

BRUDERER



STAMPER

MAGAZINE FOR HIGH PERFORMANCE STAMPING TECHNIQUE



■ NEWS FROM BRUDERER ASIA

The latest Asian competence centre in China starts its operation in May 2005

■ DAIMLERCHRYSLER: HIGH TECH FOR THE STAR

With its innovative solution BRUDERER has won the bidding of DaimlerChrysler for a high-tech production line in Germany

■ INNOVATIONS FOR AN EFFICIENT STAMPING PROCESS

Reports from leading companies in the stamping sector – from Carbide and Strip Materials to solutions for perfect surfaces

■ SET-UP, CONTROL AND PREVENTIVE MAINTENANCE

Three reports about newly developed software solutions for the BRUDERER machine control which help to improve the stamping process



Markus E. Bruderer, CEO Bruderer AG

Dear Customers and Business Partners,

And here we have it – the first issue of STAMPER. For a long time we thought about and discussed whether we ought to add another company advertisement to the wealth we had already received. And we decided just not to do that. Rather, we would like to offer you with our “magazine for high-performance punching technologies” an information medium that deals primarily with everyday problems and demonstrates the corresponding solutions.

At the same time our editorial staff are not especially focusing on automatic punches. Instead we concentrate above all on the optimal process and therefore the complete value-added chain – from project development to surface technologies. In this context we give representative customers the opportunity to speak, whether the DaimlerChrysler plant in Gaggenau or partner companies whose outstanding products and services can contribute towards optimising the manufacture of punched parts.

For BRUDERER, STAMPER appears during an encouraging phase of incoming orders that gives us an optimistic view of the future. In this context the great challenges are primarily posed by the growing internationalisation. Developing the markets in Asia and specifically China is at the very top of the list here.

Despite all this globalisation, however, BRUDERER is and continues to be a Swiss manufacturer. Our personnel know-how gained from decades of experience in development and machine construction is the basis on which our high-performance automatic punches and therefore the manufacture of your punched parts succeed.

With this I wish you every pleasure in your perusal of this first issue and invite you to give us your opinion of STAMPER to stamper@ch.bruderer-presses.com – we welcome constructive criticism just as gladly as motivating praise.

Your Markus E. Bruderer

Impressum

Publisher
BRUDERER AG
High Performance Stamping Mashines
CH-9320 Frasnacht
Phone (+41) 71 447 75 00
Fax (+41) 71 447 77 80
stamper@ch.bruderer-presses.com
www.bruderer-presses.com

Grafic, Layout and Editing
TEHCARE MEDIEN – AUSTRIA
Egatha 2, A-6842 Koblach
Phone (+43) 5523 6 93 93
Fax (+43) 5523 6 93 93-4

New Service of BRUDERER In Asia – Process Support

After the establishment of our daughter companies in Singapore and Japan in 1996 we have been starting the operation of our latest competence centre in China in April 2005. In addition to the important pre-sales and after-sales activities, the main function of this newly built facility is to serve as a competence centre for machine overhauls and for stamping trials. As of today there are more than 600 BRUDERER stamping machines operating in China. We are offering our customers in China to overhaul the machines and make full use of a technically updated stamping machine again, even after decades of operation.

After having evaluated different properties in different areas of China we have chosen the Suzhou Industrial Park as the ideal place. Suzhou Industrial Park is roughly one hour drive by car from the city of Shanghai. We have finished the construction work of the new facility with an area of 2'400 m² after only 6 month. There is enough space for overhaul jobs, stamping trials and spare parts storage. With this new facility and its possibilities we are following our mission statement to serve our customers with all our technical competence around the globe.

New Service of BRUDERER in Asia - Process Support

BRUDERER has established a new service for its customers again. In the person of Mr. Steve Rogers who is seconded to Bruderer Presses Singapore, we provide a profound technical support for our customers in terms tooling and process improvement. The benefit for the customer is the better utilisation ratio of the stamping line, higher output and obviously lowers production costs.

Mr. Rogers has an experience of over 35 years in the tool making and stamping business. During his career was working as tool maker and stamping department manager for well known companies in Europe such as Thomas & Betts as well as Batten & Allen. As an Engineering Director at Batten & Allen, his last job before joining BRUDERER, he was responsible for the whole manufacturing process and therefore also for the 28 Bruderer stamping machines. Whenever you face problems or feel that the stamping process could be improved get in touch with our competence centre in Singapore and ask for a meeting with Mr. Steve Rogers.

www.bruderer-presses.com



STAMPERS PLACE: ANNIVERSARY OF HÄRTER

Consecration of the “Stampers Place” which has been donated by BRUDERER. Celebration on the occasion of the work of art exposure and official plantation of the tree.

