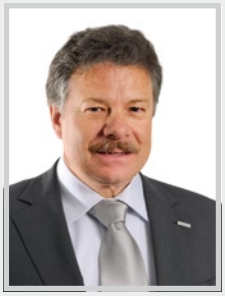
NETSHAPE

Hatebur magazine for horizontal cold and hot forming – **2/2010**

S&S Inc. – Investing in the future

CEO'S VOICE



HATEBUR'S MACHINES ARE TURNING AGAIN!

The dark clouds over industry are slowly clearing. As a result, the global demand for spare parts for Hatebur forming machines has doubled since 2009. This is a good sign and means that the machines are accordingly again working at a fuller capacity than in the previous year. But the level of previous record years has not quite been reached yet.
Another positive aspect is the increase in project activities or the planned investment projects of our customers. After a rather difficult time, which we managed to overcome without making any staff cuts, there is light at the end of the tunnel.

STRONGER FOCUS ON ASIA

The Hatebur subsidiary in Shanghai is gradually being built up to be a center of competence. First and foremost, we want to use this to strengthen our local support for our customers in the People's Republic of China and in Korea. Both for Sales and for Service and Support. In addition to Mr. Reinhard Bührer (Area Sales Manager Asia) and his family moving to Shanghai this summer, a change in leadership recently took place in our Japanese subsidiary. We warmly welcome Mr. Takeshi Imada as the new General Manager.

MOVEMENT IN BIG PROJECTS

The fact that we are gaining momentum in large-scale projects is so gratifying that the editors of NETSHAPE closely followed the journey of an HM 75. In two parts, they will portray the creation of one of these large scale plants, from disassembly through to commissioning. We would like to thank our long-standing business partner GKN Walterscheid Trier for allowing us to include this article.

Now I would like to wish all of our partners a successful 2010/11 and hope you enjoy reading NETSHAPE 02/10.

Sincerely, Urs Tschudin

CONTENTS

Title page:
S&S forging team.

LEGAL INFORMATION

NETSHAPE – Hatebur magazine for horizontal cold and hot forming

Publisher:
Hatebur Umformmaschinen AG I Werbung/ Kommunikation I General Guisan-Strasse 21, CH-4153 Reinach, Switzerland

Editing, layout, production:
Stephan Dürer

Translations:
Star AG, Ramsen, Switzerland

Printing, litho:
Köpfli & Partner AG, Neuenhof, Switzerland

Paper/print run:
Claro Bulk/2500 copies

FSC Mix
Cert no. SQS-COC-100316
www.fsc.org

80 YEARS OF HATEBUR – WITH FRESHLY-BREWED BEER AND DELICIOUS PIZZA

At the end of August, Hatebur's 80th anniversary was celebrated during the most beautiful summer weather. Everybody gathered together on the company's premises to mark this historic occasion. After the official speeches from Claudine Hatebur de Calderón (owner) and Urs Tschudin (CEO), the large group of employees in attendance enjoyed freshly-brewed beer and delicious pizza that was baked in a mobile pizza oven.

Claudine Hatebur de Calderón (owner) and Urs Tschudin (CEO Hatebur).

A great atmosphere with freshly-brewed beer and pizza.

TAKESHI IMADA – NEW GENERAL MANAGER AT HATEBUR JAPAN

A change of leadership took place this summer in the Japanese subsidiary of Hatebur. Since September 1st ,2010, Mr. Takeshi Imada has been leading our team in Japan.

WWW.HATEBUR.COM – JAPANESE, CHINESE, RUSSIAN

After Hatebur's internet presence was re-launched in the spring of 2010, our website is now available in Japanese, Chinese and Russian language.

S&S INC. –
INVESTING IN THE FUTURE

Stephan Dürer Stephan Dürer, S&S, Reinhard Bührer

In past issues, NETSHAPE has visited and reported on Hatebur users exclusively in Europe. Since that time, we have had the opportunity to visit a highly innovative company in Asia, or more precisely, in South Korea. Since this summer, S&S Inc., a forging company from the S&S Family, has been the proud owner of a brand new Hatebur Hotmatic HM 35. The commissioning of this, the fourth Hotmatic in Korea, was reason enough to publish a report on this loyal Hatebur customer. Mr. Joo Hyun Yang, owner and CEO of the S&S Family, gave an enlightening interview to NETSHAPE.

