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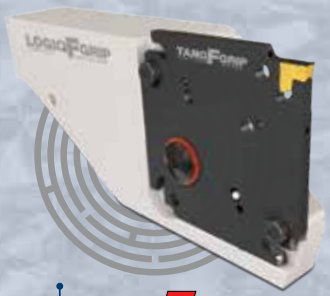

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ELECTRIFICATION IN THE AUTOMOTIVE INDUSTRY

Public awareness of global warming, together with a pressing concern to create and maintain a clean environment, has led to a series of legislations worldwide that is forcing automakers to decrease CO_2 emissions. Apart from improving fuel consumption, downsizing engines, and making lighter vehicles, automakers must turn to new technologies in order to cope with these emission limitations. A rapid increase in battery electric vehicle (BEV) development, manufacture, and implementation, shows that electric vehicles are not only the future but are, in fact, the present. The automotive industry is on the brink of colossal changes and soon our perception of cars and transportation may alter completely.

ISCAR, a company with many years of experience in the production of metal cutting tools, offers unique, cutting-edge solutions for the new BEV Industry. As a leader in providing productive and cost-effective machining solutions, ISCAR strives to stay up to date with all the new trends and technologies and be a part of a brighter, greener future.

The following is a list of some of the common component machining processes in the BEV industry and some of the leading possible machining solutions and recommendations for each part.

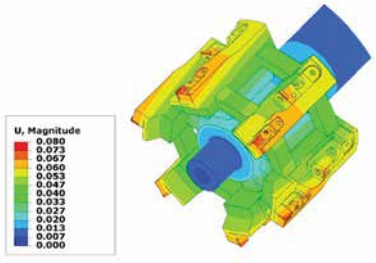
Stator housing machining

One of the most notable trends of the electric vehicle powertrain is its simplicity. There are far fewer moving parts compared to the traditional internal combustion engine (ICE), therefore manufacturing time and cost dramatically drop when producing BEV's.

One of the main components of an electric motor is the motor (stator) housing made from aluminum. A special approach is needed to achieve this part's critical key characteristics of lightweight, durability, ductility, surface finish and precision, including geometrical tolerances. The partially hollow form represents an additional challenge and maintaining low cutting forces is essential for roughness and cylindricity requirements.

ISCAR's complete machining solution for this process has facilitated the transformation from the standard costly lathe-based process to an economical machining center. Our aim is to reduce scrapped parts and *reach an optimal* CPK ratio (*Process Capability Index*– producer's capability to produce parts within the required tolerance).

Main Diameter Reaming



The most challenging operation in machining the aluminum stator housing is the main diameter boring and reaming. Because of the trend to use low power machines, the tool's large diameter and long overhang require creative thinking to minimize weight and spindle load while maintaining rigidity. Exotic materials such as titanium and carbon fiber are used for the tool body, as well as the welded frame design.

The use of Finite Element Method (FEM) helps resolve the obstacles associated with this challenging application by enabling the consideration of many parameters, such as cutting forces, displacement field during machining, natural frequency and maximum deformation.

Bearing Seat Reaming After Assembly

Unlike the ICE, the electric motor generates its maximum torque from a standing start. This means it does not require a complex transmission system to operate. A simple reduction gear is enough for the average electric vehicle. This reduction gear sits between the stator housing and the gear cover.

To maintain concentricity between bearing seats of the stator and gear cover, the reaming operation must be performed in the same machining sequence.

For this operation, ISCAR provides a special "push and pull" reaming type tool with adjustable PCD blades that manage to retain the geometrical tolerances required in different inner diameters on this aluminum part.

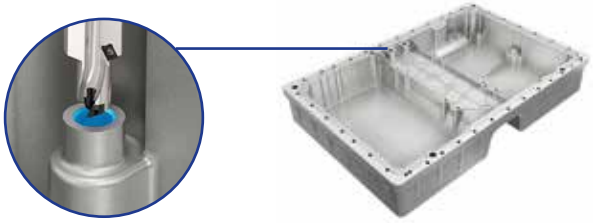
Rotor Turning

The rotor consists of many stacked plates of electric steel. Lamination sheets are used instead of a solid body to reduce current loss. The surface must be completely clean of chips, oil, water, dust or dirt, and coolant fluid cannot be used, only air. This is a challenge as a lot of heat is generated on the cutting area and the fragmented chips stick to the surface. Surface finish requirements for this interrupted turning operation remain strict.

ISCAR has overcome these challenges by developing a combined tool with coolant holes both on top and bottom of the cutting edge to cool and blow away the chips. The two round inserts are positioned for semi finish and finishing operations, generating an excellent surface finish.

Battery Case Drilling

As batteries are replacing fuel as an energy source for vehicles, the battery case is an integral component of the car design. Large size and light weight requirements make aluminum a natural choice for manufacturing this part. But, when dealing with high-end supercars or sport cars, every unit of weight counts. That is why some automakers turn to the use of carbon fiber reinforced plastic (CFRP), which offers lighter weight, high rigidity, and lower thermal conductivity than aluminum.



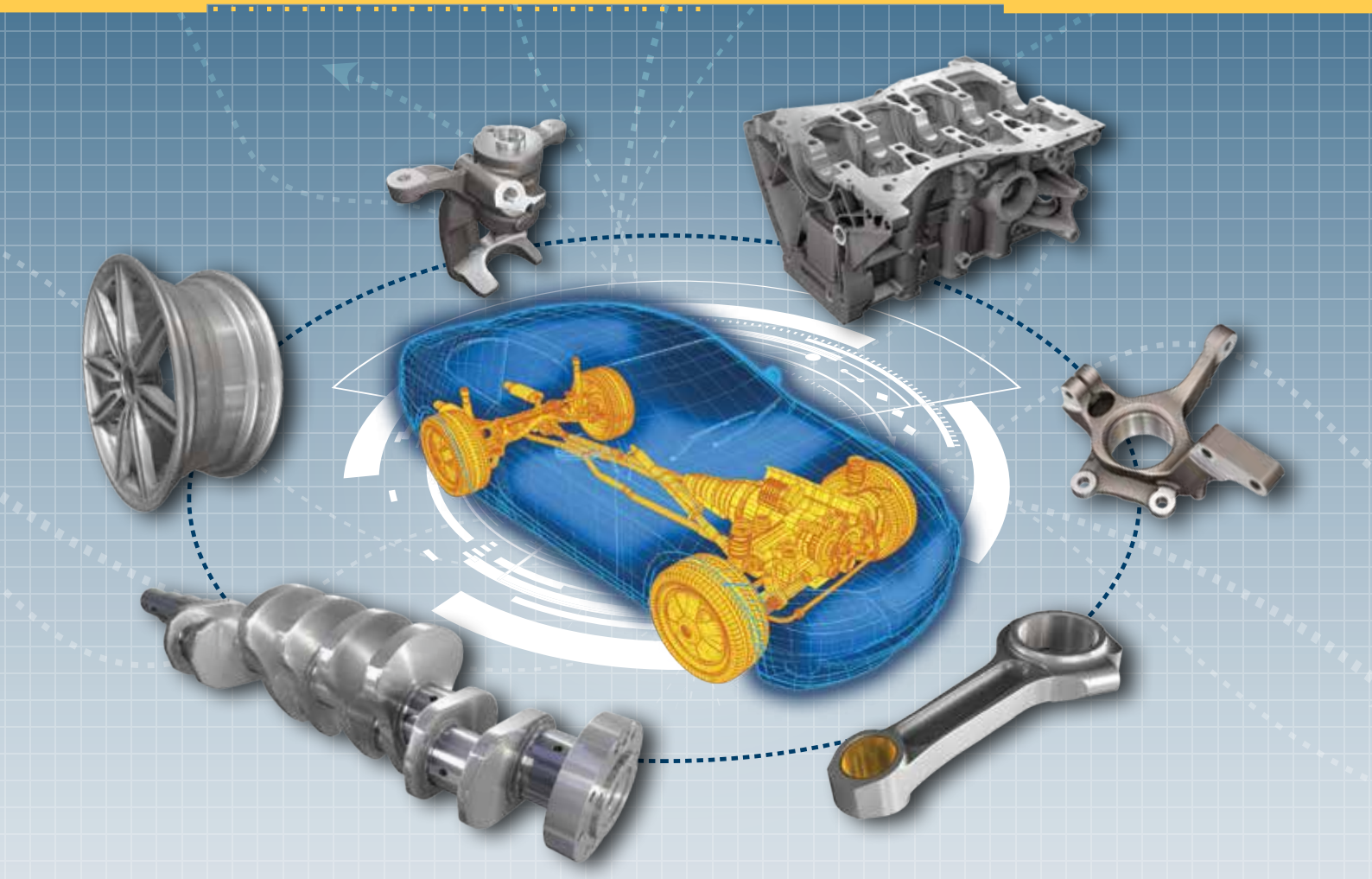
ISCAR has a wide array of tools specially designed to machine aluminum and CFRP, which provide productive and economical solutions for any application. For example, for the required drilling holes, the SUMOCHAM indexable head drilling line offers a variety of geometries suited for specific materials. For drilling aluminum, ICN heads are designed with a sharp cutting edge and polished rake face. ICG heads feature a chip splitter for better chip removal when working with a long overhang. For drilling CFRP, special ICF geometry is available with diamond coating – this drilling head is designed to overcome all the typical CFRP machining failures such as delamination.

