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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

RNI No 71129/98

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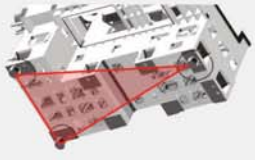

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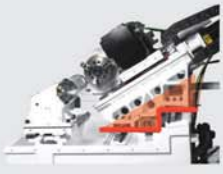

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A Manufacturing Renaissance!

When the recession which started in 2008-09 was at its bottom pit, developed markets actually resorted to protectionism. In fact, the US started the 'Buy American' campaign to revive its economic condition.

India too was going through an extremely challenging situation when its newly elected Prime Minister at that time launched a slew of reforms to bring things back on track. A key campaign that emerged out of these reforms was the 'Make in India' initiative, which aims to make India a manufacturing destination.

While a lot of back end work has already been done on the policy front, the materialisation will take some time. Nevertheless, the ball has started to roll. (The latest PMI figures confirm that the things are moving in the right direction.)

The good news is that the Indian industry too has been taking a progressive approach. Yes, the more developed manufacturing economies are busy working on Industry 4.0 and we have a lot of ground to cover on that front. But, if implemented correctly, 'Make in India' itself can become an industrial revolution that could lead us to a great manufacturing renaissance. All we need to do is to take the E-Highway of 'Excel, Enhance & Expand'.

I conclude this note with these immortal lines by Bob Dylan. I believe they stand true both in the social as well as the industrial context.

If your time to you
Is worth savin'
Then you better start swimmin'
Or you'll sink like a stone
For the times they are a-changin'

P.S. The Machinist Global Manufacturing Summit 2016 is based on the theme of Excel, Enhance & Expand. Visit **gms.themachinist.in** to find out how you could also be a part of the manufacturing renaissance.

Editor & Chief Community Officer

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THE MACHINIST
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Defence Minister inaugurates HAL-Safran joint venture for helicopter engines

THE DEFENCE MINISTER, Manohar Parrikar inaugurated Helicopter Engines MRO Pvt. Ltd (HE-MRO), a Joint Venture of HAL and Safran Helicopter Engines (SafranHE), France at Sattari District, North Goa. The JV will provide maintenance, repair and overhaul (MRO) services for Safran TM333 2B2 and HAL Shakti engines installed on HAL-built helicopters operated by the Defence Services.

Speaking on the occasion Parrikar said this is a step towards creating employment opportunities with corresponding boost to the economic activities in Goa. "This is the right place for MRO activities related to helicopter engines. We have a local talent to meet

the skill requirement for the project. There will be more expectations from all of us and we will progress," Parrikar added.

Laxmikant Parsekar, Chief Minister of Goa, T. Suvarna Raju, CMD, HAL, Bruno Even, CEO Safran Helicopter Engines and other senior officials were present on the occasion.

The JVC brings about synergy of the expertise from HAL and SafranHE in the field of ROH of Safran family of engines. This partnership will improve customer satisfaction through improved serviceability, reduced cycle time for ROH, availability of spares, trouble shooting, field support and modifications to overcome design deficiencies. The MRO Centre plans to progressively support engines of International Operators and other engines as mutually agreed between the partners. In addition to carrying out overhaul activities at Goa, the JV will also provide support through Certified Maintenance Centers located centrally at customer bases.

Economy to perform better in 2nd half of FY 16

INDIAN ECONOMY would be performing better in the second half of the current fiscal and the trend appears to have begun from the quarter beginning October, 2016 with 66.7 per cent of the latest ASSOCHAM Bizcon Survey respondents expecting uptick in sales, capacity utilisation, though positivity on fresh investment is tentative.

Increased spend on infrastructure development, largely in the government is seen as the most important driver for a turnaround in the economic outlook for the current quarter and the last quarter of the financial year 2016-17.

The second best driver for the optimistic outlook is effective policy reforms followed by a stable foreign exchange rate of the Indian currency despite global head winds like uncertainty on account of the Federal Reserve's next policy move and the most bitterly fought US Presidential elections.

While a big chunk of Bizcon Survey participants felt the present economic situation appears to be in a better shape than the previous six months on several parameters, the optimism is more pronounced for the second half of the current fiscal.

For instance on the parameter of industrial performance, the ASSOCHAM Bizcon done in September, noted over 83 per cent of the respondents believing things would look better in at the industry level in the ongoing six month period.

The confidence was quite pronounced at the level of individual firms' level, as about 89 per cent of the respondents expressed optimism about better days ahead.

In terms of the capacity utilisation expectations, over 66 per cent participants shared the opinion that the industry would be operating at higher levels than 70 per cent of the plant or service facility capacities.

Automotive drivetrain market to grow

MARKETSANDMARKETS report — "Automotive Drivetrain Market by Drive Type (AWD, RWD, FWD), Vehicle Type (Passenger car, LCV, Buses and Trucks), Electric Vehicle Drive type (BEV, PHEV, HEV), and Region - Global Forecast to 2021"—suggests that the market is projected to grow at a CAGR of 6.18 percent, to reach a market size of USD 278.57 Billion by 2021. The market is driven by factors such as the increasing need for better acceleration, traction, and towing capabilities in vehicles and the growing demand for comfort and safety in vehicles.

Speaking about the regionwise market, Asia-Pacific is estimated to dominate the Automotive Drivetrain Market, and is projected to grow at the highest CAGR during the forecast period. The region has emerged as a hub for alternative fuel passenger cars in recent years, with China and Japan as the frontrunners.

Governments in the region are also trying promote the sales of alternate fuel vehicles through incentives and tax deductions.

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Industry must deal with China & robotics: Union Heavy Industries Minister Geete

THE PUBLIC AND PRIVATE ENTERPRISES in India's manufacturing sector must provide quality products at an affordable cost thereby obtaining economies of scale to face challenges posed by China together with latest technologies of automation and robotics, Union Minister for Heavy Industries and Public Enterprises, Anant Geete said at an ASSOCHAM event held in New Delhi recently.

"The era of globalisation has led to cut-throat competition across the world thereby making it a challenge for our manufacturing sector to survive, we need to face up to these global challenges else we might get isolated," said Geete while inaugurating an ASSOCHAM International Conference on 'Industry 4.0: Smart Manufacturing.'

He said that though the government felt that pushing the industrial sector will lead to create more job opportunities but the upcoming robotics technology might lead to significant job losses.

He also said that India's manufacturing sector has been reeling under

distress during the course of past few years due to various reasons.

Highlighting how the government came to the rescue of domestic steel industry by fixing the minimum import price for steel as China was supplying finished products at the cost at which domestic industry gets raw material, he said, "This is how China has been destabilising the domestic steel sector and more or less a similar situation is there in the entire manufacturing sector."

"We need to compete with China which has spread across the world, we need to accept this challenge," added Geete.

The Minister said that the Prime Minister under the aegis of the government's ambitious 'Make in India,' program has invited global investors and industrialists to come and set up their manufacturing units here in India.

"But our first priority should be to save our domestic industry including both private and public sector enterprises as they will play the most significant role in development of programs like Make in India," said Geete.

Big efforts by India to improve business climate: WB

INDIA has accelerated its efforts to improve the business climate and has initiated transformational reforms in its local regulatory framework over the past one year, finds the World Bank Group's new annual ease of doing business report.

Wider adoption of these new reforms, according to the report, could lead to significant improvements in its business environment in the next few years. Doing Business 2017: Equal Opportunity for All, captures reforms implemented in 190 economies in the year ending June 1, 2016.

While India is ranks at 130 in this year's report (131 last year after making methodological adjustments to the Doing Business 2016 data), importantly its distance-to-frontier score has gone up from 53.93 in Doing Business 2016 to 55.27 in Doing Business 2017.

In fact, India's rank has improved dramatically in the Getting Electricity indicator, from 137 in Doing Business 2015 to 26 in Doing Business 2017 – a 111 rank improvement in just two years. Last year India was recognized for reforms in Starting a Business and Getting Electricity.

India currently ranks in the top 50 economies in the world on three of the ten indicators – Getting Credit, Protecting Minority Investors and Getting Electricity.

Elaborating on the reforms for which India was recognised this year, the report highlights that India made getting electricity faster and cheaper by streamlining the process of getting a new commercial electricity connection. It has made paying taxes easier by introducing an electronic system for paying employee state insurance contributions.

Anchor starts manufacturing at Haridwar

ANCHOR ELECTRICALS, a wholly owned subsidiary of Panasonic Corporation, has announced the commencing of operations at its new manufacturing unit at Haridwar, India. This new manufacturing unit has been set up with an investment of Rs. 150 crores. It will have production capacity of 25 million units monthly and is expected to double the installed capacity by FY 2020. The recently constructed manufacturing unit will manufacture a complete range of Wiring Devices and Switchgear amongst other devices to meet the increasing demands.

The manufacturing unit is spread over 25,000 square metres and is Anchor's second biggest factory in India. The environment friendly facility has adopted many green features like the installation of LED lighting and use of treated sewage water.

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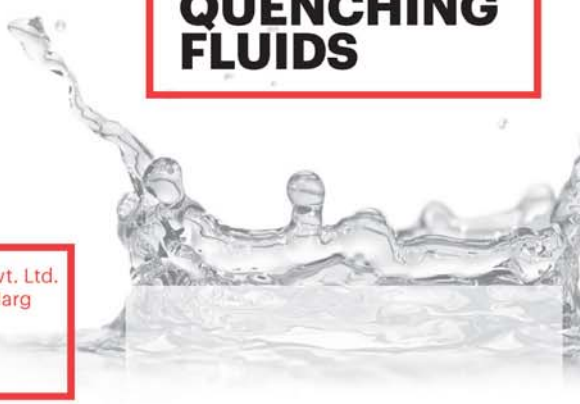

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A list of key events happening between November 2016 to September 2017, both nationally and internationally.

National Productivity Summit
November 24-26, 2016
BIEC, Bengaluru
www.imtma.in/index.php?page=215

India International Textile Machinery Exhibition 2016
December 3-8, 2016,
Mumbai
http://itme2016.india-itme.com/

BAUMA CONEXPO India 2016
December 12-15, 2016,
New Delhi
www.bcindia.com

IMTEX 2017
January 26-February 1, 2017,
Bangalore
www.imtex.in

CONEXPO-CON/ AGG
March 7-11, 2017
Las Vegas, NV (US)
www.conexpoconagg.com

TIMTOS
March7–12, 2017
Taipei (Taiwan)
www.timtos.com.tw

Automotive Engineering Show
March 21-23,2017
New Delhi
www.aes-show.com

ACMA Automechanika New Delhi 2017
March 21-24, 2017
New Delhi
http://acma-automechanika-newdelhi.in.messefrankfurt.com/newdelhi/en/exhibitors/welcome.html

ProMat 2017
April 3-6, 2017
Chicago, (US)
www.promatshow.com

Hannover Messe
April 24–28, 2017
Hannover (Germany)
www.hannovermesse.de

INTEC 2017
June 1-5, 2017
Codissia Trade Fair Complex, Coimbatore
www.intec.codissia.com

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The 'Connected Car'

Advancements in technologies are enabling the automobile to extend the driving experience beyond traditional vehicle transport.

By Prasad Satyavolu

Over the last few years, automotive electronics and wireless technologies have grown by leaps and bounds. Advancements in these technologies, combined with device convergence and changing lifestyle demands, are enabling the automobile to extend the driving experience beyond traditional vehicle transport. Today, the 'Connected Car' zooms beyond traditional in-vehicle infotainment. The connected car may well have faced challenges in taking off, but the inflection point is just around the corner. The next wave of connected cars will see businesses leverage technology to address issues of urbanisation—road congestion, pollution and safer mobility. The features of a connected car are now a part of a car buyer's basic expectation. With the help of digital technologies, greater personalisation will be the next move for businesses to stand out in this industry. In emerging markets, millennials with growing purchasing power do not view cars as mere means of transport. The car is becoming an extension of consumer individuality and consumers want to travel in the most efficient and entertaining way possible.

"The car is becoming an extension of consumer individuality and consumers want to travel in the most efficient and entertaining way possible."

Transcending boundaries

The connected car, as a concept, is branching out into multiple areas of consumer convenience such as seamless urban mobility, assisted driving, driverless cars, and car-sharing. These are targeted at addressing issues such as road congestion and driving stress, and offering better freedom of mobility to senior and differently-abled citizens. Moreover, the connected car initiative is a collaborative effort between different technologies and competencies. The broad array of end-to-end connected car solutions and services can be categorised from the car OEM standpoint as 'Inside the Car' (in-vehicle systems development, testing and implementation), 'Outside the Car' (consumer-facing apps, integration with dealer/OEM systems, etc.), and 'Around the Car' (urban mobility, cross-industry monetisation, etc). Such Machine-to-Machine (M2M) interaction presents a world of new mobility, new opportunities and new challenges for an emerging ecosystem of companies — from automakers and OEMs, through banking and financial services and insurance providers and retailers — to generate new streams of linear and nonlinear revenue, all the while providing a unique experience to customers.