Top: Headquarters of the S&S Family in Seoul. Bottom: S&S Shine & Salt home for the elderly in Suwon-si, Gyeonggi-do.

It all began in 1968 with the founding of Seo Heung Corporation. Almost 30 years later, in 1996, the well-liked company in South Korea became the proud owner of a Hatebur AMP 50 XL hotformer, the Group's first horizontal forging machine. This investment took the company, which had only previously worked with vertical forging presses, into uncharted territory. It was no wonder, therefore, that there were one or two initial difficulties to overcome. A tireless determination and a focus on the aim of using Hatebur technology both within the company and for its customers culminated in a great success.

DAILY IMPROVEMENTS

The company's belief in its own abilities and customer confidence in products increased every day. Hatebur provided support for this initial phase with a technology transfer in the areas of tool development and process engineering. Over time, this early cooperation has developed into the strong partnership that exists today. Since then, three more Hatebur hotformers have been installed in the factories in Boryeong-si, in southwest Korea. In 2005, production capacity increased to include an AMP 30. An AMP 70 XL followed in 2009. Since this summer, a brand new HM 35 has also been in operation.

NEW NAME

The vast increase in the amount of machinery is not the only thing to have changed over the years. Since April 12, 2008, its 40th anniversary, the successful company has been trading under a different name. Seo Heung Metal Co., Ltd. became S&S Inc. The name S&S is short cut of "Shine & Salt".

The S&S Family also includes the companies S&S Metal and S&S Valve, as well as the Shine & Salt Yudang Village home for the elderly, which in 1988 was the first private establishment of its type in Korea. Once it has been extended, the village will home around 360 elderly people from 2011. This is not, of course, an industrial undertaking, and therefore underlines both the social and generous nature of S&S.

↑ *The latest machine from Hatebur. The Hotmatic HM 35 was brought into production in Summer 2010.*
↓ *S&S is already using an AMP 70 XL, an AMP 50 XL and an AMP 30 in its production processes.*

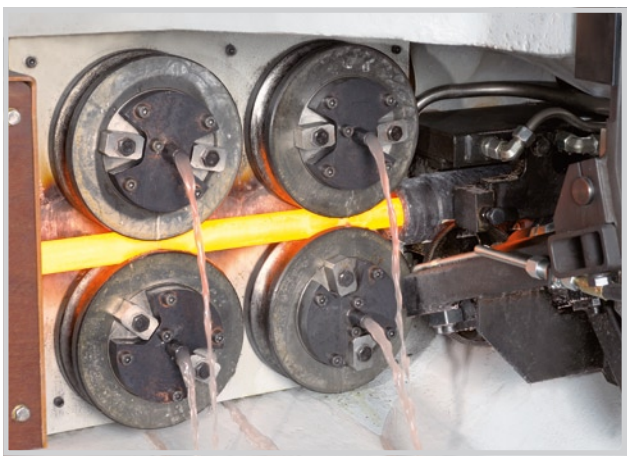
AMP 70 XL

AMP 50 XL

AMP 30

↑ *Tool area of the HM 35.*

Scope of the HM 35. →



By contrast, at S&S Metal and S&S Valve the main focus is on state-of-the-art technology. 100 employees work in each of these independent companies in Ansan, around 30 minutes South of Seoul by car. At S&S Metal, vertical forging presses and hammers are used predominantly for the production of parts for the automotive industry and other industrial branches.
S&S Valve, on the other hand, produces and sells a vast range of industrial valves.

Now back to S&S Inc. and the Hatebur hotformers. As soon as the two new presses, the AMP 70 XL and the recently installed HM 35, have been fully run in, the company can expect an annual material turnover of 30,000 to 35,000 tons of steel. A respectable quantity.

Joo Hyun Yang, company owner and CEO

THE AUTOMOTIVE INDUSTRY

The majority of applications are found in the automotive industry, an industry which is not free from risks, when one considers the affect of the recent economic crises. S&S also found itself in a particularly unfavorable situation as a result. In 1996, for example, when the first Hatebur machine, the AMP 50 XL, had only just been installed, Korea faced considerable economic problems. Yet the people at S&S demonstrated that such situations could be conquered not only financially, but also mentally.

