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Machine Tool Market
SOUTHERN AFRICA

July/August 2022 Volume 31 No.4

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MTM Machine Tool Market SOUTHERN AFRICA

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Fiber Laser

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VPSS
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CYBERSECURITY IN THE DIGITAL FACTORY

By Alberto Martínez, Chief Digital Officer (CDO) and Head of Competence Center Software Service, Bystronic Group

8 a.m. on just another Tuesday morning. A member of a sheet metal processing job shop's sales team turns on his computer. As he drinks his first cup of coffee, he checks his emails, opens what looks like a quotation request from a customer, and clicks on the attachment. The ransomware immediately kicks in, and in just a few minutes all the files on the company's server have been encrypted and can no longer be accessed. In the very best of cases, this results in several hours of downtime.

Alberto Martínez, Chief Digital Officer (CDO)

Many companies are extremely hesitant when it comes to introducing the industrial internet of things (IIoT) or cloud systems because they believe this will open the door to cybercriminals. However, they do not realize that they are already facing this danger on a daily basis. A simple email with an attachment or a link can result in the encryption of all the information on a server. You are at risk even if you have not implemented an entire ecosystem connecting customers and suppliers. Thus, it is essential to be aware of the threats and be ready to quickly respond in the event of an attack.

Cybersecurity is currently on everyone's lips. There have recently been many widely-publicized cases of large companies falling victim to cyberattacks that compromised their operations in one way or another. In some of these cases, it was revealed that the companies' security policies had not kept up with the past decade's rapid changes relating to the use of digital technologies and tools, and that they apparently acted in the belief that a cyberattack could only ever affect others. The sheet metal processing sector is no exception to this reality.

In most cases, concern over the security of systems becomes more pressing when a company decides to increase its level of digitalization, for example by transferring tools to the cloud. This is when many companies start thinking: What are the dangers of connecting our systems and machines? What about networking with external systems? And what are the risks of using cloud-based systems?

In the following, we outline answers to these questions:

What risks are involved in networking systems?

The transition from manual or automated manufacturing to a digital factory involves the creation of hybrid areas, where systems (on-site or in the cloud) interact. Together with the IIoT infrastructure, these allow real-time information on what is happening to be accessed from wherever required, thereby paving the way to much more agile decision-making.

This reality is already within reach for many small and medium-size enterprises. Only a few years ago, this level of digitalization was accessible only to a handful of companies, but because of the democratization of systems, and above all because of the widespread use of pay-as-you-go and cloud systems, many SMEs are now facing the challenge of securing their systems.

The first basic and essential step is the implementation of cybersecurity policies that include training for users and that are based on an in-depth understanding of the partners with which the company is working, especially in the cloud, to ensure they meet the required standards.

The establishment of these policies must be combined with systems that provide security all the way from the design stage right through to their implementation and maintenance.

What is security by design?

The security of systems has ceased to be a matter that is addressed only at the outset, as used to be the case when systems were installed on-site and were not networked. However, once we start connecting systems with each other, either within our own environment or with third parties, security must be treated as a priority issue that has to be taken into account during the development of a system and every subsequent modification.

This results in the security by design concept, which consists of basing the development process on failsafe security measures. This is the only way we can ensure that development is backed by cutting-edge technologies and best practices in software architecture and design. Design of this nature caters for secure communications outside of the system itself, including the appropriate identification and registration of all the components and users. It should provide the possibility of defining access permissions for different roles and be capable of monitoring each component by logging events. Due to the increase in the number of system components, each component needs to be updated individually, while also maintaining the stability and reliability of the system as a whole.

Cont. on page 8 ☞

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☞ *Cont. from page 6*

The following principles underpin security by design:

- Implement security by default
- Principle of in-depth protection
- Principle of minimum privileges
- Separation of functions
- Do not trust devices
- Keep security simple

In a smart factory, how should the security of the various levels of management be addressed?

The design of a digital factory is based on three levels:

- Systems that manage machines
- Systems that manage the production plant
- Systems that manage business

Each one of these levels can contain more than one system involving several suppliers. Besides management and control systems, there are also analytical systems that measure the machines' performance and status either in real time or based on logs. One of the most common demands relating to digitalization projects is to gain an overview of the manufacturing status and to be able to remotely access this information. With regard to business management, the systems usually need to be connected to CRM software or to customer portals for the management of orders.

The exposure of these systems to open environments and the interoperability between them are key to successful digitalization. The solution to these challenges does not mean isolating systems, but rather creating different environments. Moving from one to another then requires passing through a single point, where we can establish control and verify the authenticity of the system issuing or receiving the message or request as well as the actual message itself. In other words, our security system is as robust as the weakest link in the chain.

And what about cloud systems in a digital factory ecosystem?

All levels that incorporate management software in a digital factory can utilize systems in the cloud. The machines are the first item we need to

protect in order to prevent cyberattacks against a digital factory. The key to securely connecting machines to systems is the deployment of reliable machines based on state-of-the-art technology, and the incorporation of software ensures a simple connection with systems on the next level.

With regard to shop floor management, it must be possible to create a network within which all machines are connected to each other. This network should be connected with the next level via a highly dependable firewall. This requires following certain guidelines and monitoring the ports, communications, and thus the information that the systems share.

At the level of business management, it is important to implement different networks for the different groups working with the individual systems. These are connected to our servers via a single hub that is monitored and secure. Our in-depth understanding of the nature of our customers' communications allows us to avoid non-authenticated and insecure sources or origins.

Systems in the cloud should secure the communications hub and computer ports, whereby communication is always initiated from our systems and not vice versa (from the cloud).

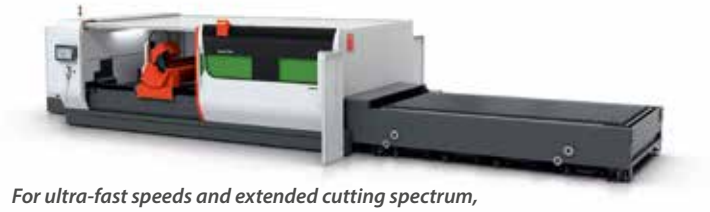
In conclusion, potential problems do not result from the networking of systems or from the cloud. Quite the opposite is true, and they both have an enormous potential for the development of a truly digital factory.

Issues also exist in conventional manufacturing environments where attacks are already taking place on a daily basis. A robust interconnection system with a reliable provider who is committed to the security of your systems is crucial to ensuring the security of your digitalization process and is thus one of the keys to achieving a truly digital factory.

For further information, please contact Bystronic – Tel: 010 410 0200.

ADVANCED LASER CUTTING IN THE FAST LANE – BYSTAR FIBER WITH 20 KILOWATTS OF LASER POWER

The flagship of Bystronic's laser cutting systems is available with 20 kilowatts of laser power and optimized cutting process. Its latest-generation cutting head was developed to achieve consistently high quality with the highest laser outputs and for demanding cutting applications. This enables sheet metal processing companies to further optimize their production.



For ultra-fast speeds and extended cutting spectrum, the ByStar Fiber now cuts with 20 kilowatts of laser power.

Enhanced cutting quality and productivity thanks to the new, even higher laser power

In order to offer sheet metal processing companies even more effective support in an increasingly competitive environment, Bystronic recently advanced into a new dimension of fiber laser cutting, the 20 kilowatt ByStar Fiber. The high-end fiber laser represents high-precision Bystronic technology, a reliable cutting process even with the highest laser outputs and a wide range of applications. This enables sheet metal processing companies to take another major step forward in terms of productivity and efficiency. The technological leap from the previously available 3 to 15 kilowatt laser output levels to the latest 20 kilowatt level is considerable and opens up new possibilities for Bystronic's customers to optimize their production and thus remain one step ahead of the increasingly fierce competition.

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Increased productivity thanks to outstanding laser technology for a broad spectrum of sheet metal processing applications.

Speed for an extended cutting spectrum

Compared to 15 kilowatts, the productivity of the 20 kilowatt ByStar Fiber are on average 40% in mild steel and stainless steel 4 mm to 20 mm. This means that sheet metal processing companies can benefit from higher productivity at low unit costs, because thanks to its 20 kilowatts, the ByStar Fiber cuts steel, aluminium and stainless steel precisely and reliably. The 20 kilowatts of laser power thus enable maximum flexibility for both large series and urgent customer orders. Regardless of whether cutting aluminium, non-ferrous metals or steel, the high-performance Bystronic cutting head excels with maximum precision in both, thin and thick sheets and profiles. In addition, the 20 kilowatts open up extended applications in steel and aluminium of up to 50 mm.

The optional «Parameter Wizard» ensures that the correct quality of cut parts is always selected by obtaining the perfect parameter within minutes.

The new power level is available for the ByStar 3015, 4020, 6225 and 8025.

Bystronic's high-performance flagship is controlled using the ByVision Cutting software via a 21.5-inch touch screen. Operating the machine is as simple as using a smartphone.

Bystronic automation solutions optimize the material flow

Automation optimizes the material flow: Matching automation solutions increase machine utilization and process reliability.

A wide range of automation solutions guarantees maximum machine utilization and process reliability even during unmanned operation. In order to ensure an optimal material flow that makes full use of the high laser cutting speeds, Bystronic offers a wide range of automation solutions for the ByStar Fiber. These include loading and unloading systems, sorting solutions, and individually customizable storage systems. This makes it possible to create an automated laser cutting process that is seamlessly integrated and adapted to the existing production environment and available space.

For further information, please contact Bystronic – Tel: 010 410 0200.

FIBRE LASER WITH LBC TECHNOLOGY – NEW POSSIBILITIES IN LASER CUTTING

Higher Productivity & Quality with less power

Following on the great success and longevity of the Amada range of in-house developed fibre laser engines, Amada has developed and released the revolutionary VENTIS fibre laser machine.

What sets this machine far apart from other fibre lasers is the incorporation of the Amada patented LBC technology (Locus Beam Control) and what makes this technology revolutionary is the innovative beam shaping system that allows for precise control of the laser beam motion.

This in-house developed single diode module 4kW fibre engine provides outstanding beam quality which allows the VENTIS 4kW-AJ to compete with other 6 - 8kW machines with less power requirements and unrivalled cutting quality.

LBC is a built-in automatic feature, allowing for the oscillation or vibration of the laser beam within the nozzle while cutting. The oscillation pattern differs according to the specific material type and thickness being processed. The LBC reduces the drag of the laser beam, while cutting and efficiently removes the material on the cutting front of the beam faster than standard fibre laser beams. LBC provides and ensures high beam energy density and produces high melting temperatures. In order for LBC technology to work at its optimum, a very high laser beam quality is required – Beam Parameter Product = 1 (BPP = 1). While Amada's AJ4000S high power oscillator ensures this beam quality permanently under all cutting conditions, the VENTIS offers three different cutting modes for steel processing, namely **Productivity mode** for maximum cutting speed, especially on thinner materials, **Quality mode** for burr free cutting on thicker materials like stainless steel and **Kerf control mode** for increased cutting kerf width for easy thick part removal.

The VENTIS is equipped with all the operation friendly functions of automatic nozzle cleaning, automatic nozzle changing, shuttle table system with free roller bearings for easy sheet loading, user friendly 3i control, water assisted cutting, filtered air – air purge system, full side and front access, oil shot, tipped part avoidance as well as "intelligent head control" as an additional feature that also saves both time and money.

With a combined speed of 170 m/min and an accuracy of ±0,01mm, the VENTIS is a machine that has proven its capabilities with over 100 units sold in Europe alone within two years. This number of sold units is evidence of the markets looking for better, faster and more reliable laser cutting solutions at a drastically reduced operation cost.

All equipment is fully retro-fittable with the full range of Amada automation options, making uninterrupted and unmanned production possible 24/7.

HRB-ATC press brake with additional bending capacity

Once the blanking of a product is done to the finest of detail and tolerance, the bending becomes the next process in most production runs.

With the outstanding success of the Amada HG-ATC range, the market realized how much downtime is spent on tool setting in the bending process. Most shops' production will require approximately three or four tool changes per shift. These tool change processes can take anything up to around 20 to 30 minutes each, which means around two hours of production is lost each day only to tool changing.