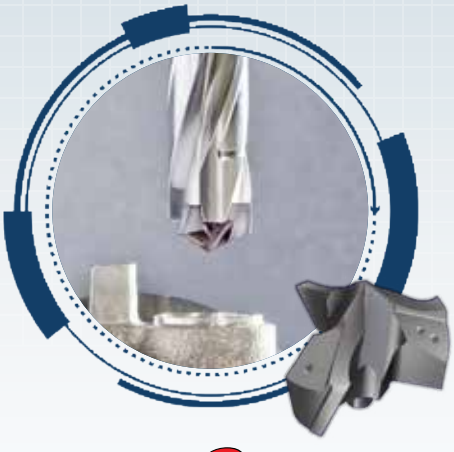
The automotive industry has already started changing its direction, moving toward the new challenging era of BEV production.

Using ISCAR's cutting edge technology and innovative solutions will keep the part manufacturer ahead of the industry and help him adapt fast to the growing changes for a cleaner, greener, and healthier place to live in.

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

ISCAR The Driving Force Behind Automotive Part Production





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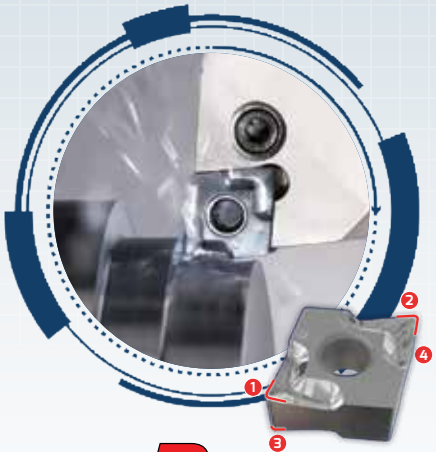

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HELI-3-MILL – HM390 TRIANGULAR INSERTS NOW WITH 5 MM HELICAL CUTTING EDGES

ISCAR is expanding its HM390 line of milling tools with triangular insert line with HELI-3-MILL – a new family of indexable cutters carrying the HM390 TPKT 0502PDR 5 mm edge triangular insert. The new design, based on its successful predecessors, provides a smaller insert, enables high metal removal rates, and offers an effective and economical solution for milling 90º shoulders.

The HELI-3-MILL tools are intended for applications that are traditionally aimed at solid carbide endmills. Designed for productive rough milling at high feed rates of compact parts, small-size cavities, pockets, etc., the new tools are particularly applicable to miniature parts manufacturing, medical components and more. While they offer an ideal solution for low power machining centers and turn-milling machine tools, the low power consumption allows the cutters to be applied on machine tools with limited power, small capacity machining centers and turn-milling machines.

Available in a 10 – 16 mm diameter range, the tools feature a 90º cutting edge angle, advanced cutting geometry to reduce cutting forces and provide smooth cutting, ramping down ability and a maximum 3.5 mm depth of cut. Coolant holes are directed at each cutting edge and the cutter body has a special protective polished coating for uninterrupted chip flow and protection from corrosion and wear.

Reduced feed per tooth working values contribute to decreasing impact load and ensure soft and light cutting action, while the high tooth density, enabled by the small-size insert facilitates stable cutting due to several teeth engaging in the material during milling.

The HM390 TPKT 0502PDR single-sided triangular inserts feature three helical cutting edges, with progressive cutting geometry providing positive radial and axial rake angles on the cutter, and a wiper flat for improved surface finish. The inserts are produced from ISCAR's latest SUMO TEC carbide grades, which significantly increase productivity.

The HM390 TPCT 0502PDR peripherally ground inserts integrate a sharp cutting edge used for semi-finishing and finishing applications. The insert enables smooth machining, exerting low cutting forces, and is specially designed for milling various high-temperature alloys. These features allow a higher table feed to be applied in shallow milling applications.

The following HELI-3-MILL cutter types are available at this stage: HM390 ETP…-05 endmills carrying the triangular HM390 TPKT 0502PDR inserts in a diameter range of 10 – 16 mm, and HM390 ETP…MM-05 endmills with MULTI-MASTER threaded adaptation in 10, 12, 14 and 16 mm diameters, carrying HM390 TPKT 0502PDR triangular inserts. The MULTI-MASTER connection expands the variety of tool configurations.

Shank types are available in cylindrical and conical shanks in a wide selection of diameters, lengths and materials, allowing operators to choose the proper shank according to their application requirements. Indexing is fast and convenient due to the threaded connection. Since the tool is not removed from the machine, no setup time is required for tool head replacement.

The HELI-3-MILL family offers a productive solution in a broad spectrum of milling applications, including rough to finish machining on main engineering materials and milling square shoulders, planes (especially next to shoulders), slots, and inclined surfaces and cavities by ramping or helical interpolation. The unique tool design significantly minimizes and even eliminates mismatch in multi-pass milling of high shoulders.

For more information, please contact
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TAEGUTEC'S NEW SFEED-TEC FAMILY PROPELS MACHINING INTO NEXT GENERATION

TURNSFEED CUTSFEED DRILLSFEED MILLSFEED TANGSFEED

TaeguTec is introducing an exciting advanced line of performance-driven cutting tools specifically formulated for the Industry 4.0 revolution that not only guarantees incredible machining productivity by attaining quicker speeds and higher feed rates, but achieves longer tool life and unsurpassed consistency.

SFEED-TEC's revolutionary tools are a premium high-speed and feed machining line that assures new winning results. In this new era of Industry 4.0, where time is of the essence, fast, accurate machining gives customers the competitive edge.

The powerful, new **SFEED-TEC** advanced technology – which stands for Sharp, Fast, Easy, Exact and Durable – has been applied to every family of tools within the TaeguTec umbrella, while at the same time TaeguTec has refreshed and upgraded its existing lines to exceed today's challenges.

The global metalworking giant continuously works in close cooperation with its customers to push the boundaries of product design and innovation in order to develop highly effective and ingenious tool solutions that surpass today's machining needs and propel customers' manufacturing processes into the next level of production like never before.

Of the manufacturers already benefiting from the enriched **SFEED-TEC** family of cutting tools, the result has not only matched customers' anticipation but has exceeded expectations by advancing their production output into unmatched exciting areas.