Looking down the road

Connectivity solutions and embedded telematics present a market opportunity of over $20bn by 2025. Existing services may soon be superseded by V2V (Vehicle-to-Vehicle) and V2I (Vehicle-to-Infrastructure) technologies that will help millions of cars inter-communicate on traffic, safety and real-time information.

Pan-industry applications, like pay-by-insurance and advance tolling, will pave the way for further networked industry applications. The connected car business will thrive on the aforementioned factors if automotive majors, wireless carriers and engineering IT service providers form effective partnerships to build open platforms using technologies like LTE broadband, HTML5, virtual network computing and cloud computing.

Going forward, players across the ecosystem should be mindful of the following:

- A growing number of telematics mandates are being introduced by governments for services (like, e.g. the European Union's eCall initiative or stolen vehicle tracking).
- Integration of advanced driver assist systems with V2V and V2I communication holds promise to reduce crashes.
- The separation of services between smartphones and on-board communication devices will also reduce complexity with respect to connectivity provisioning.
- Future connected car services may require combination of two or more wireless data communication technologies.
- The development of sophisticated and integrated human machine interfaces to avoid driver distractions will become more viable as more cooperative systems become available.

The author is Head of Innovation, Manufacturing & Logistics, Cognizant

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BASF and Hyundai showcase a concept car at 2016 K fair

A new concept vehicle jointly developed by BASF and Hyundai Motor Company combines key solutions from the chemical industry with purposeful aerodynamic design and specialised high-performance technologies. Both companies presented features of the RN30 Concept Car at the 2016 K Fair.

"We are very proud to be a vital part of the RN30," said Raimar Jahn, President of Performance Materials at BASF. "Based on our great partnership and our innovation power, Hyundai Motor has invited us to demonstrate the capabilities of our materials in this unique concept." This new Concept Car was created to offer pure driving pleasure on the race track for everybody. BASF's material solutions helped Hyundai to realize even the most daring design ideas based on its impressive product portfolio and car enthusiasm.

Ashok Leyland launches electric bus designed & engineered in India

Ashok Leyland has unveiled Circuit electric bus designed and engineered entirely in India, by Indians, for the nation. In line with Ashok Leyland's vision for the future of mass mobility, the country's first 'Made in India' 100 percent electric bus is a zero-emission vehicle created by Ashok Leyland specifically for Indian road and load conditions. This new Circuit range of vehicles will be offered on multiple platforms.

Vinod K. Dasari, Managing Director, Ashok Leyland, said, "The Circuit series of buses is another testament to Ashok Leyland's commitment to leverage India's technological innovation to deliver relevant and best-in-class solutions for India and the world. In April 2015, at FAME Delhi workshop, we had committed to vehicles with full electric power trains by January 2017. I am happy to dedicate the first vehicle in this new Circuit series, ahead of schedule. As a world leader in public transport, we can proudly say that we have created a product that will enhance the environment in the cities - this is in keeping with the company's philosophy of 'Aapki Jeet, Hamari Jeet'."

The chief guest on the occasion, Ambuj Sharma, IAS, Additional Chief Secretary, Industries and Commerce, Government of Tamil Nadu said, "Today is a very significant day for us as a country. India's first-ever fully electric bus, developed for India and made in India, is a big leap in mass public transport and we are glad that Ashok Leyland has been able to deliver this. This vehicle will support the Government initiative of reducing India's eight lakh crore fuel import bill and is a promise for a brighter and cleaner future for all of us and for our future generations."

Honda Cars launches All new Accord Hybrid in India

Honda Cars India Ltd. (HCIL) has launched the All-New Honda Accord Hybrid featuring one of the most efficient hybrid systems, which delivers top-of-the class powerful performance with 215 PS of maximum output and best in class fuel economy of 23.1km/l.

The new Honda Accord Hybrid is the ultimate Accord, the most refined, technologically sophisticated, uniquely stylish and the most fuel efficient hybrid model in its segment. The Honda Accord is equipped with Honda's two motor hybrid system - Sport Hybrid Intelligent Multi Mode Drive (i-MMD) combined with an ultra-efficient 2.0-liter i-VTEC Atkinson Cycle engine.

Honda, Yamaha could collaborate on small scooters

Honda Motor Co., Ltd. and Yamaha Motor Co., Ltd. have begun discussions toward a possible business alliance in the Japanese market in the 'Class-1 category' that include scooters with a 50cc engine or electric motor. Owing to diversification of the types of short-range transportation, including power-assisted bicycles and mini-vehicles, the market for the Class-1 category vehicles in Japan has been shrinking lately. Also, motorcycle manufacturers are facing various challenges like compliance with safety standards and emissions regulations that will become more stringent in future years, also the pursuit of product electrification. Under such circumstances, Honda and Yamaha arrived at a common understanding that cooperation is necessary to address these challenges for the future and based on this understanding, the two companies will strive to realise collaboration.

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Continental puts 1st 48-volt hybrid drive into production

Continental is electrifying one diesel variant of both the new Renault Scénic and Grand Scénic models. The system, offered as a "Hybrid Assist" uses a 48-volt hybrid drive in production vehicles for the first time.

The technology is a particularly cost-efficient solution to significantly reduce fuel consumption and exhaust emissions. Instead of the conventional starter generator, the system uses an electric motor with a continuous output of six kilowatts (10kW temporary), which drives the crankshaft of the engine via a belt. The electric motors with integrated inverter are supplied from the Continental plant in Nuremberg.

To achieve this, the development partners have used low-voltage hybrid technology, which operates at 48 volts. This is in contrast with the considerably more expensive high-voltage technology, which operates at between 300 and 400 volts and is usually used in hybrid vehicles. However, the 48-volt system facilitates significant savings. Therefore, with the mild-hybrid system, Renault is aiming for combined fuel consumption of 3.5 liters of diesel per 100 km. They are also aiming to reduce the new Scénic´s CO2 emissions to 92 grams per kilometer, which is a new CO2 benchmark in this vehicle class. This is possible because the electric motor, operated as a generator, also converts a large proportion of the braking energy into electricity, which is temporarily stored in a small battery.

SsangYong signs MoU with Tech Mahindra & LG U+

SsangYong Motor Company has announced that the company signed the MOU with India's Tech Mahindra and LG U+, third largest Korean telecommunications provider, to develop connected cars.

Connected cars are equipped with communication network by integrating ICT(Information and Communications Technologies) and the car, which enables real time information sharing and remote control of the car.

With MOU, SsangYong, Tech Mahindra and LG U+ agreed to cooperate on development and launch of connected car platform within the next 3 years. While SsangYong will develop the interior systems of the car, Tech Mahindra will provide the telematics platform, which is related to security, safety and remote controls of the car.

LG U+ will offer the telecommunications network to enable internet access in the car and also develop a platform that could offer infotainment to drivers.

Earlier, SsangYong also joined the OAA (Open Automotive Alliance), a global connected car development alliance based on Android system led by Google along with Mahindra & Mahindra to develop next-generation cars in June 2015.

Byung-Do Yoon, head of SsangYong Motor Product Development HQ, said "SsangYong now got a foothold to enhance competitiveness in the smart car market through this MOU agreement." And he added, "We will continuously innovate to correspond and lead the paradigm shift of future automobile industry by developing connected car platform and autonomous vehicles."

Mercedes-Benz launches GLA 220 d 4MATIC

Mercedes-Benz India has launched an all-new GLA 220 d 4MATIC 'Activity Edition', thus introducing the much awaited 4MATIC four-wheel drivetrain in the GLA, for the first time in the Indian market.

The addition of the GLA 220 d 4MATIC Activity Edition further bolsters Mercedes-Benz's versatile and comprehensive SUV portfolio. The launch of the GLA 220 d 4MATIC 'Activity Edition' is Mercedes-Benz India's 6th SUV launch and the 9th product for 2016. Mercedes-Benz India now debuts the much awaited 4MATIC drivetrain in the GLA 220 d 'Activity Edition'.

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Catching them **young**

At Audi's Smart Factory Hackathon, talented data-science specialists develop solutions for the factory of the future

"Data drives our production – you innovate from our data" is the motto of the Smart Factory Hackathon, which was held at the Audi Forum Ingolstadt from October 19 to 21. Talented young data-science specialists from the fields of IT, mathematics and engineering developed innovative software solutions for the factory of the future, based on genuine but anonymized data sets from Audi's production. On Friday afternoon, the winners of the IT competition were awarded their prizes: The "Happy Unicorns" team won first prize with its idea on the subject of container management.

The solutions were based on genuine but anonymized data sets from Audi's production.
Copyright: AUDI AG

The Smart Factory Hackathon is a programmers' marathon in which participants work out digital solutions and prototypes for genuine application cases over a period of 24 hours. For the competition, more than 20 departments from the pre-series center, toolmaking, paint shop, assembly and logistics had provided anonymized data sets with which the teams had to work. The results were assessed by a jury of four Audi experts and the startup consultant Thorsten Weber from "UnternehmerTUM", the center for innovation and startups at the Technical University of Munich. The teams then presented their ideas to an audience. The winners were decided equally by the jury assessment and the audience's votes.

The jury members included Michael Breme, Head of Production and Plant Planning, as well as Audi's Chief Information Officer, Mattias Ulbrich. The two of them also assumed the role of patrons for the Hackathon. Michael Breme congratulated the winners: "The 'Happy Unicorns' team have developed a promising approach for container management. I am thrilled by the diversity and quality of the solutions and can well imagine going into further depth with some of them together with the teams." Mattias Ulbrich said: "We have had very good experience with Hackathons at Audi in the past. With this Smart Factory Hackathon, it was especially interesting to see how young, talented IT specialists deal with concrete tasks and meet the specific challenges in the area of production. These results are also very creative and promising. Overall, it was a very good event that motivates us to continue with this approach."

Out of approximately 200 applicants from all over the world, 72 participants qualified for the Hackathon, including candidates from Italy, Russia and Israel. Before the competition started, the participants visited selected areas of Audi's production. Audi experts explained the challenges and technical contexts, and were available as advisors during the Hackathon. Finally, the sixteen teams selected their topics.

> "We have had very good experience with Hackathons at Audi in the past. With this Smart Factory Hackathon, it was especially interesting to see how young, talented IT specialists deal with concrete tasks and meet the specific challenges in the area of production."
>
> **Mattias Ulbrich,** CIO, Audi.

Florian Bauer, Isabella Burket, Alexander Hirner, Mario Luef and Christian Tschautscher alias the "Happy Unicorns" had chosen the subject container management. They developed a system which enables automated detection, counting and mapping of transport containers. The "Happy Unicorns" then equipped a forklift truck with cameras. By means of a self-learning algorithm, the software that is linked to the camera recognizes individual containers by their specific features and assigns the appropriate boxes to identification codes. This enables automated real-time data integration, which in turn means logistics employees have an overview of the current container inventory at all times.

The winners have the opportunity to put their ideas into practice together with Audi. The three top-ranking teams can also look forward to receiving attractive prizes. These include participation in an Audi driving experience event and attendance at a technical conference in the United States or Europe with a focus on the subject of big data / data analytics.

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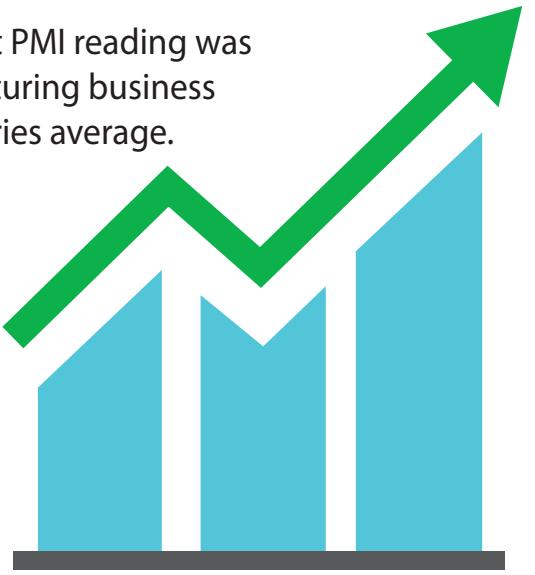
Good news, finally!

