EUROPEAN TOOL & MOULD MAKING

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The trade magazine for tool, mould & die making

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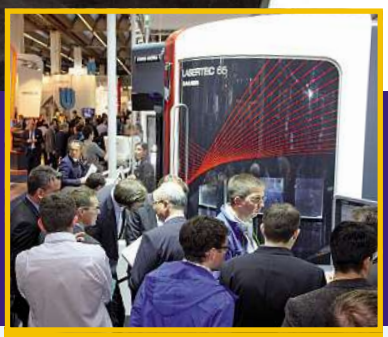
Hot Runners and Mould Components



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Will 2014 be a mean mound of rebound?

Not long after learning that German precision toolmakers are expecting a banner year *(p.6)*, an old joke came to mind in the form of a fictional conversation between an optimist and a pessimist:

Pessimist: Things can't get any worse.

Optimist: Sure they can.

Since this is still the first quarter, any extrapolations for the entire year would be premature. However, much of the macroeconomic information for Europe and other parts of the world points toward improvement in 2014. Should the forecasts prove true, they will provide a welcome respite in plenty of regions of Europe. Many in our industry have suffered through a number of hard years. Others have just closed up and called it quits.

I was reminded of the joke not long after the announcement of the oncoming upswing in Germany. The mood at the press conference was cautious, a tone repeated in some of the conversations and correspondence for a story on this year's market expectations *(p.16)*. Four per cent growth, the German precision tooling industry's forecast, may not sound like much, but if it pans out, shops will reach a new production high, their second in three years.

It's early days, too early to light the fireworks just yet, but the likelihood of another trip into record territory offers at least the opportunity to enjoy the prospects. Ditto for the possibility of growth in other parts of Europe, which is the expectation in a number of countries.

Evidence of a rebound has been building: strong demand for machine tools at EMO and good crowds at the K plastics fair sparked optimism, and a better-than-expected Euromold *(p.26)* has provided added grounds for hope.

We'll know more in December. So until then, why not smile and enjoy the ride?

Eric Culp
EDITOR-IN-CHIEF

EUROPEAN TOOL & MOULD MAKING
ETMM

COVER STORY

CASE STUDY

PRODUCTS FOCUS

SOURCING GRIDS

Hot Runners

HRS Flow

Source: Culp

Cover photo: a Mold-Masters display at the 2013 K plastics exhibition.

EDITOR'S MESSAGE

INDUSTRY NEWS

SPECIAL REPORT

INTERVIEW

INTERVIEW

Euromold 2013

Source: Königsreuther

Special Report

Source: lunamarina - Fotolia.com

NEWS IN BRIEF

Global bioplastic production capacity to surge
The world market for plant-based plastics will grow from some 1.4 million tonnes (annual production capacity) in 2012 to around 6.2 million tonnes in 2017, according to the European Bioplastics trade organisation.

Investors okay purchase of UK CAD/CAM software firm
Delcam said its shareholders have voted to accept the offer made by US-based Autodesk to acquire the company. The acquisition is expected to be completed during February, Delcam noted, adding that it will become a subsidiary of the American company.

Mould components supplier instructs instructors
Hasco's classes for vocational school teachers on "The use of standardised components in tool and mould building" have attracted some 90 educators in Germany from the fields of metal and plastics engineering. The company plans to offer further courses this year.

Classes about hard metals completed on the quick
The European Powder Metallurgy Association (EPMA) said it will host an intensive two-day course on hard metals on 20 April in Vienna, Austria. More information is available at epma.com/shortcourse.

Components maker completes takeover
Canada's Husky said it has finalised its acquisition of Swiss medical and closure mould maker Schöttli. The new owner said the deal, which was announced last year, will give it a deeper knowledge in the select applications upon which Schöttli focuses.

German precision toolmakers to set production record this year, mould making strong: VDMA

Source: Culp

Corks could be popping at Germany's Precision Tools Association if forecasts for this year's output ring true.

Expectations of an upswing in Europe's largest manufacturing nation are providing grounds for optimism across the EU, and Germany's precision tooling industry added more evidence that the improvement is underway by predicting that sector output will reach an all-time high this year.

Production is expected to rise 4% to around €9 billion in 2014, according to Lothar Horn, chairman of the Precision Tools Association, a division of the German engineering federation VDMA.

Speaking at the association's annual press conference in Frankfurt, Germany, Horn said preliminary data for 2013 suggests output last year mirrored the record €8.7 billion mark set in 2012 after the strong growth in the first half faded after June. This year, the release of pent-up investments, combined production increases in major sectors such as automotive, will contribute to the strength of the sector, he explained.

Despite the sideways trend for the sector as a whole last year, the association said mould making growth was vibrant in the first half as shops filled orders from 2012. Mould makers also outperformed precision tooling sub-sectors last year, the association noted. It generally does not release production numbers for sub-sectors such as mould making and cutting tools.

VDMA Die and Mould Association Chairman Marco Schulken told *ETMM* that mould making is expected to perform well again this year, and the rate of growth could reach as high as 3%.

The VDMA said part of its ongoing success–this could be the third straight year of output at record levels–comes from across the Atlantic, with a US manufacturing boom supporting German industry. Tooling exports to the US last year jumped 11%, the association said. Shipments to the US are expected to rise in 2014, but at a slower pace.

» ***VDMA,***
Frankfurt/Main, Germany.
vdma.org

European precision tooling association announces selection of new president

Finland's Jari Saaranen has assumed his duties as the president of Istma Europe, the international precision tooling association. He replaces Janez Poje.

Saaranen, a director at Finnish automation equipment supplier Fastems, has already set his agenda for the beginning of his two-year term, Istma Europe said. Goals include promoting and increasing the visibility of the tool and die industry in Europe as well as working to position the sector among those industries with priority at the strategic level of European manufacturing.

Saaranen has spent many years in the industry and served on the mechanical engineering faculty at Finland's Vaasa University. (*See more Istma news on p.8.*)

» ***Istma Europe,***
Marinha Grande, Portugal.
istma-europe.com

Source: Matti Nenonen/Jari Saaranen

Saaranen hopes to increase the involvement of tool and die houses in Istma Europe events.

German precision tool manufacturer, limited by current factory, to build new plant

The cutting tool and machining accessory supplier Mapal has announced that it will build a new factory to keep up with demand.

The company said in a statement that it will spend up to €7 million on the plant, which will be constructed in Eppingen, Germany. The new complex is expected to include production and administrative facilities covering 5,000m², the company said.

The current production site at its Mapal Isotool division in Sinsheim, Germany, has reached maximum capacity and will be replaced by the new factory. Construction will start in the spring of 2014, Mapal said.

» ***Mapal,***
Aalen, Germany.
mapal.com

Source: Mapal

The company said it also recently increased the size of its staff in the UK.

EU industrial target out of reach: bank

The EU Commission has set too high a goal for its plan to reindustrialise Europe, Germany's Deutsche Bank said.

In 2012, Brussels announced plans to increase the size of the EU industrial sector of the economy to 20% by 2020; its current level is 16%. Bank analysts said the initiative will fall short. "The target set by the EU Commission is overambitious and cannot be achieved in the foreseeable future," a bank report said.

However, aiming too high is not all bad, the analysts noted: "It sends out the right signal that industry will remain highly important for Europe."

The analysts explained that manufacturing faces difficult competition from other areas such as services. "The only way... the manufacturing sector's share of the economy can ultimately be increased is if it achieves faster sustainable growth than the other sectors." This is currently unlikely due to industrial maturity and because sub-sectors such as automaking are consolidating.

» ***Deutsche Bank,***
Frankfurt/Main, Germany.
db.com

World's tooling industry to meet in Cape Town

Source: Cape Town & Western Cape Convention Bureau

Cape Town, South Africa, will host the 14th Istma World Conference, the leading meeting for managers in the precision tooling industry.

The international precision tooling association Istma's 14th World Conference for special tooling and machining industry business owners and senior management from around the world is scheduled for 12-16 March in Cape Town, South Africa, according to the host, the Toolmaking Association of South Africa. *ETMM* is an Istma Europe media partner and a proud media sponsor of this event.

Istma said a highly influential group of managers will meet to discuss international and regional trade, government regulations and international trading conditions, trends, new technology and new techniques driving the industry as well as any other critical issues of concern.

"Most governments around the world are focussing on strengthening their manufacturing capabilities and capacity to counter the drift towards low-cost manufacturing in the Far East and China," Istma noted. "Many new initiatives by governments and government agencies are developing to stimulate the industry and particularly in the areas of skills development and assistance packages for asset investment."

Istma advised prospective attendees to book soon. The Argus Cycle Tour, one of the largest cycle tours in the world, takes place on 9 March 2014, with many cyclists flying into Cape Town on the Friday and Saturday, 7-8 March, so flights into the city and hotel accommodation will be heavily booked on these dates. It asked that those wishing to participate in the conference book early to avoid disappointment.

The Istma 14th World Conference is set to include technical sessions, regional meetings to enable participants to network with like-minded colleagues from their areas and around the world, a trade exhibition for the tooling and associated industries and plant tours to showcase some of the tooling activities in the Western Cape region.

More information about the event is available online at the address below.

» ***Istma World Conference,***
Cape Town, South Africa.
www.sbs.co.za/istma2014

Machine tool builder extends partnership with F1 team

Yamazaki Mazak has announced the extension of its contract with Formula One racing team Vodafone McLaren Mercedes.

The company said the agreement ensures that Mazak continues in its role as the team's sole official supplier of CNC machine tools. Mazak has supplied the team since 1999 and currently has a total of 25 machines installed at the McLaren Technology Centre in Surrey, UK, including multi-tasking and multi-axis machines from the Integrex and Variaxis series. "This latest contract extension will see a number of additional new machines installed as the team continues its drive to increase performance and productivity in manufacturing operations," the company said.

Source: Yamazaki Mazak

Managers from the partner companies will continue to work together in the future.

Since starting the partnership in 1999, the team has won two world championships, 62 grand prix and accumulated a total of 2,619 championship points, Mazak said.

» ***Yamazaki Mazak,***
Worcester, UK.
mazak.co.uk

Sumitomo agrees to supply Kennametal spindle

Sumitomo Electric Hardmetal has signed a licensing agreement to sell and support the KM4X spindle connection solution globally, according to Kennametal, which supplies the machining accessory.

Source: Kennametal

Germany's Haimer also recently agreed to supply the Kennametal device.

Sumitomo Electric, a leading global supplier of electric wire, optical fibers and cutting tool products, expects the deal to benefit its manufacturing customers, Kennametal reported.

The manufacturer of the spindles said they combine high clamping force and optimised interference levels for a robust connection, high stiffness, and bending load capacity for better performance in machining high-strength alloys and other materials.

» ***Kennametal,***
Fürth, Germany.
kennametal.com

» ***Sumitomo Electric,***
Princes Risborough, UK.
sumitomotool.com

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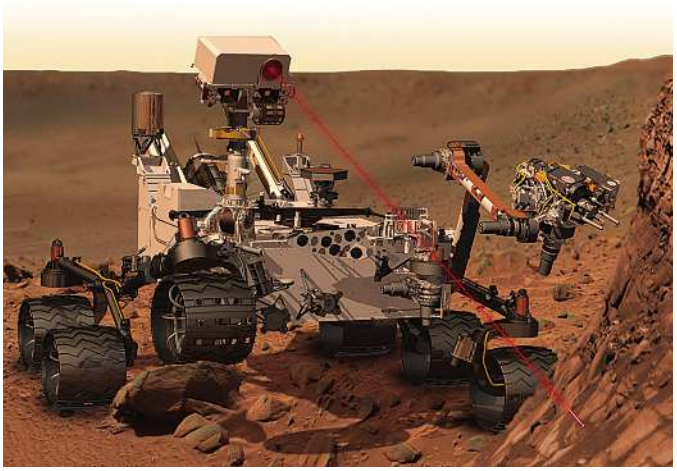
Machining contest for students and young adults offers money, travel to US space centre

Mastercam CAD/CAM software supplier CNC Software has announced that the 2014 Mastercam Innovator of the Future (IOF) competition is underway.

The company said the contest is designed to entice students and young adults with a real-world manufacturing challenge, industry judges, and a chance to win a $1,000 scholarship and a trip to the US Kennedy Space Center. "The competition provides instructors with a powerful motivational tool to get students excited about learning CAD/CAM and the manufacturing process," the company said.

This year, students are to modify and machine an optic mirror design, the company explained, and contestants have two options: they can alter the supplied part file to lower weight while maintaining structural integrity, or they can get creative with the part file and use an area of the mirror to express themselves.



Source: CNC Software

Optics play a key role in a range of applications, including the exploration of other planets on vehicles such as this Mars rover.

A team of experts at the US-based Optimax in Ontario, New York, will judge the entries. The company builds optics for breakthrough technologies in aerospace, defence and consumer electronics, CNC Software said.

Contestants receive an exclusive Mastercam IOF shirt, the company said. The winner, along with a $1,000 check, also earns a seat of Mastercam Mill Level 1 software and travel for two to Florida to visit the Kennedy Space Center with CNC Software and Optimax.

To win, the part must be programmed with a licensed copy of Mastercam software. The deadline for entries and contest paperwork is 15 May, 2014. Rules can be found at the website below.

» ***CNC Software,***
Tolland, Connecticut.
mastercamiof.com

Growth at leading 3D printer supplier to remain rooted in acquisitions, in-house developments

Euromold 2012 concluded just weeks before Stratasys and Objet finished their merger, and the top manager of the resulting firm said the combination is already showing results.