Furthermore, the new line of technologically advanced **SFEED-TEC** tools with its new cutting geometries and clamping mechanisms for stable, vibration free machining with higher repeatability, easily machines all alloys used in every industry. However, the true merit of this thrilling new line is its superb handling of difficult to cut materials quickly and efficiently.

The optimized new tools have sensational and creative cutting geometries and clamping mechanisms that firmly clench the tools in place; simply put, the result is stable, vibration free, rapid machining with an unmatched industrywide overall performance. **SFEED-TEC's** powerful indexable inserts are equipped with sophisticated chip formers and leading-edge geometries that predict and facilitate soft cuts at high feed rates with ease.

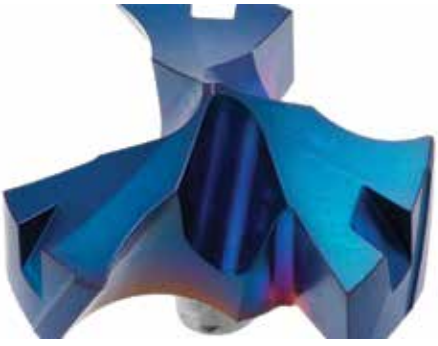
Of the innovative and inspired product ranges that include strong holders, resilient inserts and sturdy cutters, five outstanding brands have been chosen as TaeguTec's golden performers for their unmatched and exhilarating, Speed and Feed advance qualities that maximize equipment utilization and optimize performance.

TURN-SFEED takes the turn for higher speed and feed turning. This **SFEED-TEC** golden performer for multi-directional turning features a trigonal insert with 6 cutting edges for high speed and feed. The unique pocket structure and insert clamping mechanism withstands multidirectional forces to ensure continuous and consistent high feed turning. Coolant is efficiently blasted to the cutting edge from the top as well as the bottom of the tool.

For parting and grooving, TaeguTec's **CUT-SFEED** original design goes beyond the metalworking world's imagination and expectations for single-ended inserts that perform parting and deep grooving applications. The new line resolves the challenges where others have failed by rectifying the issue of vibration, unstable tool life and frequent breakage stemming from bad chip evacuation.

The innovative and superlative golden **CUT-SFEED** line, and its new robust insert, is shaped to provide high stability. The unique clamping system enables machining at high-speeds and feeds for greater productivity. The tools are designed with pinpointed coolant accuracy for better edge life and efficient chip evacuation.

SFEED-TEC's phenomenal **DRILL-SFEED**, with its innovative head changeable solid carbide heads, features 3 effective cutting edges and is the right solution to increase production by an industry leading 50 percent. The unique self-centering head geometry creates high balancing forces at the workpiece penetration point and promises reliable performance in high cutting conditions. This golden drilling line offers accurate hole sizes and premium surface finishing on steel and cast iron materials.



The intelligent design of the **DRILL-SFEED's** head runout remains accurate in its position after replacement, assuring no setup time because of the fast head replacement operation and minimum machining downtime. Moreover, the line's advanced blue coating technology combined with its three effective cutting edges, as well as the highly efficient internal coolant system that enables for excellent chip evacuation, empowers this **SFEED-TEC** flagship to drill at high-speeds and feed rates.

Milling solutions have been answered with two incredible golden offerings, **MILL-SFEED** and **TANG-SFEED**.

Cont. on page 10 ☞

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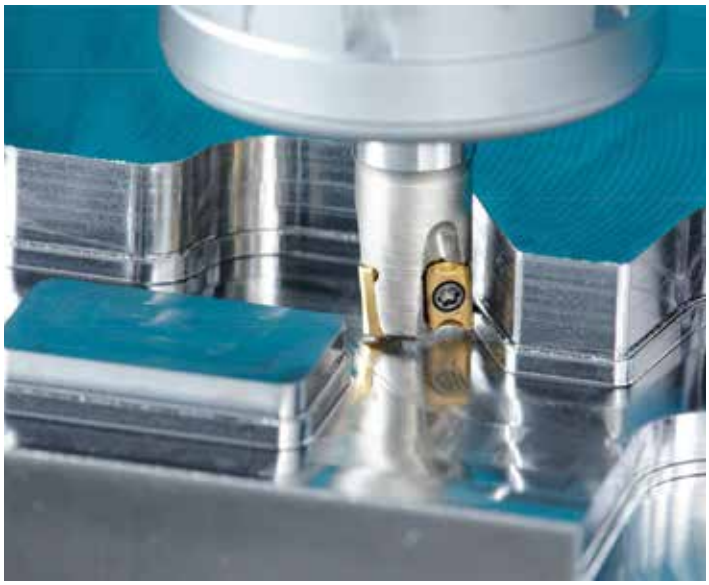
INDUSTRY 4.0 TaeguTec Member IMC Group

☞ *Cont. from page 8*

MILL-SFEED is a golden indexable line for 90-degree shoulder milling that is now smaller than ever. The unique, advanced V-shaped insert has a strong and durable structure, for small diameter tools down to a 6 mm diameter. The V-shaped pocket possesses a durable structure that allows for highly stable insert positioning, which is vitally important in small diameter cutters.

Also, **MILL-SFEED** enables for the mounting of an increased number of inserts so that they could be used for various applications due to high ramp down and plunging capabilities. Additional inserts for high feed rates can be mounted on the same tool, which allows for 0.7 mm feed per tooth in shalow depths of cut. Overall, this milling genius combines high speeds and feeds for higher productivity.

Last but not least is the golden **TANG-SFEED** brand, a new revolutionary line for high-speed and feed milling. Moving tangentially with its new golden rigid inserts for 90 degrees shoulder milling, **TANG-SFEED's** thick robust inserts are mounted on a strong tool body with a large core and can absorb very high cutting forces. The tool design produces exact 90-degrees shoulder operations, which avoids mismatch when machining next to walls. The insert design provides an exclusive option for ramp down. On the whole, **TANG-SFEED** enables machining under tough conditions with unsurpassed consistency for extraordinary speeds and feeds.



Being at the forefront of innovation, technology, design and creativity, TaeguTec's technologically advanced, unique and premium Speed and Feed inspired tools help to accentuate the fourth industrial revolution into one that increases productivity while reducing cost – two factors that increase profitability and directly responds to the diverse needs of the metalworking world.

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TIGER·TEC® GOLD IS PUSHING THE BOUNDARIES – NOW FOR DRILLING

The Walter PVD grade WSP45G opens up a new range of applications

With Tiger·tec® Gold, Walter established a milling grade (initially CVD) on the market that many users consider to be the benchmark due to its long tool life. Walter is now expanding the wide range of Tiger·tec® Gold applications to drilling for the first time with the addition of the new PVD grade WSP45G.

WSP45G is the only grade on the market thus far to come with an aluminium oxide (Al_2O_3) multilayer: Its high level of crystallisation makes it not only extremely wear-resistant, but also heat-resistant. This effectively protects the TiAlN layer below it from heat transfer and therefore from wear when processing ISO P materials. This is the case particularly whenever heat cannot be dissipated through chips – for example when processing ISO materials M and S with poor thermal conductivity. A gold-coloured top layer made from zirconium nitride (ZrN) makes wear detection easy so that every cutting edge is used.


P2840S-E67

The three indexable insert drills Walter has selected for use with the equally tough and wear-resistant Tiger·tec® Gold cutting tool materials cover a wide range of applications: The B321x.DF. is particularly suitable for small diameters from 10 to 18 mm; it effectively competes with the solid carbide drills here. The D3120 is considered to be particularly economic because is only requires one type of indexable insert, both on the outside and in the centre; these are universal requirements the WSP45G grade meets perfectly. As a specialist for use on lathes, the D3120 additionally benefits from the new grade as high wear forces are generated when turning with an X offset. Users requiring high precision when drilling should select the D4120 for diameters from 13.5 to 59 mm.