Rising from 52.1 in September to 54.4, the latest PMI reading was indicative of a robust improvement in manufacturing business conditions that was in line with the long-run series average.



Supported by stronger contributions from three of its five sub-components – new orders, output and stocks of purchases – the headline seasonally adjusted Nikkei India Manufacturing Purchasing Managers' IndexTM (PMITM) climbed to a 22-month peak in October. Rising from 52.1 in September to 54.4, the latest reading was indicative of a robust improvement in manufacturing business conditions that was in line with the long-run series average.

Once again, consumer goods producers outperformed their intermediate and investment goods counterparts, registering stronger rates of expansion for both output and new orders. In October, output increased for the tenth straight month and at the quickest rate in nearly four years.

Survey respondents attributed the latest rise in production to strong growth of new orders. The amount of new work received by manufacturers grew markedly during October, with anecdotal evidence linking the latest rise to improved underlying demand. In fact, the rate of expansion was at a 22-month high.

Data indicated that although foreign orders contributed to the upturn in total new work, the rate of growth in new business from abroad eased to a three-month low. Outstanding business rose again during the latest survey period. The overall rate of accumulation was solid and the quickest in almost three years, with survey members reporting capacity pressures. In spite of this, businesses left employment unchanged.

> "October data provide positive news for India's economy, as manufacturing output and new orders expanded at the fastest rates in 46 and 22 months respectively."
>
> **Pollyanna De Lima,** Economist at IHS Markit

Amid reports of orders being fulfilled directly from stocks, holdings of finished goods decreased again. That said, the rate of inventory depletion was modest and little-changed since September. The average price of inputs rose markedly during October, with the rate of inflation quickening to the fastest since August 2014. Survey participants reported higher prices across a wide range of goods, but particularly highlighted steel, plastic and petrol. Firms passed on to clients' part of these higher cost burdens by raising their prices charged. The rate of output price inflation was the fastest in six months, but modest in the context of historical data. Companies also attempted to offset the effects of marked input cost inflation by purchasing and storing a greater level of pre-production items. Buying levels grew at the strongest rate in 14 months, while stock levels increased at the fastest pace since July 2015. Finally, the time taken for suppliers to deliver inputs was broadly unchanged (on average) in October.

Commenting on the Indian Manufacturing PMI survey data, Pollyanna De Lima, Economist at IHS Markit and author of the report said, "October data provide positive news for India's economy, as manufacturing output and new orders expanded at the fastest rates in 46 and 22 months respectively. The sector looks to be building on the foundation of the implied pick-up in growth in the previous quarter. Supporting this was the RBI's MPC announcement of a further 25 basis-point reduction in its policy rate to 6.25 percent.

"The extended easing cycle, however, brought upside risks to inflation, with manufacturers seeing purchase costs rising at the quickest pace in over two years. Part of the increase in cost burdens was passed on to consumers by way of higher selling prices, which is likely to continue on an upward trend as we head towards the year end. Nevertheless, the breadth of the upturn in manufacturing should assist in its sustainability. Although the consumer goods sector again outperformed its intermediate and investment goods peers, all three sectors reported strong and accelerated growth in October. The domestic market was the prime source of new business gains, but let's not forget that there is also a robust export component in these positive numbers."

Source: Nikkei inc.

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'Locked' with Green

Godrej locks are today manufactured in one of the most advanced and environmental-friendly manufacturing plating plant in Madkai, Goa

By Swati Deshpande

The history of locking solutions in India is closely connected with the Godrej Group. As the industry kept on maturing from one complex technology to another, several new chemical processes were introduced. Using green chemistry, Godrej has continued with its endeavour to reduce the impact on the environment. As part of its initiative, Godrej locks are today manufactured in one of the most advanced and environmental-friendly manufacturing plating plant in Madkai, Goa. "This is first state-of-the-art plating plant in India that blends performance and sustainability by replacing environmentally hazardous solutions with more eco-sensitive alternatives," said Shyam Motwani, Executive Vice President & Business Head, Godrej Locking Solutions and Systems.

To ensure minimal impact on the environment, chemical fumes are treated with online scrubber system and solid waste is monitored and maintained before they are sent to landfill. "In fact, treated water, recycles in the plant through an advanced 3-stage RO system," added Motwani.

Green processes

It is one of the most environmentally efficient plating systems commissioned by a locking solutions company across the world. "The green chemistry employed in this plant utilises trivalent chrome instead of environmentally hazardous hexavalent chromium. Similarly, alkaline copper system is utilised in the plating process than the hazardous cyanide copper. Most of the material we use is recycled (brass, Mazak etc.) The scrap is sent back to the smelter to convert into raw material again for further use," explained Motwani.

"The green chemistry employed in this plant utilises trivalent chrome instead of environmentally hazardous hexavalent chromium. Similarly, alkaline copper system is utilised in the plating process than the hazardous cyanide copper. Most of the material we use is recycled."

Shyam Motwani, Executive Vice President & Business Head, Godrej Locking Solutions and Systems.

Godrej Locking Solutions and Systems Madkai plant:

- Spread over 8 acres
- Workforce: over 750 employees
- Highlight of the plating plant: Fully automated plating on 3 substrates (Mazak, brass and mild steel) and 4 different finishes (Nickel, Nickel Chrome, Satin Nickel, Satin Steel) in one set-up
- Godrej Locking Solutions & Systems holds ISO 9001, ISO 14001 and OHSAS 18001 certifications

The plant uses several green chemistry methods. "For instance, chemical fume which emanates during the plating process is treated with online scrubber system to ensure that no harmful fumes are released through the chimneys. We have also invested in automatic effluent treatment plant include ion exchange units for selective heavy metal removal from the effluents," he mentioned. Also, the pH values of the effluents are neutralised and is reused after several filtration and chemical treatments. "Similarly, the water used during the plating process is completely treated using three levels of advanced reverse osmosis (RO) system. These are then again fed-back to the plating system for reuse, and also used as water for maintaining green patches around the facility," Motwani continued. The core of any effective eco-sensitive manufacturing unit is built upon the three core principles of recycle, reuse, and reduce.

Other pltants

Besides this plant in Madkai, Godrej's lock assembly operations are completed in Tivim and Kudal near the Maharashtra-Goa border. Goa is the only production hub of all Godrej locks sold within and outside India. The Madkai factory is fully integrated and the largest lock factory in India.

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Working closely with the industry

Nitesh Gupta, GM-Projects and Product Support, Haas speaks to The Machinist about trends and challenges in the bathroom fittings manufacturing industry.

By Swati Deshpande

How has been the demand for CNC solutions in the bathroom fittings sector in India for last couple of years?

Bathroom fittings or the Faucet Market has seen a steady growth over the last couple of years. The outlook for the market is a CAGR of 10-14 percent in the next five years. The market is a very divided one, as there are many unorganised local regional manufacturers in our country while on the other hand we have organised Faucet manufacturers like Jaquar, Hindware, Kohler, Parry Ware Roca and Cera Sanitaryware to name a few. It is in these organised manufacturers that productivity is a constraint and hence these manufacturers are looking for better products and are looking for CNC solutions. The demand for better CNC solutions has been robust over the last couple of years and more and more demands to automate the manufacturing process of the faucets is being placed by the faucet manufacturers.

Nitesh Gupta

What solutions does HAAS offer to its customers in this segment?

HAAS has been very active in this segment and we are among the first ones to approach these manufacturers for looking into better CNC solutions. The Faucet manufacturing involves two types of CNC solutions. One—for the manufacturing dies and cavities for which HAAS offers specific Die and Mould machines in the form of VM series of machines. All Faucet manufacturers in the organised sector are using HAAS Die and Mould machines wherein high quality moulds are required which forms an integral part of the Faucet manufacturing. Second—for the actual machining of the Faucets, wherein the machining of the seals is done. For this, HAAS has production work horses in the SS (Super Speed) machines wherein the customer can use HAAS machines for almost 24 hrs a day and keep generating chips on their machines. The HAAS VF SS Series come with an 30Hp 12000 rpm Inline Direct Drive Spindle which generates high torque of 122N-m which is ideal for machining of the Faucets.

Do you see the demand for CNC solutions in the bathroom fittings sector growing?

At the present levels of 10-14 percent CAGR, which the Faucet market is poised to grow. the only way to provide High Quality Products would be to move from the conventional setup to CNC and Automated Solutions. We believe that the Faucet market shall consolidate in the coming years and key players like Jaquar, Hindware, Parryware Roca, etc. would keep investing in better and cost effective solutions so as to bridge the Productivity Gap which is present right now in the industry. The only way to be more competitive in the market is to produce more components in a more efficient way and to do this, there is no better way than using CNC Solutions.

What challenges do you face while providing solutions to the bathroom fittings segment?

The key challenge in the Faucet market is to migrate the Faucet manufacturers from conventional setup to an automated setup. Most of the manufacturing done in the segment is still being done on manual and conventional machines wherein the manufacturing process is Operator dependant and hence providing High Quality Reliable Products is a big challenge. Manufacturers who have realised this fact have moved on to CNC solutions while many manufacturers are still stuck up with the conventional machining setup. HAAS has been pioneer in providing turn-key solutions in this segment from years. We conduct a lot of technical discussions with customers trying to understand their requirements and then providing productive solutions for the same. Be it machining solutions, fixturing solutions or improvement programs, we work closely with them to provide the correct solutions for the same.

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A leading supplier of technology and services, showcased for the first time its extensive range of connected and smart solutions in the business sectors beyond mobility in India

Dr. Steffen Berns speaks . The Bosch India leadership team in the background

The Bosch Group showcased for the first time its extensive range of connected and smart solutions in the business sectors beyond mobility in India. In 2015, the business sectors comprising of Industrial Technology, Consumer Goods, and Energy and Building Technology contributed around 15 percent to the Group's turnover in India.

"Customers are increasingly looking for suppliers who can offer them end-to-end solutions. Bosch is leveraging the combined strengths of its products to offer integrated solutions to meet the demands of customers across key growth sectors of India," said Dr. Steffen Berns, MD, Bosch Ltd and President, Bosch Group in India. In an increasingly connected world, the linkage of the physical and virtual worlds provides the opportunity to offer new applications. "We are uniquely positioned to offer meaningful solutions by harnessing its expertise across hardware, software and services," added Dr. Berns. The Group offers connected solutions and services for smart cities, home appliances, smart manufacturing, packaging, construction, transportation, mining, energy and agriculture.

Smart manufacturing solutions

There is tremendous potential for connected industry in India as the country attempts to position itself as a global manufacturing hub. The Group offers a broad range of technology solutions and services in this area, like drives, automation, sensors, software, etc. These solutions are e.g. suitable for the automotive manufacturing industry, Tier 1 component manufacturers, healthcare and pharmaceutical. When it comes to smart manufacturing, the Group has a dual approach. It is a lead supplier and user in its own manufacturing plants.

Smart solutions for mining

The Group has its presence in the mining industry with hydraulics, fuel injection systems for mining equipment and security technologies. To gain a deeper footprint, Bosch will tie-up with local system integrators for retrofit projects to offer end-to-end solutions. The Group is developing value added solutions that help minimise downtime and lower life cycle cost for the user. Using its Internet of Things platform and expertise available across various domains, the Company has developed a solution that connects miners and mining equipment. The Group's solution also promises to increase the levels of automation in the mining industry. Smart mining improves operational efficiency as it enhances productivity through improved asset utilisation. It also increases the focus on accountability by reducing costs thus improving profitability.

For the mass transportation segment

The Group has a strong presence in all the major metros in the country and has deployed technologies pertaining to passenger announcement systems, passenger information display systems and CCTV with end-to-end integration. There are several metros, airport expansion and railway modernisation programs underway in the country equipped by such smart solutions. The company is well positioned to further expand its base in this sector due to its recently launched, locally developed public address systems. Further investments in local R&D are ongoing to localise more products. The Group also offers innovative drive and control solutions for railway applications. In India, it offers hydrostatic auxiliary drives, traction drives and diesel engine cooling with roof mounting units. Apart from fulfilling the key requirements like total cost of ownership, the Group's solutions offer a guarantee of reliability, availability, maintainability and safety. These solutions are locally developed and produced as per global standards.

Transforming agriculture

The Group sees considerable growth potential in farm and livestock operations and supply chain side. It is looking to improve productivity, manage sustainability, and drive optimisation along the agriculture value chain. Bosch is developing solutions that improve agriculture operations by using sensors, digitisation, automation, crop modelling and big data.