QUALITY BEFORE PROFIT

The entire Group is led and organized in line with the company owner's motto: "Quality before profit". Growing together with customers, whose needs are always paramount, and supporting them with expertise and high-quality products. With this objective in mind, S&S has successfully competed with low-cost providers and intends to continue to do so. This has also been possible thanks to Hatebur's innovative forging technology.

ESTEEMED CUSTOMERS

The success of this motto is demonstrated by the company's strong relationships with well-known customers both at home and abroad. These include, for example, car manufacturers such as GM-Daewoo, Hyundai, SsangYoung Motor and bearings specialist SKF, to name but a few.
With the current turnover distribution at 70% to 30% in favor of the domestic market, the company aims to increase the foreign market share to 50% over the next few years.

"Quality takes priority over profit for the S&S Family"

Joo Hyun Yang, company owner and CEO

ALWAYS ON THE LOOK-OUT

In addition to the processing of daily customer projects, the S&S team is always on the look-out for new technologies and application processes that can be incorporated into the company's range of products and services. This has been the case since 1996, when the company first brought in Hatebur forging technology, which the company has been using independently and successfully ever since.

"...we have a clear goal for the future of belonging to the leading companies in the industry in terms of a good price-performance ratio..."

Joo Hyun Yang, company owner and CEO

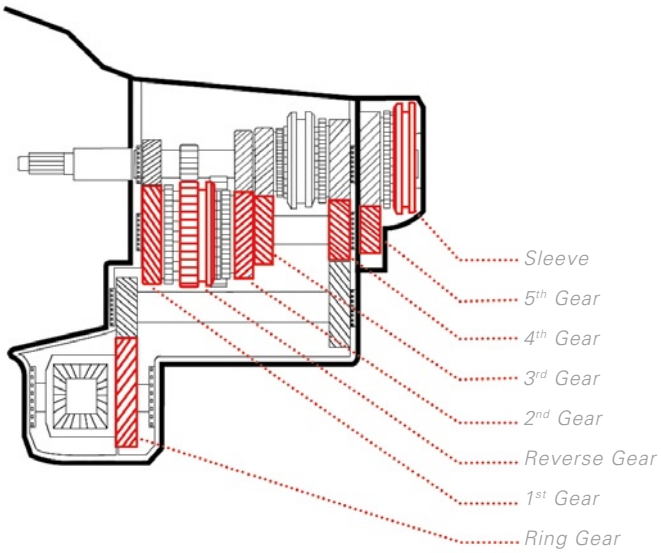
S&S is currently considering extending its machining of forging blanks. An increased production depth should result in greater added value. Machining and the construction of assemblies are just two pillars of the future strategy.

WHAT WILL THE FUTURE BRING?

The company management has a sound approach to making investments. And this is how the management sees the future of S&S. "We don't want to be the largest forging company in Korea, but we do have a clear goal for the future of belonging to the leading companies in the industry in terms of a good price-performance ratio. And we want this on a global scale", according to the CEO of S&S.

HATEBUR'S KEY POSITION

To be able to strive for this ambitious goal, S&S is relying on its close partnership with Hatebur as one provider of its core technologies. The company does not intend simply to purchase machines, however, but rather to follow a common technological path toward process efficiency together with Hatebur. The path followed so far has already proven to be a success.



One of the many applications involving the Hatebur machines at S&S. Gear wheels for the automotive industry.

Quality checks – essential in the forging industry.

Heat treatment is also part of the workflow at S&S.

Shot blasting equipment for the after-treatment of forging blanks.

For more information, contact:
S&S Inc.
15F, S&S BLDG, #68-5
Gyeonji-dong, Jongno-gu
Seoul, Korea
Tel. +82 2 739 1431
Fax +82 2 739 1290
www.snsinc.co.kr

OPENING CEREMONY AT S&S INC.

On 15th October 2010, the official opening ceremony to celebrate the start of production of the new Hatebur HM 35 and AMP 70 XL hotformers took place in the production halls of S&S INC. in the South Korean city of Boryeong-si. In addition to jointly cutting the red ribbon (right photo), Mr. Urs Tschudin (CEO at Hatebur) wished Mr. Joo Hyun Yang (owner and CEO of S&S), every success for the future (left photo).

