RNI No 71129/98 Volume 9 Issue 10 ● October 2014 ● Rs 75

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THE MACHINIST

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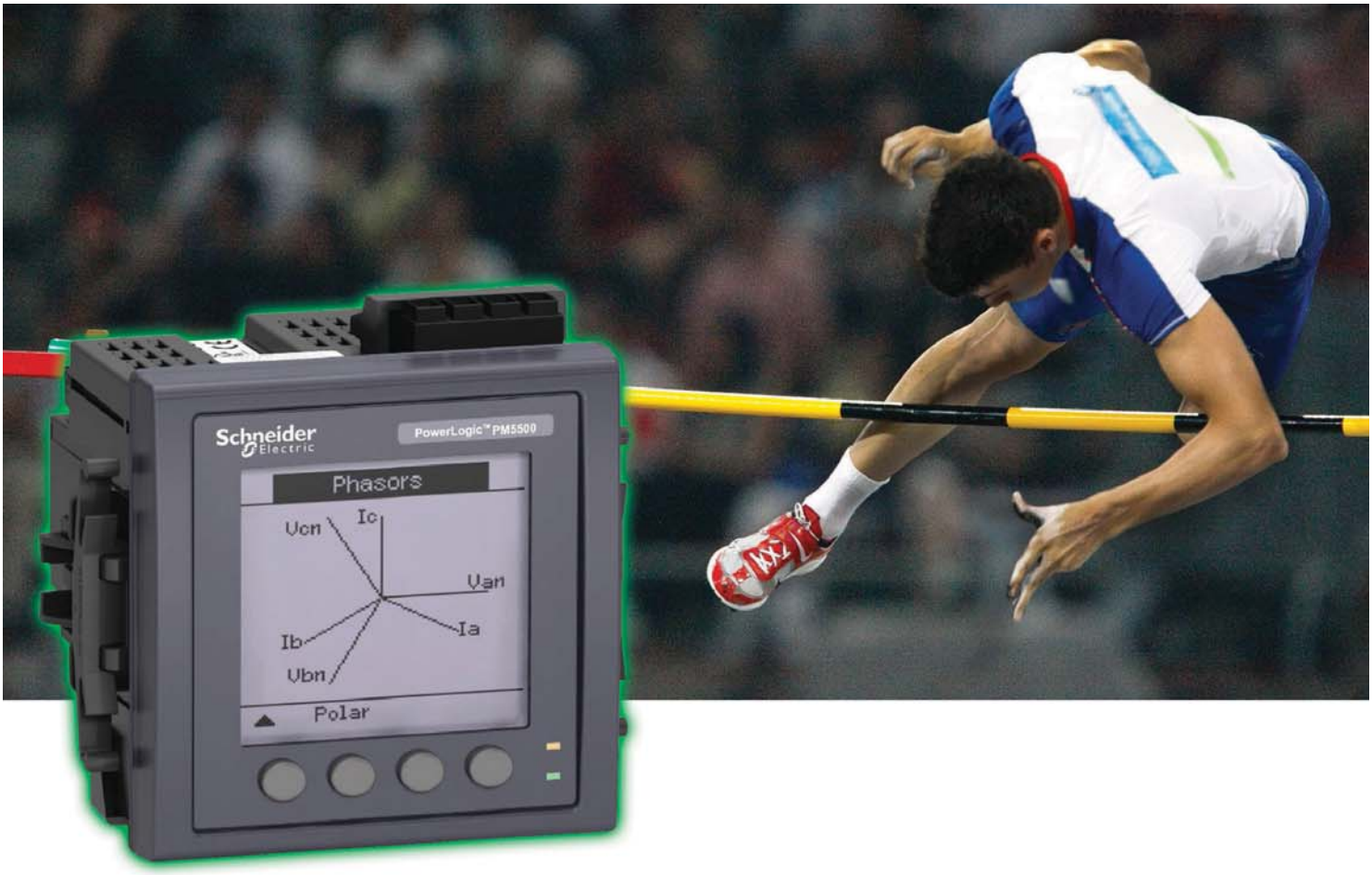

