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NetShape

02 | 2023



Customer story

Danfoss and Hatebur:
Decades of successful
cooperation

06-09

Focus

Sustainability:
More than just a buzzword

11-13

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HATEBUR

In person



Dear Business Associates,

With our Hatebur and Carlo Salvi brands, we are further strengthening our global presence as a Group. And by developing a distribution structure within the Hatebur Group, we have taken a significant step to achieving this. It means we are able to work more closely together. And there are more steps to follow.

The fact that customers can rely on Hatebur is demonstrated by our partnership with Danfoss, which began with an AMP 20 S over 50 years ago. The Danes have been able to count on these reliable machines and on us for decades. And now a new machine is replacing the existing system at a new site in Silkeborg. We are delighted at the trust placed in us.

The report on brass production describes the challenges and advantages of processing brass on our fast-running hotformers. I hope this will inspire anyone with a knowledge of steel processing.

Sustainability is a hot topic – with us too. We are approaching this demanding subject in a structured and systematic way, and are making steady progress. However, the greatest contribution is being made by our durable machines. Anyone who has been using them for production for decades knows what we're talking about.

You probably know that our COLDmatic series is already equipped with highly flexible kinematics. This edition describes how important this machine's quick-change system is for its flexibility.


GKN Automotive's customer report also describes how the servohydraulic bar stop has proven itself in the latest AMP 70 application.

This interesting edition includes the most recent trade fair reports. We hope you enjoy reading it.

A handwritten signature in black ink, appearing to read 'T. Christoffel'.

Thomas Christoffel, CEO

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Cover image: The team of experts at Danfoss at the Silkeborg site

Legal information

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Latest news

15 years of Hatebur in China

Hatebur Metalforming Technology (Shanghai) Co., Ltd. is celebrating its 15th anniversary this year. Our Chinese subsidiary founded on January 11, 2008 has made a significant contribution to the strategically hugely important consolidation of Hatebur's presence in the Asian market. The ten-person team is dedicated to representing our innovative products and services in the region. The subsidiary also enables us to offer a local service, to address customer wishes more efficiently and to convert these into real-world solutions in a targeted manner.



30 years of Hatebur in Germany

There are also grounds for celebration in our northern neighbor: Hatebur Umformmaschinen GmbH in Germany has already reached its 30th anniversary. Its founding in 1993 marked a significant milestone in our company's history – the first foreign expansion after the company's headquarters moved to Switzerland 60 years earlier. With its extensive expertise, Hatebur Umformmaschinen GmbH provides, amongst other things, customer service and spare part services for all Carlo Salvi machines in Germany and Switzerland. The skilled team impresses with its clear focus on quality and customer satisfaction.

Warehouse with improved infrastructure

Thanks to extensive conversions, our storage facility in Reinach has a new look. The alterations and modifications represent an important step toward optimizing quality assurance. The constant room temperature offers the best possible conditions for examining the quality of components for our forming machines and tools. The flow of materials between shipping, quality assurance and storage is organized much more efficiently. Our customers also benefit directly from the innovations: Additional pallet space has been created by increasing the surface area. This enables us to store an even greater range of products safely and keep them constantly available.



Congratulations on completing your apprenticeship



Outhman Aabid has successfully completed his apprenticeship as a design engineer after four years of training. During this period, Outhman has gained an insight into the various divisions at Hatebur. He has not only acquired valuable expertise, but also enriched the divisions themselves with his fresh way of thinking. Outhman, we offer you our warmest congratulations for your well-deserved certificate and have no doubt that you are well-equipped for a fulfilling professional career.

Family Day 2023



With the slogan "Sun, Fun and Tasty Food", the Hatebur family met for its traditional Family Day in September. Under bright sunshine, those present enjoyed a varied program with enjoyable activities for all ages, rounded off with fine food straight from the grill.

The Family Day brings employees and their families together to spend a few relaxed hours. It was introduced ten years ago, and we are already looking forward to the next one!

New Group Sales & Marketing Manager



Name: **Stephan Formica**
Position: **Group Sales & Marketing Manager**

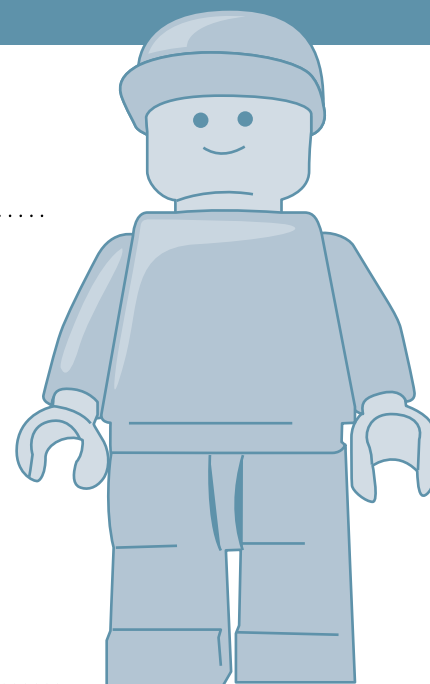
Stephan Formica has been the new Group Sales & Marketing Manager since April 1 this year. With more than 20 years' experience and an impressive career in various management positions behind him, he is a valuable new addition to our company. His main task is to ensure the distribution-side integration of Carlo Salvi and Hatebur.

His focus will be on optimizing the sales process and increasing cooperation between the Sales, Service and Spare Parts divisions. Stephan Formica will therefore be making a crucial contribution to our company's further development and its growth strategy.

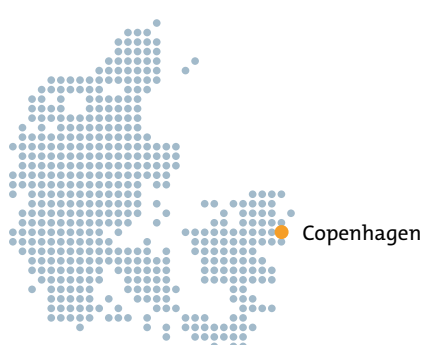
Facts & figures

Denmark

LEGO was founded by Ole Kirk Christiansen in Denmark in 1932 and has grown from a small workshop making wooden toys to one of the world's leading manufacturers of plastic building blocks.



Denmark at a glance



5,932,654 inhabitants



42,921 km²



Parliamentary monarchy

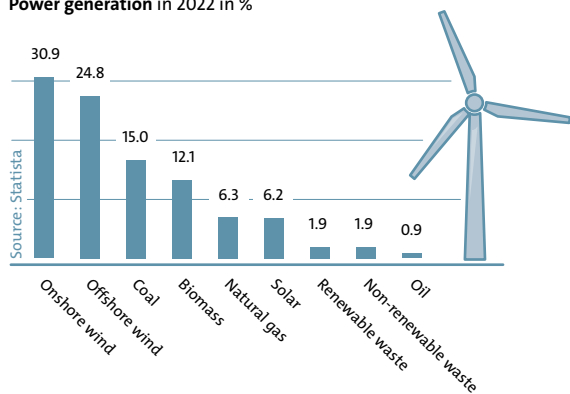


USD 398 billion GDP

Copenhagen

Economy

Power generation in 2022 in %



Exports The main export goods from Denmark by export value in 2020 [in millions of euros]

1	Pharmaceuticals	16,728
2	Machinery	12,350
3	Electrical engineering	7536
4	Medical and measurement technology	3632
5	Meat	3609
6	Furniture/furnishings	2768
7	Vehicles	2659
8	Fish and other marine animals	2570



Famous Danes

Hans Christian Andersen (1805-1875)

Niels Bohr (1885-1962)

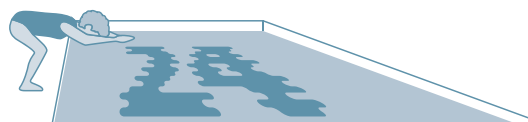
Ernst Reuter (1889-1953)

Søren Kierkegaard (1813-1855)

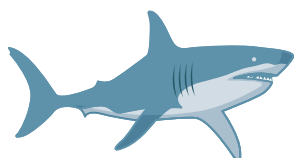
Nikolaj Frederik Severin Grundtvig (1783-1872)

Asta Nielsen (1881-1972)

Gitte Hænning (*June 29, 1946)



In Denmark, they talk about "jumping" into the new year.



