

IQ **STARTUP**

MACHINING INTELLIGENTLY

ISCAR's Winning Edge Machining Innovations

DOVE IQ MILL
845 LINE

HELI IQ MILL
390 LINE

MILL SHRED
P290 LINE

HELIDO
845 LINE

IQ
HIGH Q LINE
MACHINING INTELLIGENTLY

Machining Intelligently
ISCAR HIGH Q LINES

Member IMC Group
ISCAR
www.iscar.co.za

TURNING & MILLING.
GROOVING & PARTING.
DRILLING & HOLEMAKING.
CERAMIC, CBN & PCD.
THREADFORMING/TAPPING.
REAMING.
BROACHING.

WE'VE GOT IT!

FOR MORE DETAILS VISIT
www.spectra-sa.co.za



FIND US
@ Spectra_Carbide



SPECTRA CARBIDE
TOOLING TECHNOLOGY (PTY) LTD

TRANSFORMING
FUTURE SOLUTIONS
INTO REALITY.

TEL: 0860 23 23 23 | FAX: 0860 33 22 33 | spectra@spectra-sa.co.za

MAY/JUNE 2016

Vol. 25 – No. 3

Proprietors and Publishers:

MTM Publications (Pty) Ltd
Reg No. 2005/030589/07

Address

78 Imbuia Street, Northcliff 2195
PO Box 2434, Northcliff, 2115, South Africa
Tel: (011) 476-3211/3 or 476-3240
Fax: (011) 476-3216

e-mail: indpub@icon.co.za

Managing Director/Editor

Gerd Müller

Production Director

Monica Müller

Production Manager

Sue Ashley

Advertising

Jason Rohrs

Accounts/Subscriptions

Monica De Koker

Agents – Europe:

komm-ma Kommunikation und Marketing
Uschi Hengst e.k.
Adolf-Ohm-Weg 25
D 79539 Lörrach, Germany
Tel: 00 49 7621 420 918
Fax: 00 49 7621 420 919
e-mail: uschi.hengst@komm-ma.de

Subscription Rates

South Africa: R 430-00 (one year),
V.A.T. included.

Southern African States:

Airmail – R 1 140-00 (one year).

Overseas:

Airmail – R 2 040-00 (one year).

Advertisements / Editorials

The publisher reserves the right to refuse and/or omit any advertisement and gives no guarantees that advertisements or editorial contributions will be inserted on the date ordered.

Whilst every care is taken to ensure that information in Machine Tool Market Southern Africa is accurate and up to date the publishers cannot accept responsibility for mistakes or omissions.

The views and opinions expressed in Machine Tool Market Southern Africa are not necessarily those of MTM Machine Tool Market.

Copyright

All rights reserved to MTM Publications (Pty) Ltd. No part of this publication may be reproduced, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, storage in a retrieval system, or otherwise, without the written permission of the publisher.

CONTENTS

MILLING	6
NEWS – INTERNATIONAL	34
METAV 2016: ILLUMINATING FOCUS ON UP-TO-THE-FUTURE PRODUCTION TECHNOLOGIES	34
EMO HANNOVER 2017	40
GERMAN MACHINE TOOL MANUFACTURERS WORLD EXPORT CHAMPIONSHIP RUNNER-UP IN 2015	42
ANNUS HORRIBILIS FOR MEM INDUSTRIES	44
AIRBUS DISPLAYS ACJ319 AT ABACE SHOW	46
AIRBUS DELIVERS ITS FIRST AIRCRAFT PRODUCED IN THE USA	48
NEWS – LOCAL	50
INDUSTRY 4.0 COMPANIES WORLDWIDE ARE INVESTING OVER \$US 900 BILLION	50
THE DEMISE OF THE METAL INDUSTRY BARGAINING COUNCIL (MEIBC) – IT ONLY HAS ITSELF TO BLAME	52
SACRIFICING THE STEEL INDUSTRY TO SAVE MITTAL	54
FORD INVESTS R2.5 BILLION IN SOUTH AFRICA	56
RICHARDS BAY IDZ LOOKS AT ALUMINIUM HUB	58
VOLKSWAGEN TO COMMISSION R120 MILLION TRY-OUT PRESS	60
RESEARCH	62
PRESSWERK 4.0 CUTTING DOWNTIMES IN HALF, MAKING MANUFACTURING FLEXIBLE	62
REAL ENVIRONMENTAL DATA IN REAL TIME FOR SIMULATIONS	63
PRODUCTS	64
TRADE FAIRS	66

**Machining
Intelligently**

**ISCAR's
Winning Edge
Machining
Innovations**



ISCAR SOUTH AFRICA (PTY) LTD

Head Office: 47 Lake Road, Longmeadow Business Estate - North, Extension 7,
Modderfontein, Edenvale 1609

Tel: (011) 997-2700 Fax: (011) 388-6820



The E-volution in sheet metal working



**LEADERS IN THE
INNOVATION OF SERVO
ELECTRIC PRESS
BRAKES**

**SafanDarley -
THE ORIGINAL SERVO
ELECTRIC PRESS BRAKE**

Bending with
the E for
ergonomics

SafanDarley E-Brake



SafanDarley M Shear

CML
MACHINE TOOLS
Suppliers of Fine Equipment

Superior cutting
technology
with hybrid
drive



2 Patrick Road, Jet Park • Tel: 086 142 2423 • Fax: 086 553 9975
• e-mail: luis@cmlmachines.co.za • web: www.cmlmachines.co.za

CML-HELI • DURBAN: Unit 17 Scotia Park, D819 Road, Brackenhill, Industria • Tel: 074 055 9115/7

Euromac
meets your
ambitions

EUROMAC®

punching machines



Strong
affordable
easy
fast
flexible

EUROMAC®

bending machines

Every steel
and copper
workshop can
take advantage
of a Digibend



With
Euromac
you get the
maximum
bending
flexibility

Resato Waterjet Cutting Machines



Resato
WATERJET TECHNOLOGY



THE FUTURE IS FORMED BY OUR MACHINES

FIBER LASERS

Simple, inexpensive, compact



- *Variety of materials*
- *Enhanced productivity in thin sheets*
- *Low investment and operating costs*
- *Simple to operate*
- *Simple design and short installation time*

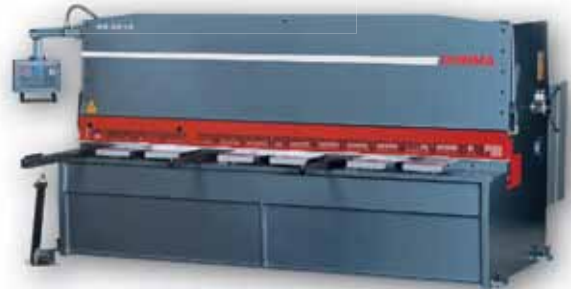
Call or mail us for full details on these machines.

PLASMAS



PLATE ROLLING MACHINE

- MRB-S 1506 (6mm x 1500mm Asymmetrical Mechanical)
- MRB 1204 (4mm x 1200mm Asymmetrical Mechanical)



SHEARS

- VS 3010 (10mm x 3000mm Variable Rake CNC)
- SBT 3006 (6mm x 3000mm Swing Beam CNC)
- MS 1303 (3mm x 1,300mm Mechanical)

Local: 08600 DURMA (38762)
International: +27 11 865 4090
sales@durma.co.za | Byron 083 231 1955 | www.durma.co.za

DURMA



ADS PRESS BRAKES



Fast, stronger, accurate with new design



BANDSAW

- DCB-S 360 (Ø 360 Semi-Automatic with turn table)
- DCB-S 560 (Ø 560 Semi-Automatic with turn table)

All in stock
(Subject to prior sale)



SECTION ROLLERS

- PBH 60 (60mm Shaft Diameter Profile Bender)

IRON WORKER

- IW 45 (45 Ton Single Cylinder)
- IW55/110 BTD (55 Ton Double Cylinder with deep throat)
- IW80/150 BTD (55 Ton Double Cylinder with deep throat)



COMPRESSOR

EXTENDED FLUTE CUTTERS – EXTEND THE FRONTIER OF MILLING EFFICIENCY

Indexable extended flute (sometimes referred to as *long edge*, *porcupine* and even *porky*) cutters are universally regarded as the ideal tools for high performance rough milling, when a machining allowance per pass is significant. When dealing with milling deep shoulders, cavities and pockets or wide edges (edging), the application of Indexable milling cutters ensures impressive results. The use of Extended Flute Cutters is common across a range of heavy-duty operations in manufacturing sectors including general engineering, railway, aerospace and die & mold industries. The ever-increasing demand to continuously improve productivity has prompted the further development of *porcupines* to enable the required efficiencies to be realized. Throughout the past decade, ISCAR, one of the world's leading manufacturers of cutting tools, has introduced many ingenious extended flute cutters innovations.

Chip splitting

Extended flute cutters are placed under significant loading when they remove a large material layer and their work in such heavy cutting conditions is characterized by high cutting forces, considerable power consumption and substantial heat generation. Intensive material removal requires the use of a cutter with a chip gullet of considerable volume to ensure effective chip evacuation. This decreases the number of the cutter's flutes (effective teeth), reducing its productivity. In addition, large cutting forces acting cyclically induce serious vibration problems. When using indexable inserts that have a chip splitting action, it is possible to solve the above difficulties.

Inserts featuring chip splitters have a geometry that enables the division of a wide chip into small segments. As a result, cutting forces and power consumption are reduced, vibration is stabilized and thermal problems are eased.

ISCAR provides a wide choice of chip splitting



Pic. 1

extended flute cutters that offer different design properties. The **HELITANG T490** milling family features tools carrying double-sided tangentially clamped inserts. (Pic. 1). The inserts have 4 indexable serrated, wavy cutting edges to provide efficient machining with a chip splitting (even chip crushing) action. For optimal chip crushing it is recommended that users mount the inserts in alternative edge configurations on adjacent flutes of the tool. However, even if the inserts are mounted randomly, the tool will continue to mill effectively.

Tangential clamping creates two important advantages within the tool design. It enables effective use of the insert's cross-section to enable it to resist heavy loads. Also, this approach ensures strength and rigidity of the tool body. Through the combination of the chip splitting action and the above advantages, the **HELITANG T490** tools guarantee powerful performance.

The **MILLSHRED P290** family of extended flute cutters adheres to the more common concept of clamping inserts radially. Under equal conditions, radial clamping may demonstrate less strength related properties when compared to tangential clamping, however, radial clamping makes it possible to increase the chip gullets volume and in doing so, significantly improves chip evacuation. The main distinctive feature of this family is the serrated cutting edge of the inserts, that not only split wide chips, but chops or shreds them (Pic. 2). Unlike many chip splitting inserts that are currently available, the **P290** one-sided inserts with two indexable serrated cutting edges, do not require special instructions for mounting in the **MILLSHRED** extended flute cutters and are



Pic. 2

simply secured in any pocket. This operator-friendly feature simplifies tool assembly and eliminates errors in insert indexing that may cause tool destruction.

Not Only a Square Shoulder

The majority of extended flute milling tools have 90° cutting edge angles and are designed to machine straight edges and square shoulders or slots. Although various manufacturing processes require productive roughing for inclined or 3-D surfaces, in these cases the extended flute can be an excellent means of achieving improved efficiency. Following demands from global industry, ISCAR further expanded the popular **HELITANG T490** family by introducing an entire choice of tapered tools with cutting edge angles from 22.5° to 75° (Pic. 3). This extensive range of high quality tools is capable of covering many heavy-duty machining applications.



Pic. 3

Cont. on page 8

IQ **STARTUP**

MACHINING INTELLIGENTLY

ISCAR's Winning Edge Milling Innovations

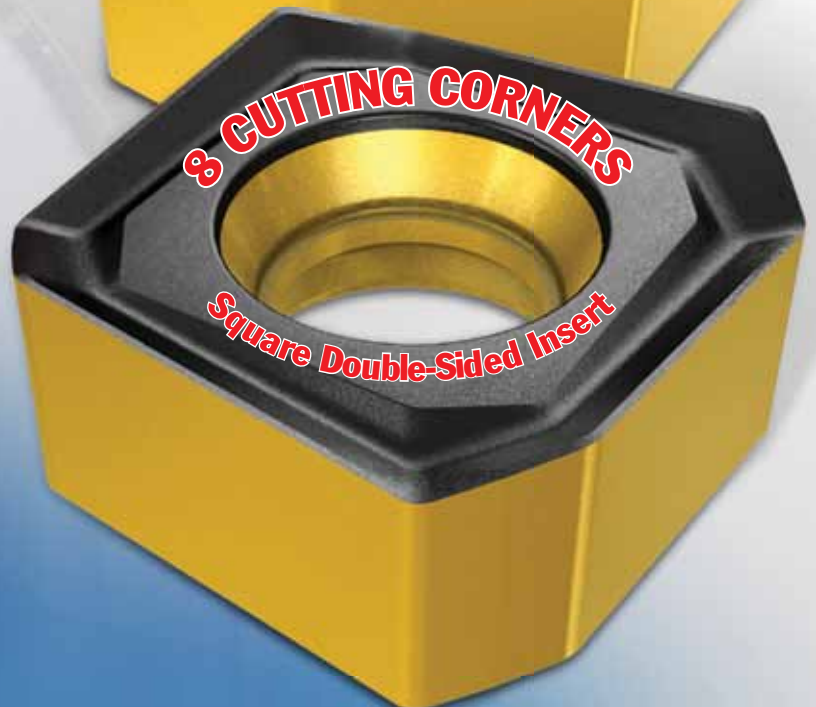
**Economical Face
Milling Achieved
with Octagonal
or Square
Shaped Inserts!**



HELIDO

845 LINE

Same Versatile Cutter
Fits Octagonal and
Square Inserts!



ISCAR SOUTH AFRICA (PTY) LTD Tel: (011) 997-2700 | Fax: (011) 388-6820

Machining Intelligently
ISCAR HIGH Q LINES

Member IMC Group
iscar
www.iscar.co.za

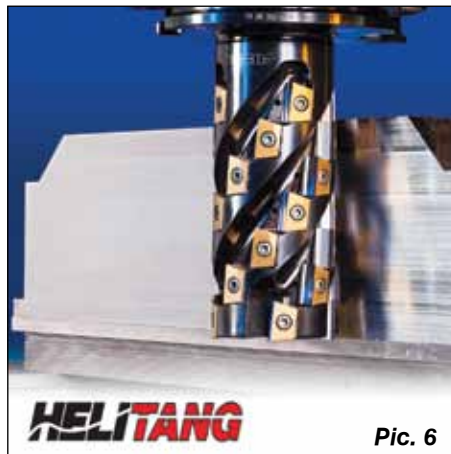
Milling & Machining Centres

Cont. from page 6

The **DROPMILL 3** extended flute ball nose endmills (**Pic. 4**) were designed specifically for efficient profile and shoulder milling, mainly within the Die and Mold Industry. These endmills carry straight-edge inserts that enable machining beyond the spherical (ball nose) cutting edge, which is generated by teardrop inserts. The design of the latter successfully adopted the chip splitting approach. Both of the different cutting geometries, one with a chip splitter and another with a chip shredder, are available for the teardrop inserts.



The milling of titanium and high temperature alloys places very specific requirements on extended flute cutters. In these cases, the presence of internal channels that deliver a sufficient coolant supply, directly through the body of a cutter, are absolutely necessary. Milling with high-pressure coolant (HPC) supply, or with cryogenic coolant have their own distinctive requirements that should be taken into consideration when designing cutters. These demands result in the availability of various special, tailor-made, tools. However, even standard families of extended flute cutters are suitable for milling the difficult-to-cut materials associated with



the Aerospace Industry. Nevertheless, families of indexable porcupines (**Pic. 5**), which were specifically created for the effective milling of these challenging materials are available.

An indexable long edge mill is generally thought to be a tool for mainly rough, and possibly in some cases, semi-finish machining. At the same time, the extended flute may be a good solution, even for finish operations. In particular, the use of **HELITANG FIN LNK** (**Pic. 6**) cutters provides an efficient way to reach the required accuracy and surface finish specification when dealing with deep shoulders.

Modern production developments have seen the introduction of multitasking and turn mill machines that use both rotating and non-rotating tools. The polygonal tapered



adaptation in accordance with ISO 26623, ensures the high strength and rigid mounting of a tool into the machine spindle, as well as high accuracy and positional repeatability when the tool is replaced by the machine's automatic tool changer (ATC). Hence, the demands of the tools with the ISO 26623 shanks, including extended flute cutters, will grow. ISCAR offers the porcupines from the most popular families as an ideal answer to the requirements of ISO 26623 adaptations (**Pic. 7**).

To summarize this brief overview, it may be noted that the variety of extended flute cutters differ in their types and design configurations and have strong performance potential if applied in the right intelligent way, consequently extending the frontier of indexable milling efficiency.

For more information, please contact Iscar South Africa - Tel: (011) 997-2700.



**For advertising in this
magazine, call
Jason Rohrs
(011) 476-3211/3**



MACHINETOOLS
AFRICA 2017

9-12 MAY 2017
EXPO CENTRE, NASREC
JOHANNESBURG, SOUTH AFRICA

**BOOK
YOUR
STAND!**

Africa's biggest Machine Tools exhibition
showcasing cutting edge developments



THE
EVOLUTION
OF THE
REVOLUTION

Machine Tools Africa 2017 is a revolution set to be the biggest trade exhibition of its kind in Africa. A showcase of all that rotates, turns, cuts, forms, bends, shapes and more.

TO BOOK YOUR STAND CONTACT:

John Sterley

Specialised Exhibitions Montgomery:

Tel: + 27 (0) 10 003 3053 / + 27 (0) 84 828 0034

Email: johns@specialised.com

www.machinetoolsafrica.co.za

An event by



www.mtma.co.za

Brought to you by

SPECIALISED EXHIBITIONS
MONTGOMERY

ISCAR EXPANDS THE HELIDO 690 LINE WITH TOOLS CARRYING 10MM EDGED INSERTS

Following an excellent global market response to the HELIDO 690 LINE milling family, and through customer demand, ISCAR has introduced new indexable cutters carrying double-sided, triangular smaller size (10mm) inserts. The new inserts designated **H690 TNKX 100504PNTR** were designed following the format and principles of their successful predecessor **H690 TNKX 1606 (16mm)** inserts, and with all their advantageous features.



The new insert features a maximum depth of cut of 8mm, providing advantages which include smaller tool diameters, such as 20mm endmills and 32mm face mills, tools with higher tooth density and double-sided triangular geometry providing six cutting edges. The helical cutting edge and positive rake angle reduces cutting forces for soft and clean cutting action and long reliable tool life, and last but not least wiper flat for high surface finish.

The new family includes endmills in the diameter range of 20 to 40mm and face mills in the diameter range of 32 to 63mm. **HELIDO 690-10** inserts are produced from ISCAR's latest SUMO TEC carbide grades, which significantly increase productivity.

Cutter Features

- 90° cutting edge angle
- Advanced cutting geometry that reduces cutting forces / power consumption and provides smooth cutting
- Ramping down ability
- Coolant holes directed to each individual cutting edge, for an efficient cooling
- HARD TOUCH coating, providing smooth chip flow and protection from corrosion and wear
- Available in standard fine and coarse pitch configurations

Applications

- Machining main engineering materials: steel and cast iron, stainless steel and difficult-to-cut HTSA
- Milling shoulders, slots and plane surfaces
- Operations requiring ramping or helical interpolation

Advantages

- Productivity – high metal removal rates
- Economy – inserts with 6 helical cutting edges
- Accuracy – milling 90° profile of square shoulders
- Low power consumption – possibility of applying the cutters on machine tools with limited power
- High process reliability

Due to the above features, the advanced new cutters provide the user with an effective and economical solution for milling square shoulders. The advantages of the new cutters are most noticeable when machining with a shallow depth of cut, and a high table feed that provide increased productivity and reduced production costs.

For more information, please contact Iscar South Africa - Tel: (011) 997-2700.



CNC CLEAR CUT

CNC PLASMA CUTTING TABLES

Tel: +27 12 541 0552
enquiries@cncclearcut.co.za
www.cncclearcut.co.za



BECAUSE ALL CNC PLASMA CUTTERS ARE NOT THE SAME!

Now available with five axis bevel head

FEATURES / BENEFITS

- Support up to 45 degree welding angles - Y, K, A and V cut
- TruBevel software - required angle can be obtained in two attempts
- TruHole Technology to provide bolt ready holes
- Laser plate alignment to assist plate set up
- Rapid Parts Technology increases productivity on smaller parts
- Complimented with Hypertherm HPRXD Plasma Cutters to render Hi-Deff cutting
- Collision Avoidance protects torch and unnecessary production holdups
- Scribing assists in marking parts, part reference points and bending lines



Training will be provided.

Support, service and consumables readily available. From plasma cutters to CNC Plasma Tables, Motion Controls to CAD/CAM software and consumables, if you need to cut metal, we can help.