Almost exactly half a year ago the company HÄRTER Tooling was celebrating its 40-year anniversary. On this occasion the long-time partner BRUDERER presented a very special gift.

On Tuesday, 31st of March the gift was finally handed over to Härter and unveiled. It's an uncommon combination of a tree and the work of art, which together stand in the hart of the newly created „Stamper's Place“. The tree stands as a symbol for growth, power and steadiness, lasting for generations. Characteristics which applies to both companies, HÄRTER as well as BRUDERER.

Markus Bruderer unveiled the work of art that is shaped in a big „H“, and stands for the connection of Metal and Granite. Metal / High Grade Steel represents the core competence of HÄRTER in the area of tooling, stamped parts and complete assemblies. Granite stands for the expertise of BRUDERER in conjunction to the high stress resistance and durability of its stamping machines but also to the headquarters located in Königsbach-Stein.

The management of BRUDERER congratulates the company HÄRTER again for the 40 years of successful business and is looking forward to continuous and fruitful co-operation of the two companies.

www.haerter.de



SERVO FEED UNITS BSV 75 – BSV 170

First and foremost in this discussion it is worth mentioning that electrically driven feed units are by no means more superior than purely mechanical systems when it comes to performance. Moreover they represent an extension to the range of mechanical strip feeders offering characteristics especially suited to complex manufacturing processes.

The mechanical design of the BRUDERER servo feeder is based on many years of experience in the production and use of strip feed units in the metalworking industry. The BSV 75 and BSV 170 feed units are equipped with functions which have been registered for patent – e.g. for the roller drive and intermediate lifting. These and other innovative solutions are your guarantee for maximum precision with highest reliability.

On these units both the feed angle and intermediate lifting function are fully adjustable. This means that both the tool and press can be run to enable optimum production, which in

turn means increased productivity of the entire production process.

The unique design and construction of both BRUDERER servo feed units enables operation without clamping strips. This means that strip markings on raw material strips are therefore kept to an absolute minimum.

The BSV 75 and BSV 170 models are particularly suitable for feeding profiled, prestamped and pre-refined strips. The feed rollers can be exchanged quickly and simply. Both servo feeders can be reset fully automatically, and the resetting process itself is up to 100% reproducible.

The flexible assembly concept of the BSV 75 means that it is ideal for two track applications with 2 raw material strips that need to be fed parallel and also for wide strip materials. With the programmable servo feed, irregular feed lengths are possible within a single stamping process – e.g. to perforate sheet metal.

NEW WEBSITE



Our homepage www.bruderer-presses.com has been redesigned and is due to go live at the beginning of June! It offers visitors a wealth of useful information on the subject of stamping technology where the technical aspects surrounding the design and construction of punching presses will be described in an informative and interesting way, e.g. the diverse range of functions offered by our new B-type press control.

Also new to the homepage will be a Forum where interested parties from around the stamping world can meet. Here in the chat room you can discuss current topics, make new contacts, exchange experiences and pose questions to other experts from the industry. No doubt you will receive a competent answer to your question in next to no time.

Another new feature of our homepage will be the BRUDERER „Archive of Knowledge“ or, expressed in terms of modern technology, a reference of FAQs. Here you will find up-to-date information that will provide you with the answers to all of the most frequently asked questions on stamping technology. Take advantage of our new interactive website from June 2005 and participate online – be at the centre of stamping world! We look forward to your visit.

www.bruderer-presses.com

Advantages of the BRUDERER servo feeders: An overview

| | |
|---|---|
| Full integration | in the B-control and also available for retrofitting to punching presses already in use |
| Long feed lengths | for a diverse range of applications – no mechanical limits of feed length |
| Variable feed and intermediate lifting angle | Increased productivity due to optimum use of both tool and press |
| Tandem assembly | BSV 75 as ideal solution for two-track applications and wide strips |
| No clamping strip | no markings on the strip suitable for profiled and pre-stamped strips |
| Simple change-over of feed rollers | for maximum availability and flexibility |
| Fully automatic change-over | Optimization of change-over times, max. reliability, up to 100% reproducible |



EXHIBITION PREVIEW - BLECHEXPO SINSHEIM



BLECHEXPO is an exhibition focusing on sheet metal and plate processing, offering the international visitors solutions and ideas for their market fields. The exhibition has been growing in a large scale over the last few years and is becoming an important platform to show new technologies.

