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Machine Tool Market
SOUTHERN AFRICA
November/December 2022
Volume 31 No.6

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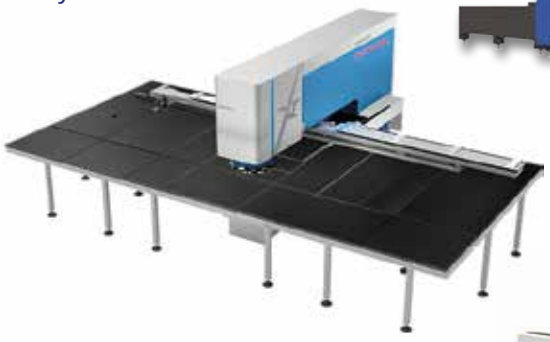

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VPSS
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LASER – AUTOMATION AND SORTING

In the world of laser cutting systems, automation plays an increasingly important role. The cutting speeds achieved today have shifted the attention of many companies to the loading and unloading operations, which often risk becoming dangerous bottlenecks. But navigating among the various solutions available on the market, and choosing the one most suitable for your own specific needs, is a matter which is anything but trivial. We asked Pierandrea Bello, Salvagnini Product Manager for laser technologies, to answer some of our questions.

Pierandrea Bello, Salvagnini Product Manager.

Pierandrea, it is now abundantly clear that automation is the keystone for optimizing production. Salvagnini's laser automation range has always been very extensive and modular, allowing each system to be configured differently to suit different production needs. In your experience, which solutions are most popular with the market?

Laser automation is certainly one of the most interesting trends we have seen develop over the last few years. And as you quite rightly highlighted, automation has a positive impact not only on the efficiency of the individual machining steps, but also on that of the entire production process: this is what, in our vision, makes it absolutely decisive in the current industrial scenario. I'll give you some numbers to put it into perspective. We have used LINKS, our IoT solution that continuously monitors the data from systems connected all around the world, to assess the efficiency of different configurations, analyzing the many variables that come into play, such as the type and weight of the sheet metal used and the material handling and waiting times. The results of this study are remarkable: while stand-alone solutions have an average efficiency of around 60%, automated systems have much higher efficiency values, reaching 80% or even 90%, if we take our LTWS store-tower into consideration. This study also allows us to understand why, over the last few years, the LTWS store-tower has been the most widely requested automation in combination with our L3 and L5 models. Over the last three years, 50% of our customers who have invested in automated loading/unloading have chosen LTWS to complete the configuration of their system. LTWS, in configurations from 6 to 38 trays, with its ultra-rapid cycles and high autonomy, is an extremely compact high-end solution. It is available in compact, single- or double-tower versions, with wooden pallets, without wooden pallets, or mixed. In the single- or double-tower versions, the loading and unloading devices are independent, increasing process efficiency even in extremely rapid cutting programs, while the compact version offers smaller dimensions and shorter cycle times, which can be further reduced with an extra bay. Autonomy is guaranteed by the availability of multiple materials, and by the STORE software, which identifies the empty loading trays as new stations on which to stack the processed material.

In short, an enormous variety of customization possibilities are offered. But how to identify the solution best suited to a specific production context?

We do realize that the choices are numerous: for this reason, an in-depth feasibility study is always the starting point for our discussions with customers. Salvagnini's specialists work alongside them to define the most suitable configuration for their production needs, evaluating a number of variables including the field of application, the production strategy and the production mix. In the case of an LTWS store-tower, there are nevertheless some constants to take into consideration: the maximum possible dimensions, the required autonomy and operational flexibility, whether or not it is necessary to incorporate an automatic sorting device, the need to access the pallet changer, and the investment which will be required. Are you looking for a compact system? Do you have a limited budget? In this case, an LTWS Compact is very probably the solution for you. Do you have restrictions in terms of space, but need a good level of autonomy? Do you want to maintain good operational flexibility or incorporate an automatic sorting device? In this case, the best choice will probably be the LTWS. Do you have no limitations in terms of the size of the store-tower, but require the highest possible autonomy? Well then, a double-tower LTWS will be your ideal choice.

Cont. on page 8 ☞

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☞ Cont. from page 6

Pierandrea, at this point I'd like to ask you to talk a little more about unloading the cut material and skeletons, and also to clarify another concept which has come up more than once in our conversation: automatic sorting devices.

It might seem obvious, but I think it's worth saying again: without an automatic sorting device, our LTWS will return the sheet metal to the store-tower, and the operatives will then have to separate and stack the parts. In this kind of situation our software will always offer three different strategies for managing unloading: fill mode requires an unloading tray to reach its maximum capacity before being changed, while material mode involves the unloading tray being replaced on the basis of the material to be unloaded and finally, order mode involves all the sheets in the same production order being unloaded onto the same unloading trays. The operator can choose and modify the unloading strategy independently as required. On the other hand, the LTWS store-tower can achieve even higher performance if equipped with a sorting device. Salvagnini offers the TN manual sorting device, which assists operatives in separating the cut parts from the skeleton, proceeding in parallel with the cutting job. We also offer the MCU automatic sorting device, which is a solution for easily stacking parts with different geometries, sizes and weights. In addition to the standard sorting strategy, MCU can work in multi-gripping mode, picking up several parts in sequence with the same gripping device or in double-picking mode, reducing the time needed to pick up the parts. The MCU has very few limits: it can pick up thicknesses of between 0.5 and 12 mm and weights of up to 65 kg for each manipulator or 130 kg when the two gripping devices work together. The flexibility and extreme mobility of the manipulators, which can rotate a full 360°, removes all geometric constraints: the gripping devices can pick up any part, whatever its maximum size or shape. The minimum dimensions, on the other hand, are 100x200 mm. But to overcome the dimensional limitation when unloading parts below the official threshold and to prevent automatic sorting from reducing the sheet metal yield, Salvagnini now offers the new smart cluster function. Smart cluster is used to micro-joint parts together quickly and easily, without using a cutting frame and without making programming more complicated in the office. At the same time, smart cluster is yet another solution for reducing total unloading times. The MCU is managed by the Salvagnini CM software, which automatically defines the grips, automatically generates the unloading sequences and positions the stacks of parts in the unloading areas. The interface is easy to use, allowing manual interaction and fine tuning. CM can be used both in the office and on board the machine. The MCU integrates perfectly with the whole range of Salvagnini automations, making the operators' work easier, drastically reducing waiting times between the end of the cutting and the start of the next processing. It can make single parts immediately available for downstream processing in urgent cases, or physically integrate the laser with downline panel benders, press brakes or robotized bending cells.

Pierandrea, from what you're telling us, choosing an automatic sorting device is a real paradigm shift which can lead to doubts and uncertainties. Is the investment in this kind of device justified? What is the return on investment?

Those are good questions. As regards the return on investment, the MCU can reduce the labor required for part sorting by over 80%: this is a significant parameter. So clearly, even if we consider only the reduction in operating costs, the return on investment time is really short. But the MCU also guarantees significant technical advantages: the high flexibility in terms of the materials, thicknesses and sizes that can be unloaded without having to reconfigure the gripping devices is a fundamental aspect for managing highly variable productions. With multi-gripping, double picking, and smart cluster, sorting times are very low and masked for most nests. The rapid, easy-to-use software can automatically manage the majority of activities. The MCU is extremely reliable, while the overall dimensions of the unloading areas required to guarantee operating autonomy are generally less than those required for manual sorting. So there are really many good reasons for investing in an automatic sorting solution. The clearest benefits derive directly from the elimination of manual sorting activities: a reduction in operating costs and in problems relating to the availability of labour and the risk of accidents, as well as the reduction in waste linked to handling damage, which may be frequent during separation. But equally important is the possibility to plan the sorting times very precisely, as the automatic device makes these constant and repeatable, as well as the possibility to separate the material produced during any unmanned shifts. But there are three more advantages to automatic sorting: the first is that it optimizes the production flow as it makes the material available sooner for sending to the downline workstations, the second is that it simplifies part traceability by grouping parts by order, kit or subsequent workstation, depending on the production strategy, the third is that it increases the overall flexibility of the system.

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

AUTOMATION ON DEMAND

Bystronic's Gerrit Gerritsen, Product Manager Bending & Automation describes the benefits of a fully automatic bending cell.

Not so long ago, automation was associated only with repetitive tasks. High - and consistent quality, as well as reliability over very long periods are decisive factors that ensure the profitability of automation in production environments. However, more complex jobs that require a high degree of customization in the manufacturing process are still often performed manually. This is currently a widespread approach in the sheet metal processing sector.

However, our industry has experienced a major transformation over the past five years – indeed, one could say it has been forced to transform. Increasing price pressure in the markets and the lack of skilled personnel are just two of the reasons for this, in addition to increasingly dynamic and uncertain business environments.

It cannot be completely dismissed that both, manual processing by a human operator and automated manufacturing, each have their advantages and disadvantages. Accordingly, every decision in favour of or against automating a process is a balancing act involving many production-relevant variables. In addition to productivity and quality, flexibility is an undeniable competitive advantage of any supplier in the manufacturing industry, especially in view of increasingly dynamic business environments.

This is a dilemma that has led to a backlog of automation, especially in the sheet metal processing industry, however, when users do not wish to accept any compromises in terms of flexibility, productivity and consistently high quality, the demands on the machines increase.

Bystronic's Mobile Bending Cell addresses these demands and implements them by applying intelligent technology. In short, the solution is called automation on demand. The users' requirements are particularly wide-ranging when it comes to bending technology. Being able to bend parts with extremely complex geometries in small batches while simultaneously being capable of handling the high-volume processing of simple geometries is a major challenge that many companies are currently facing. The Mobile Bending Cell combines the demand for both, extremely high flexibility, as well as high quality and productivity.