South Africa's Leading CNC Plasma Table Manufacturer

INTRODUCING THE FIRST DOUBLE-SIDED, MULTI-EDGE MILLING CONCEPT WITH POSITIVE CUTTING ACTION

The cost-efficient and productive CoroMill® 745 is now available

Offering high productivity and a low cost per edge, the CoroMill® 745 has a double-sided, multi-edge design that is ideal for large batch productions. With its tilted insert positioning system and sharp cutting edges, this milling cutter offers a light cutting action at low power consumption.

With a total of 14 cutting edges per insert, the CoroMill 745 is a cost-efficient choice for face milling. The assortment includes three pitch versions. The differential pitch design of the MD pitch is best when vibration is a factor and is radially compensated to ensure equal chip thickness for every insert. The M

pitch is best for general applications and the H pitch has a higher number of teeth making it the best choice for higher productivity. The M and MD pitch both have the same number of teeth.

Designed to make insert indexing quick and easy, the unique insert positioning system in the tip seat and heptagonal insert design keep the inserts securely in the pocket when mounting. The inserts are tilted in the tip seat to create a positive cutting action. Inserts geometries and grades are available for steel and cast iron materials. For roughing to semi-finishing applications, the strong and light cutting inserts provide reliable face milling



CoroMill® 745 is available in medium and close pitch and as a differential pitch version for vibration-prone applications.

in all types of milling machines.

According to Matts Westin, Global Product Manager for Milling, "you might see other multi-edge concept milling cutters on the market but none have the performance of the CoroMill 745. The science behind it is impressive. The unique double-sided, multi-edge insert design has 14 positively tilted cutting edges which are spaced out at different positions resulting in a milling cutter that is quiet and soft. For our customers, that means they get a highly-productive milling cutter, increased tool life at a lower cost per component."

For more information, please contact Sandvik Coromant - Tel: (011) 570-9615.

Just cut, bend and fabricate it!!

One source your best source

Durma South Africa have made it easier and faster to get just what you need – your forming and fabricating source for machines, consumables, accessories and systems

Hypertherm®

Authorized Partner
cutting products,
systems and software

CENTRICUT®

Innovation. Integrity. Hypertherm
laser and plasma consumables

DURMA
machines

tamsan®

compressors

EURO STAMP
press brake tooling



Local: 08600 DURMA (38762)
International: +27 11 865 4090
sales@durma.co.za | Byron 083 231 1955
www.durma.co.za

DURMA

Performance and economy in one

CoroMill® 745 is a brand new multi-edge face milling concept for steel and cast iron. Double-sided, but with uniquely tilted inserts for a positive cutting action, it leaves you with 14 true cutting edges for superior cost-efficiency. The innovative design offers benefits such as excellent chip formation, low power consumption and a smooth sound, at a reduced cost per component.

CoroMill® 745. Made for Milling.



sandvik.coromant.com/madeformilling

64 Jet Park Road, Jet Park • PO Box 25038, East Rand, 1462 • Branches: Durban, Port Elizabeth, Cape Town, Vaal Triangle • Direct Sales: 0860 101 008 Fax: 0860 101 006

SANDVIK
Coromant

HSC MILLING OF HIGH-TECH COMPONENTS

Highly accurate machining of intricate, filigree parts

For the production of support structures and kinematics of precision optics in small batches, Carl Zeiss in Oberkochen is convinced of the advantages of HSC milling. The highest precision is a must when milling standard as well as free-form geometries in soft as well as in hard materials at high speed. These requirements were fully met by a 5-axis-machining centre, type Rödgers RXP 500 DS.



“Our products really deserve the designation “high tech” since many of them are in service high above our heads – in airplanes and space craft”, says Alfred Langer, head of the special products manufacturing business segment in the production facility of Carl Zeiss in Oberkochen (Germany). In addition to producing intricate mechanical parts, his division realizes high-end solutions in the field of optical components and complex assemblies. Thanks to close ties with in-house design and R&D departments, customers can already be offered full support in the early stages of product design.

Carl Zeiss, a market and technology leader in the field of optics and optoelectronics whose products and services are widely used in biological and medical research and in medical technology, also develops complete system solutions for the semiconductor, automotive and machine-building industries. Many of these cutting-edge products are either one-offs or produced in very small batches. The special products manufacturing business segment is in charge of providing the related mechanical parts, such as supports, frames and kinematics. It goes without



Alfred Langer, head of the special products manufacturing business segment in the production facility of Carl Zeiss in Oberkochen (Germany).



saying that this implies the highest requirements with respect to quality and precision. The department currently operates about 25 machine tools, mostly cutting-edge CNC-controlled lathes and 3 or 5-axis milling centres.

In line with the broad range of applications, the bandwidth of materials that have to be machined is much wider than for conventional production departments and encompasses not only standard materials, such as aluminium and carbon or high alloy tool steels, but also numerous “exotic” materials e.g. exhibiting special physical properties. This includes materials that are extremely hard or difficult to machine. Due to the fact that the company often pursues such projects with partners at a national as well as international level, a significant proportion of the orders comes from external customers.

Advantages of HSC milling

“Many of the structural parts we manufacture are very filigree and thin-walled, as in the case of support structures for precision optics. The force exerted by the cutting tool can lead to distortion of the structure resulting in reduced accuracy of the part”, adds Richard Kaak, Project Manager of Technology Development Process Engineering. Of course, one might theoretically try to reduce this problem by drastically cutting back the machining speed. But this would not only lead to rocketing machining costs, it would also result in unacceptably long project delays. Further problems he urgently wanted to address were machining-induced vibrations matching the resonance frequencies of the structures as well as warming of the parts resulting in related dimensional deviations. For those three problem areas, noticeable improvements were expected by switching from conventional milling to HSC machining characterised by its fast chip formation and removal, lower cutting forces and a higher vibration frequency stimulation range induced by the increased rotational speed of the spindle.



Richard Kaak, Project Manager of Technology Development Process Engineering, of Carl Zeiss in Oberkochen (Germany).

A further important aspect of the decision was economic efficiency. Even in this highly specialised market segment, costs are an important factor and final decisions are seldom taken by technicians alone, who have to discuss the matter together with the purchasing department.

Cont. on page 16

HURCO®

mind over metal®



**Special Prices
on Milling and
Turning Machines,
2015 Rand prices!
Other Specials
available!**

Introducing

the new

MAX5

control

To find out more scan the QR code
or go to HURCO.com/MAX5



Catch us on www.hurco.co.za

HURCO®

SOUTH AFRICA

Unit 9, 30 Golden Drive, Benoni, Gauteng - South Africa

Tel: +27 (0) 11 849 5600 Fax: +27 (0) 11 849 5602

Email: sales@hurco.co.za | www.HURCO.com



Machines shown with options. Information may change without notice.

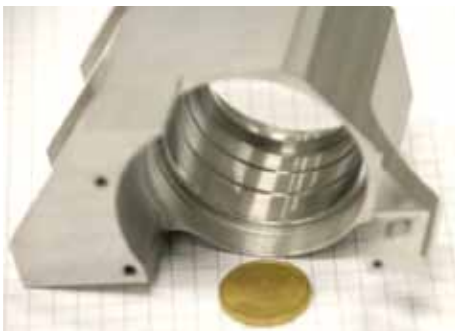
Cont. from page 14

In-depth selection process

“Before reaching our final decision we ran through a very thorough assessment process”, recalls A. Langer. The first step was an intense 360° screening of all relevant manufacturers on the market, quickly leading to the de-selection of all but a handful of producers. In a second step the remaining systems were compared in an assessment matrix, resulting in some more being sorted out. The next and nearly decisive step was the machining of a test piece featuring all the intricacies Carl Zeiss wanted to see mastered. The final decision in favour of the 5-axis Rödgers RXP 500 DS with rotary/tilting table was then taken on the basis of its fast and highly accurate linear drives together with the rigidity of its machine base.



The new system was put into production in August 2006. It is equipped with frictionless, highly dynamic linear drives in combination with “classic” roller guides. The highest accuracy is achieved by a number of features, such as a high-resolution position-measuring system, a sophisticated temperature management system with a total of ten different tempering circuits, including a cooling sleeve around the spindle as well as an additional control circuit detecting and compensating for spindle length deviations. The 42 000 RPM spindle is equipped with an HSK 40-tool fixture and has a power rating of 14 kW. Further highlights are cleaning devices for the tool and the workpiece, a temperature-control circuit for the cooling lubricant, as well



as a contact point measuring system and a high-precision tool-dimension control system equipped with a laser.

The particular “knack” of the machine is a specially developed correction feature for the rotary/tilting table based upon measuring the position of more than 400 reference points distributed over the workspace. Using these data, the control system then computes correction values making it possible to achieve the highest accuracy even in the case of multisided or simultaneous machining without any need for intervention by the operator. “With these features, the Rödgers machine achieves outstanding precision over all axial positions in conjunction with high machining speed. That was exactly what we had been looking for”, summarizes A. Langer.

Performance record

“After operating the system for one and a half years, we can now state that our expectations have been met with respect to all vital aspects”, says R. Kaak. This applies to the accuracy achieved as well as for the machining speed. To give an example, in the case of a complex receptacle featuring several cylindrical precision fits whose axes have to be aligned with high accuracy, it was possible to dependably achieve a precision of 5 µm with respect to axis positions as well as to inside calliper gauging, while roundness deviations were securely restricted to just 2 µm. A further example is a filigree spacer ring with cone-shaped surfaces whose axes have a relative inclination angle of 5.3°. The position tolerance for the intersection point



of these axes – located far outside the part itself – is just 0.02mm.

A special highlight of the system is the accuracy achieved with an inclined table. In such cases the sophisticated internal deviation measuring and compensating feature of the system makes it possible to achieve accuracies that in certain cases surpass those attained with the technologies formerly used in the department by a full order of magnitude.

Another outstanding feature of the Rödgers system is its automation equipment enabling it to work overnight in unattended “ghost-hour shifts”. The 18-fold workpiece pallet exchanger and a chain magazine accommodating 100 tools thus greatly contribute to reducing costs.

Support “decisive building block of the overall package”

“Another very important factor is the excellent support we experienced from the system manufacturer”, explains A. Langer. This was all the more important since

Cont. on page 18



Global Leadership with high-tech Solutions

LOW ENERGY CONSUMPTION, HIGH-SPEED PRODUCTIVITY

LCG 3015 AJ Fiber Laser Cutting System



- Lower operating costs
- Expanded capabilities
- Lower maintenance
- Proven performance
- System integration
- Energy efficient
- Elimination of harmful emissions

Fiber Laser



SERVO/HYDRAULIC PRESS BRAKE WITH AUTOMATIC TOOL CHANGER

HG 1003 ATC

- Introduce rush jobs seamlessly
- Triple or quadruple the amount of set-ups performed each day



NEXT GENERATION SERVO ELECTRIC PUNCH MACHINE

EM Z 3612 MII

- Set-up time reduction
- Process integration



Visit us at



Hall 9, Stands G14 & H15.
12 - 16 September, 2016

Gauteng: Tel: (011) 453-5459
Cell: 082 465 5924 (Rick)
Cape Town: Tel: (021) 706-0502
Durban: Tel: (031) 700-5070

Fax: (011) 453-5442
e-mail: barry@amadajhb.co.za
Fax: (021) 706-0503
Fax: (031) 700-5077

The Amada Product Portfolio includes:
CNC TURRET PUNCH PRESSES,
CNC LASER CUTTERS, CNC PRESSBRAKES,
NC HYDRAULIC/MECHANICAL SHEARS, SOFTWARE,
BANDSAWS, BANDSAW BLADES,
SALES & SERVICE.

MTM®

☞ Cont. from page 16

with the purchase of the new machining centre the company had moved into uncharted territory because the Rödgers control system does not comply with the standards commonly used by other manufacturers. On the other hand, the holistic concept of a machine whose PC-based control system had been specifically developed and carefully optimized by the manufacturer himself to exactly match his machining hardware was convincing. In this context, a particularly interesting feature was the easy way the control system could be updated. This greatly facilitated installing and using the improvements and special functions Rödgers partly tailor-made for Carl Zeiss immediately upon their completion by simply installing them from a CD-ROM. In all these cases, support by Rödgers proved to be excellent, as was the quality of their technical service.

Advantages along the process chain

"A further noticeable point comprises additional benefits we experience along the value-generating chain", explains R. Kaak. The high machining accuracy significantly reduces expenditure for downstream process steps such as deburring and polishing. Furthermore, it has now become easier to avoid having to resort to casting as an alternative production technology. In the past, this often proved to be unavoidable because many of the components are so thin-walled and filigree that they would not have been able to withstand the machining-related loads exerted upon them using conventional milling technology. But even when resorting to casting, a certain level of machining operations remains necessary, e.g. in the case of tight fits and sealing faces. Another disadvantage was that as-cast surfaces cannot be anodized to the necessary quality level. Switching to HSC machining results in significantly reducing the forces exerted on the workpiece, thus contributing to expanding the window of opportunity for milling technologies.

By Klaus Vollrath

For more information, please contact Hurco South Africa - Tel: (011) 849-5600.

RÖDERS TEC RXP 500 DS 5 AXIS-MACHINING CENTRE

The 5-axis-machining centre RXP 500 DS is the typical *workhorse* for HSC milling of hard materials. The axes have working ranges of 800 x 500 x 300mm, with a rotary/tilting table providing the fourth and fifth axis. The design of the system particularly focused on speed, sturdiness and accuracy. The highest dynamism and precision are achieved using frictionless linear direct drives in combination with classic roller guides featuring outstanding rigidity. Compared to the widely used ball rolling spindles, the linear direct drives excel not only by their higher path control accuracy: at comparable energy consumption, they are frictionless and thus not subject to wear and tear since they contain no moving mechanical parts in direct mutual contact. The 42000 RPM spindle has a power rating of 14 kW.

The highest accuracy – well beyond what can be expected from comparable systems currently available on the market – is achieved by a number of features such as a sophisticated temperature management system, a spindle length deviation compensation device and an integrated tool-measuring system using a laser. A further feature in this context is a highly accurate contact-point measuring system for the workpiece.

For more information, please contact Hurco South Africa - Tel: (011) 849-5600.



Compact, highly dynamic, high-precision 5-axis HSC machine with counter bearing and special Rödgers geometry compensation.

THE PERFECT SOLUTION

QUALITY
'MADE IN
GERMANY'



Lifting and Transport Equipment Our strength: more ideas...

Simple and safe operation, standard range for loads up to 100 metric tons, special designs for specific lifting and transport problems made to order, sturdy castors for any application, adjustable and steerable castor - trolleys for transport in workshop facilities, revolving transport trolleys.



WAK TRADING (PTY) LTD

Ground Floor Fairland House, 193 Smit Street, Fairland 2195
E-mail: info@waktrading.co.za

Tel: (011) 678-0092

HAAS UMC-750SS HIGH-SPEED 5-AXIS UNIVERSAL MACHINING CENTER

Haas Automation expands its line of universal machining centers with the UMC-750SS, a Super-Speed version that offers high performance and speed for quickly machining 5-sided (3+2) and simultaneous 5-axis parts.

The UMC-750SS is a 5-axis, 40-taper universal machining center with 762 x 508 x 508mm travels, 30.5 m/min rapids and an integrated high-speed, dual-axis trunnion table. The machine is equipped with a 15,000-rpm inline direct-drive spindle, a high-speed 40+1 tool side-mount tool changer and Haas Automation's powerful high-speed machining software.



The Haas-designed side-mount tool changer holds 40 tools, plus one in the spindle, to increase productivity and reduce setup times.

The UMC-750SS's high-speed, roller-cam trunnion table offers 150 deg/sec feedrates to quickly position parts to nearly any angle for 5-sided (3+2) machining, or provide full simultaneous 5-axis motion for contouring and complex machining. The trunnion provides +110 and -35 degrees of tilt and 360 degrees of rotation for excellent tool clearance and large part capacity, and the 630 x 500mm table features standard T-slots and a precision pilot bore for fixturing versatility. To simplify job set up, the UMC-750SS features Dynamic Work Offsets and Tool Center Point Control and comes standard with Haas Automation's Wireless Intuitive Probing System.

The machine's 15,000-rpm inline direct-drive spindle is powered by a 22.4 kW vector drive system that yields 122Nm of cutting torque. The Haas inline system couples the spindle directly to the motor to reduce heat, increase power transmission and provide excellent surface finishes.

A wide selection of high-productivity options is available for the UMC-750SS, as well,



including a belt-type chip conveyor, high-pressure through-spindle coolant systems, expanded program memory and much more.

If you're searching for a high-speed 5-axis solution to reduce setups, increase accuracy and boost throughput, look no further. The UMC-750SS from Haas is the answer.



15,000-rpm Spindle.

For more information, please contact Haas Factory Outlet South Africa - Tel: (011) 974-2301.

HAAS DT-1 DRILL/TAP CENTER NOW AVAILABLE WITH 20K SPINDLE

The highly popular Haas DT-1 Drill/Tap center is now available with a 20,000-rpm inline direct-drive spindle, giving customers the ability to run higher feedrates for small tools and high-speed machining operations.

The optional 20K spindle is ideal for applications that require high spindle speeds and powerful enough to mill hard-to-machine materials. It allows rigid tapping to 5000 rpm, with up to four times retract speed to reduce cycle times. The spindle is powered by a 11.2 kW vector drive system that yields 21.7 Nm of cutting torque, and the motor is coupled directly to the spindle to reduce heat, increase power transmission and provide excellent surface finishes.

The DT-1 is a lean-style machining center with a compact footprint that allows multiple machines to be placed side-by-side, allowing for the most efficient use of valuable shop floor space. It features a generous 508mm



x 406mm x 394mm work cube and 660mm x 381mm T-slot table, while maintaining a very small footprint. The machine provides cutting feedrates to 30.5 m/min for high-speed milling, and the 20+1 side-mount tool changer swaps tools quickly to reduce non-cutting time. High-speed 61.0 m/min rapids combine with high acceleration rates to shorten cycle times and increase throughput.

For efficient chip removal, the DT-1 features

steeply sloped internal sheet metal. Optional twin chip augers transport chips to exit at the rear of the machine, allowing multiple machines to be placed close together. A 170 l flood coolant system is standard, with options for a programmable coolant nozzle and high-pressure through-spindle coolant systems.



For more information, please contact Haas Factory Outlet South Africa - Tel: (011) 974-2301.

RELIABILITY. PRICE. REPUTATION.



Haas VF-2SS Super Speed
Vertical Machining Center

= TOTAL CUSTOMER VALUE.

WE KNOW what it's like.
We're MACHINISTS, too.
We CUT METAL every day.

That's why we're driven to make sure that every Haas
CNC machine is trustworthy, affordable, and always
backed by the industry's best after-sale service.



Haas Factory Outlet - South Africa

CNC Machine Tools South Africa (PTY) LTD | Johannesburg: 27 11 974 2301 | www.HaasCNC.com

LIKE US ON FACEBOOK



HAAS South Africa

FOLLOW US ON TWITTER



@HAASSouthAfrica

DMU 160 P DUOBLOCK® – VERSATILE WITH LONG-TERM ACCURACY

DMG MORI now also presents the DMU 160 P duoBLOCK® as the largest model in the series featuring the improvements of the fourth duoBLOCK® generation.

With 30 percent enhanced precision, performance and efficiency DMG MORI has set new standards with the fourth duoBLOCK® generation. As the largest model in the series DMG MORI recently presented the revised version of the fourth generation DMU 160 P duoBLOCK® at the Open House in Pfronten. Thanks to its proven duoBLOCK® design the 5-axis machine enables top machining performance and maximum precision with impressive dynamics. From hard-to-machine materials such as titanium to the highest surface quality requirement – the 4th generation DMU 160 P duoBLOCK® offers the ideal conditions for branches ranging from aerospace to tool and mould making.

The extensive cooling measures, together with the top rigidity of the fourth generation of the duoBLOCK® concept, are the basis for the very highest demands on precision and machining performance. Cooled guideways and drives plus the optional spindle growth sensor ensure minimum thermal-related displacement of just 12 µm. Numerous features of the basic structure also promote the high long-term accuracy of the DMU 160 P 4th generation duoBLOCK®. These include large linear guideways in all axes and standard double wipers as well as the re-designed ball screw principle in the X- and Y-axes. In addition, the geometry of the Y-axis has been improved by means of an optimized fixator position. Fixation of the standard Magnescale measuring system in the Y-axis on a carbon plate has optimized the measuring accuracy thus resulting in a more exact positioning accuracy of the table.

As the largest model in the series the DMU 160 P duoBLOCK® 4th generation has also been given a larger work area. This now measures 1,600 x 1,600 x 1,100mm. Table dimensions are Ø 1,600 x 1,250mm and the maximum workpiece weight has been increased to 4,500kg. Productive and dynamic 5-axis machining is effected with rapid traverses of up to 60m/min in all axes. The acceleration rates in the X, Y and Z-direction are 6 m/s², 4 m/s² and 7 m/s², respectively.