Speaking at the 3D printing giant's press conference at Euromold 2013, Stratasys CEO David Reis said the merger has progressed faster than anticipated with the completion of reseller training some 700 participants.

Stratasys had another successful acquisition, too: In August 2013, the company completed the merger with Makerbot, which was founded in 2009 and has built the largest installed base of 3D desktop printers, focusing on the so-called prosumer market, where average customers seek top-end professional equipment. "Part of our strategy is to lead the desktop market and continue growing organically and via mergers and acquisitions," Reis explained.

At the show, Jonathan Cobb, executive vice president corporate marketing, provided background for the strategy. "We are investing 9 to 10% of our revenue in R&D, and we are in a position that will allow us to do some additional acquisitions." He said expansion is two-pronged, and the company has widened its perspective: "The growth is two-fold; organic and inorganic. There is no technology or material that would be off limits to look at."

Source: VBM

Jonathan Cobb, executive vice president of corporate marketing, sees potential in the prosumer market, but jigs and fixtures are also on the rise.

While Cobb wouldn't comment on any plans in regard to expanding the business with 3D printing technology using metals, Stratasys Chairman Scott Crump confirmed in an interview with the Bloomberg news service that Stratasys had its own project for metal additive manufacturing.

» ***Stratasys,***
Rheinmünster, Germany.
stratasys.com

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Software supplier sponsors car vying for land speed mark

Source: Delcam

An artist's representation of the Bloodhound SSC, which is scheduled to challenge the land speed record in 2016.

Delcam has announced that it will become an SME sponsor for the Bloodhound SSC, a supersonic car designed to set a new world land speed record of 1000mph.

Delcam said it will support the project with its manufacturing software and expertise, and will also produce some components for the vehicle, which is scheduled to begin its attempts in South Africa in 2016.

Several Delcam customers and technical partners are said to be using the company's CAD/CAM software to manufacture parts for the jet- and rocket-powered racing car.

"Bloodhound SSC represents an extreme sporting challenge that is already creating a huge stir in the world's media," Delcam said. "The project will push engineering and science beyond the boundaries of known technology and so will have technical innovation at its heart."

» ***Delcam,***
Birmingham, UK.
delcam.com

Swiss machine tool builder GF Agie Charmilles changes name

Source: VBM

The firm's machining equipment, like this unit at Euromold 2013, willl feature a different name.

GF Agie Charmilles has announced that it has changed its name to GF Machining Solutions as of 1 January 2014. The Swiss company's businesses include machines for milling and EDM, lasers, spindles, tooling, automation and customer services.

"The new name emphasises the division's positioning as a global solutions provider," the company said. It added that the name GF Machining Solutions is easy for existing and potential customers to remember.

The company explained that along with the name change, customers will notice the gradual implementation of a new design style on the website and for sales literature.

What will not change are the terms of existing agreements with customers and the names of the division's legal entities, the company said. Its brands include Agie Charmilles, Mikron, Step-Tec and System 3R, and these badges will remain on the respective products, the supplier noted. The company explained that it is developing a new naming system expected to be introduced in the first half of this year.

"To simplify the transition for customers, the change of division e-mail addresses will be transparent, and current GF Agie Charmilles e-mail addresses will be active until December 2014," the supplier said. Telephone numbers will remain the same, it added.

» ***GF Machining Solutions,***
Losone, Switzerland.
gfms.com

British Plastics Federation shows off Mini Cooper at world's largest plastics exhibition

The British Plastics Federation said it and some key members participated in the presentation of the "Great Mini Cooper" when it reached Dusseldorf for the K 2013 Fair during its tour of 16 German states. The BPF reported that Ian Mills from Albis UK and Keith Freegard from Axion Recycling were at K, and both firms have supplied materials for use in parts on the vehicle. Justyna Elliott, senior executive of business development represented the BPF.

The vehicle tour was launched by Princesses Beatrice and Eugenie of York on 17 January 2013, the BPF noted. It explained that the trip was designed to promote Britain as a business hub and a point of attraction for global manufacture.

» ***BPF,***
London, UK.
bpf.co.uk

Source: BPF

Members of the delegation pose with the car at the K 2013 plastics fair in Dusseldorf, Germany.

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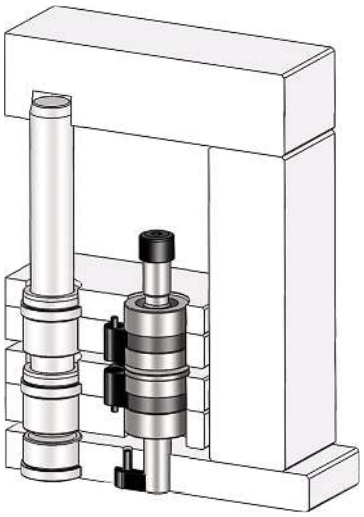
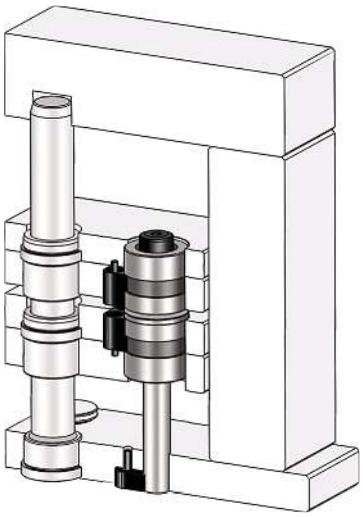
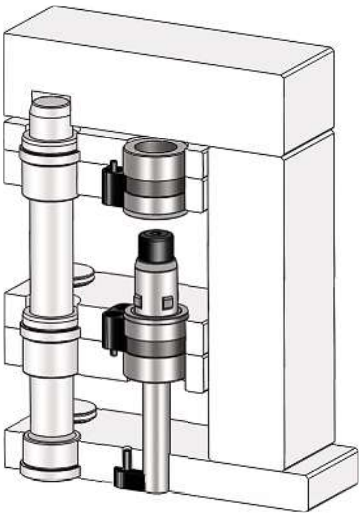


1st Stroke



Free 2nd Stroke



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Bank of England to end more than three centuries of tradition by issuing plastic notes starting in 2016

After more than 300 years of experience with paper currency, the Bank of England said it will begin issuing bills made of plastic film starting in 2016.

In a statement, the British central bank said even though the next £5 and £10 banknotes will be printed on polymer, the bills "will retain the familiar look of Bank of England banknotes, including the portrait of Her Majesty the Queen and a historical character."

The first polymer note to be put into circulation will be the £5 bill featuring Winston Churchill and will be issued in 2016, the bank said, adding that the bill will be followed around a year later by a polymer £10 note featuring Jane Austen.

Source: 2 Recycling

These bank notes, printed on cotton paper, will soon be replaced by a more durable plastic version.

A three-year research programme into materials upon which banknotes are printed found there were compelling reasons for choosing polymer over paper:

- Polymer banknotes are resistant to dirt and moisture so they stay cleaner longer than paper banknotes.
- Polymer banknotes are secure. They incorporate advanced security features, making them difficult to counterfeit, which enhances the strong security of Bank of England notes.
- Polymer banknotes are more durable. They last at least 2.5 times longer than paper banknotes, and will thus take much longer to become raggedy, improving the quality of banknotes in circulation.

In addition, polymer currency is more environmentally friendly and, because it lasts longer, is cheaper than paper banknotes over time, the bank said. Being thin and flexible, such notes fit into wallets and purses as easily as paper banknotes, the bank added.

Despite these benefits, the bank announced in September that it would print notes on polymer only if the public agreed to a change. A programme of public consultation was a vital part of the assessment of the merits of polymer notes, it said. "The response to that consultation was overwhelmingly supportive of polymer notes."

Nearly 13,000 individuals gave feedback, and 87% of respondents were in favour of polymer, the bank said.

» ***Bank of England,***
London, UK.
bankofengland.co.uk

Bachmann retires from DMG Mori Seiki executive board

Machine tool builder DMG Mori Seiki has announced that Günter Bachmann, the member of the executive board responsible for technology and production, has stepped down. Bachmann retired at the end of last year and has been replaced by Christian Thönes, the company said.

Source: DMG Mori Seiki

Bachmann started out in East Germany, where he managed a top machine tool builder.

Bachmann took over the board's technology and production portfolio in October 2006. Before that, he spent 12 years as a managing director at DMG Mori Seiki.

With a degree in mechanical engineering, Bachmann started out in the production department at what is now known as Deckel Maho Seebach in Thuringia, Germany. He eventually rose to head of production and then managing director and made the company one of the most modern machine tool firms in East Germany.

» ***DMG Mori Seiki,***
Bielefeld, Germany.
dmgmori.com

UK application centre for deep-hole machining moves house

Sandvik Coromant UK has relocated its Global Application Center for deep-hole machining (DHM) from Cirencester to its headquarters at Halesowen in the West Midlands. The move centralises the company's deep-hole machining business and will benefit customers by delivering solutions from a single location, the company said.

The centre will develop machining processes for customers in sectors such as power generation, aerospace and energy, the company explained. The site will also host machine tool manufacturers, research establishments and universities that wish to conduct cutting trials on specific materials or components.

Source: Sandvik Coromant

Managers about to cut the ribbon to mark the relocation of a site designed for cutting metal.

The centre includes a machine capable of internal profiling and chamber boring with a capacity of 600 by 2,500mm (part diameter by length), and it can drill holes from 10 to 150mm diameter–counterbored up to 300mm diameter.

» ***Sandvik Coromant Europe,***
Zaventem, Belgium.
sandvik.coromant.com

Supplier opens site for additive manufacturing development

Concept Laser said its growth and global demand for generative part manufacturing has prompted the company to open a new development centre focussed on additive manufacturing technology.

The 600m² site provides for expanded testing with dedicated development equipment for the company's Lasercusing technology for generating metal parts with lasers. For development engineers, the centre offers a platform for process development, as well as for the development of new systems, the company said.

Concept Laser said it will intensify its three-phase product development process at the new location. "The number of test reports produced by our development department has already risen by 30% from 2012," according to Florian Bechmann, the company's head of development. "The new development centre will raise our capabilities to a new level."

Source: Guido Radig

Florian Bechmann, head of development, expects the centre to help create new products.

» ***Concept Laser,*** *Lichtenfels, Germany.* ***concept-laser.de***

ETMM announces appointment of new publisher

ETMM parent Vogel Business Media has selected Hans-Jürgen Kuntze as the magazine's new publisher, a duty he assumed in November of last year.

Kuntze replaced Ken Fouhy, who has become editor-in-chief of the German engineering association newspaper *VDI Nachrichten*.

Kuntze, who serves as publisher for a number of other magazines in the group as well as on the Vogel management board, started out in journalism as a reporter, covering stories for daily newspapers and trade publications.

In 2001, he was promoted to the position of manager at a publishing house and then became managing director and CEO of Reed Business Deutschland GmbH. When that company was purchased by the European Professional Publishing Group in 2010, he worked as an independent publishing consultant and interim manager at various media companies.


Source: VBM

Hans-Jürgen Kuntze, the new publisher of ETMM and other magazines at Vogel Business Media.

» ***Vogel Business Media,*** *Würzburg, Germany.* ***vogel.com***

On the road back to growth

This year has started out like any other, full of promise at its outset. However, for the die and mould industries in a number of regions, the seasonal optimism at the beginning of 2014 may flourish throughout the entire year.

The American open road: once the physical manifestation of a zeitgeist driven by the young and restless of the world. The thought of cruising US wide open spaces may now be an idea more steeped in nostalgia than true escapism, but the long, meandering sections of American asphalt are still good for one thing: selling cars.

The world should be thankful Americans enjoy cheap petrol and rising economic prospects, because their willingness to purchase more automobiles along with other manufactured goods has been helping die and mould makers both in and outside of the world's largest economy, support which is expected to continue in 2014.

German carmakers announce record US sales in 2013

The North American giant has become the leading export market by value for passenger cars made in Europe's biggest economy. Sales of German light vehicles (passenger cars and light trucks) in the US rose by nearly 5% to a record of around 1.33 million units, an increase of a staggering 75% from 2009, according to Matthias Wissmann, president of the German automakers association VDA. Considering how much many European mould houses rely on the German car industry, this trend has been a blessing for the sector.

Leading the pack, boosting output in Germany, beyond

Speaking at the Detroit Motor Show, Wissmann said the upswing in sales over the past few years has outpaced the growth rate of the US light vehicle market as a whole, and he expects exports to increase again in 2014.

With a 16% share of all German passenger car exports, the US is the second-largest export partner for German automotive manufacturers after the UK. However, in terms of price, exports to the US are number one, with the value of 2013 exports up by almost 9% to €20 billion. BMW, for example, reported that unit sales in the US climbed 8.1% to nearly 376,000 last year.

The German engineering federation VDMA admitted that the strong US car market has helped member tool shops more than merely weather the last couple years. In fact, toolmakers in Germany have been "significantly dependent" on the sector, according to Lothar Horn, chairman of the German Precision Tools Association and CEO of a cutting tool firm. His company, Paul Horn, saw sales to the US surge 25% in 2013 in a market he called "more dynamic than China". Ongoing US strength is one reason the association is predicting record production this year (*see p.6*).