There are **18 different species of shark** living in Danish waters.



The "Little Mermaid" in Copenhagen is a famous bronze statue which was inspired by Hans Christian Andersen and is one of Denmark's best-known sights.

Danfoss and Hatebur: Decades of Successful Cooperation

Text: Bernhard Hagen, Hagen PR

Images: Danfoss

Reinach — The Danish multi-industry engineering company Danfoss will improve its productivity with a new **HOTmatic AMP 20 S**. The old Hatebur machine is set to retire after more than 60 years of reliable service.

Danfoss is a Danish multinational company that employs more than 42,000 people worldwide. Founded in 1933 by engineer Mads Clausen, the family- and foundation-owned company engineers solutions that increase machine productivity, reduce emissions, lower energy consumption and enable electrification. Danfoss solutions are used in areas such as refrigeration, air condi-

tioning, heating, power conversion, motor control, industrial machinery, automotive, marine, and off- and on-highway equipment. The company also provides solutions for renewable energy, such as heat pumps, solar and wind power, as well as district-energy infrastructure for cities.

In the plant in Viby, a district in the southwestern part of Aarhus in Denmark, Danfoss Climate Solutions manufactures products for the residential heating sector. Since 1973, a Hatebur AMP 20 S has been the reliable backbone of the production of nuts and nipples for radiator valves, heat control equipment

The Danfoss experts with Hatebur application developer Sotirios Andriopoulos in front of the new AMP 20 S at the plant in Silkeborg





➤ The old AMP 20 S, in operation since 1973

and residential heating systems. “For more than 50 years, the old Hatebur hot former has been in use as a key machine – and it still produces high-quality parts to this day. When Danfoss bought the machine, it was already 10 years old. Today, it is 60 years old,” explains Charlie Køhler, Production Engineer at Danfoss Climate Solutions.

When the company decided to relocate the Viby production site to the Danish city of Silkeborg, 45 km to the west, an important consideration was whether to move the old Hatebur machine to Silkeborg or purchase a new one. Mr. Køhler explains: “I had joined the company just before this process and was in charge of all the detailed calculations. We ultimately decided to retire the old hot former and invest in a new Hatebur HOTmatic AMP 20 S.” The project started in October 2021 with discussions between the Danfoss experts and the Hatebur specialists. The process was super-efficient, recounts Køhler: “It was challenging, but Hatebur was a great

partner from day 1. After finalising all the specifications, calculations and standards, and after many meetings with Hatebur, we placed the order in March 2022.”

The decision to buy the HOTmatic AMP 20 S was based on a variety of reasons, explains Køhler.

Experience & partnership

One reason was the decades of positive experience with the old Hatebur machine. “Having witnessed the quality and reliability of the old hot former and the customer service of the Hatebur team, it was clear that Hatebur should be our first point of contact. Before investing in such machinery, it is a big advantage to collaborate with an existing, trusted partner. Replacing the old machine with a new Hatebur hot former ensures that our operators are familiar with the manufacturing equipment because many mechanical aspects follow the same idea. Consequently, operator training is not a problem,” says Charlie Køhler.

25% faster: Productivity boost

Another major reason for the purchase of the new machine is the expected productivity gain. “We expect it to be 25% faster than the old one. We expect less maintenance and an optimised machine uptime,” underlines Køhler. Thanks to the increased output, Danfoss will be able to react more flexibly to market requirements and to produce additional parts. At maximum capacity, the new AMP 20 S will run on three shifts from Monday to Friday, 225 days a year. That adds up to 45 weeks of production in a calendar year.

Quality improvements

To meet – or surpass – even the highest requirements in terms of precision and quality, Danfoss is consistently seeking to improve its production processes. The new Hatebur hot former is expected to boost the production quality even further. “Over the years, we have improved the tooling on the old machine and introduced new products. The machine still produces at a very high standard. With the new hot former and latest technologies, we want to improve this quality standard even further, while at the same time enhancing

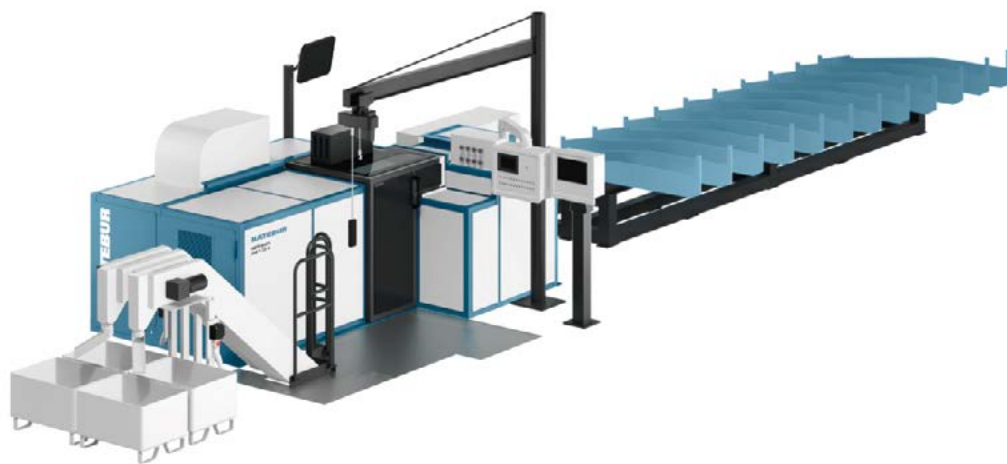
tool life,” explains Køhler. Nine different products are scheduled to be manufactured on the Hatebur HOT*matic* AMP 20 S. “In agreement with Hatebur, we decided to buy new tooling for all products. By working in close cooperation, we will optimise the tooling for improved efficiency and increased tool life!”

Data-driven efficiency

The new HOT*matic* AMP 20 S is convenient because of its many new technical features. Comprehensive data is available to the operator, and PLC controls provide added automation and efficiency. “It is important for us to have a clear, data-driven picture of what the machine can offer. State-of-the-art technology also improves work safety, which is crucial for Danfoss,” reports Køhler. To reduce noise levels, Danfoss has installed cabins around the conveyors and the machinery.