The new HRB-ATC press brake is a 100 ton x 3 meter or 220 ton x 4 meter – 7 axis CNC bender which loads and unloads the tooling as required for the specific job on hand. Production planning, programming, tool fitting and sequencing is done in the drawing office before all information is sent to the machine via network; the transfer takes place by scanning of a bar code.

Once downloaded, the operator can view the 3D model as well as a 2D flat layout of the part with or without dimensions. The press brake will automatically begin to set up its own tooling from the tool magazine situated to the right of the machine, while human hands do not touch the tooling. The machine picks and locates each tool as required along the top and bottom beams. Once positioning is completed, the operator takes over with the bending process according to pre-determined sequencing that was done in the planning stages. The interactive control shows the bend sequence in 3D throughout the process. An added advantage is that trial bending is no longer required as the full process has already been checked during the planning stages when it was programmed.

The HRB-ATC press brake is supplied with either the Bi-S mechanical or Bi-L laser angle measurement systems. These systems measure each bend angle according to the desired and programmed requirement, allowing the machine to make automatic angle adjustments where necessary on each bend. This process ensures superior accuracy as well as high quality repetition.

Tooling in the ATC system is of the standard AFH (Amada Fixed Height) design with a very small modification for the tool picker to locate. Standard Amada tooling can be loaded into the machine manually if the ATC does not have the required tool available in the magazine.

The advantage of the ATC system is that the downtime caused by tool changes is drastically reduced. The tool layout is always 100% as per requirements of the bends to be performed and tooling life is drastically extended as tools are stored correctly and not dropped or banged together during handling.

While a component is blanked 100% but not bent 100%, the finished product is automatically inferior and therefore, Amada will see to it that blanking and bending needs are fully taken care of and downtime eliminated.

For further information, please contact Amada – Tel: 011 453-5459

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SKETCH2019/13095

SAFANDARLEY E-BRAKE ERGONOMIC

With the Ergonomic design of the E-Brake, SafanDarley enables the operator and the press brake to work as a unit. The operator is partially seated inside the machine, surrounded by an edging table with his legs in a spacious cut-away below the lower beam, where the foot pedal is located.

Ergonomic ease of operation is assured as the seating position as well as the height and angle of the footrest can be adjusted.

The SafanDarley E-Brake Ergonomic can easily be adapted to changing work situations, such as a different product or a different operator. The edging table can be adjusted enabling users to achieve perfect pick-up height, working height and cast-off height every time. In addition, the edging table can be fully or partially collapsed, enabling the operator to bend whilst standing up. Finally, the entire edging table can easily be removed from the machine to make the front freely accessible.

While the height of the rotating 17" Touch Screen is adjustable, the unit can be placed to both the left and right of the operator, meaning that left-handed operators can use the machine with the same level of ease as right-handed operators.

The double-function safety light screen, integrated into the control panel secures the bending zone and allows the axis to move, while the operator turns, picks up or removes the product. These simultaneous actions of operator and machine lead to very fast cycle times.

While the innovative back gauge can be used across the full working length, it has a maximum depth of 1000mm and a height adjustment of 150mm. Combined with the possibility of setting the upper beam at a 5° angle, this means unparalleled flexibility. The back gauge comes with an X axis and an R axis as standard features, but can be expanded, depending on the model, with 5 optional axes.

SAFAN M-SHEAR

The Safan M-Shear's extremely functional design satisfies current and future requirements with possible expansion plans, such as material-handling systems, already provided for. At its core is the advanced hybrid drive for the cutting beam consisting of a servo-electronic motor and hydraulic pump, a combination producing a remarkably quiet and energy-saving system.

While the robust hydraulic systems are controlled by modern electronics increasing both productivity and quality of products, the servo-electronic motor powering the hybrid drive only runs when the cutting beam is in motion thus saving energy and reducing noise levels while cutting.

Maximum ease of operation is provided by the Safan Touch Screen control TS 200 while the settings are indicated by clear symbols on the TFT colour monitor. The control operates with Microsoft Windows®.

With blades having four cutting edges, on both top and bottom, shearing is done very economically as blade wear is spread over the blade's entire length, thanks to the programmable starting position of the cutting beam. Another feature includes independent left and right clearance adjustment and built-in measuring sensor with an accuracy of ±0.01mm. Due to the special frame construction, clearance is self- compensating so that, even with a load in the middle of the shear, the clearance remains constant over the entire length. When the clearance is changed, the back gauge setting is automatically corrected. Size of cut can be directly entered, after which the position of the back gauge is adjusted. The back gauge adjustment occurs by means of play-free guides and ball screws. Setting precision is 0.01mm and repetitions are accurate to within ±0.03mm.

The shear has extensive guards on the back and sides. These consist of mechanical side covers on the right and left sides plus a photo-electrical guard on the back. The machine's foot-operated console is fitted with an emergency stop. Robust finger guards have been installed. For up to and including 6mm cuts, openings have been made in these guards, allowing the operator to safely get closer to the blade.

As an option, the M-Shear can be supplied with pneumatic sheet support equipment making cutting easier, especially when dealing with larger-size blank sizes. The sheet to be cut is supported at the back of the shear, ensuring it can be accurately positioned against the back gauge, which can be equipped with sheet support arms, if requested.

In combination with the pneumatic sheet support system, a scrap separation feature is available.

For more information, please contact CML Machine Tools – Tel: 083 232 9470.

SAFAN DARLEY

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SafanDarley –
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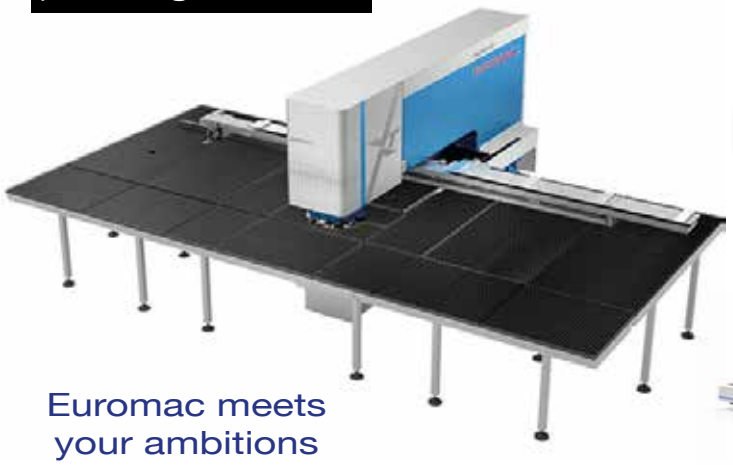

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AD-R SERIES PRESS BRAKE

With its easy to use control unit, rigid body frame, perfect design, high efficiency, multiple tool usage solutions, top level CE safety standards and economical price range, AD-R is a world leader in its category. The machine is perfectly equipped for sensitive bending, energy efficient solutions.

AD-R series press brakes are built in accordance with CE-Norms to ensure safety with hydraulic, electric, appropriate height covers and laser light curtains, while CE safety in tandem machines are also provided with light barriers and designed with high technology to increase efficiency on precise part bending.

With an easy to use control unit, stable body structure, perfect design, low operating cost, different tool usage options, maximum safety standards, Durma press brakes are amongst the best in the world. Bending performance is increased by using a high quality European clamping system to improve productivity.

Most important feature to achieve perfect bending is the stability and the design of the back gauge, which allows an impeccable and correct product to be produced.

The high speed ballscrew back gauge system movement is supported with linear guides, which helps the back gauge achieve long life and greater sensitivity, while strengthening against any collisions.

Specially designed finger blocks with steps to achieve maximum stability can be supplied for every kind of bending solution.

With an impressive variety of tool options and types available, Durma is the ideal solution partner, while providing the best level of service and readily available spare parts.

AD-R 30135

- Capacity (length x ton) 3050x135
- X = 650mm X,R (AL)
- CNC Controlled Motorized Crowning
- Control Unit Sky 22 (Colour Graphic – 22" Screen)
- DBEND 3D CAD/CAM Importing & Simulation Program
- Non CE with Manual F.AKAS FPBS
- Top Tool European P97.75.R08
- Bottom Tool European M.46R.85
- Quick Release clamping
- 60mm Die Holder (For European dies only)
- Throat Depth 450mm
- Back Gauge: Motorised & Linear Guide & Ballscrew System
- Back Gauge Fingers – Height Adjustable
- Back Gauge Motor: Servo
- Sliding Front Arms with Full Length Linear Guide
- Safety Covers (Side)

For more information, please contact Spectrum Machine Tools – Tel: 011 865-4090.

AD-R Series Press Brake Machine

With its easy to use control unit, rigid body frame, perfect design, high efficiency, multiple tool usage solutions, top level CE safety standards and with its economical price range, AD-R is the World leader in its category. Perfectly equipped for sensitive bending, energy efficient solutions.

Our machines are designed in accordance with CE-Norms to ensure your safety with hydraulic, electric, appropriate height covers and laser light curtains. CE safety in tandem machines are also provided with light barriers. designed with high technology to increase efficiency on precise part bending.

With an easy to use control unit, stabile body structure, perfect design, low operating cost, different tool usage options, maximum safety standards, Durma press brake is the best in the world in its segment. Bending performance is increased by using high quality European clamping system to improve productivity.

Durma is your solution partner with various tool options and types. Durma provides the best level of service and spare parts with qualified personnel and spare parts in stock. Therefore, with Durma press brakes you can always achieve perfect results.

AD-R 30135 Series Press Brakes today, tomorrow and forever with you.

AD-R 30135

- Capacity (Length x Ton) 3050x135
- X=650mm X,R (AL)
- CNC Controlled Motorized Crowning
- Control Unit Sky 22 (Colour Graphic - 22' Screen)
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- Bottom Tool European M.46R.85
- Quick Release clamping
- 60mm Die Holder (For European Dies only)
- Throat Depth 450mm
- Back Gauge: Motorised & Linear Guide & Ballscrew System
- Back Gauge Fingers - Height Adjustable
- Back Gauge Motor: Servo
- Sliding Front Arms with Full Length Linear Guide
- Safety Covers (Side)

Please contact us for a price and delivery

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SPECTRUM MACHINE TOOLS

HD-TC PROFILE-PIPE CUTTING LASER

DURMA shortened process time by improving centering with the newly added laser sensor centering option added to the HDTC machines. It is possible to control the size and irregular structure of the profile during cutting or before cutting with the help of sensors to ensure that the internal contours to be cut are at the right point.

In existing HD-TC machines, the centering measurement is achieved by scanning the profile surface through capacitive sensors. The advantage of the laser sensor system is that it gives more precise results in a shorter time. The user can take measurements at the distance determined by the user, and precise results are obtained in a shorter period of time as the process of measuring by the sensor is shortened for parts requiring precise measurement with internal contours.

The advantage being fast set-up time, less problems during cutting, best solution in a short time and measurement frequency is dependant on operator request.

DURMA HDF/HDFL 3015

An integrated shuttle table maximizes productivity and minimizes material handling times. The shuttle table and pallet change system allows convenient loading of new sheets or unloading of finished parts, while the machine is cutting another sheet inside the working area. The available shuttle table is fully electric and maintenance free; there are no hydraulic oils to handle and table changes are fast, smooth and energy-efficient.

Durma HDF/HDFL 3015 Fiber Laser.

An optional lateral automatic scrap conveyor allows the removal of scrap pieces from the working area without the need to interrupt the cutting process. The sideways operation of the short conveyors allow for easy maintenance and trouble-free running.

The Durma HDF/HDFL 3015 fiber machine achieves highest dynamics and fastest laser processing cycle times thanks to the combination of rigid mechanics and a state-of-the-art numerical control and drive system. Programmes can be loaded easily into the machine with a USB stick or over a fast Ethernet connection with the company network.