HIGHLY POSITIVE WITH FOUR CUTTING EDGES

New Walter MN3 geometry for cost-effective ISO N machining

Walter is launching the new MN3 geometry especially for the quickly growing potential of ISO N materials, for example aluminium. While it is highly positive it can be used on both sides and therefore combines a long tool life and high metal removal rates with greater cost-efficiency.

The polished rake face (for improved chip evacuation) and the extremely sharp cutting edge (for a softer cutting action) of the new geometry are particularly important factors for the insert's good performance. The double-sided insert is a useful expansion of the existing Walter portfolio for ISO N machining with the positive geometries FN2 and MN2. Walter is launching the new indexable insert in two grades: As a cost-effective, uncoated and polished grade WN10 and in the grade WNN10, with a wear-resistant HIPIMS PVD coating, extremely smooth surface and optimised layer bonding.

MN3 is the first Walter geometry to have double the number of cutting edges while also being highly positive. The rake angle on the radius is 29 degrees. It can be used both for the medium machining of non-ferrous metals and ISO N alloys (for example aluminium, copper or brass alloys) and for the fine finishing of small components made from steel and stainless-steel materials or high-temperature alloys. Thanks to the highly positive cutting edge and chip nubs, users benefit from improved chip breaking – even when working with "lead-free materials" like CuZn21Si3P. The surface roughness was optimised, which allows for an increased tool life even when working with materials that have a tendency to stick (built-up edges). The negative basic shape with double the number of cutting edges increases productivity and cost-efficiency.

UNIVERSAL EXCELLENCE IN MILLING

Walter Xill·tec™ combines performance with wide applicability

With Xill·tec™, the solid carbide milling cutters in the MC230 Advance product range, Walter is presenting a new range of products: A new type of high-performance geometry with an asymmetrical helix (35°/38°) was combined with Walter's own wear-resistant and high-performance grade WK40TF. The result is a tool family with high performance that also offers universal applicability for roughing and finishing.

The milling cutter experts have consolidated the developments of the past ten years in the Xill·tec™ range. The asymmetrical helix, the most important feature of the geometry, enables smooth, low-vibration operation: This is essential for long tool life and process reliability. Fractures are avoided and the high level of operational smoothness contributes to the soft cutting action of the Xill·tec™ milling cutter.

The solid carbide milling cutters are suitable for all ISO material groups (P, M, K, N and S) as well as all common milling operations, such as shoulder milling, ramping, (helical) plunging and full slotting (up to 1×D), while exhibiting a high-performance level. This is also true for innovative machining strategies such as dynamic milling. The comprehensive range of products also contributes to the universal applicability of the Xill·tec™: The milling cutters are available with and without corner radii, with centre cutting edge, reduced neck, protective chamfer, cylindrical and Weldon shank. The universal applicability and an outstanding price/performance ratio make the milling cutters an appealing option not just for sub-suppliers and channel partners, but also for users in a wide range of different sectors.

For more information, please contact Spectra Carbide Tooling Technology – Tel: 021 555 4144.

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TAPMATIC DeBurr-Z CNC floating deburring tool

The DeBurr-Z deburring tool is an axially (Z axis) floating tool holder, for use on CNC machines, designed for deburring or chamfering the sharp edges of a work piece. The floating holder allows the burr cutting tool to follow the edges of the part even when these are not clearly defined or vary in position like in the case of castings, cross holes or intersecting surfaces.

Top edges

Underside edges

Intersecting

The DeBurr-Z compensates in both the compression and the extension direction allowing you to deburr both the top edges and underside edges of the work piece.

There are 10mm of both compression float and extension float and the force exerted against the work piece edge can be adjusted for harder work piece materials or to increase the size of the edge break.

The force adjustment works equally and simultaneously in both the compression and extension direction and making an adjustment does not affect the tool length.

Neighbouring tools and collision areas in the machine's tool magazine will normally not pose a problem thanks to the compact design.

Maximum recommended speed is 10,000 RPM.

The feed rate can be programmed based on the material, and the desired edge break size and finish.

Using external flood coolant/lubrication, results in the longest tool life and best finish.

Burr cutting tools with angular and spherical profiles can be used.

For more information, please contact Duncan Macdonald – Tel: 011 444-4345.

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Angle 150x150x15

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NEW ROBOCUT α-CIC SERIES

Thanks to a number of breakthrough advances, the new ROBOCUT α-CiC series of wire EDM machines from FANUC offers even higher levels of reliability, cutting speed, surface finish and dimensional precision. Among the many customer-centric enhancements are an entirely new mechanical structure, pitch error compensation across the complete work surface, a dramatic simplification in taper cutting adjustment and a hardened table as standard.

Electro-discharge machining (EDM) is the go-to process for parts out of electrically conductive materials where intricate contours or cavities are required, particularly in hard metals or those that would be difficult to machine using conventional techniques such as milling, turning or grinding. It was in 1975 that FANUC brought its first ROBOCUT wire EDM solution to the market. Since then, the company's expert team of design and development engineers has worked continuously on new iterations to ensure customers stay ahead of their competitors. With the latest ROBOCUT α-CiC, wire EDM has reached another new dawn.

"Offering all-round, high-quality cutting performance and uncompromising reliability in a multitude of applications, the new ROBOCUT α-CiC wire erosion machine will bring genuine competitive gain to both subcontract and OE manufacturers," states Stefan Raff, FANUC's Head of Sales Robomachine Europe. "Nearly half a century since FANUC first launched its ROBOCUT wire EDM brand, we are bringing this foundation stone of wire erosion technology to the next-generation of manufacturers."

Underpinning several of the improvements is a high-strength, high-rigidity upgrade to the mechanical structure of the main linear axes. This reconfiguration of the ROBOCUT design suppresses distortion and promotes better stability, which in turn leads to higher cutting accuracy and extended machine reliability, both of which are pillars of the FANUC philosophy.

The new ROBOCUT α-CiC will provide users with a further accuracy boost thanks to the introduction of a high-precision pitch error compensation function. A special factory-calibrated compensation grid ensures pitch error correction over the entire X-Y table area – rather than a single central point – delivering a significant advantage in workpiece accuracy. It no longer matters where the workpiece is located on the work surface, the same level of optimum precision will result.

Improvements in taper cutting performance and ease of adjustment represent another notable advance. The traditionally complex operation of setting and adjusting the wire taper is now straightforward thanks to the use of a basic jig guided by on-screen instructions.

Customers will also benefit from the inclusion of a hardened and durable workpiece table as standard, preventing any potential for scratches to develop.

Improved process control

FANUC appreciates that process control is paramount to success in wire EDM operations. ROBOCUT control enhancements via the latest feature-rich FANUC iH Pro user interface focus on leveraging the advantages of the new mechanical structure to cut more efficiently. The new and improved user interface with its 15" widescreen, multi-touch LCD means that more intuitive operation is a further advancement, even for those relatively new to wire EDM.

This high level of practicality extends to many other machine functions, including installation and maintenance. It now takes 2 hours less on average to complete installation, while many maintenance options are far quicker. For instance, maintenance of the feed rollers takes just 5 minutes, rather than 40. And, with the aim of reducing the already unlikely possibility of a breakdown, the FANUC iH Pro can highlight impending issues prior to failure, even providing a video or image that outlines how rectification can take place in-house to minimise downtime.

Upgraded mechanical structure complemented by even more intuitive operation makes for enhanced customer experience.

