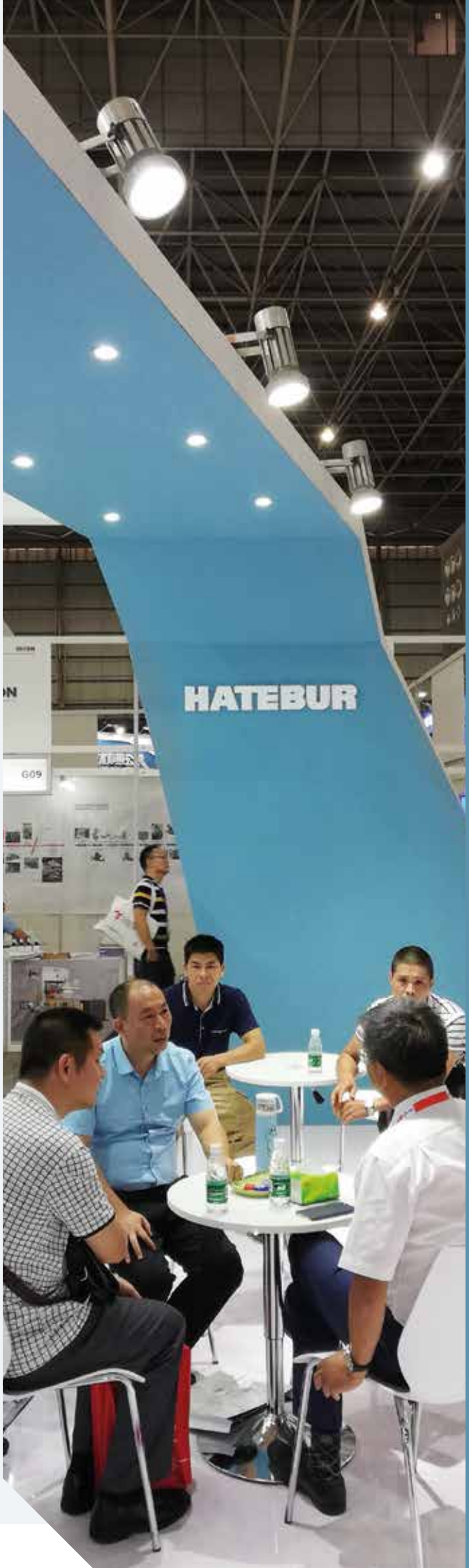
MetalForm China 2018

Location: **Dongguan, China**
Company: **Hatebur (Shanghai) Technology Co., Ltd.**

Hatebur was showcased at the MetalForm China 2018 trade fair from 18th – 21st September 2018. This annual trade fair is organized by the Confederation of Chinese Metalforming Industry (CCMI) and, with around 400 exhibitors, represents a good cross section of the forming technology sector's capacity in China. The trade fair has already been held twelve times since 2004, alternating between Shanghai and Beijing each time. This year, the trade fair took place for the first time in Dongguan, a city in Guangdong Province in the south of China.

Produce cam lobes economically
We had an encouraging number of visitors and many promising discussions took place. As a particular highlight, Hatebur focused on the near-net-shape forging of cam lobes, presenting its new Hatebur HOT*matic* AMP 20 N in this context. Processing up to 200 parts per minute, the AMP 20 N is not just highly productive, but also boasts additional features, including a servo infeed and press load of up to 1500 kN. This makes it able to cover virtually the entire range of vehicle cam lobes in demand in the market. The presentation of these latest Hatebur innovations also generated interest at the Metalforming Congress, held at the same time as the trade fair in Shenzhen.

Service and support at the customer's own premises
Besides the new HOT*matic* AMP 20 N, Hatebur's capacity in China was also a subject of discussion, particularly owing to its strong service team and tool manufacturing operations that have been steadily developing since 2015, supplying locally produced, superior quality hot forging tools to customers both domestically and abroad. As various discussions with visitors to our booth revealed, these additional services from Hatebur are highly valued and significantly contribute to the successful operation of our customers' forming machines. We are already looking forward to the next MetalForm China event in 2019, which will once again be held in Shanghai.



See us live!

18. – 22.01.2019
AsiaForge Meeting 2019

Location: Chennai, India
Company: Hatebur Umformmaschinen

19. – 21.03.2019
Fastener Fair Stuttgart

Location: Stuttgart, Germany
Company: Carlo Salvi S.p.A.

21. – 23.05.2019
Forge Fair 2019, USA

Location: Cleveland Ohio, USA
Company: Hatebur Umformmaschinen

27. – 31.05.2019
Metalloobrabotka, RU

Location: Moscow, Russia
Company: Hatebur Umformmaschinen

28.05.2019
Umformtechnik Sympos.

Location: Moscow, Russia
Company: Hatebur Umformmaschinen

26. – 28.06.2019
Fastener Expo Shanghai

Location: Shanghai, China
Company: Carlo Salvi S.p.A.

17. – 20.07.2019
MetalForm China 2019

Location: Shanghai, China
Company: Hatebur Umformmaschinen

We look forward to your visit!

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