In the high-pressure auto-focus cutting head for the fiber laser the cutting lens is shielded from the laser process by an exchangeable low-cost protection window. The 1µm wavelength light is very sensitive to dust or other contamination produced in the cutting or piercing process, therefore the cutting head is being well protected in an additional cover to ensure that all critical parts remain as clean as possible.

The integrated capacitive distance sensor is capable of having the head follow height differences in the sheet even at the extreme high cutting speeds that can be achieved with the fiber laser technology, while state-of-the-art linear motors promote accuracy and increase productivity.

The CAD/CAM software provided has all the tools to import or draw parts, prepare and optimize automatically different geometries for the laser cutting process and make efficient nests.

The all-solid-state fiber laser technology reduces maintenance requirements, and offers the lowest possible running cost with a wall-plug efficiency of 30% and without the need of any laser gas. When the application requires a broader spectrum of material types to be cut and the maximum thickness range is limited, the fiber laser is the ideal solution and it will cut faster at lower cost than any CO^2 laser at the same laser power.

For more information, please contact Spectrum Machine Tools – Tel: 011 865-4090.

ERMAKSAN'S SERVO PRESS BRAKE PROVIDES VERY EFFECTIVE SOLUTIONS FOR THE METALWORKING INDUSTRY

Thanks to its quiet operation and low energy consumption, the Green Press FX Servo press brake, which is one of Ermaksan's green press group machines, features about 69% less energy consumption than hydraulic press brakes.

The new generation press brake Green Press FX Servo, which has been developed by the Ermaksan R&D engineering team, uses servo-electric motor technology and makes a big difference in the sector by its environment-friendly structure without any contaminant. The machine is supplied as standard with 3 meter length and 100 tons of power but is also available with 1.6 meter, 2 meter, 2.5 meter length and 40, 65 and 80 tons of power alternatives.

Not only low energy consumption, but also low maintenance cost

While a high energy efficient servo motor is used, the motors will not work while the upper beam is not moving, which provides 69% energy savings; on stand-by mode the energy saving is 98%. Motors work only when ram is moving down and no hydraulic system and cylinder were used on the machine. As it is a completely mechanical machine, it can be used with less maintenance cost.

Sliding front support arms with stoppers

With precise linear bearing and the sliding front support arms that can move right and left on the rail, the sheet can be easily controlled by the operator from the front. Also, the length of the parts can be measured by means of a measuring device mounted on the front support arms. The sheet can be fixed from the front with the aid of the flip stop which is mounted inside the T slot.

Silent operation with below 70 decibels

While high energy efficiency is provided, there is no oil usage at Ermaksan's **green technology** Green Press FX Servo model. Thus, no problem is encountered in terms of contamination of the working area caused by oil leakage. Pressing is executed by two synchronized servo motors moving the top beam via belts and pulleys and the return of the beam is realized by spring force. With below 70 decibels the machine is very silent and there is no noise pollution to disturb the environment.

Unlimited Full length bending capacity

With unlimited full length bending capacity, the operator can perform full length bending between the columns. The body construction is bolt connected and the back gauge system is matchless resulting in maximum precision.

Safety is at maximum level

The coloured Plexiglas windows at the rear guards provide the ability to see inside the machine with safety at maximum level. Front light body guard Leuze MLC100 is in line with CE regulations. Furthermore front top, lateral and rear sides of the machine are surrounded with closed guards. LED lights at the front and rear of the machine both ease operators' working conditions.

Includes Industry 4.0 solutions for smart factories

The ER 4.0 software developed by Ermaksan engineers under the scope of Industry 4.0 processes and reports data transferred via the inter-machine communication network and has been designed to ensure continuity and productivity. All components on the machine are collected on a common network and data can be easily accessed. Thanks to this software, users will increase performance and productivity by reaching the widest range of data from the machine in real-time.

RAPID BENDING OPERATIONS WITH FASTER BENDS SAFETY SYSTEM

Ermaksan is taking firm steps into the future by continuing to develop innovative technologies. The company has introduced the new *Faster Bends Safety System* to speed up the bending process and improve productivity.

Ermaksan's new **Faster Bends Safety System** is ideal for small parts bending much faster and safer without using the foot pedal. Operators don't need to press the foot pedal, except at the beginning, while the machine will move down automatically. This enables users to increase productivity and safety by bending all day without pressing the foot pedal repeatedly.

Various modes have been developed to suit customer's needs, including the **Single Break Mode**, which allows the operator to initiate down movement by briefly obstructing the light guard protective field once, then taking the part, while putting in the new part at the same time. The **Double Break Mode** allows the operator to initiate down movement by briefly obstructing the light guard protective field twice, taking the part and thereafter placing the new one consecutively.

While safety is at maximum level and all protection devices are in line with CE regulations, press brake productivity is significantly increased.

For more information, please contact WD Hearn - Tel: 021 534 5351

SHIFT FROM A MAKE-TO-STOCK STRATEGY TO A LEAN MAKE-TO-ORDER JUST-IN-TIME STRATEGY

Rapid industrial developments during recent years continue to set tough challenges. Because industry has changed, flexibility and efficiency are crucial requirements for managing increasingly smaller batches, rapid item turnover rate and tight lead times. And it is precisely in this context that automation is attracting more and more attention.

Automation according to Salvagnini

Salvagnini has been designing, producing and selling flexible systems for sheet metal working for over fifty years, and flexible automation has always been part of the company's DNA. Flexible automation means transforming packs of sheet metal into a wide variety of products, in a lean environment and with no intervention by the operator, in a progressive production process, using proprietary punching, cutting, bending and panel bending technology. Automation therefore has an impact on three successive levels:

- The first level is that of the individual production phase, which horizontally exploits the potential of extremely high-performing, autonomous and intelligent systems.
- The second level is that of activities with low added value, which typically occur upstream and downstream of these individual systems, with preparatory and/or connection functions.
- The third level is that of the process which, where appropriately organized, benefits exponentially from the sum of advantages offered by the previous two levels.

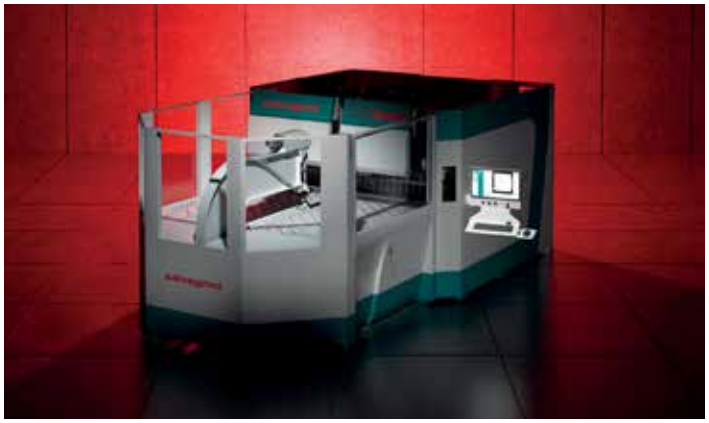
In practice, the result of an automated, organized process can exceed the sum of the benefits obtained in each individual activity and by eliminating any redundant intermediate activities. How? Let's take a detailed look at the production process.

Optimizing individual production phases

We have already mentioned the progressive shift from a make-to-stock strategy, with large batches, towards a lean, make-to-order, just-in-time strategy based on medium and small batches and an increasingly variable production mix. The industrial scenario is moving increasingly towards a substantial reduction in work-in-progress, eliminating the intermediate storage of semi-finished parts.

To respond to this variability and uncertainty, the market is looking more and more to flexible production systems. While being competitive today does not merely mean having fast single part production, the challenge lies in production efficiency, the ability to move from one production code to the next with the shortest re-tooling time, whatever the geometric and mechanical characteristics of the metal sheet and the type and number of jobs. Flexible systems are a decisive factor for managing production today, but also for improving quality and reducing lead times and scrap.

All Salvagnini solutions are designed to increase the efficiency of the specific production phase. There is no need to remind anyone that, since 1977, the year in which Guido Salvagnini designed and produced the first P4 – Salvagnini has been a byword for panel bending. The panel bender is the machine which more than any other represents the spirit of the Group, precisely because it combines cutting-edge technology with productivity, autonomy, and flexibility.



With universal bending tools, the panel bender requires no re-tooling, and machines the whole range of thicknesses and materials, adapting automatically to the size and geometry of the part to be produced, in cycle, without machine downtimes or manual re-tooling. The panel bender adapts completely autonomously even to the varying mechanical and geometrical characteristics of the sheet metal being machined, as well as to the external environment. Similar characteristics also define the other Salvagnini technologies:

- The laser requires no adjustments, thanks to the single-optic cutting head, the process sensors and a number of artificial vision systems.
- The combined punching/shearing and punching/laser machines are equipped with a multi-press head that can hold up to 96 tools always available for use.
- The press brake automatically adapts re-tooling and tool management according to what needs to be produced, with its ATA, MVM and AU-TO devices, thus extending its flexibility and autonomy.

Eliminating activities with low added value

Considering that our production capacity corresponds with the sum of work and waste, the second level at which automation impacts production is that of its ability to reduce, if not fully eliminate, redundant activities or those with low added value which typically occur upstream and downstream of individual systems for preparing, feeding and connecting.

Automatic cutting, forming and panel bending systems have become extremely quick and productive, shifting the problem of efficiency to the loading and unloading phases which, increasingly often, risk becoming

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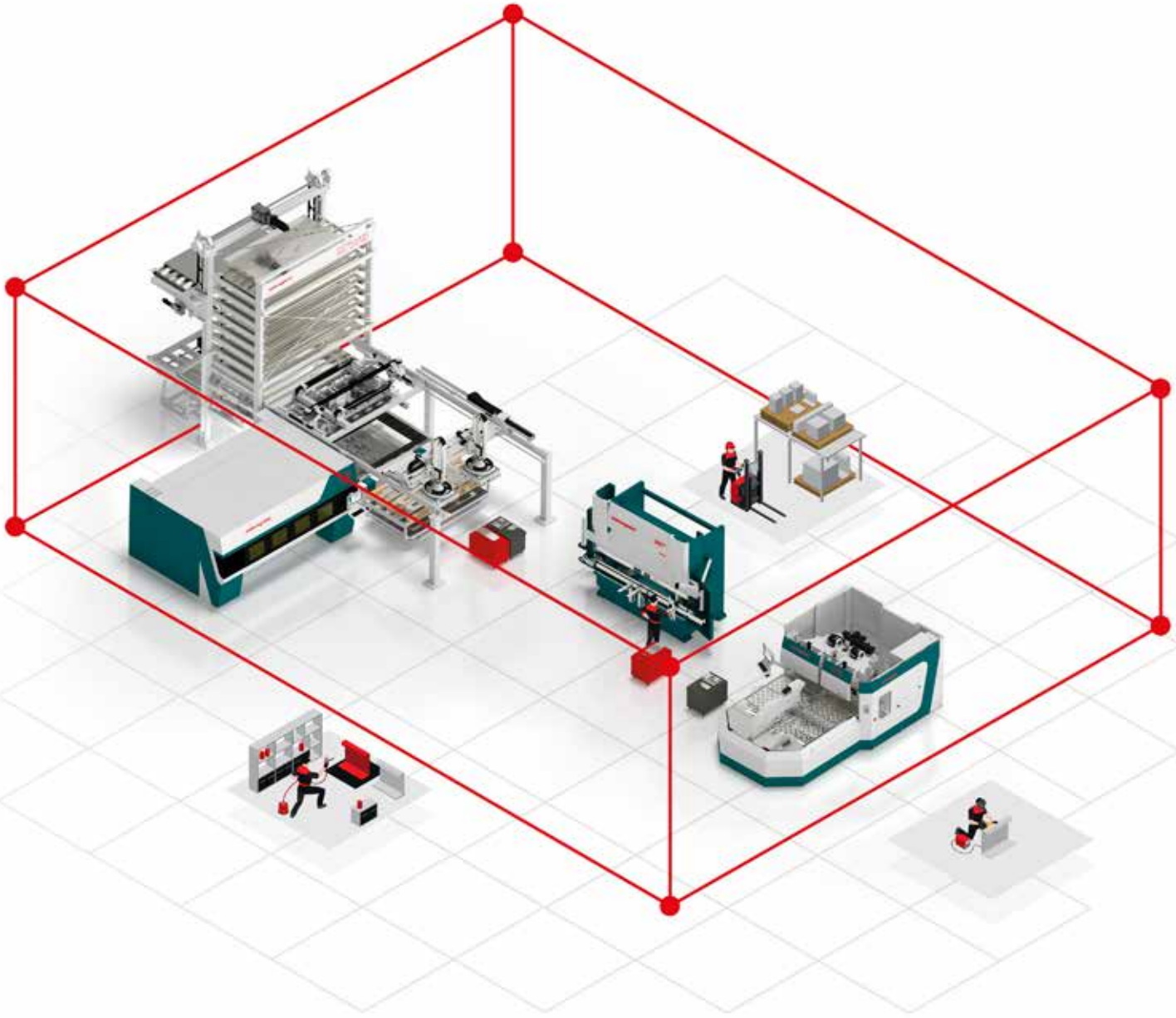