US machine tool sales suggest higher demand for tooling

If machine tools are any indication, the state of the US manufacturing industry is vibrant, according to data collected and collated by US publisher Gardner Business Media, the North American media partner of *ETMM* parent Vogel

Business Media. According to the December issue of the Gardner magazine Modern Machine Shop, information from companies around the US indicates that spending on machine tools will rise 19% to $7.4 billion this year.

This predicted jump follows a trend, according to Travis Egan, publisher of Modern Machine Shop. Speaking with *ETMM* at the Euromold show in December, Egan noted that US demand for machine tools has been rising over the past few years. According to Gardner and market estimates, spending has been above 2008 levels since 2011. Egan also cited reshoring, the return of metalworking business to the US from Asia, as yet another factor for the rising demand for machining equipment.

Looking at the sector, Egan pointed to aerospace and oil and gas as areas that have been displaying the largest spending growth for machine tools over the past few years. "Die and mould has been a very strong area," Egan added. Machine tool purchases at US job shops are forecast to jump some $700 million to nearly $2.6 billion this year, the survey said.

Dave Tilstone, president of the US National Tooling & Machining Association, explained that machine tool sales typically translate to investments by customers of association members, which in turn result in higher business levels. He noted that while the housing and automotive industries are bullish for 2014, association members have expressed less optimism. He said approximately 80% of the members polled expect 2014 business levels to be the same or experience a moderate increase.

"Perhaps this is the hangover from the challenges of 2013," Tilstone noted. "Backlogs are also lower going into 2014,

Source: Culp

Lothar Horn, chairman of Germany's Precision Tools Association, has every right to smile considering growth expectations.

which affects our member optimism." He added that some members are reporting that work is returning from Asia and cited the example of General Electric, which recalled its hot water heater business to the state of Kentucky in 2011. These returning products tend to be high-tech and coupled with customers of members focusing on cost reductions and improvements in their supply chains, Tilstone explained.

US mould production to be good, die output seen better

"In general, the die and mould members are more optimistic about 2014 than 2013 and specifically more in the die industry than in the mould industry segment," Tilstone said. Within this segment, members are purchasing stamping presses and doing more value-added work that includes sub-assemblies for their customers, he noted. At the moment, obstacles for the industry seem straight forward."Foreign competition continues to be the number two challenge of our members in this segment, with the lack of skilled labour remaining number one."

Up, down, and in the middle inside of Europe

On this side of the Atlantic, caution remains the watchword. Even with the expectations for record precision tooling output in Germany, the rest of the region offers a mixed bag due to individual difficulties within national economies.

Istma Europe, the association of national precision tool groups, met in December in Helsinki to discuss the environment. "It seems that the work load and business conditions are still positive in Europe," the association said. However, it noted that the present financial and economic situations in this region are still affecting the industry in several countries. Furthermore, a number of member countries raised concerns about business conditions for the first half of 2014. And like their counterparts in the US, European shops are having trouble finding the right people to fill vacancies. "The lack of qualified human resources in the industry was also pointed out by the majority of the members," Istma Europe said.

The last set of data Istma Europe released showed that one-third of the countries polled hinted at a possible upturn in the last half of 2013. Mould shops

Faster, faster, faster: car industry resurgence has been accelerating tool and die growth around the world.

Source: alma_sacra - Fotolia.com

Source: NTMA

Dave Tilstone, president of the NTMA, said US die makers are more optimistic about 2014 than their mould making counterparts.

in nine European countries rated business conditions in the first half of last year as fair to good and said they expected more of the same for the final six months of 2013, according to the survey. Istma Europe data for the period covered Estonia, Finland, Germany, Hungary, Italy, Portugal, Sweden, Switzerland and Slovenia.

Macroeconomic data has underlined optimism. Indexes of Eurozone manufacturing activity hit their highest levels in more than 30 months in January, according to pollster Markit Economics. An extended period of strong industrial production has some predicting that the Eurozone recession could end this year.

Life on the islands has been looking up thanks to cars...

Expectations in the UK for 2014 are high, according to Julia Moore, president of the GTMA, the British precision tooling association. After a "very good" 2013, toolmakers feel confident about the current year, she said.

Unlike the die and mould industries in many other countries, the UK sector exports very little and is thus reliant on the domestic market. So despite the dependence on homegrown demand, much of the UK's recent success–just like in Germany and the US–has come from the road, or, more specifically, the vehicles that drive on it. Moore said the past growth and current optimism has been "mainly driven by the automotive industry, which is very buoyant".

...but business would be better with just one more thing

Surging demand in the car business, along with high expectations in aerospace and the energy sector–a boon for composite tooling–has been further supporting optimism. In fact, manufacturing has also been shaking off some of its patina and burnishing up nicely, Moore noted, pointing out that both the British government and media have been increasingly discussing the sector. The additional public scrutiny, combined with the improving demand for tools, has UK shops chuffed. "This is a very nice position for toolmakers to be in," Moore said.

As in other countries, Moore noted that demand for machine tools also tends to correlate to better prospects in the precision tooling sector, an effect she has been witnessing in the UK. Even if shops have enough tooling to expand production, one asset is missing: Qualified personnel, a lack of which is holding back shops from taking on additional business. The shortage is so severe that it could hamper growth for the industry this year, Moore said, explaining that some tool building may be exported.

Hosts of the World Cup, the Olympics, and tooling growth

In South America, Brazil is firing on all cylinders. Indications that automakers Fiat, Volkswagen and General Motors will fill their die and mould demand locally in 2014 provided relief for tool shops losing orders to Asian competitors, ABINFER, the Brazilian die & mould industry association, said. Association Vice-President Paulo Braga noted that Inovar-Auto, a federal government program, will boost sales in the sector.

Braga explained that since it was announced in October 2012, Inovar-Auto has attracted R$8.3 billion (€2.6 billion) in investments into the country, but the impact on the sector so far has been small. Despite the lack of support from the programme, other factors helped the sector survive and remain stable.

However, 2104 will boom, Braga said. He predicted the growth rate this year could be as high as 50% compared to 2013. ***ETMM***

German precision tools group faces 'exciting challenges' daily

Markus Heseding, managing director of Germany's Precision Tools Association, has had six months to learn the ropes. So far, he's been impressed with the industry, which is expected to set a record for production this year.

ETMM: *After six months in the job, what do you think so far?*
Markus Heseding: The precision tool industry is a great sector. Last year I visited a number of well-prepared companies. On one hand, what especially impressed me was how innovative this sector really is. On the other, I saw how much value is placed on well-founded training and promotion of specialised workers.

ETMM: *How has your background helped you prepare for your current position?*
Heseding: My mechanical engineering studies introduced me to a wide spectrum of subjects in the sector. That's why I was already familiar with production, forming and plastics technologies before I became managing director of the VDMA's Precision Tools Association. In the more than 20 years of my work for the VDMA–seven in the area of fluid pumps and 13 in industrial motors–I learned about the entire range of association work. I think this is a strong foundation.

ETMM: *What are you still learning about the industry?*
Heseding: The precision tooling industry, with its various product areas, is a very heterogeneous sector. What continues to surprise me is how different the themes are within the individual product areas. We cover this with our wide range of services in the VDMA Precision Tools Association, and we can access the expertise of the interdisciplinary departments of the VDMA. Moreover, the individual demands our members place on the VDMA are very different. Thus we face new questions almost every day. They range from enquiries about confidentiality agreements to the applicability of machine regulations for tooling products. Every day brings with it exciting challenges!

ETMM: *What areas are the most exciting at the moment?*
Heseding: One very interesting area, for example, is the recruitment of young talent. Despite declining birth rates, toolmaking, like many areas within the precision tooling industry, has to attract

Serving as a member of the jury for Germany's Toolmaker of the Year Award is only one way for Heseding and the Precision Tools Association at the VDMA to support the industry.

Source: Culp

enough highly motivated and well-trained people in the future to remain competitive. The VDMA has therefore focused on the recruitment of young talent and in 2014 will hand member companies a tool to help them find personnel, the recruiting platform talentmaschine.de. In addition, the influence additive manufacturing methods will have on die and mould making–for example, as a supplement to the production of conformal cooling channels–is exciting. That's why the VDMA tooling division will discuss this subject as part of its information day for die and mould making in May.

ETMM: *What are currently the main pressures on the tool and die industry? How has this changed, and how could it change?*
Heseding: Unfortunately, in die and moulds the payment practices of customers continued to worsen last year. This is a serious danger for the predominately family-run small- and medium-sized companies with very large projects in relationship to their total sales. Customers, and especially their purchasing departments, have to be clear that tool-making as a productivity supplier is of more use to their company when healthy and able to finance and manage large contracts during the recovery. Furthermore, even today the bare purchase price is no indication of whether procuring a tool is worth it. Crucial is the cost per up-to-spec part over the entire series. If this knowledge establishes itself once again, both sides profit.

Source: Culp

Heseding listens to a question at the association's annual press conference in Frankfurt. *(See p.6)*

ETMM: *Which changes in the markets provide the most hope for German tool and die shops?*
Heseding: All industries that work with scare and increasingly expensive raw materials face the major challenge of efficiently and frugally dealing with such raw materials. At the same time, the worldwide competitive pressure is rising for the customers of toolmakers. Because of this, state-of-the-art quality tooling made in Germany is in high demand. It provides higher productivity and faster cycle times, thus helping part producers lower costs and avoid waste.

» ***German Precision Tools Association,*** *Frankfurt/Main, Germany.* ***vdma.org***

FFG Europe eyes German ops, bigger share of mould market

The Italian machine tool market has seen stark declines in recent years, but that hasn't stopped one company there from expanding. Based in Milan, FFG Europe first bought a number of Italian producers and then pushed into Germany, where it's still on the hunt.

FFG Europe shook things up last year with the announcement that it would purchase a number of German machine tool builders. Yvonne Klöpping from our parent company Vogel Business Media travelled to Milan to talk with Chairman Luigi Maniglio, who has since moved to Germany to oversee the changes. He provided more details about the deal and the company's plans for the tool and die sector.

ETMM: *What is going to happen to ongoing MAG IE projects?*
Luigi Maniglio: Of course we will continue any engagement and any ongoing project. And then we will evaluate – together with the German colleagues–other projects that we want to add to the board, if needed. Generally speaking [...] there are some R&D projects that have been presented at EMO. Those are going to go on. Then, of course, there are going to be many more projects that are going to be more organisational type of projects than real technical projects, because we need to create a new company. It is a division and because it (MAG IE) was a division, it was not a full company. Now it's going to be a full and complete company, meaning that we are going to have a central staff to have all the typical components of the organisational structure, I mean of any independent, full-fledged company. So these are important projects, and then there is the second type of projects, the synergy-seeking projects with the remaining part of the FFG Group.

ETMM: *Will the current facilities/headquarters in Germany continue to exist?*
Maniglio: We have six locations that are inside the parameter of our deal. There are three industrial locations–Mosbach, Chemnitz and Taunusstein–and they are going to remain. There are three more service locations: one in Witten, one in

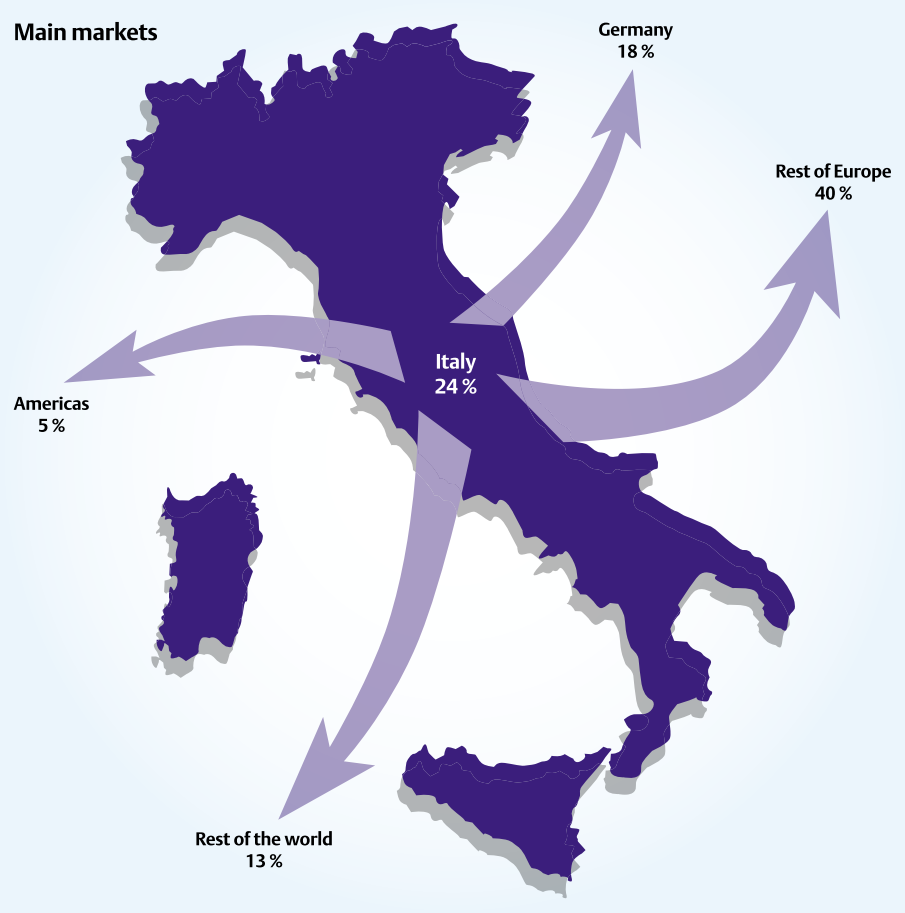
Source: Klöpping

Chairman Luigi Maniglio, here at the FFG Europe plant near Milan, said the company is still looking for possible acquisitions.