The modular concept of the DMU 160 P duoBLOCK® 4th generation offers an ideal solution for every application – starting with the innovative wheel magazine, which in its largest expansion stage can accommodate 453 tools (SK40/HSK63) and on to include the most extensive range of spindles to be found anywhere on the market. The



Gearbox Housing of a Helicopter.







offer here ranges from the powerMASTER® motor spindle with up to 1,000 Nm to the gear spindles with max. 1,800 Nm and on to include the speedMASTER® spindles with their impressive speeds of up to 30,000 rpm. The standard version of the DMU 160 P duoBLOCK® 4th generation comes equipped with a motor spindle that achieves a speed on 15,000 rpm and a torque of 200 Nm.

The 4th generation DMU 160 P duoBLOCK® appears completely revised in the new joint design from DMG MORI, which embodies quality and value retention and offers functional added value in work ergonomics thanks to optimized accessibility. CELOS® is used for its control. This uniform app-based user interface with its unique multi-touch screen is as simple to operate as a smartphone. As a result, users benefit from a 30 percent saving in setup time and 50 percent less effort for calculating technical values and searching for important information.

**For more information, please contact
Retecon – Tel: (011) 976-8600.**

Supra Tooling and Accessories (Pty) Ltd

OFFICIAL SA DISTRIBUTOR FOR RÖHM PRODUCTS

	ONSITE RÖHM REVOLVING CENTRE REPAIR FACILITY.	
Keyless Drill Chucks	RÖHM driven by technology	Machine Vices
	SUPRA TOOLING	
Mech. & Hyd. Mandrels	LARGE RANGE OF RÖHM PRODUCTS IN STOCK.	Drill Chucks
		
Lathe Chucks		Tailstock Centres

076 467 4284

supratooling@mweb.co.za • www.supratooling.co.za
Unit 108 Monte Cristo, North Rand Road, Beyers Park,
Boksburg 1460



Five-axis universal milling machines

DMU 75 / 95 monoBLOCK®

High tech as standard

Five-axis simultaneous
machining
at the best price.



Top features for five-axis simultaneous machining with 950 mm X travel.

With 950 mm traverse on the X axis (75: 750 mm), 18,000 rpm motor spindle and a tool magazine with 60 stations, the DMU 75 / 95 monoBLOCK® machines offer top features from the ground up. In a footprint of less than 8 m² (95: 11.7 m²), workpieces up to 1,040 mm in diameter and 1,000 kg in weight can be machined. Easy loading by overhead crane. The 3D control systems Heidenhain TNC 640 or Operate 4.5 on Siemens 840D solutionline and the integrated MPC (Machine Protection Control) round off this unique five-axis complete solution.

The New **Benchmark** in all Sectors!

PRODUCTIVITY | RELIABILITY | QUALITY

Contact Franz

Tel: 011 976 8600 | Fax: 011 394 2471
machines@retecon.co.za | www.retecon.co.za

RETECON (Pty) Ltd



Cape Town: 021 555 2270/1 | Port Elizabeth: 041 453 2720 | Durban: 031 701 8149

MAKINO A51NX AND A61NX EXTEND MACHINING CAPABILITIES

a51nx and a61nx horizontal machining centers offer larger work envelope and next-generation productivity, accuracy and reliability

Makino's a51nx and a61nx horizontal machining centers extend the capabilities of the highly successful a-series with a host of technologies for next-generation productivity, accuracy and reliability. Designed with larger work envelopes, improved casting designs, spindle and axis guide enhancements, the nx machines offer rigidity, speed and precision far beyond that of typical 40-taper machines.

The a51nx and a61nx models boast expanded axis travels to accommodate larger parts or more parts per fixture. The a51nx features a 560mm X-axis and extended Y- and Z-axes of 640mm for an industry-leading total axis volume of 8.1 cubic feet. Its additional Y stroke yields a 14 percent larger working envelope.

The standard a61nx features a 730mm X-axis, 650mm Y-axis and extended Z-axis of 800mm. An optional tall column on the a61nx expands the Y-axis to 730mm, making it beneficial for large die-cast or near-net-shape applications. Thanks to the expanded Z-axis stroke, maximum tool length on the a51nx and a61nx models is increased to 430mm and 510mm, respectively.

Increased Spindle Power

The a51nx and a61nx machines offer new, more powerful standard and optional spindles. The standard spindle is a 14,000-rpm design with 240Nm of duty-rated torque and 22kW of continuous output, a 19 percent increase over the previous model. An optional 300Nm spindle designed for high metal-removal rates in ferrous applications is also available. Along with the two new spindles, the current 20,000rpm core-cooled spindle remains available as an option on the a51nx and a61nx machines.

Higher Machine Strength and Rigidity

Casting design and axis guide improvements of the nx machines deliver higher stiffness, load capacities and precision. A new crossed roller guide design yields improved rigidity for higher metal-removal rates, reduced vibration and improved tool life.



a51nx Horizontal Machining Center.

Several major casting enhancements coupled with the use of cross roller guides enable customers to effectively use the additional 14 percent Y-stroke.

Improved Productivity

The nx machines are designed with a 1G-axis acceleration supplemented by high-power servo motors and enhanced casting rigidity for faster acceleration.

Additionally, nx models have a standard Direct Drive (DD) motor B-axis table for dramatically faster indexing time over the previous worm-gear-driven NC rotary table (NCRT). The motor includes an inertia control system that adjusts table speed and acceleration based on pallet payload. Due to the speed of the DD motor, it may lead to fewer machines required in high-volume, high-tool-count

automotive applications. The DD motor table also reduces B-axis complexity and eliminates backlash and key component wear.

Expanding Reliability

Makino's a-series machines have a reputation for reliability as well as low maintenance. The nx machines leverage this proven design to advance reliability with new features.

The ATC shutter door typically sees millions of cycles over the life span of a machine. On nx machines, a high-speed servo-driven ball screw actuates the ATC shutter door, improving responsiveness, ease of setup and maintenance. The servo axis also reduces exposure of the ATC to the work envelope. The net result is improved reliability and cleaner ATC environments.

For further information, please contact Rothco - Tel: (011) 970-1930.

More than just a coolant



liquidtool[®]

BOOSTS YOUR PRODUCTIVITY

www.blaser.com



Rothco

even brilliant
can be better

 DESIGN



 PROTOTYPE



 MACHINE

 TOOLING

 SERVICE

 6 Derrick Road, Spartan, Kempton Park, 1620, South Africa
 Erf 585 Old Faure Road, Faure Cape Town 7131 South Africa

 +27 (0)11 970 1930
 +27 (0)79 386 3146

 +27 (0)11 394 1132
 +27 (0)86 219 6814

 info@rothco.co.za
 carlo@rothco.co.za

CHANGING FROM CONVENTIONAL MILLING TO CNC MILLING

In a market where skilled artisans are becoming more and more scarce, it has become necessary to look at alternative ways of machining, whether it be for general engineering, tool-making or production work.



Akira Seiki Milling Machine.

CNC machining is quicker and certainly more accurate than conventional milling machines and there is no need for constant monitoring while in use. Taking this into account, MJH Machine Tools have a solution to suit customers' needs. Featuring an entry level CNC control, our Ctek CNC milling machine is the first step to CNC machining.

As long as the operator has basic knowledge on using a DRO, he can, within a few hours, be taught how to program and run the machine. There is no need for G code knowledge as the control is conversational, using a question and answer format. The

software is simple to use with graphic input in basic machinist language. The control has options for standard operation modes such as drill, tap, bore, contour and pocket programming, which is ideally suited to general engineering work without a need for external programming packages.

The latest Ctek's come with linear guides on all three axes for better accuracy and speed, as well as a direct spindle drive motor and an improved Z axis motor with inline break which eliminates the need for a counterbalance. The Ctek can be fitted with a 4th axis within a matter of hours and programmed from the standard Ctek control.

The Ctek range has six x-travel sizes, 800mm, 1000mm, 1500mm, 1800mm, 2000mm and 2500mm. These machines are available in open type or fully enclosed depending on the customer's requirements. All spares are available ex stock at a fraction of the cost compared to other controls. With hundreds of these machines sold throughout South Africa since 1997, it is not surprising that Ctek CNC milling machines have been the first step to full CNC machining in many workshops.

Should there be a requirement for a high performance machining centre for super fine finishing and accuracy, the Akira Seiki is the machine to consider. Spindle power ranging from 15HP on the Junior series to 42HP on the Super Vertical range and spindle speeds from 9000rpm to 15000rpm guarantee high quality surface finish.

Akira Seiki machines come standard with spindle oil chillers, inner spindle air chiller, coolant through spindle, pneumatic counter balance, chip screw conveyor, quick change ATC and 4th axis preparation.

The Mitsubishi Mi745 is the preferred control on these machines, however, Fanuc is an option but not always available ex stock Durban or Johannesburg. So, whether you need a machine for small batch jobs or production work, the Ctek and Akira Seiki machines are certainly to be considered.

MJH Machine Tools has both machines in stock at the company's showrooms in Durban and Johannesburg, respectively, with demonstrations under power available.

For further information, please contact MJH Machine Tools - Durban Tel: 031 705 7514 or Johannesburg Tel: 010 005 0634.

MIY - MOVE IT YOURSELF

THE PERFECT SOLUTION FOR YOUR TRANSPORT PROBLEMS



- Simple and safe operation
- Standard range for loads up to 100 metric tons
- Special designs for specific lifting and transport problems made to order
- Sturdy castors for any application
- Adjustable and steerable castor - trolleys for transport in workshop facilities
- Revolving transport trolleys



- High performance and reduced friction through design protected slide shoe system.



WORLD FIRST - Swivelling safety lifting toe-system, for continual adjustment to the load in a varying inclination of up to $\pm 10\%$.



WAK TRADING (PTY) LTD

Ground Floor Fairland House, 193 Smit Street, Fairland 2195
E-mail: info@waktrading.co.za

Tel: (011) 678-0092

BRIO MILLER 8 VERTICAL MACHINING CENTERS

Brio Miller 8 vertical machining centers are suitable for the machining of complex parts demanding high precision such as plates, discs, shells and molds etc., while performing a series of processes like milling, drilling, tapping, boring, reaming and contouring.

Main components such as bed, table, slide carriage, column and spindle box are made of high-strength resin bonded sand castings. All structural components are optimized to improve rigidity and stability. Vibrations and deformations generated by cutting forces are effectively minimized. Guide way pairs use roller-type linear guide rails, which have the advantages of minimum friction, high sensitivity, low vibration at high speed, no creep at low speed and high positioning accuracy. Thus the accuracy and stability of the machines are highly improved.

Specifications include worktable dimensions of 1 000mm x 500mm and a maximum load capacity of 600kg. Spindle speed ranges from 50 to 6 000rpm, while the umbrella type tool changer has a capacity for 16 pieces. The machine is supplied with a spiral chip conveyor.

The servo motors are directly coupled to the high precision ball screws via flexible couplings to achieve seamless transmission. Thus, feed flexibility, positioning accuracy and transmission precision are enhanced. The Z axis servo motor featuring automatic brake function, holds the motor shaft when power shuts down.

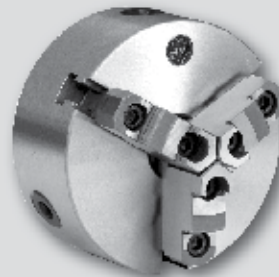
Brio machines shorten production time, while providing optimum precision and reducing labor costs. Lower tooling investment and less energy usage, combined with minimal floor space requirements are further benefits.

Standard features include Siemens SINUMERIK 808D control, an auto lubrication system, umbrella-type tool magazine and a chain-type chip conveyor.



Supra Tooling and Accessories (Pty) Ltd

OFFICIAL SA DISTRIBUTOR FOR HUHROT & RÖHM PRODUCTS



HUHROT

**Quality 3 jaw lathe
chucks at an
affordable price.**

**We stock: 160mm,
200mm, 250mm &
315mm.**

*We are the official distributor
for RÖHM workholding
products in South Africa and
we have a large range of
RÖHM products in stock.*



076 467 4284

supratooling@mweb.co.za
Unit 108 Monte Cristo, North Rand
Road, Beyers Park,
Boksburg 1460

www.supratooling.co.za

**For more information, please contact
Harp Machine Tools - Tel: (011) 918-5138**

Harp Quality never lets you down



Harp SMTCL Turret Mill
Model: TM300/TM250



Kingrich Turret Mill
Model: KR-V3000 / KR-V3000SL



Kingrich Bed Type Mill
Model: KR-B4V



Harp TopTech Universal Mill
Model: MT200



Harp SMTCL Vertical Machining Centre
Model: Brio Miller 8

Harp SMTCL Vertical Machining Centre
Model: VMC1100B



UMTMA USED MACHINE TOOL MERCHANTS ASSOCIATION OF SOUTH AFRICA

e-mail: harp@icon.co.za

Harp Machine Tools

Monday-Thursday 08:00-17:00 • Friday 08:00-14:00 | Saturday by appointment

FINANCE FACILITIES AVAILABLE - ONLY 24 HOURS FOR APPROVAL

• TEL: (011) 918-5138 • FAX: (011) 918-5139 •

• 161 DORMEHL ROAD, ANDERBOLT, BOKSBURG NORTH • PO BOX 2698 BENONI 1500 •



www.harp.co.za

MTM®

GX-SERIES VERTICAL MACHINING CENTER

Thousands of GX-Series vertical machining centers are installed worldwide. These 40-50 taper spindles VMCs include superior design characteristics to ensure many years of accurate and reliable performance. GX-Series machines are ideal for mold and die manufacturers, aerospace, medical, defense, 3C, automotive and other industries, requiring high-value, complex parts from difficult to machine materials.

Superior design characteristics ensure Bridgeport 40-taper spindle GX-Series vertical machining centers deliver many years of accurate and reliable machining performance. These VMCs include a stiff and thermally-stable spindle, a rigid C-frame fixed column design and fixed pre-tensioned double-nut ball screws on all axes. The unique Bridgeport-designed linear guide and guide truck configuration provides added stiffness, damping and surface contact area. The unit is configured with three guideways and five guide trucks on both the X- and Y axis, two guideways and six guide trucks on the Z-axis.



**For more information, please contact F&H Machine Tools
- Tel: (011) 397-4050.**

GENOS M SERIES – M560-V VERTICAL MACHINING CENTER

The Genos-M series is technically based on the top class Okuma MB-V vertical machining centre series. This machine offers optimum machining accuracy, while promoting high quality, high rigidity and productivity by far exceeding customers' expectations. Ease of use is a further benefit and clear proof that Okuma always has the customer in mind.



GENOS M560-V Vertical Machining Center.

The Genos-M offers the same features in a standardized package with an excellent cost performance. Impressive thermal stability and zero table overhang allows for tight tolerances and extreme accuracy. In addition, the M series is environmentally friendly, requiring no hydraulic fluid. Construction optimization, based on FEM analysis and a rapid spindle traverse with Hi-G acceleration combine to create a solid, nimble machine that delivers speed and accuracy.

Specifications include a table size of 1300mm x 560mm with a maximum load capacity of 900kg. X, Y and Z axis travel is 1050mm, 560mm and 460mm, respectively, with a rapid feed rate of 40 x 40 x 32m/min for X, Y and Z, respectively.

Whilst providing a standard spindle speed of 12 000 min⁻¹, the machine is equipped with a 32 station ATC.

The Genos-M features a highly rigid double-column construction, a diagonal rib structure casting and a zero alignment drive/centre drive. Optional extras include an advanced One Touch IGF-M, a Collision Avoidance System and Thermo-Friendly Concept.

**For more information, please contact Forest Engineering
- Tel: (011) 397-4050.**

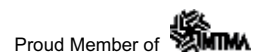
GENOS M560-V

Vertical Machining Centre



GENOS series

- Travel XYZ - 1,050 x 560 x 460mm
- Taper Size - ISO 40
- Motor Rating - 18.5kW
- Max. Speed - 12000 Stepless.,
- Tool Capacity 32
- Tool Selection Memory -Random



www.fandhmachinetools.co.za

+27 (0)11 397 4050 | fhmt@fhmt.co.za

Superior machine tool solutions

NEW FANUC CNC SIMULATOR & NC GUIDE

FANUC has released new products aimed at educating new users how to use FANUC CNC Controls.

FANUC CNC Simulator

This is a full CNC package available preconfigured and setup by FANUC which allows users to use it straight away with no configuration.

The CNC Simulator is based on the highly successful Oi Model F CNC Control and is the perfect addition to any training environment. The simulator allows users to switch between a milling and turning control allowing training for both types of programming from one simulator.

It includes FANUC's Conversational Programming software, Manual Guide I which allows users to graphically programme a part, simulate the tool path and run a 3D solid animation. This program can then be converted to a standard NC program and run on any CNC machine with a FANUC Control.

Features include a PCMCIA card slot and a USB port for program transfer. This is useful to



teach users how to transfer programs, make backups of program data, tool offsets etc.

The advantage of using this simulator is that it gives trainees the feel of an actual machine's control system while not stopping production on a production machine.

FANUC NC Guide

FANUC NC Guide is a software package which is installed on a PC.

This package allows users to customize the control they want before using it. You can choose between 30, 31 and 32i Model A and B, 35i Model B, 0i Model D and 0i Model F.

Each option available on FANUC CNC can be turned on and off separately so users can understand what they are for and how to use each function correctly.

As for the CNC Simulator, each screen runs exactly as it would on a FANUC Control.

Manual Guide i can also be enabled allowing users to programme graphically and simulate their programs.

These programs can then be output to a memory card or USB memory stick and transferred to an actual CNC machine and run.



NC Guide Pro has all the functionality of NC Guide but also allows users to interface to FANUC Ladder 3 development software. This package is designed for machine tool builders and retro fitters as it allows development of the ladder logic in real time.

NC Guide Academic Package is designed for a classroom environment where each user will have his own PC running NC Guide. The instructor can assign tasks which each user needs to complete on his own PC.



For more information, please contact Fanuc South Africa – Tel: (011) 392 3610.

FANUC



High Precision Wire EDM

- ◆ 5 axis wire EDM
- ◆ Latest FANUC 31iWB CNC control
- ◆ Large 15 inch touch panel with USB I/O
- ◆ New power conservation functions
- ◆ Faster cutting & better surface finish
- ◆ Fast air jet Automatic Wire Feed
- ◆ Full 2 Year Mechanical & Electrical Warranty

High Speed Machining Centre

- ◆ FANUC 31iB5, 5 axis Nano CNC Control
- ◆ AI Contour Control look ahead as standard
- ◆ Simplified operation with Manual Guide *i*
- ◆ Optional high speed Direct Drive 4th axis
- ◆ 1.4 second tool change (cut to cut)
- ◆ 10,000 RPM Spindle as standard
- ◆ 54 m/min Rapid Traverse
- ◆ Full 2 Year Mechanical & Electrical Warranty



i Series Robots

Intelligent robots for any application, including:

- ◆ Arc & Spot Welding
- ◆ Machine Tending
- ◆ Palletizing
- ◆ Materials Handling
- ◆ Sealing



FANUC South Africa (Pty) Ltd.

Tel 011 392 3610 Fax 011 392 3615 www.fanucsa.co.za sales@fanuc-sa.co.za
17 Loper Ave, Airport Industrial Estate, Spartan, Johannesburg



METAV 2016: ILLUMINATING FOCUS ON UP-TO-THE-FUTURE PRODUCTION TECHNOLOGIES

“Industry 4.0” and “Additive Manufacturing” as innovation drivers

The 19th METAV was recently held in Düsseldorf with four new keynote areas. The subjects of Additive Manufacturing (AM), Medical, Quality and Moulding supplemented the METAV's core themes of metalworking technologies. In addition, the higher-order topic of *Industry 4.0* was spotlighted in a theme park of its own.



Additive Manufacturing

In the AM Area, visitors had an opportunity to experience the entire topic of additive manufacturing hands-on at a single location. The exhibits on show included systems for machining metals and plastics. Furthermore, numerous manufacturers exhibited hybrid machines, able to handle both material deposition and metal-cutting operations.

Concept Laser unveiled a new technology for assuring the quality of additively manufactured components. This technology, called *QM Module Meltpool 3D*, monitors the melting bath during the process. Melting-bath emissions produced during the melting process in the form of emissions in the infrared range are detected coaxially by means of sensors. This enables the size and intensity of the melting bath to be visualized in three dimensions. With its high scanning rate (>10kHz), the

system possesses a high resolution of 35µm in the 3D depiction. Overall, the technology enables possible flaws in the process to be identified, and is particularly relevant for industrial sectors with stringent quality requirements. The company was honoured with the IAMA Award under the aegis of the *Inside 3D Printing* conference accompanying METAV.