This is achieved by means of the Mobile Bending Robot, which can be positioned in front of the press brake or detached to allow manual operation. Thanks to an intelligent and fully automated measuring system, the robot references itself in front of the press brake without requiring manual intervention. Laser sensors measure the precise position of the robot relative to the press brake and reference it accordingly. This allows the press brake to be converted from manual bending to fully automated bending in less than ten minutes. The relative position of the press brake to the Mobile Bending Robot is determined so accurately that the need for manual calibration is completely eliminated.

Once individual parts have been bent automatically in the past, the process can be repeated without adjustments once the press brake and the Mobile Bending Robot have been connected. Depending on the requirements, the system can either be operated completely manually or fully automatically.

However, the "marriage" of press brake and Mobile Bending Robot is not the only critical factor for an efficient production process. The preparation of the parts that are to be bent is another process that incurs costs in every production run. For the automation on demand concept to really pay off, the process of programming the robot automation needs to be

Bystronic Mobile Bending Cell

Bystronic Mobile Bending Cell

Mobile Bending Robot

Mobile Bending Robot

innovative and fast. The Mobile Bending Cell's programming system is called Robot Manager. The robot's movements are programmed using algorithms that factor in comprehensive collision models for each relevant application. All that is required is the definition of basic positions; all the other movements are automatically defined by the software. This increases quality while reducing process idle times.

Automatic measurement of the press brake and bending automation system in combination with intelligent robot programming makes the Mobile Bending Cell the ideal solution for bending automation on demand.

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

SMART BENDING

By Gerrit Gerritsen, Product Manager Bending & Automation at Bystronic

Smart solutions to meet the demands of the market — this is what sheet metal processors require today. Good solutions are particularly in demand for bending. Machine manufacturers have many useful tools to increase efficiency and thus guarantee competitiveness.

From the smallest job shop to the biggest OEM, every manufacturer needs to get parts out faster, better, and more flexibly. Lean, just-in-time, on-demand, and Industry 4.0 are terms that have been used in this context. "Smart" could be the next key word.

Sheet metal fabricators need to employ intelligent methods that reduce costs and speed up production. At the same time, they need to be extremely flexible and efficient with raw materials and energy, including during the transport of material. In discussions with customers, machine manufacturers have noticed that sustainability and CO_2 reduction are becoming more and more important. This calls for smart solutions and the use of smarter machines.

Smarter machines make better parts, eliminating any possible errors and reducing waste to the absolute minimum – all the way down to zero waste. Simultaneously, sheet metal fabricators need to make more parts within the same time frame, switching frequently between different programs. To enable this, a lot of intelligence needs to be integrated into the machine itself. But how can the goal of zero waste be achieved? How can speed be increased at the same time? What are the hurdles to be overcome?

We see three areas where smart solutions are needed:

1. The part
2. The operator
3. The machine

ByCell Bend Smart Xact

The part: BySoft7 is the smartest way to program

Today, sheet metal fabricators need reliable file formats in which they can store as much part information as possible, DXF is outdated and can handle hardly any part information. Bystronic, for example, uses STEP 242 files, which contain all the necessary data, including material information. This is important to ensure that calculations such as unfolded length and spring back are correct. Another problem in 3D files is the bend radius: In 99% of all bends, this is merely a vague number.

For a more precise flat pattern, the program recalculates the radius with distinct formulas based on empirical information. Similarly, it pre-calculates the spring back value. This solves radius, bend deduction, and spring back problems. But there is more: The perfect bend order has to be calculated, taking into account both part handling and precision. Bystronic's BySoft7 does just that.

Tools pose another challenge: Sheet metal fabricators need a program with information on the tools they actually own, where these are located, and if they are available.

As a smart solution, Bystronic's Tool Optimizer works out the perfect production sequence for a number of parts. The program calculates the time it takes to change tools, the number of tools required, and the total

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weight an operator needs to move during a shift. In general, the set-up time and the tool weight to-be-moved can be reduced by 30%.

The last smart aspect of Bystronic's software is that it can keep track of grain direction. It is well-known that changes in grain direction result in variations in bend results and different angles. Bystronic press brakes remember the direction in which a part was nested and can adapt the angle according to this direction.

Customers now have the best of both worlds. They can optimize their laser nests to reduce material waste. They can then also reduce part waste, thanks to the program knowing the direction of nesting and adapting angles accordingly.

The operator:
Smart hidden help features

Operators need very clear information on required tasks. Most operators have limited experience with the huge variety of bending machines on the market. Machines and operators change at a faster pace than they did in the past. Bystronic helps operators by reducing text to an absolute minimum — after all; a picture is worth a thousand words. Any remaining text is displayed in the operator's own language. Bystronic helps by providing clear instructions for where to put which tools.

ByCell Bend Smart Xpress

Xact Smart

PartID

The next step for operators using smart solutions can be taken with our camera-based Optical Tool Detection system. Cameras monitor the tools and tell operators everything they need to know. The system can even recalculate the complete program for an imperfect tool set-up. Finally, an automatic tool changer can be used for ultimate smart manufacturing. This prevents any potential errors. The operator calls up a program and the tool-changing robot quickly places the correct tools in their correct positions.

In addition, our sheet thickness measuring system helps operators when they need to work with varying sheet thicknesses. The machine automatically measures material thickness and compensates for any deviations from the programmed value.

It is also smart that Bystronic takes care of tools and machines. With smart sensors, Bystronic constantly check forces and verify measured values against the maximum admissible values in the machine parameters.

The machine: Smart deformation compensation

Machines deform during the bending process. Bystronic's smart machine software compensate for all deformations: side frame deflection, crowning, temperature, and part position. This automatic compensation is done during bending, in real time and without the operator needing to intervene or correct. This is very important, as the smart compensation system makes Bystronic machines completely deformation neutral. The operator can bend any part on any machine – the results are always exactly the same.

As a result, all Bystronic bending machines are compatible with each other, and production can be swapped from one machine to another without any recalculation. The customer's machine park therefore becomes very flexible. These are the benefits of smart solutions.

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

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AMADA AUTOMATION SOLUTIONS

Ever-growing need for production has resulted in companies looking for unique methods of manufacturing with faster production times, less human intervention and ultimately less cost.

Labour costs play a huge role in production and the faster a product can be produced, the higher the profits.

In sheet metal applications, this is a difficult target due to the various stages of production such as blanking, bending, welding, grinding, painting, assembly, testing and packaging. These various processes are each a headache on their own.

Beginning with the blanking process, the designer needs to have a good understanding of the completed product and its intended use or application. This person also needs to have a good understanding of the capabilities of the machinery being used as well as the materials being processed.

The automation process begins by use of a CAD drawing system. Rendering a 3D model in Amada's Sheetworks 3D software, the full product can be viewed, operated/animated and broken down into single part items. This process eliminates trial production and the waste of materials, time and resources.

Ultimately, all proto-typing can be done on a PC in the 3D environment, while the customer can sign off for the start of production before a single part or sample is physically produced. The process from creating the drawing to tool fitting and programming is executed by a few clicks on the PC mouse. The automated system will then separate material types and material thicknesses, it will nest the parts according to the parameters set and will program it accordingly for the selected machine.

Once completed at the programming stage, the programs are transferred from the PC to the machine by employment of a job card with a bar code attached. The use of a bar code scanner at the machine control will instantly display the program and rendering it immediately ready for production.

The scanning of the bar code will ensure that production throughput is handled in the correct sequence, thanks to the programmer who creates a production schedule according to the importance of the work. Once ready to begin with actual production, there is an additional automation option for material storage and material handling, too. These systems (ASF-H or ASR tower storage systems) & MPL (material manipulation

system) are capable of loading the raw materials onto the table of the machine, ready for production to begin. All of this is possible without the operator having to touch the sheet. Once the sheet has been processed, it is offloaded by means of the manipulator system. It then is either stacked on a pallet complete with skeleton and parts or it can be separated by means of a "TK" system. The TK system is ideal for the removal and sorting of cut parts from a nested sheet. This "picker" will remove each individual part by means of numerous suckers and will place them onto different stacking pallets – sorting parts for their next processes needed onto individual pallets. Different customers' jobs that were nested onto the same sheet can now be separated and stacked individually without any human intervention.

Bending can also be automated according to customers' needs by utilizing Amada's 3i Bend software and creating all bending programs from the initial drawing. Sequencing and tool fitting is done on the PC and trial bending on the machine is eliminated. The "teach" function on the control of the bender will assist and indicate the precise positioning of each tool as required, while prompting the operator through the bending process. In the case of the ATC (Automatic Tool Changer), the machine will automatically load and unload tooling as required for the job at hand. The ATC will drastically reduce setup times between jobs as it can load a full three meters of top and bottom tooling in just 3 minutes. Suddenly the small batch runs or single part production becomes a much faster process with far less down-time.

For long constant production runs, robotics are available to replace operators. The robotic benders are ideal for constant bending of the same parts or very large production runs. These systems are available from very small robotic systems on the EG press brakes, right up to the large – heavy duty press brakes handling parts that are too heavy for the operator.

Amada provides a total automation solution for all requirements from single sheet manipulation (MPL), to multiple sheet storage and manipulation (ASFH or ASR) to high volume sheet storage and manipulation (MARS). Everything is programmed through a central Amada data-base (VPSS3i) and fully backed by Amada's dedicated service and applications teams.

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

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TONGTAI CURATES SOLUTIONS FOR CUSTOMER PAIN POINTS

By Paul Savides, PBS Machine Tools

The current difficulties faced by manufacturing industries worldwide include a skills shortage caused by a slowing population growth rate, unhealthy dirty and dangerous working environments plus work-life balance initiatives and rising wages.

Circumstances that affect work performance have led the industry to gradually introduce automation to replace manpower. Corresponding to different production modes, unique situations need to be considered when introducing automation for any particular approach.

While in mass production, fixed products are produced over long hours, total accumulated load/unload time has a substantial impact on output. Time saving is of paramount importance and therefore, the introduction of suitable feeding units, such as robots is advisable.

If a production run involves variables, changing the line quickly is another important point to be considered. Additionally to equipment, project management and planning needs utmost focus.