BRUDERER presents its „high performance stamping technology“, for the first time with an own booth. The highlight for this year's exhibition is the production line for an automotive connector with fascinating technical solutions.

It is not the goal to present a technical solution which is out of this world. We focus on realistic technical approaches and show the visitors solutions on how to reduce the manufacturing costs with even higher process safety, quality and output. These are the criteria which become more and more important for European manufacturers to achieve long term success and to withstand the pressure from the low cost production countries.

The technical competence is demonstrated by means of a complete stamping line for the economical manufacturing of automotive connectors. Obviously BRUDERER does not only focus on the above mentioned problems in the connector business but we also offer solutions to optimize the process in other fields of applications.

The core of the exhibited production line is the high performance stamping machine type BSTA 500-110B, which is equipped with two servo feed units BSV 75T in a tandem version. Together with the stamping die of Fritz Stepper Pforzheim, which is laid out in a modular design, the line produces complex connectors for the automotive industry. The two strips are fed in the die in parallel with different pitch length. The pre-stamping operations form body and spring and are then assembled within the die to become finished connectors. The so called two-track die produces, with its double cavity design, 1'400 connectors per minute!

The double pallet decoiler, as well as the rewinder with automatic reel changing mechanism are supplied by Schröder & Bauer and the special strip lubrication unit BSS 6000 is supplied by SLE Electronics. These units complete the technically state-of-the-art manufacturing line. Most impressive are the compact designs and the ease of use which make the equipment very successful in the market.

Come and visit our booth at the BLECHEXPO in Sinsheim and see for yourself how we proof our technical competence in the „high performance stamping technology“. We, the BRUDERER team, and our co-exhibitors are looking forward to welcoming you on our booth.

Hall 1, Booth-Nr. 1402

www.blechexpo-messe.de

TECHNICAL DATA BSV 75 – BSV 170

| | BSV 75 | BSV 170 |
|-------------------------------|---------------------------|----------|
| Feed length | no mechanical limitations | |
| Strip inlet width max. | 75 mm | 170 mm |
| Roller width | 40 mm | 60 mm |
| Strip width max. | 2 mm | |
| Feed angle | | variable |
| Feed phase position | | variable |
| Max. speed | 2000 spm | |

DAIMLERCHRYSLER: HIGH TECH FOR THE STAR



Despite the fact that the two existing production lines for the blade manufacturing are working in a transfer process, BRUDERER has decided to hand in a quotation based on progressive die technology and won the bidding thanks to higher productivity, lower investment costs and even shorter delivery time //

The factory in Gaggenau, Germany was founded in 1894 and has since pioneered a great number of specialised technologies. It is indeed famous for its ongoing work in specialist fields. At the turn of the 20th Century, the entire automobile range from private cars to HGVs and busses were manufactured in Gaggenau. And things are very much the same today within the international production group of DaimlerChrysler AG, heralded the centre of competence for manual and automated gearboxes. The robust planetary hub reduction axles for the HGVs manufactured in the Wörth factory and numerous structural parts for the Mercedes A-Class manufactured in the neighbouring Rastatt factory also came from Gaggenau.

Our story however deals in particular with the torque

converters, approx. 1,000,000 units of which are supplied to the industry every year. The converters are found in automatic gear boxes for anything from 4-cylinder engines from 55 kW to 12-cylinder engines with 460 kW, covering an impressive torque range of 130 Nm to 900 Nm. Yet the factory in Gaggenau doesn't just simply assemble the converters. Moreover a special "internal team" of employees oversee the entire metalforming production process.

The "metalforming" production team remains a competent partner throughout the process – providing expert advice from trained specialists from the development stages to the design of prototypes right through to the production of series parts. The product spectrum here ranges from single steel parts (stamped, pressed, metalformed and

drawn parts) that weigh just a few grams right up to much larger parts for HGVs and private cars measuring anything up to 2.5m x 1.8m. Furthermore welded subassemblies and KTL-covered components are also manufactured here.

The metalforming technology in Gaggenau draws in approx. 15% of the turnover of just under 62 million Euro from external orders. "However the internal orders from the DaimlerChrysler Group are by no means to be underestimated", as line manager Wendelin Essig stresses citing as an example the pump and turbine blades for a new converter generation which is due to go into series production from the middle of 2005.