ROBOCUT α-CiC machines also feature new-generation discharge technology to achieve higher cutting speeds without wire breakage, particularly for rough cutting passes. Alternatively, users can opt to improve surface finish (to Ra 0.3 µm) without heavy compromises in speed. To help find the optimum speed/surface finish settings for a specific workpiece, FANUC has introduced a straightforward adjustment function. Now, instead of having to reference a complex table of parameters, users can adjust cutting performance via a simple ± slider control while maintaining the discharge gap for stable machining.

Rapid wire threading

The new ROBOCUT α-CiC design offers more space for easy and quick wire threading. In terms of wire-related functions, the machine retains many popular features of the previous ROBOCUT generation, including highly reliable automatic wire feeding. The ROBOCUT AWF technology allows automatic wire feeding up to 500 mm under submerge conditions depending on the machine configuration.

ROBOCUT-Linki software, supplied as standard, serves to manage production and quality information. Users can monitor operations, receive e-mail alerts, manage consumables and transfer programs. With Linki, customers are able to connect up to 32 IoT-ready ROBOCUT α-CiC machines.

Further capabilities available to customers include: the ROBOCUT-CCR high-precision rotary table, which provides even more application opportunities (such as helical cutting and PCD tool machining); a wire loader (for 20-30 kg wire) to further boost continuous unmanned machining; and the potential to connect a machine-tending robot/cobot via a single Ethernet cable. To create solutions that meet specific requirements, full customisation is possible, either at the build stage or any point of the machine's lifetime.

Space-saving design

Featuring a more compact design than the previous-generation machine, two model sizes are available: the ROBOCUT α-C400iC and ROBOCUT α-C600iC. Users can load workpieces with dimensions up to 1050 x 775 x 400 mm in the X, Y and Z axis respectively, with a maximum weight of 1000 kg.

Importantly, thanks to a comprehensive Europe-wide network of service centres, FANUC can offer lifetime support for its machines, regardless of running hours or age of control.

"Such is the reliability of FANUC and its machines that customers frequently enjoy using ROBOCUT models for several decades," concludes Stefan Raff. "This dependable performance, matched by our extensive service provision, allows customers to concentrate on their core business of manufacturing parts with complete peace-of-mind. Wherever you are located, we have a local presence to ensure help is never far away."

For more information, please contact FANUC South Africa – Tel: 011 392-3610.

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AMADA – THE FOREFRONT OF BANDSAWING TECHNOLOGY

Amada's continued commitment to reliability and dependable service is evident through the continued research and development carried out by the company.

With over 75 years of experience and expertise to rely on, Amada is at the forefront of bandsawing technology. The ever-growing need for – faster, cheaper and simpler –is a driving force behind the development of state-of-the art equipment.

Everyone knows that time is money, but very few take heed to the practice of investing in reliable, dependable equipment in order to eliminate down time, to speed up production, increase quality and reduce scrap.

Amada has, through their many years of experience, managed to produce both machines and blades to cater for all cutting needs in the different world markets. Every feature, function and configuration offered by Amada has been carefully considered and applied to specific machine models in order to obtain the ultimate in productivity for specific cutting requirements. Amada's aim is to take productivity to the next level, and offer products that exceed expectations. Features such as "skew cut detection" allow for unmanned production as the machine is constantly monitoring its own cutting accuracy. Multi vices allow for bundle cutting which in turn increases through put and cut-off-counters ensure the correct number of cuts which prevents over or under production. Simple things like the positively driven wire brush add to the longevity of the blade by removing swarf from the root of the blade tooth and the variable blade speed adjustment ensures optimum operation.

Operator friendly controls ensure simplicity and ease of use, thus allowing skilled and semi-skilled operators to become professionals in their jobs. Simple hands-on training supplied by Amada will ensure proper, extended blade life as well as machine reliability.

Amada's range of sawing equipment is able to cater for all types of cutting demands. From a simple – accurate single piece cutting, to high volume – high demand accurate cutting, there is a machine model to suit every cutting need.

HA Series

The Amada range of bandsaw machinery includes both horizontal and vertical models. The most popular of which has to be the ever-faithful "HA" – horizontal series. This tried and trusted HA series has proven that they are built to outlast any other. Some of these machines in the market are still running after 50 plus-years. Although technology has been updated over the years, the basics remain the same and accuracy and reliability are still guaranteed. The vertical range of bandsaws – the VM series is also a reliable range offered that has now been complimented with the "VT" Series which allows for the tilting of the cutting head for angular cutting. These machines are available as manual machines or automatic programmable options.

High production requirements are catered for with the CM Series, the PC Saw and the HP Saw series of machines. These machines are capable of high speed and high volume cutting. Pre-set cutting conditions ensure accurate and optimal operation and drastically reduce scrap as well as material handing thanks to the programmable cutting data. Standard and optional accessories available will also assist in streamlining the cutting process in production.

CM Series

HPSAW 310

VM1200

Amada offers a full variety of bandsaw blades to compliment the reliability of the machinery. With careful attention given to detail, Amada blades have proven themselves to give outstanding blade life and accurate cutting results. The most common of the range is the SGLB blade. This is a M42 Bi-Metal blade that is ultimately the best "all-rounder". The most important consideration when selecting a blade, is the blade pitch. This is what determines the ultimate blade life together with feed speeds. Coarse blades used on smaller products will cause blade chipping and premature blade failure. Similarly, fine blades on large products will result in teeth clogging and excessive heat build-up , then premature failure again. Feeds and speeds play just as an important role and it is imperative that settings are correct according to the blade being used and product being cut.

SGLB Blade

Axcela Blade

Amada offers a full range of blades to cater for all cutting needs. This range includes the SGLB, Axcela H, Axcela G, CTB, Magnum HI-LO, Magnum 71, Super HI-LO, Protector, Cobalt8 and DUOS blades. The TCB series of circular saw blades is also supplied by Amada for Cold Saws.

All blades manufactured by Amada are tested by stringent methods to ensure quality and reliability. This together with quality material grades used ensures reliability and longevity.

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

EVERISING FULLY AUTOMATIC BANDSAWS

Everising has four pivot-type bandsaws in its S-250HB – S 460HB range. The bandsaws feature full PLC control of all electrical and hydraulic functions. The raising and lowering of the cutting head is controlled by a single lifting cylinder which makes for quick, efficient operation. Work-pieces are secured during cutting by a hydraulically controlled dual-vice clamping system.

Blade tension, a factor that can extend the life of a blade, on Everising's S machines is controlled hydraulically for optimal blade life. Blade speed is controlled by an inverter giving infinitely variable speeds of between 20 to 100 m/min. The machines also feature automatic shuttle-type feeding systems.

A pre-set counter shuts off the S Series bandsaws after a given number of items have been cut, while an idler-wheel motion-detector shuts down the machine should the blade stall or break. In addition, the saws detect when stock has run out and automatically shut down.

In its column type H Series bandsaw range, Everising offers 11 different models. These range from the H-250HA with a 250mm cutting capacity to the large H-1100HANC capable of cutting workpieces of 1000mm x 1100mm dimension. The machines at the larger end of the range have progressively more features, such as the ability to use tungsten-carbide tipped blades. However, all of the H series bandsaws are well-suited for heavy duty cutting applications as their column type design allows for maximum cutting stability.

Everising's S-250HB – S 460HB range of bandsaws features full PLC control of all electrical and hydraulic functions.

Everising's H series bandsaws are well-suited for heavy duty cutting applications as their column-type design allows for maximum cutting stability.

Should the blade on an H series machine break, the machine will automatically shut down to protect both the operator and the machine. The bandsaws are fitted with automatic chip conveyors which keep the inside of the machine clean and save on operator time. In terms of the operator's time, the H series are fitted with user-friendly NC touchscreen controls with a self-diagnostic control system. As with the S series, the H series' hydraulic system and electrical devices are controlled by PLC.