Introduction of automation can bring a lot of benefits yet, sometimes after an investment, technical problems are found or maybe output is just not as good as what was expected. If the process is not perfect, any necessary modifications will force the production line to be stopped. Any defects found may be difficult to remedy if the system is complex or modifications may be extremely costly to integrate.

Therefore, Tongtai considers all possible problems from the very outset of planning, while identifying them by thorough analysis, evaluation, software and hardware integration and data management.

Hardware equipment to meet "Production Line Automation"

Tongtai supplies loading and unloading equipment, as well as peripheral devices used for testing, measuring and logistics which are most suitable for customers' production line needs.

Multi-joint

Cartesian Coordinate

Horizontal Joint

Parallel

Software system to meet Information Automation

In response to historical production and management problems, Tongtai has developed a series of software programs that enhance the Human Machine Interface (HMI), including TIHMI and TIMS which make Tongtai machines intelligent, while vastly improving efficiency and TLM whole line management software which provides real-time data of production line status.

Stand-Alone intelligent software (TIMS)

Data Management

Whole-Line networking management software (TLM))

Data Management

Management Tools to Satisfy "Management Automation"

Easy monitoring of production information to manage production status at any time.

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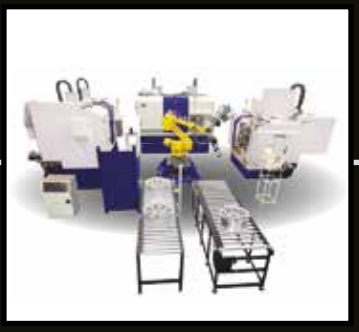
INTELLIGENT
MACHINE THINKING



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PBS MACHINE TOOLS
FOR PRODUCTIVE BASED SOLUTIONS

SKETCH 7329/2014

☞ *Cont. from page 16*

Tongtai

High mix and low volume manufacturing

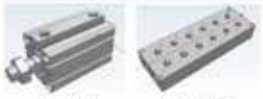
The following is an example of a customized HMLV Tongtai manufacturing line:

This multi-variable production line can be reconfigured to quickly process any length of material, even bringing a single workpiece into the system, for immediate production before returning to a previous batch.

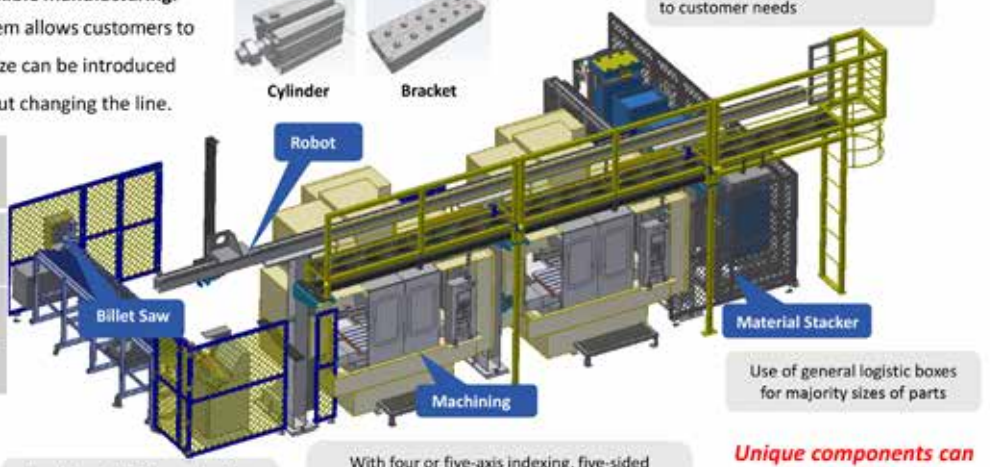
Combined production scheduling system for flexible manufacturing:
Tongtai's custom-developed manufacturing system allows customers to adjust part sizes and quantities. Even a special size can be introduced into the system for immediate production without changing the line.

- Intensive engineering (five-axis machining), short changeover time (3 minutes)
- Shared jigs and tools, minimizes change over time
- Production scheduling system is paperless and allows for automated adjustments within the production line

Graphic User Interface



Cylinder Bracket



Combined with the production scheduling system, you can place an order with a specified length

With four or five-axis indexing, five-sided processing can be achieved, and the processing program can be automatically adjusted in combination with the in-process measurement.

Unique components can also be produced instantaneously

For more information please contact PBS Machine Tools – Tel: 011 914 3360.

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FACTORY AUTOMATION WITH HYUNDAI WIA

With Hyundai WIA's experience as a world-class FA (Factory Automation) business, the company delivers automation systems to diverse industries all over the world, while continuously improving productivity.

Gantry Automation

Gantry automation is an automation method using a stocker and gantry loader. The gantry loader transfers raw material from a stocker to the machine automatically in order to start the machining process. Gantry automation provides good equipment access during operation, easy work monitoring, program modification and maintenance. In addition, a small installation area facilitates optimized factory layout.

CLICK TO VIEW

- F650 – LFA CARRIER
- L280, i-CUT420T – CAM SHAFT
- HS5000i – TM CASE
- LF2600-2SP (3unit)
- HD2200
- Valve Body Gantry Line

PLS (Pallet Line System)

Hyundai WIA PLS is an unmanned automation system for horizontal machining centres with two-storied pallet stackers. The easy to operate

and highly efficient system facilitates high productivity improvement, while flexibly responding to changes in production volume.

- Pallet Line System

Robot Automation

Hyundai WIA has delivered more than 10,000 robots around the world. With its know-how and experience, the company is globally recognized as a giant in the field of automation.

- L300A, i-CUT380T BRAKE MASTER CYLINDER
- HS6300 & L400C
- LV800AW-TT

Semi-Automation

Semi- automation is an automation system which is operated by attaching simple automation devices to a machine tool.

- KIT450 – RING GEAR
- KIT450 – MIDDLE SHAFT
- KIT450 PISTON

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- F650/50 – CARRIER
- F650/50 & LV300R KNUCKLE

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- Machining of the largest workpiece in its class
- ATC design capable of attaching the largest tools in its class

Specifications

Parts	Knuckle for commercial vehicle
Machine	HS6300 – 6 units
	F500 – 1 unit
	L400C – 4 units
Capacity per year	100 000 each
Automation system	Two carriage robot system

Vaughn: (082) 448 4991 sales@spectrumafrica.co.za

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LOOKING FOR THE OPTIMUM TOOL

How can we define the manufacturer's expectations from cutting tool producers? Cutting tool producers are expected to provide optimal cutting tool solutions for a given application. So, how is an optimal cutting tool defined for a specific application? It is obvious that standards must be set to achieve a formidable solution. Cutting tool standards are also defined by principles to enable choosing the best possible tool for a given application. Technical literature often states one tool or another as being optimal for an application. Therefore, a clear definition of the optimality standard is essential.

The criteria for finding the optimal cutting tool depends on various factors. The type of manufacturing (short-run, large-scale, mass), product range, machined materials, machinery used, cutting strategies and more have a direct impact on the manufacturer's selection of the most effective tool. The manufacturer is interested in a tool that guarantees the highest performance levels. This can be achieved by optimizing the tool geometry and producing the tool from the most relevant cutting material grade. But the chosen geometry and grade are tool key elements associated with the type of machined material. So, what is the ideal tool for cutting? An example of an effective tool for machining cast iron, will most probably not be the best solution for machining heat-resistant superalloys.

Manufacturers are faced with constant dilemmas for machining vast choices of workpieces of different shapes and dimensions. The profile of a given application may dictate a long-reach tool, whereas in other cases the large overhang of the tool will have forced limitations that decrease machining stability which inevitably affects performance.

Selecting the optimal tool is one segment of many that relate to the core of the problem critical for all machining processes, which no doubt maximizes how to machine profitability. To reach this goal, various interdepended factors are considered such as the effective use of machine tools, competent process planning, available work-holding fixtures, and tool stock management among others. All factors are subject to optimization and finding the appropriate tool may prove to be an integral link to accomplishing the task.

Modern production abilities feature highly engineered CNC machine tools with advanced capabilities. New age premium machines are costly and reduce machining cycle time which in turn diminishes production costs. An ideal cutting tool should provide maximum productivity in combination with reasonable and stable tool life. To determine the appropriate solution, tool manufacturers develop advanced cutting geometries and new cutting material grades that enable reliable cutting at high metal removal rates (MRR) for diverse types of machining data. As the tool is expected to enable effective machining of different engineering materials, the geometry and the grades should be optimized accordingly.

Decreasing machine downtime is one more way to reduce production costs. The appropriate waymarks, which relate to tool attributes such as ensuring tool availability and minimizing setup time, can greatly contribute to the solution. Tool delivery is crucial for replacing "optimal" with "suitable".

By saying, "the best tool is the one you have on hand", one can understand important metalworking principles, making the ideal tool readily accessible.

In a perfect world, the ideal tool facilitates machining various workpiece shapes on long- or short-reach applications without loss of performance. Tool customizing is an additional parameter for finding the optimum solution.

Advanced machines are expected to integrate optimal machining strategies. These strategies are planned, programmed, checked, and verified in a virtual environment of computer-assisted engineering (CAE) systems well before the process begins on a CNC machine. Therefore, the right tool should have an appropriate virtual component, a digital twin, to be embedded in CAE systems.

The wide array of ISCAR's new products, introduced in the NEOLOGIQ campaign, is aimed at optimizing tool solutions for modern metal cutting. The NEOLOGIQ principles are conveyed by the use of new tool and insert geometries complemented by advanced grades. Among the many new developments, there are tools for Swiss-type lathes and multitasking machines.

Ground and polished ISO-standardized rhombic inserts intended for productive turning of small-size parts.