SLM Solutions exhibited a laser beam melting system called *SLM 500^{HL}*. It processes metallic powders like titanium, Inconel, stainless steel or aluminium by means of selective laser melting. The space provided of 500 x 280 x 365mm³ enables relatively large components to be manufactured. The system is equipped with four 700-watt fibre lasers, which together are able to create one component or several simultaneously. The metal powder (Ø 10 to 45µm or Ø 20 to 60µm in the case of aluminium) is fed in

using a continuous conveyor system and melted by the lasers. The layer thickness lies between 20 and 75µm, with a maximum scan speed of 10m/s.

Trumpf Laser- und Systemtechnik, showcased a compactly dimensioned 3D printer called *TruPrint 1000*. It can build up complex metal components using powder-bed-based laser melting. A 200-watt fibre laser is used to deposit metals in 20-µm layers. Using a monitoring app, the system can be operated and monitored with a tablet. The process can be tracked using a live picture. In addition, Trumpf offers a *Visual Online Support* system with which picture, audio and video files can be exchanged in real-time with the after-sales people. This enables the customer to be more effectively supported.

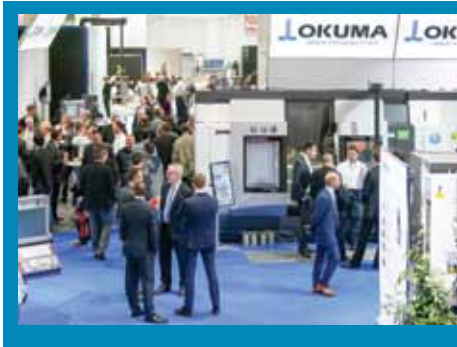
Additive manufacturing in tool technology

One example that illustrates the possibilities of additive production processes for tool technologies was presented by the precision tool manufacturer Mapal Fabrik für Präzisionswerkzeuge Dr. Kress. Here, the upper part of a tool-holder is additively manufactured, constructed like a shrink-fit chuck with a taper of three degrees. The clamping area for the hydro expanding chuck thus produced is accordingly located very close to the tip of the chuck. This reduces concentricity (< 3µm at the locating bore and < 5µm with 2.5 x diameter), and vibration damping is improved. In addition, the chuck is thermally stable up to 170 degrees Celsius. The balance quality is 2.5 at a speed of 25,000min⁻¹.

Hybrid machine tools expand the spectrum of production options

The option for additive manufacturing in conjunction with metal-cutting rework jobs was showcased by DMG Mori. The *Lasertec 65 3D* is a fully-fledged five-axis machining centre, which has been expanded to incorporate a replaceable laser head. This head can be used to perform a laser welding process, which constitutes an alternative to the powder-bed process. The metal powder is fed in through a powder nozzle, and heated up with a laser. This causes the powder to enter into a solid weld with the main body, which can then be reworked in metal-cutting mode. Any possible oxidation is prevented by a protective gas likewise fed in. The gauge involved in this process is 1.6mm or 3mm. The machine can handle components with a diameter of 650mm, a height of 400mm and a weight of 600 kilograms.

As an alternative to powder deposition welding, the machinery manufacturer Maschinenfabrik Berthold Hermle uses a cold-gas injection process for material deposition with the metal powder deposition (MPD) process. This process is integrated into the five-axis C40 machining centre. This enables components with a diameter of more than 500mm to be machined. The machine is fitted with six



powder conveyors, which means that with the MPD process up to six different materials can be sprayed onto the workpiece. The powder particles are accelerated to very high velocities using a carrier gas and directed onto the substrate with a nozzle. This involves local pressures of 10 GPa and temperatures of up to 1,000 degrees Celsius, so that upon impact the particles are deformed, producing a permanent bond with the base material. Material deposition in this process, says the manufacturer, is more than 200cm³ in the case of steel and 900cm³ in the case of copper. Primary applications include cooling channels in mould construction, e.g. when manufacturing injection moulds. Here, the subsequent channels are filled with water-soluble material, which can be removed later on.

To enable the new design options provided by additive manufacturing technologies to be fully utilized, Altair Engineering showcased software solutions for designing the bionic structures possible. The company lays claim to competences in the topological optimisation of components, and incorporates these in the production process for bionic structures.

Solutions for implementing Industry 4.0

The "Industry 4.0" Theme Park – solutions for manufacturing operations

Systematic acquisition of data, and their utilization for optimizing organization of the production operation and increasing productivity, are two goals of Industry 4.0. In the Industry 4.0 Theme Park at METAV, the latest developments in this field were on show.

MT Robot AG, exhibited transport robots that, for example, are able to handle component transport between different machines. In addition, the components manufactured on different machines can thus be transferred to a central warehouse. This obviates the need for elaborate and costly conveyor systems, which when installed must not be permitted to block access or escape routes. The robots provide a capability for automatic loading and unloading. The maximum speed is 1.2m/s. In order to avoid collisions, they are fitted with sensors.

Gebr. Heller Maschinenfabrik unveiled its new concept for a maximally high level of machine availability in the customer's facility.

A remote-diagnostics access capability enables standstills to be analysed and the defects concerned to be localized. This Remote Diagnostic Services System, (RDS for short), enables a malfunction to be remedied anywhere in the world without any time-delay. In addition, different packages are offered, subsuming inspections and preventive maintenance work in the context of comprehensive service support.

Precision tool manufacturer Kelch Präzisionswerkzeuge exhibited a tool presetting device in the shape of the Kenova Set line V5, which provides direct networking with the machines, and in this way is able to forward directly all data measured. In addition, the device can be networked with the data of the partner company TDM Systems enabling a target/actual comparison with assembled tools to be made.

Software solutions

InterCAM Deutschland, in the shape of its Manufacturing Data Management System, showcased an option for systematized archival of acquired data. The data and information involved are filed in a central database, and can be viewed everywhere in compliance with the relevant authorization. The program provides staff at the machines with worksteps or work instructions.

Under the name of "ProfiCAM Full HPC", Coscom Computer unveiled a CAM software package that promises an increase in a tool's useful lifetime of up to 300 percent and a reduction in machining time of up to 60 percent for roughening jobs. Here, the paths involved in trochoid milling are optimized. Besides a higher level of productivity, this also results in a higher surface quality, for which the manufacturer states a maximum value for the average peak-to-valley height of Rz = 6.3µm.

DPS Software presented a new CAM software package in the shape of the *TopSolid' Cam 7*, which features a completely integrated CAD solution. It enables metal-cutting tools to be drawn or the data of the tool manufacturer concerned to be imported directly. The software package features interfaces to commonly used CAD systems. It is suitable for programming complex workpieces intended for manufacture on complete-machining systems.

The importance of the control interface at machine tools in terms of design, user-friendliness and internet links is being addressed by several machinery manufacturers. Handling here is modelled particularly on smartphone technologies. For example, the apps enable orders to be systematically planned, or cutting values computed for a specific process. Companies like DMG Mori, Yamazaki Mazak Deutschland and Fanuc showcased the current status of their development work at METAV.



Machinery concepts for complete machining jobs

The importance of a productive complete-machining concept was addressed by several exhibitors at METAV. Index-Werke unveiled a design-enhanced multi-spindle automatic turning machine. In contrast to conventional multi-spindle turning machines, in this case all spindles operate independently of each other, so that the productivity of cam-controlled lathes is achieved. For each spindle, a separate speed can be set, so that productive, reliable cutting values are always possible. The machine features six work spindles, each of which has a bar capacity of 16mm. Furthermore, two synchronous spindles have been integrated, enabling the rear of cut-off workpieces to be machined.

Cont. on page 36



Cont. from page 35



In addition, the lathe manufacturer Traub Drehmaschinen exhibited a product for complete machining of complex components, suitable for medical technology applications, for example. This machine features a bar capacity of 32mm, and is able to run simultaneous machining with up to three tools. In the highest configuration level, the machine is equipped with two revolvers, an end attachment traversable in three axes and an autonomous opposing spindle. Also notable is an option for deep-drilling, for which the machine provides a coolant pressure of up to 120 bar.

Hedelius Maschinenfabrik exhibited a five-axis machining centre, which features a tilting spindle with a tilt angle from -98 to +98 degrees and a heavy-load round table. It is able to machine components with a maximum weight of 1,200 kilograms. The spindle's speed is 18,000 1/min at a rating of 35kW. Thanks to the travel of 2,600mm in the X-direction, there are options for machining long parts or a shuttle mode through a workspace partition wall.

Hommel showcased a turning-milling centre for complete machining of large workpieces with a maximum turning diameter of 640mm and a maximum turning length of 1,150mm. The machine is equipped with two spindles, each operating at a speed of 3,500 1/min and

a drive rating of 22 kW. In addition, a B-axis tiltable by -120 to +105 degrees has been integrated, possessing a travel of 1,100mm. An automatic tool change feature enables tools to be replaced within 1.5 seconds. The tool magazine can accommodate 120 turning and milling tools.

The machinery manufacturer Yamazaki Mazak Deutschland showcased a versatile, high-performance combination machine. The machine is equipped with a main (22 kW, 5,000 1/min) and opposing spindle (18.5 kW, 5,000 1/min), plus a milling spindle (12,000 1/min). Its maximum machining length of 1,500mm means it can be used in different parts of the mechanical engineering sector. In addition, a hybrid multi-functional machine was exhibited, featuring a milling spindle that can be tilted by -30/+210 degrees in the B-axis. The machine is equipped with a fibre laser, creating a capability for additive material deposition through melting metal powder.

The products showcased by DMG Mori, included a milling/turning centre. This machine with a capability for simultaneous five-axis machining can handle turning, milling, grinding and hob-peeling. The 52-kW spindle possesses a torque of 430Nm. On the table, which can handle a speed of 800 1/min and a torque of 2,050Nm, workpieces weighing up to two tons can be machined. The B-axis milling head possesses a tilting range of 250 degrees, 70 degrees of which is a tilting option in a negative direction. In addition, the machine is equipped with an extensive array of sensors for acquiring process forces, temperatures and vibrations. One of the main application categories is the aviation industry, where the machine is used for manufacturing turbines, for instance.

WFL Millturn Technologies, exhibited a complete-machining system for drilling, turning and milling. It provides an option for synchronized machining at the main and opposing spindles with the turning-drilling-milling unit and the revolver. The manufacturer also spotlighted an option for integrating a 10-kW high-performance laser into the machine, providing precise, low-distortion hardening for highly stressed surfaces. An additive manufacturing process is likewise possible with material fusing, enabling complex cooling channels or bent connecting flanges to be produced, for example.

Efficiency for large machines

MTE Deutschland, Montabaur/Heiligenroth,

showcased a moving-column milling machine from the FBF-X series, featuring an automatic tilting head. The spindle here possesses a maximum torque of 1,940Nm with a drive rating of 40kW and a speed of 4,000min⁻¹. Given a feed rate of maximally 15,000mm/min, the maximum feed force that the machine can handle is 38,000Nm in the X-direction and 32,000Nm in the Y- and Z-directions. The stated travel distances are 6 to 26m in the X-direction, 3 to 4.5m in the vertical Y-direction, and 1.6 to 1.8m in the transverse or Z-direction. The machine is equipped with a fully automatic milling head changing system featuring up to four different milling heads, thus enabling complete machining operations to be performed even with large and complex workpieces.

Bimatec Soralue Zerspanungstechnologie exhibited a system for reducing vibrations. The vibrations are detected by sensors, which have been integrated into the spindle-holder. Using actuators likewise integrated, phase-offset counter-vibrations are generated in real-time, so that the vibrations entailed by the process are eliminated. According to the manufacturer, the principle can increase productivity by up to 300 percent. In addition, the risk of a tool fracture is reduced, and the surface quality of the workpiece being machined is improved. The smoother running achieved, even when a cutting operation is interrupted, leads to lower wear and tear on the machine's components.

Design-enhanced tools

The issue of productivity continues to be a crucial driver for design-enhancing tools. Innovative designs, cutting materials, and coating technologies are tasked with enabling higher process parameter values to be reached.

For drilling operations, interior-cooled tools are meanwhile the state of the art. The cooling medium is transported via cooling channels





as far as the operating position, so as to assure effective cooling there, plus reliable chip removal. In this regard, Gühring unveiled an innovative design for cooling channels. In contrast to the traditional round shape, they are triangular in design, producing an improved flow behaviour that has been confirmed by simulations. In particular, this means the cutting edge corner and the main cutting edges are more effectively cooled. Furthermore, a larger volume flow can be achieved for the cooling medium. The manufacturer claims improved applicational suitability for machining highly-alloyed steels, titanium alloys and special materials.

botek Präzisionswerkzeuge, a manufacturer of deep-drilling tools, exhibited new cutting-edge geometries for single-lip drills with replaceable indexable inserts, which are offered down to a diameter of minimally 12mm. The cutting edges are conventionally constructed with a neutral cutting angle. With the new cutting edges, positive cutting angles are possible, producing improved chip-breaking and a lower drilling torque.

Hartmetall-Werkzeugfabrik Paul Horn showcased new high-feed indexable inserts called "DAH37", which constitute a good synthesis of toughness and wear-resistance. In tooth profile roughening with a 40mm milling cutter featuring five cutting edges, a metal removal rate of 720cm³/min can be achieved when machining a 42CrMo4 steel. The cutting inserts are available in both neutral and positive geometries. As application categories, the manufacturer cites machining of unalloyed and highly-alloyed steels, martensitic and austenitic steels, plus non-ferrous and cast qualities with a cutting depth of up to 1.2mm and feed rates of up to 3mm/tooth, depending on the material involved.

The Horn company also exhibited a tool with an indexable insert and integrated interior cooling. The grooving tool features a wear-resistant AlTiN coating and a geometry for machining stainless steels. The plate possesses on its face a coolant bore, through which the cooling medium can be appropriately fed in. The nozzle is funnel-shaped, so that chip formation is supported. Coolant is transferred from the associated shank holder via a slot at the bottom.

Various manufacturers have addressed the modification of tools for high-pressure

cooling lubrication. Iscar Germany unveiled tool-holders designed for turning jobs on special materials. The nozzles, shaped like a telescopic tube, can be replaced so as to create different exit conditions. The company offers both shaft and monobloc mounts.

Emuge-Werk Richard Glimpel under the name of *Punch Tap*, exhibited a new process for thread forming. The tool used here does not possess a continuous thread profile at its circumference, but two rows of teeth offset by 180 degrees. This tool is in the first step inserted on a helical track into a borehole. It is then turned by 180 degrees and moved synchronously by half a thread pitch in the feed direction out of the borehole. This process enables a thread with two helical grooves to be created, which according to the manufacturer produces savings in terms of production time of up to 75 percent in comparison to a conventionally produced thread, with comparable locking strength.

Efficient tool clamping

Under the name of Duo-Lock, Haimer showcased an efficient solution for milling tools and tool-holders used in machining sophisticated materials. The concept features a modularized interface for tool heads, which makes for improved cost-efficiency. In addition, the interface between the tool's main body and the solid-carbide head features a thread with a double cone and a support surface in the rear. This results in a high level of rigidity coupled with a high chip removal rate. According to the manufacturer, the new tool concept ensures comparable productivity to when solid-carbide milling cutters are used. Cutting depths of 1.5 x D or 1 x D in the case of a full-slot cut are possible.

Moulding Area

Tool and mould construction is an important application category for the tool and machine tool industries. In order to spotlight the significance of the companies in this sector, the Moulding Area was integrated as a separate section in METAV.

Hasco Hasenclever, a manufacturer of precision components for mould construction jobs, on its stand and under the aegis of the Moulding Area's accompanying forum, exhibited additively manufactured mould inserts, designed to enable prototypes to be produced fast and affordably. The inserts

concerned are manufactured in a cooperative arrangement with a company called Stratasys in the USA. The process involved was explained by citing the example of a screw plug conventionally produced by means of turning. Thanks to the additive manufacture of a mould, it can now be produced using an injection-moulding process. For the screw plug, a standard ABS plastic was processed at a temperature of 240 degrees Celsius. The cycle time was around 4 to 5 minutes. The new process has enabled procurement costs to be reduced from 1.17 to 0.11 euros, says the company.



Zecha Hartmetall-Werkzeugfabrikation, a manufacturer of hard-metal tools, exhibited milling tools for machining hard metals. Here, for example, spherical milling cutters are offered in a diameter range from 0.2mm to 6.0mm. Diamond and diamond-coated tools are used. When hard metals are being machined, a surface quality is achieved in the shape of an average peak-to-valley height of Ra = 0.1mm. In the case of alternative machining of the hard metal by means of eroding, subsequent polishing will always be required. The process is used for manufacturing punching and forming tools. Examples include the production of embossing stamps with a three-dimensional contour or press plungers, which are conventionally manufactured from powdered steels.

Medical Area

Medical technology is an important market for the machine tool industry. Due to steadily rising levels of life-expectancy, there is increasing demand for implants, prostheses, etc. It's important to note in this context that often this involves individually modified one-off products, meaning that the production processes concerned have to be designed to provide corresponding flexibility.

Cont. on page 38



☞ *Cont. from page 37*

Tornos S.A., Moutier exhibited a machining centre that is being increasingly used for manufacturing components for medical-technology applications. The machine features four independent tool systems, ten digital axes and two mutually interpolatable C-axes. The motor-driven spindles, fitted with synchronous motors, are high-powered (max. 9.5kW/18.1kW in a movable headstock) and dynamic (acceleration from 0 to 10,000 1/min in 0.9 seconds). Depending on the machining job and quantities involved, the machine can be fitted with a bar loader. One typical machining job is cannulated screws, where turning, thread-whirling, milling, deep-drilling and punching processes are used.

Citizen Machinery Europe exhibited a long-stock automatic lathe, which is used, for example, in manufacturing bone nails, dental implants and intervertebral disk implants. It can machine workpieces with diameters of 1 to 16mm, while the maximum machining length is 200mm.

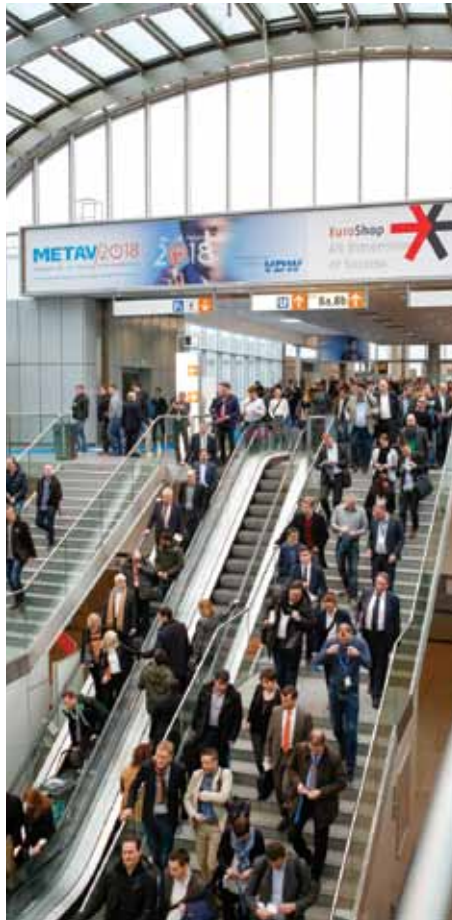
Solutions for surface fine-finishing

Finishing jobs for flat surfaces

Fine-finishing is of crucial importance in large-series manufacturing operations as well, in order to assure the efficiency of the components machined. For this purpose, the machinery manufacturer Supfina Griehaber showcased a revolving machine for super-finishing. Here, the flat surfaces of the components are machined in a two-stage process to tolerances in the tenth-of-a-micrometre range. As workpiece dimensions, lengths of 200mm and machining diameters of 150mm are possible. Up to seven super-finish devices can be integrated. Furthermore, the machine can be equipped with an automated in-process measuring feature and automated loading and unloading capabilities. Typical application categories include injection-moulding technology, gear-unit and hydraulic components, and engine components.

Roller burnishing for reworking small bores

Ecoroll showcased a new tool for roller burnishing of small bores. The tool serves for selective surface conditioning, with an Rz value of <math>< 1\mu\text{m}</math> and for strengthening cylindrical and conical bores, not least in hardened components. In this process, the strength and durability of components subjected to pressure are increased, by upgrading their capability to withstand



chemical influences and by incorporating residual compressive stress. By using high-precision ball inserts, mounted on individually modified roller heads of the tool, stepped and tapered bores can be machined in a single process step. Bores from a diameter of 7mm can be machined (from 3mm in a special version). If several ball inserts are arranged in series, then the process time in series manufacturing operations can be minimized, and optimized component characteristics can be produced with accurate reproducibility.

Quality Area

The assessment of quality is still of crucial importance for the introduction of new and design-enhanced production processes. In particular, the quality and speed of the measurements performed gain in meaningful relevance. For this reason, the issue of quality was showcased in the convenient confines of the "Quality Area".