THE PROJECT MANAGERS – FROM THE PURCHASE THROUGH TO COMMISSIONING

Stephan Dürer

Diverse, exciting, challenging and occasionally very stressful – in short, this is how the two Hatebur project managers describe their jobs. For Boris Buzov and Sandro Ryf, it is anything but easy. They are the link between the customer, the customer's machine project and the internal departments at Hatebur. This means that they have a foot in both camps.

On the clearly defined day X, their task begins: Immediately after the sales contract has been concluded, Mr. Buzov and Mr. Ryf take control of the customer project. Of course, not both at the same time – there is one sales order for each project manager. They are often also included in the project shortly before this point. Their extremely diversified expert knowledge about the procedures and processes of a machine project gives the customer and the Sales Manager at Hatebur peace of mind in the knowledge that, by the end of the project, all parties will be satisfied with the results.

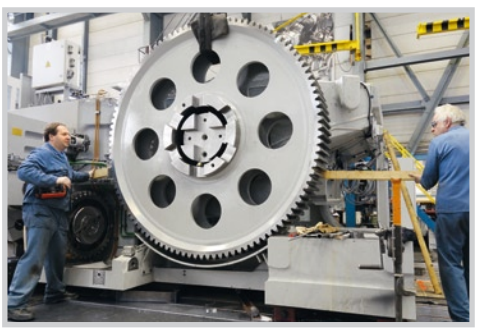
IT'S ALL IN THE NAME

The name really says it all: Project Manager. Both men manage the customer projects until the Hatebur machine has been fully commissioned. They organize things in such a way that everything is at the right place at the right time. They advise customers on all issues concerning setting up the machines. What should the foundation be like? Which connections go where? How much pressure does an air or water connection require? And so on.
Each project is different. And that is exactly what makes the difference. "That's the part of our work that we find particularly exciting", replied both men at practically the same time. It is the foreign cultures in countries all over the world that you get to know, how you interact with each other and how you communicate – this is what makes the job extremely exciting.
But the goal always remains the same. The machine must be fully operational by the agreed time and the parts that it forms must be of the quality and quantity that is expected by the customer.

HIGH LEVELS OF COMPLEXITY IN THE PROJECTS

If you know how much effort it takes to completely assemble a Hatebur forming machine, to test it, to take it all apart again, to prepare it for shipping, to organize the whole transport to the destination and, finally, to ensure that the Hatebur service engineers assemble and install the machine so that it is ready to use, then you are putting your heart and soul into the job. And this is exactly what Mr. Buzov and Mr. Ryf do. Whether they are in their office, in the assembly plant or on-site with the customer, whether they are in a fine suit or in a work jacket, they always inspire confidence in all parties concerned: We have everything under control.
But, anybody who thinks that the project ends when the machine is handed over is very much mistaken. The Project Managers are the point of contact until the end of the guarantee period. After this time, the Hatebur Service Team takes over.

Top picture: Sandro Ryf (left) explaining some technical aspects in the machine together with Wolfgang Müller (Group Leader of Design and System Planning). Bottom picture: Boris Buzov (right) in conversation with Mr. Fritz from PENN GmbH in Austria. ➔



↑ *The pressram, weighing approx. 17 tons must be lifted out of the machine exactly perpendicularly. This is not an easy task, since the oil film on the sliding surface has the same effect as a vacuum. Then the metallic surfaces are cleaned and protected against corrosion. The machine is transported on a specially created wooden construction.*

↑ *The removal of the flywheel of the Hotmatic HM 75 is also very tricky. When removing the crankshaft, the bearing can quickly tilt. With a weight of 15 tons (including the shaft), the flywheel is also anything but a lightweight.*

“007” ON A TOUGH MISSION – DISASSEMBLING, TRANSPORTING AND COMMISSIONING AN HM 75

+ Stephan Dürer

After an assembly and installation time of approximately 12 months, including test runs and technical customer acceptance, the brand new Hotmatic HM 75, with the machine number 007, can start its journey to its final destination. Since the total weight of 200 tons means that the fully assembled machine cannot be transported as a whole, the disassembly begins just a few hours after the last technical test. Part by part, assembly by assembly, the engineers dismantle the seemingly colossal HM 75. Everything is then cleaned, packed into huge wooden crates and shipped piece by piece. Until you get to the body of the machine. With a weight of 100 tons, this must be transported as a whole. NETSHAPE was there to see this happening.