Stainless steel and non-ferrous metals are common materials for manufacturing miniature parts in the medical and watch industries. Small and medium-size Swiss-type lathes are used for mass part production. A new generation of ISCAR's ISO-standard rhombic turning inserts is specifically intended for this industry sector. A variety of precision ground and polished inserts enable productive machining with light cutting forces and significantly reduced friction. The cutting geometry is represented by two types of chipformers intended for semi-finishing, finishing, and roughing. The insert design with its many geometric attributes is focused on preventing built-up edge to ensure prolonged tool life.

ISCAR has developed two new carbide grades for milling different engineering materials effectively. IC716 is intended for machining titanium alloys. It is characterized by a tough cemented carbide substrate with high resistance to thermal cracks and a new high-hardness ceramic PVD coating with a smooth surface. IC5600 is designed for cutting steel. This grade features a submicron substrate, a multi-layer MT CVD coating, and an applied post-coating treatment. This combination substantially improves the resistance of IC5600 to abrasive wear and thermal loading and enables increasing cutting speeds and MRR.

The development of machine tools has made Y-axis turning methods common. These methods facilitate extremely stable cutting and enable the evacuation of long chips in a downward direction due to gravitational force. It is apparent that the metalworking industry increases its demands for advanced cutting tools specially designed for Y-axis turning. One of ISCAR's prominent new product lines is the NEO-Y-SWISS line of integral turning tools. A modular

Cont. on page 24 ☞

NEO-Y-SWISS tools realize Y-axis turning strategy.

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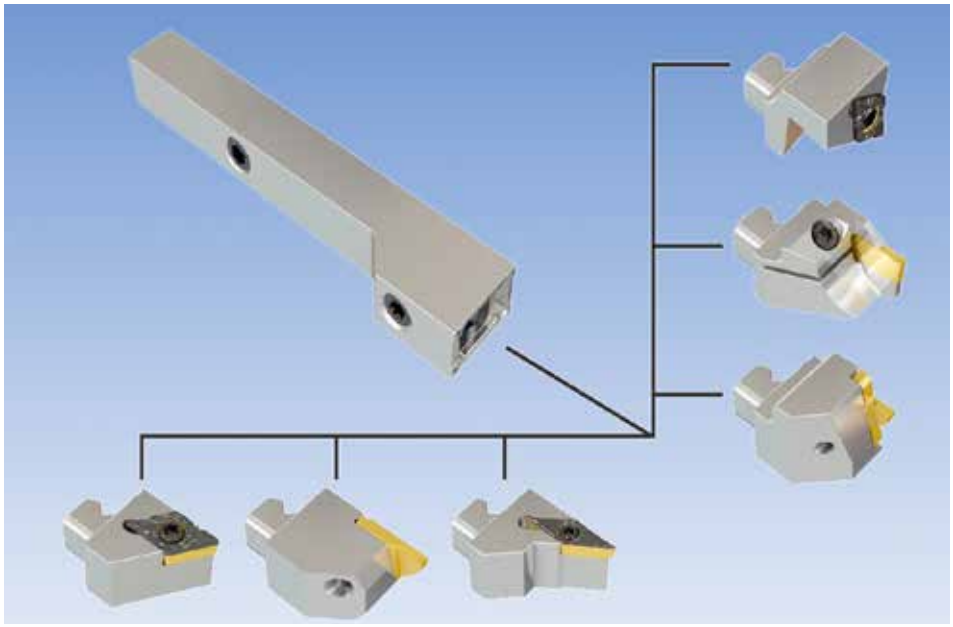
☞ *Cont. from page 22*

tool concept that utilizes a tool assembly based on standard elements such as holders, heads, shanks, extensions, reducers, etc., is an effective way to find the optimal tool for specific applications. The distinctive feature of ISCAR's new modular quick-change heads system NEOSWISS is comprised of diverse heads with indexable inserts for turning, grooving, parting, and threading operations on Swiss-type machines. This system enables removable heads and insert replacement in the limited working space of a CNC machine.

To stay up to date on modern age machining, ISCAR accentuates rotating tools with exchangeable cutting heads such as MULTI-MASTER and CHAM-IQ-DRILL. These modular lines with the "No Setup Time" phenomenon, enable quick head replacements that annul dimensional adjustment and CNC program corrections. This diminishes machine downtime and assures high machining repeatability. The modular design concept of ISCAR tool lines makes customizing tool configuration easy.

A significant functional improvement features



NEOSWISS, a modular quick-change head system for turning, grooving, parting, and threading applications.

NEOITA, the ISCAR Tool Advisor expert system available for mobile phone use.

ISCAR's tool digital companion; 3D and 2D tool representations, tool assembly options, advanced E-Catalog and additional application software form the backbone of the virtual tool environment. ISCAR's Tool Advisor, known as NEOITA, enables searching for an optimal tool for a specific machining operation. Based on engineering analysis and expert knowledge, this system generates a set of more efficient solutions with suitable cutting data, calculates MRR, cutting power, etc., and enables direct access to the e-Catalog, insert wear detection, and more.

A new responsive design application has brought NEOITA to handheld devices. Through cloud-based technology, the NEOITA is available 24/7 and in multiple languages.

EXPANSION OF THE CHATTERFREE SOLID CARBIDE ENDMILLS LINE

ISCAR is expanding its range of EC-E7/H7-CF 7 flute endmills to include 3xD and 6xD length to diameter endmills. These are in addition to the already available 2xD and 4xD endmills.

The 7 flute, different helix and variable pitch solid carbide endmills have been developed for high speed / trochoidal milling and semi-finish and finishing operations. A unique patented design features a special tooth design to produce large chip gullets for efficient chip evacuation.

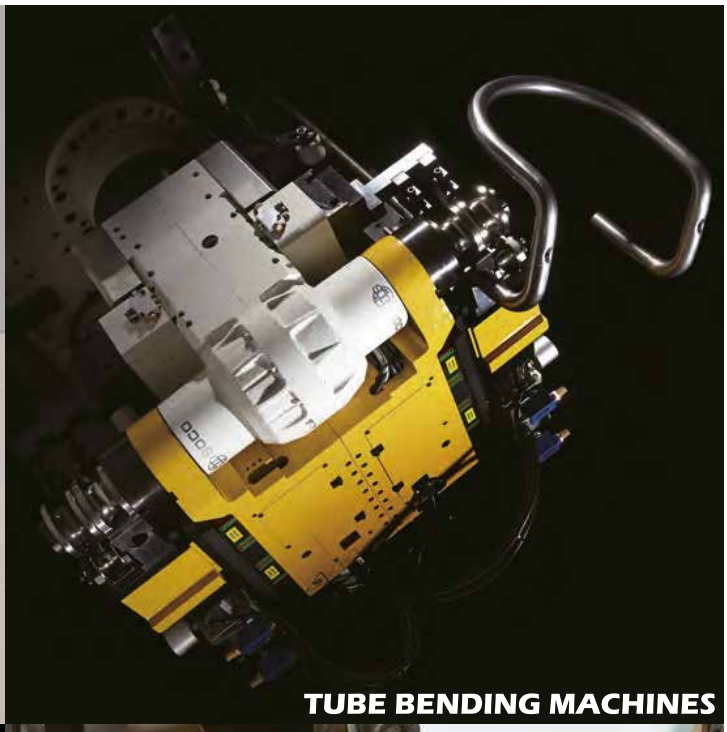
The optimal flutes and tooth geometries deliver maximum metal removal rates while maintaining high accuracy.

Made of IC902, an ultra-fine carbide grade, and TiAlN PVD coated for machining hardened steel, the endmills enable high productivity on most material types and an excellent surface finish even at maximum ap. With low cutting forces and proven effectiveness in a wide range of machining speeds from 3,000 to 20,000 RPM, implementation of the new CHATTERFREE solid carbide endmills shortens cycle time and reduces tool cost while increasing productivity and process reliability.

When using an endmill that is longer than necessary, it is less rigid and requires reducing the cutting conditions. The new CHATTERFREE solid carbide endmills' cutting length options and lower thermal impact reduce tool wear and provide an optimal tool for each machining requirement, enabling machining at the highest machining conditions even for difficult to cut materials. These endmills are small and cost-efficient tools, applicable also for low torque spindles.

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

LASER TUBE CUTTING MACHINES



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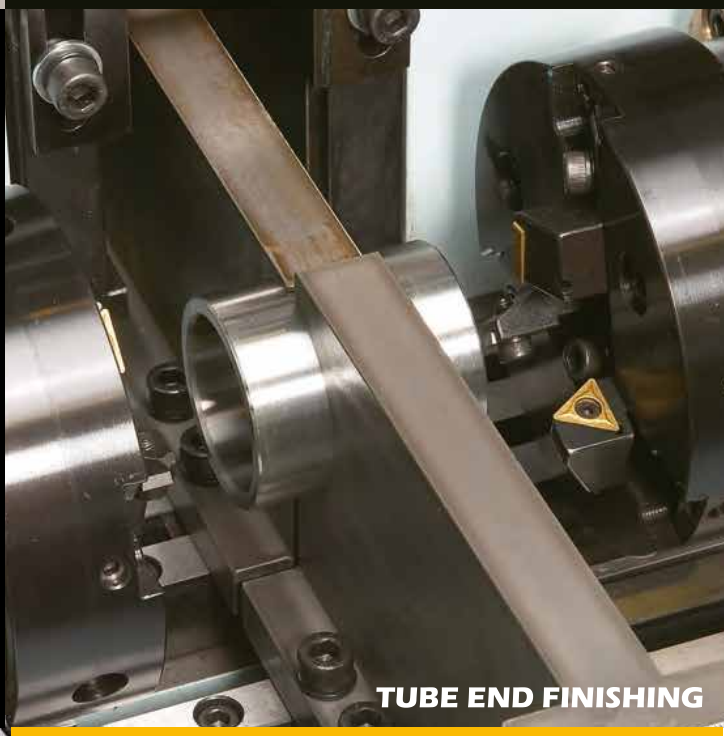
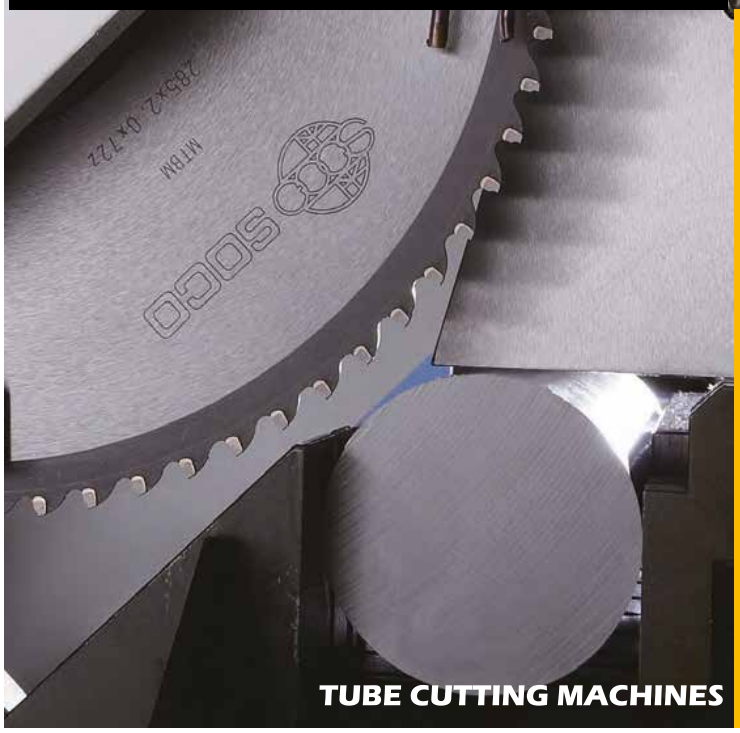