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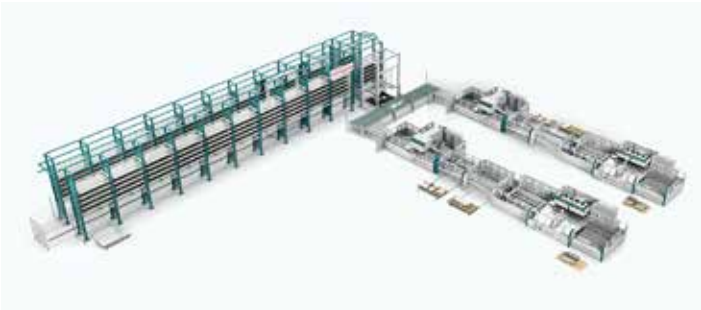

authentic bottlenecks. In production contexts marked by low volumes and rapid production changeovers, connecting automatic loading/unloading devices to the systems is a winning strategy for recovering efficiency.

Salvagnini responds to this need with a wide, modular range of automations, able to configure each system differently to meet different production needs. This includes:

- Automatic loading/unloading and sorting devices, coupled to a store, which are an enabling factor for increasing the autonomy and efficiency of individual systems.
- Automatic loading devices ensure that the machine is fed at a frequency consistent with the production speed.
- Robotized unloading devices, which ensure that the panel bender is immediately available for the next job after completing the previous one, eliminating waiting times but also recovering efficiency in subsequent phases of the process which benefit from the precision offered by automatic bending and robotized stacking.
- Intermediate automation devices that minimize and balance material transfer times from one workstation to the next.
- Software solutions facilitating the production process even without large physical devices, lowering the entry barrier into the world of smart manufacturing.

Process management and optimization

Extending the vision to managing and optimizing the process as a whole, obliges us to talk of digital transformation and Industry 4.0. A widespread view often reduces Industry 4.0 to the mere integration of the ERP system and the receipt of machine feedback, when in fact this is a minimum requirement, the first step to be tackled, which must then become an enabling factor for solving real problems, simplifying everyday work and helping companies to grow.

Salvagnini has been concretely tackling this issue since 1993, when it launched the first OPS, the modular software for managing production. OPS receives the production list from the factory information management system in real-time and delivers an updated version to the programmer. It provides support for the programmer's activities by defining the priorities, automatically generating the machine programs, and sending them to the workshop. It checks the availability of raw materials or semi-finished parts and generates feedback to the factory information management system, updating it in real time, part by part. It can make autonomous decisions according to production logic – or according to a multiple mix of production logics – designed to meet the needs of the customer and transformed into an algorithm. It integrates labelling, traceability, and store management upstream and downstream of the cutting, punching, and bending activities. It therefore increases the efficiency of the whole production process, extending its effects beyond the factory boundaries and throughout the whole supply chain.

For Salvagnini, that's what digitalization is all about: making available solutions that are easy to use, in order to focus on control, production process optimization and the elimination of all those often invisible downtimes that undermine the efficiency and competitive performance of companies.

A vision of the future

There is no point in focusing on extremely high-performing technologies without managing the bottlenecks upstream and downstream of production. Investing to reduce the cycle times of an individual production phase by a few seconds offers no real advantage if the re-tooling times of these technologies cancel out the efficiency regained by the performance of the new system, if this regained efficiency is lost in the intermediate phases between the individual workstations, or if it is cancelled out by a burdensome process filled with redundancy, delay, and inefficiency.

Salvagnini proposes to replace this purely quantitative approach that focuses only on productivity with another that combines both quantity and quality, shifting from the idea of production capacity to that of production control, where efficiency – and therefore productivity – can be regained. To fully exploit the benefits assured by flexible automation.

For more information, contact
PIM Machine Tools – Tel: 011 022 4648.

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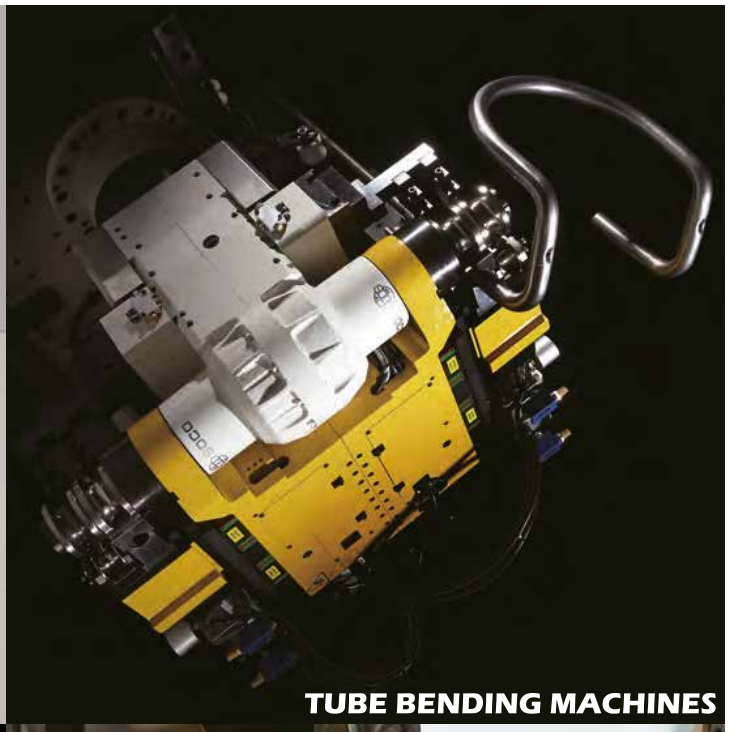

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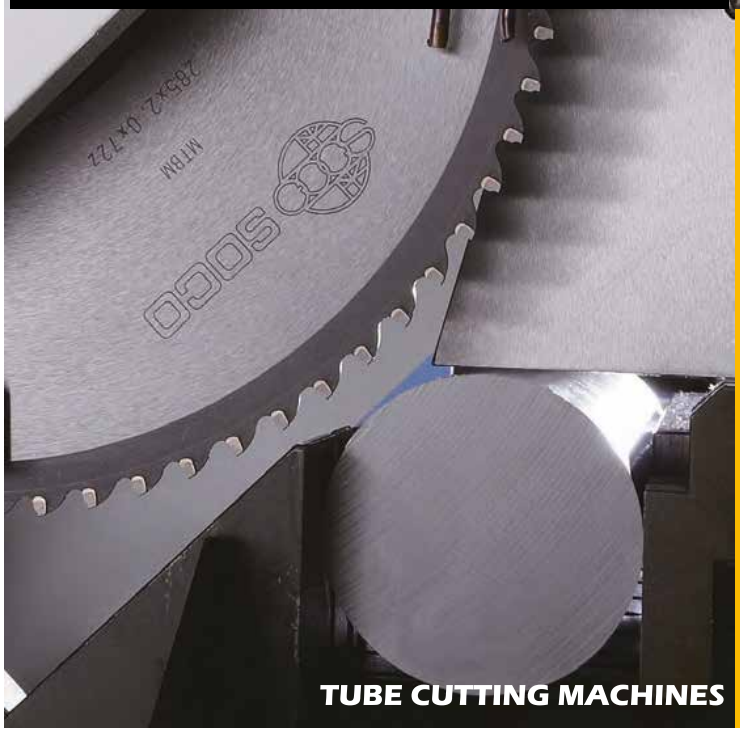

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AT THE RIGHT ANGLE

In milling applications, 90° cutters are perhaps the most common tools. These versatile tools are used for milling square shoulders, slots, face operations bound by shoulders, edges, pockets, and cavities. Face mills perform machining by ramping and turn-milling. These 90°cutters prevail in the product range of tool manufacturers that produce general-purpose mills whether indexable, solid, or brazed.

In selecting 90°milling cutters, there are several factors to be examined such as the material to be machined, the removal of stock, required accuracy, surface finish, stability, and the characteristics of the machine tool in use. These factors influence the cutter type, cutting geometry, tool configuration, and more. The same factors are also the key points for choosing a cutter design on behalf of a tool manufacturer intended for its production processes. For example, solid mills provide ultimate machining accuracy while an indexable tool concept enables machining under heavy loads and provides additional cost-effectiveness per cutting edge. The cutting geometry of solid and brazed mills becomes complete only after grinding. In indexable mills, the shape of a sintered insert is the key contributing factor to achieve optimal tool geometry.

A quantum leap was achieved in the world of metalworking during the early 1990's with the introduction of the ISCAR HELIMILL – a family of 90° milling tools that introduced helical shaped edged inserts. A highly effective edge was generated by the intersection of the insert's top (rake) face and the helical insert side (relief) surface. This milestone geometric design formed a constant positive rake and a constant relief along the length of the insert's cutting edge. The ground-breaking feature caused a significant reduction in power consumption and ensured a very smooth cut. ISCAR's HELIMILL concept heralded a new design approach and benchmarked indexable milling by anchoring the geometry of an insert at the forefront of milling technology.

A polygon comprises the shape of inserts in 90° milling cutters. These inserts may be rectangular, square, parallelogram, rhombic, triangular or trigon (broken triangle). The shape of an insert determines the number of indexable cutting edges. There are additional important insert features, which relate to the insert's shape. A square or triangular insert features greater width compared to a rectangular insert shape. Increasing the insert width facilitates a larger central hole and enables using greater clamping screw sizes to improve the securing function of an insert. However, increasing the insert width limits the minimal diameter of a milling cutter and requires larger chip gullets, which reduce the strength of the cutter body. This is just one factor to consider when designing 90° milling cutters with indexable inserts. At the same time, there are other contributing elements such as the mounting method (radial, tangential), range of corner radii, a wiper flat, chip splitting functions, and more. It is imperative to consider the type of material being processed and the type of milling operation for which the cutter is designed.

A parallelogram shape provides an optimally harmonious combination of the cutting-edge length, varied corner radii, ramping-down capabilities, and additional parameters of the cutting geometry and insert strength. This explains why the parallelogram shape remains common. A significant disadvantage of the shape is the number of cutting edges – limited by two in a traditional design configuration. A double-sided, reversible insert concept seems to be the simple way to increase the number of edges on an insert more effectively. There are additional attributes to think about when considering a double-sided insert configuration. Additional limitations affect the relief angle and increase the axial rake of a milling cutter after the inserts are assembled on the tool body.

The examples mentioned must be considered when developing indexable milling cutters. The careful study of contributing factors and understanding the relationship between the intricately engineered elements can lead to a winning tool solution. To provide a wide array of solutions for 90° milling cutting tool manufacturers develop multiple cutter shapes and innovative single- and double-sided indexable inserts.

With the many forms and shapes of cutters in the tool market, the creation of new geometries has become an obsolete task. ISCAR's NEOLOGIQ campaign has given birth to unique innovative milling solutions in aim to conquer new quests for fast and productive milling solutions.

The combination of a square profile with specially shaped rake and side faces is a design feature of cost-effective NEODO S890 inserts.