Danfoss has a green heart

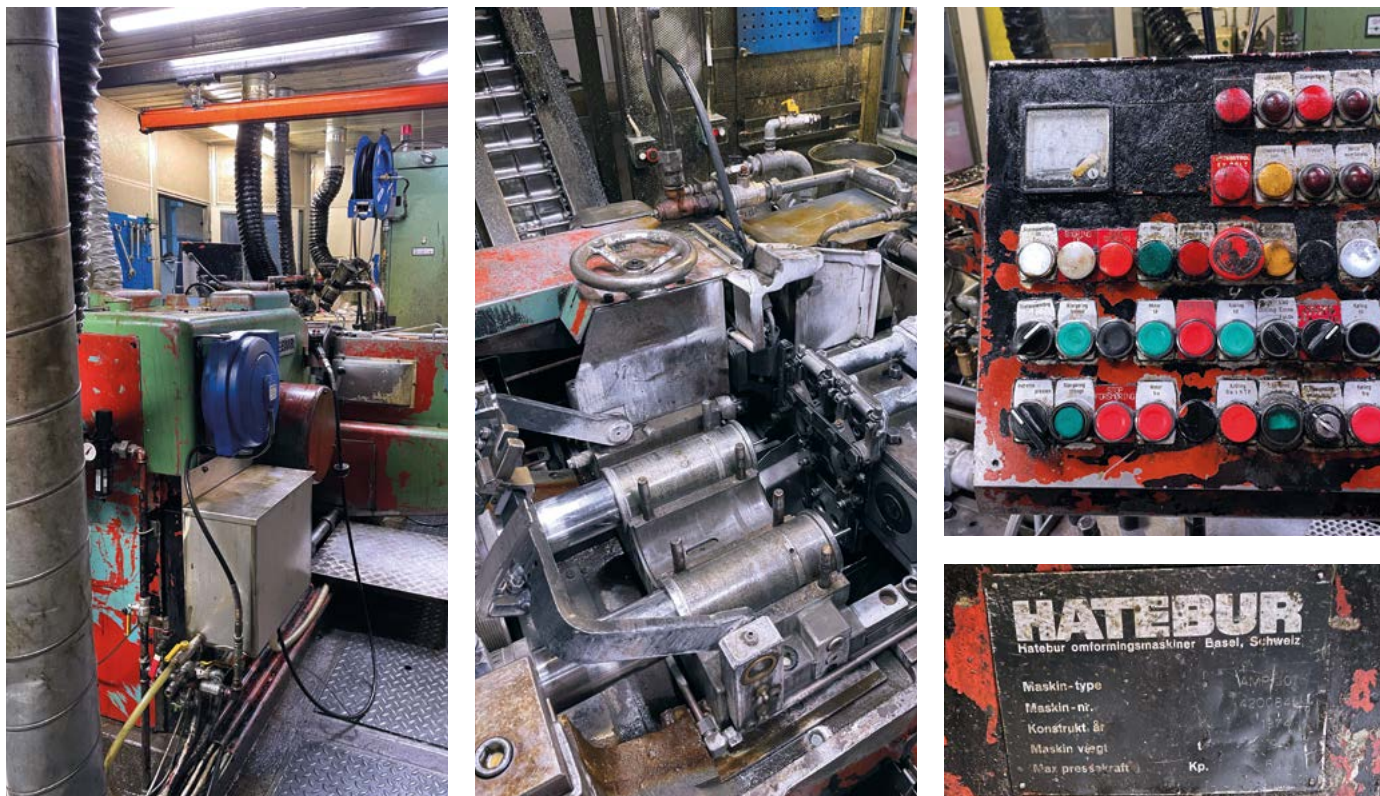
Sustainable aspects were another reason for the purchase of the new Hatebur machine. Charlie Køhler explains: “Power consumption is always an important consideration. We want our new facility in Silkeborg to be



At a glance: The Hatebur HOT*matic* AMP 20 S

The 3-station hot former combines a very high output of 200 parts per minute with a total press capacity of 900 kN. Further benefits include the simple operation and conversion, the accurate transfer of parts, the machine's compact dimensions, and the possibility to manufacture brass parts. The HOT*matic* AMP 20 S is

ideally suited to the automated forging of parts such as hex-nuts, flange nuts, cam lobes, bearing rings, brass balls, brass liners, etc. The machine's proven, reliable technology and fast changeover times ensure a high level of machine availability, and make production and operation efficient and profitable. The hot former can process parts with a maximum diameter of 38 mm (steel) or 42 mm (brass).



The old AMP 20 S at the former plant in Viby [↑](#)

CO₂-neutral. Lowering CO₂ emissions and reducing power consumption are important topics for Hatebur as well, and they have optimised their machines according to these requirements.”

“The machine is one thing, the foundation another,” says Mr. Køhler. A hot former like the AMP 20 S needs a perfect foundation to ensure the highest possible precision. Planning and constructing the foundation for the machine, with its many different levels and varying degrees, is a complex undertaking. “We at Danfoss were responsible for the foundation, and our partners at Hatebur consulted us and approved it.”

At the Hatebur headquarters in Reinach, the Swiss experts constructed and tested the tooling with the responsible Danfoss operator present. Details were analysed and adjusted to streamline the processes once the tooling arrived in Denmark. “Our operator attended training with Hatebur in Switzerland, and he will teach his colleagues to ensure that we are well prepared,” states Køhler.

Arrival in Denmark

The move into the new facility in Silkeborg has already started, and the new Hatebur *HOTmatic* AMP 20 S arrived in the first week of August 2023. Together, the expert teams from both companies will test the machine at the new location and put it into operation in the coming months. The old Hatebur machine will continue to manufacture until the new one is ready to take over – and then it will be time for the old AMP 20 S to enjoy a well-deserved retirement.

Charlie Køhler summarises: “It is a big step for us. The new machine will increase our productivity and our flexibility. With the Hatebur *HOTmatic* AMP 20 S, we can ensure the highest quality, and we will be able to follow market requirements for different or bigger parts. Going forward, we will continue our fruitful cooperation with Hatebur, for example to mutually develop advanced tooling for new products.”

HOTmatic HM 35 for Metform LLC

Text: Christian Becker

Images: Metform LLC



 The Metform team

Reinach — Metform is expanding its range of machines with a Hatebur HOTmatic HM 35. With this new press, the American company will be able to meet a current market need.

Metform and Hatebur have been partners for many years. A total of eleven of our machines are being used at the three branches in the Federal State of Illinois – the largest stock of Hatebur forging presses in the whole of North America. An AMP 20 N was delivered to Metform only last year, and an HM 35 in combination with a CEFI bar heating system is now being added. “In our constantly changing market conditions, demand for larger formed

parts is increasing,” says Managing Director Steve Wright explaining the investment, adding: “The Hatebur HOTmatic HM 35 will help us in this new business area.”

Progress through innovation

Metform was founded in 1976 as the hot forming division of MacLean-Fogg Component Solutions. The company produces high-quality components for leading motor vehicle manufacturers and has a first-class development department. “We have a fantastic team at Metform. Thanks to our SME culture and our hard-working ethos, we combine punctual delivery with extremely high quality,” explains

Steve Wright. Metform’s declared aim is to ensure continual improvement in its own business and in the sector as a whole. As a partner and supplier, we are proud to join the company on this ambitious path.

Sustainability: More than just a buzzword

Text: Christian Bürgin, Mathias Koch

Images: Hatebur

Reinach ——— 17 goals, 169 targets: With its 2030 Agenda, the United Nations has set out a clear timetable for sustainable development. Combating climate change by reducing CO₂ emissions plays an essential role here. As an energy-intensive sector, the forging industry can make a major contribution.

