MTM®
Machine Tool Market
SOUTHERN AFRICA
May/June 2023
Volume 32 No.3

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MYTRUNNION 4G
5-AXIS MACHINING CENTER

Highest precision Japanese Built CNC Machinery

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Ideal for efficient ultra-high precision simultaneous 5-axis machining

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Positioning Accuracy
±0.000079" Full Stroke

Repeatability
±0.000039"

X,Y,Z Axis Travels
610,610,500mm

X, Y, Z Rapid Feeds	X/Y: 50m/min, Z: 25m/min
A, C Rapid Feeds	18000deg/min (50rpm)

Table Size	400mm	A/C Travel	0-360deg
Spindle Taper	NST No 40	Tool Storage	60, 100opt
Tool Change	2.2/5.8Sec	Power	45KVA

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Machine Tool Market
SOUTHERN AFRICA

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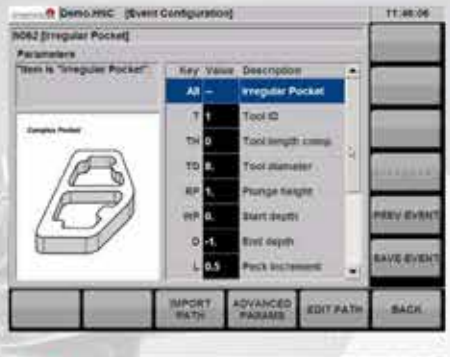
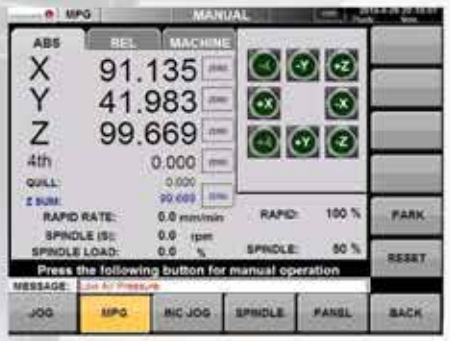
MJH Machine Tools cc

DynaPath

Sole agents for DynaMill CNC machines





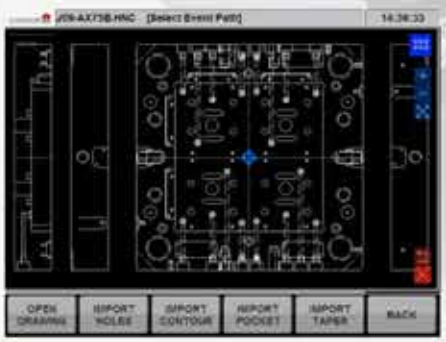
Conversational Programming
DXF Import
G-Code Editing

DMC845-L

XYZ Travel: 800 x 400 x 500 (mm)
BT40 8000rpm Spindle
Linear Rails on XYZ
Belt Driven 5.5kW Spindle Motor
8-Station Independent Toolchanger
Yaskawa Drives and Motors

MJH Machine Tools cc

DynaPath



15.6" Touchscreen Control
USB and FTP File Transfer
1000 Block Look-Ahead Function

A2-T / A3-T

X Travel: 830mm / 1000mm
Y Travel: 500mm
Z Travel: 590mm
BT40 8000rpm Spindle
Belt Driven 7.5kW Spindle Motor
16-Station Carousel Toolchanger
Yaskawa Drives and Motors

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Machine Tools cc

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www.mjhmachinetools.com

DYNAPATH WINDELTA

CNC Control System for Machine Tool Applications

The WinDelta Control system is a PC-based, fully closed loop CNC control solution featuring advanced motion control, built-in software PLC and a Windows-based HMI. The CNC hardware can be configured for up to 4-axis simultaneous motion control using an analogue voltage command interface or an optional digital interface. The system includes standard built-in motion, PLC and HMI modules, with the capability for custom development.

DynaPath's specific strengths

DynaPath is a flexible, powerful, yet user friendly control solution at a reasonable price. The control provides solutions for the beginner to the most advanced in one easy to use platform, while remaining versatile for manual, semi-automatic and full production operations. This is all enabled by the intuitive touchscreen user interface, DRO + semi-auto mode operation, conversational editor + CAD edit + import programming capabilities and ability to run any standard G-Code program. Furthermore, the control also applies advanced motion control to execute the programmed tool path quickly and smoothly while accounting for the limits of the machine, a feature only found on high-end controls in the market. DynaPath provides consistency of product function and operation modes coupled with excellent price to feature ratio.

DynaPath controls feature every way of operation on a single platform in a format that is easy to learn and use from simple manual plus operations to doff downloads and offline Fanuc format G-code downloading.

DynaPath offers manual users DRO and semi-automatic operation of the machine via electronic handwheels so the machine can be operated directly without knowing any CNC or programming. Then on the same control DynaPath runs standard G-Code programs and macros that any CAD CAM can post to, so the control is essentially FANUC G-Code compatible. Finally, Conversational Programming is available on the control that is quick to use and easy to learn with a built-in CAD system that can import and edit DXF files directly via the touchscreen.

DynaPath – Interesting Facts

The history of DynaPath controls began in 1970s with the System 10/20 series, then from 1980s to present the Delta 10/20/30/40/2000 series, then from 2010 to now the WinDelta 600/1000/H/M/T series. To date over 20000 control units were sold and most of these systems are still fully supported from the DynaPath Detroit main office. DynaPath OEM's have provided a worldwide customer base throughout Europe, United Kingdom and Asia, with a majority of sales in the USA, however, the launch of the WinDelta series has seen more growth recently in Taiwan and China.

Dynapath has provided Mill, Lathe and Punch controls to OEM industry leaders including Tree Machine Tool, Republic Lagun, Chevalier Machinery, Mighty Enterprises, Monarch Cortland, Clausing, Machining Systems, South Bend, & LVD (US, Europe & UK).

Customers in the US include Ford, General Motors, General Electric, Honeywell Inc., Caterpiller Inc., Gradall Inc., Testron, Naval Surface Warfare Center, Lockheed Martin, JPL, USAF, Martin Automatic, Asyst Technologies, Electronic Theatre Controls, Monroe Mold and others.

A customer from Shelter Logic in Illinois says: "Our program time was reduced from 6 hours to 30 min with the new WinDelta DXF feature. This not only reduced programming time but also enabled our machinists to stay focused on the manufacturing process instead of re-entering part program numbers."

Time savings using DynaPath

In general, programming a conversational program on the control takes less than 10 minutes. If a DXF file of the part is provided, programming takes even less time. If running a G-Code program, due to advanced path planning and smoothing, the cycle times are even quicker on the DynaPath control, often saving 10% to 40% machining time, particularly for programs containing fine contouring operations.

Advantages when investing in a DynaPath

A company representative from DynaPath says: "Strong advantages include features, cost, flexibility and plethora of programming formats plus our response time and availability. We are trying to beat the competition, not join them. So, to achieve this, we must employ a better tool.

"As a controls company offering unique machine tools, DynaPath makes machine tools that are specially integrated with the control in such a way that is feature-rich and oriented for that user segment, compared to other machine tool providers who simply integrate standard controls on standard frames.

"The DynaPath control combines ease of use, manual DRO operation, conversational programming, DXF editing, standard G-Code and macro compatibility, while measuring up extremely well against competitors. The control offers advanced path planning with look-ahead, feed-forward, smoothing and dynamic roughing or finishing parameters to produce excellent machining quality. Additionally, there is remote assistance and remote diagnostics service built into the control," he concludes.

DynaPath CNC training

For a novice, basic operation takes at around 1 hour to introduce each operating mode and screen navigation. Intermediate operation takes around 2 hours to set up work offset, tool offset, program a part and to run it. Advanced operation can be open-ended, but with remote training, customers can remote link anytime, while learning what is required from trained technicians and at their own pace. For any operator already familiar with other common CNC's such as FANUC, the operator can almost seamlessly inter-operate between the two machines with minimal additional training.

For further information, please contact MJH Machine Tools – Tel: (031) 705 7514.

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HURCO EASY TO USE NC MERGE FEATURE

Easy to use NC Merge feature in Hurco's conversational control software means CAD/CAM is only needed for programming complex 3D contours

Six Hurco 3-axis VMCs carry out a majority of prismatic machining in the toolroom at the headquarters of plastic packaging manufacturer Berry M&H in Beccles, Suffolk. Although the firm dates back to 1973, the first Hurco machines, a VM10i and a VMX30i, did not arrive until 2015 when the assets of another toolmaking company were acquired, including its machines.

Prior to that, manual knee-type mills were followed by 3-axis CNC milling machines and then a succession of machining centres with automatic tool change. All of the CNC machines, although of various makes, were fitted with the same G-code-based brand of control system to provide commonality for the convenience of the staff.

Berry M&H's toolroom manager Kurt Knights, who has been with the company for over 20 years advised, "When we started using WinMax conversational software in the Hurco control, it made shop floor programming far easier and quicker for our operators – and it also simplified training new people.

"Most programs we prepare take advantage of the Hurco's NC Merge feature. Complex parts of a cycle for contour-milling 3D mould surfaces are output from either NCG CAM or SolidWorks CAD/CAM systems in our design department and the file is imported directly into the control.

"Conversationally programmed blocks prepared at the machine using WinMax are then automatically merged in the control with the offline content into a single program for milling the block parts of our moulds."

Aluminium chuck for Berry M&H's printing department

Offline code generation for a mould takes typically 10 hours, while the shop floor element is completed in around two hours, much faster and more simply than is possible on a machining centre driven by a G-code control. It quickly became apparent that the Hurco/WinMax combination was perfect for Berry M&H's requirements, which centre mainly on fast-turnaround production of moulds from 170 mm wide Alumec 89 billets. Most moulds comprise neck, body and base blocks manufactured from this high strength aluminium alloy, held together by a steel back plate.

Two new Hurco VM5i 3-axis VMCs were purchased for machining these moulds, as well as for new tool development that was formerly the province of the CNC mills, all but one of which have now been sold. The VM5i was chosen as it has a generous 457 x 356 x 356 mm working volume in a compact 1.6 x 2.9 metre footprint. It suited the toolroom space and layout well and was correctly sized for machining the company's moulds. Four halves at a time are fixtured, each of which takes about three hours to machine. The resulting 12-hour cycle is more than sufficient for a full light-out shift overnight.