When there is need to cut bundles of steel rod, on the H series S-250B to the H-460 HB models, a hold-down device ensures that the material being cut stays secure in the machine thereby offering consistent quality. For larger work-pieces, the bandsaws in the H series are equipped with a hydraulic full-stroke, dual-vice clamping system.

For machines capable of cutting diameters greater than 700mm, the guide arm travels on linear guide-ways for greater stability during cutting. On the larger H Series models, an anti-vibration roller not only eliminates vibration but extends blade life as well. The anti-vibration roller and the saw blade clamp are automatically adjusted.

Optional H-Series devices feature an out-of-square detection system which automatically shuts the machine down while adjusting dual wire blade cleaning brushes which also serve to extend blade life. Everising's automated functions allow for a minimum of skilled supervision allowing workers to be deployed to more productive activities.

ECLIPSE HACKSAWS FROM FIRST CUT

Represented in South Africa by First Cut and with a proud history of hacksaw frame and blade manufacture stretching back nearly 100 years, Eclipse hacksaw blades and frames have become synonymous with engineering excellence and continuous product development.

For example, in terms of development, the distinctive ground tooth profile of the Eclipse Bimetal blade produces a faster and more aggressive cutting action, that requires less effort and is more efficient. Their ergonomic design also makes them a pleasure to use. Whatever the application or the metal that needs to be cut, Eclipse will have exactly the right blade in its range.

For more information, please contact First Cut – Tel: 011 614-1112.

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- Maximum Bar Capacity - 81mm
- Main Motor Power - 18.5Kw
- Control - Fanuc OiTF Plus
- Weight - 3900kg

NL 2000
- 8 Inch 3 Jaw Hydraulic chuck
- Maximum Turning diameter - 391mm
- Maximum Turning Length - 560mm
- Maximum Bar Capacity - 67mm
- Main Motor Power - 18.5Kw
- Control - Fanuc OiTF Plus
- Weight - 3900kg

NL 3000B
- 12 Inch 3 Jaw Hydraulic chuck
- Maximum Turning diameter - 480mm
- Maximum Turning Length - 750mm
- Maximum Bar Capacity - 102mm
- Main Motor Power - 35Kw
- Control - Fanuc OiTF Plus
- Weight - 5700kg
- 2 Speed Gear Box

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BYCUT SMART 6225 – HIGH PRODUCTIVITY AND PERFORMANCE AT A FAVOURABLE PRICE

The ByCut Smart 6225 up to 10 kilowatts of laser power from Bystronic optimizes sheet metal utilization thanks to the 6225 format and the optional BeamShaper – all at a favourable price.

More sheet metal, more parts, more variety. Large-format laser cutting systems enable you to stand out against competitors without huge financial expenditures. This is why we are expanding the ByCut Smart product line with the 6225 format in a new design. The machine can be equipped with the Fiber 3000, 4000, 6000, 8000, or 10000 laser sources, depending on the user's requirements.

Less waste thanks to intelligent nesting

Thanks to the new large format, you can process metal sheets on the ByCut Smart with a length of up to 6.2 meters and a width of 2.5 meters. On the one hand, this increases the machine's productivity, because large metal sheets allow the cut parts to be nested more efficiently. On the other hand, this also significantly reduces undesirable raw material offcuts thanks to a high degree of material utilization.

The BySoft CAM process software supports you in this process with intelligent nesting procedures.

Wide range of cutting applications

In addition, the new format increases the variety of cutting applications on the ByCut Smart. If required, large-format metal sheets allow large parts to be cut in addition to diverse small parts, without requiring the machine to interrupt the laser cutting process. This provides an additional competitive advantage that laser cutting systems in the common standard formats cannot offer.

Large format range for every need

In addition to cutting applications with extra-large metal sheets, it is also possible to process smaller sheets by lining them up on the ByCut Smart's long cutting table. You can simply prepare sufficient raw material, in order to subsequently allow the fiber laser cutting system to cut without interruptions for a longer period of time.

For more information on the please see www.bystronic.co.za or contact Bystronic on 010 410 0200.

Bystronic

ByTube 130 Limitless applications

- Versatile cutting technology with laser power up to 3 kW
- High productivity with fast loading and unloading cycles
- Compact design and individual configuration

www.bystronic.co.za

TONGTAI FOR BEST PRODUCTIVITY VS COST RATIO

In January 2019 Tongtai turned 50 years old and with that comes a push towards the future. Tongtai has released several new machines in the last two years including VMCs with turning functionality (VMT-200), 5 Axis VMCs with additive hybrid technology (AMH-350) as well as Ultra-sonic machining solutions (VU-5).

Tongtai always has and will continue to provide the *best productivity vs cost ratio* solutions to its customers. With the ability to supply single function CNCs all the way through to mass production turnkey systems, Tongtai is the ideal partner for any manufacturing organization.

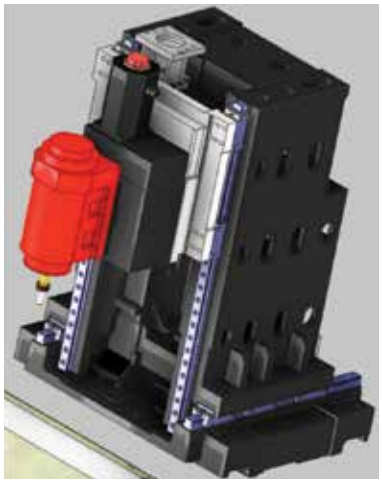
With this is mind and following requests from customers, the decision was made to introduce a B-axis head multi-tasking CNC lathe.

When comparing to competitors, Tongtai has focused on overall larger diameters with longer length capacities.

Tongtai TMS Series mill/turn machines are available in 4 different models, each with 3 different configurations with up to 9 axes. The standard **TMS** machine has a main spindle with programmable tailstock, while the **TMS-S** has a sub-spindle in place of the tailstock, and the **TMS-ST** features both a sub-spindle and a lower turning turret. Maximum turning diameter is 660mm with bed lengths up to 2000mm.

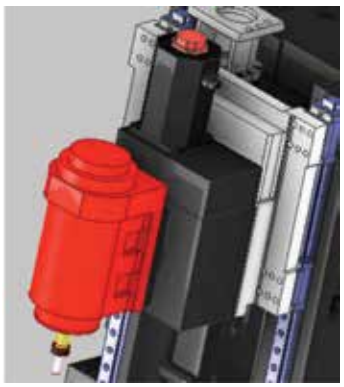
The TMS Series consists of the TMS-2000 (8" chuck, 51" bar), TMS-2500 (10" chuck, 76" bar capacity), TMS-3000 (12" chuck, 76" bar capacity) and TMS-3800 (15" chuck, 89" bar capacity).

With such a large working envelope and machine options, the target workpieces and industries include aerospace, prototyping, medical, automotive, tooling and medium to mass production.



TMS Series machines feature a one piece 75° mono-block slant bed that permits free flow of chips as well as easy access to the spindles and cutting tools. A true linear (perpendicular) Y-axis simplifies programming. Roller-type linear guideways in all axes and large-diameter pre-tensioned ballscrews provide precise position accuracy. The machines are made of Meehanite cast iron for rigidity and vibration dampening.

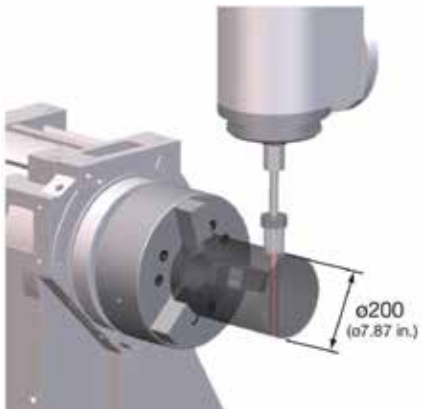
Both main and sub-spindles feature dual-wound built-in motors with electronic high/low gears. Both spindles have a full Cs axis (0.001°) with braking system. Three-piece Hirth couplings rigidly lock the spindles in place in 1° increments for heavy milling and high accuracy. Spindle power ranges from 26kW on the TMS-2000 to 60kW on the TMS-3800. Both main and sub-spindles are liquid cooled for thermal stability.