Part 1

“DISASSEMBLY, TRANSPORT”

It is still always impressive to see the largest Hatebur hotformer of the type HM 75 standing before you, due to its sheer size and the huge amount of workmanship that went into it. After all of the assembly work and function tests had been completed, I arrived at the assembly plant in Kriens to talk with those in charge about the possibility of a photo report.

PLANNED DISASSEMBLY

“It’s going ahead next week”, said Heiri Eichenberger, engineer at Andritz Hydro. Adding that almost every day was a highlight.
I picked out the most exciting moments for the report: the disassembly of the press-ram, the flywheel and the drive shaft, the transport within the workshop hall and the machine being loaded onto the heavy haulage vehicle.

CLEAN AND PRECISE

Every movement must be precise so that none of the parts (some weighing several tons) are damaged. A great deal of

An exciting moment. Stripped of all but a few parts, the HM 75 is slowly lifted.

After the HM 75 is set down on the low-loader (top photo), it is wrapped up in a weatherproof tarpaulin (bottom photo).

After a short discussion with the customs officials and the police, the convoy crosses the border into Germany at 22:38.

Millimeter precision. The heavy haulage transporter traveled at walking speed through the streets of Kriens, only a few meters away from the assembly plant. Then it continued for the most part on the motorway where the truck had free passage.

knowledge and experience goes into this work. It is often even the case that up to three heavy-duty cranes are used.
Step by step, the entire disassembly is documented. Photos and descriptions with dimensions make the job a little bit easier, but every machine has its own particularities that must be taken into account. The transport route therefore makes a difference here as it has an effect on the type of packing used and on how the parts that are vulnerable to rust must be handled. In this special case, the HM 75 travels overland to its destination. This means that it does not have to be protected against aggressive sea water.

After four weeks of disassembling, the time has come. With its weight of approximately 100 tons, the machine body lies in the workshop hall, ready to be shipped. Just before 7 o'clock, things start to get exciting. A huge heavy haulage vehicle with a total of 18 axles drives into the hall. Reversing, and with extreme caution, because the space is extremely restricted. After just a few minutes, two experienced truck drivers from the transport company already have the situation under control and they organize the smooth loading of the machine. Three hours later, it's all over. The machine stands on the heavy haulage vehicle, lashed and covered by a large canvas cover.