Kurt Knights with with a set of SS Moulds

As the size and performance of the two VM5i machines were ideal, the decision was taken in 2019 to buy a third, this time for producing items such as printing chucks, bracketry and other general, non-mould items for different departments across the Beccles site. It brought in-house a lot of previously subcontracted milling, delivering considerable financial savings.

In November 2020, a larger Hurco VM30i with a 1,270 x 508 x 508 mm working volume was purchased that Knights described as "a superb machine and excellent value for money". The investment was down to Berry M&H's decision to move more strongly into the production of bigger moulds up to 700 mm wide and with up to six cavities.

There had always been a requirement for this size of tool and their production was previously subcontracted out, so this expense is now also saved. Both Alumec 89 and 1.2316 stainless steel are used, the latter as it has good thermal conductivity and wear resistance and is also magnetic, allowing a mould to be clamped conveniently on the bed of a grinding machine.

Berry M&H designs, develops, produces and prints to British Retail Consortium standards a large range of plastic bottles, jars, tubs, flexible tubes, closures, caps and dispensing systems. The packaging solutions are sold into the personal care, healthcare, pharmaceutical, nutritional, pet care, automotive and household product markets.

The company has an extensive range of almost 5,000 standard products and also offers bespoke design, prototyping and moulding services. There are 12 manufacturing sites across the UK, mainland Europe, America and Australia, Beccles being the headquarters. Knights' department produces blow moulds and injection moulds for all of the group's factories, except for the Australian site.

For more information, please contact TH Machine Tools – Tel: 012 259 1375.

HURCO
CNC MACHINING CENTRES

3-Axis Models
General Purpose / Double Column

4-Axis Models
Swivel Head

5-Axis Models
Swivel Head / Trunnion Style / Cantilever Design / Double Column

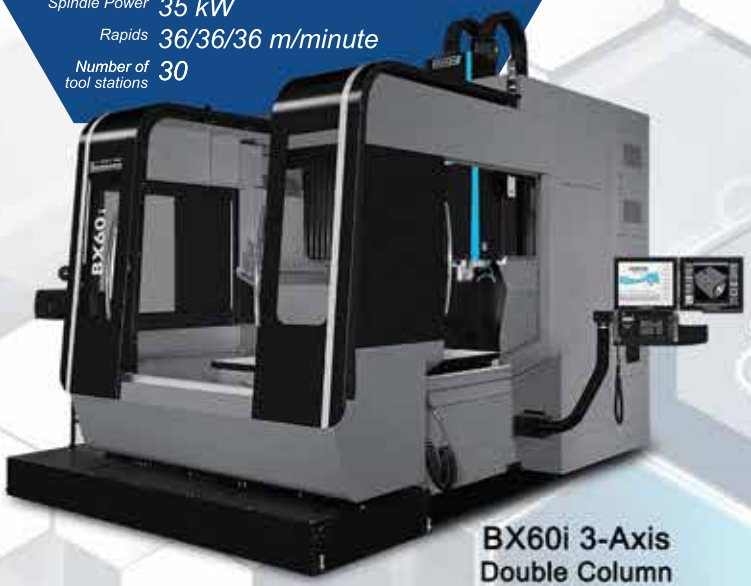
Table size	1,168 x 508mm
Travels	1,016 x 508 x 508mm
Spindle Taper	BT 40 Big Plus Dual Contact
Spindle Speed	10,000 RPM
Spindle Power	15 kW
Rapids	28 m/minute
Number of tool stations	24

VM20i 3-Axis
General Purpose

Rotary Table Working surface	Ø 500mm
X, Y, Z axis Travel	520 x 450 x 400mm
Spindle Taper	BT 40 Big-Plus dual contact
Spindle Speed	12,000 RPM with spindle chiller
Spindle Power	13 kW
Rapid Traverse Rate X,Y,Z / B,C	28/28/28 m/minute 25/25 R.P.M.
Number of tool stations	30

VC500i 5-Axis
Cantilever Design

Table size	1,900 x 1,300mm
Travels	1,600 x 1,300 x 700mm
Spindle Taper	HSK63 A
Spindle Speed	18,000 RPM with spindle chiller
Spindle Power	35 kW
Rapids	36/36/36 m/minute
Number of tool stations	30



BX60i 3-Axis
Double Column

Table size	1,680 x 660mm
Travels	1524 x 660 x 610mm
Spindle Taper	BT 40 Big Plus Dual Contact
Spindle Speed	12,000 RPM with spindle chiller
Spindle Power	36.5 kW
Rapids	32/32/24 m/minute 50/100 R.P.M.
Number of tool stations	40

VMX60SRTi 5-Axis
Swivel Head

Options: High Performance / High Speed Spindle / CTS / Probing etc.

HURCO MACHINING CENTRES SUPPORT SUBCONTRACTOR'S RAPID GROWTH

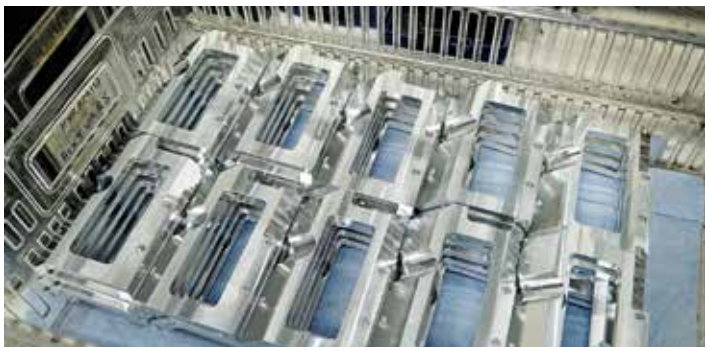
Installation of one Hurco vertical machining centre (VMC) per year between 2013 and 2017 plus the addition of a sixth in May 2021, partly to take advantage of the UK government's 130% capital allowance, have coincided with a sustained improvement in the level of business at subcontract machining firm Kelvin Precision Products. Disregarding the first year, when the start-up firm's income was relatively low and therefore unrepresentative, turnover has increased fivefold compared with the second year of trading.

Like many employees working at subcontracting firms, James Staniford dreamt of branching out on his own. After an eight-year stint at a company in nearby Horsham, he took the plunge in 2013 and started Kelvin Precision Products with Claire McGrath, now the Business Director, who invested capital and owned a suitable 4,000 sq ft unit within the Kelvin Business Centre in Crawley.

The enterprise had the help of his friend and mentor Alan Lamberth, who used his turning experience to help out at evenings and weekends. It boosted this side of the business at the time and allowed Kelvin to take on much more complex manual turning than would otherwise have been possible.

However it was prismatic machining that quickly took precedence and it now accounts for around 85% of turnover. An online auction on eBay secured the first contract to machine a range of small laboratory components from acetal and aluminium for a customer in the scientific industry, which was also a start-up. Soon afterwards a manufacturer of broadcasting equipment, another new company, discovered Kelvin via its website and placed an order for a range of milled components. Both companies are still regular customers, along with about a dozen others.

The contracts were fulfilled on a Hurco VM10 3-axis VMC, which was purchased new along with a manual lathe, a knee-type mill and a linisher when James started the business. A Hurco machine was chosen for the first major purchase due to the Windows-based conversational programming capability in the machine's WinMax control.



James said, "At the outset we didn't have a CAM system, so relied on WinMax and its menu-driven 3D graphics interface to prepare cycles for machining our customers' components, some of which were quite complex.

"At that time, the other shortlisted machine had a G-code control and 2D graphics, so we regarded the Hurco offering as superior.

"As time went on and parts became even more complicated, we invested in Autodesk FeatureCAM Ultimate CAD/CAM software, but WinMax is quicker for programming simple components and we still use it about one-third of the time."

Following the success of the first VMC, one year later another 3-axis machine was installed – a VM10i with more advanced control technology and diagnostics. Then the first 5-axis machine arrived, a VM10Ui, followed by a second in 2016. A larger VM20i 3-axis VMC with a 1,168 x 508 mm table was delivered a year later and then a third 5-axis VM10Ui in early 2021. Interspersed among these purchases were a sliding-head lathe in 2014 and a fixed-head lathe in 2018.

Having half of its prismatic metalcutting capacity able to produce components efficiently in fewer set-ups using three- plus two-axis cycles, with the rotary axes positioned and clamped, sets Kelvin apart from many of its competitors of similar size. It enables high quality work typically to tolerances of ± 0.05 mm to 0.10 mm to be turned around in short time scales. Normally, components are put on a 5-axis machine at Crawley for Op 1 and a 3-axis machine for Op 2 if it is relatively simple. Fully interpolative 5-axis milling and drilling on the Hurcos is available if suitable jobs come along.

Aluminium base plate for a customer in the pharmaceutical industry

Based close to Gatwick airport, the subcontractor offers machining services with delivery to the south-east of England and to the rest of the UK and Europe via a mail order service, with customers emailing a drawing or CAD file. A regular part of the company's activity is working for other contract machining firms that require more capacity to get an important job out on time.

Today, prismatic machining of a wide range of plastics and metals including stainless steel, mild steel, cast iron, aluminium, brass and copper are the mainstay of the company's day-to-day work, some parts being over one metre in length. Sliding-and fixed-head turn-milling of components from 1 mm to 350 mm in diameter accounts for around 15% of turnover.

For more information, please contact TH Machine Tools – Tel: 012 259 1375.

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HYUNDAI WIA XF6300 5-AXIS VMC

The XF6300 5-axis vertical machining center provides high speed, simultaneous 5-axis precision and optimal rigidity combined with outstanding user convenience.

The XF6300 comes with a 19" large monitor for enhanced visibility and the SIEMENS ShopMill customized technology package as standard. ShopMill provides simple operation, supporting all operator actions with graphic help displays and functions for quick and practical machine setup, including calculating the workpiece position in the machine. The control panel has the same configuration as a computer keyboard for easy usage. *Mold Package* is provided as standard for a highly efficient mold process with the aid of various NC options and automatic tool measurement.