"At the end of 2002 when it was clear that the new torque converter would be produced, we were asked once again, as we had been in the past, if we could produce the blades for the new generation," explains Essig: "It was quite clear, however, that we would not be able to fully meet the increased technical demands made by the new converters with both our systems working in a transfer process." With this in mind, the decision was made to look for a new manufacturing technique and, at the beginning of 2003, the search to find the solution for increasing capacity was launched, with six candidates to be considered.

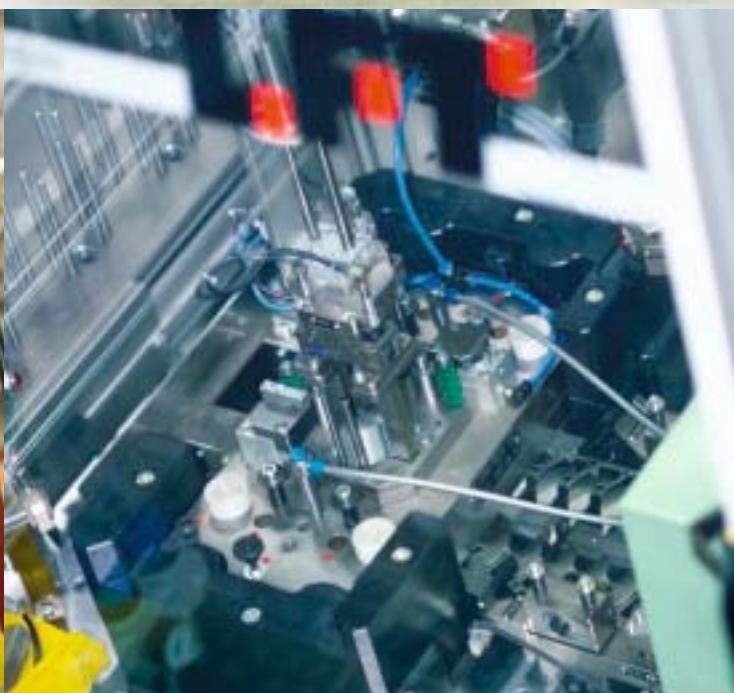
Ironically the performance specification had only a few KO-criteria, as Wendelin Essig explains: "In principle there were only restrictive requirements as far as the automation was concerned, with a minimum quantity of 200 parts per minute, high geometric accuracy of the complex design of the blades and a guaranteed 100% repeating accuracy. The chances of fulfilling these



Wendelin Essig, Manager of the Metalforming Division //



Bernhard Gerstner, Project Manager //



Production line for the blade manufacturing at DaimlerChrysler which has been delivered by BRUDERER. It contains a BSTA 80B from BRUDERER, decoiler and straightener from ARKU, tooling from WALTER POTTIEZ and the automatic cutting & stacking system from SEF // BRUDERER process control type B // Automatic cutting and stacking system // Automatically stacked blades //

demands was open to all candidates.”

It didn't take long, however, to cut the initial six applicants down to two finalists, who had made it to the head-to-head offering two completely different solutions to the problem. Bernhard Gerster, head of metalforming technology recalls: “Whereas one of the solutions was presented in the form of the proven transfer technology, BRUDERER came to us with a multi-tooling solution which far exceeded the requirements of the spec, and aroused our interest...”

To clarify – while the transfer solution was more concerned with fulfilling the requirement of 200 parts per minute, BRUDERER and their partners for coiling and straightening technology (ARKU), tooling (POTTIEZ) and part handling (SEF) entered an extremely dynamic two-part falling progressive die alternative with 200 strokes, i.e. 400 blades per minute into the race. This solution not only proved more technologically advanced but also promised lower investment costs and a shorter delivery time.

The fact that the name of the second supplier has been withheld in this story makes it clear which applicant was awarded the contract. Although there was a great deal of discussion within the company, as Wendelin Essig admits: “There were, of course, doubts as to whether it really would be possible to produce blades with such outstanding accuracy with a progressive die system, particularly in series production. Whereas the form of the blades produced with transfer technology are cut and then stamped accurately in one single stroke a move towards

progressive die meant that the parts weren't cut out of the strip, having already been cut and formed, until just before the automatic assembly process. The latter, understandably, raised one or two critical questions. However at the end of the day we trusted in BRUDERER's competence and decided to take the risk.”

In the meantime, the impressive manufacturing system has been standing in the metalforming hall for a few months now and any doubts have long since been dispelled. Not only have all geometric and quantitative requirements been met but the outstanding support received from the BRUDERER team and the high degree of commitment shown by service personnel in the partnership have been especially praised by all those responsible in Gaggenau.