Offenburg and one in Göppingen. The ones in Offenburg and Witten are going to remain exactly as they are. The one in Göppingen is going to be put together with our future headquarters. We are currently looking for a location around Göppingen. So our main offices will be in the area of Göppingen/Stuttgart. We have a couple of options that we are evaluating. So there is going to be the service unit that was in Göppingen before and a part of the sales team, which traditionally was located in Göppingen for the horizontal turning machines. So it's going to be 50 to 55 people.

ETMM: *Are you planning to relocate some of the MAG IE products or product lines, for example, to Asia or Italy?*
Maniglio: In principle, we don't relocate production. We didn't even do that here and we've already been working with Taiwan and China for two years and we didn't relocate one single machine. This is not our philosophy. And therefore all production–let's call it the FFG Werke, because MAG IE in that sense for me doesn't exist anymore–so the production of FFG Werke GmbH is going to remain where it is. We are going to develop new product lines and this can be done jointly together with Taiwan or Italy, for instance, but we have no intention of moving the products around from where they are today.

ETMM: *What is the plan for the MAG IE brands? (Hüller Hille, Hessapp, Modul, VDF Boehringer, Witzig & Frank)*
Maniglio: FFG retains all its brands. And it actually invests in its brands and the group communicates technically and commercially through its brands. And these brands are of course very important and very famous brands, with a lot of awareness among clients and customers. We'll treat them exactly like the others. We will continue to have these brands as the main communication to our markets. FFG is only a company brand, it's not a product brand. An FFG milling or turning machine doesn't exist. It would be a Jobs milling machine, a Sachman milling machine, so why not a Hüller Hille milling machine. [...] You will never see an FFG milling machine. So we're leaving our companies with the original brands with which people identify themselves, and each brand is associated with a well-defined and clearly defined category of machines.



FFG Europe sells less than one-quarter of its machine tools and other products in its home market of Italy.

ETMM: *How is MAG IE going to be integrated into FFG Europe?*
Maniglio: FFG Europe is a company. FFG Werke also is a full-fledged, complete, independent company. Synergies are sought on a voluntary basis, meaning if there is an opportunity to do something together, at a product plant or a customer location, for instance, everybody will be animated to do it, and this is where the group comes in. So my effort, the effort of the top management of the entire group, is to create the best possible set-up in terms of cross-country teams and things like that in order to best achieve these synergies. Nobody will be telling FFG Werke what to do. This is not the type of integration that's going on because that's not the philosophy of the Fair Friend Group.

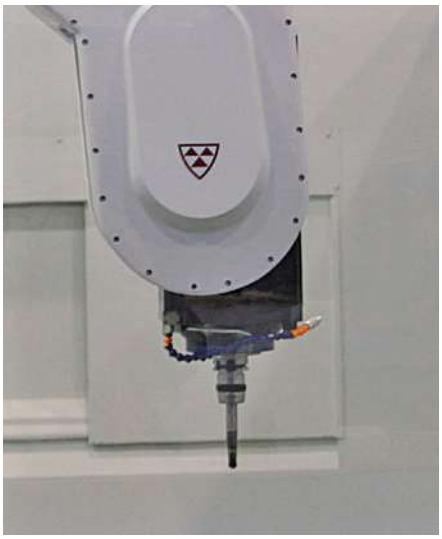
ETMM: *Where will product development for the MAG IE brands take place in the future?*
Maniglio: We have a team of R&D engineers in the various plants of FFG Werke. We will strengthen this team. We are actually now thinking of having central R&D in Göppingen, and they are going to go on with their existing approach of new product development. Of course this will be "fertilised" by the experiences of the other parts of the group, be it from Asia or from Italy, but again, nobody is going to do the R&D of somebody else. Everybody has to do their own R&D. There will be chances of course to get the maximum out of what we have. We have the unique chance of having two different, let's say, design philosophies within the group, the Asian philosophy and the European philosophy. The real challenge is to try and bring together the new products and the two philosophies to get the best out of it for the client.

ETMM: *What goals (turnover, market development, etc.) does FFG want to achieve through this acquisition?*
Maniglio: I'm always a little bit reluctant to talk about quantitative goals. To be honest, we've only done due diligence so far and now I've started working with the German team. But any reasonable logical goal needs to be processed with the team together so we can set realistic goals for

the future. If I were to provide a number today, it would be more of a desire than a realistic goal. I prefer to speak about goals when we have the possibility.

ETMM: *How did FFG Europe perform last year?*
Maniglio: The turnover [was] 10% higher, just like in previous years. So we expect a turnover of approximately €80 million. It [was] still a difficult year, especially because of the financial situation. We would have many more projects and much more turnover if our customers were able to get their projects financed easier. So the problem is really financing. Especially in Europe. But there is a good atmosphere around in our industry, especially in the milling machine sector; we had some big projects in aeronautics, big projects in automotive design and prototyping. The growth and the relaunch of the brands Sigma and Rambaudi and Sachman continued, which is something that has been going on in the last few years. So from the market point of view, I have to say that we are relatively satisfied given the difficulties that we have around.

ETMM: *How do FFG's growth goals look like in the medium term?*
Maniglio: I think that we have a steady growth in front of us. Because our growth is not just random or it happens because we are lacking. I think that it happens because we continue to systematically create a condition to grow in new geographical markets and new sectors. That means we start to create synergies within the group. For example, if FFG Werke has a very strong position in a large engineering group in Germany or in Russia, and FFG Europe is not present in that particular group, we have the chance to also sell FFG Europe machines in that group and vice versa. So [...] if you have a systematic action of this type, turnover increases. That's why I'm confident that there will be a stable increase. Then of course we have all experienced what happened in 2009 to the whole industry, so things like that I cannot predict. But if nothing dramatic happens, we should continue to grow.



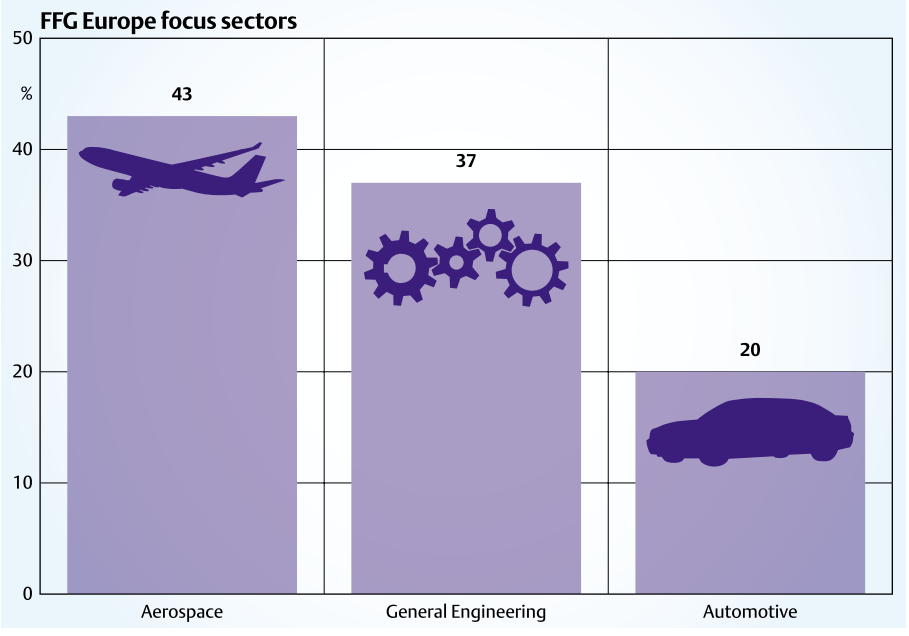
Source: Klöpping

Could this logo, which symbolises the Rambaudi machine tool company, soon represent the leading brand in mould making?

ETMM: *Are there any further acquisitions in the pipeline?*
Maniglio: Yes, we are looking at a couple of other things in Germany right now, but nothing that is worth mentioning at this point because we have no real information to communicate for the moment, but we are active at this point. We are always interested in the Italian market, but apparently the Italian market is more difficult to develop. Companies are mainly privately owned by the people who still work there, and some of them are doing very well and they have no intention of selling their company. Very few. And then there are those companies that will only knock on your door when they are on the verge of bankruptcy, even if they would need to be in a larger group to experience the same type of synergies that we have. And then it's another game. We do have a few things open in Italy, but they are really lagging.

ETMM: *What are your plans in the tool and mould making sector?*
Maniglio: The mould and die sector is one of the areas where we have quite some experience in terms of milling machines [with] Rambaudi, first of all, and also Jobs. That said, we constantly monitor the market. As you know, the market in the past few years has gone through a deep reduction in Europe and an increase in Asia. But that's one of our key markets. When we talk about general engineering, I would say that mould and die is probably the biggest individual sub-segment to which we address our machines. In tool manufacturing, we actually do have a couple of prospects of taking over companies that are active in that area (machinery for tool manufacturing). We currently don't have any machines for toolmaking. We've got takeover prospects in machine tool manufacturing.

ETMM: *Does your company have any specific plans for any of your units and the die and mould industry?*
Maniglio: Part of our strategy is to bring Rambaudi up to be the world leader in the mould market.



Source: FFG Europe

The supplier relies on three main sectors, and mould making plays a key role for a number of the machine tool divisions.

» ***FFG Europe,***
Milan, Italy.
ffgeurope.com

EUROPEAN TOOL & MOULD MAKING

ETMM

Euromold

The trade magazine for tool, mould & die making

Show Report: Euromold 2013 Wrap-up

News and products from the world's biggest exhibition for tool and mould making

Frankfurt, Germany's commercial centre and the home of Euromold.

Source: VBM / eyetronic - Fotolia.com

Two decades on, more success for top tool and die show

December marked the 20th Euromold trade fair, a show that many observers say has become the undisputed world champion of tool and die exhibitions as well as a major magnet for additive manufacturing.

Euromold 2013 organiser Demat said this year's show was something to be proud of: More exhibitors and visitors filled the halls of the Frankfurt, Germany, fairgrounds than in 2012, and the show featured at least one world premiere. The attendance number rose from around 56,000 to 58,600, Demat said. That increase, and the additional companies showing their wares, came in a year which featured two other major international trade fairs in Germany: the EMO metalworking show in September and the K plastics exhibition in October.

A tried and true concept is the draw, organisers explain

Demat Managing Director Eberhard Döring expressed his pleasure with the results. "Euromold definitely rose to the occasion on its 20-year anniversary. The trade fair once again proved this year that the concept – unique the world over – of presenting the entire product development process chain is met with keen interest among numerous industry experts and has become irreplaceable for all segments of industry in this form."

Partner country, a tool and die giant, shows appreciation

Visitors and exhibitors seemed to agree that the show was a success. A number of those who spoke with *ETMM* admitted they were surprised by the turnout. Concerns were that the other two major shows of 2013 would tarnish some of Euromold's attractiveness.

At the start of the show, Cristiano Cottafavi, the Italian consul general in Frankfurt, congratulated the organisers for two decades of success. "It is a great honour to be able to participate in this opening ceremony," he said. "I am very happy that the organisers have chosen Italy as this year's partner country."

Italy, Europe's second largest tool and mould-making country, has always had a major presence at Euromold. At the show, the 56 companies in the Italian contingent were the second largest group of foreign exhibitors after China.

Revisiting the best of the best from the past 15 years

One exhibit tracked the trajectory of the Euromold Award's 15-year history. The event's leadership in a number of sectors has been attracting cutting-edge technology from the beginning, so show organiser Demat soon decided it was time to crown the best of the best.

The Euromold Award celebrated its 15th anniversary this year, and the organisers gave visitors a chance to see some of the technologies that have made

the grade. A number of the developments were on display, and they represented a long line of major advances in a number of fields in the manufacturing industry. In 2007, Stratasys took gold for its Polyjet 3D printing technology, said to be the first type of resin additive manufacturing to offer builds with multiple materials. In tool holding, Schunk garnered the award in silver in 1998 for its innovative Tribos polygonal clamping system. Machine tool builder GF Agie Charmille – now GF Machining Solutions (*see Industry News)*– won bronze in 2009 for a laser ablation unit for texturing surfaces.

Source: Königsreuther

Demat MD Diana Schnabel (l.) was honoured for her contributions to Euromold. She is joined by (l.-r.) Italian Consul General Cristiano Cottafavi, Schott Systeme MD Hans Joachim Schott, and Demat MD Eberhard Döring.

Competition to begin again at the next exhibition

After taking a breather this year to look back, Demat said it will begin handing out the Euromold Award in 2014. Those wishing to enter products can find out more at www.euromold.com.

German software designer Schott Systeme celebrated its 30th anniversary last year, and attended the show for the 20th consecutive year. The company took time out to congratulate the Demat. "Through consequent objectives and hard work, Euromold has grown to be the leading international exhibition for the tool and die making industries."

The supplier said it has maintained a close relationship with show organisers. Company Managing Director Hans Joachim Schott has been a key member of the Euromold organising committee and involved in the show's awards.

First look at prototype additive-subtractive machine

DMG Mori presented one of the biggest draws at the show: a machine concept that offers both 5-axis milling and metal deposition processes. The company's Sauer Lasertec unit worked with DMG Mori's US operations to integrate laser metal deposition technology into the hybrid machine concept, which is based on a DMU 65 Monoblock machine tool.