While the integrated bed and column have been designed by using HYUNDAI WIA's unique analysis method, the XF6300 features a 4-way structure box type saddle inside the cross-beam to increase stiffness and minimize thermal displacement. The Box-in-Box structure design accomplishes thermal equilibrium, while minimizing thermal deformation. The direction of the main axis' center of gravity and z-axis moving direction are in the same line, providing more precise machining.

The XF6300 features X-axis 650mm, Y-axis 600mm and Z-axis 500mm with 60 m/min rapid traverse and 1G of X/Z-axis acceleration and deceleration and a linear scale to all linear axes plus rotary scale to rotating axes as standard.

Various multipurpose built-in spindles are available, providing 15,000 rpm or optionally 24,000 rpm and 40,000 rpm for high quality mold machining. The main spindles produce almost no noise and vibration even at high speed machining, while ensuring highly stable machining performance.

XF6300 is a 5-axis vertical type machining center designed by European R&D center in Germany.

The XF6300 main spindle features an oil cooling device as standard promoting high accuracy for long periods of time and a HSK tool holder for high positioning accuracy and precision.

The XF6300 is designed with a 5-axis rotary table which can be moved 30 degrees to the front side of the machine and 120 degrees to the rear side of machine based on A-axis and C-axis and can rotate 360 degrees. A-axis and C-axis achieve 70rpm and 110rpm, respectively.

The rack-type magazine providing various options equipped with 34 tools and has a single layer as a standard. Tool magazines can be upgraded to accommodate 68 tools and 102 tools, respectively.

For more information, contact Spectrum Africa – Tel: 011 865 4090.

KITAMURA INTRODUCES MEDCENTER5AX

Ultra compact simultaneous 5-axis high precision vertical machining center for the medical device market

Kitamura Machinery, the premier manufacturer of precision horizontal, vertical and 5-axis machining centers, adds to its 5-axis line up with the MedCenter5AX vertical machining centre. This ultra-compact 5-axis VMC brings with it the largest work envelope in its class and offers unparalleled precision, accuracy and speed for expanded machining capability in the machining of highly complex, multi-sided parts in one setup.

The MedCenter5AX employs an X, Y & Z axis, and additional tilting A-Axis (±120 deg.) and a rotary C-Axis (360 deg.) with a 0.001 deg. minimum indexing command. Machining of high precision, complicated parts like orthopedic implants or aerospace parts can be completed in one operation, reducing the overall machining process. The maximum work piece size (Dia. xHeight) of Ø220mm (8.7") x 175mm (6.9") and maximum table load capacity of 20Kg (44lbs) allow for incredible flexibility and versatility in the machining of smaller highly precise, highly intricate parts.

Standard high speed, direct drive 4th and 5th axis rotary tables offer smooth simultaneous 5-axis movement for complex cutting applications. Rigid in design and equipped with high resolution optical scale feedback on all axes, the MedCenter5AX offers the precise accuracies needed (positioning accuracy of ±0.002mm (±0.000079"))/full stroke for a wide variety of small part machining.

Kitamura's standard high speed 30,000min^{-1} 18kw (24.5HP) direct drive, HSK-E40 spindle offers superb rigidity an ultimate stiffness in spindle construction and function while allowing for super fine finish capabilities. Ideal for small diameter tools and hard milling, the MedCenter5AX offers a standard air through spindle feature for dry cutting and is also equipped to handle up to 1000psi coolant thru the spindle for deep hole drilling requirements.

The MedCenter5AX may be compact but it is equipped with a large 40 tool magazine – a great benefit when machining more complex parts. Tool changes are a lightning fast 1.5 seconds. To assure optimum operator access and convenience when setting up tools or performing routine maintenance, the tool magazine is located toward the back side of the machine.

For increased productivity, Kitamura offers an optional 12-station automatic pallet system for running long hours of unmanned operating in the machining of both highly mixed or highvolume production parts.

Kitamura combines many standard features in our feature-rich Arumatik-Mi control. With a 5-times faster processing speed, the Arumatik-Mi CNC Controller offers a super-smooth control process for super-fast machining of complex work pieces. Featuring the latest in advanced, ultra-intuitive touch screen technology, dedicated 5-axis control functions and advanced 5-axis NC simulation and verification software, the Arumatik-Mi is your solution for easier programming, part setup and operation of complex components.

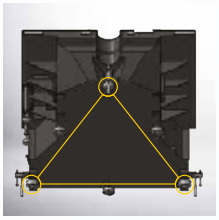
For more information, contact WD Hearn – Tel: 021 534 5351.

HYUNDAI WIA

HS 4000 II/5000 II

Next Generation Horizontal Machining Center

High Speed Machining



High Rigidity Structure

Built-in Spindle

Ring Type Magazine

High-performance APC

		HS4000 II	HS5000 II
Pallet Size (L×W)	mm(in)	2 – 400 × 400 (15.7" × 15.7")	2 – 500 × 500 (2 – 19.7" × 19.7")
Maximum Load Capacity	kg(lb)	2 – 400 (2 – 881.8)	2 – 500 (2 – 1,102)
Spindle Taper		BBT40 [HSK-A63]	
Spindle Speed	r/min	15,000 [15,000 High-Torque] [20,000]	
Spindle Power (Max./Cont.)	kW(HP)	30/18.5 (40/25) [37/22 (50/30)] [37/18.5 (50/25)]	
Number of Tools	EA	Ring Type : 40 [60] [Chain Type: 90, 120] [Matrix: 240]	
Travel (X/Y/Z)	mm(in)	560/640/660 (22"/25.2"/26")	730/730/880 (28.7"/28.7"/34.6")
Rapid Traverse Rate(X/Y/Z)	m/min	60/60/60	

[ ] : Option

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SPECTRUM MACHINE TOOLS

DMG MORI M1 FOR OUTSTANDING MILLING PERFORMANCE

The DMG MORI M1 milling machine locally available from Retecon offers perfect machining performance and high surface quality thanks to superior stiffness, while large heat capacity of the components guarantees thermal stability. The unique design of the machine is based on a monolithic bed.

The perfectly suited working area is combined with a compact footprint of only 6 m² and the fixed and rigid table has a maximum load capacity of up to 600 kg assuring high machining performance.

The outstanding quality of the DMG MORI inline spindle is well proven with more than 3,000 units installed worldwide.

Design based on monolithic bed

APPLICATION EXAMPLES

Bracket (Aerospace)

Support plate (Automotive)

Assembly plate (Engineering)

Electronic housing (Engineering)

For further information, please contact RETECON – Tel: (011) 976 8600.

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Outstanding milling performance and high rigidity at a competitive price – the new M1 is all about

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HIGHLIGHTS

+ **Unique design based on monolithic bed** assures **static and dynamic rigidity** as well as **perfect damping properties**
+ **Perfect machining performance** and **high surface quality** thanks to superior stiffness
+ **Large heat capacity** of components guarantee thermal stability
+ Proven quality of the inline spindle – **more than 3,000 units installed worldwide!**
+ **Easy-to-operate and user-friendly control** system SIEMENS 828D
+ **Fully digitized** with IoTconnector in standard!
+ **Perfectly suited working area** (X = 550 / Y = 550 / Z = 510 mm) combined with compact design (footprint 6 m²)
+ **Fixed & rigid table** with size 850 × 650 mm and max. load up to 600 kg assures high machining performance

3 Perfectly suited specifications!

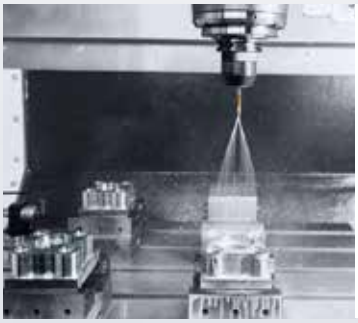
SPECIFICATION **COMPLETE**

1. SIEMENS 828D control
2. Inline spindle 10,000 rpm
3. Tool taper SK 40
4. Automatic tool changer (24 places)
5. Chip tank
6. IoTconnector & NET service
7. 3D Data model

SPECIFICATION **PLUS**

Additional to COMPLETE:

8. Chip conveyor
9. Renishaw touch probe
10. Spray gun
11. JobShop Package



SPECIFICATION **PRO**

Additional to PLUS:

12. Inline spindle 12,000 rpm
13. ICS 20 bar
14. Bed flushing via M-function
15. Cabin roof
16. Mechanical preparation for oil-mist extractor

For more information, please contact:

Remando Strydom

Tel: 011 976 8600

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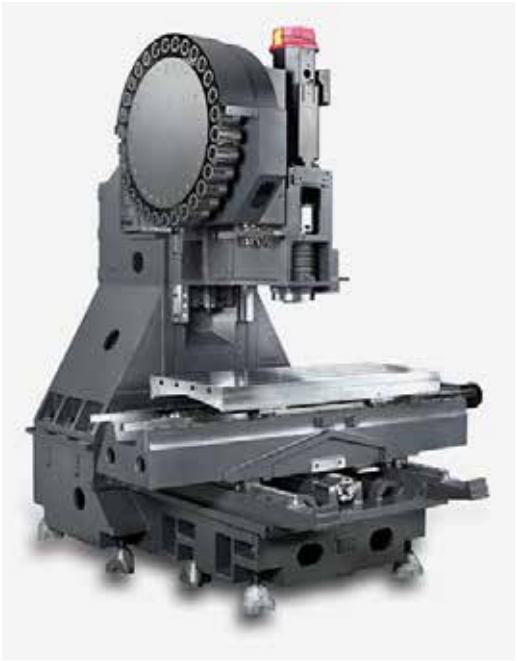
With a global installed base in excess of 30000 machines, the DNM series is a popular and proven mainstay in DN SOLUTIONS's product line. With a range of different models, sizes and capacities, there is definitely a DNM machine to meet customers' needs.

New DNM series VMC.

Featuring the largest machining area in its class the new DNM series vertical machining center offers increased Y-axis travel and a higher table load. The direct-coupled spindle for higher productivity improves the machines' performance and environmental-friendliness, while higher productivity is achieved by reducing the tool change time and improving all axes feed rates plus acceleration/ deceleration times.