Essig sums up his positive stance quite succinctly saying: “Let the series production begin!”. If the schedule goes according to plan, the production is due to begin in mid 2005. And if forecasts are also correct, this seemingly “gigantic” production system will soon prove to be an extremely wise long-term investment. For if the current boom in the demand for automatic gear boxes continues, the converter sales of currently approx. 1 million units per year are forecast to increase to 1.3 million units. That, of course, means that with 70 blades per converter, an additional demand of just under 21 million blades per year€..



Blades for torque converters used in automatic gear boxes //



SLE: TREATMENT OF MATERIAL SURFACES

Pre- and subsequent treatment of material surfaces belong to the most important factors for a maximum tool lifetime and constant product quality.

The complex manufacturing process requires innovative solutions, which include everything from the surface of the raw material to the finished product. The company SLE electronic GmbH provides completely integrated solutions for lubrication, cleaning, deburring and preservation of stamped parts. Thanks to the high performance and the reliability of its products, SLE has developed new standards for the modern stamping shops.

The pre-cleaning system TRS 100 is designed for the mechanical pre-cleaning of the raw material before it enters the strip feed unit and the stamping die. The function of the cleaning unit is based on specially designed rotating brushes, which guarantees a clean surface of the material for a trouble free production.

For an economical and ecological application of the lubricant on the raw material, SLE has developed the lubrication system BSS 6000. The spray system with integrated suction device is

the best possible way for an equal and reproducible layer of the lubrication oil in the stamping process. The excessive oil is collected within the spray chamber, filtered and reused. Lubrication media with viscosities of up to 400 mm²/sec. at 20°C can be used. The patented oil nebulizing system and the production speed related flow control guarantee a continuous layer of the lubricant, even in highest production speeds.

The reduction of the lubricant consumption of up to 70% protects the environment and guarantees a high economical efficiency for a high return on investment.

For a long-term functionality of electrical components, it is essential to preserve the parts by means of punctually

applied oil- or conservation layers. The preservation system KSS guarantees a reproducible application of such layers during the stamping process. Media with different viscosities can be applied in various thicknesses.

SLE offers solutions and systems for perfect surface conditions for the complete and integrated stamping process. Depending on the punched part, different process parameters are selected and combined to achieve the best possible surface structure. Different examples show system solutions, which enabled an innovative production technology for the manufacturing of mechanical parts.

www.sle-electronic.com



CERATIZIT: CARBIDE IN TOOL & DIE INDUSTRY IS A MATTER OF CONFIDENCE

CERATIZIT, result of the merger of the European carbide manufacturers Plansee TIZIT and Cerametal, today is one of the main carbide suppliers in the world especially for industrial wear part applications.

With the two main sites in Mamer, Luxembourg, and Reutte/Tyrol, Austria, and twelve further production sites all over the world CERATIZIT stands for highest quality as well as customer service.

Highest quality and service levels are especially important in tool and die industry. As world market leader for carbide

products in tool and die industry CERATIZIT is well known for excellent service, enormous application and machining know-how as well as strive for innovations. All of the above makes CERATIZIT to a very important partner in that industry.

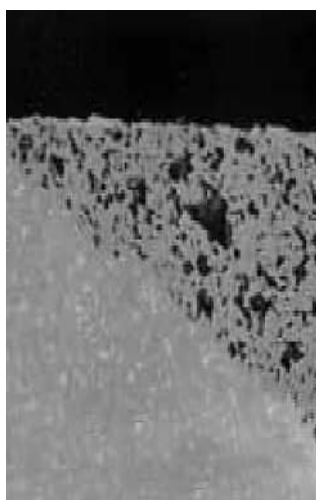
Corrosion-resistant carbide grades

To fulfill the demands of tool & die industry for ever more efficient machining CERATIZIT offers the corrosion-resistant carbide grades CF-H40S (universal grade) and CF-H25S (high performance grade) already for quite some while with great. With these grades the corrosion velocity as well as the

corrosion probability could be reduced by factor 80. This allows for extremely long running hours on EDM-machines. Therefore this is an optimum breakthrough for the tool & die industry.

We thank BRUDERER for the great and successful partnership

www.ceratizit.com



Standard-carbide // CF-H40S



Main site and headquarters: Mamer, Luxembourg //



Main site: Reutte/Tyrol, Austria //

WIELAND: RAW MATERIAL STRIPS MADE OF COPPER AND COPPER ALLOYS

The Wieland Group with headquarters in Ulm, Germany, is one of the world's leading manufacturers of semi-finished and special products in copper and copper alloys. These include strip and sheet, tube, rod, wire and sections as well as slide bearings, finned tubes and heat exchangers.