ISCAR's prolific R&D design engineers invented the new NEODO S890 milling cutters designed for rough, semi-finishing, face and square shoulder milling operations primarily for steel and cast iron. The 90° cutter design places cost-effectiveness and productivity at its forefront, intended for milling under unfavourable conditions. The tool utilizes a strong-structured double-sided insert. The insert features a square profile, while the top, bottom and side face of the insert are specially shaped by ISCAR's unique pressing technology. This provides 8 helical right-hand cutting edges, 4 from the top and 4 from the bottom. When mounted on the cutter, the insert guarantees positive radial and negative axial tool rake angles, which promise smooth cutting and reduced power consumption for milling under diverse machining conditions and interrupted cuts. A dovetail profile of the insert pocket enables very rigid clamping that substantially increases cutter stiffness. The insert has a built-in wiper flat to improve surface finish. A new look on a square insert profile in combination with the advantages of pressing technologies has resulted in effective and economical solutions for face milling, particularly for machining close to shoulders where work holding constraints exist.

The double-sided 90° HELIDO Trigon tool was derived from a trigon shape.

A double positive cutting geometry characterizes HELIDO Trigon milling cutters that carry double-sided inserts of a "broken-triangle" profile.

The insert configuration provides 6 indexable cutting edges and ensures higher tooth density for increased feed rate and maximized productivity. The tools have a double-positive cutting geometry: positive axial and radial rake angles. These attributes contribute to lower power consumption and allow rough milling applications on machines with limited power. The versatile HELIDO Trigon tools are suitable for milling shoulders, slots, side plunging and ramping by use of helical interpolation. The main advantage of these tools is the combination of 90° profile accuracy, productivity, and cost efficiency.

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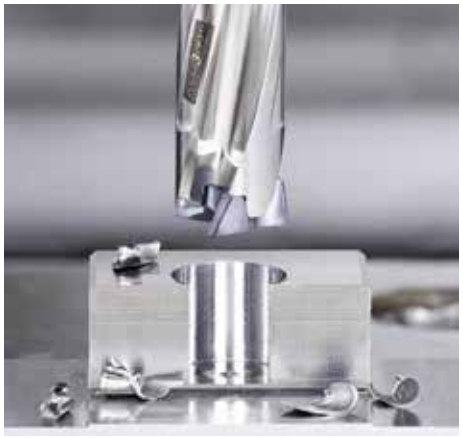
THE NEOLOGIQ SEQUEL

"Where Innovation Never Stops!" is the slogan that appears on the walls of the production facilities at ISCAR headquarters and has been synonymous with the company for several decades.

The COVID-19 pandemic did not interrupt the innovation process, and between 2020 and 2021, ISCAR introduced the NEOLOGIQ marketing campaign comprised of advanced cutting tools and tooling solutions for modern metalworking. The significant changes in manufacturing, such as intensive digitizing, the shift to electric drive in the automotive industry, and growing precise workpiece fabrication, have emerged new demands for cutting tools. Notwithstanding, the accelerated pace of changes sharpens the demands and requires more ISCAR NEOLOGIQ products that answer to modern age machining. "Machining with No Boundaries" is the NEOLOGIQ mindset.

Holemaking news

CHAM-IQ-DRILL, the family of assembled drills that mount exchangeable carbide heads, is now upgraded with new heads in the diameter range of 33-40 mm. These heads can be mounted on any drill possessing the appropriate pocket size. The main feature of the new heads is a multifunctional cutting geometry, which enables effective drilling of various engineering materials such as steel, stainless steel, heat-resistant special alloys, and titanium (ISO P, M, and S groups of application) assuring hole precision within IT10-IT9 accuracy grades. ISCAR's customers will benefit from using the new heads which guarantee to maintain less stock of tools for machining diverse materials.



3-flute LOGIQ3CHAM drills provide nearly flat bottom holes.

The **ISCAR LOGIQ-3-CHAM** is also based on the concept of exchangeable carbide heads with 3 flutes for improved productivity and is now supplemented by new carbide heads for achieving a nearly flat bottom hole. Flat bottom holes are necessary for screw head sockets, spring seats, washer ports, etc. The heads ensure drilling up to an 8-hole depth-to-diameter ratio without a pre-hole. The new design facilitates generating holes with a nearly flat bottom by use of a single pass. The heads are mounted on existing LOGIQ-3-CHAM tools that significantly expand the application range of the family and reduce inventory costs.

So, how do you increase the drilling depth? Use a longer drill?

MODUDRILL is a family of modular drills with replaceable carbide heads that carry indexable inserts and provide an alternative solution. Mounting an exchangeable extension holder on a drill body increases the drilling depth by an additional 200 mm when machining holes in a diameter range of 33-40 mm.

In high-speed reaming, a combination of a carbide reaming head with a rolling device in one single tool results in a short operational time for achieving accurate hole diameter along with a mirror-like surface finish.

Key aspects in turning

A NEOSWISS turning tool carries a quick-change head with indexable insert.

A modular tool concept is the way to reach high versatility. **NEOSWISS**, a new tool system with quick-change heads, follows this concept. There are different types of heads for indexable inserts. The system is suitable for turning, parting, grooving, and threading applications. By use of a unique high-clamping-force mechanism, the heads are mounted on a toolholder. The mechanism provides an accurate cutting edge position each time and utilizes high position repeatability. The system intended mainly for Swiss-type machines enables removing heads and replacing inserts within the tight confines of CNC machining centers.

ISCAR has developed a new lever dual lock securing mechanism for improved clamping rigidity intended for ISO turning inserts. The new design, referred to as the **COMBI-D-LOCK** family, combines the advantages of two conventional clamping methods by the use of a lever and a top clamp. An insert is locked in two directions from the top and the bottom. This provides better stability and rigidity, and in comparison, to the conventional lever improves tool life and increases productivity.

LOGIQ-F-GRIP features a new highly advanced tool family for parting solutions. The central component of the family is a robust tool block that mounts a 4-pocket adapter. There are cases when the rib, a reinforcement element of the block, interferes and prevents clamping the block on typical turret positions. NEOLOGIQ overcomes this problem by providing additional blocks with the rib placed on the alternative side of the block. The revolutionary LOGIQ-F-GRIP parting system was designed to achieve extra stability and vibration-resistant high productivity parting and grooving operations. The highly engineered LOGIQ-F-GRIP is an assembled tool block that comprises a unique durable holder and a high-stiffness quad blade with pockets for mounting inserts.

Innovations in milling

NEODO S890 is a family of 90° indexable face mills for rough and semi-finishing operations. The mills mount durable square double-sided inserts with 8 cutting edges. NEODO S890 facilitates face and square shoulder milling while providing an additional option for milling close to shoulders where there are workpiece or work holding fixture constraints. ISCAR customers have requested additional corner radii and tool diameters, therefore, this tool family was expanded with additional pressed-to-size inserts with a 0.8 mm corner radius and cutters in diameters 32 and 25 mm including endmill design configurations.

A 90-degrees NEODO S890 face mill.

A durable double-sided round insert is now available. The combination of an innovative pocket design and a special peripheral shape of the insert provides reliable insert clamping and fail-proof insert indexing. Depending on the depth of cut, there are up to 6 insert indexes on each side (up to 12 indexes total). When indexing, there is no need to remove the insert clamping screw. The main application of the new cutters is for rough and semi-finish milling complex surfaces, especially in die and mold, power generation, and aerospace parts.

The range of solid carbide endmills has been expanded by adding new tool diameters and corner radii.

Upgrading toolholders

A Micro 90 coolant-driven high-speed compact spindle ensures extremely high rotating velocities.

ISCAR SPINJET, a family of coolant-driven high-speed compact spindles for small diameter tools, intended to upgrade existing machines to high-speed performers, is now supplemented with **Micro 90** intended for miniature rotating tools in milling, drilling, countersinking, thread milling, engraving, chamfering and deburring operations. Micro 90, made of a solid titanium shell and assembled from only six parts, enables rotating velocities that range from 35 000 to 53 000 rpm while the main machine spindle remains idle.

The chuck thickness is a factor that limits the working space of a tool. This factor often causes increasing the tool overhang to reach a machined surface. A novelty in X-STREAM, a family of thermal shrink toolholders, is a series of slim design chucks to eliminate such a restriction. The new chucks follow ISCAR's coolant jet channel technology providing direct coolant supply to the tool cutting edge.

Changes in metalworking technology place new demands on cutting tools. To meet these demands, cutting tool manufacturers develop new products to assure increased performance. The industries' response to the products sprouts new requirements.

ISCAR's NEOLOGIQ campaign is based on new tools that were developed in accordance with customers' input. You can expect more NEOLOGIQ sequels to assure advanced machining in the new era of metalworking.

TANG-4-FEED FFV 07 –

NEW FAMILY OF FAST FEED MILLING CUTTERS CARRYING TANGENTIALLY CLAMPED RHOMBIC INSERTS

ISCAR is introducing a new family of high feed shell mill cutters carrying tangentially clamped rhombic inserts with 4 cutting edges. The new cutters have been designed for roughing operations of cavity and pocket milling in the die and mould industry and for general engineering.

The FFV D…-R-VN07 tools are available in shell mill configurations in a diameter range of 40 to 100 mm and can be applied up to 1.5 mm depth of cut.

Featuring a 16° lead angle, R2.8 mm programming radius, strong dovetailed insert clamping, and ramp down and side plunging capability, the tools enable high metal removal rate due to the small entrance angle, which allows high table feed at shallow depths of cut. Coolant holes are directed effectively to the cutting zone and a new polished coating for smooth chip flow and protection against corrosion and wear.

The new tangentially clamped FF VNMT… inserts are available with two types of cutting geometries for optimal machining of a large variety of engineering materials: "ER" for general applications and "ETR" with reinforced cutting edges for interrupted cut and unfavourable conditions. The main application field is rough- and semi-finish milling of sculptured surfaces and steep profiles, including up-and down-ramping.

JETCUT –

EXPANDING THE MULTI CONNECTION (MC) JHP LINE

Tools with Bottom Fed High Pressure Coolant Channel for Mounting on VDI DIN69880 Tool Holders

ISCAR is expanding the Multi Connection (MC) JHP Line by adding parting, grooving, threading and turning tools for VDI tool holders with a bottom fed coolant system to ensure efficient coolant supply internally through the tool and externally through the flange. The specially designed system integrates JHP-MC turning and grooving tools featuring a bottom coolant inlet hole, and VDI-JHPMC tool holders with a long coolant outlet slot to enable adjustment of the tool's overhang.

The compact and light VDI DIN69880 is the most popular quick change adaptation system for CNC turning machines with disc-type turrets.

This standard holder adaptation serves mainly stationary turning or drilling tools.

VDI DIN69880 characteristics include high accuracy and center height repeatability, easy and fast set-up, and high stiffness due to a straight shank and flange face contact. Rigidity is facilitated by the serrated clamping system.

The tools are widely used by European, Japanese, Korean, USA, Chinese and Taiwanese machine tool builders, due to their simplicity, low-cost and tool clamping rigidity and have applications particularly in the aviation, aerospace and medical industries.

JHP tools also provide advantageous performance when conventional pressure is applied.

☞ *Cont. from page 22*

Efficient milling of aluminium alloys and other non-ferrous materials (ISO N group of application) requires a sharp cutting edge and a polished rake face. The chip-splitting capability of a cutting edge is an additional tool to improve performance. The serrated edge geometry of the single-sided triangular HELI3MILL inserts, which have proven themselves as real workhorses in 90° milling, are cost-effective tools.

Given case studies convincingly confirm the conclusion that the possibilities for improving 90° indexable milling cutters are not exhausted. A fresh right-angle on the cutter design will lead to an attractive solution, even when considering the redundancy in developing new insert geometries.

A serrated cutting edge of HELI3MILL inserts enables high-performance milling of non-ferrous materials.