Nanofocus, a manufacturer of systems for optical 3D surface metrology, exhibited high-speed 3D inline inspection systems that can be integrated into production operations.

The technology involved consists of a laser with up to 128 channels in conjunction with a vertically oscillating tuning fork. The systems possess a resolution accuracy in the Z-direction of 50nm, while the measuring time in some applications is a mere 3 seconds. Examples here include mobile phone displays and injection nozzles.

pro-micron showcased systems for process-concurrent acquisition of cutting forces at stationary and rotating tools. Here, the forces are acquired by means of strain gauges using a system integrated into the tool-holder and wirelessly forwarded to analytical software. In this way, the quality of the process can be continuously monitored and process instabilities detected. The system additionally serves as an important aid for designing processes or developing tools.

Renishaw exhibited a coordinate measuring machine with five-axis metrology. With this technology, the scanning system can be traversed around complex components and acquire the contour without replacing the scanner. Measuring speed is predominantly achieved through the scanning system. With a Cartesian coordinate measuring instrument, there will be bending and deformation phenomena in the case of non-linear traversing movements. These dynamic deformations are avoided by the innovative measuring heads. In this way, for example, blisks of aircraft engines can be measured. Measuring 29 blades takes 2:11 hours. According to the manufacturer, this corresponds to a throughput increase of 922 percent in comparison to conventional metrological acquisition.

Summary

At METAV 2016, numerous up-to-the-future production technologies were showcased. With a new concept, the organisers intentionally complemented general trends and developments in existing machinery and tool concepts with a focus on keynote issues where the exhibitors spotlighted the current state of the art for the customers. Of special note in this context are additive manufacturing technologies, whose potential for producing both components and tools was spotlighted. The options for acquisition and effective utilization of data within the context of *Industry 4.0* made it very clear how efficiency and productivity can be optimized by means of effective data management. In the shape of Tool and Mould Construction, plus Medical Technology, two branches of industry were spotlighted that in both the present and the future exhibit huge potential and accordingly demand continually optimized production technologies. The areas were rounded off by an assessment of quality, which is assuming a significant role in the context of increasing component individualization.

*Author: Dipl.-Ing. Hendrik Abrahams,
Institute of Machining Technology,
Dortmund University of Applied Science.*

Optimal Solutions for the Future



DNM 350/5AX



5-axis Vertical
Machining Center

PUMA SMX SERIES



New Generation Mill-Turn
Multi-tasking Turning Centre

PUMA
MACHINE TOOLS (PTY) LTD



For More Information
Contact Mike or Thys
info@pumamachines.co.za
www.pumamachinetools.co.za

Johannesburg: 011 976 8600
Cape Town: 021 555 2270
Durban: 031 701 8149
Port Elizabeth: 041 453 2720



EMO HANNOVER 2017 – AN INTENSIFIED FOCUS ON NETWORKED SYSTEMS FOR INTELLIGENT PRODUCTION

Connecting systems for intelligent production is the motto of EMO Hannover 2017. The world's premier trade fair for the metalworking sector will thus, from 18 to 23 September 2017, be intensifying its focus on the mega-trend of digitization within the context of Industry 4.0. "Entrepreneurs all over the world are progressing digitization and networking of their products, production operations and logistical chains, because they see this as the next quantum leap forward in development, with concomitant gains in competitiveness," explains EMO's General Commissioner Carl Martin Welcker. "As key technology for industrial production operations, the machine tool- and production process are particularly crucial to the networked

factory," he adds, and asks, "where, if not at EMO Hannover can the international trade public expect an abundance of new solutions designed specifically for their production operations?"

Customers are demanding holistic production and automation solutions

Smaller batch sizes, more complex parts, increased part diversity and a combination of processes are just some of the on-going challenges for industrial production operations. Customers need intensive support in ensuring that their machines' capacities are utilised to maximized efficiency, in optimizing the material flow and in very largely automating the increasingly elaborate administration-related non-productive times, from drawing



Carl Martin Welcker, General Commissioner of EMO Hannover 2017.

up quotations to issuing invoices. "These processes are very complex," explains Welcker. But once they've been mastered, major gains in productivity lie open to customers concerned. Rendering these accessible with fit-for-purpose, coherently harmonized options for mid-tier companies as well, that is the current challenge for machine tool manufacturers, he says.

Digitization is transforming products and production

The focus, then, is on digitized products and processes. It's not possible to image

Cont. on page 42



HEIDENHAIN

MAFEMA SALES SERVICES CC
Tel +2711 314 4416, Fax +2711 314 2289
<http://www.heidenhain.co.za>
E-Mail: mailbox@mafema.co.za

Can a numerical control be far-sighted?

To come to your destination safely, you need to look far ahead. That's why a numerical control from HEIDENHAIN is the ideal companion for high speed milling. Because it can keep its balance. For absolute reliability and precision.

TNC320 numerical control can be used for Point-to-Point and contouring milling.

Most Manual operated machines can be retrofitted to a Point-to-Point or contouring milling/boring machines.

Local distributors in your area: Electronic Specialities Tel (031) 267 1423, Specialised Machine Tool Services Tel (041) 453 4206, Coastal Machine Tool Support CC Tel (021) 891 9805



angle encoders + linear encoders + **contouring controls** + digital readouts + length gauges + rotary encoders

DAVI

THE HEAVY DUTY BENDING & ROLLING MACHINES COMPANY

© Copyright 2016 - Promau S.A.



DAVI official dealer:

Walker Machine Tools

Specialist Suppliers of New and Used Machines

• Durban Tel: 031 700 1575 • Contact Mike 083 253 9716
• Email: info@walkertools.co.za • Website: www.walkertools.co.za

www.davi.com / davi-sales@davi.com



☞ Cont. from page 40

all processes in their entirety, from online ordering and order handling, manufacture and dispatch. However, the aim is to create a maximally faithful image of the factory's actuality in real time – what is known as a digital shadow or digital twin. Process knowledge, too, is becoming progressively more digital, and can thus be reproduced and optimized more rapidly. Delivery times are getting shorter, the defect rate is falling. Machine tool manufacturers, as well as vendors and users of networked products, are deploying their corporate expertise to ensure the success of this development thrust.

Networking the value creation chain is the next step

Further progress is being driven by complete-coverage networking of the value creation chain. This includes companies' own agents, subsidiaries, vendors and customers. Cross-company network thinking utilizes resources and intelligence from all parts of the corporate matrix. This necessitates openness in terms of both systems and thinking. Comprehensive IT expertise is taking hold in the machine tool industry.

Networked knowledge – increased focus on service capabilities

New solutions and business models with high customer benefits can emerge from the

digitization of products and processes, and new vendors can enter the market. Services, consultancy and customer support from machine tool manufacturers are gaining in perceived importance, while securing a competitive lead in years ahead as their share of total turnover is rising.

“Users want holistic solutions that can be coherently imaged in a single system. These require thorough comprehension firstly of the processes in place at our customers' facilities, which can be highly disparate, and secondly of the complex technologies featured in our machines,” is how Welcker describes the on-going discussion. Where individual vendors currently stand in this process and which of them have their noses in front, this will be revealed at 2017 EMO Hannover. “It's the international shop window for production technology, and the best platform for users to find solutions for their increasingly multifaceted requirements. In 2017, EMO Hannover will once again be the meeting point for the global world of the machine tool industry,” to quote EMO's General Commissioner.

GERMAN MACHINE TOOL MANUFACTURERS WORLD EXPORT CHAMPIONSHIP RUNNER-UP IN 2015

Germany's machine tool exports rose by 4 percent in 2015. “With an export proportion of almost 70 percent, the world market is the most important arena for the sector's commercial success. And there we once again performed very well last year,” comments Dr. Wilfried Schäfer, Executive Director of the VDW (German Machine Tool Builders' Association) in Frankfurt am Main. At 9.4 billion euros, exports remained just below the historical best achieved in 2012, of 9.56 billion euros. On an international comparison, the increase in German exports is keeping pace with developments worldwide. Only 180 million euros behind Japan, Germany was once again the runner-up in the world export championships.

The shooting star among the markets was definitely Mexico, with its vigorously expanding automaking sector. The nation currently ranks 7th among the world's biggest automobile producers, with an output of more than 3.6 million vehicles in 2015. The component suppliers, in particular, aim to continue their massive investments, as does the aviation industry. Demand for machine tools is concomitantly high. With an enormous rise of 70 percent, the country has meanwhile positioned itself as the fourth-largest market for German machine tools. “So we're all the more gratified to see that German machine tool manufacturers extensively showcased their capabilities at a German sectoral exhibition entitled *German High-Tech in Metal Working* in León recently,” said Wilfried Schäfer.

The major drivers for German exports last year also came quite generally from North

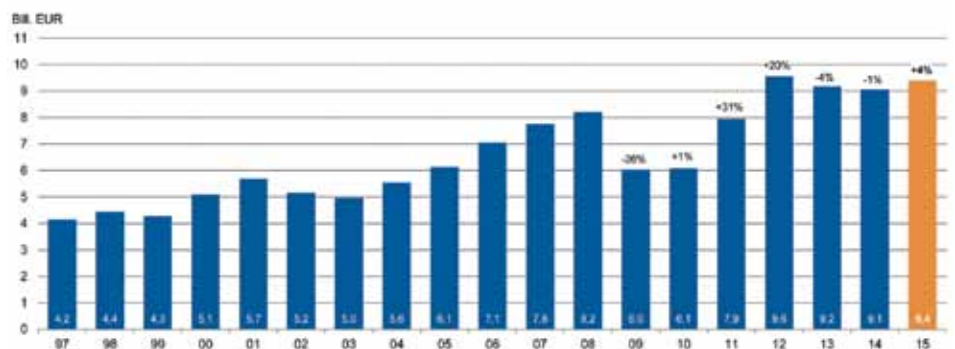
and Central America. The second-biggest market for machine tools, the USA, stands for a tenth of total exports, up by 7 percent. Overall, however, business was rather subdued. The automotive industry, by contrast, continued to invest in its projects across the board.

Supportive effects for Germany's foreign trade also came from Europe. Italy shone, in particular, thanks not least to various initiatives for encouraging capital investment. German exports rose by a third. With a share of just under 5 percent, Italy is the third-largest export market. France and the UK are oscillating between stagnation and a modest plus. Business with Russia slumped. Exports were down by one quarter. Nonetheless, the country takes 5th place in the rankings. The dramatic fall in order bookings, by three-quarters over the past two years, however, will continue to have a seriously adverse impact on export business.

Asia, by contrast, showed definite signs of a slowdown, triggered by the weakness of China. Nonetheless, with an export proportion of 22 percent, China remains the leading market by quite a margin. However, with a minus of 9 percent, the ongoing upheaval in the Chinese economy is unmistakable. With their double-figure growth rates, other Asian countries like South Korea, India and Japan can to some extent compensate for this decline in business with Asia.

For the ongoing year, the VDW is once again anticipating a modest rise in exports. The pacemaker is Europe, most prominently the UK, Spain, France, Austria and Italy. Mexico, too, is still in the fast lane. “For the German manufacturers, the task now is to compensate for the declining figures in Russia and China,” said the VDW's Wilfried Schäfer in conclusion. Besides Mexico, he sees potential in the ASEAN nations and in Iran.

German Machine Tool Exports



Note: Machine tools incl. part/accessories
Sources: Federal Statistical Office Germany, VDW, VDMA



REQUEST YOUR FREE COPY NOW!

Tel. 011-822-4610 • knuth@knuth.co.za
www.knuth-machinetools.co.za



The new DSL Plasma-Jet Series

World-Class Plasma Cutter Systems

- based on the know-how and technology of the market leader **Hypertherm**
- Optional with 5-axis cutter head and tube cutter



Made by KNUTH

Laser-Jet FL

Small foot-print, intelligent solutions, plus the efficiency of an IPG fiber laser

- Wide performance spectrum
- Retractable cutting table
- Integrated tube turning feature and other useful add-on options are available



Made by KNUTH

Hydro-Jet Vario

Wide variety of applications and modular extensions

- Completely equipped for Abrasive & Pure-Water Cutting
- Flying Bridge design provides superior rigidity
- High-quality servo-motors and preloaded ball screws on all axes



Made by KNUTH



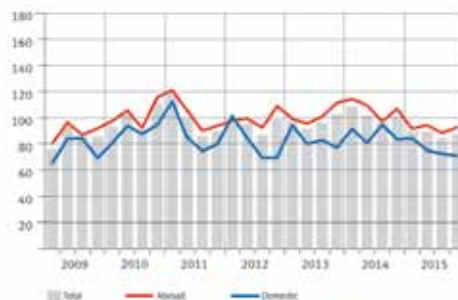
ANNUS HORRIBILIS FOR MEM INDUSTRIES

In 2015 a further massive overvaluation of the Swiss franc led to a considerable decline in new orders received (-14%) and sales (-7%) for the Swiss mechanical and electrical engineering industries (MEM industries). Even more dramatic was the deterioration in margins, which plunged many businesses into the red. Companies were therefore compelled to act quickly after the scrapping of the euro peg. This triggered an accelerated structural transformation that will continue to leave its mark in 2016. However, if exchange rates and business trends do not worsen any further, a recovery in the MEM industries is likely in the medium term. Industry digitization is a particular source of new growth opportunities. The government can also contribute to positive development. What is needed is to retain the bilateral agreements, to conclude new free trade agreements, to exercise absolute restraint in terms of intervention in the liberal job market and not least, to halt any new financial burdens and regulations.

In the fourth quarter of 2015, new orders received by the Swiss mechanical and electrical engineering industries (MEM industries) declined by 13.4% year-on-year as a result of the scrapping of the euro peg. This brought the index of new orders down to its second-lowest level for the last ten years. Viewed over the entire year, new orders declined by 14% compared to 2014. Sales followed a similar trend, declining by 7.3% in the fourth quarter of 2015 compared with the prior-year period. The decline in sales for the year as a whole was 7.0%. This negative trend affects big companies and SMEs to a similar degree.

Exports fell sharply for almost all MEM product groups in 2015. The biggest decline was in goods exports in the mechanical engineering segment (-7.2%), followed by the electrical engineering/electronics product group (-6.2%) and metals (-5.5%). Only in the precision instruments segment was the decline kept within limits, at -1.6%. Overall, MEM industry goods exports fell by 4.6% last year, while still reaching a total value of CHF 63.1 billion. The key sales regions showed mixed developments. Exports to the EU, by far the most important sales market, fell by 5.8%. Exports to Asia declined by 0.4%. However, goods exports to the USA rose

New Orders MEM industries
(Base: 1st q. 2001 = 100)



appreciably last year (+4.9%). According to the latest figures from the Swiss Federal Customs Administration, MEM industry exports continued to fall in January 2016.

The most dramatic slump, however, was in margins. Based on a self-assessment by Swissmem member companies, the average decline per company was 6 percentage points at EBIT level. This has driven about a third of those companies into the red.

At the bottom line, 2015 will go down as an annus horribilis in the history of the Swiss MEM industries. The sudden appreciation of the Swiss franc put them at a tremendous competitive disadvantage in the European market. How much of an impact this disadvantage is having can be surmised by taking a sideways glance at the German MEM industries. Stimulated by the weak euro, their exports rose massively last year (Q1: +8.2% / Q2: +10.7% / Q3: +6.9%). This boom comes not least at the expense of the market shares held by the Swiss MEM companies.

After 15 January 2015, MEM industry companies acted quickly and set in motion a wide range of measures aimed at reducing the fallout from the strong franc. As firms had already exhausted the potential for efficiency and cost-cutting measures suitable for short-term implementation after the first currency shock of 2011, they had to increasingly resort to more drastic measures last year. Collectively, these triggered an accelerated structural transformation that is costing jobs. Last year, 1.7% of jobs, or around 2,500 positions, were lost in the 1,050 Swissmem member companies alone. This structural

transformation is set to continue this year. A definitive evaluation of how many jobs these changes will cost will only be possible this time next year at the earliest.

How things will develop for the MEM industries going forward depends heavily on exchange rate and business trends in the key markets. As long as these parameters do not deteriorate further, Swissmem expects that the low point could be reached sometime this year and a recovery appears possible in the medium term.

In addition to innovation and efficiency gains, industry digitization is also presenting good opportunities for the Swiss MEM industries. Swiss industry is essentially well placed to assume a position of leadership in these far-reaching technological and social developments. The digitization of the entire value chain promises significant productivity gains, creates the foundation for innovative products and services and makes it possible to implement new business models. This is true of both large companies and SMEs. Not only businesses, but also state education and research in universities and universities of applied science and state promotion of innovation need to concentrate on this.

Industry can only transform these favourable conditions into commercial success if it has a good economic policy framework. Swissmem regards the following four points as especially important:

- **Preserve the bilateral agreements with the EU:** The bilateral agreements must remain in place in order to secure unobstructed access to our most important market.
- **Conclude new free trade agreements:** New free trade agreements, for example with the USA or India, would ensure privileged access to the markets that currently have the biggest growth potential.
- **No further interventions in the liberal jobs market:** That means conserving flexibility as a strength of the Swiss labour market, for example in terms of working hours. Yesterday's prescriptions are not up to dealing with modern forms of work.
- **Stop the rising tide of regulation:** The number of federal regulations businesses are having to deal with each year have reached monstrous proportions. The constant stream of new cost drivers and administrative hurdles is leading directly to a further deterioration in competitiveness and therefore has no place in today's market.

Policymakers can nurture the readiness of companies in the MEM industries to invest long-term in Switzerland as a business location if they take vigorous action to improve the economic policy framework. That means the Federal Council, Parliament and administration putting out a genuine signal to businesses, here and now, that the four issues mentioned above will be tackled immediately and comprehensively.



Hydraulic Guillotine
16 x 3200mm
CNC with E21 Control
R 465 000.00 + Vat

ROSSI

MACHINE TOOLS CC.
CK 2000/044238/23 EST. 1972 VAT NO. 4950101495

Iron Worker 60 Ton
* Dual Operation
* Bending Facility
* Press Brake Tooling
R 164 000.00 + Vat



Band Saw
* 280mm Ø
* 400mm Width
* Mitre/Angle
R 99 850.00 + Vat



Slotting Machine
* 320mm Stroke x
* 1200mm Swing
R 120 000.00 + Vat

SPECIAL OFFER



Press Brake 160T x 4000mm
* CNC with DA41 Control
* Angular Programming
Just choose the angle, the computer will do the rest) **R 595 000.00 + Vat**



Rebar Bar Bender GW50
6-50mm Ø
Working plate 420mm
R 39 950.00 + Vat

All our machines are brand new, of a high quality and comes with a 6 months guarantee.



Thread Roller Z28-80
* Range 4 - 48mm Ø
* Hydraulic Feed
* Plunging & Continues
R 145 000.00 + Vat

They are connected and can be tested prior purchase.

IBR Roll Former 0.4 - 1mm CNC
Programmable, 16 Stations, Guillotine De-Coiler

R 550 000.00 + Vat

Plate Roller

* Profile bending &
* Cone Stopping facilities
4 x 3000mm **R 168 500.00 + Vat**



For our full range, please visit our website or give us a call.



New Arrival CNC Control



AIRBUS DISPLAYS ACJ319 AT ABACE SHOW – HIGHLIGHTS NEWER AND LARGER CABIN

Airbus is exhibiting an ACJ319 at the ABACE show, where it will exemplify the larger and more modern corporate jets preferred by Chinese customers.

The ACJ319 on display features conference, dining and lounge areas at the front, plus two separate rooms at the rear. It is offered for VVIP charter by Comlux The Aviation Group, and is certificated to transport 19 passengers – more than traditional business jets – allowing it to serve a wider range of business needs.



“Airbus corporate jets can fly bigger groups than large traditional bizjets, while also delivering intercontinental range and similar operating costs and Chinese customers appreciate that capability,” declares Airbus Chief Operating Officer, Customers, John Leahy. “The modernity and reliability of Airbus corporate jets’ airliner heritage is also highly valued in Asia,” he adds.

Airbus began delivering ACJ320 Family corporate jets to China in 2005. Today, around 20 Airbus corporate jets are flying in China, giving them the strongest presence in the country of any business jet at the top-end of the market.

Airbus’ corporate jets are derived from the world’s most modern airliner family, delivering benefits lacking in older designs such as fly-by-wire controls that provide enhanced ergonomics and practical protection – now an expected feature of new-generation business jets.

Airbus corporate jets’ modern designs also means they can take full benefit of today’s larger and more efficient engines – as exemplified by the new Airbus ACJneo Family – unlike older designs and those with fuselage-mounted engines.

A worldwide network of technical advice, spares and training that serves more than 500 customers and operators worldwide supports Airbus corporate jet customers, which also benefit from services dedicated to their particular needs.

Other standard Airbus features include Category 3B autoland that enables flights in foggy conditions, an intrinsically modern design that holds its value better than older designs, and time and cost-saving centralized maintenance.