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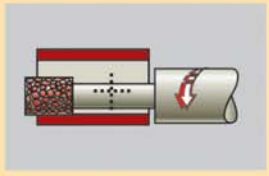

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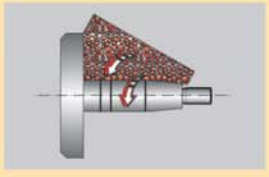

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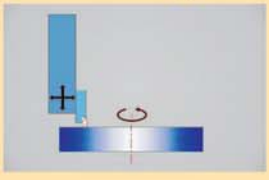

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By Niranjan Mudholkar

Focus, curiosity, humility, firm opinions and vision. Five immediate characteristics that this writer could associate with Dr. Pawan Goenka, Executive Director & Group President (Auto & Farm Sector), Mahindra & Mahindra Ltd. during this interview. Well, it was déjà vu for me because my impression from the previous interview (June 2014) with him wasn't much different.

He is almost taken aback as I congratulate him for becoming the first Indian to receive the prestigious '2016 FISITA Medal of Honor' for his 'outstanding contribution to the global automotive industry'. Indeed, a matter of pride not just for the Mahindras and for the Indian automotive industry but also for every Indian! Of course, he values it but isn't very keen to make it a talking point now. As we start the Q&A, he re-confirms the subject of discussion and we move ahead.

India's agriculture minister (Shri Radha Mohan Singh) had recently said (at Indian Soil Science Institute's 81st Annual Conference in Gwalior) that a 'tremendous challenge is being posed on how we should deliver sophisticated technology to the farmers and to their fields'. That is exactly what Mahindra is trying to do, Dr. Goenka points out. Then he explains the why and how behind it.

He says: "Yes, there has been continuous improvement on different fronts but there hasn't been any disruptive change in the way agriculture is done in India. I am talking more in terms of use of technology; I am not talking about the use of seeds and stuff like that. At the same time, globally, there is a lot of focus on precision farming – what that would mean is that how do you use technology to improve your yield, to improve the quality of output, to reduce the use of inputs like seeds, fertilisers, nutrients, etc., to select the right quality and quantity of seeds at the right places, to use water in the right places and the right quantity, and so on."

"As a leader in tractors in India, it is our responsibility to farmers to give them access to the latest technology at an affordable price."

Making farms digital

Dr. Goenka believes there is a lot that is going to happen beyond what a tractor does or in terms of equipment. Just to give an example, drones could be used to survey fields. "The question is how do you put everything together through digital means. So we have a tremendous focus right now on how do you bring digital into agriculture. One small thing that we have started recently is the launch of TRRINGO in Maharashtra," he says. TRRINGO is a unique first-of-its-kind physical digital model which allows farmers to rent tractors and other mechanised farm equipment for completing their farming work without actually having to buy a tractor.

Indian farmers face a big problem of wastage with regards to the quality of harvesting equipment. So Mahindra is working on new harvesters. "In fact, we have acquired a company in Finland called Sampo Rosenlew to bring in latest harvester technology to India. It's going to take some time but it will surely come. Similarly, with our tractors, we are looking at improving the lifting capacities, improving the hydraulics, improving the cutting capacities, im-

From Roads to Farms

Dr. Pawan Goenka, Executive Director, Mahindra & Mahindra Ltd. explains how his organisation is democratising advanced technology

proving the levelling of fields and so on. A lot has happened on these fronts outside India and we are looking at bringing these technologies here either through in-house development or through partnerships. As a leader in tractors in India, it is our responsibility to farmers to give them access to the latest technology at an affordable price."

Changing the agri 'culture'

Does it also mean that there will be a change in the way Mahindra approaches the farmers? "Not really. The reason we are in this business is not just to add value to our share holders but also to create value for farmers. The whole Mahindra Rise philosophy is aimed towards that. Its objective is to ensure that the association with Mahindra should help farmers become prosperous. And this prosperity has many elements. If you look at the last budget resolve of doubling farmers' income in five years, it has many buckets where we have to work on. There are five big ticket items that would help in achieving that goal. And Mahindra is participating in each one of these either in a small but meaningful way in some cases or in large and significant way in others."

According to Dr. Goenka, the biggest change that will happen in the next five years is custom hiring. Today, 80 percent farmers do not have access to tractors even after so many years of 'Green Revolution'. "So custom hiring will be very big and we are participating in this with TRRINGO. The objective is to make hiring a tractor as convenient for a farmer as it is for us to hail a cab through Ola or Uber," he shares.

"The reason we are in this business is not just to add value to our share holders but also to create value for farmers. The whole Mahindra Rise philosophy is aimed towards that. Its objective is to ensure that the association with Mahindra should help farmers become prosperous."

Secondly, we need to look at aggregation of farms. "One of the problems in India is that farms are very small. Therefore, bringing new technology becomes a little harder on smaller farms. Of course, farm aggregation is a policy related issue. We, at the Mahindra, are not actually aggregating farms but creating a cluster of farmers. For example, we have created a cluster of grape farmers in Nashik, which is already helping them to get better yield and better quality. We are also starting banana cultivation where our objective is to bring farmers together to help them get better crops."

The third item on his list is micro irrigation. While irrigation is also a focus area for the government, India still has one of the lower percentages in terms of fields with proper irrigation. In terms of micro irrigation, it is still lower. "Micro irrigation will both improve the yield and reduce water consumption. Mahindra is present there through EPC. The fourth one is knowledge dissemination. The farmers' knowledge of latest agricultural practices is somewhat wanting. And many still prefer to follow traditional methods. So we have this digital platform called 'My Agri Guru', to help farmers get the latest information on weather, prices and farm practices. We have already piloted this app."

The fifth key point he identifies is e-commerce. He believes that it is coming into agriculture in a very big way now. "Mahindra has participation through MeraKisan, an online shopping platform, which we recently bought. It sources fresh vegetables and fruits directly from farmers and sells it to the customers. The idea is to enable farmers and consumers to connect digitally and create a win-win situation for both.

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Middle man who is taking a fairly big chunk of the total value of the crop will become less and less important. And more of the revenue will go to farmers and that's what e-commerce will do. I think these five things will really change the way agriculture is done in this country."

Focus on real research

Before my actual meeting with Dr. Goenka, I had also made a quick trip to the Mahindra Research Valley (MRV) in Chennai to get some insights into Mahindra's R&D and innovation capabilities. I realised that while Mahindra is creating new frontiers of technology for the automotive and farm equipment segments, the scope of research and innovation goes much beyond mobility solutions - through its advanced technology division (ATD). So I ask Dr. Goenka about the objectives behind this approach.

"If I was to look at our stages of development in terms of expertise in engineering, 20 years ago we were only doing vehicle engineering. It was very basic at that time. Then we started building engineering capability in a very big way in mid 1990s. Then the Scorpio came, followed by many other successful products. The third phase, which is relatively new for us, is technology development. That's the reason why we have set up this advanced technology division at MRV. We are working with and innovating newer things that can be used in our products. And we are looking at different segments like electronics, renewable energy and so on."

The idea is to use own infrastructure and knowledge to create a complete virtuous cycle. "For example, take the waste, create CNG, feed in our vehicles, the vehicles go and collect the waste, again create CNG and so on. Villages generate a lot of agricultural waste and that is where this cycle comes into the picture. We consider this to be a fairly clean and cost effective way of creating energy and helping keep the surroundings clean as well as pollution free. Somebody has even pointed out that if this technology can be prominently used in Punjab by farmers then the Delhi air quality problem can be addressed. A key contributor to Delhi's air problem is the wind that brings fumes from husk burnt in Punjab. If this husk is used in creating bio CNG then the Delhi air pollution problem can be tackled." I hope the Punjab and Delhi governments look at this option!

> "Our aim is to retain our leadership position in the UV segment and also make inroads in the UV car segment to have a fairly significance presence there."

Bridging industry-academia gap

Another important initiative at the MRV is the Mahindra Technical Academy (MTA). The first thing that struck me (positively) about the MTA is that it has more labs than classrooms - which clearly shows the direction the Academy is taking. In the times to come, does Dr. Goenka see the MTA assuming a much greater role in also addressing a key issue that has always hampered the industry's growth in India – Industry-Academia partnership? "That's a very important issue," he says. "I have always said that India as a country is not investing enough in basic R&D. We are relying on technology development done outside India and then bringing it in. For us to be competitive globally, we have to develop our own technology."

Dr. Goenka underlines that India's investment in R&D is about one percent of GDP as opposed to about four percent of GDP in Korea. And even that one percent is mostly spent by the government and only about 0.2 percent is spent by the industry. "There is a dire need for the industry to spend more money on technology development. We have the expertise in India through our academia but there is no good alignment between industry and academia. So I think it is the responsibility of large corporates like us to work more with academia to develop indigenous technology. In fact, one of the roles of MRV is to work with different institutions and accordingly we are doing some projects with IIT Madras and IIT Delhi. We are also doing some training with IIT Jodhpur. So a lot of work is going on in terms of providing training, expertise and exposure to fresh graduates as well as developmental work with

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these institutions. We are still not where we should be but we have made a start."

The Mahindra Technical Academy was started about four years ago with a fairly large investment of Rs. 35 crore. "MRV has more than 2,000 engineers. So the right kind of training is very important. I believe that the technology gap between Indian companies and global leaders is not very huge but it makes all the difference. With MTA we are trying to address that last mile gap," Dr. Goenka explains.

Driving in the UV car

The recent dynamics in the Indian automotive market have almost created a new product segment – the UV Car. Mahindra's strength always has been in the first half of this segment. So how are they addressing the second part of this segment? Well, he likes the term UV car but doesn't think that the customer preference is changing. "It's just that many customers who would have bought a car are now buying what you call a UV car. The people who bought the traditional UVs are still there and that number has not gone down much. But that number hasn't grown either. We continue to remain pretty strong in the UV segment with our products like Scorpio, XUV and Bolero. We still have a fairly large market share in that segment."

"The UVs will now become lighter, more aesthetically designed, more comfortable, while retaining the size, stance and driving position of the traditional UVs."

Now, Mahindra would be focussing on bringing new products in this UV car segment. "The KUV100 is our first product in that segment and we are working on our second UV car which would be based on the Tivoli platform of our SsangYong brand. We recognise that this is a growing segment and we need to focus more on it." Then he also points out some interesting industry trends. "The UVs will now become lighter, more aesthetically designed, more comfortable, while retaining the size, stance and driving position of the traditional UVs. The same technology will also make the UV car almost like a car but give it the looks of an UV; from inside it is a car and from the outside it is a UV. Our aim is to retain our leadership position in the UV segment and also make inroads in the UV car segment to have a fairly significance presence there.

The future!

Electric vehicles is something where Mahindra has been bet-

Advanced Technology Initiatives at MRV

The Mahindra Research Valley (MRV) is an advanced Research and Development hub for the auto and farm equipment divisions at Mahindra and Mahindra. It focuses on R&D of various vehicle & tractor system technologies. Lot of work is also done in areas like Noise Vibration & Harshness (NVH), Computational analysis (CAE), computational Fluid Dynamics (CFD) and New Materials Development. There are various labs for advanced experimentation on Engine Testing & Emission Analysis, Fatigue testing, Vehicle validation (Reliability), Components testing (SEL), Auto & Tractor subsystem durability and functional testing, and metallurgical testing & Fluid testing for Fuels & lubricants.

The idea generation to have innovative thinking is encouraged and facilitated through various idea generation workshops, idea generation clubs, networking with external ideations and academia interactions. Once ideas are collated and filtered to ascertain its feasibility, an incubation phase is encouraged to practically implement those ideas. These are typically ideation projects of 10 to 12 months. If the ideas are viable and demonstrated it is taken up as technology development phase to arrive at feasible technology demonstrator concept prove out phase. At this phase it is normally possible to create a business case for its implementation to upcoming product of vehicle or tractors. If it is found to be futuristic due to cost or supplier development difficulties it is kept on the technology library for future deployment at appropriate time. The entire development is reviewed and monitored by a technology project council consisting of members from ATD, product development, Sourcing, Product planning and marketing.

The technology development is supplemented with concentrated effort to create Intellectual Property Rights (IPR) of the innovation and have an effective knowledge management portfolio to maintain a system of technology repository and disbursement for future use.

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ting big. "We believe that EVs are the future. It has taken longer than what we thought to take off. But we are sure that the days of the EV will come. We have a good portfolio of five products in that segment and we do hope that the inflection point is just around the corner. We have been investing a lot in the EV technology even if it has not been a money making business for us right now. But we always knew that. Right now our objective is to make EVs the technology of choice. The government is also providing good support in terms of incentives and subsidies," Dr. Goenka says.