Climate change affects us all. Its negative impact on all areas of life can already be seen today, from the global economy on a macro level to individual well-being on a micro level. Just as much importance is given to the subject in the UN's sustainability goals – and not just there: At a European level, there is the EU taxonomy with clear requirements for climate protection and Switzerland wants to be completely climate-neutral by 2050. The industry itself is also rising to the challenge, for example in the form of industry initiatives such as “NOCARBforging 2050”.

Efficient machines mean sustainable production

In massive forming, the majority of CO₂ emissions are produced not during processing, but in the preparation of the raw material. Accordingly, machine manufacturers like us can only influence a section of the value-added chain or, in this case, the emissions chain. As we look ahead, every piece of the jigsaw counts – and at Hatebur we are aware of the responsibility that our activities bring. Fortunately, it seems that economic efficiency and sustainability almost go hand in hand in our case.

That is why such importance is given to the efficiency of our presses. Perhaps the most important factor in this context is durability: The more time that passes before there is any need to invest in a replacement, the better this is for the balance sheet, the well-established processes and the environment. By reducing the production of scrap to a minimum, we lower the consumption of raw materials. Technologies like induction heating ensure lower energy consumption.

The key elements of the 2030 Agenda: 17 goals for economic, social and ecological sustainability



**Our vision:
“Clever solutions
for sustainable
metal-forming, which
enrich peoples’ lives.”**

Oil processing system: Environmental protection and cost reduction

Even though Hatebur machines have always operated very efficiently, we are continually developing innovations to improve ourselves and our products even further. Just one of numerous examples is the system used for processing oil which we have been offering as a supplement to our forging and six-station coldformers since 2021. It enables around 90 percent of the oil consumed during machine operation to be reused.

Over 10 million parts are quickly produced if one of our machines is operating round the clock. A large supply of lubricating oil is vital here. After initial separation, this would in many cases go directly into the waste disposal – but this no longer has to be the case with our processing system. By combining the three-phase centrifuge and fine filter, a great deal of oil can be saved, leading to a considerable reduction in CO₂ and making an active contribution to environmental protection.

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FRED makes sustainability measurable

Many of our customers come from the supply sector of the automotive industry. Requirements are increasing significantly in this very sector: At nearly every large motor vehicle manufacturer, sustainability and its traceability are among the criteria used during the procurement process. In connection with its “NOCARBforging 2050” initiative, the German massive forming industry association, Industrieverband Massivumformung, has developed a tool for precisely this purpose. FRED (short for “Forging REDuction”) allows you to calculate the CO₂ footprint for the production of a component. Thanks to the tool, suppliers can depict and reliably provide evidence of their production processes together with all influencing factors and the resulting emissions.

FRED works on different levels. The online tool:

- Shows which set screws lead to an improvement in the product carbon footprint,
- Enables customers to document the current status and the improvements made so far,
- Lays the foundations for achieving the aim of “climate neutrality by 2050”.




Environmental protection and cost reduction:
A few systems for processing oil

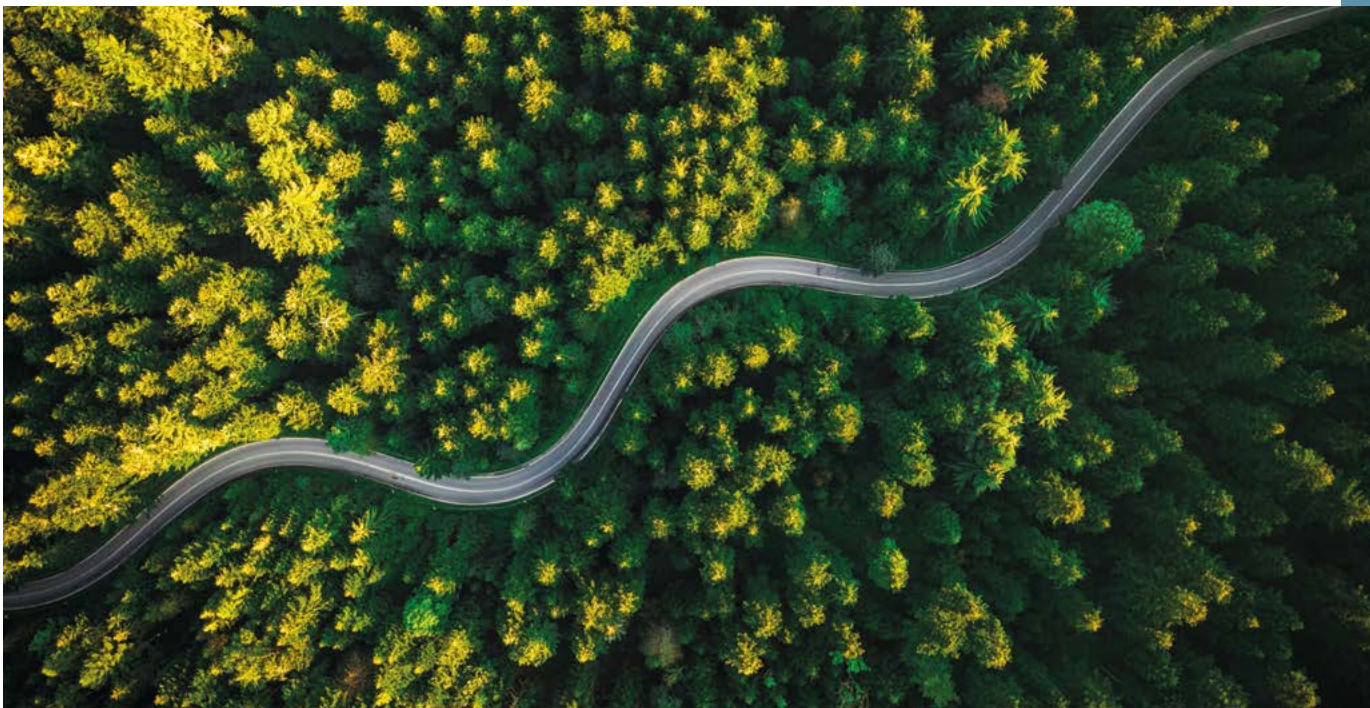
At Hatebur, we also use FRED to improve ourselves and help our customers in their efforts to achieve greater sustainability. As part of our service, we offer support, amongst other things, in designing tools, in setting optimal timings and in establishing the most efficient processes possible. Incorporating the sustainability of the entire production process is just the next logical step.

Climate protection and ecology form an integral part of the 2030 Agenda. But the plan also includes other dimensions to which we can make our own contribution, just like with CO₂ reduction. Which measures we have already implemented at Hatebur and which other ones still lie ahead as part of our strategy are described in the next edition of NetShape.



The “**NOCARBforging 2050**” initiative seeks to achieve CO₂-neutral massive forming by 2050 at the latest. More than 50 companies have joined forces to achieve this declared target – including Hatebur Umformmaschinen AG. We are proud that we are thereby able to play our part in creating a sustainable industry in a world worth living in.