TUBE END FINISHING



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INDEXABLE MAXI-RUSH SOLID CARBIDE HEADS FOR 5-AXIS PROFILING

Profiling with solid carbide ball type end mills on 5-axis machines has disadvantages, such as excessive machining time and poor surface finish. To solve these problems, TaeguTec introduced oval and lens shape solid carbide heads that are 3D profiling capable.

The new heads are designed for high-pitch, semi-finishing and finishing profiling parts used in the aerospace, power generation, medical and mould & die industries.

Even in high pitch conditions, the same surface finish can be obtained compared to solid carbide ball type end mills, and therefore the new heads are capable of high productivity machining.

Features include reduced machining time, increased productivity and similar surface finish even in higher pitch conditions compared to solid carbide ball type end mills, while in the same pitch and machining time conditions, solid carbide heads provide better surface finish over solid carbide ball type end mills. With the wider cutting edge contact improved machining stability and longer tool life is provided making it ideal for machining difficult-to-cut materials such as titanium alloy, Inconel and stainless steel.

Aerospace

Power generation

Medical

Mould & die

Features

Reduced machining time, increased productivity and similar surface finish even in higher pitch conditions compared to solid carbide ball type end mills.

In the same pitch and machining time conditions, solid carbide heads provide better surface finish over solid carbide ball type end mills.

Wider cutting edge contact for improved machining stability and longer tool life.

Ideal for machining difficult-to-cut materials such as titanium alloy, Inconel and stainless steel.

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

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INDEXABLE SOLID HEADS

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INDUSTRY 4.0 TaeguTec Member IMC Group

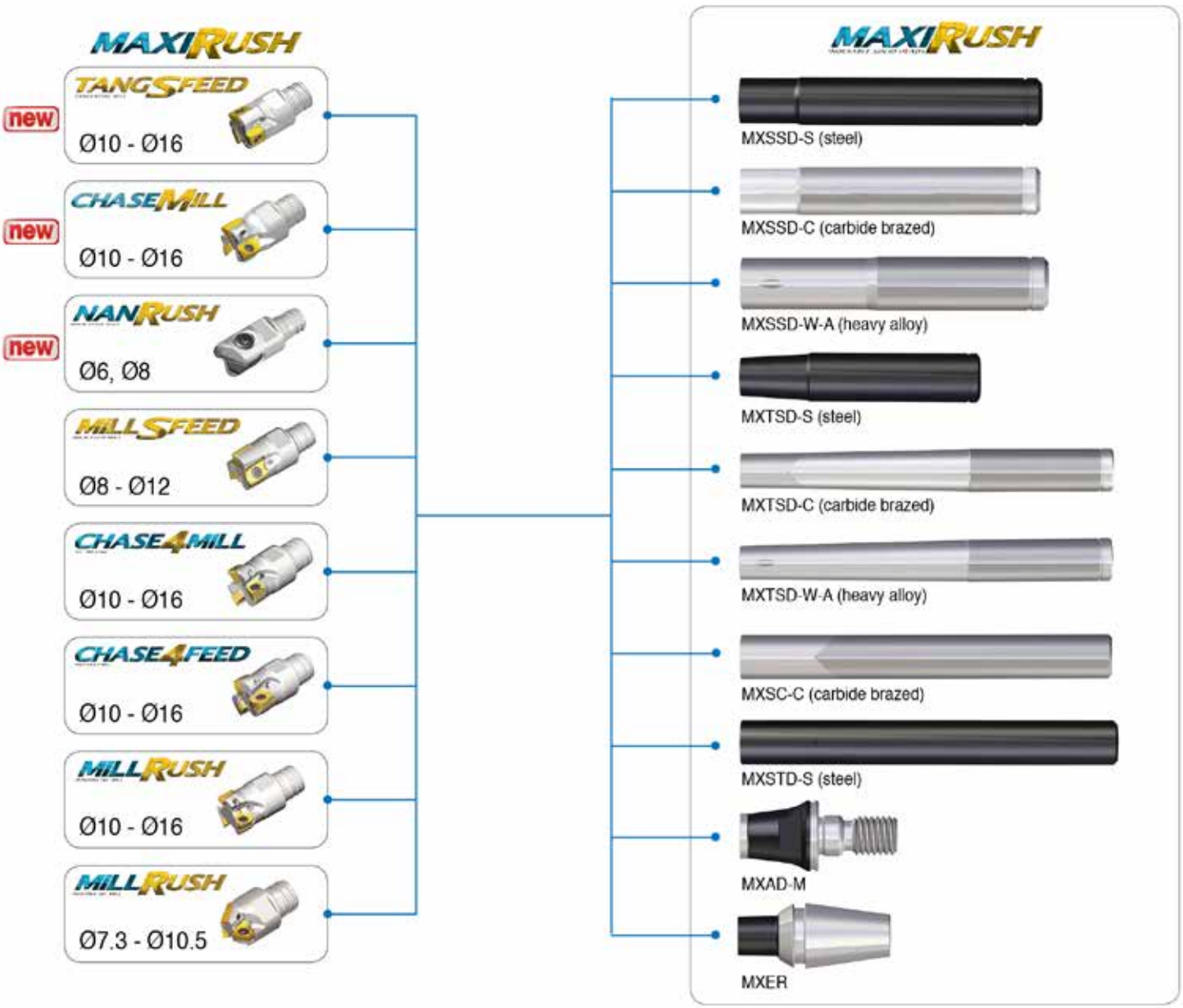
INTRODUCING INSERT TYPE MODULAR HEADS FOR MAXI-RUSH SHANKS

TaeguTec has recently introduced insert type modular heads for the MAXI-RUSH line of shanks.

The insert type modular heads of the TANG-SFEED, CHASE-MILL and NAN-RUSH products have been incorporated into the flexible MAXI-RUSH line in order to further diversify the popular line's application range.

Due to their easy indexable head replacement of the shank mounted to the chuck, the additions to the line offer superior performance, improved productivity and reduced set-up time.

MAXIRUSH



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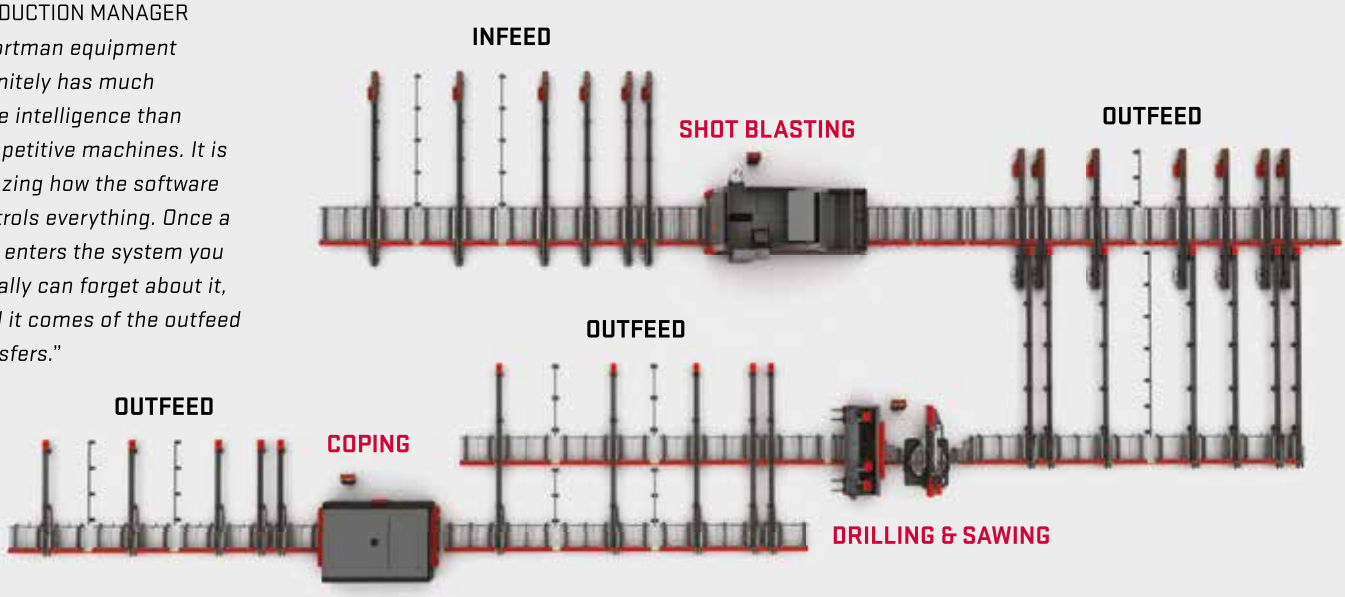

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DIGITALIZATION IS WITHIN REACH OF SMALL AND MEDIUM-SIZED COMPANIES IN THE SHEET METAL INDUSTRY

Change has become a constant in today's world, and adapting will be essential in any sector, even in the sheet metal industry, where many small and medium-sized companies exist. The challenges these companies face every day are enormous. Equipping them with the right tools seems crucial if we want to move the sheet metal industry forward.