In December 2015, M&M acquired iconic Italian design brand Pininfarina, which will also give it access to Pininfarina's key clients like Ferrari, Alfa Romeo, Maserati and Peugeot. How are they planning to leverage on this? Last time we met, Dr. Goenka had said that Mahindra wants to become much more global. This is surely a step ahead in that direction. Isn't it? He agrees: "That will certainly help. A big benefit to us is that it gives us access to high-end design and engineering expertise that they have." Interestingly, Pininfarina will also develop a product under its own brand name! "Work is happening right now but there is still lot of time before a Pininfarina car comes out," Dr. Goenka shares.

For a better India

So, is he happy with the way things are shaping up with the regards to the overall economic scenario in the country? I tell him that things are slightly better today than what they were when we had met previously. "Slightly better may be an understatement. We are much better. Although the common citizen may not feel that things are much better, and that is because these things take time to flow down to the common people." And why does he think so? "Because the confidence of business and even of the civil society that the current government means business and will change things positively is very high. One cannot deny that this government is looking to bring reforms in every aspect of our nation. There is clear focus on policy reforms and the government is also bringing more faith in institutions. Niti Aayog is doing much better than the Planning Commission, CAG has also become more effective, and the judiciary is also getting its rightful place. So there is more confidence in mechanisms and institutions. Overall, there is belief that things are changing in the right direction and that they will change much faster going ahead." But he also points out that some things are taking more time than they should. "Just one place improvement in the ease of doing business ranking is certainly a setback. So I think the serious intent at the top is not getting translated into visible difference at the bottom."

Dr. Goenka is quite glad that the government has got its focus back on the agriculture segment. "What I like is that they are working on making agriculture strong in the long term; they are not looking at 'what do I do for this month'." And overall, he surely is pleased with the way things are moving. "I am a lot more optimistic about where we are headed. But everybody needs to work together. Things won't change if we continue to be cynical about it. This is a good time for India and if the government is allowed and supported to work then good things are just around the corner."

The KUV100 with Arjun Novo tractor, two more products born out of MRV innovation

Focusing on **high quality**

Sanjay Seth, Managing Director, Hitachi Metals India Pvt Ltd talks to The Machinist about the company's latest offerings and expansion plans

By Swati Deshpande

How has been the market for your company in the last one year? How would you compare the business growth compared to the previous year?

The market for most of the products in special metals in which Hitachi Metals India is dealing has been encouraging. The company has clocked impressive growth rate of 15 percent in the year 2015-16

What competitive advantage do your products offer to the customers?

Staying true to the brand value of Hitachi, we offer products that are of very high quality so that our customers are rest assured about its standards of the product. Another advantage of our products is that they are energy efficient. Customers are happy with this combination and this is our strength area.

Which are the industry (customer) sectors that give you more business? Are you looking at new sectors? Why?

Apart from the customers that we already have, we are focusing on sectors such as automotive, infrastructure, die & mould, power sector, and so on.

Over last two years, what changes have you observed in customers' demands?

One can see a clear shift in the demands of customers.

> "Our company operates in a broad spectrum of industry sectors based on materials development technologies. We aim to achieve sustained growth as a manufacturer of highly quality functional materials with a multifaceted corporate structure."

> "Staying true to the brand value of Hitachi, we offer products that are of very high quality so that our customers are rest assured about its standards of the product."

Discerning customers are now focusing on cutting edge technology and high quality. And they are keen to have value for money products.

Tell us about your latest products and innovations?

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3. WHMB – High accuracy boring of small holes, drills with oil holes ranging from diameter 1–2 mm for L/D 3 -30.

What are your expansion plans in the near future?

We would like to bring manufacturing of high technology products to India under the Make in India initiative of Government of India.

Our company operates in a broad spectrum of industry sectors based on materials development technologies. We aim to achieve sustained growth as a manufacturer of highly quality functional materials with a multifaceted corporate structure.

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A Journey of 80 years

'Serving comes before earning' - This is the customer-focused corporate value under which Blaser Swisslube is celebrating its 80th anniversary. It all started back in 1936 with "Blaha-Glanz" - a shoe polish. Since then, the company has grown from a small regional business into a global player.

The first successful product made by the former Blaser+Co. AG was Blaha-Glanz, a water repellent shoe polish that was sold on the surrounding farms. Willy Blaser laid the foundation for today's company group in the crisis year 1936. As a 20-year-old who had been unable to find work in the painting trade he had trained in, he founded a one-man company in his parent's house in Hasle-Rüegsau where he produced lubricants and chemical-technical products especially for agriculture. Perseverance was the order of the day due to the shortage of raw materials during the war years.

The real upturn in the company's fortunes began after the war when the customer base expanded to mechanical workshops, construction industry, wood and metal processing industries and he first industrial factories. "With the same pioneering spirit that was present when the company was founded, tireless work was done to continue to expand the company, to increase and modernise the manufacturing facilities, as well as to increase the level of research and development," explains current Managing Director, Marc Blaser.

Step-by-step towards becoming a global player

In 1974 Peter Blaser, (Chairman of the Board of Directors since 2010), picked up the baton to manage the company. As a trained mechanical engineer, he introduced and added metal processing in the company's repertoire as well as establishing

The real upturn in the company's fortunes began after the war when the customer base expanded to mechanical workshops, construction industry, wood and metal processing industries and he first industrial factories

"Our Technology Centre is truly state-of-the-art and enables us to carry out stringent tests on new metalworking products and system solutions."

Marc Blaser

and expanding the sales network in Europe and further afield. Owing to the international orientation and ambitions of the company, the corporate name was also changed to Blaser Swisslube during this time. In 1981, Blaser Swisslube Inc. was founded in Goshen, New York. In 1995 and 1996, subsidiaries in Germany, the Czech Republic and Japan followed. Today, Blaser has its own subsidiaries and agents close to its customers in around 6 countries across the globe and employs a total of 600 employees - 300 of them are employed in Switzerland.

From metalworking fluid to Liquid Tool

The company continued unabated to develop its expertise in all things to do with metalworking fluids. This involved expanding and refining its research and development facilities to what, today, are the largest of its kind in the industry. With a surface area of around 3,500 m2, 70 chemists, microbiologists and laboratory technicians work on designing and developing coolants of the highest quality and, adopting true continuous improvement principles, analyse metalworking fluid samples from customers around the world.

The company inaugurated its Technology Centre in 2009. Speaking on the same, Marc Blaser said, "Our Technology Centre is truly state-of-the-art and enables us to carry out stringent tests on new metalworking products and system solutions. It also ensures that we are able to work in partnership with customers helping them improve their productivity, economic efficiencies and machining quality by identifying and developing metalworking fluid solutions that are tailored exactly to their needs, which we call a Liquid Tool. The ability to work collaboratively with customers is our key strength, and the continued investment in our research and development

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facilities provides us with distinct technical (and competitive) advantages."

Doubling of the tool life

In a recent project, Blaser experts in the Technology Centre impressively optimised the tool life. A renowned partner filled the role of international supplier and manufactured vehicle parts from a high-strength titanium alloy. In the ultra-modern Technology Centre in Hasle-Rüegsau, a range of tests were started with the goal of optimising the tool life during pocket machining.

The specialists at Blaser reproduced the partner's machining environment and employed the same machining parameters and data using a DMG Mori DMU 65 mono block machining centre, and began comprehensive tests employing trochoidal milling strategies.

Today, Blaser has its own subsidiaries and agents close to its customers in around 6 countries across the globe and employs a total of 600 employees - 300 of them are employed in Switzerland.

"Our Technology Centre ensures that we are able to work in partnership with customers helping them improve their productivity, economic efficiencies and machining quality by identifying and developing metalworking fluid solutions that are tailored exactly to their need."

The tests compared machining performance (specifically tool wear) when using a conventional metalworking fluid against an optimal metalworking fluid specifically adapted to the partner's needs. The series of width of wear tests were conducted up to 0.30 mm.

The results were excellent. Using the optimally adapted coolant from Blaser Swisslube, 11 instead of just five pockets could be milled until the wear on the tool forced the processing to be stopped. The result achieved was confirmed in various series of tests, and corresponds to a doubling of the tool life.

Source: Blaser

EVENT

HaasTec is set for November & December'16

Events are to take place in Ahmedabad and New Delhi in November and December 2016 respectively

The popular HaasTEC shows are returning to India this year with two events arranged for different regions of the nation. Managed by the Haas Factory Outlet (HFO) in India (Phillips Machine Tools India Pvt. Ltd.), the first HaasTEC will take place from November 16–19 at Ahmedabad, Gujarat and it will be followed by HaasTEC Manesar from December 7–10, 2016. In line with previous HaasTEC events, a number of innovative, affordable Haas CNC machine tools will be on view. Indeed, two machines will be on show for the first time in India, the Haas ST-15 & Haas DT-2. All of the Haas CNC machine tools on display will be powered and performing demonstrations, cutting metal. Haas specialists from the HFO will be available to guide visitors through the demonstrations and answer any questions about the machines.

Show stopper HAAS UMC-750 five-axis vertical machining centre offers a capacity of 762 x 508 x 508 mm in the X, Y and Z-axis respectively. It features a two-axis inbuilt trunnion rotary table and a 40-taper, 22.4 kW, 12000 rpm direct drive spindle. Other features of this advanced machine include a 40+1 side mount tool changer, 25.4 m/min rapids, co-ordinate rotation and scaling, rigid tapping, a wireless intuitive probing system and a 284 litre flood coolant system. Other Haas CNC machine tool models scheduled to appear at both HaasTEC events include the ST-10Y turning center with Y-axis, VMC's - VF-2 & VF-2SS & Mini Mill.

Visitors are invited to bring along components or drawings for a full evaluation of optimised machining solutions. The HaasTEC events will also feature a number of the company's industrial partners, all able to offer complementary technologies and advice.

Demonstrations, tours and a live Q&A counter will be among other event highlights.

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CDPQ acquires stake in **TVS Logistics Services**

The company plans to invest Rs. 1,000 crore to acquire a sizeable minority stake in TVS LSL

TVS Logistics Services Ltd. (TVS LSL), the India-based multinational third-party logistics service provider, announced that it has reached an agreement with Caisse de dépôt et placement du Québec (CDPQ), one of North America's largest pension fund managers. Under this agreement, CDPQ will invest over Rs. 1,000 crore (USD 155 million) to acquire a sizeable minority stake in TVS LSL, a privately held subsidiary of the TVS Group. Following this transaction, existing investors Goldman Sachs and KKR will fully exit their investments in TVS LSL. CDPQ will purchase most of their joint stake, while TVS family members and management will acquire the remainder.

Beyond this equity investment, CDPQ is ready to commit significant additional capital to finance transformative acquisitions and support the expansion of TVS LSL in India and globally.

R. Dinesh, Managing Director, TVS Logistics Services Ltd. said, "We are happy to have CDPQ, a leading global institutional asset manager, on board. Over the years, we have benefitted from a meaningful partnership with global investors like Goldman Sachs and KKR. We believe CDPQ is the perfect long-term partner for our next phase of growth as we look to expand the scale of our business.

TVS Logistics, over the years, has grown at a CAGR of more than 30 percent and has a strong global track record of growth, both organically and through acquisitions. We look forward to continuing this evolution and building on our successes through a fruitful partnership with CDPQ."

Michael Sabia, President and Chief Executive Officer, CDPQ, said, "Efficiency in delivering goods to customers is a key driver of business performance. TVS Logistics is well positioned to seize growth opportunities resulting from recent tax reforms in India and global demand for state-of-the-art logistics services. CDPQ's strategy is to identify world-class management teams and to support them over the long term. This is precisely what we intend to do with TVS Logistics as it expands in its home market and abroad."

Sanjeev Mehra, Goldman Sachs' representative on the board of TVS LSL, said, "We have been privileged to partner with Dinesh and the TVS Group as their first private equity investor. During our eight year long partnership together, we have successfully scaled the company, added new services and geographic capabilities. Goldman Sachs is proud to have been part of this transformation and growth in creating an Indian champion through one of our first investments in India."

Sanjay Nayar, Member & CEO of KKR India, said, "We are proud to have worked alongside the TVS Logistics team in this partnership to enable several game-changing acquisitions across geographies. This expanded their service offerings and capabilities globally. With this unique platform, we are confident TVS will experience continued success with CDPQ."

Over the years, TVS LSL has substantially widened its service capabilities, including last mile delivery, demand forecasting, and technology logistics through its acquisitions in the UK such as Rico Logistics and Multipart. It further added capabilities like sub-assembly and sequencing through its Wainwright acquisition in the US. With a global footprint and suite of sophisticated capabilities and services, TVS LSL is now well positioned to increase its coverage across all segments of the logistics supply chain in India and other parts of Asia.