The B-axis milling spindle has a zero-backlash roller gear drive with high-speed rotation of 33.3 rpm and ±120° of movement from the vertical position. It features a rigid 3-piece coupling to lock the spindle in place for heavy turning and can be indexed in 15° increments.

The integral spindle milling motor delivers 22kW and 12,000 rpm and a 40 station with 80 optional arm type tool changer is standard, while an optional 10 station lower turret provides turning capability to both spindle as well as pinch turning ability with the B-axis. The automatic tool changer is available in either HSK-63T or Sandvik Capto C-6 tooling systems. These options mean the machine is especially suitable for small-volume, large-variety production.

The extended Y-axis stroke of ±125mm promotes less dependence on C-axis which results in shorter cycle times.



The standard Fanuc 31iT-B provides two-path control for simultaneous turning operations as well as 4+1 milling ability. The optional 31iT-B5 or Siemens 840D enables 5-axis simultaneous milling.

The benefits of multi tasking machining are proven time and again. However, incorporating single clamping, easy tool set up and interchange ability means that machines become even more productive, while increasing efficiency leads to a better cost per piece for the user.

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

Tongtai

VALUE CREATION

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Tongtai machines have been supplied into the South African market for over 30 years and the Tongtai brand represents value.

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- Vertical and horizontal CNC lathes
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- Metal additive manufacturing equipment
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SKETCH2019/13095

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.

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.

For more information, please contact CML Machine Tools – Tel: 082 232 9470.

Bending
with the E for
ergonomics

SafanDarley E-Brake

SafanDarley
M-Shear

Superior cutting technology
with hybrid drive

SAFAN DARLEY
The E-volution in sheet metal working

LEADERS IN THE INNOVATION OF SERVO ELECTRIC PRESS BRAKES

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MTMA

MTM®

BODOR LASER – A SUPER FACTORY

Bodor Laser, a huge manufacturer based in Jinan, the capital of eastern China's Shandong province and a forerunner in the ultra-high-power field of the global laser cutting industry impresses visitors with a white floor and at almost 30,000 square meters, the largest laser cutting equipment production workshop in the world. Bodor's R&D center is staffed with more than 100 top researchers, and millions of dollars are invested in R&D projects each year.

Bodor's almost 30,000 m² laser cutting equipment production workshop.

While production strictly meets European standards and international quality control, the company also leads the high laser power laser machine sector, with the first 30kw laser cutter and the first 40kw laser machine launched recently. To date the company has almost 700 12kw machines and over 40 20kw machines installed all over the world.

High Power Machine P model 12kW

The Bodor product portfolio includes high power laser cutting machines, fiber laser metal sheet cutting machines, high precision laser cutting machines, metal sheet and tube laser cutting machines, sheet cutting automation devices and coil laser cutting machines.

In 2019, Bodor Laser completed its 25kW and 30kW global debut, becoming a weather vane for ultra-high power laser applications in the industry.

Sheets and tubes cutting samples

The Bodor Laser 40kW ultra-high power fiber laser cutting machine made its global debut at the Bodor Laser Innovation and Research Center a few months ago. Now, the world's first 40kW laser cutting machine is redefining laser cutting.

During a press conference, Mr. Yang Xuguang, General Manager of Bodor Laser Research and Development said, "The ability of 40kW laser cutting breaks through the bottleneck of cutting thickness and creates new standards. With the all-round upgrading of cutting thickness, cutting accuracy and cutting speed, Bodor Laser 40kW makes more laser applications a reality and becomes a new benchmark in the laser cutting industry."

"While the maximum cutting thickness of Bodor Laser 40kW can reach 200mm, the comprehensive processing efficiency of Bodor Laser 40kW is increased by 50%–80%, the cutting of 20mm carbon steel can reach 6m/min and 30mm carbon steel can reach 2.4m/min."

Faster Cutting Speed + Less Costs = More Profit

This chart shows the trend of machine operating costs, cutting costs per meter and the cutting speed when cutting 10mm stainless steel. From 3kW to 20kW as you see, the cutting speed becomes faster and cutting costs lower as the power grows. However, operating costs in the same condition change rather stably. Comparing 12kW with 3kW in the chart, for example, the data shows you that operating costs increase only by 2% under 12kW, but prominently, the cutting speed increases by 10 times, and cutting costs are only one-tenth of a 3kW machine.

Professional Tube laser cutting machine T model

For more information, please contact Bodor – Email: Pauline.xu@bodor.com or Tel: +86 186 6039 2325.

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All Cover Exchange Lazer Cutting Machine - P3015

The equipment meets the parts processing requirements of most industries, working accuracy is stable. Selecting the optimal force and supporting structure, the overall mechanical property of equipment is perfect. Adopting cutting-edge optical concept to improve cutting performance. High speed cutting, auxiliary loading and unloading and efficient production reduce labour costs. At present, laser cutting machines have been widely used in electronics, electrical, mechanical hardware, new energy lithium, packaging, solar, LED, automotive and other industries

SPECIFICATIONS

AUTO - FOCUS

Applicable to various focal lengths, which are controlled by machine tool control system. Focal point will be automatically adjusted in cutting process to achieve the best cutting effect of different thicknesses sheets metal.

FREE

Free your hands. Focal length is controlled by operating system. We don't need to do manual regulation, which effectively avoids errors or faults caused by manual operation.

FAST

It can automatically adjust the most appropriate focal points in working process, greatly improving cutting speed; When replacing different materials or different thicknesses sheet, manual focus laser head needs to adjust focal length manually, very inefficient; auto focus laser head can read system storage parameters automatically, very efficient.

ACCURACY

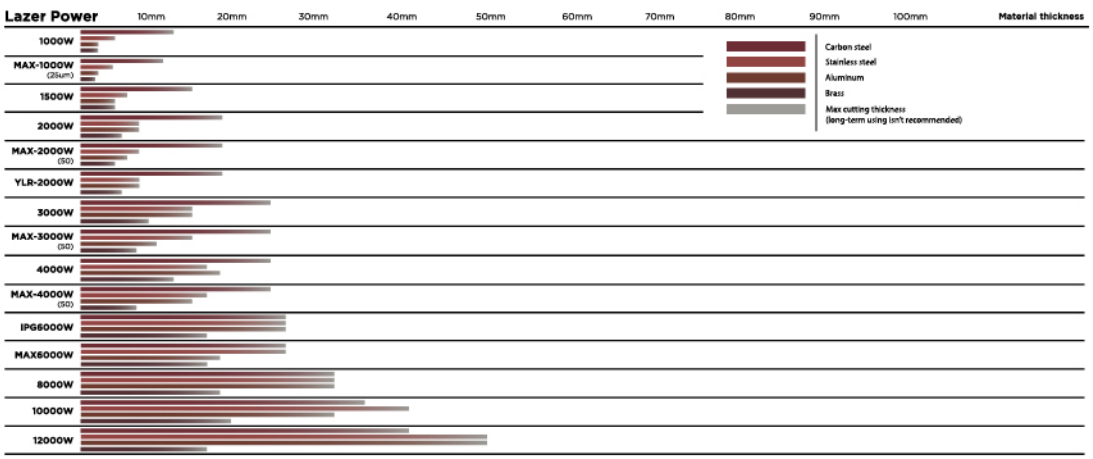
Increasing perforation focus length, separately setting perforation focal length and cutting length, enhance cutting accuracy.