One of these tools is digitalization. Having integrated systems that allow processes to be interconnected makes it possible to manage data quickly and efficiently, resulting in greater agility to adapt to the changes that occur at any given time. This seems easy, but it has been enormously complicated for these kinds of companies, which usually have limited resources to undertake this project.

A software ecosystem that breaks down barriers

There are indeed many solutions that have been born to help to digitize sheet metal cutting companies. However, the complete digitization of small and medium-sized companies, achieving a complete smart factory, is still an unfinished business in the sector. The bulk of the industry is still encountering obstacles along the way: high project costs, lack of personnel to manage tools that are complex in themselves, systems that do not meet the needs of the sector or company itself, and non-existent interconnection between the different software systems and business layers.

In short, solutions that should help a small workshop to be more agile and adaptable end up causing problems and headaches. And in the long run, users become reluctant to undertake new digitization projects because of the risk that this will be a burden rather than a benefit. That's where systems like BySoft Suite from Bystronic come into play, a complete software ecosystem designed to digitize sheet metal companies and make the smart factory a reality for the industry.

Affordable and configurable software solution for every need

The new software solution launched by Bystronic has certain features that make it particularly suitable for small and medium-sized companies. The first feature that distinguishes this solution is its adaptability to the circumstances of each company. BySoft can be configured to adapt to any company's digitalization status, size, and characteristics. This way, you can advance at the most appropriate pace in each case, depending on the objectives and available resources. This facilitates the path to digitization, especially for companies with a low digitization level. That can thus establish a medium to a long-term plan.

Another benefit is that it is an open ecosystem designed to interoperate with third-party machines and systems so that it can be integrated into all types of production environments. Many companies seek freedom by adopting software to integrate all their devices. BySoft Suite was developed with this vocation and can be combined with third-party systems and integrate operations outside the cutting and bending. The software connects the painting, drilling, welding, and other functions with the rest of the workshop devices so they can interoperate with each other.

Its hybrid character allows adapting the number of users at all times so that companies pay only for what they use and can adapt their costs to the needs at all times, in addition to avoiding costly initial investments. Cloud tools also make it possible to keep systems constantly up to date and enjoy all the functionalities added over time. This is a considerable advantage, especially interesting for small and medium-sized companies that, until now, saw digitization out of their reach due to the large number of resources required to undertake a process of these characteristics.

Making companies fit for the future

It is not about digitizing the industry for the sake of it. It is about helping to promote digitization that improves the prospects of a large group of companies that, until now, have not found a way to progress in digitization. It is about setting standards and helping to make the path easier so that all companies can be part of the industry's future.

This will contribute to the sector's progress and allow small and medium-sized companies to adapt to changes whenever needed, giving faster and more accurate responses to their customers, selecting the offers that best suit their business, or reducing delivery times. One of the great benefits of digitizing business processes is the ability to make decisions based on data, which helps generate certainty, fundamental in the current moment when changes are constant.

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

VSHAPER 3D PRINTERS FROM B&R METROLOGY

In modern industry, we know how valuable it can be to have a machine that enables accurate prototyping, design freedom, small-lot production, and rapid tooling.

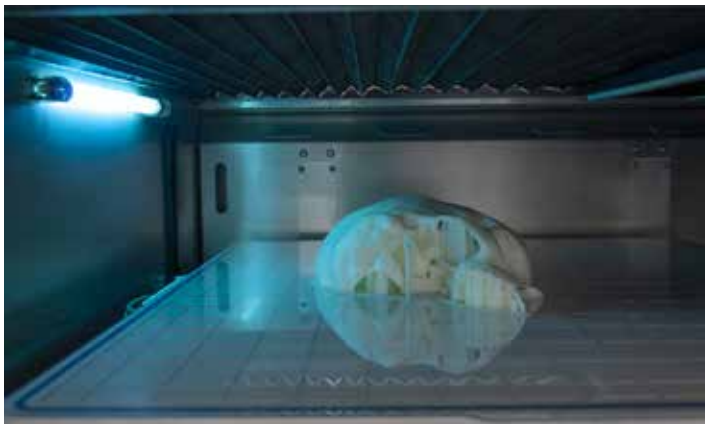
VSHAPER's 3D printers have only recently arrived in South Africa but are used widely across Germany, the USA, and Poland. These printers are specifically designed for a variety of industries including foundry, automotive, aerospace, medical and education. As a result of its dedicated printer designs, VSHAPER can meet the varying needs of clients. Among their printers are the 270 series, 500 series, and the 5AX machine.

VSHAPER printers.

The VSHAPER 270 series 3D printer is compact and designed to deliver fast, accurate results. VSHAPER's smallest range is ideal for those looking to print smaller prototypes at an affordable price.

For more complex printing needs, VSHAPER's 500 series is the best choice. The two-nozzle head of this 3D printer allows you to print two materials in one process - a main and support or two main materials, which opens up a wide range of possibilities when processing complicated models.

The 5AX is one of the most impressive printers from VSHAPER. You can forget about conventional printing methods with the 5-axis kinematics of this printer, equipped with a rotary-tilt work platform. It is possible to transfer the plane representing the basis for subsequent tool paths to another previously printed surface when using indexed 5-axis printing to strengthen the model structure in any direction within one object.



The use of 3D printing technology is well suited to prototyping, particularly when it is intended to present the product to potential investors and manufacturers. In today's world, 3D printing technology for prototyping is often chosen instead of conventional techniques in order to save on time and cost. VSHAPER solutions guarantee efficient control of printing conditions and filament dynamics, allowing for 3D printing of individual elements of different sizes and complexity, forming a functional mechanism. This printing technology also allows for the creation of complex shapes with a degree of design freedom that is unavailable with traditional manufacturing methods. Thanks to its smooth production implementation, it gives a real alternative to small and middle-lot production and highly adjusted parts. This makes it perfect for prototyping.

In the era of precise 3D printers and a wide range of available materials, Rapid Tooling plays a vital role in dynamically developing companies. In order to shorten lead times and accelerate the test phase in production, companies can implement 3D printing technology in the production of moulds. Thanks to the heated chamber of the VSHAPER 3D printer, parts are produced with a smooth finish and minimal shrinkage. This makes it ideal for measuring and inspecting sample moulds, which becomes vital in producing the end product.

VSHAPER's wide range of filaments is another reason they have become so popular in the manufacturing industry – from universal ASA and ABS to high-quality polyamide filaments, ending with high-temperature PEEK. The choice of using the correct material can have an immense influence on the quality, durability, and finish of a design. Their filaments enable and assure quality results.

When investing in a VSHAPER printer you'll also have access to Softshaper, their cutting-edge 3D printing slicer software. This software uses the functionalities of CAD/CAM software in the 3D printing model preparation process.

For more information, please contact B&R Metrology – Tel: 011 663 2600.

A.P. DESIGN – A PROUD SOUTH AFRICAN MANUFACTURER

Established 50 years ago, manufacturer of cut to length lines, machine tools and special purpose machinery A.P. Design has always taken advantage of new technology, including intelligent servo drives. While even today small machines are fitted with PLC's, we now upload links via the internet to PLCs & HMIs.

Together with latest technology available, comes the need for smart interfaced advanced field devices. These range from a sub miniature infra red sensor to vision recognition systems. With the vast amount of options available we can build machines that are very cost effective and user friendly.

At our company all design work is done on Autodesk Inventor 2019 work stations. These software packages allow A.P. Design engineers to system check the functionality of machines prior to being built, which includes FEA (Finite Element Analysis).

All components used in the building of machines including electronic and system interfaces are manufactured in-house.

While A.P. Design provides press shop turnkey solutions and automation of presses and guillotines, the company also manufactures vibratory bowl feeders for small parts, servo drive roll feeders and eccentric presses. Our servo roll feeders come in any length required. While the units are controlled by a closed loop servo drive, models are available from 200mm to 1250mm wide. We have strip feeders available up to 400mm wide and 400mm feed length x 4mm thick. Smallest available 38mm wide and 50mm feed length x 1mm thick with feed accuracy ± 0,15 per 0,5m.

Our range of products also includes two-in-one decoiler straighteners used to straighten material from coil for subsequent use in a strip feeder or electronic roll feeder; this material will then be fed to a press or guillotine. Coils over 2000kg and more than 1100mm in diameter and 200 to 1250mm width can be fed.

A wide range of custom made hydraulic presses are available from 30 to 1000 tons. These are either simple machines with a cylinder and platens or maybe more complex with die cushion.

We manufacture decoilers in a number of varieties, widths and tonnage with small units from 500kg and a width of 100mm to 30 tons and 2500mm wide. These units can be non-motorized (Haul-off) or fully motorized with electronic controls.

Our cut to length lines (CTLL) will comprise of a decoiler, feeding the coil into a leveler. The leveler will straighten the steel and an encoder will measure the steel to the correct length for cutting. Most CTLL have guillotines fitted which will do the cutting. Some CTLL have slitters fitted (blanking line) which will cut the material into strips and then recoil the steel onto spools or into coils. Most CTLL are run by a PLC and HMI screen which are programmed to do batch cutting and setting parameters. The operator will programme the length and number of pieces required, and the unit stops when the programme is finished. For increased production a flying shear is incorporated. These units can handle 30 ton coils and widths of material up to 2020mm.