CDPQ opened CDPQ India, its New Delhi-based office, in March 2016. It is led by Anita Marangoly George, Managing Director, South Asia, whose mandate is to identify the best investment opportunities in the South Asian markets.

No compromise on **quality!**

Beijing Jingdiao Company Ltd has collaborated with Renishaw as its business has continued to grow over the years, with the two companies working together to open up new pathways to innovation and deliver superior quality.

Based in China, Beijing Jingdiao Company Ltd (Jingdiao) specialises in the R&D and manufacture of high speed small cutting tool machines. They currently operate several dozen Renishaw laser interferometers, ballbars and rotary axis calibrators, which are used in the development of new products and refinement of manufacturing processes. Jingdiao's CEO Huang Shan explains, "We chose Renishaw products when our company was first founded because we admired their brand values and product performance. We compared precision calibration equipment, including laser interferometers and ballbars from a number of brands on the market, and found that of all the comparable products, Renishaw offered the most consistent performance and the most widely recognised measurement results."

A discerning eye and uncompromising standards

'Working with a sculptor's precision' is a fundamental part of Jingdiao's corporate DNA, so product quality has always been the first order of business. The company has put this philosophy into practice by procuring the most advanced measurement and testing equipment and instrumentation to ensure product quality, even in the early stages of Jingdiao's development when funds were limited. This arsenal of advanced equipment and instrumentation includes Renishaw's laser interferometers and ballbars, which are used to assess the precision of machining centres. Using world-leading machinery calibration equipment like the XL-80 laser interferometer and QC20-W telescoping ballbar has enabled Jingdiao to maintain strict control over product quality. Moreover, both laser interferometers and ballbars are equipped with a variety of dynamic testing features and fault analysis functions, which provide a wealth of invaluable data for use in new product R&D and the improvement of manufacturing processes for existing products.

Jingdiao invests heavily in updating its production and measurement equipment every year. Over a number of years, the company has bought several dozen Renishaw laser interferometers, which it buys exclusively, as well as Renishaw's updated next generation XL-80 laser interferometers, QC20-W telescoping wireless ballbars and XR20-W wireless rotary axis

> "We are very satisfied with the performance of Renishaw's laser interferometers and ballbars, and for us, they are synonymous with high-precision measurement. Our experience over more than a decade of collaboration has let us experience first-hand the critical importance of the consistent operation of laser interferometers as precision references and the value of on-machine probing, in order to ensure high levels of performance for CNC engravers."
>
> **Huang Shan,** CEO, Jingdiao

calibrators. Recently Jingdiao has ordered another five XL-80 and XR20-W systems in preparation for its next phase of large batch production and quality control for five-axis machining centres.

This specialised equipment and strict quality management ensure the high quality of Jingdiao's products. Jingdiao has a strong technology R&D team and comprehensive quality assurance systems. The company has developed its own data capture interface to utilise the automatic pitch error compensation features of Renishaw laser interferometers during product calibration; this system sends data from the laser interferometers directly to Jingdiao's machining centres via a USB interface, enabling rapid, efficient and precise calibration of machinery.

Unleashing potential through innovation and creativity

In order to meet requirements for improved product processing, Jingdiao has integrated Renishaw OMP40 and OMP400 probes as accessories for its machining centre products including its newly launched machine tool digital control machining centres. This enables the automatic update of component coordinate systems and automatic measurement of component dimensions. Jingdiao has also exploited the advantages of touch measurement by developing unique contour error compensation functions, which provide on-board compensation for the degree of deviation in component contours, enabling equivalent-depth cutting processing for contours to be processed.

Clamping or processing thin-walled components such as aluminium alloy parts can easily produce deformation of the component, making it difficult to ensure the precision of dimensions. This is when the OMP40 and OMP400 touch probes come into their own. Prior to processing, probes gather data on the outer contours of components and the results are stored in the machining centre's variable parameters; the processing cutting tools then follow this path as during profiling, thereby ensuring the precision processing of contours.

In 2013, Jingdiao went on to develop curved surface error compensation functions for its five-axis machining centres. This system provides on-board compensation for errors in curved surfaces, enabling the engraving of designs and reliefs on curved surfaces that follow surface errors.

Refined processing and precision measurement

CNC precision engravers are extremely demanding in terms of the precision of processing product dimensions for glass grinding. The number of broken edges during the CNC mould making process have a direct impact on the product's throughput yield. Jingdiao have sold more than 10,000 machines specifically for these applications. Jingdiao selected Renishaw's OMP400 high precision measurement probes and their NC4 non-contact laser tool setting system for these applications, which involve strict dimensional precision requirements and high batch production yield rates.

The OMP400 offers the benefits of high-precision three-coordinate measurement; it has a measurement repeatability of up to 0.25 microns and can achieve a level of measurement precision in machining centre environments that compares favourably with CMM units. Using the OMP400 solves problems with batch production such as product positioning and product deformation, ensuring that products meet the highest precision requirements. The NC4 non-contact laser tool setting system utilises laser beams to measure the dimensions of grinding wheels, while the measurement data is able to automatically update cutting tool parameters. The NC4 can be used to monitor grinding wheel wear and make instant repairs, not only saving time on grinding wheel measurement, but also guaranteeing high levels of measurement precision.

The constant improvement of product performance and continual innovation enables Jingdiao to meet users' individual requirements. This win-win situation for both Jingdiao and its users is the company's ultimate goal.

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Source: Renishaw Metrology Systems Ltd

Skilling **young India**

Tata Strive aims to bridge the gap between an under-skilled youth segment and the talent vacuum in the Indian economy. Here is a report on how the company achieves the same.

Over the past quarter of a century, India has been undergoing an economic transformation like never before, and yet the country is home to millions of earnest and employment-hungry youngsters who are unable to get jobs.

This is the challenge being addressed by Tata Strive, a pan-India initiative aimed at arming the country's young with the skills needed to improve prospects and secure jobs in the industries of today. Tata Strive's mission is to train youngsters in both soft and work skills and make them readily employable — and hence, also addressing industrial India's other concern, the shortage of skilled talent.

With two-thirds of its population under 35 years of age, India is one of the youngest countries in the world from a demographic perspective. Cashing in on this demographic dividend is critical to India and its ambitions.

Focused skill sets

Tata Strive is a manifestation of the Tata group's belief that harnessing the collective expertise of its companies and combining their efforts to strengthen India's skilling ecosystem can lead to perceptible difference in the community. Through Tata Strive, the Tata group has sought to equip people in the 18-35 age bracket with skills that are relevant to industry.

Tata Strive is aligned with the 25 'sectors of focus' identified by the Indian government, and designed to address the skill gaps pointed out by the National Skill Development Corporation. Currently, the company offers courses in the fields of retail, banking and financial services, automotive, business process outsourcing and hospitality. There are courses for electricians and other technicians as well. In addition, there are innovatively designed modules for facilitators and trainers on youth employability, life skills and empowerment coaching. Tata Strive also brings in appropriate certification to enable the measurement of outcomes in the creation of a skilled workforce.

Power of the collective

To power this effort, Tata Strive has forged a wide variety of partnerships — with Tata and non-Tata companies, the Tata Trusts and other charitable foundations, nonprofits, government agencies, industrial training institutes, banks, and training associates. Within the Tata ecosystem, a large number of companies have come on board. Among the non-Tata partners are companies such as Schneider, Siemens, Bosch and Cipla.

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Recently, the company signed a memorandum of understanding with the Indian Chamber of Commerce. The aim is to map skilling opportunities in core sectors like steel, mining, power, coal and infrastructure, particularly in the east and northeast regions.

The delivery of the skilling happens at centres called Tata Strive Skill Development Centres (TSSDC). These are managed and staffed by people hired through the initiative. There are also TSSDC extension centres which are smaller but similarly run.

Volunteers from group companies also work with Tata Strive (through the ProEngage programme of the Tata Sustainability Group). In short, Tata Strive is driven by the spirit of cooperation and collaboration.

Another aspect of Tata Strive is the planning for sustainability. The use of technology makes operations replicable, scalable and measurable. Content is available through the platform and can be made available offline to any location. Facilitator guides and student handbooks are digitised and attendance and placement data are tracked real time via the platform. Benchmarks are also being put in place, with the training methodology being standardised and made replicable.

Uphill task

Tata Strive today has more than 20 centres. But the launch phase has not been easy. While the Tata brand gave it a head-start, it still had to contend with a plethora of challenges in a scenario where the skilling ecosystem was often minimal. The Tata Strive team had to ensure that the demand and supply of skills was well matched. Care had to be taken to ensure that any migration that happened was born of aspiration and not

forced by the availability of trades.Another challenge involved the logistics of taking quality training to the communities that really needed it. Communities traditionally deprived of opportunities are often based in remote areas, where setting up a centre and attracting faculty proved difficult.

Long-term view

While Tata Strive's offerings are capable of changing lives, beneficiaries will need to make the effort to take advantage of them. For this to happen, mindsets will need to change. There will need to be a greater participation of women in the programmes.

Conclusion

Tata Strive is actively working to encourage women to take up non-traditional courses by enabling a safe environment for them and providing career guidance to parents and students alike.

The success of its endeavours has brought in much learning for the Tata Strive team. Having settled in, the team is confident of being able to take the programme beyond India's shores. The company has very quickly proved that it is an idea whose time has come. Its unique methodology, empowered coaching and teaching techniques that go beyond textbook learning have kept students motivated and got them ready to play a full part in the India of today and tomorrow.

PRODUCT

LVD launches next generation of adaptive bending system

Synchro-Form offers revolutionary new solution for large-profile bending

LVD Company nv introduces Synchro-Form, the next leap in adaptive bending technology. Synchro-Form automatically maintains angular consistency and the required geometric profile when handling, positioning and bending large parts with multiple bends. The system overcomes the problems of accumulative error and trial-and-error bending when forming large profiles. As a result, Synchro-Form ensures precise, efficient bending, eliminating manual operations and increasing throughput. The system made its debut at the recent EuroBLECH tradeshow.

Adaptive bending evolution

Synchro-Form evolves LVD's renowned adaptive bending technology, making it easy to produce accurate bends in large workpieces. The system is a unique design. It uses a laser scanner and synchro modules (X, R, A-axes magnets) to manipulate, position and measure each bend, relaying the digital information to the TOUCH-B control, which makes adjustments to part and ram position to achieve the correct profile. Variations are not accumulated but, instead, compensated with each bend step. Even after multiple, consecutive bends, the profile will be perfectly formed.

Technology leader

LVD is a leader in adaptive bending technology. The Synchro-Form system joins LVD's Easy-Form Laser, a patented in-process angle monitoring system introduced in 2002 and currently featured on all Easy-Form press brakes. LVD's unique

Easy-Form system uses a laser and symmetrical measurement at the front and back of the die to determine the exact value of the angle of the workpiece.

Heavy-duty bending up to 3000 tons

LVD's Synchro-Form is an integrated feature of Synchro-Form Series in models ranging from 320 tons by 4 meters up to 3000 tons by 14 meters and also available in tandem, tridem and quadem configurations. These configure-to-order machines are typically used in the crane boom, yellow goods, lighting pole, construction, transport, agricultural, offshore, oil/ gas, and wind-power industries.

For more information, visit www.lvdgroup.com.

Investing in the **future generation**

Zoller recently signed a MoU with SRM University to set up advanced automation tool room and a training program. On this occasion, **Christoph Zoller** spoke to The Machinist about thoughts behind this initiative.

By Pushpendra Shukla

How did Zoller identify SRM university?

We met the officials of SRM University at the IMTEX show 2015 and had a follow up discussion afterwards. A meeting based on the overall infrastructure at SRM University with CAM Training, in their manufacturing section made us realise that it is indeed a very good location for the centre. Also, SRM is one of the well-established universities in the country. It took nearly three years to reach an agreement with the officials of SRM University. The university has provided the infrastructure whereas Zoller provided all the equipment and hardware at the training centre. There is a huge potential for us to expand from here and the students seemingly showing keen interest is a huge advantage. Having an additional skill set with superior technology and techniques will only ensure engineers (passed out students) to be better in their job and Zoller aims to help them in every way possible in this competitive world.

Is this a first of its kind program for Zoller across the world?

Every country has its own unique set up and requirements. In India, this works best. We already have one program running successfully in IMTMA in Bangalore and this is the second centre for us. We do not have any plans to roll out any more centres in India as of today.

With this Zoller program, what skills and advantages will the students of SRM University have compared to other engineering students?