Market-ready technology will reportedly be demonstrated at a pair of trade exhibitions in September 2014: IMTS in the US and AMB in Germany, the company said. The series start-up is planned at the same time. The concept study displayed at Euromold featured a Lasertec 65 Additive Manufacturing machine fitted with a 2kW diode laser for laser metal deposition.

Source: VBM

DMG Mori's new hybrid unit for 5-axis milling and metal additive manufacturing drew in the crowds.

Combination of technologies for bigger parts, less waste

Gregory Hyatt, CTO of DMG Mori Advanced Solutions, said: "By combining additive manufacturing with milling or turning in one machine, additive technologies are no longer limited to small workpieces. Our focus is to create a solution for more typical and larger workpieces found in industries such as aerospace, mould and die, and energy, and for faster, more productive and economical justifiable deposition rates." (*Read our complete interview with Hyatt next month.*)

The powder nozzle process allows for the manufacture of large parts, and the build rate of up to 3.5kg/h makes this process as much as 20 times faster than laser sintering in a powder bed, according to the supplier. It explained that the combination of additive steps with milling makes completely new applications possible. For example, the part can be built in sections, with milling operations of important areas occurring before further material additions block these sections from the cutting tool. Not only can the hybrid machine take advantage of the two technologies, it can also cut costs by reducing the waste rate from as high as 95% and more to around 5%, the company added.

» ***Euromold,***
Frankfurt/Main, Germany.
euromold.com

CAM software improvements on the show floor; faster finishing upgrade to be unveiled this year

Solidcam said its latest version includes major enhancements in its I-Machining 3D, HSM and simultaneous 5-axis modules tailored to moulds and inserts, and the company told *ETMM* that the technology could be added to finishing operations sometime this year.

I-Machining 3D automatically produces a complete, ready-to-run CNC program with optimal cutting conditions to rough, rest-rough and semi-finish a complete 3D part, the company said. The software provides true scallop on all slopes, all in a single operation.

Tool paths are automatically adjusted to avoid collisions, the supplier explained, adding that optimal cutting conditions are achieved with its expert knowledge-based Technology Wizard. The company used the technology to make parts on the Euromold show floor.

Source: VBM

The software is said to offer top 3D machining results, regularly providing 70% savings in machining time and up to 90% savings versus other systems.

At the Solidcam booth, CEO Emil Somekh (photo) said his company plans to introduce I-Machining technology for finishing this year, and the product may be available as early as mid-year. He said the savings on finishing time could be as high as 20-30%.

The company claimed its HSM module for high-speed machining has the best 3D finish toolpath for any mould or insert part. The result of HSM is an efficient and smooth toolpath, translating to the best surface quality, Solidcam said. HSM avoids sharp angles in the tool path to keep the tool in contact with parts as much as possible and optimises non-machining moves to reduce air cutting and generate smooth and tangential lead in/out.

» ***Solidcam,***
Or Yehuda, Israel.
solidcam.com

Nylon grade toughens up 3D printed material package

Stratasys introduced its nylon grade for fused deposition modelling (FDM), a resin that the supplier claimed creates tougher, more flexible unfilled nylon parts than any other additive manufacturing technology. The company said its FDM Nylon 12 offers up to five times greater resistance to breaking as well as better impact strength versus the strongest FDM materials.


Photo: Stratasys

The material's elongation-at-break exceeds other 3D printed nylon 12 materials by up to 100%, the company reported.

The resin is expected to create new opportunities for manufacturers in aerospace, automotive, home appliance and consumer electronics to more easily create durable parts, Stratasys noted.

Examples include end-use parts such as tools, manufacturing aids, and jigs and fixtures, the supplier added.

» ***Stratasys,***
Rheinmünster, Germany.
stratasys.com

Graphite meets copper to boost performance

Mersen, which develops graphite for specialised use in electrical and electronic applications, presented new developments at Euromold that include Ellor DS4C.

Source: Mersen

The company said it combines the advantages of an ultra-fine grain graphite with a copper impregnation. This is claimed to provide higher thermal conductivity and mechanical strength and thus support finer electrode design and lower wear. Very good machinability allows for detailed finishing electrodes, Mersen noted.

Mersen's EDM graphite ranges from universal medium-size grades to ultra-fine grain and covers roughing and high-end surface finishing. Good EDM results require not only the proper material selection, but also proper machine settings, which are mainly selected from experience and fine-tuned as the work progresses. Mersen said its technical representatives can suggest the best grade for each application and will be able to assist with understanding the effects of different setting parameters.

» ***Mersen,***
Gennevilliers, France.
mersen.com

Mould insert leak pressure unit reduces danger, costs

Source: Strack-Norma

Checking the leak tightness of temperature control circuits has practically become a daily affair for toolmakers. Up to now, the level of technology only allowed checks when the tool is installed. This problem is said to have led Strack-Norma to develop its Z7755 mould insert leak pressure unit. If the tempering medium leaks, the tool has to be dismounted from the machine, the leak has to be found. and the tool needs cleaning before remounting. This costs money and time. The company explained that its unit can significantly increase the reliability of a tool's leak tightness, and lower costs versus the traditional test procedure some 90% by testing tools before installation. The unit comes with a test body and three adapter sizes, which are delivered in pairs. These can be used for the common sizes M5/M6, M8/M10 and M12. Components are stored in a handy suitcase, the company said. A test pump, a connecting coupling and a dummy plug can be ordered optionally.

» ***Strack-Norma,***
Lüdenscheid, Germany.
strack.de

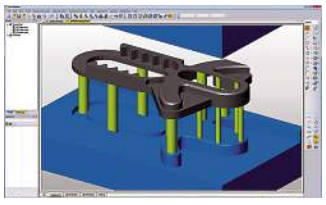
CAM upgrades for operations; 3D modeller now available

Vero Software's Surfcam is described as a powerful 3D CAM solution, which the company claims "achieves the balance between feature sets and ease of use".

Features in Surfcam 2014 R1, the latest version, include Adaptive Roughing technology and it has also been updated with various enhancements that are said to be designed to deliver improved ease of use and control in masking, chaining, operations management and layering. Updated and additional CAD translators, post processors and Edit NC are also included in this release at no additional cost, the company said.

Part Modeler 2014, a 3D modelling solution, has been specifically designed for quick and simple construction and modification of solid models with fully associative drafting capabilities, Surfcam explained.

This software has been packaged with native CAD translators such as CATIA, NX and PTC. The company took the opportunity at Euromold 2013 to offer special introductory pricing.



Source: Surfcam

» ***Surfcam,***
Thousand Oaks, USA.
surfcam.com

CNC trimmer targets plastics, composite materials

Source: Geiss

The features of the 2000 x 1000 x 560mm FZ trimming centre include PCU50 with Windows7 and HMI Operate, a revised drive concept in axis B and C and an updated drive concept for the motorised front doors, according to manufacturer Geiss.

The Euromold exhibitor explained that the unit employs the IMT Classic trimming spindle 126 with a 12-tool change station. In addition, the unit also has linear drives for the X and Y axes, Geiss said.

» ***Geiss AG,***
Sesslach, Germany.
geiss-ttt.com

Mobile, compact laser offers welding with versatility

Source: Joke

To address smaller repairs and joining processes, Joke has introduced the D-Open welding device, shown for the first time at the Euromold 2013 exhibition. Joke said the compact, mobile plug & play welding device is easy-to-operate and offers a choice of pulse energy.

The mobile workstation is said to be versatile and can be optionally used with a closed housing.

The compact laser welding device functions on a workbench or as a mobile unit on a castor-mounted table system, the company said. The user has a choice of 60 or 100-joule pulse energy, according to the supplier. Additionally, the welding point size can be configured by motorised adjustment between 2 and 0.2mm, the company explained.

The exhibitor added that a high-quality Leica stereo microscope with UV and laser protection and double work-chamber LED lighting ensure that even the finest details are visible when working.

» ***Joke Technology,***
Bergisch Gladbach, Germany.
joke.de

Machine tool builder enters world of linear drives

Source: Exeron

German company Exeron has introduced its HSC MP7 high-speed milling machine, which is claimed to set new standards for linear drives.

The company had previously offered only ball screw drives and reported that a great deal of research and development went into its new product, which complements its existing HSC line. It reported that development efforts have minimised set-up times, making it suitable to use the unit "from the first day". Exeron said it has combined the established linear drive characteristics of low-maintenance and high-productivity with other developments to provide a complete, high-precision package.

The MP7 is available with or without a pallet changer in 3- or 5-axis versions. Spindle speed is quoted at around 42,000 rpm, with S1/S6 -40% performance at 10 or 13kW. While the unit has the capacity for fast traverses of up to 100m/min, they are limited to 40m/min for safety reasons, the company cautioned.

The machine management system is said to include a Heidenhain I-TNC 530, a new-generation CNC control unit, which, for example, completely integrates position- and weight-dependant control parameters, the supplier explained.

The MP7 also has a tuned cooling system with nine circuits. The stiff axis bending boards are highly damped and have small mass; their tubular part construction utilises extensive modal- and FEM-analysis, Exeron noted.

High-resolution position encoders and low-friction, very stiff linear slides are combined with a virtually friction-free counterbalance adjustment, the supplier explained. Furthermore, the MP7 has a large Z-travel range, along with optimal automation capabilities. A P-version incorporates an integrated pallet changer, according to the supplier.

The Heidenhain control, optimised motion control, short block processing times, control system strategies and an integrated digital drive control inverter deliver high processing speeds and optimal precision, the company added.

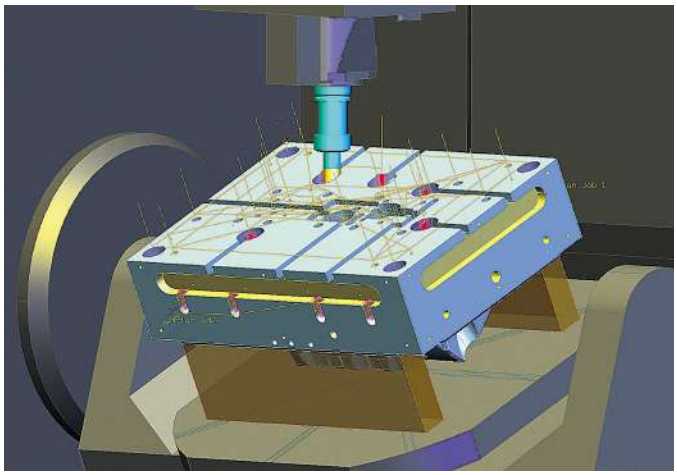
» ***Exeron,***
Oberndorf am Neckar, Germany.
exeron.de

CAD/CAM software improves interaction between programs for more intelligent production

To enable an optimum link between programming and production, Tebis said it has developed CAD/CAM systems that respond to the daily challenges of the manufacturing process.

Its CAD/CAM system's integrated simulation uses a mature virtual machine technology, which is said to enable reality–conformant visualisation of toolpaths with complete collision control of all machine components, including travel-limit switch control.

Users can adjust the set-up position, the tilt direction of the head and the machining sequence at a later time, and also change and edit tools based on the real-time situation and the degree of use on the shop floor.



Source: Tebis

Plants that can also combine several components in one set-up and enable multi-machine operation have a distinct advantage, Tebis explained. The supplier added that in a multiple set-up, different components originating in individual component programming are combined in a single set-up. This separates NC programming from set-up planning.

According to the company, NC programming can now be performed temporally and organisationally separate and independent from manufacturing. Whether grid plates, tombstones, or multi-changers are used, the operator sorts the toolpaths according to the current requirements–for fast machining by the tools, and for higher accuracy for the parts, Tebis explained. The set-ups are planned in the Tebis software environment and are integrated in the overall process. Prior to production startup, the virtual machine can also check the machining.

For multi-machine operation, Tebis CAD/CAM systems are said to offer standardised and efficient machining strategies.

» ***Tebis,***
Planegg, Germany.
tebis.com

Steel grade designed for press-hardening tools relies on high thermal conductivity

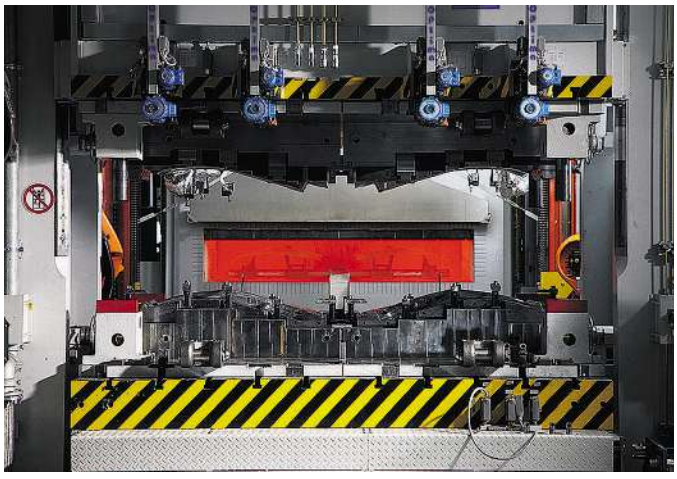
To sate the growing demand from the automotive sector for hot-work steels featuring high thermal conductivity, Deutsche Edelstahlwerke said it has developed Thermodur 2383 Supercool, a grade ideal for tools used in press hardening.

Klaus-Dieter Fuchs, the company's head of hot-work tool steel sales, said the relatively new press hardening process allows the automotive industry to fulfil the strict, and sometimes divergent, requirements of future drivers.