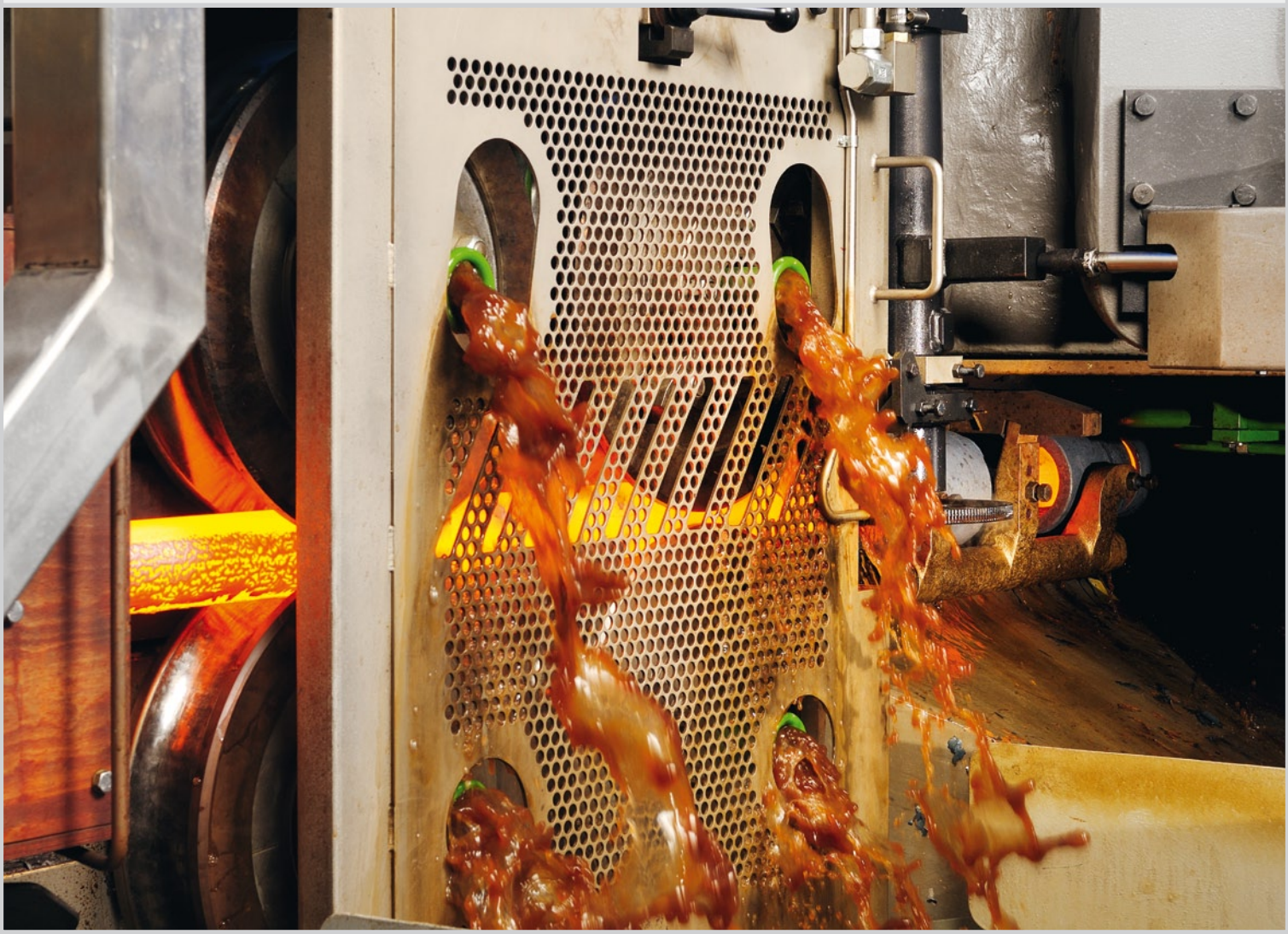
THINGS GET GOING AT DUSK.

At 20:00, the police arrive to provide the official escort for the transport. After a short briefing, the 660 HP vehicle starts up. The transporter moves through the narrow streets of Kriens still at walking speed and once on the motorway, the convoy starts moving at 80 km/h towards the German-Swiss border. As far as the national border, the truck is supported by a second tractor unit, providing an additional 600 HP. At exactly 22.36, "007" crosses the border into Germany at Rheinfelden.

SERVO INFEED – PRECISE, FLEXIBLE, RELIABLE

Stephan Dürer Stephan Dürer, Manfred Blasius

The automatic hotformers from Hatebur are all fitted with a feeding device. Positioned downstream of the induction heating system, it feeds heated bar stock at the machine cycle rate to the shearing station. Where there were previous costly mechanical designs that were responsible for the drive of the feed rolls, with the introduction of the HM 75 onto the market in 2003, Hatebur has integrated servo motor technology. Today, one cannot imagine large-scale hotformers without the advantages that this brings.



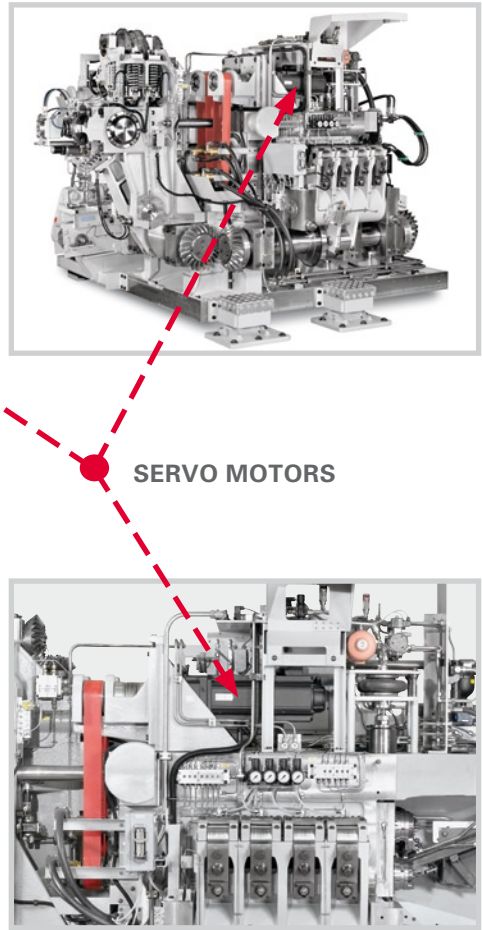
The feed rolls pull the heated bar stock with a certain overlift to the bar stop of the shearing station.