This environmental-friendly machine is designed for stable and easy operation with the EOP function that can be accessed via the pop-up window on the NC main screen. Grease lubrication for axis roller guideways is supplied as standard.



DNM series VMC with the largest machining area in its class.

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MAPLE ME-SERIES – THE ULTIMATE ALL-ROUNDER

While every day presents different challenges, the Maple ME-Series has what it takes to tackle just about anything. Its super wide base design provides great balance providing a platform capable of supporting up to 2000 kg. With high-end servo motors that are directly connected to the ball screw no power is lost during transmission.

Featuring an innovative design combined with cutting-edge technologies make the ME-Series ideal for mould production and parts production. The machine has a clever solution for whatever challenge comes its way.

Maple ME-Series.

The ME-Series was designed with the most advanced FEM analysis software on the market. Maple consistently tests its design under many different stress conditions to perfectly satisfy customers' requirements.

The advanced design of Maple's spindles provides high axial- thrust capability, yet generates minimal heat. The spindle uses front and rear pre-load angular bearings with large spacer to enhance radial stability enabling heavy cuts on steel. To ensure long life of the spindle, high temperature grease is used to guarantee smooth operation of the spindle regardless of temperature.

Without a perfect tool changer the machine cannot operate at its fully automatic potential. Therefore, the ME-Series uses the most high quality tool changer available. With a 1.8 second tool change time it is one of the fastest performing tool changers in the world.

The ME-Series is designed to carve through any material it meets – without sacrificing accuracy or finish along the way.

For more information, contact
600 SA Machine Tools – Cell: 072 157 6003.

THE ULTIMATE ALL–ROUNDER.

Every day presents different challenges. Luckily, the Maple ME-Series has what it takes to tackle just about anything: versatility. Its super wide base design provides great balance of the machine and opens up to create a platform capable of supporting up to 800 to 2000 kg. With high-end servo motors that are directly connected to the ball screw with no power is loss during transmission.

Basic Specifications - Maple-Tech ME Series

Travels:	X-Axis mm 650mm ~ 2,000mm
	Y-Axis mm 550mm ~ 1,200mm
	Z-Axis mm 550mm ~ 860mm
Spindle:	BT40/BT50
	1000 Belt /6000RPM Geared
Spindle Motor:	7/11Kw Belt ~ 15/18.5Kw Geared
Controller:	Fanuc 0iMF Plus
Ballscrews:	Hiwin
Linear Guideways:	Hiwin Roller Guides
Machine Weight:	4,000Kg – 19,000Kg

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Basic Specifications – Maple-Tech ML-280 / E

Travels:	X-Axis 210mm
	Z-Axis 400mm / 600mm
Max Turning Diameter:	Ø400mm
Accuracy:	±0.005mm
Repeatability:	±0.003mm
Spindle:	
Bar Capacity:	65mm
Spindle Motor:	11/15Kw
Controller:	Fanuc 0iTF Plus
Ballscrews:	Hiwin
Linear Guideways:	Hiwin Roller Guides
Machine Weight:	3,700Kg

Sales:
Johnny Pierdica. Cell: 072 157 6003 / Email: johnny@mt600sa.co.za
Richard Poalses. Cell: 061-525-3060 / Email richard@mt600sa.co.za
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Carlos Hlanganiso. Cell: 064-505-9906 / Email carlos@mt600sa.co.za
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AUTOMATING YOUR MILLING OPERATION IS NOT ONLY PICK AND PLACE

By Paul Savides, Managing Director, PBS Machine Tools

Bankers are lucky, through interest they can make money even while they sleep. Yet, manufacturing challenges are increasing on a daily basis, so what about your engineering operation?

There are three methods to improve your efficiency:

- **Production Automation:** Wages and salary increases without improvements in efficiency and the decline in young people wanting to work in a difficult work environment that is our industry.

  Therefore, production automation reduces labour costs, while increasing value gained through predictable quality and reduced operational errors.

- **Information Automation:** Constant working hours allows for errors due to fatigue and the loss of data when job/shift handover from one employee to another.

  Therefore, information automation will provide transparent information and production status datalization with on time delivery and monitoring of product line from anywhere.

- **Management Automation:** Information misinterpretation across shift changes and too much time spent on data capturing and report writing.

  Therefore, data collection by the system reduces human error and digitization management builds up product traceability.

Depending on the variety of products you are manufacturing, it is sometimes difficult finding the right, suitable automation solution.

Mass production of a single product workpiece can be achieved through pairing an individual machine with a robot.

Increased production and quality rates can be achieved by integrating more than two machines that share the process, fixtures and tools.

High-Mix Medium-Volume production can be economically achieved by using a multiple pallet pool or flexible manufacturing systems that enable high frequency exchange of the production line through high accuracy fixture transfer.

High-Mix Low-Volume production means enabling production lines requiring high variety of products to be restructured with high frequency, making it a highly flexible manufacturing system.

The problems when implementing the various levels of required automation are mostly discovered after implementation and can include:

1. Production rates that are lower than expected due to poor utilization rates including robotic idle time.
2. Automation process errors requiring constant stopping, modification and testing due to unattainable targets.
3. Complex data exchange and communication errors when connecting to other systems make integration difficult.
4. Problems with monitoring and management of automation lines that suddenly stop due to equipment or system failures.
5. Lack of quality management that ensures no defective parts are processed and eliminated from the system in time.

The above is where the Tongtai Group of Companies comes into play by using Analysis and Evaluation, Hardware and Software Integration and Datalization Management to assist users to predict and solve potential issues.

The simplest manufacturing can be achieved through using Multi-Tasking machines where you can integrate different processes into a single machine which reduces labour, thus saving money, saving floor space, while increasing production space utilization and reducing the number of operations required. Stability and accuracy is maximized and productivity improved.

What we have learnt working with our customers

In mass production environments change-overs occur least often, if at all. Whereas in jobbing environments change-overs are far more frequent and can cause loss of entire shifts.

One of the biggest losses of time during milling operations occurs during change-over. Changing over from one job to the next involves tooling, fixture, programs and operations. Having a 5-axis milling machine for example with multiple pallets can eliminate this loss of time completely.

APEC CNC, a member of the Tongtai group recently introduced their new high-speed, heavy-duty model HS-700 Horizontal 5 axis machining centre with multi pallet system at Timtos in Taiwan. This type of machinery can be used as a full 5 axis machine that is capable of machining 5 sides of a workpiece in one set up with an X-axis of 710mm, Y-Axis 910mm and Z-axis 810mm complete with 32, 60 or 120 tools ATC that provides flexibility and variety. In this case a good choice is to fill the ATC with pre-set tooling that can be used in a variety of different jobs and set up multiple pallets that can accomplish increased productivity and allow the machine to work unattended.

We are just a phone call away for a free consultation to discuss your application – and production needs.

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

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- Automated Stocker System
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- Electronic Labelling
- 5-axis Machining
- Turnmill
- Additive Manufacturing
- Hybrid Manufacturing
- Ultrasonic Assisted Machining

S Standard Machines

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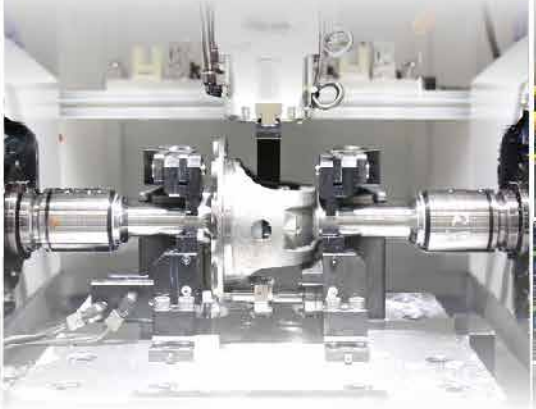
- Horizontal machining center
- 5-axis machining center
- Drilling and tapping center
- Horizontal CNC lathe
- Vertical CNC lathe
- Ultrasonic assisted machining center
- Additive manufacturing equipment

O Options



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TAMSEN MARITIM HOUSES THE LARGEST 5-AXIS MILLING MACHINE IN EUROPE

After a retrofit, a HEIDENHAIN TNC 640 now controls one of the two portals

Factory hall = Work envelope. This simple equation is probably the best way to describe the huge 5-axis portal milling machine at the Tamsen Maritim shipyard. Installed nearly 20 years ago, one of the two portals has now been given a comprehensive retrofit, including a HEIDENHAIN TNC 640.

The entire hall is the work envelope – the largest 5-axis CNC milling machine in Europe.

"In terms of enclosed space, our machine is the largest 5-axis CNC milling machine in Europe," says Jörg Wicklein, head of Design at Tamsen Maritim in Rostock, as he proudly describes the impressive structure made up of two portals floating through the huge shipyard hall at a height of nearly 10 m. Thanks to their slender carbon lattice structure, each of the gantries weighs only 3 t, with a traversing range of 65 m in the X axis and 12.5 in the Y axis. The portals split the maximum machining height of 7 m: Portal 1, where the retrofit took place, services the lower machining heights from 1 m to 4 m, while Portal 2 machines the upper heights. The two height ranges overlap for 1.5 m. "We can't attain the complete height of 7 m with a single portal because of the required spindle traversing ranges," says Jörg Möller, the user of this enormous machine, explaining the two-portal solution. For smaller parts, there is therefore also a 4 m high machining table, on which workpieces can be placed within the overlapping range of the two portals for simultaneous machining.

A major wish: getting closer to the point of machining

This completely revamped portal machines the lower workpiece heights of approximately 1 m to 4 m.

Jörg Möller also had many wishes for the planned retrofit. For despite its size, the machine is mainly operated by him alone. Additional colleagues provide assistance only on projects that require machining across multiple shifts. "Flexibility was very important to me. When using the control, I like to be as close as possible to the actual point of machining," says Möller, describing one of his most important requirements.

For this purpose, the TNC 640 is operated on a movable stand and is connected to the control cabinet located halfway down the hall by

Also part of the retrofit – the portal's motors.