 Symbolic image – the route to sustainability



Hatebur COLDmatic: Fast tool changing at the press of a button

Text: Carsten Sieber

Images: Hatebur

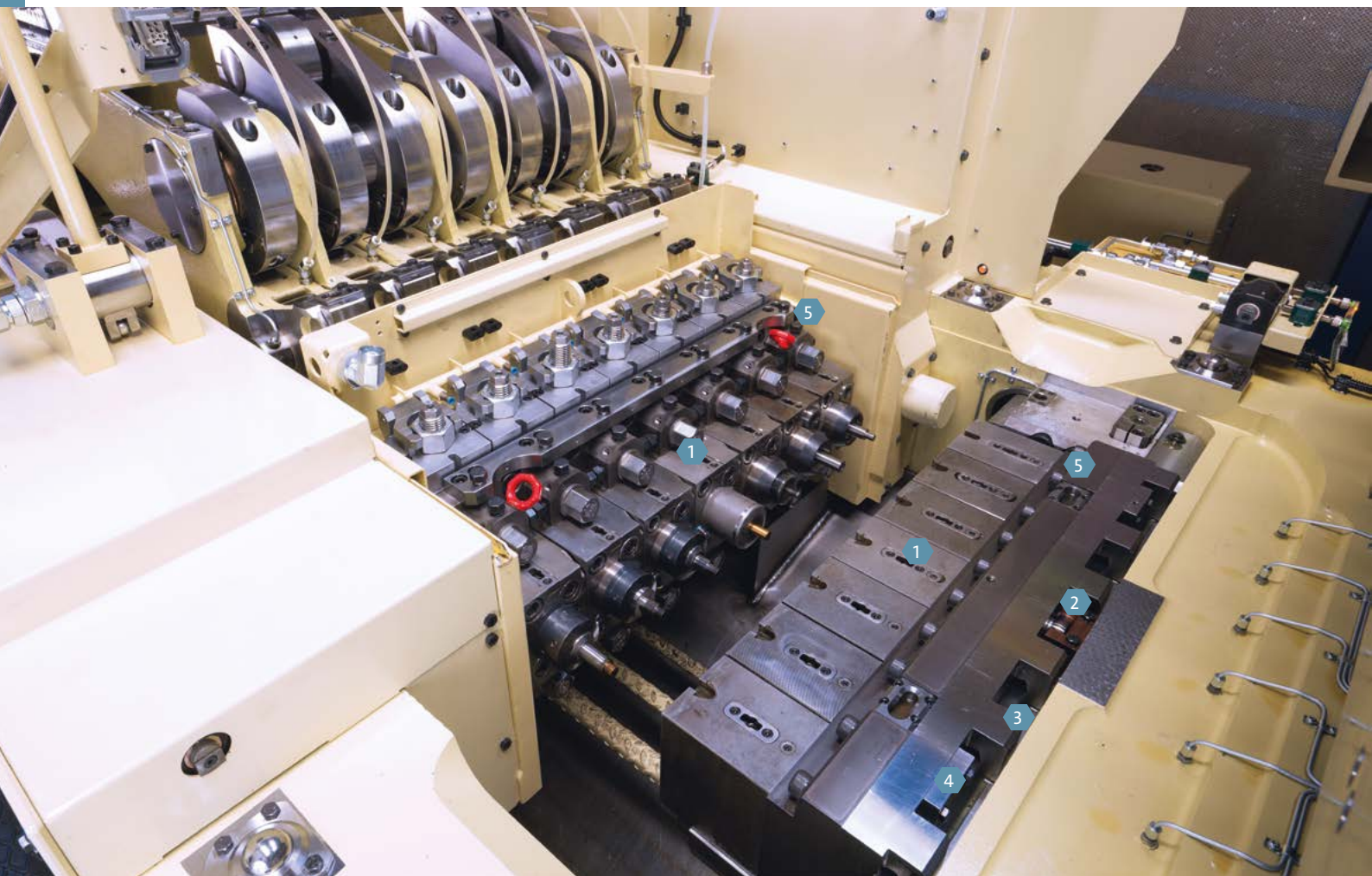
Reinach — The tool-changing concept **Variblock** has become established at Hatebur. It enables all tools to be replaced as a single unit. Retooling times are therefore optimized and operators benefit from better ergonomics.

Reducing retooling times

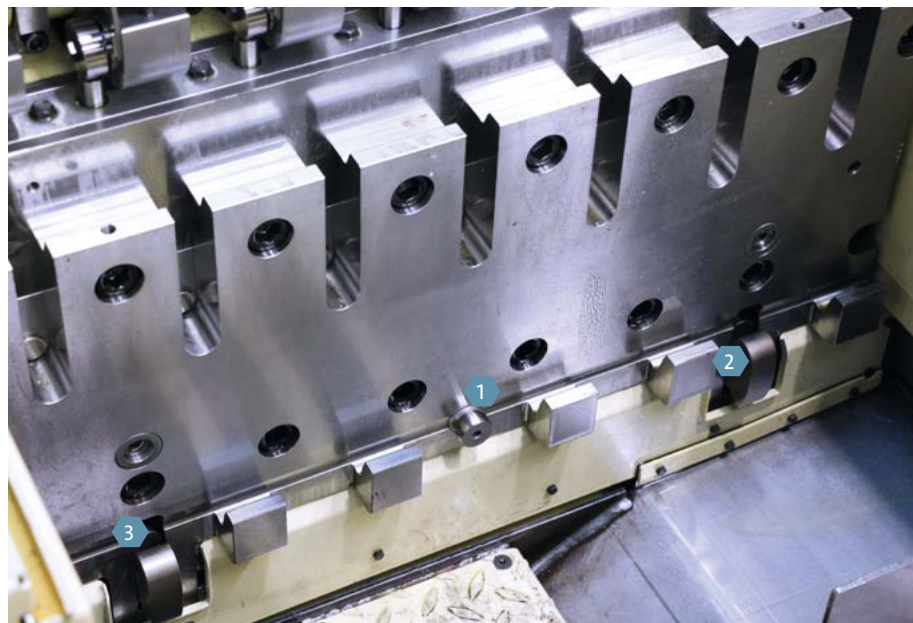
The Variblock module is an exchangeable quick-locking module with which self-centring tool mounting blocks, which are referred to as multiblocks, can be assembled. This module can be hydraulically locked at the press of a button

Hatebur COLDmatic CM 725 tool area

1. Separate multiblocks 2. Centering ball 3. Locking tabs 4. Height stop 5. Attachment points



Pressram with Variblock module removed
 1. Centering ball 2. Locking tabs 3. Locking hydraulics



based on machine visualization. As a result, not every tool has to be individually removed from the machine by the operator, thus reducing retooling times overall and increasing ease of use for personnel.

Repeatability as the key – the system in detail

The lateral positioning of the Variblock module in the machine is achieved via a spherical positioning pin. The height positioning is carried out via securely mounted mechanical stops which guarantee extremely high repetition accuracy. The locking force required for the task is produced by locking tabs, with the module being hydraulically lowered onto the height stops.

Heat expansion? No problem!

Other press manufacturers, in quick-locking systems, often rely on wedge locking systems in which the quick-locking module is supported on the body frame. As a result of process-induced heat expansion, in such systems, the centring between the punch and die changes, which can in turn lead to parts that are not dimensionally stable. To avoid this, at Hatebur we have deliberately opted for central positioning of the module with a ball pin. The tools are also separated from one another by the individual block mounts so that adjacent stages cannot influence one another through heat expansion.