More than 180 corporate jets are in service today, and they are flying on every continent, including Antarctica, highlighting their versatility.

LAUNCH OF CHINA CHONGQING INTERNATIONAL MACHINE TOOL SHOW (CCIMT)

The Association For Manufacturing Technology and the China Machine Tool and Tool Builders’ Association (CMTBA) have announced the launch of the China Chongqing International Machine Tool Show (CCIMT) to be held November 13 – 16, 2017, at the Chongqing International Expo Center, Yubei, Chongqing, China.

CCIMT will showcase the latest in manufacturing technology and bring buyers and sellers together from all over the world to the dynamic market of Chongqing and southwest China. With an expanding manufacturing base of domestic companies plus more than 250 Fortune 500 multinationals, Chongqing has established itself as an innovation center for high technology.

Chongqing’s economic growth was 11 percent in 2015, the fastest growth among 31 provinces in China. Chongqing is China’s

largest automotive producer, largest laptop computer manufacturing center and a major motorcycle manufacturing location. More than 600 local companies specialize in making motorcycle and related parts with annual motorcycle engine production exceeding 10 million units, of which about 15 percent are exported to overseas markets.

AMT President Douglas Woods stated, “we are thrilled to partner with China’s leading manufacturing technology association, CMTBA, to create a world-class manufacturing technology event in the robust industrial city of Chongqing. Our combined research recognizes that Chongqing is a major production hub, and in the past 10 years we have seen more than 2,000 companies emerge – creating a huge expansion in the number of potential buyers for manufacturing technology products. AMT and CMTBA have

been friends and colleagues since the first CIMT show in 1989, and this collaboration represents a new level of commitment between our two organizations.”

CMTBA President Huiran Chen stated, “this collaboration between CMTBA and AMT, is a win-win cooperation, based on the common recognition on the market situation of the city of Chongqing and China’s southwest area as well as the long-time friendship between the two parties. CMTBA has a wide influence over China’s machine tool industry, and close connection with member companies and end-users. AMT is the leading manufacturing technology organization in member service and trade show management. We are confident that, together with the close relationship of the two parties with machine tool manufacturers globally, CCIMT will turn out to be a world-class event.”



Quality and Value
in Metalworking,
Engineering
and Sheetmetal
Machinery since 1972



PRECISION ENGINEERING
HEAVY ENGINEERING
SHEET-METAL
TOOLING
MACHINE ACCESSORIES
SERVICE DIVISION



COASTAL
ENGINEERING SUPPLIES

Tel: (021) 552 6063
www.coastalengineering.co.za



AIRBUS DELIVERS ITS FIRST AIRCRAFT PRODUCED IN THE USA

The first ever delivery of an aircraft from the Airbus U.S. Manufacturing Facility took place on April 25th, in Mobile Alabama. The entire team of employees from the American assembly line gathered to present their very first completed product an Airbus A321, to JetBlue. On hand for the occasion were executives from Airbus, JetBlue senior management, including President and CEO Robin Hayes and a broad collection of dignitaries from the Gulf Coast region.

“I am immensely proud to be here to participate in this first delivery from Mobile,” said John Leahy, Airbus Chief Operating Officer – Customers. “Going from breaking ground on this facility three years ago to handing over the first Alabama- produced A321 today is an amazing accomplishment. It’s a testament to how well executed this project was and how strong the teamwork has been here in Mobile and throughout Airbus. The Airbus U.S. Manufacturing Facility has brought together all the best aspects of our other assembly lines around the world, and it shows how Airbus people work hand in hand with our partners to deliver great aircraft to our customers.”

Airbus announced its commitment to build a single-aisle assembly line in Mobile, Alabama in 2012, and less than one year later, broke ground on the \$600 million (U.S.) facility. The ceremonial inauguration of the plant came in September 2015.

The aircraft delivered, a JetBlue A321, successfully had its first flight on March 21st, 2016.

In addition to the JetBlue A321, there are currently nine other A320 Family aircraft in production at the facility. Airbus anticipates delivering four aircraft per month from the Mobile plant by the end of 2017. The initial deliveries will all be A320 Family aircraft with the Current Engine Option (CEO), but will begin transitioning to New Engine Option (NEO) derivatives in late 2017.

In addition to hundreds of new Airbus jobs the project has brought to the local community, the Mobile area has seen many Airbus suppliers open new facilities in the region, providing even more employment and a parallel boost to the local economy. Airbus is proud to boast that 87 percent of its new employees are from the Gulf Coast region, with nearly one third being U.S. military veterans.

Demonstrating the adage *The Sun Never Sets on Airbus* – Airbus aircraft are now produced around the clock, 24 hours a day, at facilities in Mobile Alabama, Hamburg Germany, Toulouse France and Tianjin China.





Iron Worker Q35Y



Turret Mill Contour X6325C
Table 254 x 1370mm • Travels:
850 x 420 x 420 • ISO 40 Spindle
5HP • Align feeds on X & Y •
Motorised up/down on Z.



libcor

Industrial Machinery (Pty) Ltd.



Contour Milling Machine X6323 R8
3HP • Table: 1240 x 230
Travels 850 x 420 x 405



Contour Milling Machine X6333
ISO40 5HP Table: 1500 x 333
Travels 1000 x 380 x 450



Romi G280



Contour Lathe CD6250C x 1500



Baoji Centre Lathe CS6266C 2000 x 3000
2000 x 3000 x 660 Swing • 7.5kW motor
• 103mm spindle bore • Quick change tool post



SHARP
Cutting Edge

CNC Lathe SL-8 Series

- 30° slant design provides turning stability and easy chip removal
- Linear guideways on both axes to reduce machining time and increase accuracy

SPECIFICATIONS:

Swing over bed	mm	420
Over cross slide	mm	290
Max. turning diameter	mm	330
Max. turning length	mm	470
Chuck size		8"
Spindle motor	kW	7.5/11
Spindle speed	Rpm	4500
No. of tool stations		10
Guideways		Linear
Machine weight	kg	3350



Focus on every detail



Jenix DRO
Preset & reset
Bolt hole circles
50 Step data memory call

Vertical Machining Centre VLi 1200 Series

- Supported by heavy-duty linear guideways and 4 bedways on 7 axis
- Strong structure to extend rigidity, machining performance and long machine life
- X/Y/Z-axis with preload large diameter and precision ball screws
- With speedy, reliable ATC and high-efficiency spindle

SPECIFICATIONS:

Table size	mm	VLi 1200 1300 x 580
Table load (max.)	kg	900
X, Y, Z Travel	mm	1200 x 600 x 610
Spindle motor	kW	15/18.5



UMTMA USED MACHINE TOOL MERCHANTS ASSOCIATION OF SOUTH AFRICA

Libcor Industrial Machinery (Pty) Ltd

16 Jasper Road, Robertsham

Tel: 011 022-1811 / 2 / 3 • Fax: 086 571 3320

E-mail: libcor@libcor.co.za • www.libcor.co.za

John: 083 440 3726, Kyle: 083 306 4751

See our
News, Specials
& Gallery on our
Website



INDUSTRY 4.0 COMPANIES WORLDWIDE ARE INVESTING OVER \$US 900 BILLION PER YEAR UNTIL 2020 – PWC STUDY

In South Africa, the current level of digitization and integration is expected to rise from 27% to 64% within the next five years.

Industrial companies from all sectors across the globe are getting down to business with Industry 4.0. The project's implementation is in full swing all around the world. About one third of companies already rate their level of digitization as high, and this value is expected to rise on average from 33% to 72% within the next five years. In South Africa, the current level of digitization and integration is expected to rise from 27% to 64% within the next five years.



**Pieter Theron, PwC South Africa, Partner/
Director: Advisory – Technology.**



**Tielman Botha, PwC Associate Director,
Digital Lead.**

Industrial companies are digitizing essential functions within their internal vertical value chain, as well as their horizontal partners along the supply chain. A high 87% of South African companies plan to introduce new digital products and data based services over the next five years. In addition, companies worldwide want to invest about 5% of their revenue annually on digitization. Based on the industries surveyed, 5% of revenue corresponds to a total investment of \$US 907 billion. A major focus of these investments will be on digital technologies like sensors or connectivity devices, and on software and applications like manufacturing execution systems.

In addition, companies are investing in training employees and driving required organizational change. More than half of

these companies 55% (South Africa 74%) assume they will amortize this expenditure within the next two years. These are some of the highlights from PwC's global study *Industry 4.0: Building the digital enterprise* which surveyed over 2,000 companies from nine industry sectors in 26 countries. In South Africa, 61 interviews were conducted across a broad spectrum of companies, including metals & mining, automotive, engineering & construction, transport & logistics, electronics, forest paper & packaging, chemicals, process & industry, aerospace and defence & industry.

Pieter Theron, PwC Partner Advisory Services & Head of Industry 4.0, South Africa, says, "the 2,000 companies that we surveyed, including the 61 in South Africa, are expecting to significantly increase their overall level of digitization. While just 33% rate their company

as advanced today, that number jumps to over 70% looking ahead to 2020.

"At the end of this transformation process, successful industrial companies will become true digital enterprises, with physical products at the core, augmented by digital interfaces and data-based, innovative services. These digital enterprises will work together with customers and suppliers in industrial digital ecosystems."

On average, companies expect to reduce operational costs by 3.6% per year, while increasing efficiency by 4.1% annually. High levels of cost reduction are expected in every industry sector.

Most companies believe they will see a return on investment (ROI) within two years or less for their Industry 4.0 projects. Just over a third of companies anticipate a longer timescale of three to five years, but very few think that it will take any longer than five years for Industry 4.0 investments to pay for themselves. Currently, South African companies invest 5, 2% in digital operations solutions and expect to invest up to 6,8% over the next five years.

Data analytics is the driver for Industry 4.0

A high 83% of South African respondents expect data analytics will have a significant influence on their decision-making processes in five years' time. Currently, more than half of local companies (55%) are using big data analytics in areas such as optimization of overall business planning controlling, better manufacturing (48%) and improvement of customer relationship and intelligence along the product life cycle (48%). There are other uses of data analytics that far fewer companies have on their radar screen. These include better service and maintenance of companies' own assets and products owned by customers.

Tielman Botha, PwC Associate Director, Advisory Services, says, "the companies we surveyed understand that it's critical to have data analytics capabilities in order to successfully drive digital transformation. But there is still a long way to go before these reach the level of sophistication needed to really drive Industry 4.0 applications." Only 10% of local respondents rate the maturity of their data analytics capabilities as advanced and 66% say that the lack of skills and competencies in their company's workforce is a key challenge to making full use of data analytics. Thirty-four percent of respondents say their companies rely on the selective ad-hoc data analytics capabilities of individual employees, while another 9% have no significant data analytics at all.

In contrast, just under half (48%) of local companies have embedded data analytics into specific functions, giving themselves the flexibility and proximity to business

Cont. on page 52

COMPLETE SOLUTIONS FOR THE METAL FORMING INDUSTRY

With decades of experience you can rely on

REEF Presses



- Mechanical
- Hydraulic
- Special Purpose

REEF Press Feeding

- Servo Roll Feeders
- Straighteners
- Feeders
- Schnutz Precision Levellers



www.reefeng.com

Coil Processing Lines

REEF SERVICES

COMPLETE PRESS REBUILDING,
PRESS MAINTENANCE,
SPARES, SPECIAL PURPOSE
MACHINES



REEF

Established 1942

Engineering & Manufacturing Co. (Pty) Ltd

Tel: (011) 864-1730 • Fax: (011) 864-1405

• e-mail: info@reefeng.com



THE DEMISE OF THE METAL INDUSTRY BARGAINING COUNCIL (MEIBC) – IT ONLY HAS ITSELF TO BLAME

By Gerhard Papenfus, Chief Executive of the National Employers' Association of South Africa (NEASA).



Gerhard Papenfus, Chief Executive (NEASA).

Although it's been a well-known fact for quite a while that the Metal and Engineering Industry Bargaining Council (MEIBC) is in severe financial difficulty, reports in a recent newspaper in this regard has prompted me to break my silence on this issue. It is, first of all, important to state the correct facts regarding the circumstances which led to the current situation.

- The current impasse is a result of the trade unions' refusal to negotiate NEASA's demands regarding the current administration levy dispensation
- The MEIBC's failure to submit audited financial statements to the Department of Labour, notwithstanding being required to do so by prevailing legislation, among others due to the fact that the MEIBC Management Committee refused to accept the financial statements as a result of MEIBC officials' redirecting funds they were not entitled to do, and
- The delay in the processing of the extension of current levy agreements was as a result of the MEIBC's own administrative inefficiencies and non-compliance with prevailing legislation.

For many years the MEIBC has been tormenting SMMEs in the Steel Industry. The MEIBC has created the platform where big business (through their agent Seifsa) could collude with trade unions (primarily Numsa) in deals, which for these role-players, secured their own version of 'stability and labour peace', a dispensation completely hostile to the interests not only of SMMEs, but South Africa as a whole. The MEIBC secretariat, funded by, among others SMMEs, were then (and still is) used to enforce these outrageous and unlawful wage agreements.

These unaffordable wage agreements, unconstitutional and unlawfully obtained, has caused the Steel Industry to be 40% more expensive than the second most expensive industry governed by any other bargaining council dispensation. This has led to hundreds of thousands of job losses – 90 000 since 2008 of which 40 000 were lost in 2015 alone. The MEIBC has set in motion a devastating process of de-industrialization, a huge contributor to unemployment and consequently economic and social instability.

In 2010 this tyranny by a unconstitutional but powerful minority was challenged for

Cont. on page 54

Cont. from page 50

knowledge to fully utilize the potential of data analytics. Another 5% of companies have a dedicated department for data analysis serving many functions across the company. "To reach excellence in data analytics, industrial companies will need access to a wide variety of skills, including those of data scientists and algorithm architects," adds Botha.

Challenges for building digital operations capabilities

Lack of internal digital culture and training (58%), and insufficient talent (40%), top the list of the challenges identified by South African respondents. "Many industrial companies will need to develop digital skills sets around creative digital strategy design, technology, architecture and design, and user experience design," adds Theron. "Without the right digital culture, the best talent will not want to stay."

Digital trust

Digital ecosystems and broad use of data also raise important issues around cybersecurity. Our South African survey respondents raised concerns around cybersecurity breaches (53%), damage to company reputation and loss of trust due to data loss (47%) and liability risks through data loss (40%). Other issues like loss of IP and violation of regulation and laws on data security or data privacy are on the radar too.

The objectives of digitization differ from country to country

Although companies worldwide are pressing ahead with Industry 4.0, the study shows regional emphases in their objectives. Corporate groups in Japan or Germany are using digitization above all to increase their efficiency and product quality. In the US, the tendency is emerging to develop new business models with the aid of digital offers and services, and to provide these products and services digitally as quickly as possible. Although Asia Pacific companies report the highest digitization and integration levels today, it is companies in the Americas followed by those in Europe, Middle East & Africa (EMEA), that expect to have the largest gains in digitization levels by 2020 (71%).

"To move forward with Industry 4.0 digital capabilities is important for industrial companies. However, a step-by-step approach is important," says Theron.

"This includes planning a strategy, creating initial pilot projects, considering how you can best organize data analytics, and develop complete product and services solutions for customers.

"Industry 4.0 will be of significant benefit to those companies that fully understand what it means for how they do business. Change of this nature will transcend a company's boundaries, as well as the national boundaries of the countries where an organization does business," he concludes.

BMH-170

Hydraulic Powersaw
 0° ◊ 170
 0° ◻ 200 x 120
 45° ◊ 110
 45° ◻ 110 x 110
 Motor 0.75kW



Models: BMSY-280 - BMSY-440

BMSY-320

Semi-Automatic
 0° ◊ 320
 0° ◻ 440 x 220
 45° ◊ 280
 45° ◻ 280 x 200
 Motor 1.5kW



Models: BMSY-230DGH - BMSY-440DGH

BMSY-270DGH

Semi-Automatic,
 Double Mitre
 0° ◊ 270
 0° ◻ 350 x 220
 45° ◊ 240
 45° ◻ 270 x 200
 Motor 1.5kW



Models: BMSO-280 - BMSO-440

BMSO-320

Automatic,
 Roller Feeder
 0° ◊ 320
 0° ◻ 320 x 300
 Motor 1.5kW



Models: BMSY-325CGH - BMSY-810CGH

BMSY-325CGH

Semi-Automatic,
 Mitre, Twin Column
 0° ◊ 325
 0° ◻ 450 x 320
 45° ◊ 305
 45° ◻ 270 x 320
 Motor 2.2kW



Models: BMSY-325C - BMSY-1300C

BMSY-820C

Semi-Automatic,
 Twin Column
 0° ◊ 820
 0° ◻ 820 x 850
 45° ◊ 480
 45° ◻ 480 x 850
 Motor 7.5kW

Models: BMSO-325CH - BMSO-560CH

BMSO-560CH

Fully Automatic with PLC,
 Twin Column
 0° ◊ 560
 0° ◻ 670 x 560
 Motor 4kW





SACRIFICING THE STEEL INDUSTRY TO SAVE MITTAL

By Gerhard Papenfus, Chief Executive of the National Employers' Association of South Africa (NEASA).

I do not claim to fully understand what's currently happening in this space and the reasons for it.

The Steel Industry is in troubled waters. There are many indicators to this effect, but job losses is an important one. According to the MEIBC, the Steel Industry has lost 150 000 jobs over the last ten years, of which 40 000 jobs were lost in 2015 and 9 000 in the month of November 2015 alone. The MEIBC is predicting a further 30 000 job losses in the Steel Industry this year.

There is more than one reason for this job-bloodbath. There is of course the effect of the global economy and certain factors over which we have little control. The MEIBC and its continuous unconstitutional and unlawful actions have exacerbated the situation in that it has deprived business of the flexibility to counter the global challenge. The MEIBC and those who benefit by this system, and those opting to sit on the fence, must take a huge amount of blame for the state of the Steel Industry.

For many years there was the impact of the senseless 'import parity pricing' arrangement – when that arrangement suited Mittal – and when it no longer suited them, they arranged for the introduction of the current, similarly devastating, protectionist duties and safeguarding measures, all aimed at protecting Mittal. They somehow always find a way to convince government that they deserve some extraordinary arrangement which either benefits or protects them. How they manage to do that only they will know, especially since protecting old, outdated, expensive liquid steel manufacturing facilities, the Industry's demise will continue and millions of South Africans will suffer under inflated prices of downstream steel products.

Nobody can deny the challenge posed by China. But Mittal, at least for now, is posing a much bigger threat to downstream manufacturers. Since the introduction of protectionist duties in September 2015, and further looming safeguard duties, Mittal has increased its prices on five occasions, the cumulative effect thereof is an increase of

approximately 25 percent in the price of steel since September 2015, all the while denying local manufacturers the benefit of imported high quality, but cheaper steel. The effect in the market is severe.

Mittal is not a South African asset, it is foreign owned. There is nothing to suggest that it is doing anything other than pursuing its own short term interests. In this sense its objectives are not dissimilar to that of China. Thus far they have done nothing of concrete significance to improve their operations in order to serve downstream manufacturing better and cheaper.

These repeated Mittal-special arrangements affect all South Africans, either directly or indirectly. Employers and workers are affected immediately. But there will inevitably be a much wider ripple effect. When an industry as important as this one is dying, nobody will escape unscathed.

So, where to from here? The answer isn't obvious, but there must be a better solution than the one Mittal and the Department of Trade and Industry is pursuing. That, however, can only be the result of honest consultation and solution seeking, not the farce that took place until now.

We urge government to appoint a judicial commission of enquiry to determine the state of the Steel Industry. What the real causes are of the alleged situation Mittal finds itself in, the effect of various very unique arrangements with government, the suitability of current protectionist measures, the effect thereof on downstream manufacturing and to advise government on appropriate measures.

The Minister of Trade and Industry is called upon to take the initiative in this regard.

☞ *Cont. from page 52*

the first time, which set in motion a series of events leading to the situation that the MEIBC currently finds itself in – and all because of the fact that it refused to stop its illegal and unconstitutional conduct and also because it refused to transform itself into a body catering for the interests of SMMEs.

In 2011, after a dispute being declared by two of the employer bodies on the MEIBC, the rest of the parties admitted to the complete unconstitutionality of the MEIBC. The fact is that for many years prior to 2011, the MEIBC was not constituted at all, it functioned in a constitutional vacuum. However, this constitutionally speaking, empty shell [with the agent Seifsa (representing less than 20% of employers in the Steel Industry) on the one hand, and primarily Numsa on the other side], continuously found it fit to enter into agreements (which a Labour Court judgement referred to as a 'sham') and then, through the intervention of the Minister of Labour, enforced these agreements on employers who chose not to be part of it,

the so-called non-parties.

After lengthy and costly legal processes the extension of the 2011-14 Metal Industry Agreement was set aside by the Labour Court. A similarly illegal Agreement, in respect of 2014-17, is the current subject of further Labour Court proceedings. A Court date is awaited.