Wieland's history dates back to the early 19th century. Founder Philipp Jakob Wieland took over his uncle's Ulm art and bell foundry in 1820 and by 1828 he was producing brass sheet and wire.

The Wieland Rolled Products Division has three production plants in Germany: the main plant at Vöhringen with rolling mills at Velbert-Langenberg and Villingen-Schwenningen. Wieland also operates rolling mills in the United Kingdom (B. Mason & Sons) and the USA. Our global network of slitting

centres, including those in Asia (Singapore and Shanghai), enables us to provide a fast and flexible service.

Being a market leader, Wieland is committed to continuous development of bespoke solutions to enable our customers to increase their productivity. Examples of recent innovations include the high-performance copper alloys Wieland-K57 and Wieland-K88 as well as the surface coating SnTOP®.

The introduction of the Wieland Multicoil® for use on punching presses is one of Wieland's most interesting innovations. When used in conjunction with existing pallet decoilers it is possible to achieve comparable operation times as with level-wound strip or even extended operation times, so fully utilizing capacity and improving productivity.

The Wieland Multicoil® is easy to handle. Like a stack of individual coils it is placed onto the horizontal decoiler. The strip of the top coil is fed into the punching die. Since all coils have been welded together, the coils are decoiled one after the other, one from the outside to the inside and the next one from the inside to the outside and so on.

Setup times are considerably reduced compared to individual coils. Also reduced are tool wear and the risk of tool damage, a fact that results in extended operation times and a higher production output. These advantages are offered by drums as well. The Wieland Multicoil® has the



additional advantage that a horizontal decoiler is sufficient for decoiling and that the handling of drums is no longer necessary. Moreover, the total weight of a Multicoil® may exceed the weight of a drum which results in even longer coil lengths and increased productivity.

Detailed information is available at www.wieland.com or directly from the Application Engineering Department.

www.wieland.com



LEICHT: WELDING AND STAMPING

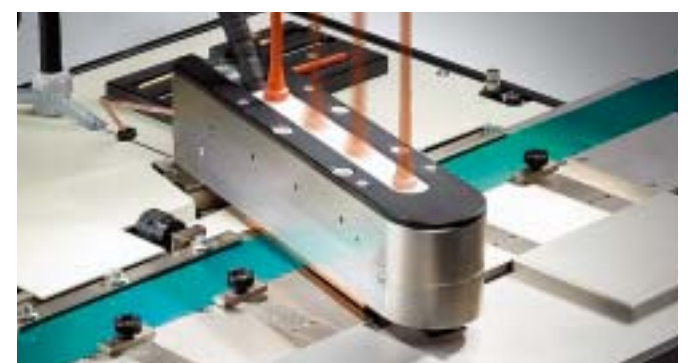
No doubt the title of this article would initially leave some press operators racking their brains! However it quite simply deals with the art of strip welding and, in particular, the joining together of two strips of material at the end of a coil. The advantages are plain to see: By welding the ends of 2 strips together there is no need to stop and, subsequently, restart the stamping process. Because downtime is kept to a minimum, the overall production process can be optimized, leading to increased productivity and reliability. But how is it possible?

We've all experienced the inevitable situation whereby the strip end gets closer with every stroke and finally leads to the standstill of the entire punching process. Every coil change means unthreading the strip, blowing out any impurities, cutting the new metal strip and the risk of breaking the punch whilst running the press up to speed which would, of course, mean considerable costs. This is where the next step towards optimizing the punching process begins: The welding together of the metal strips. This technique, developed by Leicht Punching Automation in Germany, is used daily by leading toolmakers, suppliers to the automobile, electrical and electronics industries as well as aviation and space travel industries all over the world. It is a technique that has proved that welding strips together with WIG welding technology indeed meets the highest demands made by today's punching tools.