Our vibratory bowl feeders are used to orientate parts and feed them to down line assembly machinery by means of a vibrator pack and an aluminium spiral track bowl ranging in diameter from 150mm to 710mm and various track sizes. Typical feed rates are 40 to 200 parts/minute.

We have manufactured special purpose machinery for the production of roll-on deodorants, making bricks and even roof tiles. Most car manufacturers have A.P. Design equipment in their plants. We help to keep the railways running and help to make industrial diamonds.

For more information, please contact A.P. Design – Tel: 083 626 6216.

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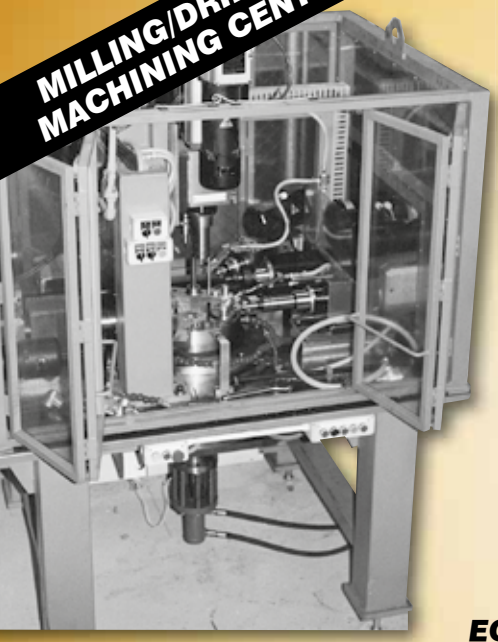
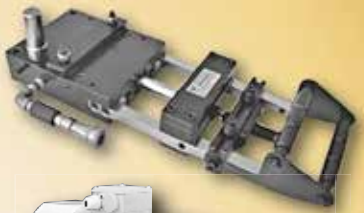


Strip Feeders for your press shop. Material 50 to 450mm width and length.



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- ***Cut To Length Lines .4 To 8mm***
- ***Flying Shear***
- ***Pay Off & Recoil Equipment***
- ***Steel Strip Straightening Machines***
- ***PLC & Microprocessor Control***
- ***Automatic Assembly Machines***
- ***Drilling Machine***
- ***Jig & Tool***

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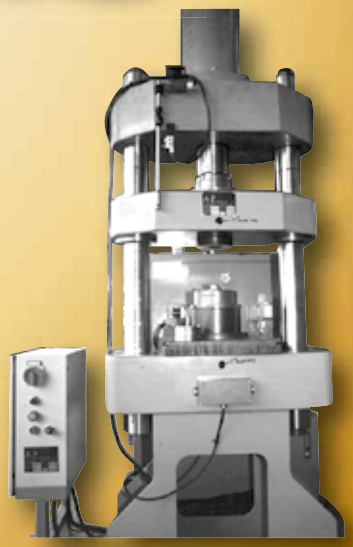

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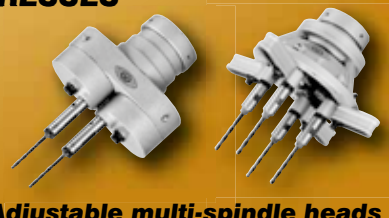
HYDRAULIC PRESSES

- ***30 To 1000 Ton***



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SUCCESSFUL EUROBLECH 2022

Industry gathered in Hanover to shape the future of sheet metal working

The 26th International Sheet Metal Working Technology Exhibition, EuroBLECH 2022, ended recently after four days of flourishing business. A total of 38,076 trade visitors (FKM audited) from around the world came to Hanover to shape the future of sheet metal working and defy current challenges. This year's show hosted 1,300 companies from 39 countries on a net exhibition space of 86,136 square metres. A euphoric atmosphere and full order books were the results of a successful comeback of the show.

A closer look at this year's visitor numbers reveals that a total of 35.944 unique visitors came to the exhibition grounds in Germany. Practically matching the previous edition's stats, this is an exceptional result, especially given the difficult general conditions. Industry experts from all parts of the world came to the show for shorter but therefore more productive visits.

"It is hard to describe how we're feeling after giving everything we had in the past four years to make this show possible. We are overwhelmed by the fantastic outcome and proud that EuroBLECH continues its critical role in bringing the global sheet metal working industry together," says Evelyn Warwick, Exhibition Director of EuroBLECH, on behalf of the organisers Mack-Brooks Exhibitions. "This year's edition was both special and hugely important for the whole sheet metal working industry. Judged by the exhibition space itself, you can tell as we came pretty close to the record numbers in 2018," continues Evelyn Warwick.

A total of 62% of exhibitors came from outside of Germany to this year's show. This represents a further increase in international attendance by 4%. According to the preliminary results of the exhibition survey, this trend continuous throughout the visitors: more than half of the trade visitors (56%) made their way to the event from outside of Germany, making EuroBLECH a truly international exhibition. Major visitor countries, next to Germany, included the Netherlands, Poland, Italy, Sweden, Turkey, Austria, Belgium, Denmark and France. Furthermore, 37% of all visitors do not attend any other trade show, which is an increase of 10% compared to the show in 2018 and underlines the importance of the event.

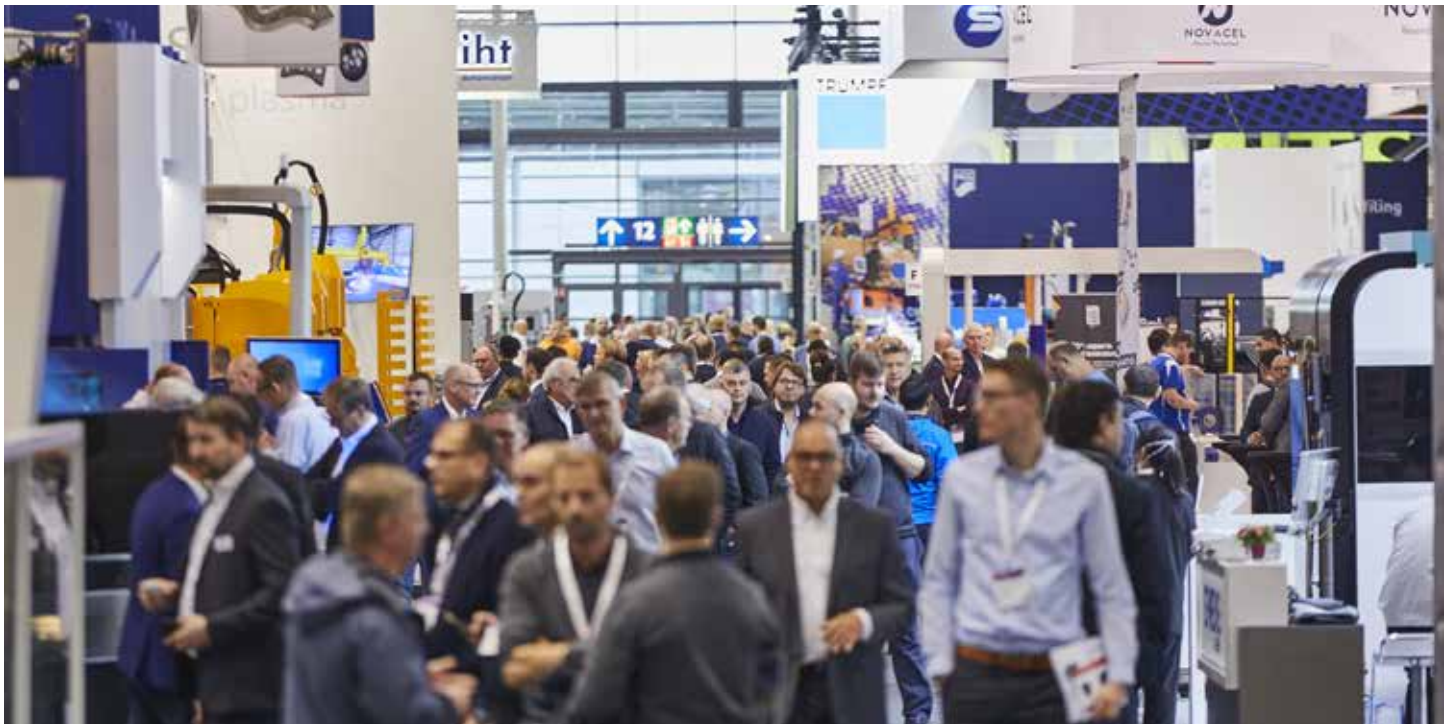
As the key marketplace for the industry, EuroBLECH 2022 offered its visitors the opportunity to find solutions for the current challenges in the industry and connects them with businesses from all over the world to help them integrate the latest machinery and software into their manufacturing process. The hot topics this year were digitalisation, sustainability and Industry 4.0. Many of the products and innovations shown at EuroBLECH 2022 have been developed with a focus on cost and resource efficiency.

"The visitors this year meant serious business. Almost every second person entering the gates to EuroBLECH 2022 came with the intention to invest. That's an increase of 4% compared to the previous edition", concludes Evelyn Warwick. Both exhibitors and visitors were highly satisfied with the show and their newly established business relations. The visitors praised the comprehensiveness and international range of the products on display, as well as the quality of the exhibition stands and the many live demonstrations of digital processes. The exhibitors appreciated the highly qualified and international audience with its high percentage of decision-makers (80%).

A great majority of the visitors came from the industry (72%), followed by visitors from trade workshops and services. The most important sectors visitors belonged to included engineering, steel and aluminium construction, sheet metal & products, the automotive industry and its suppliers, iron and steel production and electrical engineering.

In addition to the innovations and numerous live demonstrations at the exhibition stands, attendees were able to appreciate the EuroBLECH 2022 Presentation Area. The new show feature delivered 27 sessions throughout the four exhibition days, offering exciting insight into innovative companies and projects, interesting discussions and valuable networking opportunities.