Court dates are also awaited in respect of a previous and current Administrative Levy Agreements (which is the source of income for this Council).

All these legal challenges, which, among others, contributed to the financial decline of the MEIBC, is the result of unconstitutional, unlawful and undemocratic conduct, playing itself out in an environment in which governance is non-existent and the voice of SMMEs, the lifeblood of the economy, is suppressed.

For the MEIBC to secure future financial resources, they now need the support of those very SMMEs whose interests were deliberately ignored, but who were victimized and bullied, many to the point where they simply could not continue to conduct business.

There are those who argue that the Steel Industry needs the MEIBC. It is a well-known fact that trade unions desperately need this MEIBC, but only for their own selfish (specifically financial) reasons. A few big and powerful employers might also need this undemocratic institution, primarily for purposes of market control and the elimination of competition from SMMEs. Then, off course, there are the few individuals who need this system for purposes of employment, who have found in this bargaining council scheme a lucrative financial source.

The South African economy however, which needs a particular environment to grow, an environment which this Council does not create, does not need the MEIBC. Neither the millions of unemployed people, for which the MEIBC has created an insurmountable obstacle to find a job, nor the 11 000 SMMEs in the Steel Industry, which are on the receiving end of a repetitive unfavourable, business hostile dispensation, needs the MEIBC, at least not in its current format.

SPECIALIST ON TENDER SALES



RYNCOR AUCTIONEERS - LEADER **ON TENDER SALES.**

ADVANTAGES OF A TENDER SALE:

1. Owner has overall control over the prices of the plant and equipment to be sold.
2. No item will be sold if the owner does not accept the highest bid.
3. Tender Sales eradicate the opportunity of forming a consortium (ring) out of the scenario—mostly the case at Auctions.
4. Viewing time from one to two weeks to accommodate all major buyers to participate in the Tender Sale.
5. Money in the owners bank before any plant and equipment is removed from the premises.
6. The Tender Sale is advertised by means of e-mail correspondence and our website—ideally for national and international buyers.

**CONTACT US TODAY FOR A PROPOSAL FOR SELLING YOUR
REDUNDANT PLANT AND EQUIPMENT.**



TEL: 012 546 8409 OR 012 546 8411 FAX: 012 546 8410
Werner Rynners 082 578 5324 Pierre Rynners 082 552 8187
E-MAIL: info@ryncor.com
WEBSITE: www.ryncor.com



FORD INVESTS R2.5 BILLION IN SOUTH AFRICA

Ford Motor Company is investing R2.5-billion (\$170 million US dollars) to expand operations in South Africa at its Silverton Assembly Plant in Pretoria where it will produce the all-new Ford Everest, along with the new Ford Ranger that was launched at the end of last year.



Ford invests R2.5 billion (\$170 million US dollars) in local production of the all new Ford Everest seven-seat SUV.

This investment will create approximately 1 200 new jobs at Ford South Africa and within the South African supplier network. "Our customers love the capability and utility offered by the all-new Ford Everest," said Jim Farley, Ford executive vice president and president of Europe, Middle East and Africa. "By producing the Everest in South Africa, we will be able to make it more readily available, and in a greater variety of models, for customers throughout Sub-Saharan Africa.

"The R2.5-billion investment reaffirms the importance of these markets as part of our growth strategy across the Middle East and Africa," Farley added. "It further reinforces South Africa's position as a strategic export base for Ford Motor Company."

The Silverton facility joins AutoAlliance Thailand in Rayong, Ford's Chennai plant in India (where it is sold as the Endeavor) and the JMC Xiaolan Plant in Nanchang, China, as production hubs for the Everest. Initial production at Silverton of the Everest will commence in the third quarter of 2016, with the first units expected to come to market in the fourth quarter. South African-produced models will be sold locally and exported to markets across Sub-Saharan Africa.

Part of this investment has been directed

towards the production of the new Ranger, which is already running at maximum capacity at the Silverton Assembly Plant – with domestic sales and export demand at an all-time high.

The Silverton Assembly Plant features state-of-the-art automation utilizing Ford's global manufacturing processes, and will be equipped to produce 10 000 Everest's per annum. "The all-new Everest has been extremely well received since it was launched



Left to right: Jim Farley, Ford Executive vice president and president of Europe, Middle East and Africa, Jeff Nemeth, president and CEO of Ford Motor Company Sub-Saharan Africa Region and Jim Benintende, president Ford Middle East and Africa.

in September last year, with demand far outstripping supply," said Jeff Nemeth, president and CEO of Ford Motor Company Sub-Saharan Africa Region.

"This crucial investment will enable us to increase volumes and expand the Everest range to eight derivatives across a broader price range. It will allow customers across Sub-Saharan Africa to choose from two powerful engines mated to robust six-speed automatic or manual transmissions for exceptional capability."

Currently, the all-new Everest is imported from Thailand, using the locally produced 3.2-litre five-cylinder Duratorq TDCi engine. It is only available in South Africa in 3.2 Automatic guise in two specification levels – XLT and the range-topping Limited. With the commencement of local production, a 2.2-litre Duratorq TDCi four-cylinder diesel engine will be added to the range, along with a wider spread of specification levels.

Built at Ford's Struandale Engine Plant in Port Elizabeth, the latest-generation Duratorq TDCi diesel engines – which are also used in the new Ranger – offer maximum fuel economy along with exceptional performance.

The all-new Ford Everest is a rugged seven-seat SUV featuring body-on-frame construction, intelligent four-wheel drive and an Advanced Terrain Management System to help navigate challenging terrain with ease.

In recent years, Africa has emerged as an increasingly important region for Ford, with continued investment and growth.

"As we continue to grow our business here in South Africa we are committed to improving the skills of our employees and creating new opportunities within the company and the broader supply chain. It is only through the dedication and commitment of our work force, suppliers, dealers, union and government partners that we have been able to secure this investment and expand our operations, broadening our footprint in Africa even further," Nemeth concluded.



Holemaking

DRILL•RUSH



SPADE•RUSH



»»» **NEW DRILLRUSH HEAD
FOR PREMIUM QUALITY
HOLEMAKING**



»»» **HIGH PRODUCTIVITY
HEAD CHANGEABLE DRILL
FOR LARGE DIAMETER
HOLEMAKING**



AGENTS: Durban - Rodney - 082 923 3487 Secunda - Jimmy - 082 654 6164 Port Elizabeth - Johan - 084 587 6186 Bloemfontein - Kevin 083 407 1668 Cape Town - SBB Machine Tools - 021 939 9170

TaeguTec South Africa (Pty) Ltd.

P.O. Box 3121, Springs, 1560 43 South Main Reef Road, New Era Springs Gauteng, South Africa
☎ +2711-362-1500 ✉ info@taegutec.co.za 🌐 www.taegutec.com



RICHARDS BAY IDZ LOOKS AT ALUMINIUM HUB



At a VIP dinner hosted by RBIDZ at the conference, Pumi Motsoahae, CEO RBIDZ and Lulu Letlape, Vice President – Corporate Affairs South32.

With the increasing contribution of the aluminium industry to the South African economy, particularly in the automotive field, the Richards Bay Industrial Development Zone (RBIDZ) is seriously considering the establishment of an aluminium metals hub.

Richards Bay has the benefit of being the home to South 32's Hillside smelter, the largest aluminium smelter in the Southern Hemisphere.

This smelter produces over 810kt of aluminium per annum that provides substantial down-stream beneficiation opportunities, a point recently made by RBIDZ CEO Pumi Motsoahae at the recent Aluminium International Conference hosted by the Aluminium Federation of South Africa in Cape Town last week.

Motsoahae added that the aluminium hub will have the facilities for direct receiving

of liquefied aluminium from the South 32 Hillside smelter and is intended to also attract downstream industries that will benefit not only aluminium but also iron, steel and titanium, to take advantage of Richards Bay Minerals and Tronox producing about 30% of the world's titanium and about 30% of its high quality pig iron in the Richards Bay area.

"The aluminium hub will offer tenants a fully-serviced property located within a secure Customs Control Area, which will reduce export and import duties as well as serve as a one-stop shop by clustering all the relevant government departments that investors moving into the hub will require," Motsoahae said.

The South African aluminium industry is one of the industrial pillars of the South African economy, ranking eight in the world for production of aluminium. The aluminium sector generates significant foreign exchange revenues and provides over 15 000 employees with decent jobs.

Aluminium also has great potential in the automotive industry where manufacturers are making more and more use of aluminium to reduce weight, one example being the C-Class Mercedes Benz which consists of 45% aluminium against nine percent which went into the previous model.

At the same conference, Sizwe Khumalo, CEO of Isizinda Aluminium, elaborated on the platforms for down-streaming aluminium and also highlighted the Memorandum of Understanding signed with the RBIDZ wherein Isizinda undertakes to supply molten metal received from South 32 Hillside Smelter to locators within the hub.

Other speakers at the conference included Goodrich Kowane, Market Development Manager at Hulamin Ltd, who discussed the trends and opportunities within the automotive sector, Heidi Brock the President & CEO of the Aluminium Association of America, Will Savage the Chief Executive of Aluminium Federation of the United Kingdom, and Mo Xinda, from the China Non-Ferrous Metals Industry Association, who presented on the Chinese Aluminium Industry.

For Used Machine Tools get The Official Journal of the Used Machine Tool Merchants Association of South Africa



UMT®

used machine tools s.a.

Established 1988



453 SERIES

4 Flute Variable with Chip Breakers for High Performance Milling

The 453 Series is engineered for improved chip evacuation and maximum metal removal rates.

Its design consists of added chip breakers, standard camfer and a 38° helix. The 453 Series is ideal for plunging, slotting, ramping and peripheral milling.

GW GW

CARBIDE END MILLS

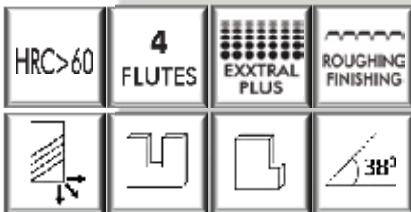
HIGH PERFORMANCE MILLING

Benefits:

- Increased metal removal rates
- Increased depth-of-cut
- Improved accuracy
- Chatter-free machining
- Higher speeds & feeds
- Superior surface finish on the part

Applications:

- Stainless Steels
- Carbon Steels
- Titanium
- Gray Cast Iron
- Hardened Tool Steels
- ...and their alloys



Distributed by
Duncan Macdonald & Co



(T) 011 444-4345/6/7/8/9

www.macduck.co.za

MEGA Hydrabend Hydraulic press brake DS-H Series



• Range from 20 Ton to 400 Ton.

MEGA Hydracrop Universal Iron Worker



• H-Series • 66 Ton Angle Iron 125 x 125 x 12mm • Punching 26mm dia x 16mm thickness • 90 Ton Angle Iron 140 x 140 x 12mm • Punching 30mm dia x 20mm thickness.

CNC & Conventional Machines

MEGA Pinch Roller



• 1300mm x 3mm, 1500mm x 6mm, 2000mm x 6mm & 2500mm x 6mm.



• Baoji Centre Lathe
500 & 660 swing, 1500, 2000, 3000 between centres. 80mm & 105mm spindle bore.

MEGA Hydrashear Hydraulic swingbeam guillotine SBN Series



• Range from 4mm to 20mm.

MEGA
HYDRABEND
HYDRASHEAR

• Hydraulic Press,
50 Ton, 63 Ton
& 100 Ton.

• Hydraulic Press Brake with NC
control - Capacity: 1300mm x 30 Ton,
1600mm x 30 Ton, 2000mm x 40 Ton.



• Hydraulic Press
with press brake
tooling - Capacity:
50 Ton x 800mm.



• Horizontal metal Band Saw
- Capacity: 250mm with miter
cutting.

MEGA Hydracrop Universal Iron Worker



• HIW Series
• 45 Ton Angle Iron
100 x 100 x 10mm
• Punching 22mm
dia x 15mm thickness.

MEGA Gear Driven Pedestal Drill

• From 25mm
to 50mm.



• Motorized Plate Roller
- Capacity: 1300mm
x 3mm.



• Horizontal Bandsaw
280mm, 380mm.



• Hydraulic Corner Notcher -
Capacity: 4mm x 200mm.

Welding Rotator Set - Self Aligned - Variable Speed



• From 5 Ton to
300 Ton.

- Top Quality
- European Standards
- Backup Service
- References obtainable
- Spares readily available

AMTS
Africa Machine Tools Supplies

Africa Machine Tools Supplies,
20 Robertson Street, Knights Germiston

Tel: (011) 867-6321 Cell: 082 928 1327
Fax: 086 692 8222 Email: amtscc@icon.co.za



VOLKSWAGEN TO COMMISSION R120 MILLION TRY-OUT PRESS MACHINERY



220 Ton Crown top of the Try-Out Press.



The press bed, weighing 120 tons was lifted 8 metres over the existing press line.

New R120 million Try-Out Press to improve the manufacturing capability of the Volkswagen Plant

After travelling 13 140km by ship from Spain, Volkswagen Group South Africa's (VWSA) new try-out press arrived in the Uitenhage factory recently.

VWSA has invested R120 million in a new 21 000kN (kilo Newton) Try-out Press to improve the manufacturing capability of its Uitenhage Plant.

The new press will be used to ensure that the tools are pressing the vehicle sheet metal parts according to the required quality standards prior to going into production. This ensures that the currently installed presses are used solely for production thus improving the productivity of the press plant. It will also be used in tool maintenance and implementing engineering changes on the current series production press tools.

"The press design and kinematics of this new press are comparable to that of the equivalent production draw press. It will therefore be able to accurately reproduce the line conditions and deliver the same quality of parts off-line," said Thomas Schaefer VWSA Chairman and Managing Director.

Once fully assembled, the new press will weigh approximately 600 tons and will deliver a maximum force of 2 100 tons, equivalent in weight to 306 male African elephants.

The heaviest single lift in the initial stages of the project was the press bed at 120 tons, however, this was eclipsed later by the press crown which weighed in at 220 tons and was lifted 8 metres above floor level and mounted on top of the press columns.

"Our Uitenhage plant has one of the newest press plants in South Africa and in the Volkswagen Group. The Press Plant was commissioned in 2013 and is capable of producing close to 10 000 parts per day for the Polo, Cross Polo and local Polo Vivo models," concluded Schaefer.

The Try-Out Press is expected to be fully operational by mid-2016.

SAXON SAXON SAXON

CHINA MACHINE TOOLS & ACCESSORIES

Your wise source for Top Quality Chinese engineering products at competitive prices & flexible payment terms.
 Exclusive representative of various best & biggest Chinese machine tool manufacturers such as: Shengyang Machine Tool Group
 Factories & Shanghai Machine Tool Group Factories. Many other manufacturers for heavy, medium & light duty machinery.

**Radial Drilling
 Machine**
 Available from
 25mm x 1m to
 125mm x 4m



Lifting up the future



**ISO 90001 and
 CE approvals**



UNBELIEVABLE PRICES
6 Months
Interest Free Payment
 to approved customers

**Huron Type
 Milling
 Machine**



**5HP
 Turret
 Milling
 Machine**



**Saxon CNC
 Machining Centre**



Universal Grinders



Centre Lathes

**RHINO - HELI
 Materials Handling
 Equipment
 1-45 Tons**
**Lifting up
 the future**

**073 160 4935 or
 (011) 614 5122**



**Saxon CY-K510n
 CNC Flat Bed Lathe**



Sinasia Utama Machinery & Chemical (Pty) Ltd

Tel: (011) 614-5120 / (011) 614-5122 • Fax: (011) 614-7231 • Cell: 083 983 1119

162 MAIN REEF ROAD, BENROSE, 2094. JOHANNESBURG

Website: www.sinosiamachinetools.co.za

DURBAN

Tel: (031) 700-3004 • Fax: (031) 700-4008 • Cell: 072 203 4478
 26 HILLCLIMB, WESTMEAD, DURBAN

PIETERMARITZBURG

Tel: (033) 386-2331 • Fax: (033) 386-4657 • Cell: 082 899 9971
 UNIT 3 NO. 15 HALSTEAD ROAD, HALSTEAD PARK, MKONDENI PIETERMARITZBURG

PRESSWERK 4.0

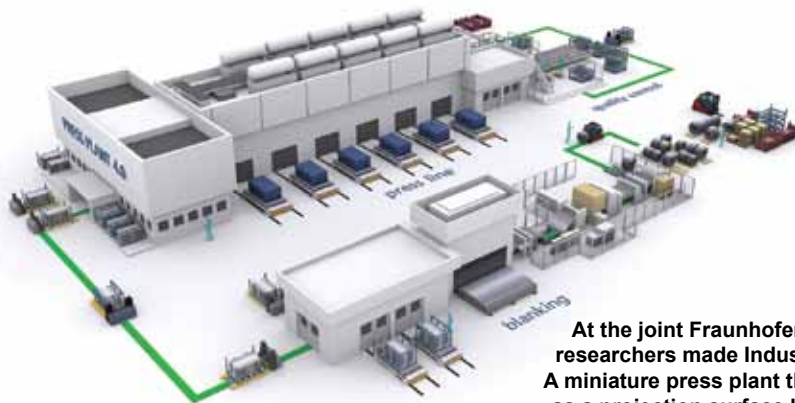
CUTTING DOWNTIMES IN HALF, MAKING MANUFACTURING FLEXIBLE

It costs companies a lot of money to have machines out of operation due to failure. This applies to press shops, too, the focus of Fraunhofer's Presswerk 4.0 project. Researchers want to employ targeted data networking in manufacturing to help employees recognize and correct failures more quickly – and reduce failure-related downtimes by at least half. Smart, connected machines balance out disturbances so that material that normally lands in the scrap pile can be processed.

Steel sheets are delivered in huge rolls to the press shop, where they are first cut to the required size. Then they pass through several presses to be stamped into the desired shape – a car door, for instance. If, however, workers discover a crack in the component, they have to reject it, after all each subsequent process step costs money. Things get really tricky when the fault is not a one-off occurrence but rather affects all the components coming from the press. Then workers have to stop the press and start troubleshooting. Is the problem due to the raw material or the lubrication? Is the tool faulty? Is the press not running properly? It takes a while to check out all the parameters and possible faults – during which time production is at a standstill.

The right information, at the right time, in the right place

Researchers at the Fraunhofer Institute for Machine Tools and Forming Technology IWU have made it their mission to develop Industry 4.0 in the field of mechanical engineering. One of their areas of focus is the press shop of the future. "We combine the various streams of data in our Linked Factory, a data and service platform developed here at the institute. From that, we generate new information that we can provide to staff, for



example on mobile devices," explains Sören Scheffler, a scientist at Fraunhofer IWU. "On the basis of this data, researchers are able to isolate the cause of a failure more quickly and make targeted suggestions to staff as to how to rectify it as quickly as possible." Together with partners from industry and science, Fraunhofer IWU is working on reducing failure-related downtimes by around 50 percent. However, Presswerk 4.0 is set to not only tap potential related to downtimes. The aim is also to help operators react more quickly and flexibly to market needs and customer preferences, even when plans change at short notice.



At the joint Fraunhofer booth, IWU researchers made Industry 4.0 visible. A miniature press plant that also served as a projection surface helped visitors experience Industry 4.0 using a tablet computer, virtual information such as data flow from sender to receiver is displayed on the screen over the model. © Fraunhofer IWU

The researchers' first step is to build on data that is already being collected – by sensors or camera systems, for instance. Often these are insufficient for the position where they are connected. In future, a software application will collect this data centrally, associate it with the other information, and thus generate new knowledge. In the case of the faulty door, for example, it will merge data from the sensors in machine tools with information about lubrication and data on the raw material used, then it will check which values lie outside the pre-defined tolerance limits in each case. On the basis of these results, staff will receive suggestions for troubleshooting options to enable them to solve the reported problem in a targeted way.

In the long term, researchers want to develop the system further to the point where it can issue a warning even before a fault has arisen. In order to achieve this, additional data sources are installed in the form of sensors. "For instance, we could examine the material before it goes into production. Is a given sheet in good shape? If not, the employee can discard it before it is formed and other components are mounted onto it. In this way, resources are saved because we don't have to throw away the entire assembly," explains Scheffler. The IWU researchers are taking it a step further. With a combination of process sensors and active components, it is possible to optimize the forming process window. "If I provided the press with this newly collected information about the nature of the raw material, it could then carry out appropriate measures to compensate and



Making smart data out of big data. Presswerk 4.0 takes data that today is rarely or never evaluated and integrates it using an analysis and feedback system. This is then connected to create new knowledge, such as solutions for specific problems. The information is then made available to staff, for instance using smart devices, or sent directly where it is needed. © Fraunhofer IWU

Cont. on page 63

REAL ENVIRONMENTAL DATA IN REAL TIME FOR SIMULATIONS



Virtual vehicle development is becoming increasingly important. Researchers at Fraunhofer are offering a system that takes into account realistic environmental influences like road surface, weather and driving maneuvers in driving simulations. © Fraunhofer ITWM

In computer aided vehicle engineering, you need accurate data on various environmental influences. This is the only way developers can conduct tests that simulate the experience of a real car. At Hannover Messe, researchers at the Fraunhofer Institute presented a quick and inexpensive system that collects real data at normal driving speeds and processes this data in real time as fine-grained and coarse-grained data for 3D driving simulations.