100 m long cables. As a result, Jörg Möller can go anywhere in the hall with the control. If necessary, he even hangs it from a crane in order to move it to a platform or place it on the workpiece. "I now also have a wireless handwheel, which saves me a lot of legwork and often the need for a second man because it allows me to control numerous functions during setup," he says, pleased with new the capabilities. After all, "there is nothing better than an unobstructed view of the workpiece."

"What can I actually see when my cutter is working on something 80 meters away? Nothing! I need to be closer to the point of machining," says Jörg Möller, the machine user.

Greater stability and accuracy

The control wasn't the only component replaced during the retrofit; the retrofit team from the HEIDENHAIN agency TEDI also replaced the four motors that move the portal, as well as the way in which the motors act on the gear rack—a design developed by Tamsen Maritim itself. A third bearing was also installed for each carriage, thus ensuring considerably smoother motion and permitting adjustment of the contact pressure between the drive belt and the gear rack, as well as allowing the individual motors to be mutually tensioned. "The belt is now in better contact with the gear rack, resulting in less play," says Jörg Wicklein, explaining the reason for the measures. "Even though the accuracy requirements in shipbuilding and large-part construction are not the highest, our post-retrofit goal was a machine accuracy of 0.3 mm to 0.4 mm over a machining length of 80 m."

However, mechanical modifications are not the only factors in achieving this. Following the retrofit, the entire machine will be measured by the Fraunhofer Institut for the creation of compensation tables. This is because the extremely long guide rails are not absolutely straight, and the huge portal also exhibits a certain amount of sag. All of these factors will be measured in order to be compensated for by the control, which is one of the strengths of the TNC 640 with its KinematicsOpt and KinematicsComp functionality. "It was precisely these compensation calculations that pushed the old control system to its limits," reports

Cont. on page 24 ☞

Now, thanks to the handwheel, Jörg Möller can always get very close to the Tool Center Point.

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NEWAY CNC VERTICAL MACHINING CENTRES

Neway CNC Equipment Co offers a cost effective range of vertical machining centres, which are manufactured at the company's modern manufacturing plants in Suzhou China.

Neway's excellent manufacturing and quality control capabilities are maximized by the use of latest equipment from well-known international brands including Zayer, Kellenberger, Starragheckert, Swiss SIP, Renishaw and Shenck. They hold ISO and CE certification.

Neway's Chinese manufacturing operation is supported by the group's head office in Texas USA and a sales and support centre in Germany.

Neway CNC Equipment currently offers a range of moving table vertical machining centres which range in table size from 750 x 420mm to 1800 x 800mm. This range is available in the following table sizes, VM740 – 750 x 420mm, VM950 – 950 x 520mm, VM1150 – 1100 x 520mm, VM1260 – 1200 x 600mm, VM1360 – 1350 x 600mm, VM1580 – 1500 x x800mm, VM1780 – 1700 x 800 and VM1880 – 1800 x 800mm.

The VM740, VM950 and VM1150 models are fitted with BT40 spindle tapers. These three models are available as a lower specification S series with a Fanuc 0i-Mate-MD controller or a higher specified H series which are supplied with a Fanuc 0i-MD controller. The VM1260 and VM1360 models are fitted with BT 40 spindle taper as standard and can be supplied with a BT50 spindle taper as an option. The VM1580, VM1780 and VM1880 are only available as H series specification with Fanuc 0i-MD controllers and have BT50 spindle tapers as standard. With the exception of the VM740, which has a 20 tool magazine, all models in the range come with a 24 tool magazine and arm type tool changer.

The complete series of models from VM740 to VM1880 in the S and H range have linear guideways on all three axis. The additional HR series which is available in sizes from VM950 to VM1780 feature box guideways as opposed to linear guideways. Full enclosure guarding and chip conveyors feature as standard equipment across the entire range.

Neway Vertical Machining Centre VM1150.

Factory fitted optional equipment includes 4th axis rotary tables, through spindle coolant, workpiece measuring and toolsetting probes systems. Spindle oil cooling systems and coolant water/oil separators are available on request.

To complement the range of vertical machining centres, Neway CNC Equipment offers the VM640D drilling and tapping machine. This machine has a table size of 650 x 400mm, a 16 position cam type tool changer with a 1.6 second tool change, a spindle speed of 15 000 rpm, X and Y axis rapid feed rates of 48 meters per minute and a Z axis rapid feed rate of 60 meters per minute. They come fitted with the Fanuc 0i MD controller.

For more information, please contact Machine Tool Promotions – Tel: 016 931 1564.

☞ *Cont. from page 20*

Jörg Möller. "It simply lacked the computing power, which took a noticeable toll on performance."

Cautious approach

Despite these noticeable limitations, Tamsen Maritim initially decided to convert only one of the portals. "There were three key reasons for this," explains Jörg Wicklein: "Firstly, we didn't want to completely shut down the plant for the duration of the retrofit. Secondly, no one at our company had experience with such an extensive project, so we wanted to wait for the outcome of optimizing the first portal. And thirdly, a retrofit like this incurs enormous costs, which we wanted to avoid for two portals at the same time." Jörg Wicklein can hardly wait to complete the project: "The Fraunhofer Institute is already in the starting blocks to measure the system." Wicklein won't have to wait much longer: the technicians from TEDI are already configuring the axes on the new control and tuning the spindle.

What the portal milling machine produces

Tamsen Maritim predominantly uses its enormous machine to manufacture master models and master moulds for large plastic components, including 35 m long wind turbine blades and ship hulls. More than one of the huge, predominantly rigid- foam workpieces are often machined in the hall simultaneously. From Rostock, the master models and prototypes are then shipped throughout the world, including to Asia and the U.S. The sheer size of these parts makes not only their production but also the shipping logistics a challenge for Tamsen Maritim. As a shipyard, the company can use its location on the water to its advantage.

The vast hall dwarfs the TEDI technician team as they set up the control.

For more information, please contact Mafema – Tel: 083 263 5995.

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HAAS VERTICAL MILLING MACHINES

Vertical milling machines are a fundamental tool in the manufacturing industry, used to shape and cut various materials such as metal, wood, and plastics. Haas Automation, Inc. is a renowned name in the industry, offering a range of high-quality vertical milling machines that provide precision and efficiency to their users.

Haas Automation, Inc. was founded in 1983 and has since then established itself as a leading provider of CNC machine tools. Their vertical milling machines are designed to cater to the needs of a variety of industries, including aerospace, automotive, medical and more. The company offers a range of models that cater to different requirements and budgets, ensuring that there is a Haas milling machine suitable for every customer.

One of the key advantages of Haas vertical milling machines is their precision. These machines are equipped with advanced features such as high-speed spindles, precise linear guides and accurate positioning systems that enable them to produce parts with tight tolerances. Additionally, the machines are designed with easy-to-use controls and are low maintenance, making them user-friendly and efficient.

Another advantage of Haas vertical milling machines is their versatility. These machines can handle a wide range of materials and can perform various operations such as drilling, milling, tapping and boring. They also come with a range of options and accessories, allowing customers to customize the machines to their specific needs.

Haas Automation, Inc. is also known for its exceptional customer support. The company provides comprehensive training programs to help customers learn how to use their machines and get the most out of them. They offer timely technical support and maintenance services, ensuring that their customers' machines are always running smoothly and efficiently.

Haas Automation, Inc.'s vertical milling machines are an excellent choice for anyone looking for precision, versatility and efficiency in their machining operations. With a wide range of models, advanced features and exceptional customer support, Haas has cemented its position as one of the leading providers of CNC machine tools in the industry.

For more information please contact Haas Factory Outlet Africa – Tel: 011 974 2301.

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FANUC ROBODRILL α-DiB5 PLUS SERIES

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It is already hard to improve upon such a well-balanced design. The new α-DiB5 Plus Series Robodrill therefore uses the same time-tested and trusted mechanical design while boasting the latest in FANUC CNC and Servo Technology.

FANUC 31i-B5 Plus Control Powerhouse

The new-generation CNC control offers many features as standard along with new intuitive iHMI screens. The Plus control now offers 4MB of part program storage as standard with the option of upgrading to 8MB. High speed skip is now a standard feature ensuring touch probe signals are as true as possible. Furthermore, Multi-functional ethernet eases the step to fully automate your Robodrill when the time comes to add a FANUC ROBOT. Smart rigid tapping cycle utilizes the maximum output of the spindle without compromising on accuracy and Smart overlap function overlaps command blocks between rapid traverse and cutting feed blocks to avoid speed loss at transition points.

Level-up of Ease-of-Use Screens

Not only are the conventional screens still available to make the transition easier to the latest Robodrill, but there is a whole array of new and improved screens to assist operators with Maintenance, Zero Position Recovery, Turret Restoration, Machining Cycle and CNC operation functions. These screens have step by step instructions and are intuitive in nature.

The iHMI Machining Cycle screens (Previously Manual Guide i) has been revamped and is now more capable of generating complex drawings while also being more user friendly.

The control is also capable of displaying up to 15 custom screens which can be used for your Robot automation project, pallet changer or precision measurement equipment. Custom-made switches and clamping setups can even be controlled with the use of the Custom PMC Ladder and the external interface screens enabling the user to program touch screen buttons to manipulate physical external equipment. This puts the power into users' hands and makes the Robodrill the most versatile option when tackling automation projects.

***iHMI** CNC operation screen*

***iHMI** Machining Cycle*

Custom PMC ladder

Custom control panel

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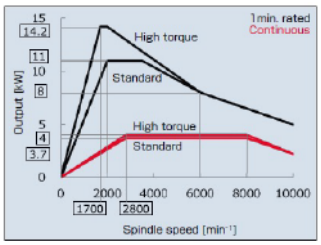
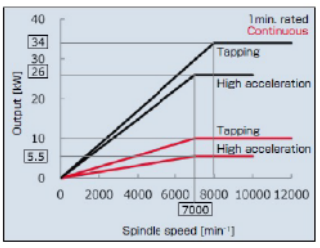
The new 12,000 RPM Tapping spindle which taps perfectly in between our High Power Speed 24,000 RPM spindle and the Robodrill's robust High Torque 10,000 RPM spindle opens a new spectrum of applications. Aluminium automobile, IT Parts and electrical parts are just some of the parts in which the Tapping spindle will come into to its own. This spindle in conjunction with the Smart functionality will yield the best results possible.