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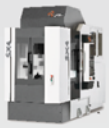

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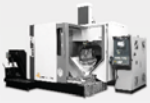

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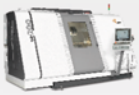

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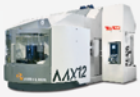

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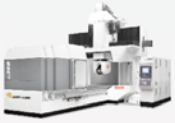

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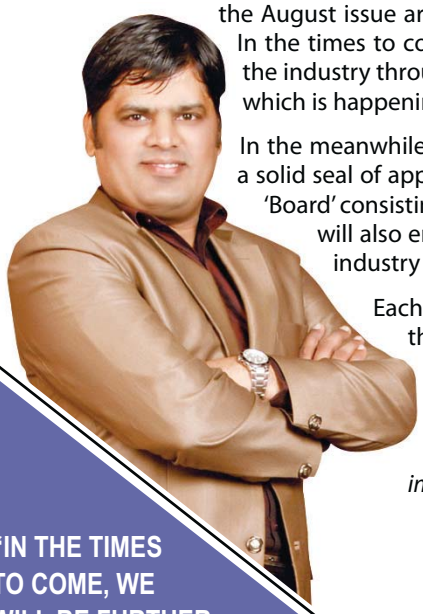
The family grows!

EDITORIAL

When we started this thrilling journey by launching the 'All New Machinist' in January 2014, we were very sure about one thing. That we wanted this magazine to become a useful, robust, credible and stimulating platform for the Indian manufacturing industry.

And with the kind of response that we have been getting from our readers, we know that we are on the right track. (Your letters that we published in the July and the August issue are evidence enough.) Of course, we are not stopping at that. In the times to come, we will be further strengthening our engagement with the industry through some exciting activities and events – the groundwork for which is happening at a rapid pace.



In the meanwhile, to enhance our partnership with our readers and to give it a solid seal of approval, we are announcing our 'Editorial Advisory Board'. This 'Board' consisting of industry stalwarts will not only help us stay on track but will also enable us to become more relevant and contemporary for the industry that they themselves stand for.

Each one of them is a seasoned campaigner (and that's the reason they are all on our board). Importantly, they all represent wide ranging industries making their individual roles all the more significant. Yes, more such leaders will join us as we grow and evolve. This is just a start. *(By the way, hope you guys are checking out www.themachinist.in. Do tell us how we can improve it.)*

"IN THE TIMES TO COME, WE WILL BE FURTHER STRENGTHENING OUR ENGAGEMENT WITH THE INDUSTRY THROUGH SOME EXCITING ACTIVITIES AND EVENTS – THE GROUNDWORK FOR WHICH IS HAPPENING AT A RAPID PACE."

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THE MACHINIST
ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
Volume 9 Issue 10 October 2014

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CHIEF EXECUTIVE OFFICER
Tarun Rai

CHIEF FINANCIAL OFFICER
Subramaniam S

PUBLISHER, PRINT & PRODUCTION CONTROLLER
Joji Varghese

EDITOR | **Niranjan Mudholkar**
niranjan.mudholkar@wwm.co.in +91 9819531819

ASSISTANT ART DIRECTOR | **Sanjay Dalvi**
sanjay.dalvi@wwm.co.in

SUBSCRIPTIONS
subscriptions.rmd@timesgroup.com
022 22733274 / 66354083

BRAND PUBLISHER | **Rishi Sutrave**
rishi.sutrave@wwm.co.in +91 9820580009

ADVERTISING

SOUTH | **Mahadev B**
mahadev.b@wwm.co.in +91 9448483475

WEST | **Ranjan Haldar**
ranjan.haldar@wwm.co.in +91 9167267474

Printed and published by Joji Varghese for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at JRD Printpack Private Limited, 78, Resham Bhavan, 7th Floor, Veer Nariman Road, Churchgate, Mumbai - 400 020. Editor: Niranjan Mudholkar. Published for October 2014.