In this issue, the technical focus of NETSHAPE is on the topic of the servo infeed. This specifically affects the hotformers from the AMP 50, AMP 70, HM 35 and HM 75 series. While this technology has been implemented in the Hotmatic HM 35 and HM 75 since the start of their launch, Hatebur has also equipped the models AMP 50 and AMP 70 with the servo infeed as standard since 2009. Older models from these series can be retrofitted.

PREMIERED ON THE HM 75

Initiated by a customer project, Hatebur designers integrated a servo-driven feed system on a hotformer for the first time when the HM 75 was launched on the market in 2003.
Where there was previously a very costly mechanical solution with a cam, lever with sliding piece, free wheeling device and band brake to feed the heated bar stock to the machine, integrating the servo drive now seems perfectly simple. Thanks to

In the large machines AMP 50, AMP 70 (as shown) and HM 75, servo motors are installed next to the machine on a stand.



With the Hotmatic HM 35, the servo motors are placed floating within the machine.

these adjustments to the design and control, it was possible to save additionally on a gear motor and a pneumatically operated shifting clutch. Up to now, this motor was responsible for delivering the heated bars back to the bar rack if the machine stopped. Today, the servo drive also takes on this task. And these are not the only advantages of this drive solution.

PRECISE FORGINGS

When you look more closely at the four driven feed rolls in the forming process, their importance is much greater than you would assume at first glance. And this has laid the foundation for high quality forgings in the area of feeding. A decisive factor here is the consistent cut-off length that results in the required high volume accuracy of the forgings.

How does this happen? Usually, the feed length is slightly longer than the actual cut-off length. In technical jargon, we talk about a 5% feed overstroke. When this happens, the heated bars create a specific contact pressure at the limit stop.

COMFORTABLE CONTROL

In contrast to the earlier, purely mechanical design of the feed, the high-precision electronic control for the servo drive provides great benefit in operational comfort. Today, the machine operator, working from the control desk, can very easily vary the cut-off length. At the touch of a button, you can adjust the position of the bar stop and the feed length and, in contrast to the past, you can do this without interrupting production. The feed overstroke therefore remains at a constant 5%. The well-engineered mechanical design, combined with a sophisticated control system for the four feed rolls, therefore makes a significant contribution to the high volume accuracy and the process reliability of the forgings. In practice, it has been proven repeatedly that Hatebur are on the right track.

SHORT RETRACTION STROKE

In the actual shearing process, the servo-driven feed rolls can now also go through a cycle with one short retraction stroke. The advantage: In the return movement after the shearing process, the shearing blade does not come into contact with the heated bars and this minimizes wear in this area.

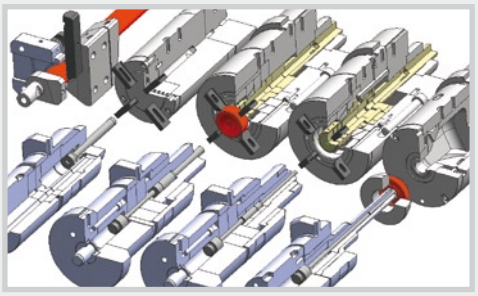
SKIP FEED MODE

Hatebur hotformers are usually operated continuously and with every stroke all forming stations are provided with forming stages, and the Skip Feed mode offers completely new options in automatic forging operation. The servo-assisted drive of the feed rolls is also responsible for the alternative production process. Where the stroke rate is concerned, the machine operates as quickly as it did before. In contrast to normal operation, in Skip Feed mode, the heated bar is drawn in only on every second stroke. What does this mean in plain language? Put simply, forming stations one and three, and two and four respectively are alternately provided with pressing operations (see graphic on page 19). This results in a significant reduction in the overall pressload. So, if you divide the overall machine pressload within the allowed pressload per station into two forming stations that are occupied at the same time, this immediately provides you with options that were not previously possible. This means that, for example, in Skip Feed mode, you can form larger parts within the physical basic conditions of a machine. Previously, you had to move on to a larger machine to form these parts.