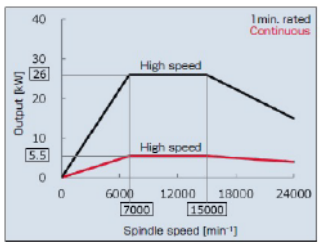
Spindle output characteristic



Standard / High torque



High acceleration / Tapping



High speed

Cont. on page 30 ☞

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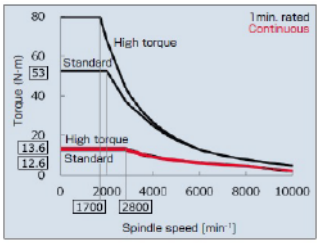
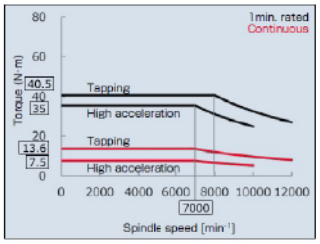
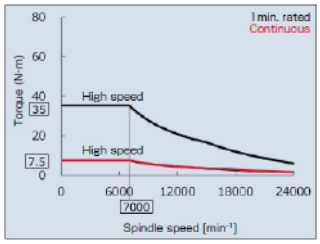


Standard / High torque



High acceleration / Tapping



High speed

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Spindle torque characteristic

FANUCs legendary reliability coupled with easy preventative maintenance procedures keeps downtime to an absolute minimum. And thanks to their extreme longevity, ROBODRILL machines also provide an unbeatable return on investment.

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ADVERTORIAL

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For more information contact Andries Heydenrych at 082 788 599.

CHIPLESS THREAD MANUFACTURING IN WROUGHT ALUMINIUM AND CAST ALUMINIUM ALLOYS

REIME NORIS expands its product portfolio for wrought aluminium and cast aluminium alloys with two newly developed cold forming taps.

Both tool types, like all taps of the "NEO" series, are made of HSSE-PM substrate. However, they differ in geometry and coating in order to achieve outstanding results in the respective field of application.

NORIS SPANLOS NEO AL

The NORIS SPANLOS NEO AL cold forming tap has been developed especially for the machining of wrought aluminium alloys. The geometry with an asymmetrical pressure point shape acts in the forming direction through a relatively steep stroke with very low torque. The stroke on the back is much flatter and thus has a supporting effect. This combination results in an enormous increase in tool life. A DLC (diamond like carbon) coating reliably protects against cold press welds, which are found frequently in these materials.

NORIS SPANLOS NEO GAL

The NORIS SPANLOS NEO GAL cold forming tap has been developed especially for thread forming in cast aluminium alloys. The geometry has a steeply pronounced symmetrical stroke both in the forming direction and at the back. The special feature is a sliding surface in-between, which offers targeted resistance to the particularly high abrasiveness of these cast materials. A multi-layer TICN coating, which has proven particularly effective in cases of abrasive wear, functions as a coating here.

In the standard product portfolio, the metric dimensions common for these materials, up to and including M10, are available, from M4 also with coolant hole. As in the entire range of NORIS SPANLOS tools, these two new types are also available from stock only with lubrication grooves.

For further information, please contact Duncan MacDonald – Tel: 011 444 4345.

FACE AND SHOULDERS

The world of metalworking is undergoing major changes. Complex machining processes are unimaginable without the utilization of face milling operations. Face milling processes facilitate the preparation of datum surfaces by producing planes and flats, and enable improving precision and surface quality parameters. Moreover, the production of many rotating parts is incomplete without face milling. Face milling is the very operation that cannot be undermined.

In face milling, the axis of a cutter is normal to the machined surface. A large majority of face mills or surface milling cutters are common indexable tools in shell mill configuration. They feature various tool cutting edge angles (entering angles) such as 45°, 60°, 65°, 75°, 90°. Face mills intended specifically for productive rough machining by use of high feed milling (HFM) methods have a significantly smaller cutting-edge angle, typically 10°-17°. In some cases, shell mills that mount round inserts enable extremely strong cutting edges. The cutting-edge angle has an impact on the decomposition of the cutting force, which acts on the plane of the cutter axis, on radial and axial components referred to as radial and axial cutting forces. With all else being equal, this angle defines the maximum depth of cut. The cutting-edge angle largely determines the application field of a face mill making 45° face mills most versatile. Such mills have an important advantage that stipulates a first-choice selection of 45° cutters in face milling, specifically when machining open plane surfaces. These cutters assure a good balance of radial and axial cutting forces, a high-quality machined surface, and favourable cutting conditions when a tool enters or exits the material being machined. The most common face mill types are 45° cutters.

However, 45° face mills have certain disadvantages with an emphasis on forming rectangular profiles. Although machining square shoulders characterizes end milling applications, there is a need for rectangular profiles as well. All plane surfaces of a machined part are bound by shoulders. Applying 45° face mills even when cutting near to shoulders may entail difficulties. Face mills with 90° cutting edge angles are regularly in demand for rectangular profiles. In addition, 90° tools assure low axial forces providing good reason for machining parts with thin-walled structures or cutting under poor clamping conditions. Beyond that, inserts for 90° face mills provide a higher depth of cut when compared to the same-size inserts, intended for 90° endmills.

The correct and sensible method to design 90° face mills utilizes the same inserts that are intended for 90° endmills. This concept provides high insert versatility and remains prevalent. To ensure a good surface finish, the inserts of large diameter multi-toothed indexable face mills should be designed with a wiper flat that is significantly larger compared to an endmill, which is characterized by fewer teeth. Tool manufacturers maintain various principles in their developments which focus on productivity solutions, shoulder profile accuracy, and the efficient utilization of tungsten carbide being the main material of indexable inserts. The ideal design provides excellent solutions and complies with competitive machining requirements.

NEODO S90° is a family of 90° face mills that mount 8 mm double-sided square carbide inserts. This family of inserts is intended for rough and semi-finish machining of steel and cast iron. The double-sided insert concept shows a durable insert structure and facilitates 8 indexable cutting edges. The insert may appear simple, but when looking closely, the insert side surface features a complex shape that provides a wide wiper flat on every cutting edge. The face mills have a positive radial and negative rake angle and ensure an exact 90° profile when milling with depths of cut up to 5 mm. The NEODO S90° cutters enable face and shoulder milling while providing an additional option for machining close to shoulders where workpieces or work holding fixtures entail constraints.

In small tool diameter ranges between 32-63 mm, ISCAR introduces a family of the HELIDO Trigon Line. This family of tools is characterized by high-tooth density face mills with double-sided trigon-shaped inserts for true 90° profiles at a depth of cut up to 4 mm for ultra-high productivity. The insert's trigon shape provides 6 indexable cutting edges and forms positive tool rakes in both radial and axial directions. Combined with a wide wiper flat, the insert's design contributes to an improved surface finish and easily performs ramp-down milling.

LOQIQ-8-TANG face mills mount tangentially clamped inserts with 8 cutting edges and provide a cost-beneficial solution for rough machining

Cont. on page 34 ☞

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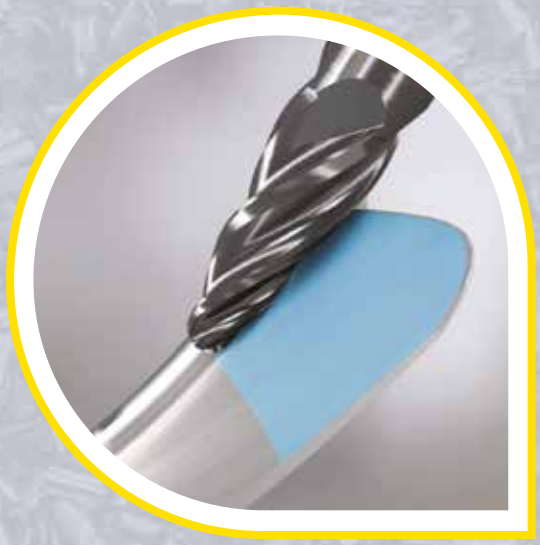

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LOGIQ-8-TANG NEW 90° CUTTERS CARRYING TANGENTIALLY CLAMPED INSERTS WITH 8 CUTTING EDGES

ISCAR is introducing new cutters that carry tangentially clamped inserts with 8 right-hand cutting edges, intended for face and shoulder milling. They are suitable for a wide range of workpiece materials including different types of steel, stainless steel and cast iron and are designed for roughing and finishing operations in the automotive, die and mould industries and for general engineering.

The new T890HT cutters feature 90° cutting edge angle and a rigid dovetail clamping configuration. Coolant channels are directed to each cutting edge, while polished coating of the cutter body facilitates chip flow and protects against corrosion and wear.

The tools include T890HT ELN endmills in 32 and 40 mm diameters with cylindrical and Weldon shanks and T890HT FLN Face mills in 40, 50, 63, 80, 100 and 125 mm diameters with coarse and fine pitch. The endmills and face mills are intended for machining square shoulders, slots and face milling.

The following new inserts are produced from ISCAR's latest SUMOTEC carbide grades, which significantly increase productivity:

- T890 LNHT 1306PNTR, a four-sided tangentially clamped insert for general use, featuring 8 right-hand cutting edges, 0.8 mm corner radii and a 9.5 mm maximum depth of cut.
- T890 LNAT 1306PN-W, a wiper insert with 4 cutting edges for finishing operations, 0.6 mm x 45 deg. chamfer and a wiper for high surface quality.

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

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planed surfaces near square shoulders. The tangential insert mounting concept combined with a dovetail clamping principle and a durable insert structure results in a strong and rigid tool design to withstand heavy loads in roughing applications.

ISCAR has upgraded the HELIQUAD family of 90° mills with traditionally designed single-sided square inserts. Specifically, the new inserts are intended for machining titanium and heat-resistant super alloys (HTSA), especially when milling near-to-shoulder faces.