With the Tool Management Training program, students get knowledge about tool management and what is involved. For students in the manufacturing sector, application is very important and the knowledge to implement such systems in any manufacturing unit where they are employed, would be an additional skill for them.

Though, Zoller has no tie ups with any manufacturing units to intern these students who are well versed with our systems and processes, it is an added advantage for students which is beneficial for all.

There is a huge potential for us to expand from here and the students seemingly showing keen interest is a huge advantage. Having an additional skill set with superior technology and techniques will only ensure engineers (passed out students) to be better in their job and Zoller aims to help them in every way possible in this competitive world.

What is the percentage of turnover that Zoller invests in R&D worldwide?

Zoller believes and invests heavily in their technology and products. With customers demanding more cost effective processes, it is imperative that we spend heavily on R&D. Zoller on an average spends 17 percent of its turnover in R&D.

Any plans of increasing your presence in India?

Zoller has invested a lot in India in terms of establishing offices and increasing manpower, which is unmatched in this industry. Zoller has six offices and 32 employees catering to the needs of our customers. As and when the need arises, we shall take efforts to increase our presence.

Germany headquartered Zoller is betting big on the Industry 4.0 and India as our next big market. And what excites Christoph Zoller, the third generation entrepreneur more is being present in India.

The company manufacturers Presetter and Measuring machines and has over 30,000 machines installed till date worldwide. Zoller caters to the automobile industry and has all the leading auto majors across the world as their customers.

The company, having its India headquarters in Pune, has recently signed a MoU with Chennai based SRM University to establish a Presetting and Measuring tools workshop in the Department of Mechanical Engineering, Chennai. Incidentally, Zoller has a workshop program on similar lines in the IMTMA Centre in Bengaluru.

Christoph Zoller at the time of the inauguration said, "Being a cost efficient manufacturer, it would be a great opportunity for us to expand our products in India by making our customers more effective".

"My vision towards the future and specifically Industry 4.0 in the manufacturing sectors is happening. Industry 4.0 will result in Virtual connectivity that would be cost efficient with reduction of time and labour. A survey conducted in the European Countries resulted in savings of €50,000 for a large manufacturing company in a year," he added.

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Q What is the market share that Zoller enjoys in India?

Zoller does not believe in garnering market share just for the sake of having a market share. Our customers are very important for us and we invest in good support and services that gives us the edge over others.

The author is a Chennai based freelancer

PRODUCT

Disc Mill Cutters

Seco Tools has further expanded the industry's widest selection of disc milling inserts and cutter bodies. In response to customer demands, Seco has introduced the 335.14 small-diameter exchangeable head system, 335.16 cutter for T-slot operations and cassette versions of the 335.25 cutter that incorporate round inserts.

Incorporating small-diameter exchangeable carbide heads, the 335.14 offers a versatile, precise cutting profile that easily tackles any type of material. These cutters are ideal for groove milling, circlip grooves, full radius profiles and chamfering. Reliable exchangeable head systems control machining costs. The 335.14 product line comes in a wide variety of cylindrical and integrated collet chuck shanks in diameters from 9.7–34.7 mm that cut widths from 0.7–5.15 mm. The highly stable 335.16 cutters incorporate 4-edged inserts to economically perform demanding T-slot operations. Modern insert geometries reduce machining forces and noise for optimum tool life. Centralised cooling channels effectively remove chips and provide excellent surface finishes and finished part quality. Cutters come in diameters from 25–50 mm based on standardised T-slot dimensions. The wide selection of insert geometries and grades cut many materials in widths ranging from 11–21 mm.

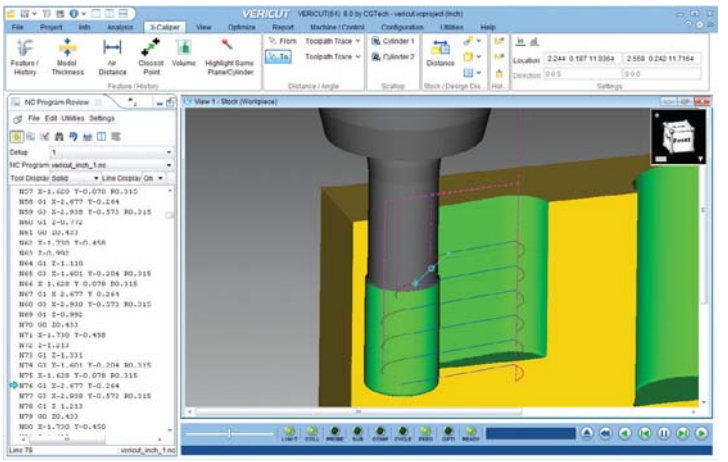
The expanded line of 335.25 disc mill cutters now includes new cassettes for 16-mm and 20-mm round insert diameters. These cutters perform well in various full side, face or half side and face operations for applications involving corner radii. The exchangeable cassettes ensure long, reliable cutter performance. The large choice of insert geometries and grades provide freer cutting operations and increase cost-efficiency in any type of material. Regular and extra-large cassette sizes accept 16-mm and 20-mm round insert diameters. Cutter diameters range from 100–315 mm.

For more information, call: 02137-667300
e-mail: seco.india@secotools.com, or
visit: www.secotools.com/en/Global/Products/Milling/Disc-milling/

Speed Workflow with **VERICUT 8.0**

Know more about new version of the software lunched by CGTech

VERICUT 8.0 features several enhancements designed to increase the ability of manufacturing engineers to analyse, optimise and document the CNC programming and machining process. Intelligence gathered from both the cut part and the machining process is applied to achieve an even higher level of accuracy and efficiency. CGTech is increasingly challenged to simulate more complex processes and machines, while supporting 'first part, good part' production goals. VERICUT 8.0 ties complex processes together with the ability to monitor and evaluate many potential problems in an efficient and consolidated method, thereby reducing the time spent in the programming and machining cycle.



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New ribbon bar

VERICUT 8.0 optimises workflow and helps find the functionality the user needs with minimal mouse clicks. Upon upgrading to this version, the first thing one will notice is the new Ribbon Bar. The Ribbon Bar allows user to quickly select the VERICUT function that one wants to use. As the user moves from tab to tab, the Ribbon bar dynamically updates to show the options available for that tab. Options are grouped by the function they perform within VERICUT.

The Ribbon Bar is highly customisable, but to ease the transition, a "VERICUT Classic" setting organizes all of the menus and options where you previously found them (a "cheat sheet" is also available from the cgtech.com website). Several other layout options are included and can be selected depending on the task at hand. Users can also create and save their own workflow as needed for different jobs.

"Air Cut" optimisation built-in

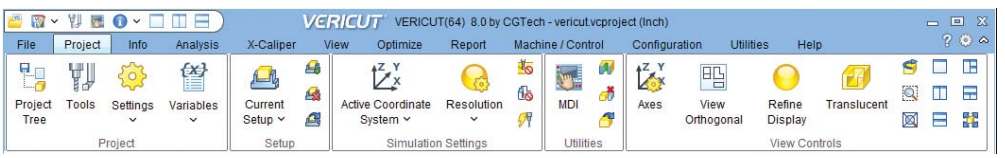
You now have the ability to optimize "Air Cuts Only" (off-part milling cutter motions) as a capability included with VERICUT's base Verification license. The new method is intended as an easy-to-use, entry level method of optimising NC programs. Additional optimisation strategies are available with the purchase of OptiPath or FORCE.

Read STEP files – no extra license required

The STEP Model Interface reads STEP files (.stp or .step) containing AP203 and AP214 (geometry only) protocols. A STEP file can be referenced directly in VERICUT's modeling interface to describe machine, stock, fixture, and design shapes, or 3D cutting tool shapes in VERICUT's Tool Manager. The Tool Manager displays the CAD Geometry window that allows you to identify which parts of the CAD model file correspond with holders, cutters, or inserts.

Integration with cutting tool suppliers and tool management systems

As with all software programs, the accuracy of the data input will directly affect the output. So, an accurate model of



the cutting tool and holder is required for the effective and accurate simulation of the machining process. Most leading cutting tool manufacturers now make 3D solid model data available and VERICUT can read in this model data for use in the simulation process. Many of the 3D models are available via the Machining Cloud App, and version 8.0 has been enhanced to take advantage of more Machining Cloud metadata. This can significantly simplify the configuration of tools for use in VERICUT, and better describe their proper use and limitations. VERICUT also integrates with most major tool management systems. Pre-setting suppliers including Zoller and Speroni can also interface to the software, so tool offsets and exact dimensions can be applied to the simulation session.

Tool manager preferences

A new preferences dialog allows users to setup many default settings that help to streamline creation of cutting tool assemblies. For example, you can specify the colours used, and the driven point offset numbering scheme (default to "1", or follow the tool number), and CAD model tolerances for cutters and holders, and if holder is desired (or not) for a new tool. Each imported 3D tool model can also have its own separate model tolerance. For example, you may want a very high accuracy on the cutter model, and less tolerance on the holder model. Version 8.0 Tool Manager has a number of other time-savers, such as being able to mark any tools as "Default", to be the starting point for building similar tools of that type, instead of starting from scratch. There are also a number of Copy/Paste/Multi Select improvements.

Consolidated reporting features

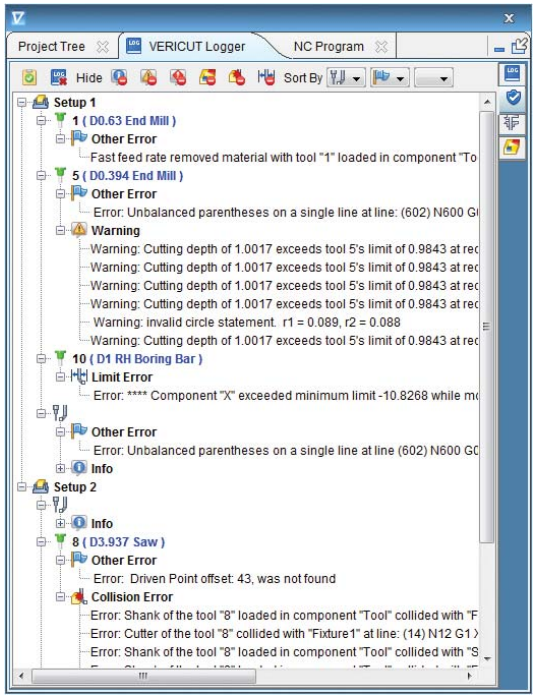
The VERICUT logger now displays messages and reports from many sources in a tabbed logger window. In addition to errors, warnings, and other messages from the VERICUT session, it also displays information from AUTO-DIFF and X-Caliper. The messages can be grouped, sorted, and displayed in a variety of ways depending on user preference. VERICUT speeds investigation with dynamic links between logger messages and responsible NC Program records. The exact source of an error is just one click away.

Graphical tool path analysis

A new "Toolpath Trace" feature creates a wireframe of the motion path that can then be measured. In NC Program Preview or Review modes, picking on a toolpath trace in the wireframe automatically sets the simulation to that record in the NC program.

Force enhancements

The Force module, first available with the release of version 7.4, is a physics-based optimisation method that determines the maximum reliable feedrate for a given cutting condition based on four factors: force on the cutter, spindle power, maximum chip thickness, and maximum allowable feedrate.



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In version 8 there are new features for better control of entry/exit speeds, "clean-up" feedrates, and tooling information has been re-arranged to be more intuitive.

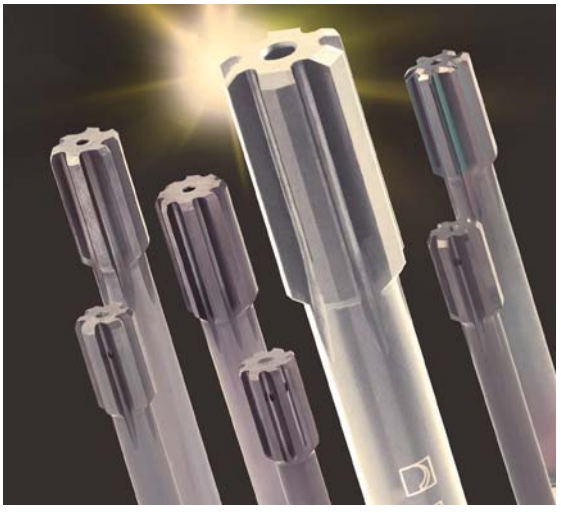
Other new features:

- Translate models via selecting solid model features, eliminating the need to create coordinate systems for positional information.
- Enhanced modeling options provide greater control and flexibility over moving individual models, assemblies, and component origins, greatly reducing time to model machines, especially from 3D CAD model assemblies.
- Many performance enhancements.
- New method to compare the stock cutting position to a 2D DXF file drawn for design.
- Launch WinTool interface from within Tool Manager.
- Windows 10 is supported.
- Self-guided training sessions launch from the welcome screen and automatically open the associated sample files.