The applications couldn't be more diverse: From the most simple cutting tools to highly complex operations with modular tools and integrated assembly and laser technology,

requiring an extremely high quality welding seam. In the case of Wolfram-Inert-Gas (WIG) welding, the arc burns between the non-fusion wolfram electrode and the blunt strip ends that have been previously automatically cut and joined together. The fusion of the strip ends using this technology guarantees the consistent and lasting high quality of the weld. Additional materials like welding wire are not needed, guaranteeing minimal tolerances of material hardness and high rigidity of the welding zone. Only a homogeneous weld with virtually no fusion penetration enables high quality metalforming by cutting, bending or thread moulding in the production of stamped parts. By using this technology, the danger of breaking punches in the set-up phase is a thing of the past. The result in practice is the reduction in downtime of the entire production system as well as outstanding tool life and maximum productivity.

www.leicht-stanzautomation.de



The welding seam is absolutely secure: Meeting the demands of the most complex and diverse metalforming processes on BRUDERER BSTA presses // Hydraulic separation of pneumatically prestressed strip ends // Motor-driven feeding of the burner during the welding process //

INSPECTION INTERVAL PROMPT FOR PRESSES

Regular inspection and maintenance of all production equipment is absolutely essential for ensuring the minimum downtime of a press and that the press holds its value. For press operators and personnel involved in the servicing and maintenance of the presses, keeping tabs on when the next inspection is due is an extra job that, quite frankly, they could do without. It is hardly surprising, therefore, that not seldom things get „forgotten“ and put off until tomorrow.

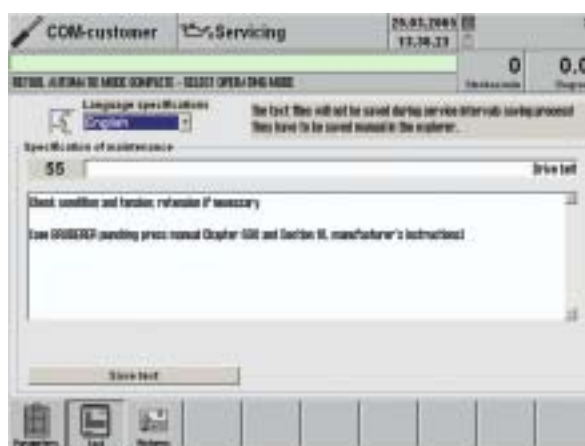
A brand new module called „Inspection Interval Prompt“ is now integrated in the new press controls – making the maintenance of inspection and servicing work a great deal easier. With the new B-controls, the maintenance work specified in the operating instruction manual is automated and whenever an inspection or servicing work is due a prompt will be shown on the screen. Further maintenance and inspection dates –



e.g. for peripheral equipment – can be defined by the customer and parameterized with this module. Individual inspection intervals can be controlled and set according to

- Production time (press engaged)
 - Operating time (control switched on)
 - Cyclical (daily, weekly, monthly, etc.)
 - Date of the first inspection
- and defined in more detail with further text explaining the necessary work to be carried out, diagrams, photographs etc. Each inspection interval can be assigned a release point which is password protected. This means that pre-selected intervals can only be acknowledged by those personnel who are permitted to do so.

A inspection message relating to a due inspection is usually



displayed on the screen whilst the press is running. The operation of the press can be interrupted as required simply by parameterizing the interval.

The „Inspection Interval Prompt“ module is available for all punching presses with B-control and pre-programmed according to the press type before leaving the factory. The module can also be easily retrofitted to presses with B-control already in operation.

TOOL POSITION MONITORING

As a press operator you have no doubt experienced the annoying problem of slugging up! These slugs often cause misleading or travel through every part of a modular punching tool and finally come to rest in the coining station. The result: indentations on stamped parts or, in other words, rejected parts and the cause of misleading.

The tool position monitoring at BDC recognizes both slugs and doubled up material on punching tools with spring-loaded clamping plates. When this analogue position monitoring device is used to monitor double sheet metal, the distance between the sensor and a spring-loaded clamping plate in the BDC area (BDC at 180°) is measured. If there is a doubling of material due to slugging up, for example, the measuring system recognizes this deviation and the press is halted with a corresponding message.

In most cases 2 sensors are mounted diagonally in the bottom part of the tool for each clamping plate. These sensors constantly measure the distance between their position in the tool and the closed clamping plate, and compare this measurement with a previously referenced dimension. The repeating accuracy of such a measurement lies at just a few micrometers. The measuring system can be used both for very fine strips and thick strips.