Many exhibitors at this year's show have already announced that they will exhibit again at the next EuroBLECH in 2024, which will take place from 22 – 25 October 2024 at the Hanover Exhibition Grounds in Germany.



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HIGH-TECH FORD FRAME LINE COMMENCES MANUFACTURING FOR NEXT-GENERATION RANGER

The final and largest piece of Ford Motor Company's R15.8-billion investment puzzle for its South African operations has slotted into place with its new Frame Line commencing operations in preparation for the start of Next-Generation Ranger production later this year.

Located in the Tshwane Automotive Special Economic Zone (TASEZ) adjacent to Ford's Silverton Assembly Plant, the Frame Line is the only Ford-owned and operated chassis manufacturing facility in the world. It measures a vast 100 000m^2 and boasts the most advanced robotic manufacturing and quality control systems currently available.

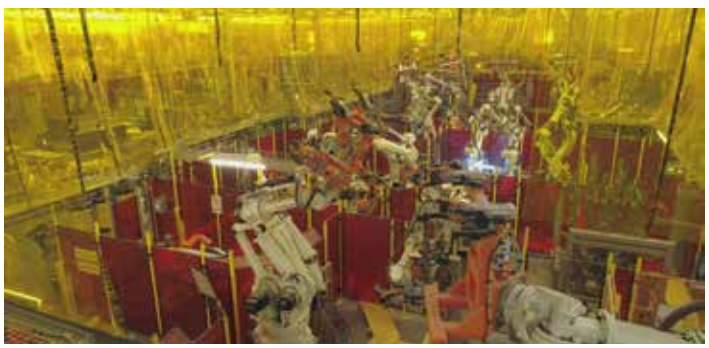
"Our objective with the Next-Gen Ranger is to achieve the highest-ever production volumes and quality for the Silverton Assembly Plant, ensuring that the vehicles we deliver to our customers in South Africa and in more than 100 global export markets are world-class in every sense," says Ockert Berry, VP Operations, Ford South Africa.

"The ladder-frame chassis of the Ranger pick-up is fundamental to its overall quality, performance and durability, whether used as an everyday family vehicle or in hard-working commercial applications," Berry says. "Accordingly, as with our new on-site Stamping Plant, bringing the manufacturing of the frame in-house allows us to carefully monitor and control every step of the production process.

"We invested in the latest robotic technologies for the welding and handling of the frame components, along with a fully automated e-coat system and robotic wax application," Berry adds. "Rigorous quality checks are performed using advanced inspection and measurement systems, including the sophisticated three-dimensional blue light scanner system, to ensure that there are no compromises in quality."

At the heart of the Frame Line are two identical lines that manufacture these large and heavy steel components, with 15 derivatives produced to support the various model iterations, as well as the local and export market requirements. A total of 387 hourly employees and 25 salaried staff run the Frame Line in a two-shift operating pattern – all of whom have undergone extensive in-plant training.

"The facility is 95-percent automated, relying on 585 robots to assemble



and weld the frames," says Yetheen Gengan, Area Manager for the Frame Line. "We use the latest SKS automated intelligent welding system with I&K Pulse technology to guarantee the highest level of precision welding and consistency.

"Additionally, we have more than 1 000 tools on the lines, which includes buffers and robot grippers, resulting in a seamless production process that eliminates manual handling and operations that could introduce variances in manufacturing quality," Gengan adds.

Alongside the production area is a sophisticated multi-stage e-coat facility where the frames are completely immersed in a range of cleaning and phosphate solutions, before being submerged in an electrically charged tank where the paint is uniformly bonded to the metal. Thereafter a robotic station applies a protective wax inside the frame to provide rust protection and durability.

Rigorous quality control measures are implemented throughout the Frame Line, including in-line Perceptron measurement of every chassis produced in the plant. Furthermore, the high-tech GOM ATOS ScanBox blue light scanner system is used to create highly detailed 3D models of the entire chassis or individual sections, with the results compared to a stored design specification.

"With these advanced and extremely accurate measurement and scanning systems we are able to track real-time data to quickly identify and address any quality issues before the frame leaves the plant," Gengan says. "All of the data is stored in our quality management system to monitor trends, and we can access the measurements and imaging data at any point should a concern be raised on any chassis we produced."

As part of the extensive quality checks, the plant also incorporates a weld tear-down facility with world-class macro cutting and etching processes that assess the strength and integrity of the individual welds.

Once the frames are completed, they are stored in a below-ground finished goods area with a storage capacity for 6 000 units. Thereafter the frames are processed through an automated sequencing facility and moved across to the Silverton Assembly Plant where the suspension and brake components, differentials, engine, gearbox, exhaust and fuel tank are fitted in sub-assembly areas before being mated with the cab and load box on the Trim, Chassis and Final line.

"Having the Frame Line located right next door to the assembly plant is immensely advantageous, as it not only ensures that the frames are sequenced onto the assembly line in the most efficient manner, but it also eliminates the damage incurred when handling and transporting the parts by road," Berry says. "All of this contributes to improved quality and greater customer satisfaction."

PFERD ABRASIVES – INNOVATIVE SOLUTIONS FOR PROCESS OPTIMISATION

1 2 3 Click to watch videos

PFERD is an industry leader in the development, production, support and distribution of premium tool solutions for work on surfaces including cutting, grinding, milling, polishing, cleaning and finishing.

As a major player in the abrasive industry within South Africa and on the African continent, PFERD is committed to continuous research and development to improve the quality, safety and ergonomics of its high-performance abrasives.

"PFERD tools produce less noise, vibration and emissions while requiring less effort to get the job done. Our innovative tool solutions enable businesses to optimise their processes and improve overall operational efficiency," explains Dennis Phillips, National Sales Manager at PFERD-South Africa.

PFERDEFFICIENCY strives to deliver increased productivity and improved economic efficiency. It refers to the fact that PFERD products save energy by getting the job done quicker and decrease processing time due to their higher stock removal rates while generating significantly less waste – ultimately utilising resources sustainably.

"We continually improve our manufacturing facility and processes to ensure efficient utilisation of resources to sustainably produce the highest quality tool solutions that our customers depend on.

In addition, being a founder member of the Organisation for the Safety of Abrasives (osa), PFERD is committed to producing premium quality products that offer the user maximum efficiency, safety and comfort," explains Phillips.

PFERD-SA, established in 1968, has five sales and distribution offices across SA and services the entire sub-Saharan Africa region.

An industry leader with a focus on training

The PFERDAcademy in Kempton Park offers free training to operators of abrasive equipment. "We believe the continuous training of operators enhances their performance and plays a direct role in the efficiency of the complete manufacturing process, explains Phillips".

The PFERDAcademy's grinding and cutting training addresses challenges such as operator fatigue, incorrect tool handling, material cross-contamination, consumable and machine incompatibility as well as non-adherence to labelled guidelines.

Phillips explains the aim is to correct operator behaviours that may result in injury, tool damage and loss of production time.

With over 9 000 products for surface preparation, finishing and cutting, PFERD offers a solution for various applications within a variety of industries and these innovations recently were on display at Electra Mining Africa'22.

"EMA is the premiere event to connect with customers – new and existing. Customers could see our high-performance tool solutions for themselves and the value it can add to their operations," explains Phillips.

The PFERD Sales Managers and Technical Sales Advisors were available to discuss potential solutions to application problems as well as how the products can help improve operational efficiency.

Innovations such as the High-Speed Torus Cutter, a high-performance milling tool for stationary and robotic aluminium milling applications, were on display. And so was the CC-Grind Robust – a modern, high-performance and ergonomic alternative to conventional grinding wheels. It features high-performance, triangular-shaped, ceramic abrasive grain that achieves a very high stock removal rate while significantly reducing noise and vibration.

Phillips concludes, "PFERD tools offer users maximum benefit and optimum cost-effectiveness. We are committed to premium quality products, while being a reliable supplier who operates with sustainability in mind".

For further information, please contact PFERD – Tel: 011 230 4000.

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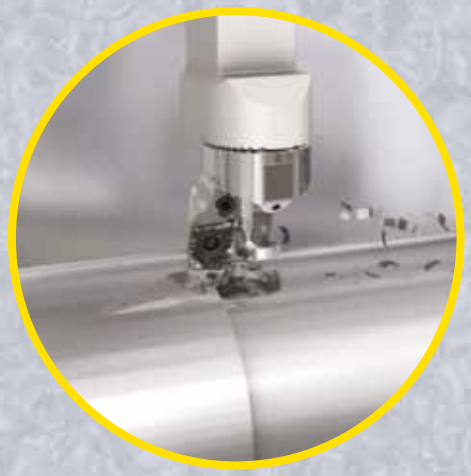

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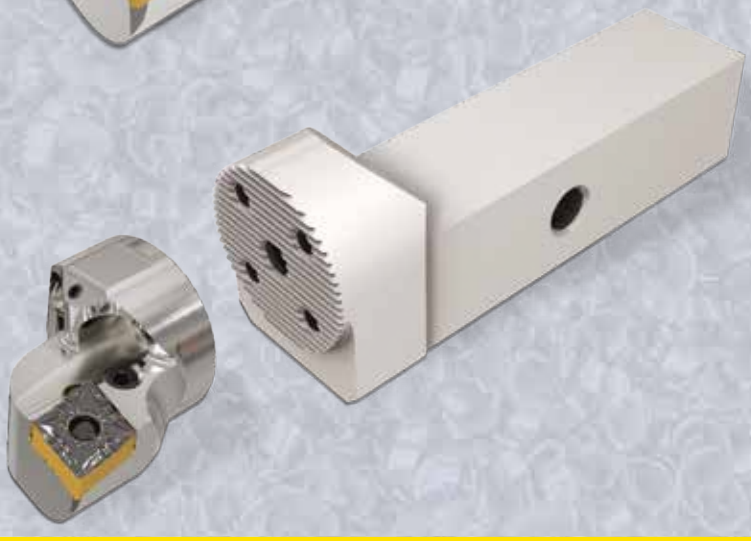

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