Brass production on the HOTmatic AMP 20 S

Text: Kim Weber

Photos: Hatebur

Reinach — The subject of hot forming often revolves around the processing of steel. Nevertheless, the second most frequently used material should not be ignored: Every fourth Hatebur HOTmatic AMP 20 S delivered is used to produce forging blanks made of brass.

Forging blanks made of brass are mainly used as fitting components in sanitation and heating systems. Brass offers vital benefits in processing: The copper and zinc alloy has far better flow properties than steel, so the forming process is much easier. For example, the AMP 20 S can in most cases be operated below its maximum press load of 900 kN. In the area of the forward dead center, the press loads then climb – as with steel pressing.

The key to successful brass processing

We know from decades of experience that, because of its special properties, brass forging requires a different process to that used for producing steel blanks. During training sessions, we share the knowledge we have gained with our customers in order to support them efficiently in all matters. So what are the main factors for success in brass processing?

1. Quality of the alloy

Depending on the area of use, we recommend two types of raw material. To produce conventional brass parts like union nuts or cap nuts, CuZn40Pb2 (DIN 2.0402) quality is used. In brass parts with more complex shapes or extruded parts like spouts or screw nipples, we advise admixing aluminum. The alpha and beta mixed crystals of the alloy give the material good machineability and very good hot formability. The mixed crystals are created by the specific proportion of copper and zinc in interaction with the forming temperature.

2. Forging temperature

Brass only has the right properties for hot forming within a narrow temperature range. In the most unfortunate case, the bar melts during heating or between the last heating coil and the infeed rollers. It is therefore crucial to have a constant temperature across the entire brass bar. The brass bars also need to have a bevel at both ends. This prevents the bars melting together when being fed in or when being heated to the forging temperature.

3. Tool construction

There are essentially only minor differences between steel and brass in three-station tool construction. The main thing to bear in mind is that brass is easier to form and flows easily into all edges. As a result, all clearances – between ejector and die, between punch and die and between punch and holding pin – have to be designed accordingly. Ventilation areas to prevent the ingress of water and air have to be reduced to half the steel values.

Free upsetting without allowing the material to lie radially on the die is inconceivable in brass forming. At the beginning of pressing, the punch also always has to be guided in the die to prevent the material from accidentally flowing out.

A major difference to steel production is to be found at the shearing station, which has to be matched exactly to the requirements for brass production. Shear blades and stationary blades made of high-speed steel can be used, whilst the clamping piece has no function. Infeed rollers with a smaller cross-groove depth and the feed bushes are designed to fit the brass bar in order to minimize its deformation.

Side note: Special tool construction with gas spring assembly

At Hatebur, we have developed a flexible die for all workpieces such as spouts, screw nipples and top parts of water taps which require a very deep drilled hole. This allows a long flow section of up to about 38 mm. The associated gas spring assembly operates with a movable piston which is supported on the nitrogen-filled cavity in the bush during forming. A connection hole needs to be provided on the machine part to guarantee nitrogen input.

Coolant

To improve the flow of the material on the tool walls, the tools have to be cooled with an emulsion and lubricated.


This emulsion is produced by admixing a lubricating oil in the cooling water tank. The best results are achieved with a lubricating oil content of around 15 percent.

Training sessions

It is obvious that every production process and every tool has its own peculiarities that cannot be covered in this article. If you would like access to all of our expertise regarding brass processing, we would be happy to arrange a training session for the team responsible at your company. Whether on-site or online – you can always rely on Hatebur's proven expertise.



<https://www.hatebur.com/en/contact>

 The range of brass parts in a *HOTmatic* AMP 20 S



Interview



Name: **Mariarosa Meroni**
 Position: **Assistant to CEO**
 At Carlo Salvi since: **1999**

What is your position at Carlo Salvi?

My main task at Carlo Salvi is the preparation of offers, the confirmation of orders and contracts, as well as delivering the technical sheets of every sold machine to the programming office. I also take care of the customer throughout the entire sales process, from negotiation to order and up to the final commissioning.

Have you always had this position, or have you also had other roles in the past?

I have actually done a little bit of everything during my time here, helping colleagues in all the daily activities, from sales, to after sales and service, and even supporting the administrative department with debt collection. The other activity that has occupied me over the years a lot has been the translation of the technical manuals of the headers, mainly the chapters related to use and operation.

Did you know Carlo Salvi and its machineries before taking the job?

Since I've always lived nearby Garlate I knew Carlo Salvi already, but working in a different market I did not know the products from a technical point of view.

You work for the sales department, and this puts you in daily contact with different customers and suppliers. What kind of training and experience is necessary for this job?

The experience, which is acquired only by working, is the only school that can train you. You also need to have a lot of passion for your work, and of course empathy... this is definitely an extra gear! However, there are things that you cannot learn, they must be part of you and your personality. In addition to the technical component, the human component is also important.

What tasks are on your daily agenda?

The activity that takes most of my time is the preparation of offers for headers with non-standard technical characteristics, as well as for headers already sold in the past to the same customers. I really like working with the technical department. The other very demanding activity concerns the correspondence with customers about the status of machines in production.

Which part of the work are you and your team particularly proud of?

Customer satisfaction is my first concern, therefore sometimes they tell me that I'm too much on the side of the customers.

If there was anything you could change, what would it be?

Surely the consideration I receive in comparison to men. Unfortunately, despite what is said, women are still very discriminated against since the market in which we work is purely male. I've been noticing this since the beginning, often during some technical discussion with customers, who directly address the men at the table, assuming that since I'm a woman I don't know the answers.

How do you rate your experience working with your colleagues at Hatebur?

I work very well with the Hatebur sales managers.

Are you married?

Yes, I met my husband at Carlo Salvi in 1999 and we got married in 2002.

New: Servohydraulic bar stop for the Hatebur HOTmatic AMP 70

Text: Stefan Bühler

Images: Hatebur

Reinach The introduction of the servohydraulic bar stop for the Hatebur HOTmatic HM 75 brought with it a significant increase in efficiency in the forming process. Now an AMP 70 with this innovative technology has also been retrofitted for the first time at GKN Automotive.