He explained that to let the automotive industry leverage the benefits of press hardening over the long term and further reduce cycle times, moulding inserts must be made of steel that also increases quenching speed.

This grade exhibits a hardness of 45 HRC and very high thermal conductivity of 44 W/(m.K) at 100C. A moulding insert made of the material is therefore able to conduct heat from a heated sheet in a controlled manner in a very short time, the company said.

Despite the minimal amount of chromium, in the analysis the material demonstrates high strength and is just as through-hardenable as classic hot-work steels, the company said. The metal is also more resilient at consistently high temperatures with no loss of hardness.



Source: Deutsche Edelstahlwerke

This is said to make tools more stable and wear-resistant later. The crucial factor is the balance of molybdenum, vanadium and carbon as carbide-forming elements. The company said depending on tool size, a press capacity of between 4,000 and 20,000kN is exerted on the sheet.

Here, reduced wear is important because with minimal post-processing effort, up to a million sheets can be machined with just one tool, the company added.

» ***Deutsche Edelstahlwerke,***
Witte, Germany.
dew-stahl.com

Bike frame leaps to new heights with 3D printed titanium

Source: VBM

Designers are continually thinking up new and lighter designs for their bike frames, but the MX6 by Empire Cycles is using additive manufacturing technology to take two-wheel design to new heights. The frame shown at Renishaw's Euromold 2013 stand is made of titanium, but it was built layer by layer in an AM250 laser melting machine.

Why would someone consider making a 3D printed bike frame out of titanium? Well, the design is light, it is very robust and can be easily optimised. According to Renishaw, the frame built from fine titanium powders that are fully melted in a tightly controlled atmosphere layer by layer took around 2 kg out of the original weight.

Robin Weston, the marketing manager at the additive manufacturing products division at Renishaw *(photo, top)*, explained that Empire's Chris Williams approached Renishaw in the UK with the idea after experimenting with a pre-production 3D plastic model of his MX6.

"Chris is already a little bit of a pioneer, and he recognised that additive manufacturing could be useful in bike design. I suppose his goal was really to make a much lighter bike and get noticed as a small company in a competitive landscape."

Chris started the Empire brand around six years ago with the creation of the very unique AP1 downhill bike, which was his first head turner, being the first cast framed bike out there.

According to Weston, the plan is to run this project for at least a year in partnership with Empire Cycles to develop the frame with the goal to have a metal bike with the benefits of carbon fibre.

As luck would have it, that co-operation also plays into Renishaw's strategy, Weston explained. The company's goal is to form partnerships with its range of customers, to cut deals that sell them a solution, not a product.

"For our customers to make a success of this technology, they need to have ownership of the process knowledge and we share that with them and help them," Weston said. "Our mission is to give our customers the knowledge, not a black box solution."

» ***Renishaw GmbH,***
Wotton-under-Edge, UK.
renishaw.com

Robust plug connectors for heating systems

Türk + Hillinger has expanded its range of high-temperature plug connectors for electrical heating elements and temperature sensors. For tubular heating elements, the company now offers a small and robust plug connector, with sizes from 5, 6.5, 8 to 8.5mm in diameter. According to the supplier, the plug connector provides high temperature consistency and is ideal for hot runner heating systems. The compact connectors also feature a high current carrying capacity and good stress-relief properties, the company added. At Euromold 2013, Türk + Hillinger also introduced flexible tubular cartridge heaters and nozzle heaters with strengthened ends, axial or tangential gripping mechanisms.

» ***Türk + Hillinger ,***
Tuttlingen, Germany.
tuerk-hillinger.de

3D printers said to provide top resolution, high throughput

Euromold exhibitor and 3D printer supplier Prodways has claimed that its products provide unparalleled perfection of parts produced and distinctly improve production profitability for a wide range of industrial and biomedical applications.

The company said its units offer world record resolution and precision, even on large parts. In addition, the machines supply highly detailed parts with a throughput of up to 10 times the current standard and can make hundreds of tiny parts with resolutions below 35µm in a few hours.

Source: Matheiu Walter/Prodways

Resolution is quoted at more than half a billion pixels per layer, and the units are said to offer high precision in all three dimensions, which is essential in many applications such as dental, the company explained.

The technology also permits the use and development of premium innovative composite and hybrid materials with advantageous mechanical, physical and aesthetic properties, and biocompatible materials for a wide variety of medical applications, the supplier said.

The technology's improved profitability comes from high speeds and reductions in production costs, and the company noted that superior surface quality of parts requires minimum finishing, and claimed minimum operating costs due to lack of expensive wear and tear on parts. LED light source replacement is cheaper than lasers used by competitors, Prodways added.

» ***Prodways,***
Paris, France.
prodways.com

Tailoring hot runner technology to trendy coffee consumption

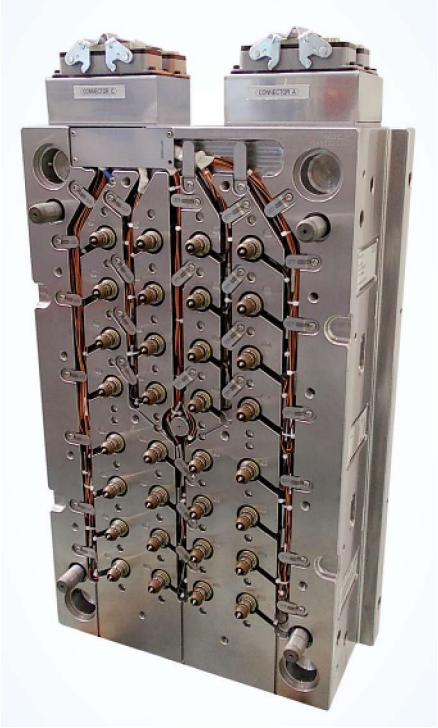
Talk about a booming market: In Germany alone last year, some 2 billion capsules were used in coffee makers, according to media reports. One hot runner supplier is helping toolmakers enter this robust market.

Over the past few years, the global market for coffee capsules has exhibited huge growth. Making products for this application requires the latest technological developments and special attention to the design of the capsule because it will be seen by the end users.

In order to take advantage of growth in this area, HRS Multitech said it started scouting the field and began working with some well-known mould makers.

Various technologies converge for production excellence

The hot runner supplier said its systems for these kinds of applications are designed to resist high injection pressures and drastically reduce cycle times. "For excellent finish and short cycle times, we employ conformal cooling circuits made with SLM technology, designed and produced by HRS Flow in-house following careful fluid dynamic analysis," the company said.



Source: HRS Flow

An example of a 32-cavity mould used for the coffee capsule application.

The Multitech line is said to satisfy the new environmental standards that packaging materials need to meet,and they also require the production system to be more energy efficient.

Working with a partner to (perhaps) be named later

The company said it joined forces with "one of the most important producers in Italy" in the packaging and medical fields for the challenging project of making coffee capsules. The production focussed on these key aspects:

- Implementation of thermal-gate systems rather than valve gates
- Easy systems management and maintenance during production, keeping the same aesthetical appearance achieved with a valve-gate system
- Fast colour change

Since this is a product that has to be handled after the injection process and during the assembly phase, the chal-

lenge was to have no leftover material in order to secure the follow-on production processes. In addition, as it is a design product, the aesthetic aspect also played a key role.

Improving process parameters before the shot

HRS Multitech said it was for this reason that the company provided dedicated thermal analysis in order to have a balanced thermal nozzle profile and ensure hot and cold half synergy optimisation. This offered better colour change performance and a consistent part weight, the supplier explained. The result of the work was a system that supplied high performance, the company said. It noted that the system offers the following:

- Better cycle time (no drooling)
- No leftover material
- Fast colour change
- Energy savings

HRS Multitech said it has already made several systems ranging from 16 to 32 cavities for coffee capsule applications. For a 32-cavity system, the company reported a cycle time of 3.8 sec, said to be extremely fast considering the use of thermal gating.

Using the right technology increases material possibilities

The decision to employ the standard line of nozzles, combined with decompression inlet technology, has made possible the use of low-viscosity materials, such as PP, with satisfactory results and short cycle times, the company noted. HRS Multitech said it allowed the optimisation of hot and cold half synergy and met all customer challenges.

By combining the best thermal profile and manifold layout, in terms of channel section diameters, the HRS Multitech system reportedly achieved excellent results both for colour change performance and gate quality. This claim is based on the results of production tryouts, where the plastics processor was able to perform a colour change using 125g per cavity, even with pearlescent masterbatch, the company said.

Billions of capsules make their way into coffee machines each year, which provides an attractive market for plastics processors.

HRS Flow

- ***HRS Flow,***
  San Polo di Piave, Italy.
  hrsflow.com

Systems control cold runners for injection moulding

Swiss-based Priamus said it offers its Fillcontrol monitoring and control system for cold runner molds

For liquid silicone rubber applications, the company said it is important to achieve equal filling because the different volumes in the cavities can cause a different compression after cross-linking. This can lead to unfilled or inhomogeneous parts.

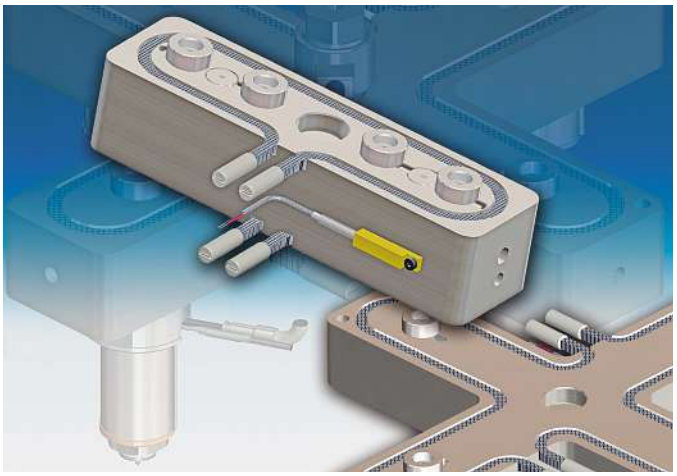
Source: Priamus

A solution is the automatic detection of the melt front via cavity pressure or cavity temperature sensors, and the automatic delay of the valve gate opening until equal filling is achieved. Users can either balance the average fill time or control the desired target fill time.

Primaus explained that this control method can be used for thermoplastics as well as for liquid silicone rubbers or elastomers. Likewise it can be used to balance and control conventional multi-cavity moulds as well as family moulds, the supplier said.

» ***Priamus,***
Schaffhausen, Switzerland.
priamus.com

Hot runner manifold for layouts tailored to the process



Source: Hasco

A hot runner concept offers a wide range of options for the layout of hot runner systems, supplier Hasco said.

The outside dimensions of the manifold blocks are standardised, but hole distances for nozzles can be freely selected within predefined limits, Hasco noted. Flow channel cross-sections in the manifolds can be tailored to the application.

Hasco has combined the H4000 manifold concept with its own nozzles. Hasco turn plugs are used for melt channel deflections and on the manifold bars for a leak-free manifold and optimum melt passage through the deflection. The molten polymer faces only minimal shear, it said.

Geometries include simple deflector manifolds with 35-440mm nozzle spacings, a 440mm maximum distance between outside nozzles for naturally balanced manifolds for two or four nozzles and cross-shaped manifolds with a symmetrical nozzle configuration on a square with 315mm maximum spacing.

» ***Hasco,***
Lüdenscheid, Germany.
hasco.com

Guide method for coated slides receives makeover

The E 3130 slide unit from Meusburger has a newly developed guiding system.

The rails enable precise guiding of the slide from the sides and from the bottom, the supplier said. The DLC coating of the unit ensures top sliding properties and a long service life, and the ready-to-use design cuts manufacturing time.

Source: Meusburger

Sizes range from 20x40 to 100x120mm.

Large slide devices can be easily equipped with a cooling system, the company added.

» ***Meusburger,***
Wolfurt, Austria.
Meusburger.com

Big moulds are no problem for double injection system

Spanish components supplier Cumsa has introduced a number of products, including a compact double injection system for medium to large moulds, shown here at the company's Euromold 2013 stand by Ricardo Lopes, export manager for the European division.

The unit ensures that the upper ejector plate stops when reaching the core plate, and the rear plate continues until it reaches the upper plate, the supplier said. As the assembly of the units is not in the centre of the mould, but within the ejector frame, the space required for installation is drastically reduced, the company reported.

The company also offers its Automatic Dog Lifter. Designed to function with just one set of ejector plates, the lifter saves machining costs and reduces the size of the mould, according to Cumsa. The component allows for undercuts of up to 32mm with a stroke of just 56mm. In addition, the device also offers the possibility for employment without the limiter using two sets of ejector plates. This system also gives users the capability of designing their own inserts, according to the supplier.

Cumsa also supplies devices for forming vacuums in the mould to improve processing and part quality.

Source: VBM

» ***Cumsa,***
Sant Just Desvern, Spain.
cumsa.com

Live, remote tooling data includes tamper reporting

Source: AST

AST Technology has upgraded its CVE Monitor to provide users with tamper evidence and countdowns for maintenance.

This is said to enable more robust reporting within the company's On Demand system monitoring software. In addition, the CVE Monitor incorporates a unique new system called CVE Live, which gives users the ability to view mould activity in real time, according to the supplier. The monitor lets tool owners view information such as cycle times, quantity of cycles, and maintenance for tools running around the globe.

CVE Live allows users to see maintenance alerts and generates graphs and reports on specific tool activity or that of a group of tools. The unit is said to help with feeding supply chain and logistics personnel with timely data on inventory levels.