DURABLE

Built-in double water-cooling structures can ensure constant temperature of collimating and focusing components, avoid lenses overheating and extend service life of lenses; Increasing collimation protective lens and focus protective lens, carefully protect key components.

MACHINE PARAMETER

Model	P3015	P4020	P6020	P6025	P8025
Working Area	3000*1500mm	4000*2000mm	6100*2000mm	6100*2500mm	8100*2500mm
Lazer Power	20000w/15000w/12000w/8000w/6000w/4000w/3000w/2000w/1500w/1000w				
X/Y axis Position Accuracy	0.05mm				
X/Y axis Reposition Accuracy	0.03mm				
Max linkage speed	140m/min				



Integral Machine Tools

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Benjamin : (074) 373 7503
sales@integralmachines.co.za

EUROPEAN PREMIERE FOR FANUC'S NEW INJECTION MOULDING MACHINE

Considered the most important trade show for the plastics processing industry, FAKUMA 2021 (Friedrichshafen, Germany, 12-16 October) is the ideal platform for presenting FANUC's new ROBOSHOT α-SiB injection moulding machine (Hall 3, Stand B3-3211). The new machine operates at higher injection speeds, and is faster and more flexible than previous-generation ROBOSHOT models. For tool and mould makers, the trade fair premiere of the new ROBOCUT α-CiC wire-cut EDM machine will be the highlight.

ROBOSHOT α-SiB impresses with high speed and connectivity

An important advantage of FANUC's all-electric injection moulding machines is their typically low energy consumption, which is especially attractive for companies that want to improve their carbon balance. The new ROBOSHOT series starts with a total of five machine sizes between 50 and 220 tonnes clamping force, and different injection capacities. These machine sizes will appeal to mould makers and high-precision plastic parts manufacturers in all industries, including medical technology and automotive engineering. FANUC will expand the range of the new ROBOSHOT α-SiB series further to give a total machine range covering 15 to 450 tonnes clamp forces.

The new, all-electric ROBOSHOT injection moulding machines demonstrate particular improvements in terms flexibility, speed and connectivity. Among the many highlights of α-SiB machines is a multi-functional 21.5" HD FANUC PANEL iH Pro display, which users can operate either traditionally with buttons, or like a smartphone via touchscreen and swipe functions. In addition, users will benefit from advanced software functionality as standard.

The precise, repeatable and reliable FANUC ROBOSHOT α-SiB offers multiple screw diameters, new injection unit sizes and higher injection pressures as standard, depending on the size. There is also the option of four-axis servo core control.

Wired for precision

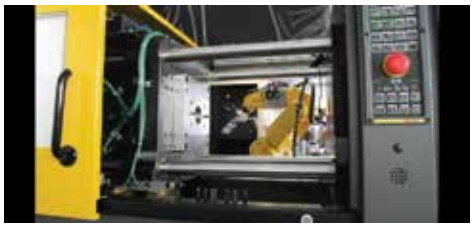
Another FANUC highlight at FAKUMA 2021 will be the new ROBOCUT α-CiC wire EDM machine for all mould and tool-making requirements. The revised design of the ROBOCUT α-CiC means that the machines have a significantly stiffer structure than before. For the operator, this extra rigidity pays off in higher cutting accuracy and better repeatability.

Other improvements include a new function that compensates for table movement errors. At FAKUMA, a ROBOCUT α-C400iC will simulate the cutting of mould inserts.

Connectivity made easy

FANUC's FAKUMA presentation will focus on "solutions" rather than just products – all based on the overarching idea of ONE FANUC, a unique technology concept for complete automation with CNC machine tools, robots and software.

A number of FANUC exhibits at FAKUMA will highlight this approach, including a ROBOSHOT α-S150iB application featuring a second, vertical injection unit (SI20iA), and a handling cell with an LRMate robot that demonstrates how easily FANUC machines and robots can be connected via the company's QSSR (Quick & Simple Start-up of Robotization) concept. In another cell, FANUC will give a live demonstration of the all-electric α-S150iB in an LSR (Liquid Silicone Rubber) version, automated with an M-20iD robot.



The Industrial IoT section of the FANUC stand will demonstrate product connectivity using the company's ROBOSHOT LINKi2 software, the latest version of which will receive its official launch at FAKUMA. Aside from providing complete monitoring of the moulding process, RS-LINKi2 can schedule upcoming jobs, analyse and evaluate historical data to help drive improvements, create customised reports, and issue downtime notification emails. In addition, machine learning functionality estimates the amount of machine wear, helping users to take advantage of predictive/preventative maintenance strategies.

For more information, please contact FANUC South Africa – Tel: 011 392-3610.

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Advertorial

A.P. DESIGN – A PROUD SOUTH AFRICAN MANUFACTURER

Established 45 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 recognitions systems. With the vast amount of options available we can build machines that are much more 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 1 250mm 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 2 000kg and more than 1 100mm in diameter and 200 to 1250mm width can be fed.

A wide range of custom made hydraulic presses are available from 30 to 1 000 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 2 500mm 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 2 020mm.

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: 011 010-0495.

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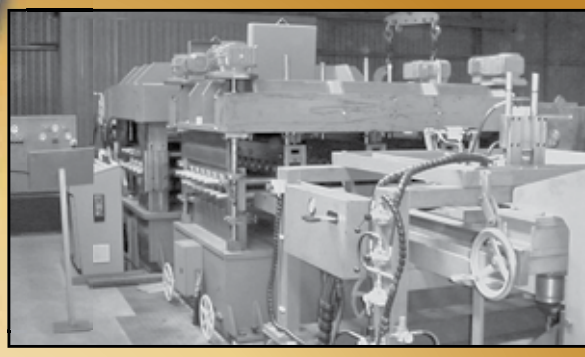
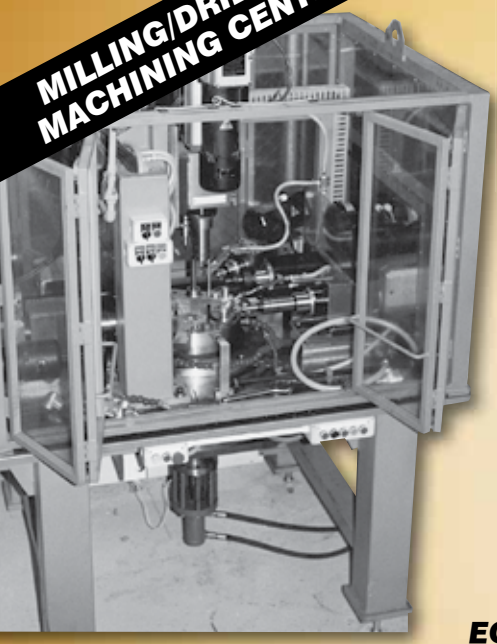


Cut to Length/Slit from 0.4 to 8mm Flying Shear

Tapping up to M30

MILLING/DRILLING MACHINING CENTRE



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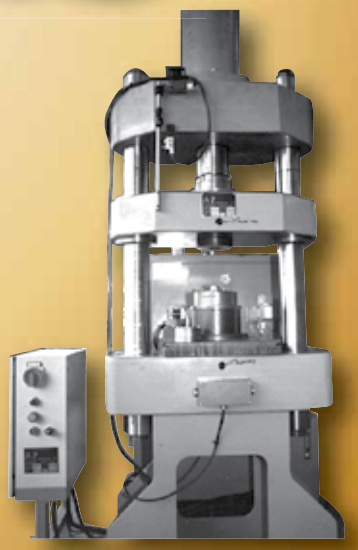

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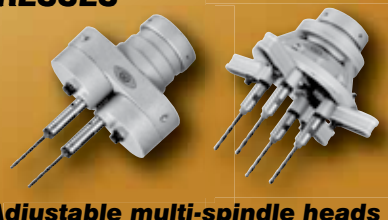

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