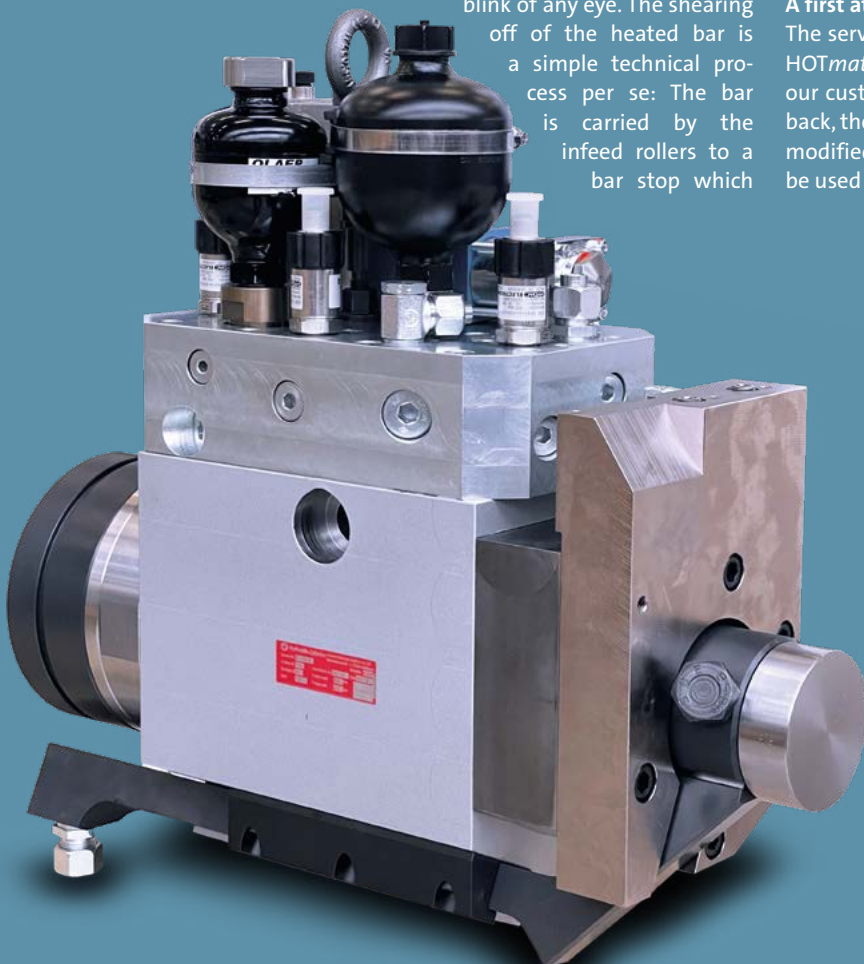
“The beginning is half the whole,” as Aristotle once said. The forming process on a Hatebur horizontal multi-stage press begins by separating the cut-off from the bar preheated to the forging temperature. A process which is about five times faster than the blink of any eye. The shearing off of the heated bar is a simple technical process per se: The bar is carried by the infeed rollers to a bar stop which

determines the cut-off length. It is then locked and the cut-off is separated from the rest of the bar and conveyed up to the first forming station.

As simple as this process may sound, there is still considerable potential behind it. By developing a servohydraulic bar stop, we have made a groundbreaking improvement: On the one hand, we have achieved much greater shearing quality, while on the other, the time taken to inspect the finished parts has been reduced as a result.

A first at GKN Automotive in Trier

The servohydraulic bar stop was used on the HOTmatic HM 75 for the first time by one of our customers. Because of the positive feedback, the project team under Dr. Mihai Vulcan modified the new component so that it could be used on the AMP 70.



GKN Automotive was the first customer to decide to retrofit its tried and tested machine with a servohydraulic bar stop. “Around two years ago, our AMP 70 was renovated and given a new machine frame,” explains Jörg Rohles, Production Manager at GKN. “We decided at the same time to have a servohydraulic bar stop fitted so that the machine could carry on producing high quality products for the next 30 years.”

GKN Automotive has a staff of around 7000 in Germany alone. The company is one of the world’s leading suppliers of drive systems for the automotive industry. The servohydraulic bar stop for the AMP 70 is an investment in the future. “The forging industry is changing rapidly. All players have to be prepared to make new products. The servohydraulic bar stop is an extremely useful addition for us in this context because it significantly improves the quality of shearing and allows the production of parts with more complex geometries,” comments Jörg Rohles, explaining the reasons behind the retrofit.

Rohles has experience of Hatebur’s potential for innovation: “We started using an HM 75 ten years ago. Even back then, the quality of

shearing was already an important factor and we have made various refinements in collaboration with Hatebur. The servohydraulic bar stop is now undoubtedly the next evolutionary stage in this area.”

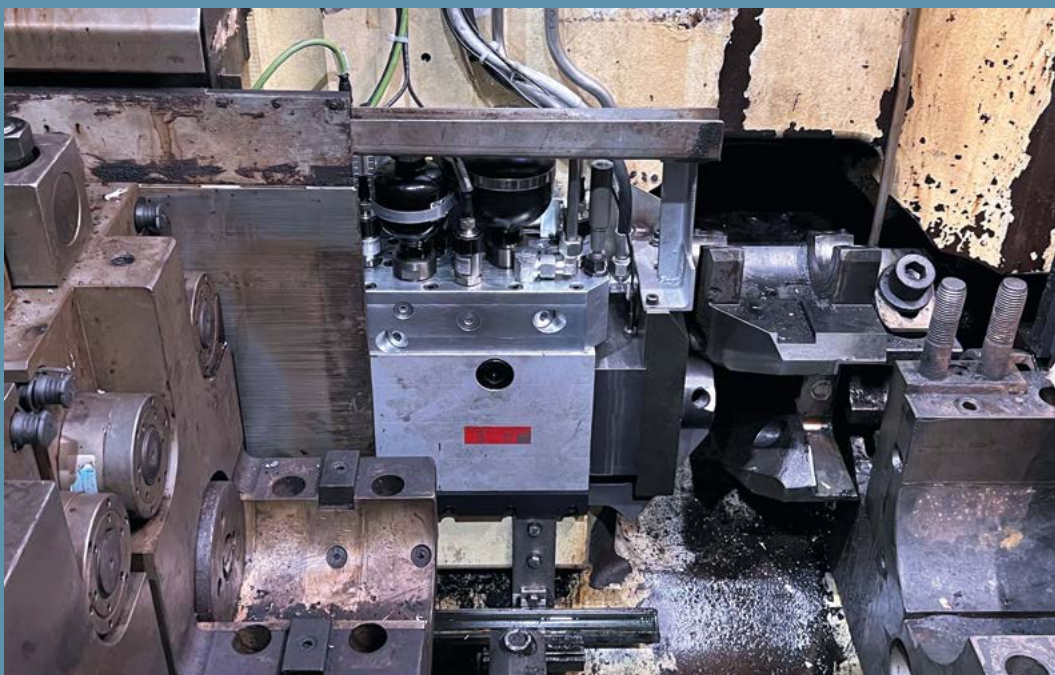
Developments at a glance

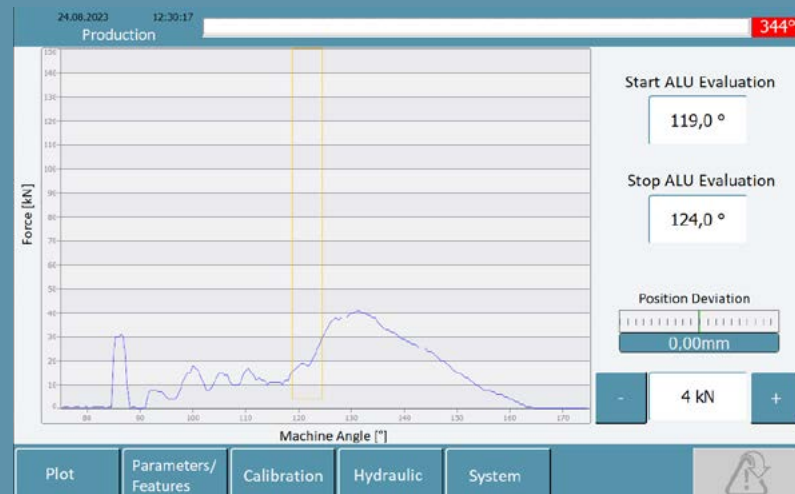
Using the servohydraulic bar stop on an AMP 70 completes a circle because the first trials were carried out on an AMP 30. A cross-departmental team of experts was put together for this purpose in 2015 and the AMP 30 tool area in Reinach was completely rebuilt to allow a series of complex and extensive tests on the hot shearing process. Studies were successfully completed a year later. The servohydraulic bar stop was then developed for the Hatebur *HOTmatic* HM 75 and customers started using it in 2017.