Engineering departments at large automotive companies today use simulation when conducting virtual tests during the development phase of their new vehicle designs. This involves computing the physical properties of the cars in advance, which significantly shortens the often year-long testing loops with real test vehicles. For example, this is already being done in testing passive safety, acoustics, durability and reliability and for energy efficiency, fuel consumption and carbon emissions. At present, a vehicle can be simulated very well using software tools.

However, it is difficult to simulate environmental influences that have a significant effect on the automobile while driving, such as street conditions, weather and driving maneuvers. Experts often work with assumptions rather than with actual data because generating the actual data and making it relevant for simulations is complex and expensive. "For years we have been working closely with automobile and commercial vehicle manufacturers. We have recognized this

need and made it our mission to develop cost-effective solutions to include road and environment into simulation based vehicle engineering", says Dr. Klaus Dressler of the Fraunhofer Institute for Industrial Mathematics ITWM in Kaiserslautern.

Big Data expertise brings large amounts of data under control

At Hannover Messe 2016, scientists from the Fraunhofer Institute presented a system that consists of a test vehicle, a geo-referenced database and a vehicle simulator. Using two 360-degree laser scanners, the Road & Environmental Data Acquisition Rover (REDAR) captures enormous amounts of environmental data at normal driving speed. "We call it point cloud data. That means for each 3D coordinate we have environmental data," says Dressler. The ITWM researchers have managed to prepare the terabyte-sized dataset so that it can be used in real time in 3D interactive driving simulations. "The volume of data is so large that the data cannot be easily fed into the memory of a computer system. We have therefore developed an out-of-core method to process only the data necessary for the running time in the simulator."

REDAR captures data from the building fronts to the left and right and from the street in front and behind of the vehicle at a distance of 200 meters. It also scans the road's surface with a resolution of less than half a centimeter. An inertial platform eliminates potential movement of the vehicle from the raw data of the laser scanner so that it can be objectively processed by the software. "To build such a complex measurement



system and consistently process the data through appropriate algorithms were our biggest challenges," Dressler adds. The test vehicle has been in use since 2015 and has already been collecting data for various customer projects.

Merging fine- and coarse-grained data

ITWM's own driving simulator RODOS (Robot-based Driving and Operation Simulator) converts the metrics collected by REDAR. The simulator consists of a cabin system in which a steering wheel, gas and brake pedal can be operated. The driver cabin is connected with a 6-axle robot system that realistically simulates accelerations, braking or driving around tight curves. "The test driver moves through a virtual world that feels very realistic after just a few minutes," explains Dressler. The simulations are supported with data from the database system known as Virtual Measurement Campaign (VMC). The database provides the world's road network with its topography, regulations, weather and additional geo-referenced data. "With the data collected from the data acquisition vehicle we merge real fine-coarsed data with the coarse-grained data from the VMC. Merging the two worlds is an important step in developing test scenarios for the engineering of road-bound vehicles," says Dressler.

Cont. from page 62

balance out disturbances, for instance by using active components such as smart guide shoes or adaptive warehousing. That means I can process raw materials that normally would have landed in the waste container," says Scheffler.

Making Industry 4.0 visible

Fraunhofer researchers recently presented Presswork 4.0 at Hannover Messe, where the overarching theme was "Making Industry 4.0 visible." Visitors experienced a miniature press shop model, which also served as a projection surface. By holding up a tablet computer in front of the model, they saw virtual information about the real model. "In this way, we can visualize the stream of information that otherwise remains hidden – in other words, we make Industry 4.0 visible," says Scheffler. Visitors could take a virtual tour of the various scenarios and saw how Industry 4.0 technologies can be used to save energy, material and time.



TAEGUTEC DRILLS MACHINE ANY MATERIAL QUICKLY AND EFFICIENTLY

The various DrillRush geometries and sizes such as 1.5xD, 3xD, 5xD, 8xD and 12xD not only increase productivity but improve tool life due to its reinforced edges and coating, which are suitably designed for optimal chip control and hole quality on any material.

TaeguTec recently introduced two new sizes, the **12xD** drill that produces deep holes accurately, repeatedly and economically and the DrillRush **6mm to 6.9mm diameter** range drill heads, which are designed to handle 1.5xD, 3xD and 5xD drilling depths. **(Pic 1 & 2).**

All DrillRush products eliminate the need to remove the entire drill from the spindle in order to replace the head, a process that shortens cycle times and substantially increases productivity.



Pic. 1



Pic. 2



Pic. 3

For producing cost effective large diameter holes, TaeguTec's **SpadeRush**, is a recently introduced line of high productivity head changeable drills for large diameter hole making. They stay within cycle times necessary to be competitive thanks to their optimized cutting edge and unique rigid clamping system, while generating higher productivity and outstanding performance.

Available as a standard drill in 3xD and 5xD for a diameter range of 26mm to 41mm, the SpadeRush's unique clamping technology enables operators to quickly change drill heads without removing the clamping screw from the holder. **(Pic 3 & 4).**

For cost effective machining and higher productivity, the **TopDrill** line has been built to satisfy a growing market demand for flexibility and excellent performance. Also, its true 4-corner inserts are suitable for

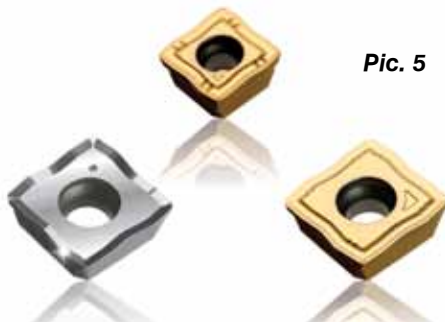


Pic. 4

both internal and external pockets, reducing inventory and promoting cost reduction. **(Pic 5 & 6).**

From top to bottom, the TopDrill has been built for improved tool life and is equipped with a new insert grade for enhanced durability.

Last but not least is the newest member of TaeguTec's drilling family, the **TwinRush** – a product that guarantees excellent performance and high productivity on large diameter holes.



Pic. 5




Pic. 7



Pic. 6

The noticeable feature of the TwinRush joins together a centering insert with a pair of precise square inserts on either side in order to combine two different drill types onto one drill body and protects them with TaeguTec's TT9080 PVD multi-layered coated grade. This double effective design increases productivity. **(Pic 7).**

**For more information,
please contact TaeguTec -
Tel: (011) 362-1500.**



Products

OKUMA LAUNCHES LB3000 EX II – SHAFT WORK SPECIALIST

In recent years there has been a growing trend towards machine workpieces longer than 1000mm, and the demand for improved threading productivity has increased. Specifically designed to improve the productivity of long shaft applications, Okuma added a new model with 1300mm distance between centres to its flagship LB3000 EX II SPACE TURN series of CNC lathes.

The LB3000 EX II lathe is the ideal machine for long, slender jobs and was developed to handle applications up to DBC 1300mm. By mounting a freely moving follower rest to a simple 1-saddle lathe and by utilizing Machining Navi T-g, 2- saddle equivalent productivity is achieved. Machining Navi T-g, a new function that enhances Okuma's Machining Navi by suppressing chatter for long parts, maximizes productivity for threading applications.

LB3000 EX II provides $\pm 5 \mu\text{m}$ machining dimensional accuracy per 8° change in room temperature. Due to the machine's high turning capacity, this precision comes without loss in speed. The blend of accuracy

and performance is what enables the LB3000 EX II to continually meet the machining demands for a variety of industries.

The machine is equipped with an NC controlled follower rest. The self-travelling unit is able to move with the cutting position, thus enabling the machine to turn very long components. The operator is able to control follower rest travel at will, which drastically improves productivity for 1-saddle lathes. The LB3000 EX II, in combination with Machining Navi T-g, grants operators unparalleled flexibility when machining parts for the oil and energy industries as well as parts intended for construction or farming.



For more information, please contact F & H Machine Tools - Tel: (011) 397-4050.

Global Leadership with high-tech Solutions

DYNASAW 430

- Dynamic frame
- New CNC control
- Double vibration dampening rollers
- New saw blade frame design

Visit us at



Hall 9, Stands G14 & H15.
12 - 16 September, 2016

HIGH PERFORMANCE CNC BAND SAW



Gauteng: Tel: (011) 453-5459
Cell: 082 465 5924 (Rick)
Cape Town: Tel: (021) 706-0502
Durban: Tel: (031) 700-5070

Fax: (011) 453-5442
e-mail: barry@amadajhb.co.za
Fax: (021) 706-0503
Fax: (031) 700-5077

The Amada Product Portfolio includes:
CNC TURRET PUNCH PRESSES,
CNC LASER CUTTERS, CNC PRESSBRAKES,
NC HYDRAULIC/MECHANICAL SHEARS, SOFTWARE,
BANDSAWS, BANDSAW BLADES,
SALES & SERVICE.

TRADE FAIR CALENDAR

AUSTRIA

2016

INTERTOOL

10 - 13 May

Intertool is Austria's only trade fair for manufacturing technology in the metal processing sector. It focuses on machine tools and precision tools for separating and forming work piece processing, as well as fixtures and fittings, techniques, technologies and systems along the entire process chain.

Messe Wien Expo Centre

BRAZIL

2017

FEIMAFE

5 - 10 June

FEIMAFE is the main fair focused on Machine Tools and Quality Control in Latin America. The event brings together leading companies in the industry and provides a suitable environment for business relationships.

Anhembi Exhibition Pavilion, São Paulo

CANADA

2017

WMTS

15 - 17 June

The Western Manufacturing Technology Show (WMTS) is Western Canada's definitive showcase for manufacturers of products ranging from machine tools, welding equipment, design engineering and plant maintenance to process control and automation.

Edmonton Expo Centre - AB Canada

CHINA

2016

CIMES 2016

22 - 26 June

13th Chinese International Machine Tool & Tools Exhibition.

New China International Exhibition Center (NCIEC)

FRANCE

2016

MICRONORA

27 - 30 September

Biennial microtechnology and precision trade fair. The trade fair for cutting-edge technology.

Besançon, France

GERMANY

2016

LASYS

31 May - 2 June

International trade fair for laser material processing.

Messe Stuttgart

AMB

13 - 17 September

AMB, the international exhibition for metalworking, is the leading industry trade fair and is one of the top five trade fairs worldwide for metal-cutting technology.

New Stuttgart Trade Fair Centre

EURO BLECH

25 - 29 October

The 24th International Sheet Metal Working Technology Exhibition will open its doors again in Hanover, Germany. As the world's leading exhibition for the sheet metal working industry, EuroBLECH offers a global platform for the presentation of the latest technology to a specialized audience of the industry's key purchasers and decision makers.

Exhibition Grounds, Hanover

2017

EMO HANNOVER

18 - 23 September

EMO Hannover – the world's premier trade fair for the metalworking sector

Hannover Fairground

BLECH & SCHWEISSTEC

7 - 10 November

13th Blechexpo - International Trade Fair for sheet metal working.

Stuttgart New Exhibition Centre

INDONESIA

2016

MACHINE TOOL INDONESIA

30 November - 3 December

The 30th International Machine Tool, Metalworking and Allied Industries Exhibition

Jakarta International Expo

ITALY

2016

LAMIERA

11 - 14 May

Machines and equipment for the machining of sheet metal, pipes, sections, wire and metal structural work, dies, welding, heat treatments and surface treatment and finishing.

Exhibition Ground, Fiera Bologna

FASTENER FAIR

28 - 29 September

Exhibition for fastener and fixing technology.

MiCo - Milano Congressi

BI-MU / SFORTEC

4 - 8 October

International Exhibition dedicated to the Italian machine tools, robot, automation systems and ancillary products industry.

Exhibition Ground, Fiera Bologna

JAPAN

2016

JIMTOF 2016

17 - 22 November

The 28th Japanese International Machine Tool Fair.

Tokyo Big Sight (Tokyo International Exhibition Center)

MALAYSIA

2016

METALTECH

25 - 28 May

The event for the machine tool, metalworking & manufacturing trade.

Putra World Trade Centre, Kuala Lumpur

TRADE FAIR CALENDAR

MYANMAR

2016

MANUFACTURING MYANMAR

22 - 24 September

The 3rd International Manufacturing, Machinery, Equipment, Materials and Services Exhibition.

Myanmar Event Park

POLAND

2016

TOOLEX

4 - 6 October

International Fair of Machine Tools and Processing Technology.

Expo Silesia Exhibition Centre

RUSSIA

2016

METALLOBRABOTKA

23 - 27 May

17th International Specialized Exhibition for equipment, instruments and tools for the metalworking industry.

Expo Centre Fairgrounds

SAUDI ARABIA

2016

METAL STEEL SAUDI 2016

1 - 4 May

International Exhibition for Steel, Steel Fabrication and Metallurgy Industry is positioned as the B2B gathering in the Gulf region.

Riyadh Exhibition Center Saudi Arabia

SINGAPORE

2017

MTA

4 - 7 April

This is the 21st edition of the show covering industries such as aerospace, electronics, energy, medical, oil and gas.

Singapore Expo Centre

SOUTH AFRICA

2016

WOODEX FOR AFRICA

9 - 11 June

WoodEx for Africa is Africa's only expo focussing exclusively on the timber industry.

Gallagher Convention Centre, Midrand

ELECTRA MINING AFRICA 2016

12 - 16 September

Ranked as the second largest mining show in the world and with global recognition for its broad reach across mining, construction, industrial and power generation industry sectors, Electra Mining Africa once again proves its status as a world class event attracting high numbers of quality exhibitors and visitors, both benefiting from the platform created to showcase the latest in products, services and trends.

Expo Centre Nasrec, Johannesburg

SOUTH AFRICAN AUTOMOTIVE WEEK

11 - 13 October

South African Automotive Week is one of the few automotive events on the continent that focuses on component manufacturing and the opportunities for trade in the manufacturing industry.

Tshwane Events Centre, Pretoria

2017

MACHINE TOOLS AFRICA 2017

9 - 12 May

Machine Tools Africa 2017 will be organized by the MTMA - The Machine Tool Merchants' Association of South Africa, together with Specialised Exhibitions.

Expo Centre, Johannesburg

KZN INDUSTRIAL TECHNOLOGY EXHIBITION (KITE)

26 - 28 July

An industrial trade show that showcases products, services and solutions appropriate to the KwaZulu Natal region. It provides an excellent platform for trade discussions between exhibitors and visitors and a forum for business networking.

Durban Exhibition Centre

SPAIN

2016

BIEMH BILBAO

30 May - 4 June

International Trade Fair for Machine Tools.

Bilbao Exhibition Centre

SWITZERLAND

2016

PRODEX

15 - 18 November

International Exhibition for machine tools, tools and production measurement.

Messe Basel

TAIWAN

2017

TIMTOS

7 - 12 March

26th Taipei International Machine Tool Show.

Taipei World Trade Center

TURKEY

2017

WIN EURASIA METALWORKING

9 - 12 February

Unique platform for the sheet metal processing industry.

Tüyap Fair, Convention & Congress Centre, Istanbul

UNITED STATES OF AMERICA

2016

IMTS

12 - 17 September

International Manufacturing Technology Show. Industrial decision-makers attend the International Manufacturing Technology Show (IMTS) to get ideas and find answers to their manufacturing problems.

McCormick Place Convention Center, Chicago

VIETNAM

2016

MTA VIETNAM

5 - 8 July

The 14th International Precision Engineering, Machine Tools and Metalworking Exhibition and Conference.

Saigon Exhibition & Convention Centre (SECC)



MARKING STAMPS & DIES



Dot-Low Stress Stamps

Specializing in: steel marking stamps, copper electrodes, male & female embossing dies, brass foiling dies, brass applique dies, cut-out dies brass wax seals, coining dies, hobbing dies, branding dies, stencils, die sinking, engraving on moulds, general engraving, embossing wheels, jewellers stamps, soap moulds, packaging type.



PROLOGO CC

Tel: (011) 680-8169 ♦ Fax to e-mail: 086 513 3356
Cell: 083 945 8419 ♦ E-mail: prologo@global.co.za
Web: www.prologostamps.co.za

"Make your Mark!"

SOLUBLE CUTTING OIL

Standard Cutting Oil "S2S"

210 Litre Drum

R6 622,81 ea

25 Litre Container

R789,48 ea

VAT excluded

Dilute with water 20:1

Does not go "OFF" even when standing



23 Wright Road Extension
Nuffield, Springs 1559
Tel: (011) 363-1766
Fax: (011) 363-2404
E-mail: martie@a2c.co.za or
mpumi@a2c.co.za

ADVERTISERS INDEX

A°C DISTRIBUTORS	68
AFRICA MACHINE TOOLS SUPPLIES	59
AMADA	17 & 65
CML MACHINE TOOLS	2 & 3
CNC CLEARCUT	11
COASTAL ENGINEERING	47
DUNCAN MACDONALD	59
DURMAZLAR	4, 5 & 12
F & H MACHINE TOOLS	31
FANUC SOUTH AFRICA	33
HAAS FACTORY OUTLET SOUTH AFRICA	21
HARP MACHINE TOOLS	29
HURCO SOUTH AFRICA	15
ISCAR SOUTH AFRICA	OFC & 7
KNUTH MACHINE TOOLS	43
LIBCOR INDUSTRIAL MACHINERY	49
MAFEMA SALES SERVICES CC	40
MJH MACHINE TOOLS	IBC
PBS MACHINE TOOLS	OBC
PROLOGO CC	68
PUMA	39
REEF ENGINEERING	51
RETECON	23
ROSSI MACHINE TOOLS	45
ROTHCO	25
RYNCOR AUCTIONEERS	55
SANDVIK COROMANT	13
SINOSIA	61
SPECTRA CARBIDE TOOLING TECHNOLOGY	IFC
SUPRA TOOLING	22 & 28
TAEGUTEC SOUTH AFRICA	57
TH MACHINE TOOLS	53
TOOLQUIP & ALLIED	INSERT
WAK TRADING	19 & 27
WALKER MACHINE TOOLS	41
WH AUCTIONEERS	INSERT

AKIRA - SEIKI

FACTORY OUTLET SOUTH AFRICA



PC460 - Tapping Centre

X Travel : 460mm Y Travel : 320mm Z Travel : 300mm
Spindle nose to table surface : 180mm - 480mm
Spindle : 12,000rpm Spindle Motor : 9HP
21-Station BT30 quick change turret type toolchanger
Feedrate XYZ : 1.2G Rapid XYZ : 60M/min
Max. Table Load : 250kgs

SR3 XP - Machining Centre

X Travel : 762mm Y Travel : 430mm Z Travel : 460mm
Spindle : 11,000rpm Spindle Motor : 15HP
20-Station Arm type BT40 toolchanger
Spindle Oil Chiller Coolant through spindle
Screw chip conveyor
Mitsubishi Mi745 control



V4 XP - Machining Centre

X Travel : 1050mm Y Travel : 540mm Z Travel : 560mm
Spindle : 12,000rpm Spindle Motor : 36HP
28-Station Arm type BT40 toolchanger
Spindle Oil Chiller Coolant through spindle
Screw chip conveyor
Mitsubishi Mi745 control



V5.5 XP - Machining Centre

X Travel : 1350mm Y Travel : 640mm Z Travel : 660mm
Spindle : 12,000rpm Spindle Motor : 36HP
28-Station Arm type BT40 toolchanger
Spindle Oil Chiller Coolant through spindle
Screw chip conveyor
Mitsubishi Mi745 control



MJH
Machine Tools cc

www.mjhmachinetools.com

Durban

031-705-7514

Martin

083-276-0128

martin@mjhsa.co.za

Ricky

079-510-4144

ricky@mjhsa.co.za

Johannesburg

010-005-0634

Mark

083-326-0556

mark@mjhsa.co.za

Chris

082-416-2263

harpermt@icon.co.za

SIMPLE | RELIABLE | PROFITABLE

COMPLETE MACHINE TOOL SOLUTIONS
CONVENIENCE • IN ONE PLACE • EVERYTIME



SKETCH 2016/8819



PBS Machine Tools (Pty) Ltd
PO Box 18422, Sunward Park, Boksburg 1470
Unit 2, 31 Seller Road, Boksburg East, 1459, South Africa
Tel: +27 11 914 3360 | Fax: +27 11 914 3366
Cape Town Cell: 073 557 5155
www.pbsmt.co.za | www.ercolina.co.za

PBS
MACHINE TOOLS
FOR PRODUCTIVE BASED SOLUTIONS