» ***AST Technology,***
Herford, Germany.
ast-tech.de

Quick Sourcing Grid: Hot Runner Systems & Components

COMPANY Advertisers are listed in bold type	See Ad on Page	1 Heating Elements	2 Hot Halves, Fully Wired	3 Hot Runner Components	4 Hot Runner Manifolds	5 Hot Runner Port Plugs/Seals	6 Hot Runner Systems	7 Hot Sprue Bushings	8 Melt-Management Products	9 Nozzles with Bushings	10 Nozzles, Edge Gate	11 Nozzles, Filter	12 Nozzles, Hot Tip	13 Nozzles, Hydraulic Valve Gate	14 Nozzles, Machine
Braunform GmbH, Bahlingen am Kaiserstuhl, Germany	**15**		2	3										13	
DME Europe, Mechelen, Belgium		1	2	3	4		6	7		9		11	12		
DMS Diemould Service Co. Ltd., High Wycombe, Bucks, UK			2	3	4	5	6	7		9	10	11	12		
Dongsan Bearing Corporation, Namdong-gu, Incheon, South Korea								7							
E.N.S. International S.r.l., Villanuova sul Clisi (BS), Italy								7							
Euroheat S.r.l., San Mauro (Torino), Italy		1													
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Friedrich Freek GmbH, Menden, Germany		1													
Gammaflux Europe GmbH, Wiesbaden, Germany															
Guzzini Engineering, Recanati (MC), Italy			2	3	4		6	7		9	10		12		
Günther Heißkanaltechnik GmbH, Frankenberg (Eder), Germany		1	2	3	4	5	6	7		9	10		12	13	
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Hasco Hasenclever GmbH + Co KG, Lüdenscheid, Germany		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Heitec Heisskanaltechnik GmbH, Burgwald, Germany			2	3	4	5	6	7		9	10	11	12	13	14
Hotset Heizpatronen- und Zubehör GmbH, Lüdenscheid, Germany		1													
HP Systems S.A., Ennery, France														13	
HRSFlow, San Polo di Piave (TV), Italy	**36**		2	3	4		6	7		9			12	13	14
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i-mold GmbH & Co. KG, Michelstadt, Germany			2	3	4		6	7			10		12		
Imtech Design Ltd., Chislehurst, Kent, UK					4		6								
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MasterFlow AB, Västervik, Sweden		1	2	3	4	5	6	7		9	10	11	12	13	14
Mastip Technology Ltd. Auckland Mail Centre, Auckland, New Zealand	**39**		2	3	4		6	7			10	11	12	13	
MHS - Mold Hotrunner Solutions Inc., Georgetown, Canada			2	3	4		6	7	8	9	10	11	12	13	
MHT Mold & Hotrunner Technology AG, Hochheim am Main, Germany				3			6								
Mold Masters Europa GmbH, Baden-Baden, Germany		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Männer Solutions for Plastics, Bahlingen am Kaiserstuhl, Germany			2	3	4	5	6	7		9	10	11			
Pedrotti S.p.A., Gavardo (BS), Italy										9					
Petform Ltd t/a Anker Moulding Systems, Accrington, Lancs, UK															14
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Promac SAS, Salzano (VE), Italy												11			
Protool AG, Wynau, Switzerland			2	3	4		6	7		9	10	11	12	13	
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Runner-Plast, Pringy, France				3	4		6								
Sawi Mess- und Regeltechnik AG, Winterthur, Switzerland															
Sicem SAS, Calenzano (FI), Italy															
Sise, Oyonnax, France															
Strack Norma GmbH & Co. KG, Lüdenscheid, Germany	**15**	1	2	3	4	5	6	7	8	9	10	11	12	13	14
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Synventive Molding Solutions GmbH, Bensheim, Germany			2	3	4		6	7		9			12	13	14
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Thermoplay S.p.A., Pont Saint Martin, Italy			2		4		6			9	10			13	
Tirad s.r.o., Zeletava, Czech					4										
Türk & Hillinger GmbH, Tuttlingen, Germany	**5**	1													
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Yudo Germany GmbH, Leinfelden-Echterdingen, Germany			2	3	4	5	6	7		9				13	

	Nozzles, Mechanical Valve Gate	Nozzles, Multitip	Nozzles, Pneumatic Valve Gate	Runner-Balancing Products	Stack Mould Hot Runners	Temperature Controls	Tip Heater Products	Valve Gate Controllers	Valve Gate Sequencers	
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Quick Sourcing Grid: Tool & Mould Components

COMPANY Advertisers are listed in bold type	See Ad on Page	1 Alignment Components	2 Bases	3 Bushings	4 Cavities	5 Connectors/Couplings	6 Cooling Systems	7 Core Pins	8 Core Pulls	9 Cores	10 Date Stamps/Marking Systems	11 Ejection Systems	12 Ejector Pins/Sleeves/Plates	13 Fasteners	14 Fixtures	15 Frame/Insert Systems
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World's biggest plastics show draws latest mould technology

Along with the latest advances in polymer materials and plastics processing, the triennial K Show in Dusseldorf, Germany, remains a prime environment for tool shops to present their latest products to the industry faithful.

Every three years, the world's plastics industry descends on Dusseldorf for the K Show, the largest such exhibition in the world. This time around, Germany's Zahoransky used its visit to present the Z.Zyklon system for making disposable syringes, which is said to represent an integral automation solution in modular construction. According to the mould builder, the system injection-moulds disposable syringes with separation and non-glued encapsulation. Both the needle-feeding and injection molding units are integrated in the system, the company said.

Source: Georg Kaufmann Formenbau

It may look like stitching, but this dashboard section was produced with a multifunctional tool.

Learning by watching the technology on the show floor

The toolmaker described the integrated all-round solution. It begins with needle isolation via the mould, followed by the injection process and then individually controlled integration capability of the non-glued disposable syringes. The unit is said to feature engineering and other crucial advantages compared to many competing systems.

The needle-feed system is part the complete system and features a modular structure that is capable of handling both needles and puncture aids of varying lengths and different diameters, the company said. As an option, even needles with ground surfaces can be automatically aligned and eventually transported to downstream processing. Needle singularising from the magazine follows the first-in, first-out principle (FIFO), ensuring that the needles are not stored for excessively long periods. Also, retracing the batches is made a great deal easier, if this should be required, the company added.

Up to 400 syringes/min, and 55 million/yr

It suggested that the needle-feeding system offers ideal singularisation for small to medium batch sizes. The unit is available to segregate between needle counts of four and 16, and optionally also as many as 32 needles or puncture aids. Currently, the maximum output is 400 syringes per minute, with the annual output of the system totalling as many

as 55 million units. It is made to comply with clean room specification 8, which usually allows production in medical categories 1 and 2. With additional equipment and outlay, production in medical category 3 is also possible, the company said.

Using a specially developed horizontal rotating table with eight stations, the singularised needles are automatically fed to the various processing steps. At station 1, needles are placed into a terminal socket strip via the needle-feed system, the centrepiece of the tooling system, and carried to station 2. Here, the needles are camera-inspected and checked for completeness, correct position and integrity. Station 3 features the injection moulder with the injection mould built in-house. This is where the needles are placed into the tool for sheathing and removed after the injection step. Stations 4 through 6 serve more optional needle checks and inspections, for example, checking the pull-out force. Station 7 delivers the good parts to the downstream automation. Bad parts are ejected at station 8.

With the appropriate requirements and specifications, bad parts can also be transferred in a controlled way before being handed over to the downstream automation unit.

In one more automation unit, good parts are processed further for siliconing, assembling and final control right through to blister packing.

Source: Zahoransky

This system for making disposable syringes has eight stations and a high amount of throughput, according to tooling house Zahoransky.

Inject, vacuum-form, emboss, mould foam in one tool

Switzerland's Georg Kaufmann Formenbau said it has improved its Varysoft process for the production of soft-touch parts, which are now reportedly even more pleasant and softer and feature a much better grip. The nucleus of this improved process is a newly developed multifunctional mould that combines the three functions of injection moulding, vacuum forming/embossing and foam moulding. It is currently being used for the production of the right-hand side of a dashboard for the Hyundai Kia Motor Company.

This improved Varysoft technology enables the production of a three-layer part comprising a sub-structure, a layer of foam and a layer of decorative material. The multifunction mould imparts the grain effect to the decorative material during the vacuum forming operation and sets the thickness of polyurethane (PUR) foam exactly as required in the various zones of the moulded part.

The toolmaker said the dashboard is distinguished by its extremely tactile quality, appealing appearance, low weight and low production costs.

Source: Zahoransky.

A closer look at the glueless syringes made with the technology.

Multi-stage process for a multifunctional tool

The multifunction mould for the improved Varysoft process is equipped with a rotating platen and works in two stages. In the first stage, the dashboard sub-structure is injection-moulded in the stationary mould half, while at the same time the preheated decorative material– in this case a thermoplastic polyolefin (TPO) film–is placed in the moving mould half and preformed. This vacuum-forming operation gives the dashboard its surface geometry and creates both the transition zones for different thicknesses of foam and the openings for instruments and other fittings. The desired grain effect and the imitation decorative stitching is also embossed in the originally smooth TPO film at this stage. Finally, the PUR foam is injected into the space between the sub-structure and the film. It is this layer of foam that provides the dashboard with appealing soft-touch effect, the shop said.

» ***Zahoransky,***
Todtnau, Germany.
zahoransky.de

» ***Georg Kaufmann Formenbau,***
Busslingen, Switzerland.
gktool.ch

Probes tighten tolerances of tools for bottle closures

With the worldwide consumption of PET bottle caps estimated at 4 billion pieces a day, the production of plastic caps for the beverage, cosmetic or household industries clearly presents a lucrative field. However, this industry has myriad rules and regulations.

A Czech producer of base plates for multiple injection moulds, Tirad has for several years been a part of the supply chain that ends where the most significant players such Coca Cola or Pepsi play a major role. To be such an integral part of this supply chain, Tirad has been using measuring systems from Blum-Novotest.

Mountains of caps leave the processor every day

Stanislav Veselý, the executive director of Tirad described some of the challenges. "There are incredible volumes. For instance, a 96-multiple mould having the frequency of 3.5 seconds is able to produce 26 tonnes (approximately enough to fill a lorrie) of PET caps a day. When you produce such amounts, even a small reduction in plastic consumption in the order of 3–5% poses significant financial savings. Therefore, the pressure on the price of the product has created a very specific demand to combine as many cavities as possible in a mould with the closest tolerance." He added that the positional accuracy of cavities affects both the wall thickness of the cap and plastic consumption, which is financially monitored.

While the tolerance of cavity positioning was formerly ±0.01mm/m, Tirad said it has filled orders for customers that have a working tolerance of ±0.005 mm/m. "We had to adapt to the market with regard to precision and also to the size of frames that are made up to dimensions of 1500 x 2500mm," Veselý explained. "When you realise that our coordinate measuring machine determines the position and achieves an accuracy of 0.004mm/m, we are, in fact, approaching a tolerance band more akin to a laboratory than a production facility."

Lab-like conditions on the shop floor

Production at Tirad is said to have the character of working under laboratory conditions. Considerable investments have been directed especially towards the thermal and technological stability of the manufacturing process as well as for methods that contribute to the reduction of human errors. Manufacturing technology in an air-conditioned space is subject to strict in-house regulations. A minor deviation, for example, in the form of a tool set-up or an incorrect length versus the verified length, could

Source: Blum-Novotest

Bottle caps by the truckload. Despite the volume, tolerances still need to be as tight as the closures themselves.

cause vibration in the cut that could exceed the micron tolerance.

Veselý noted that with respect to the tool and workpiece set-ups, the company needed to improve. "That's why we began thinking about the implementation of measuring probes in our production process."

Finding the right technology and supplier

Maximum accuracy and long-term process reliability in the machining area played the principal roles in the choice of laser and touch probes. Veselý said, "If you take hundreds of measurements of a micron tolerance a day in a three-shift operation, the circle of potential suppliers is already very narrow." He noted that Blum company was a supplier of first-class laser systems, but the measuring probes of the TC line proved their qualities during several months of testing. Following trials, the company installed five machines with the Micro Compact NT laser and with the TC50 touch probe. "Owing to our marvellous experience, in time we intend to acquire some more," he said.

The TC50 probe is said to be designed for universal applications in machine tools, particularly in those with limited accuracy demands at high dynamic and measuring speeds of up to 3m/min. Robust symmetrical design, non-contact signal generation and higher measuring force are attributes claimed to guarantee exceptional measurement repeatability independently of speed, stylus length or pollution of the measured surface.

With the touch probe, Tirad automatically determines the zero point and monitors the flatness of the base plate in seven points with a reported tolerance of 0.005mm. This is a demanding application that takes full advantage of the progressive measuring mechanism inside of the probe. In the course of measuring, a text file is generated that stores measured values and can be used for a possible reverse analysis.

Measuring at the speed of light ahead of cutting

Each cutting tool is measured first by the Micro Compact NT laser system whereby measurements are taken using a focused laser beam of 0.03mm in diameter. This calibration takes place under identical conditions as machining. In this way, it is possible to get results approaching the absolute reality–unlike an external measuring device.

The measured length offset is said to compensate for inaccuracies resulting from tool change clamping errors or from temperature and dynamic changes in the spindle and the machine. The automatic data transfer into a tool offset table eliminates any human error and the tool data is retrospectively available in a text file. Blum, with 25 years of know-how in laser measuring systems, is said to be one of the world leaders in this industry. The combination of optics, micro-electronics, mechanics and software, reportedly offers high measurement repeatability and almost maintenance-free operation in the long term.