Three main factors influencing break-out on the shearing surfaces were identified during testing:

- ◆ The heating temperature
- ◆ The shear gap
- ◆ The bar stop head angle

◆ Installation space for the servohydraulic bar stop





 Force signal display, specification of the evaluation area for the ALU signal and its size

The geometries of the stationary and cut-off blades, the overstroke, the infeed roller pressure, the return stroke of the bar and the locking force are slightly less important. The material may be regarded as a further constant. During shearing, the material flows. The greater the capacity for deformation, the greater the clean-cut portion and the smaller the break-out.

Alongside the temperature of a material, its capacity to deform has also proven to be dependent on the stress. Signs of break-out on the shearing surface indicate an exhausted capacity for deformation.

The servohydraulic bar stop newly developed for the AMP 70, in combination with the real-time capable EtherCAT fieldbus, helps ensure that the stress in the cut-off during the shearing process is set and maintained at the desired level throughout production.

Challenge of a lack of space

The design of the bar stop proved to be challenging owing to the very tight installation area. Apart from the hydraulic cylinder and the associated control block, which are custom-made products, proven components that were readily available on the market were used: Servo valve, position measuring system (integrated in the cylinder), pressure transducer and storage technology.

To ensure functional reliability and a long service life, particular attention must be paid to the purity class and the quality of the hydraulic oil. For this reason, the bar stop is hydraulically supplied from a mini hydraulic unit specially designed for this and having its own cooling system, high pressure filter and air filter and permanent bypass flow filtering system.

Pressure transducers are provided on the control block to regulate the force required to maintain the desired compressive stress in the cut-off. The force signal is also integrated in the machine control system and used for monitoring the length of the cut-off. The force sensor we are familiar with from the mechanical bar stop has hence become obsolete. Thanks to the precise regulation and the high rigidity of the servo cylinder resulting from its design, the bar stop head only shifts from its target position by a few hundredths of a millimeter during the shearing process.

With the new servohydraulic bar stop, it is now also possible to make process-relevant adjustments from the control panel of the Hatebur *HOTmatic* AMP 70 without stopping production; factors influencing the quality of the shearing, such as the material, the temperature or the change in stress in the separation zone brought about by wearing of the shear blade, can therefore be offset.

Tokyo, July 12–15, 2023

MF-Tokyo 2023

Location: **Tokyo, Japan**

Company: **Hatebur and Carlo Salvi**

Text: **Reinhard Bühner**

Images: **Hatebur**

Hatebur and Carlo Salvi attended the MF-Tokyo trade fair together again this year. The slogan for the seventh Tokyo Metal Forming Fair was “Technology friendly to humans and the earth, for a reliable future”. At our large booth, we were able to welcome customers, interested parties and guests and present our innovative forming technologies.

Our booth offered visitors a unique opportunity to see our latest developments and solutions in the field of forming up close. Carlo Salvi focused on the CS 001 machine which was presented live at the booth. The team used the single-die double-blow forging press to produce massive components at the fair. The CS 001 is able to produce up to 600 parts per minute from a wire diameter of 0.6 mm.

Hatebur and Carlo Salvi presented their product range by displaying a wide variety of sample parts in a round display case. Hatebur’s highlights were also showcased: The *COLDmatic* machines CM 725 and CM 625, the Technology Tower and the servo-transfer unit as a live exhibit.

MF-Tokyo gave us the ideal platform for our ultramodern forming machines, technologies and services which are revolutionizing efficiency, precision and performance in manufacturing industry. At the trade fair, we were able to make valuable contacts, strengthen existing relationships and share our knowledge with other industry leaders. Our teams of experts were there to meet visitors, answer their questions, discuss bespoke solutions and explore potential partnerships.

The positive feedback and the interest shown in our products and technologies exceeded our expectations. We are grateful for the opportunity to share our passion for technical innovations with the world and look forward to strengthening our relationship with our customers and partners in Japan even further.

Our sincere thanks to everyone who came to see us. Hatebur and Carlo Salvi continue to strive to take top place in the forming industry and look forward to future opportunities to present their innovations worldwide.



Shanghai, July 19–22, 2023

MetalForm China 2023

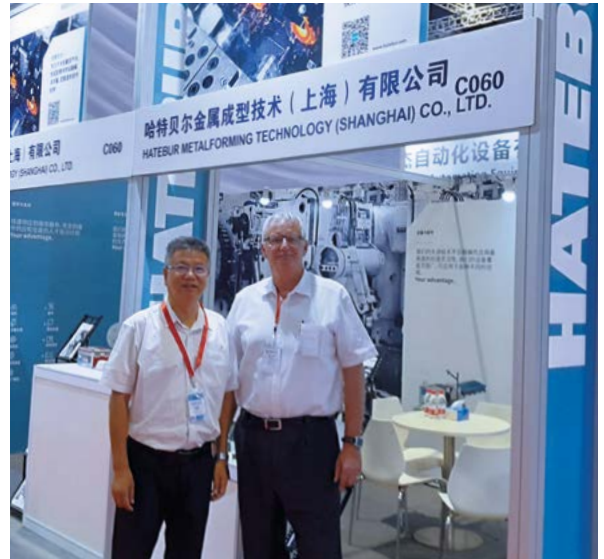
Location: **Shanghai, China**
Company: **Hatebur**


Text: **Christian Becker**
Images: **Hatebur**

Following an enforced break last year owing to the continuing pandemic, the long-awaited MetalForm China was finally able to open its doors again. The metal-processing industry gathered in Shanghai from July 19 to 22, 2023. Our subsidiary Hatebur Metalforming Technology had its own booth there and used the opportunity to present its latest technologies, solutions and products.

MetalForm 2023 was more than just a platform to present products: It offered business people and companies the chance to exchange ideas and expertise, explore potential partnerships and learn from one another.

Given the circumstances of the previous year, this year's MetalForm was a great success. Hatebur staff were delighted at the number of visitors who came and



 Yu Zhenghua, General Manager, and Christian Becker, Area Sales Manager

used the event to hold detailed talks with partners and others attending the trade fair. The fair also helped strengthen links within the forming industry, promote innovations and smooth the way for a promising future in the industry.

We are already looking forward to welcoming you to MetalForm 2024 in Shanghai.

Las Vegas, October 9–11, 2023

International Fastener Expo Las Vegas

Location: **Las Vegas, USA**
Company: **Carlo Salvi**

Text: **Daniele Zucchi**

After a year of attending numerous international events, Carlo Salvi ended the trade fair season by participating in the International Fastener Expo in Las Vegas. The decision to attend was not only based on the successes at previous shows. It also reflects the significant growth of the American forming industry following an enforced three-year break owing to the pandemic. Over three exciting days, many interesting meetings were held during which future possibilities were discussed with existing customers and new ones alike.

See us live!



April 15–19, 2024
wire 2024

Location: **Düsseldorf, Germany**
Company: **Hatebur and Carlo Salvi**

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**We look forward to
seeing you there!**

All dates are correct as of
November 2023.
Please check the latest dates online
before attending an event.