Source: CGTech

Easy-to-use reaming tools

Learn more about KOMET's lates product range.



At AMB 2016, the KOMET GROUP presented a variety of new product solutions under the trade fair slogan "THE CUTTING EDGE – Total Productivity Solutions". The highlights include newly developed reaming tools such as KOMET DIHART Freemax, hi.max and Fullmax Champions, which impress with their increased ease of use and improved performance.

With the KOMET DIHART Freemax, the KOMET GROUP has successfully developed a new high-precision indexable insert reaming tool that is even easier to operate than the current versions on offer. In previous tools, each insert had to be assigned a specific insert seat (identified by the letters A, B, C, etc.) due to the requirement for concentricity, but this positioning has now become redundant in the new concept. Users can fit the precision-ground indexable inserts with three cutting edges into the new KOMET DIHART Freemax tool in any order, making it virtually impossible to equip the tool incorrectly.

The new KOMET DIHART hi.max monoblock reaming tool is just as easy to use and can be used as a universal tool for high feed rates and cutting speeds due to its stability. It is available in a coated version and an uncoated version for carbide and cermet cutting materials and lends itself to use with many different materials. The diameter is particularly easy to measure thanks to the fact that the cutting edges are arranged opposite one another in pairs. The uneven spacing of the cutting edges in particular ensures that the most stringent requirements for concentricity of the drilled hole are met. The monoblock construction is synonymous with high levels of stability and process capability.

KOMET is also presenting a new product for solid carbide reaming: In addition to the versatile KOMET DIHART Fullmax universal reamer, which is available ex stock in the main dimensions and with a tolerance of H7 as well as in dimensions of 1/100 mm, what are referred to as 'Champions' are now also available. They are characterised by a geometry and coating that are both optimised, as a result of which they provide a performance that is up to 30 percent greater in mass production.

For example, the KOMET DIHART Fullmax K, which is designed for machining cast iron, has two more cutting edges than the universal reamer for identical diameter ranges and therefore ensures even higher productivity. Owing to its extremely smooth coating and newly developed chip breaker geometry, the KOMET DIHART Fullmax N is suitable for machining aluminium, whereas it has not yet been possible for the universal variant to be used for this purpose. The KOMET DIHART Fullmax H is designed for hard machining. Optimised cutting edge preparation and an optimal combination of geometry and coating achieve an excellent surface finish and a long tool life in hardened materials up to 62.

For more information, call: Tel.: +91 80 6772 8000
E-mail: info.in@kometgroup.com
www.kometgroup.com

Secure data transfer in moving applications

igus sets standards with fibre optic and CAT7 Ethernet cables

In the factory of the future, highly dynamic machines will communicate permanently in real-time. A quick and safe energy and data transmission is particularly important here. igus offers particularly versatile and forward looking cable solutions for use in the smart factory. Along with the promise: "3 years' guarantee from the first metre".

For the factory of the future to work, a real-time communication of machines with each other at all levels must be guaranteed. To ensure that all stations can exchange their data with each other, Ethernet cables will be increasingly used in factories. Not just on stationary, but also specifically in moving equipment. For this reason, in the segment of copper-based Ethernet cables, igus offers 23 different types, all of which are designed exclusively for industrial, continuously moving applications, but also the most varied mechanical requirements.

CAT7 Ethernet technology for continuously moving applications

For substantially increasing data safety, the cable has braided shields, pair shields and an overall braided shield with 90 percent optical cover, which ensure functionality even after millions of bending cycles in energy chains. The special core/braiding structure gives this CFBUS cable a long-lasting flexural strength. "A braided shield made with an optimised braid angle protects the overall shield against mechanical fractures as well as the electromagnetic compatibility of the cable," explains Rainer Rössel, head of the chainflex cables division at igus. The shielded pairs are stranded with an optimised pitch length so that on the one hand they meet high mechanical requirements, and on the other fulfil the electrical requirements in terms of data transmission.

This CAT7 cable is flame retardant like all highly abrasion-resistant TPE CFBUS types. In addition, it has UL/CSA, EAC and CTP certifications and conforms to DESINA. The new cable is furthermore for use in clean room environments

Fibre optic cables; communicate without interference in highly dynamic applications

Due to their immunity to electrical interference and the substantially higher data capacity data transmission over fibre optic cables is of potential importance for Industry 4.0. The range of fibre optic cables, which have also been specially developed for continuous movement, covers all areas of mechanical requirements. For example with the CFLG.2EC series, igus offers an affordable fibre optic cable specifically designed for indoor use in handling or woodworking machines. The CFROBOT5 enables robots to have fail-safe communication in three-dimensional space. With the chainflex fibre optic cable CFLG.LB.PUR, igus also presents a special fibre optic cable series for the continuously moving application in the offshore and marine sectors. They are already available with 2, 4 or 6 optical fibres or 2 optical fibres and 2 power supply wires. The stranded-together multimode or single-mode fibres are very bending-resistant types designed as a sub-cable, which can be fitted very easily and cheaply with connectors. Due to its extremely high strength aramid (Kevlar) braid over the overall stranding, even high tensile forces that may occur in hanging applications do not damage the cable. The flame-resistant, pressure extruded PUR outer jacket, especially tailored for energy chain use, provides additional protection against external mechanical damage. Due to the DNV/GL offshore approval, the new fibre optic cable family, as well as the CAT7 cable, offers the capability to securely transmit data on offshore platforms and ships.

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Innovative leap in coating technology

Walter AG, the Tübingen-based cutting tool manufacturer, is responsible for an important technological advance in the manufacturing sector. This machining specialist is one of the first companies in the world to present a new technology platform for coated indexable inserts based on CVD titanium aluminium nitride (TiAlN): Tiger•tec® Gold.

In contrast to the cutting tool materials that have previously been used in the sector, Tiger•tec® Gold has significantly improved coating properties and therefore offers a considerably longer service life, increased process reliability, and increased productivity. Walter is presenting Tiger•tec® Gold to the public for the first time at the AMB from 13th to 17th September in Stuttgart.

Global agreement over many years: For well over two decades, the machining sector has been working with CVD coatings that are based on aluminium oxide (Al2O3). The properties of these coatings were continuously improved throughout the years, but the developers have since reached their limits with this material. The technological options for further optimising aluminium oxide grades have largely been exhausted now.

This was reason enough for the specialists at Walter to set about developing a new generation of grades for coating indexable inserts. The result: Tiger•tec® Gold – a completely new technological platform based on titanium aluminium nitride (TiAlN). Among other things, the coating impresses thanks to its extremely high hardness and residual compressive stress; it is ideal for milling steel and cast iron materials at medium to high cutting speeds.

Service life increased by around 80 percent

The developers at Walter have been using the new Tiger•tec® Gold WKP35G grade for some time now in special applications. In total, according to Jörg Drobniewski, Head of Cutting Material Development at Walter AG, they have carried out around 50 extensive test runs with customer applications since spring of this year. In doing so, the developers were able to prove that the coating properties had been significantly improved: The indexable inserts that were coated with Tiger•tec® Gold WKP35G stand out thanks to considerably higher wear resistance on flank faces, lower rate of hairline cracks forming and improved resistance to plastic deformation. But, above all: The practical tests showed that service life had been increased by around 80 percent.

"CVD coatings that are subjected to tensile residual stress have previously been commonplace across the sector. Our TiAlN coating is the first coating to be created in a CVD procedure that is subjected to compressive residual stress."

Jörg Drobniewski, Head of Cutting Material Development at Walter AG

New colour, new coating technology, even greater wear resistance: The Tiger•tec® Gold WKP35G grade from Walter with its special TiAlN coating is just the start of a whole new generation of indexable inserts. *Image: Walter AG*

Tiger•tec® Gold in the Walter BLAXX M3024 heptagon milling cutter. Already suitable for a wide range of applications, in future, the new Walter WKP35G grade will be compatible with more and more tools. *Image: Walter AG*

Of course, this innovative leap is no accident. It was an important objective of the engineers at Walter to make the new generation of cutting tool material significantly more resistant to wear and, at the same time, process-reliable. The solution lies in significantly higher aluminium content. The solution lies in a titanium aluminium nitride (TiAlN) with a significantly higher aluminium content of 85 percent, which

"The golden colour has the added welcome effect that it is now much easier to detect wear than it was in the past."

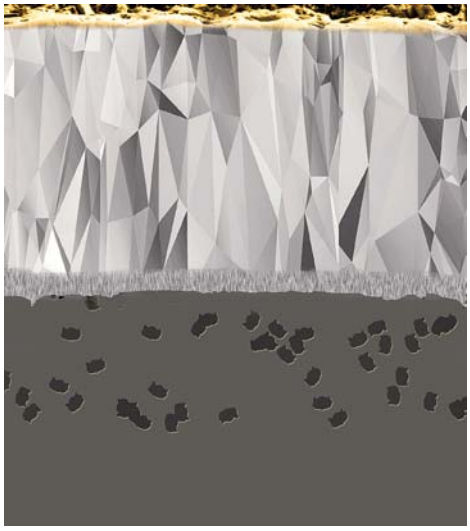
Wolfgang Vötsch, Senior Product Manager for Milling at Walter.

is considerably above over the standard.

To achieve this, Walter developed a completely new process: The ULP-CVD technology. In a combination of ultra-low pressure (ULP) and chemical vapour deposition (CVD), the developers in Tübingen successfully separated TiAlN – the basis for manufacturing the new grades.

The door to new cutting material grades is pushed open

Jörg Drobniewski: "When developing Tiger•tec® Gold, we really had to think outside the box and move beyond the existing coating elements. In doing so, we entered uncharted territory and launched a completely new type of technology platform. We are convinced that, with this, we have opened the door to new cutting material grades for machining with carbide."



The new Tiger•tec® Gold WKP35G coating stands out thanks to considerably higher wear resistance on flank faces, lower rate of hairline cracks forming and improved resistance to plastic deformation. *Image: Walter AG*

In addition to TiAlN as the main coating, the new WKP35G grade also uses titanium nitride (TiN). With its golden colour, it also provides the name for this new coating technology from Walter.

Firstly, TiN is applied as a link between the carbide base substrate and the TiAlN main coating; secondly, it is used as the top layer above the main coating. "The golden colour has the added welcome effect that it is now much easier to detect wear than it was in the past," explains Wolfgang Vötsch, Senior Product Manager for Milling at Walter. This guarantees optimum utilisation of the cutting tool material – it is no longer the case that unused cutting edges are thrown away. The top TiN coating is textured. The indexable inserts that are coated with Tiger•tec® Gold are therefore ideal for machining cast iron.

Lower rate of hairline cracks forming

In addition to the significantly higher wear resistance on flank faces and the improved resistance to plastic deformation, which can all be attributed to the harder coating, Walter's new manufacturing procedure means that they have created yet another advantage: A lower tendency for hairline cracks to form. Jörg Drobniewski: "CVD coatings that are subjected to tensile residual stress have previously been commonplace across the sector. Our TiAlN coating is the first coating to be created in a CVD procedure that is subjected to compressive residual stress. This helps us to significantly minimise the formation of hairline cracks, and the cutting edge remains intact for longer – which is a prerequisite for a long, process-reliable service life."

The Head of Cutting Material Development is convinced that the new coating technology will really shake up the sector. Even more so than the fact that all practical tests with users in the automotive industry, in the energy sector and in general engineering sectors have confirmed the high expectations of his team. "We tested out a huge variety of scenarios – at cutting speeds between 120 m/min and 320 m/min, and workpieces made from various grades of steel and cast iron. The results were conclusive in all of the relevant parameters."

The advantages of Tiger•tec® Gold for the user can be summarised in four points:

- Significantly longer service life – 80 percent longer, on average
- Increased process reliability
- Increased productivity
- Optimum wear detection.

When the new generation of coatings is launched, Walter will offer the Tiger•tec® Gold WKP35G grade for milling steel and cast iron materials. Other grades will soon follow. At the start of 2017, the tool specialist wants to launch its first series of standard indexable inserts with the Tiger•tec® Gold coating on the market.

For more details, visit www.tigertec-gold.walter

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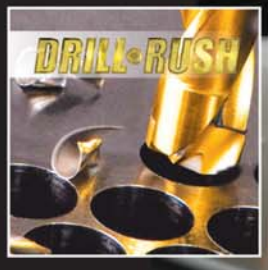

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