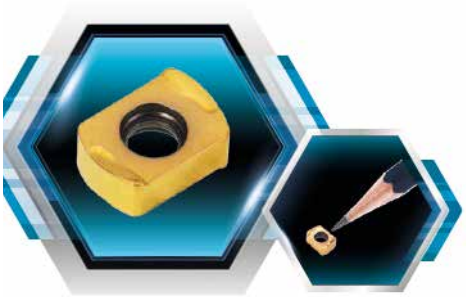
For more information, please contact ISCAR South Africa (PTY) LTD – Tel: 011 997-2700.

CHASE 4 FEED
HIGH FEED MILL

VERSATILE HIGH FEED MILL WITH STRONG 4 CUTTING EDGE INSERT

To meet market demand, smaller double-sided four corners designed BLMP 04 inserts have been launched for small and high feed machining applications.

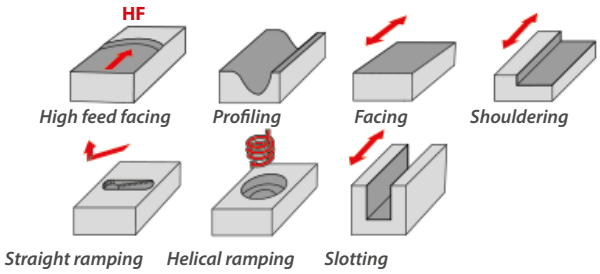
The smaller size inserts mean more inserts can be mounted to the same diameter cutters, which will greatly improve productivity over the existing BLMP 06 type under similar conditions. Available in Ø8(1z) and Ø10(2z) sizes, these are an alternative to solid end mills for roughing operations.



While both the BLMP 11 and BLMP 13 cover a similar machining range, the BLMP 11 inserts give an advantage as they make it a finer pitch same diameter cutter for better productivity.

The cutters come in all types: face mill, end mill and modular types.

As part of the new campaign, the design for the new CHASE-4-FEED line highlights TaeguTec's new direction, while the new CHASE-4-FEED logo will be applied to the BLMP 06, 09 inserts and cutters as well.



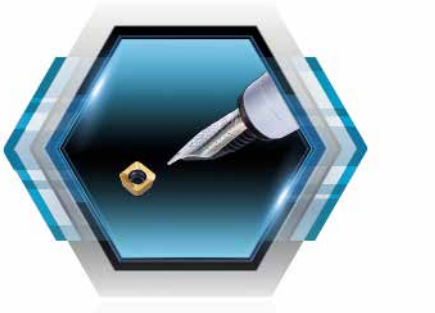
For more information please contact TaeguTec – Tel: 011 362-1500.

SBMT 06 SMALL INSERTS AND CUTTERS FOR HIGH FEED MACHINING

With the recent addition of the SBMT 06 small insert to the existing 09 and 13 size inserts, the CHASE-FEED line has been expanded.

The SBMT 06 insert is suited for low depth of cut operations, such as less than 1 mm, while the finer pitch cutters, with more teeth, improve productivity. In addition, the smaller insert has a large 3 mm thickness and high helix cutting edge, which enhances rigidity and results in excellent performance.

The SBMT 06 insert line includes cutters in end mill-, modular and face mill types, while end mills and modular types are available in the 16-32 mm range and face mills in a 32-63 mm diameter range. All SBMT 06 line tool holders are coolant capable, due to their built-in through hole design.



The SBMT 06 inserts are available in 2 geometries, such as 'M' for general purpose, 'ML' for difficult-to-cut materials, including stainless steel, heat resistant alloy and unstable conditions.

For more information please contact TaeguTec – Tel: 011 362-1500.

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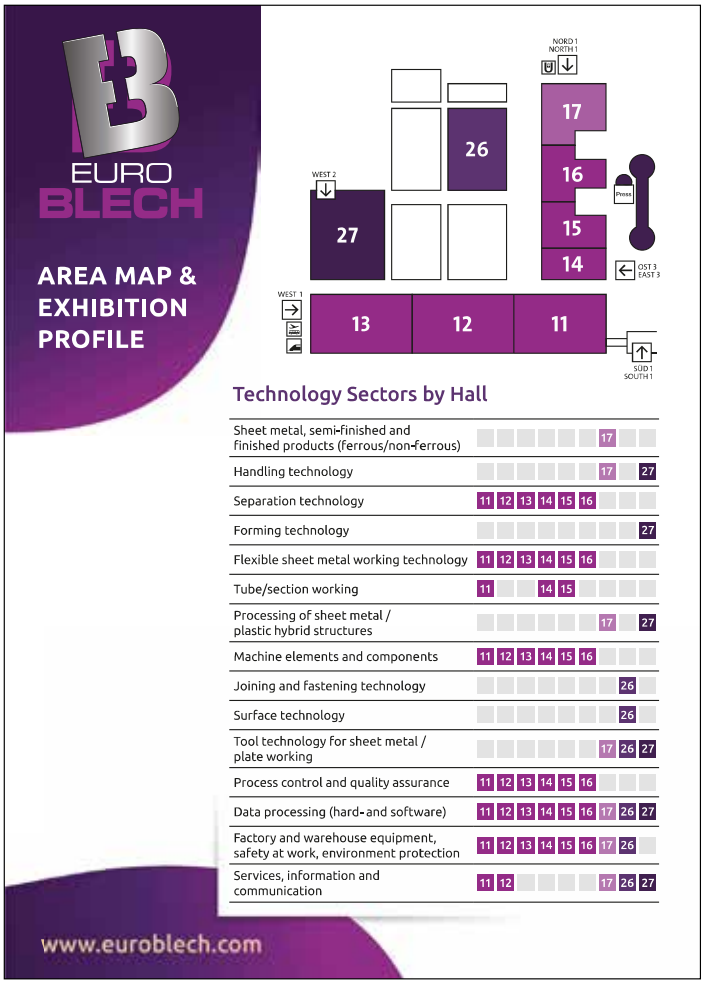
EUROBLECH 2022 – YOUR GATEWAY TO A SMARTER FUTURE

After four years, the sheet metal working community is eagerly awaiting its leading meeting place for the industry. EuroBLECH 2022, the 26th International Sheet Metal Working Technology Exhibition, takes place from 25 – 28 October 2022 at the Hanover Exhibition Grounds in Germany. Four months ahead of the show, around 1,300 exhibitors from 39 countries already secured their stand space at the world's leading trade exhibition for the sheet metal working industry. Currently, major exhibitor countries are Germany, Italy, Turkey, China, Switzerland, the Netherlands, Spain, Belgium, Poland, Austria, Portugal and the USA. Exhibiting companies have already secured a net exhibition space of 88,600 square metres.

"A lot of innovations have been developed in the past few years, with a focus on cost and resource efficiency. While digitalisation and Industry 4.0 were topics, only large companies were realising at the previous EuroBLECH, these key drivers have now reached the factories of small and medium-sized companies, too. Exhibitors at this year's event will present everything they have on offer to innovate and digitalise the manufacturing process, along the entire sheet metal working technology chain. All these developments are reflected in this year's motto for EuroBLECH, 'Your gateway to a smarter future'. The event will offer everyone in the community the opportunity to come together and see what the future of sheet metal working looks like. EuroBLECH offers its visitors the possibility to find solutions for the recent challenges in the industry and connects them with businesses from all over the world to help them integrate the latest machinery and software into their manufacturing process.



An event that can't be missed!", says Evelyn Warwick, Event Director of EuroBLECH, on behalf of the organiser Mack-Brooks Exhibitions.

EuroBLECH is the must-attend event for design engineers, production managers, quality managers, buyers, manufacturers, technical directors and experts from associations and R&D in order to discover the latest trends and machinery in sheet metal working. Visitors to this year's show can expect the complete spectrum of intelligent solutions and innovative machinery for modern production in sheet metal working, which are presented in form of numerous live demonstrations at the exhibition stands.

"With international travel restrictions to enter Germany from abroad fully lifted, we can't wait to welcome back our international audience to the world's leading sheet metal working technology exhibition. Our exhibitors are already busy preparing their participation for the long-awaited return of the show in October. Equally, we are getting a lot of requests from visitors planning their trip and visa", concludes Evelyn Warwick.

Visitor Information

EuroBLECH is the largest exhibition for the sheet metal working industry worldwide and is the marketplace to discover and source the latest innovative manufacturing solutions. Numerous live demonstrations at the exhibition stands offer trade visitors the opportunity to experience machines and systems from all areas of sheet metal working in action. The EuroBLECH exhibition profile covers fifteen technology sectors and therefore covers the entire sheet metal working technology chain: sheet metal, semi-finished and finished products, handling, separation, forming, flexible sheet metal working, tube/ section processing, joining, welding, additive manufacturing, surface treatment, processing of hybrid structures, tools, quality control, CAD/CAM/CIM systems, factory and warehouse equipment as well as R&D.

The exhibitor list, available on the EuroBLECH website, is regularly updated and provides plenty of information on exhibiting companies, such as exhibitor profiles, company videos and contact details. The EuroBLECH e-news, which is sent out frequently ahead of the show, offers the latest news about the event, the exhibitors and the industry sector. The subscription form for EuroBLECH e-news is also available on the website www.euroblech.com. On social media, EuroBLECH can be followed on LinkedIn and YouTube. The official hashtag is #euroblech.

EuroBLECH 2022 will be held in halls 11, 12, 13, 14, 15, 16, 17, 26 and 27 at the Hanover Exhibition Grounds in Germany. The opening times are from Tuesday, 25 October 2022 to Friday, 28 October 2022, from 9:00 to 18:00. The ticket shop is now open for visitors to purchase their tickets to the event ahead of the show. International flight connections, as well as the excellent local infrastructure make the venue in Hanover easily accessible by plane, car and public transport.

Visitors requiring a visa to travel are recommended to start their preparation as early as possible. Further information is available in the Travel hub on the website. Further detailed information about the exhibition, as well as travel and accommodation, is available on the show website www.euroblech.com.

SOUTH AFRICA SELECTED TO HOST HIGH-PROFILE GLOBAL MANUFACTURING EVENT

The focus of the global manufacturing industry will be on South Africa next year as representatives of 22 countries meet in Cape Town for the 16th World Conference of the International Special Tooling and Machining Association (ISTMA). Tooling and machining are key constituents in the supply of manufactured goods. The International Association's triennial World Conference, General Assembly and constituent meetings of regional groupings ISTMA Europe, Americas, Africa and Asia will coincide with the All Africa Expo and the event will collectively be known as All Africa Expo ISTMA 2023. The Production Technologies Association of South Africa (PtSA), the industry representative body for the tooling manufacturing industry in SA and the only African member association of ISTMA World, will host All Africa Expo ISTMA 2023.

Bob Williamson, President of ISTMA World.

The President of ISTMA World, Bob Williamson, says the 16th ISTMA World Conference will take place in Cape Town from 18 to 22 September 2023. This follows a unanimous decision by ISTMA World to move the Association's 16th World Conference, originally scheduled to take place in Shanghai, China in 2023, to Cape Town due to Covid-19 restrictions in China. The decision was made at a General Assembly meeting attended by 14 member countries in Stuttgart Germany in May this year. Williamson says the decision was supported by the China Die & Mould Industry Association (CDMIA). CDMIA

will now host the 17th ISTMA World Conference in Shanghai in June 2026.

He welcomed the decision and said it created a win-win solution for ISTMA and both China and South Africa. Williamson says All Africa Expo ISTMA 2023 will focus on sustainable developmental approaches and ways to optimise technical and skills development in manufacturing.

ISTMA World is a non-commercial international association serving as a global platform for cooperation and knowledge sharing between 23 member associations in 22 countries in the tooling and machining industry. Collectively, ISTMA member associations represent more than 8 000 companies with a collective annual turnover in excess of 120 billion U.S. dollars.