In milling applications that require small tool diameters, MULTI-MASTER solid carbide exchangeable face milling heads in diameters of 12-25 mm can provide effective results (Fig. 4). Due to the multi-tooth design, the heads guarantee productive cutting at high feed speeds. An important advantage of this unique face milling head is its high precision attributes, which are comparable with those of solid carbide tools. Such precision levels result in increased machining accuracy and excellent surface finish.

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

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TAEGUTEC HAS INTRODUCED THE CHASE-8-SFEED LINE FOR ROUGH AND HIGH FEED FACE MILLING OPERATIONS

CHASE8SFEED
FACING & HIGH FEED

The newly released CHASE-8-SFEED, for roughing (45°) and high feed (20°) face milling, provides higher productivity than conventional double-sided 8-corner inserts by applying a reinforced edge shape and unique insert pocket angle. Excellent machining performance, under harsh cutting conditions, is obtained due to the high negative radial rake angle and high positive axial rake angle. Coupled with the stronger body rigidity, excellent chip evacuation is the result. CHASE-8-SFEED inserts are available in two sizes, SQKU 11 and 14, and the same insert can be used interchangeably with 45° roughing cutters and 20° high feed cutters.

FEATURES

- **Economical double-sided 8-corner insert**
- **Two entering angle cutters for roughing and high feed machining**

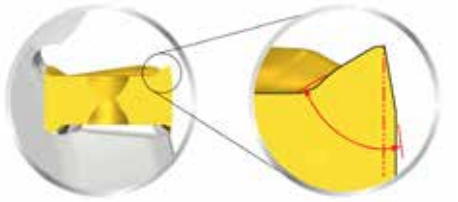
40° cutters: deep depth of cut for roughing

20° cutters: for high feed milling

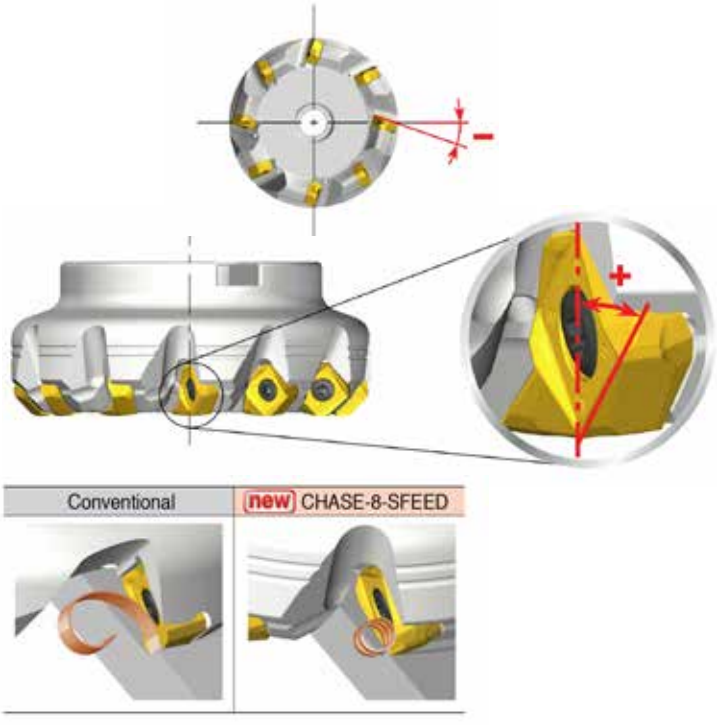
- **Wiper edge for excellent surface roughness**

Note: good visual roughness requires feed rate adjustment

- **Reinforced edge optimized for high feed machining**
- **High negative radial rake angle and high positive axial rake angle**



- Excellent chip evacuation to reduced chip volume
- Enhanced body rigidity for excellent machining performance under harsh cutting conditions
- Fine pitch cutter maximizes productivity



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

CHASE 8 SFEED

FACING & HIGH FEED

High Feed & Face Milling with 8 Cutting Edge Insert for Improved Productivity

- High productivity with max. No. teeth
- Strong tool body and reinforced cutting edge
- Excellent chip evacuation
- Economical 8 cutting edge

TaeguTec South Africa (Pty) Ltd.

PO Box 3121 Springs 1560 | Block F, Clearwater Office Park South, Cnr Atlas & Park Rd, Parkhaven, Boksburg

+2711-362-1500 info@taegutec.co.za www.taegutec.com

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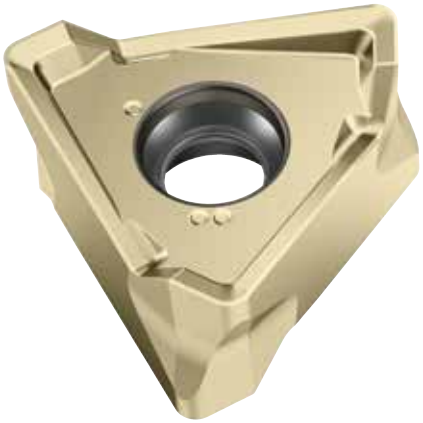
NEW G27 GEOMETRY FROM WALTER EXPANDS THE M5137 MILLING CUTTER RANGE

With the Xtra·tec® XT M5137, Walter introduces a shoulder milling cutter that brings with it incredible benefits for machining ISO materials P and K. Firstly, users benefit from double-sided indexable inserts with six usable cutting edges – and, in turn, an attractive price-to-cutting edge ratio. Secondly, the milling cutter has an approach angle of 90 degrees and is capable of ramping, circular interpolation milling and pocket milling, which is a combination customers have never seen before. Following on from the successful launch, Walter is now expanding its M5137 range to include the new G27 indexable insert geometry for universal use.



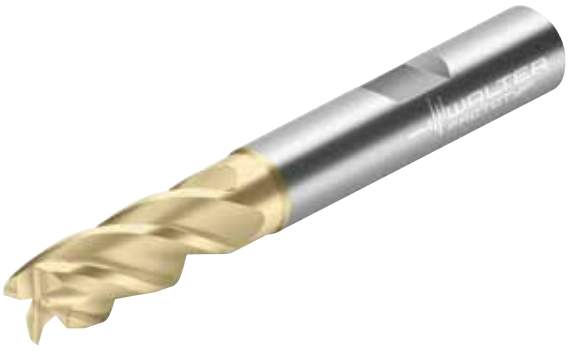
Whilst the G57 geometry that was available up to now primarily excelled in good to average conditions, low cutting forces and average feeds (e.g. for pre-machined workpieces), the sintered G27 now completes the Walter range. A geometry that can be used for challenging jobs as well as unstable clamping arrangements, interrupted cuts or forged skin. Both geometries are suitable for face milling, shoulder milling and pocket milling, as well as circular interpolation and ramping in steel and cast iron workpieces, and in stainless and difficult-to-cut materials. The Walter range now includes the cutter body itself with bore adaption and Weldon shank, also available in new inch-diameters (1–4"). The high process reliability and cost-efficiency achieved through low cutting tool material costs and the wear-resistant Tiger·tec® grades make the milling cutter a particularly good choice for users producing mid-range quantities.

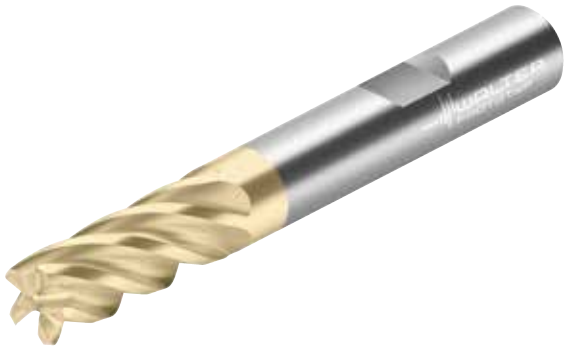
WALTER LAUNCHES NEW MD340 AND MD344 SUPREME SOLID CARBIDE MILLING CUTTERS

Despite a growing trend towards lightweight construction, steel machining still represents a significant market share. With the MD340 and MD344 Supreme solid carbide milling cutters, Walter is launching two new tools for ISO P materials.

The MD340 Supreme (dia. 2–25 mm or 1/16–¾") is specifically designed for roughing, full slotting and dynamic milling of steel materials. The extensive product range with three, four or five teeth makes it suitable for universal application. The MD344 Supreme four-edge cutter with its special face geometry (dia. 6–20 mm) is designed for 90° plunging or ramping. The solid carbide milling cutter therefore sets new standards, particularly when it comes to plunging and pocket milling in a single operation. Mass producers in particular can shorten the machining time due to fewer tool changes, while required tool spaces in the machine and reconditioning costs are also reduced because no additional boring tool is needed.

Both of these steel specialists boast a multi-layer TiAlN and ZrN coating developed in-house at Walter, as well as a reduced neck. As a result, the Supreme milling cutters machine ISO P materials at the very highest level. The MD344 Supreme is even considered the benchmark for opening up and machining pockets and cavities using the same tool. The main benefits of the MD340 and 344 Supreme milling cutters are their high cost-efficiency and long tool life in ISO P machining. The variable helix, pitch and number of teeth, all of which are perfectly coordinated, ensure exceptional performance and operational smoothness. What's more, the helical pitch is adapted to the number of teeth, which improves the surface quality.





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MTM®

PRODUCTIVE SHOULDER MILLING

A new assortment of Pramet LNEX 12 negative tangential inserts, with four cutting edges, provides a highly productive solution for a wide range of applications.

The LNEX 12 is a robust insert designed for shoulder milling with a maximum depth of cut up to 10 mm. It features a positive rake angle and narrow T-land to provide a smooth cutting action with lower demands on spindle torque.

The peripherally ground insert offers improved wall accuracy and straightness and creates a true 90° corner. The LNEX12 also featuring a patented U-groove segment on all four cutting edges which provide a good surface finish and expand its application range to low-power machines and small depths of cut.