An example of the type of the tooling produced at Tirad, which serves some of the biggest names in the beverage business.

Source: Blum-Novotest

An example of a probe checking the dimensions. The shop produces the caps in conditions similar to those in a laboratory.

Source: Blum-Novotest

Eliminating wasted time to boost production

On could say the everyday life of any manufacturer revolves around these words: price, delivery time and quality. Consequently, it is logical that companies wanting to get to the top or to remain there are looking for ways to manufacture faster, more precisely or more efficiently.

Tirad found the way to master its production and then lay down rules to keep things that way. Although it is purely parts production, the overwhelming majority of the machining process works without any operator intervention just by touching the green button to start the cycle.

Veselý gave the probes more credit, saying the devices have become the company standard. "They present not only current geometric accuracy to us, but they also present retrospective views by storing valuable data for the later analysis of finished machining. However, they are also a glimpse into the future, because lots of unpredictable unproductive time has disappeared, thus making price calculations of the demanded work much more specific."

» ***Blum-Novotest,***
Grünkraut, Germany.
blum-novotest.com

» ***Tirad,***
Zeletava, Czech Republic.
tirad.cz

Take 3D scans for tool design in a range of environments

Source: Culp

Creaform, a supplier of 3D measurement solutions and engineering services, has introduced products designed for tool- and mould making.

The company said manufacturers using moulds and dies for stamping, casting and plastic injection face problems like shrinkage and spring back effect, which makes it complicated to match the CAD geometry. Complete surface measurement of parts and tooling with 3D scanning can help assess the extent the phenomena are impacting the part. The scan results can provide good insight during the design process of the tooling, and accurately monitoring the die and mould geometry and their corresponding produced parts will help reduce the number of design iterations and produce parts that match the CAD reference.

According to Creaform, its handheld Metrascan 3D optical CMM scanning system *(photo)* is the most accurate scanning and probing solution on the market. Combined with the company's Handyprobe, this solution reportedly increases the reliability, speed and versatility of the measurement process.

Tooling design requires dimension acquisition on parts of various shapes and complexity in virtually any environment, the company noted. Its scanners are said to perform such acquisition in the the design studio, at the supplier's plant and on the production floor.

» ***Creaform,***
Leinfelden-Echterdingen, Germany.
creaform3d.com

Browse cutting tool data on smartphones, tablets

Taegutec has launched a free smartphone/tablet computer application for Android that is said to provide up-to-date information to industrial users in the metal cutting sector.

Source: TaeguTec

The supplier said the app is based on the company's website e-catalogue, with information on its turning, thread making, drilling, reaming and milling products as well as its precision tools and tooling solutions.

The app, available from Google Play, also works with Apple devices.

» ***Taegutec,***
Daegu, South Korea.
taegutec.co.kr

Free app for improving hot runner applications

The PSG app is said to offer users cost reduction, material savings, easy maintenance and better colour changes and networking.

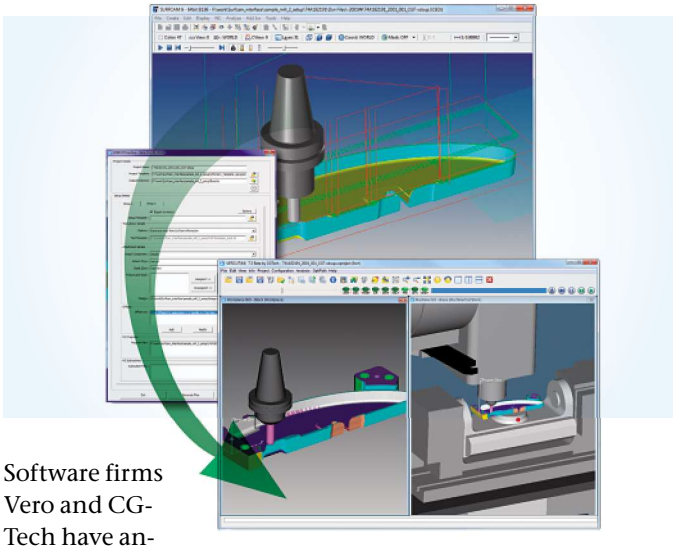
According to the supplier, the app provides a range of tips, including, for example, the ability to find out where the potential for optimisation lies within the hot runner system.

Additionally, the app offers a tool for a quick analysis and reduction of injection moulding failures. It was developed by PSG in cooperation with the SKZ plastics centre in Wurzburg, Germany, the company said. The app is available at *https://psg.bizapp.de/psg-app*.

The company added that it is also offering a solution for the sequential control of valve pins.

» ***PSG,***
Mannheim, Germany.
psg-online.de

Vendors integrate software to support machine simulation



Source: CG Tech

Software firms Vero and CG-Tech have announced an integration that allows Surfcam CNC programs to be simulated and optimised with Vericut.

They said the change provides a direct link from Surfcam to Vericut for NC verification and machine simulation. By simulating g-codes on a computer without using the actual machine tool, Surfcam users can analyse final machine tool output before cutting parts to ensure high quality g-codes and top throughput, they explained.

The companies noted that the Surfcam/Vericut programming combination helps prevent programming errors from being forwarded to the shop floor, thus avoiding material scrap, machine tool damage and wasted time. They explained that recent machine tool advances and a rise in CNC machining complexity has made accurate simulation a requirement.

» ***CG Tech Ltd.,***
Hove, UK.
cgtech.co.uk

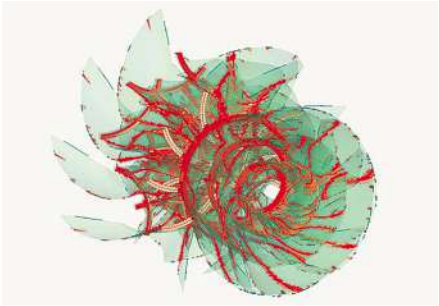
» ***Vero Software Ltd.,***
Gloucestershire, UK.
verosoftware.com

Solid modelling software for large models supports colour, application data

Machine Works has introduced Polygonica, a polygonal solid modelling software toolkit said to focus on handling large models and supporting colour and application data defined on polygonal meshes.

The company explained that some mesh solids, especially those created from point cloud data, contain huge numbers of triangles, and out-of-core algorithms process the entire mesh a chunk at a time. Initially, the release will support mesh simplification for such large solids. Moreover, all mesh processing operations, including Boolean, solid healing and offsetting will be available for large meshes, which maintains the speed and robustness of the Polygonica technology.

The release allows colour data to be associated with the mesh, so that the integrity of full colour models can be retained even during complex solid healing and Boolean operations, according to Machine Works.



Source: MachineWorks Ltd.

Polygonica Sales Manager David Knight said his company's development team has been working hard to include the addition of colour support to the software's capabilities to support the latest generation of 3D Printers. He went on to explain that this is important because full colour and multi-jet printing are becoming commonplace within the industry.

» ***Machine Works Ltd.,***
Sheffield, UK.
machineworks.com

Book on 3D scanning said to suit a wide range of knowledge and skill levels

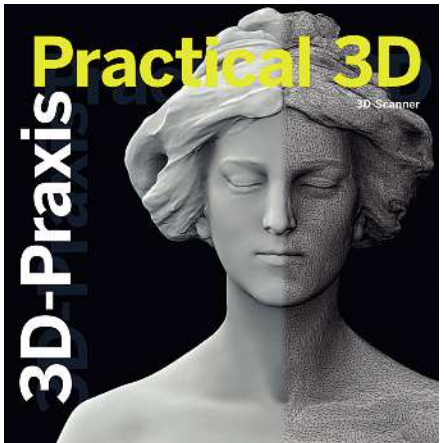
Florian Vierling from Messer PR has written Practical 3D | 3D-Praxis, a reference book said to cover 3D scanning. The work is available in both German and English.

Today, work with 3D scanners has become essential in aerospace, mechanical engineering and medicine, and although professional 3D equipment can often prove prohibitively expensive, 3D technology is being increasingly adopted by end users.

One example mentioned is scanning a person and then printing a small 3D copy of him. Other opportunities are said to be available today for the cost-conscious user. Moreover, the author predicted that in the near future, mobile telephones will likely be integrated with 3D scanners.

The book is said to cover the following topics:

» Questions and answers about who needs 3D scanners.
» Principles of 3D measurement technology theory explained in layman's terms.
» How scan software can convert a 2D picture into a 3D model.
» Tips on suitable hardware for homemade 3D scanners and avoiding typical errors when scanning.
» New technologies and products, and how 3D scanners can be introduced in our daily lives.



Source: MesserPR

» ***Messer PR,***
Munich, Germany.
messerpr.com

Hydraulic expansion toolholder with 16mm diameter for direct clamping

Schunk has added the Tendo E compact to its range of Tendo hydraulic expansion toolholders, said to be used for high-precision direct clamping with a 16mm shank diameter.

The supplier said the toolholder can provide accuracy, torque transmission and vibration damping as well as allow higher time-chip volume compared to a 20mm diameter shank during trichoidal milling. Moreover, the device can be used in volume cutting where ER collet chucks, heat-shrink toolholders and Weldon mountings cannot achieve economy.

Schunk explained that the range can transmit features of hydraulic expansion toolholders on a 1:1 basis with volume cutting. Under dry conditions, Tendo E compact can transfer torques up to 700Nm, or 15% more than conventional heat-shrink toolholders, the company said. Also, expansion sleeves and oil-filled expansion chambers dampen vibrations and absorb peak loads, thus stabilising tool intervention.

Source: Schunk

The device has a run-out accuracy below 0.003mm, with a clamping length of 2.5 x D, and a balancing grade at HSK mountings of G 2.5 at 25,000 rpm, the company said. Run-out accuracy and vibration damping prevent cutting edge damage, extend tool life and avoid chatter marks on surfaces, Schunk said.

Uniform pressure extends spindle- and spindle bearing- service life, the supplier said. The unit needs an Allen key for tool changes and is available for HSK-A 63, SK 40, and BT 40 interfaces.

» ***Schunk,***
Laufen/Neckar, Germany.
schunk.com

Company Index

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Directory of Istma Europe member associations

The International Special Tooling & Machining Association (Istma) is a well-established international organisation representing around 30 nations' special tooling and machining organisations across three continents: North America, Europe and Asia.

Istma Europe represents the industry in matters concerning industrial relations in the European Union. Among its many activities, it conducts a dynamic schedule of exchanges on technical subjects in the special tooling and machining sector; promotes communication among its members on a wide variety of industry concerns; maintains an information pool on technical investigation subjects; and transfers performing management actions among its member associations. In addition, the organisation supports European fairs and exhibitions focusing on special tooling.

CZECH REPUBLIC

Tool Factories Association Svaz Nastrojaren
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Next Issue

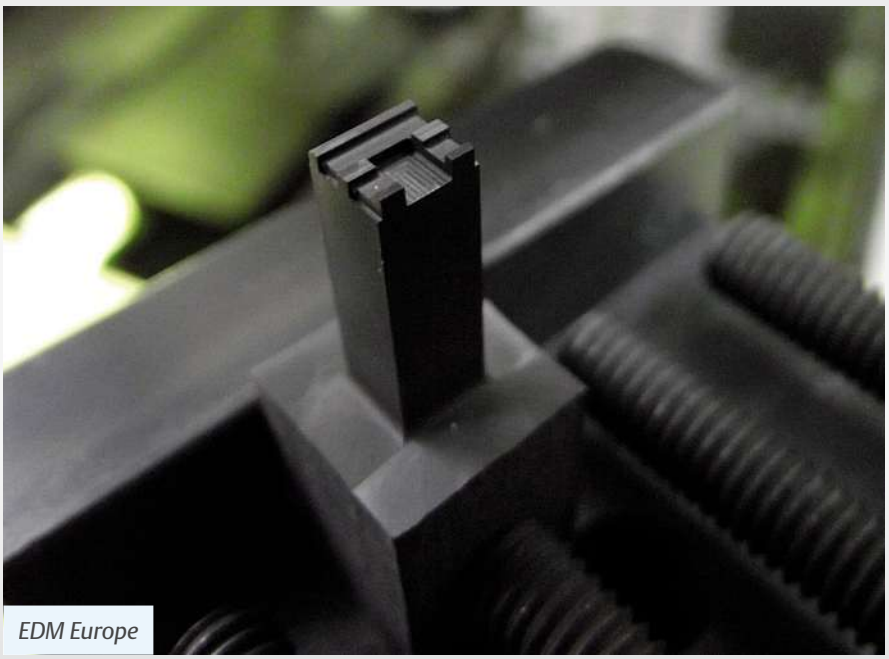
EUROPEAN TOOL & MOULD MAKING
ETMM

MARCH ISSUE PREVIEW

The next edition of **ETMM** will feature a preview of the Metav metalworking show in Dusseldorf, Germany, with a guide highlighting products and services for manufacturers of tools, mould and dies.

Other topics in the issue include:

- An exclusive interview with DMG Mori's Gregory Hyatt, who helped develop the company's additive-subtractive manufacturing machine tool.
- A preview of April's Mach 2014 exhibition in Birmingham, UK.
- A focus on advancements in machining equipment and accessories.
- Developments in cutting tool and machining accessory technology.
- The EDM Europe supplement.



EDM Europe

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MASTHEAD

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