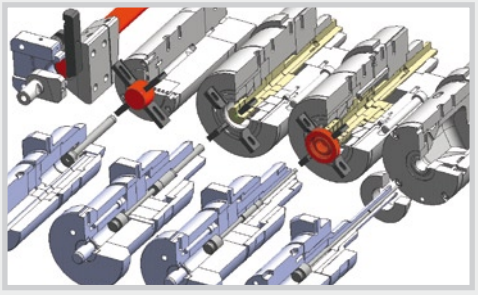
One advantage of the Skip Feed mode that should not be underestimated is the lower energy consumption of the inductive bar heater. This is a result of the halved throughput on forgeable material.

However, with so many positive aspects, we must not forget the disadvantage of the halved production output. You must therefore weigh these aspects against each other and see which is more important. If you want to produce larger parts on the same machine and therefore accept only half the output, then the Skip Feed mode is the best solution for this forging.

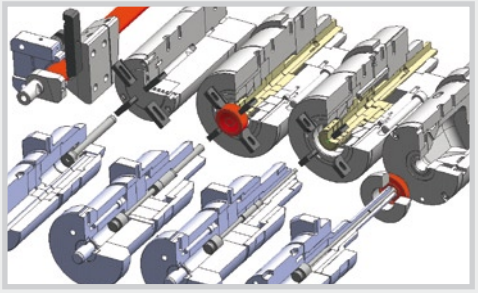
Forming sequence over four strokes



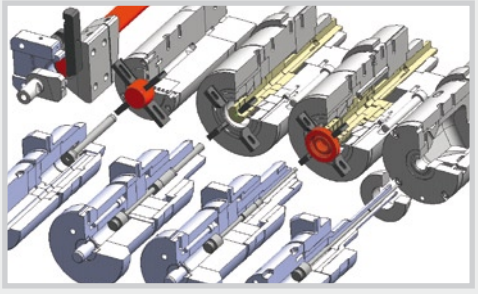
Stroke 1



Stroke 2



Stroke 3



Stroke 4

OPTIMIZED "DROP"

Another feature – the optimized "drop" of bar end pieces – can also be achieved with the servo infeed in conjunction with ESA-600. (Detailed article in NETSHAPE 1/2010. Available to download from www.hatebur.com.)

What is this about? Now, the bar ends accrued during the forging process must all be discharged because the bar length never corresponds exactly to the required cut-off length. The end pieces are also never the same length.
This is the point at which the electronic system for the ESA bar end monitoring perfectly interplays with the servo drive. ESA monitors the bars that are fed and follows the position of the ends. If required, and shortly before the bar end reaches the shearing station, the servo drive feeds only half the cut-off length and discharge this half cut-off. This happens in accordance with the ESA impulse and leads to a optimized position of the bar ends. The reliability that no short remnant pieces enter the forging process is therefore increased.

RETROFITTING

With so many interesting features, perhaps the operators of "older" machines, such as the Hotmatic AMP 50 and AMP 70 might ask whether this technology can also be retrofitted. And the answer is "yes". Hatebur's Service & Support Team will be very happy to provide you with information about what exactly needs to be converted and how much work is required to do this.

TRADE FAIRS/EVENTS

ACTIVITIES IN ASIA

In the last few months, various events around the topic of forming technology have taken place in Asia. Even in these emerging markets, Hatebur has proven itself to be a competent partner for hot and cold forming.

Simtos in Seoul

Shanghai Fasteners Exhibition

Asia Forge Meeting, Shanghai

Bearing 2010, Shanghai

Visit Hatebur at the

IMTEX 2011

IMTEX 2011
in Bangalore, India: 20.–26.01.2011

МЕТАЛЛООБРАБОТКА

METALLOOBRABOTKA
in Moscow, Russia: 23.–27.05.2011

Hatebur Umformmaschinen AG I General Guisan-Strasse 21 I CH-4153 Reinach I Switzerland
Tel. +41 61 716 21 11 I Fax +41 61 716 21 31 I hatebur@hatebur.ch I www.hatebur.com