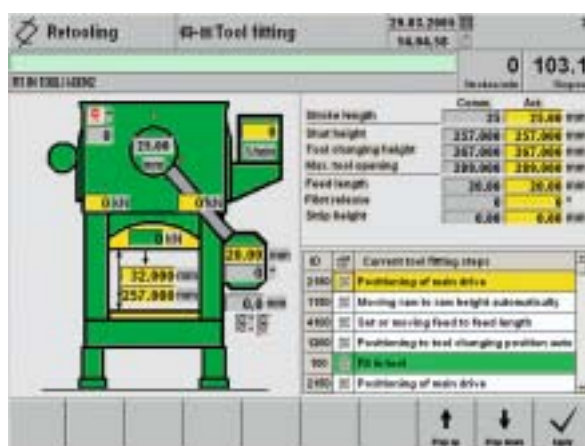
The „Tool Position Monitoring“ module can be extended up to 8 channels and enables the control of 4 clamping plates, each with 2 sensors. This module is an optional component of the B-type press control and can be ordered with all the necessary accessories. It can also be retrofitted to all punching presses with a B-control if the computer it is running on has sufficient capacity.

FLEXIBLE TOOL CHANGES ON AUTOMATIC PUNCHING PRESSES

Our customers change their tools and reset their punching presses according to the demands of each individual production process. It has become clear that an automated and predetermined process – albeit a logical one as far as the press manufacturer is concerned – is not necessarily practical for every user. The new „Flexible Tool Change“ module from BRUDERER addresses precisely this problem: The tool change procedures can be defined by each individual customer according to the application in question.

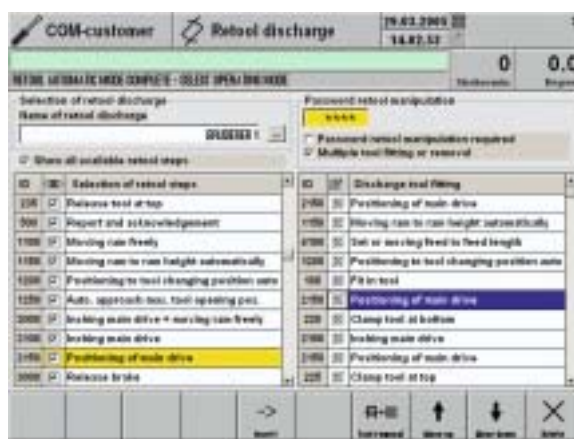
Tool changes on production systems are without doubt one of the most complex procedures in the overall stamping process. The procedure is indeed demanding, both in terms of personnel and time, and is one that always seems to be carried out at such a hectic pace. Furthermore, each and every user will tell you that his own tool changing procedure works best. The definition of a number of tasks and the order of these tasks via the press control is there to enable the operator changing a

step of the tool changing process according to his own requirements.



Each individually programmed tool changing procedure can be assigned not only to the tool that is being set up but also the tools that have already been programmed on the press. In the „Tool Change“ operating mode a differentiation is made between tool loading and tool removal. The advantage of this is clear: Flexible tool changing can be adapted according to working methods and the actual needs of the customer. A repeated tool change with pre-defined tool change procedure can save time as each individual procedure within the overall process can be reproduced. The result of each step of the tool changing procedure is shown on the screen, ensuring maximum clarity, safety and reliability during tool changing processes.

The processes can be created, copied, renamed or deleted using the parameters available. The operator can choose from 3 „standard“ tool changing processes that have been pre-defined by BRUDERER and cover the main requirements of a tool change. These processes can be edited or assigned to new or existing tools as „Defined Processes“.



tool on the press to carry out his work safely and quickly and in a specific order. The new „Flexible Tool Change“ module developed by BRUDERER has been specifically designed, as the name suggests, to enable more flexible tool changes. This function, which is integrated in the B-type press control, allows the operator setting up the press to define each and every

„FLEXIBLE TOOL CHANGE“ – AN OVERVIEW

- Available immediately for punching presses with B-control
- „Flexible Tool Change“ module easily retrofitted – no hardware changes necessary
- Tool changing function divided into operating modes tool loading and tool removal
- Individual tool changing steps for a particular procedure can be compiled as necessary
- Number of individual tool changing procedures can be programmed as required
- „Flexible Tool Change“ function can be switched on and off as required
- Programmed tool changing procedures can be assigned to individual tools as required
- Guided and clear tool changing procedures, up to 100% reproducible
- Steps in tool changing procedure can be selected and edited during the process itself

PREVIEW STAMPER ISSUE 2/05

The next edition of STAMPER will again be full with news and information around the stamping process. Among user reports and technical features we will have again 4 companies to give their valuable inputs for special fields in the stamping business.

- User report of tandem servo feeder BSV 75T with a two-track stamping die from STEPPER, Pforzheim
- New high performance automatic punching presses BSTA 1250 and BSTA 1600
- New feed unit BBV 260
- News about machine controls developments