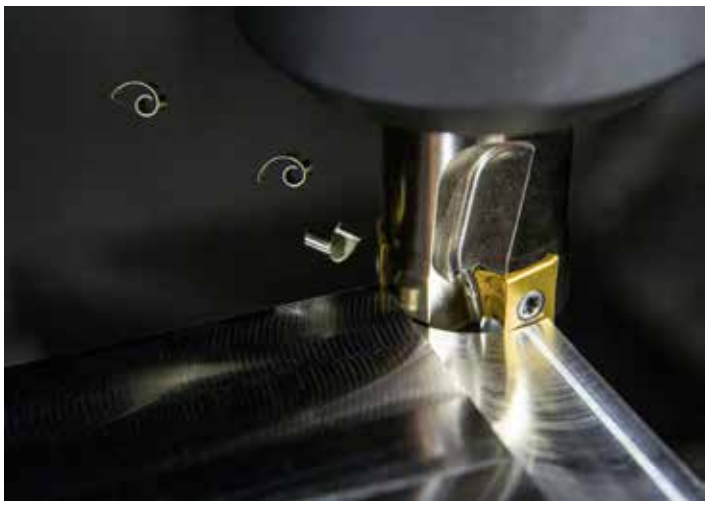
In addition, the two-sided design supports performance by making ramping possible.

The insert comes in two different geometries, F for machining of various workpiece materials in light and medium applications and M which is suited for medium to semi-roughing in steels and cast irons.

Alongside the new insert is a line of perfectly matched cutters. The Pramet SLN12X series is available in Cylindrical, Weldon and Shell styles, with all featuring internal coolant systems for improved surface quality.

Its improved body strength and thick core offers enhanced rigidity, giving a reliable cutting process with low vibrations and long tool life for both the insert and cutter. Easily accessible large clamping screws provide simple indexing and handling of inserts.

The combination of the Pramet LNEX 12 inserts and the SLN12X cutters give operators a smooth cut with a clean finish, reducing the need for additional operations, such as deburring.



LNEX 12 negative tangential inserts provide a highly productive solution for a wide range of applications.

For more information please contact www.dormerpramet.com or Steve.hutton@dormerpramet.com or julie.heathcote@dormerpramet.com

PFERD'S CC-GRIND ROBUST – REVOLUTIONISING METAL FABRICATION PROCESSES WITH ITS EXTREME STOCK REMOVAL RATE, IMPROVED EFFICIENCY AND COMFORTABLE OPERATION

Transform your metal stock removal applications with the CC-GRIND ROBUST – the optimum solution for increased productivity, cost-effectiveness and improved operational efficiency. Its high-performance and ergonomic design surpasses that of conventional grinding discs, flap wheels and fibre discs, making it a modern choice for achieving unparalleled stock removal rates.

Extreme Stock Removal Rate of PFERD's VICTOGRAIN

"The CC-GRIND ROBUST is PFERD's latest generation grinding disc developed with ergonomics and efficiency improvement in mind. The CC-GRIND ROBUST consists of ceramic grains, optimally aligned on a glass fibre backing. The SGP version is part of PFERD's VICTOGRAIN family consisting of triangular-shaped ceramic grain. The product achieves an extremely high stock removal rate, which significantly reduces processing time resulting in improved overall operator productivity", explains Dennis Phillips, National Sales Manager at PFERD-South Africa.

Compared to conventional abrasive grains such as Aluminium Oxide, Ceramics have a significant advantage due to their ability to continuously self-sharpen. As Ceramics are used, their grains break down gradually, revealing new sharp cutting edges that consistently and aggressively cut throughout the product's lifespan.

The ROBUST's self-sharpening characteristics and cutting performance are even more pronounced. "VICTOGRAIN starts as triangles and is constructed to break down in a pre-defined and controlled manner, Phillips states. When the triangular grain breaks down, new and extremely sharp cutting edges are ready to continue the abrasive's aggressive and fast grinding".

ROBUST Optimises Grinding Processes and Improves Operational Efficiency

"The extreme stock removal rate and long tool life of the ROBUST provide a significant advantage for metal manufacturing operations. By reducing component processing times, more work can be completed in the same amount of time. Despite its aggressive stock removal rate, the ROBUST still achieves a consistent and high-quality surface finish. Accordingly, PFERD's CC-GRIND ROBUST greatly optimises grinding processes and significantly enhances operational efficiency," Phillips explains.

The high-performance ceramic abrasive grain removes metal quickly, substantially reducing the temperature in the grinding zone. As a result, there is no need for additional processing steps to remove heat discolouration.

Increased Comfort, Safety and Precision

The ergonomic design of the grinding wheel results in significantly reduced levels of dust, noise and vibration.

According to Phillips, operators who use the ROBUST grinding wheel experience significantly less fatigue due to its reduced vibration levels. Additionally, the use of this consumable results in less strain on machinery, reducing the need for frequent replacement and ultimately leading to lower operational expenses.

The improved air quality in the workspace and lower noise levels also contribute to a safer and more comfortable working environment for operators, further enhancing their comfort and safety levels.

Furthermore, the lightweight ROBUST means an operator can easily guide the abrasive on the workpiece for precise and accurate stock removal.

Variety of Applications on Steel and Stainless Steel

The ROBUST product range includes 115mm and 125mm grinding wheels that can be used for a wide range of applications – both portable and stationary. It's ideal for tasks on steel and stainless steel such as surface grinding, weld dressing, deburring, chamfering and removing imperfections. Due to the tool's dimensional stability, the ROBUST can produce flat surfaces while its adapted tool geometry eliminates the need for special clamping flanges, making it compatible with all commercially available angle grinders.

On-site Demonstrations and Assessments

Phillips encourages those who want to experience the CC-GRIND ROBUST to contact PFERD. "Our Application Specialists are available for on-site product demonstrations and application assessments – this way they can determine how the ROBUST can be implemented to help optimise your operations, "he concludes.

For more information contact Pferd – Tel: 011 230 4000 or e-mail: sales@pferd.co.za.

SAFANDARLEY E-BRAKE ERGONOMIC

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

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

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

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

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

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

SAFAN M-SHEAR

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

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

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

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

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

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

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

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

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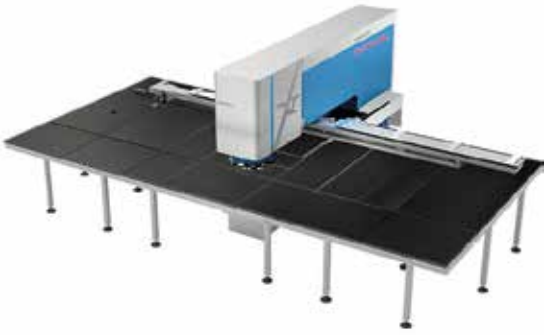

MODULA

VISIT OUR NEW PREMISES & OUR NEW SHOWROOM

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MTM®

THE NEW BYBEND STAR 40 AND 80 – TWO MOBILE BENDING MARVELS

The compact mobile press brakes ByBend Star 40 and ByBend Star 80 impress with a new design and a new drive system. Bending often still means producing small to medium-sized parts on press brakes that are too large. This limits you, because processing bent parts on presses that are too large comes at the cost of time, space, and sometimes also quality.

Advantage: Small

For parts of up to about 1,500 millimetres in bending length and a maximum thickness of 20 millimetres, you do not actually need a large-scale bending station, but rather a small and versatile powerhouse.

The mobility of the two ByBend Star bending machines is a significant advantage over large-format press brakes

The new ByBend Star 40 and 80 were developed precisely for such requirements – compact, fast press brakes that fit into almost any production environment. Large presses must be placed in a fixed position in production and often take up a lot of space due to their design.

The larger of the two small systems:
The ByBend Star 80 with 80 tons of press capacity.

Compact and even more compact

This is not the case with the new ByBend Star 40 and 80: The smallest in Bystronic's range bend as reliably as their big counterparts within the tightest of spaces. Bystronic thus offers an ideal bending solution for production landscapes that are subject to constant change.

Compact and fast

The new servo-hydraulics enable bending speeds of up to 30 millimeters per second. This makes the ByBend Star 40 and ByBend Star 80 three times faster than a large press brake.

80 tons of strength

Compared to the ByBend Star 40, the ByBend Star 80 offers more bending length and more pressing power. This expands the range of applications. On a bending length of around 1.5 meters, the ByBend Star 80 deploys a pressing force of 80 tons. The footprint of the machine is less than 6 square meters.

Intelligent functions also save energy

Bystronic paid particular attention to the subject of energy consumption during the development of the entire ByBend Star series: The economical "Dynamic Drive System" drive concept allows for dynamic bending sequences without energy loss. The ByBend Star 40 and 80 supply the exact force required for each bent part.

Easy to operate: Programming the ByBend Vision software on a 21.5-inch screen.

Added to this are intelligent functions such as the Energy Saver and an automatic start-stop function. Compared to large models, the two ByBend Star press brakes thus offer almost unbeatable energy efficiency throughout the entire bending process.

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

MAGNUM MACHINE TOOLS –
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PUNCH & SHEARS, ANGLE PUNCHING LINES, BEAM DRILLING LINES

GEKA MICROCROP 36

Ex Stock

- Electrically driven hydraulic unit with submerged pump
- Double acting cylinder
- Monoblock blade with antifriction bushes

Capacity	
Flat bar shearing	350 x 6
	200 x 13
L at 90°	80 x 80 x 8
L at 40°	50 x 50 x 5
Punching	27Ø thru 13mm

GEKA MINICROP 45

Ex Stock

Capacity	
Flat bar shearing	300 x 10
	200 x 13
L at 90°	80 x 80 x 8
Round bar	30mm
Punching	27Ø thru 12mm

GEKA BENDICROP 50

Ex Stock

- Permanent bending station
- Anti-torsion system for flat bar shearing
- Gooseneck die holder for punching U & I sections on legs and webs

Capacity	
Flat bar shearing	350 x 10
	350 x 15
L at 90°	80 x 80 x 8
Round bar	35mm
Square bar	30m
Punching	31Ø thru 12mm
Bending	100mm x 10mm

GEKA 80 HYDRACROP

Ex Stock

- Monoblock frame notching and punching tables with scaled end stops

Bigger models available on request: 110 ton, 165 ton

Capacity	
Flat bar shearing	450 x 15
	300 x 20
L at 90°	130 x 130 x 13
L at 45°	70 x 70 x 7
Bars – round & square	45
Punching	40Ø thru 14mm
Bending	100mm x 6mm

MAGNUM PRECISION MACHINE TOOLS

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