The Group Chief Executive Officer of PtSA, Tapiwa Samanga, says the event will offer significant benefits to manufacturing in Africa as the local tooling manufacturing industries will be exposed to the latest global manufacturing technology, the world's leading tooling houses and the most influential people in the industry. He emphasises that All Africa Expo ISTMA 2023 can serve as an important catalyst to ignite the growth of the African tooling manufacturing sector. "African countries have policy frameworks to promote manufacturing but sometimes lack the knowledge, resources and networks. Governments and industry should focus on the key role of tooling in the establishment of a sustainable manufacturing economy. This was the blueprint for the successful turnaround of the SA tooling industry and can offer valuable lessons to other African countries", says Samanga. Global linkages and relationships will be key to the success of the new African continental manufacturing renaissance. It will create awareness of how the factories of the future will look like and familiarise African tooling manufacturing companies with the advanced digital technologies of the 4th Industrial Revolution. It is the only way for Africa to become globally competitive" Samanga says. "The All Africa Expo will furthermore serve as the prime showcase for tooling manufacturing in Africa. It is expected to draw exhibitors and visitors from at least ten countries across the African continent. The Expo will feature country pavilions and exhibitions by African production technology companies. The comprehensive display will highlight manufacturing pockets of excellence on the continent, including high-end machine tooling products for the automotive, drone manufacturing and packaging industries worldwide."

The Expo will host an African Investment Indaba Conference to solicit support and investment for the growth of manufacturing on the continent. The formation of an ISTMA Africa Forum will also be formalised at All Africa Expo ISTMA 2023 to assist with Africa's economic recovery. This follows extensive discussions between industry and government representatives of Botswana, Malawi, South Africa, Uganda, Zimbabwe, Zambia, the SADC Business Council and the East African Economic Community. Zimbabwe has consequently already established the Zimbabwe Tool, Die and Mould Association with the help of PtSA in anticipation of the rejuvenation of the continent's tooling manufacturing industry. Zimbabwe Tool, Die and Mould Association will become the second African member of ISTMA.

Samanga says All Africa Expo ISTMA 2023 comes at a crucial time – "not only is global warming driving a move away from conventional forms of energy use, but the war in Ukraine underlined the world's dependence on gas and oil. These events are speeding up the process of change to alternative forms of energy, including electric vehicles. From a resources point of view Africa boasts a significant part of the world's cobalt, manganese, titanium and graphite – all the ingredients globally driving the development of new generation lithium ion technology. Africa needs to seize the opportunity for beneficiation of its resources by developing high-end technology in fields like green energy production. Africa has a history of incredible innovations and needs the access to the technology, networks and investment on offer at All Africa Expo ISTMA 2023 to take manufacturing on the continent to different strata."

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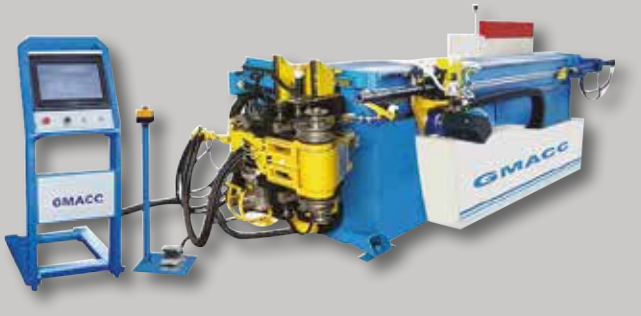

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SAISC – FORGING A STRONG FUTURE FOR THE LOCAL STEEL SECTOR

Amanuel Gebremeskel, Technical Director, SAISC.

Denise Sherman, Marketing Director, SAISC.

Despite the current turmoil in the Ukraine / Russian war zone, South African steel supplies have not been badly affected, even though these warring countries are two of the world's largest steel producing and exporting countries, together accounting for some 20 percent of the European Union's imports of finished steel products. Nonetheless, the local steel industry still faces challenges of its own, which the Southern African Institute of Steel Construction (SAISC) is poised to assist with. This is according to Amanuel Gebremeskel, Technical Director at the SAISC.

He says, "we are satisfied that the war in Europe will not create a local steel supply shortage, at least for the moment. It should also be noted that as a country, we are a primary steel producer ourselves and an importer of steel from China, so there is still a steady supply of steel currently. Nonetheless, we are keeping a careful eye on the availability of supplies and other local challenges which must be addressed," he adds.

"The SAISC is well-known as a custodian of steel industry knowledge and standards and proud of its willingness to innovate, adapt and be an industry trailblazer!" comments Denise Sherman, SAISC Marketing Director.

Sherman says that following two years of the global Covid-19 pandemic and several years of steel sector difficulties prior to that, the sector requires a champion now more than ever.

Gebremeskel points out that the steel industry plays an important role in South Africa's economy. "As such, the SAISC has been the sector's official representative body, pioneering and championing its interests, innovation and development since its founding in 1956 and the Institute is respected for its reservoir of authoritative technical knowledge and its role as the collective voice of the steel construction industry."

In fact, with access to over 60 years' worth of local steel industry project case studies and an impressive number of experienced and highly-qualified team members, the SAISC is one of only six Institutes of its kind in the world and an extremely valuable resource for the local steel industry.

"It is our particular strength to be able to see the bigger picture, while liaising with role players and organisations across the steel value chain. From engaging with the primary steel producer, merchants and fabricators to consulting with engineers, specifiers and architects on technology and design recommendations, we play a key role for decision makers across the steel industry. The SAISC therefore encourages interested and eligible professionals to join as members, particularly engineers and fabricators and also looks forward to partnering with an increased number of large engineering companies, which perform such a key role in building the nation," he explains.

"In this way, we hope to play a unifying role, helping South Africa to reindustrialise and thereby strengthening our economy. We are currently hard at work on one of the most important events in our annual calendar, the SAISC Steel Awards, which celebrates the use of steel in both industry as well as daily life, and showcases our role in fostering a spirit of innovation and a paradigm of excellence across South Africa's steel value chain," he says.

Sherman adds that during the lockdown period, the SAISC and its members, like most organisations around the world, adopted a remote and digital way of working. "This model definitely kept the wheels turning during the first two years of the pandemic. At the same time, the SAISC was changing to keep pace with a younger average industry age of its engineers and the on-boarding of a new digital generation.

"We have, however, started implementing face-to-face meetings again, wherever possible. In essence, we are preparing to foster a hybrid future, in which we continue to embrace digital working, while preserving our strong heritage of facilitating in-person relationships and networking."

Sherman notes that the SAISC is very excited about playing its part in the reinvigoration and repositioning of the local steel industry: "The revitalising South Africa's downstream steel industry is something that we strongly endorse. The steel industry as a whole is able to drive job creation and assist with the rebuilding of the economy.

In fact, the South African steel industry has a real opportunity to shine, not just locally but in terms of being a primary steel producer and therefore being able to export steel, given the supply chain issues currently at play in Europe and the United States," she concludes.

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SOUTH AFRICAN MANUFACTURING SECTOR DEFINED BY RESILIENCE AMID COMPLEX CONDITIONS

Amith Singh, Head of Energy at Nedbank, unpacks the turmoil and the potential in the manufacturing sector

The manufacturing landscape in South Africa has undergone a fundamental shift over the past two years thanks to several complexities that have had an impact, both locally and globally. In the country, the power supply remains a significant obstacle, while global instability, port complexities and rising fuel prices add their own challenges to the mix.

However, in spite of these issues, the manufacturing sector has shown impressive resilience and an optimism that is set to promote growth.

In the first quarter of 2022, the South African economy grew by 1,9% at the back of a 1,2% growth in the last quarter of 2021, returning the country to its pre-Covid-19 pandemic levels. The manufacturing sector showed an increase of 4,9% in the first quarter, making it a solid contributor to the overall economic performance of the country. That said, it is unlikely that this growth will be reflected in the second quarter of 2022 due to the floods in Kwa-Zulu Natal, the ongoing conflict between Ukraine and Russia, China's zero-Covid measures and the strain on the electricity supply. The latter has hindered the sector as many of the specialised machinery and equipment required to keep manufacturing plants fully operational need start-up times. Plus, with a period of two hours without electricity, machinery is not optimised or fully used for up to eight hours.

That said, the country has come a long way in adapting to this volatility and it is likely to continue with this level of strength and resilience into the rest of the year. Some of the successes that have stood out over the past two years have come from companies that have streamlined their operations and diversified their offerings, both vertically and horizontally. This has meant they have been able to implement more stringent measures around cash flow and resources and this has kept the companies operating and measurably improving. There's also been a visible increase in the adoption of e-commerce channels and companies embracing technological advancements to further optimise processes and drive performance.

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We recognise that it is important for the sector to not just navigate local challenges with ease, but international ones as well. This is why we've made it simple to navigate international markets with a suite of international banking solutions and providing access to global networking opportunities that connect clients with international trade opportunities.

Our value proposition rests not just in our capabilities and customised solutions, but in our partnership approach. Our clients in the manufacturing sector benefit from a partner that's committed and brings industry expertise that will support them as they grow and invest and provide sound financial strategies based on deep insight.

For more information about our specialist manufacturing services, email us at manufacturing@nedbank.co.za.

BETTER TOGETHER – B.E.D. AND FIRST CUT

In 2019, Bolt and Engineering entered into an agreement with First Cut, distributor in South Africa for Messer Cutting Systems, a global supplier of cutting solutions for the metalworking industry. According to the agreement, B.E.D. and First Cut, South African provider of cutting, welding and grinding consumables and equipment, would jointly distribute Messer's products and solutions in South Africa.

B.E.D. CEO Mike Giltrow explains: "While we are very pleased to be part of this collaboration, B.E.D. will focus on Messer Cutting Systems solutions for the mining industry, where we are particularly well-established and First Cut will remain the primary distributor to the metal fabrication and other sectors. We both have decades-long experience and faced many similar challenges, so our relationship is built on strong foundations.

Andrew Poole, Managing Director of First Cut, concurs: "B.E.D. was an excellent choice of collaborative partner, with many benefits for Messer customers. These include their strong local presence in the mining sector and nationwide footprint of nine branches, two of which feature dedicated welding and cutting repair centres. In addition, factors such as B.E.D.'s Level 2 B-BBEE credentials, together with their very active sales force and mobile welding technical support teams made the decision to partner with them a very good one."

Giltrow adds that both companies are very pleased to be working together with the mutual goal of growing and elevating Messer Cutting Systems brand profile and market penetration locally. "This is a re-emergence of the brand in South Africa," he enthuses. "From B.E.D.'s side, we are excited to be working as a certified Messer distributor along with First Cut to grow this global brand and introduce it to a new generation of Messer customers in South Africa."

Gas safety training

Quality and safety are of paramount importance to both B.E.D. and First Cut. This is further evidenced by the recent merger of interests, in late 2021, between First Cut and Gas Safety International (GSI).

Explains Poole: "The welding process follows on naturally from cutting, forming the next integral part of the fabrication and manufacturing value chain. The merger of interests with GSI, headed by Managing Director Peter Rohlssen, brings synergies, strengths and new offerings to the table, specifically with regards to gas safety training, consulting and auditing."

Poole points to the currently strong commodities market, which has boosted mining and that mines are consequently well-placed to reinvest in aspects such as gas and welding safety training, a critical factor in their daily operations.

"Together with GSI, we have developed three gas safety courses – Levels 1, 2 and 3. This includes an introductory gas safety course presented in English and several local African languages along with an oral test on completion, which takes into account those participants who perhaps are not fully literate and cannot complete written examinations," he explains.

Cont. on page 36 ☞

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SAFETY UNITES – COMPRESSED GAS SAFETY CONFERENCE

The joint Safety Unites: Compressed Gas Safety Conference held recently in Johannesburg, represented a collaboration by the Bolt and Engineering Distributors (B.E.D.) Group, First Cut, Gas Safety International (GSI) and Germany's Messer Cutting Systems: a powerful partnership between industry peers, uniting stakeholders across the compressed gas value chain, for the ultimate safety and benefit of all.

The conference also served as a platform from which to launch a new patented oxyfuel system which will represent a revolutionary step forward for compressed gas safety in industry.

☞ *Cont. from page 34*

Giltrow remarks that these gas safety training courses will be well-received in the mining sector, and this will enable B.E.D. to add further value to customers in this pivotal national industry.

Peter Rohlssen, MD of GSI, comments: "Having presented gas safety courses in South Africa for the last 30 plus years largely on our own, it is now a fantastic opportunity to extend our reach via the very well established and connected First Cut and B.E.D Group."

Martin Zeller, Division Manager Sales: Oxyfuel Business Unit at Messer Cutting Systems says: "We really appreciate the way in which this dynamic collaboration has developed and have great respect for the obvious trust that this shows between B.E.D., First Cut and GSI.

"We are also most appreciative of the high regard that is paid to the role of safety amongst the partners which aligns with Messer Cutting System's own proactive approach to safety. These strategic partnerships have given us the possibility to roll out our knowledge and expertise into the African market and the mining industry."

From left to right: Ian McCrystal, CEO of First Cut, Peter Rohlssen, Managing Director of GSI, Mike Giltrow, CEO of the B.E.D. Group, John Emholz, Global CEO and President of Messer Cutting Systems, Martin Zeller, Division Manager Sales: Oxyfuel Business Unit at Messer Cutting Systems.

Critical need for compressed gas safety and training

Mike Giltrow, CEO of the B.E.D. Group explains: "Compressed gases have multiple applications across all industries, including mining. However, incorrect use thereof brings with it some serious potential hazards. Gas safety issues can therefore cause injury and even fatalities – affecting companies' productivity, share price and reputation – not to mention the obvious and most important consequence of loss of life and human tragedy."

Peter Rohlssen, Managing Director of Gas Safety International (GSI) concurs: "Numerous incidents and fatalities have occurred locally and globally in the past. Yet most of these could have been prevented with proper safety awareness and training."

Rohlssen notes that one of the worst compressed gas safety incidents South Africa has ever seen occurred on 16 September 1986, when the Kinross Mining Disaster, an oxy/acetylene- related incident, claimed the lives of 177 people.

"This infamous tragedy highlighted the dangerous consequences of not following the prescribed compressed gas safety procedures and protocols – and the critical importance of compressed gas safety awareness and training," he explains. "As part of many investigations related to compressed gas safety, I have noted that its general awareness across industries rises and falls in a cyclical fashion. These days, adequate and appropriate compressed gas safety training is needed more than ever – but there are few who can provide it."

Rohlssen advises that together with colleagues and fellow conference partners the B.E.D. Group, First Cut and Messer Cutting Systems, GSI is strongly advocating for industry to be more aware and proactive regarding compressed gas safety.

The four companies have therefore come together to underscore the importance of awareness, knowledge and training across all sectors of the local compressed gas value chain - and to introduce a revolutionary patented oxyfuel system to the market, in a global first.

Cont. on page 38 ☞

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☞ *Cont. from page 36*

Powerful partner synergy

Ian McCrystal, First Cut CEO, explains that the Safety Unites - Compressed Gas Safety conference came about because of the synergistic relationships already in existence between the four conference partner companies.

"In 2019," McCrystal clarifies, "First Cut became the primary local distributor for Messer Cutting Systems. To ensure that our differentiating feature would be around safety factors, we entered into a relationship with Peter Rohlssen, owner of GSI, who brought tremendous experience and credibility to our offering via compressed gas safety training, consulting and auditing.

Additionally, we entered into an agreement with the B.E.D. Group in 2019, whereby First Cut and B.E.D. would jointly distribute Messer products in South Africa, with B.E.D. focusing on the mining industry, and First Cut remaining the primary distributor to the metal fabrication and other sectors."

Giltrow adds: "This resulted in a deeply synergistic relationship between all four companies, with each party contributing to an excellent fusion of expertise and interests. The conference was therefore the perfect platform via which to launch our ground-breaking triple-patent product offering related to compressed gas safety."

Martin Zeller, Division Manager Sales: Oxyfuel Business Unit at Messer Cutting Systems, adds: "Compressed gas safety is a critical issue globally, and it is imperative for us to protect the lives of those using it across multiple industry sectors. We are pleased that our synergy is working to highlight the importance of compressed gas safety, and that it has also produced this world-first patented oxyfuel system.

Internationally, we are not aware of any similar synergistic partnerships in the compressed gas safety and training arena – the collaboration between the four conference partners is truly unique."

Conference highlights

McCrystal advises that conference highlights included live compressed gas safety demonstrations by GSI's Peter Rohlssen and Axel Vogelsang, Key Account Manager Western Europe and Africa for Messer Cutting Systems.

Speakers included Leigh McMaster, Principal Specialist: Safety and Behaviour, Minerals Council of South Africa; Wilco Uys, keynote speaker and mining professional; Dr Thabo Mashongoane, Acting CEO of the Mining Qualifications Authority (MQA); John Emholz, Global CEO and President of Messer Cutting Systems and Dr Rüdiger Lotz, Deputy Head of Mission at the German Embassy in South Africa.

"Another key highlight was also the launch of the world-first patented product offering which our collaboration has recently produced," he adds.

Launch of leak-proof oxyfuel system

Rohlssen continues: "Compressed gas safety risk is centred around people, product and process. However, the human factor is always the weakest link. We were therefore very pleased to launch our world-first patented leak-proof oxyfuel system at the conference today, specifically for the industrial and mining sectors, which will revolutionise compressed gas safety.

The system involves three newly-patented Safety Advanced Technology (SAT) components (process, valve and cutting torch) to mitigate for the risk of workers not checking for gas leakages before they use oxyfuel equipment. I believe this really demonstrates the relevance and success of this unique four-way partnership!"

Adds Giltrow: "B.E.D.'s infrastructure and footprint, and our strong relationship with the local mining industry, will play a key role in rolling out this new SAT patented product offering, via our Export division. This will ultimately greatly contribute to improved compressed gas safety within the local and pan-African mining sector."

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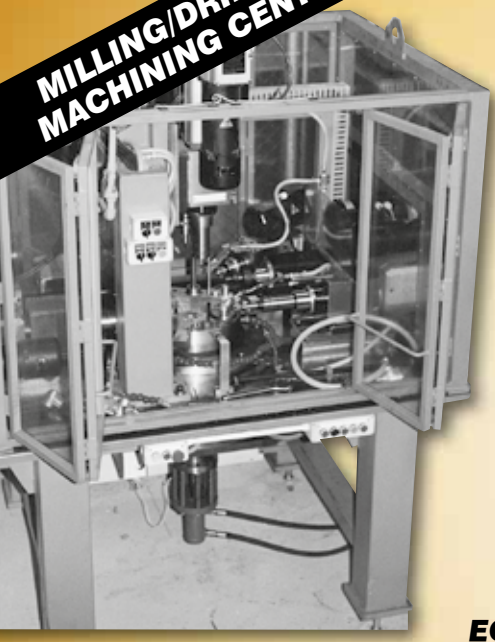

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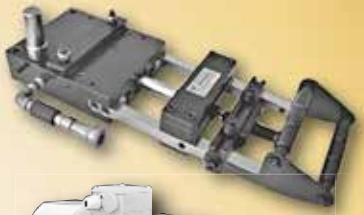

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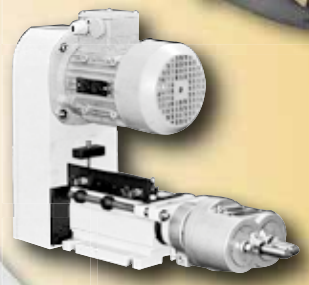

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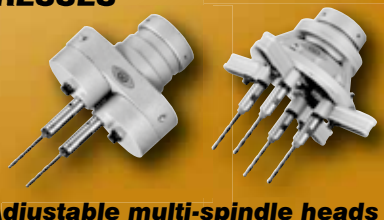

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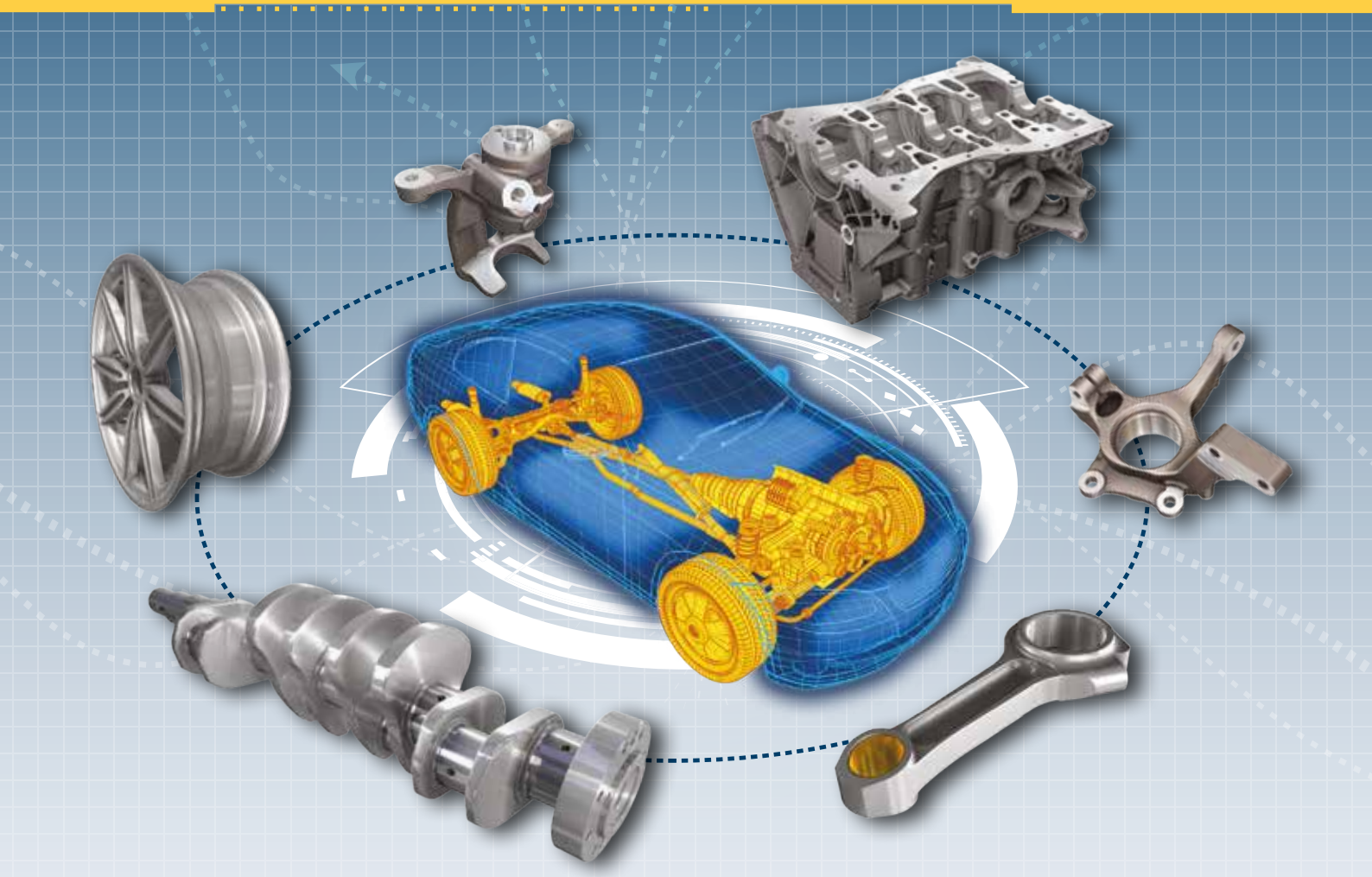

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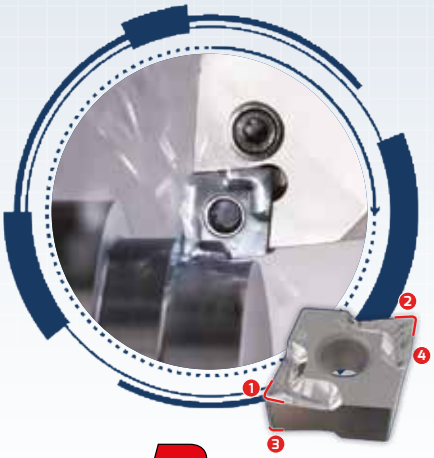

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