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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

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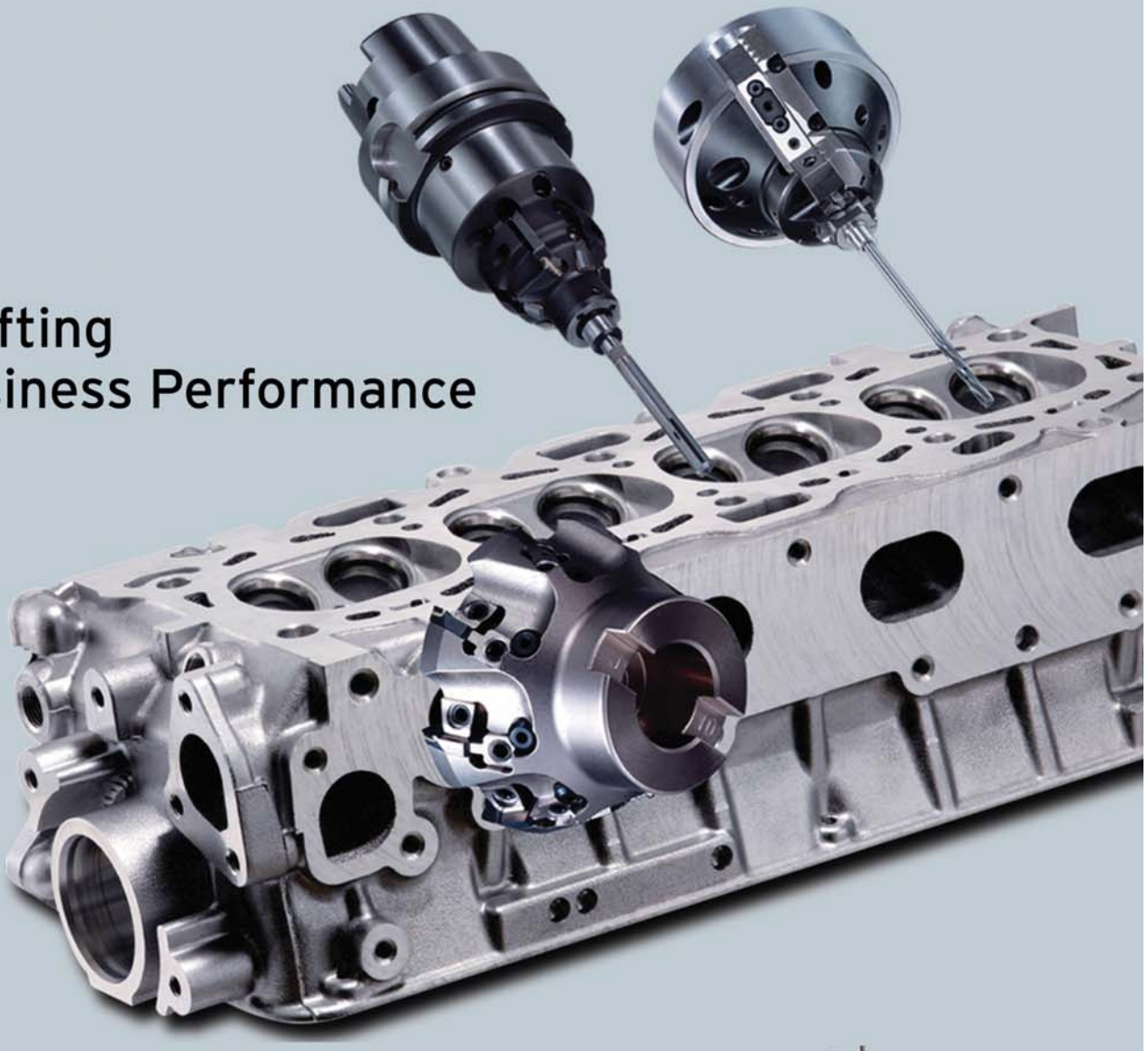
Crafting Business Performance



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NEWS

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ADB says new govt's reforms reviving Indian economy, raises FY15 growth forecast

Spurred in part by a new government with a strong mandate and a wide-ranging reform agenda, the Indian economy is set to benefit from a revival of investment and improved growth in advanced economies, says a new Asian Development Bank (ADB) report.

In an update of its flagship annual economic publication, Asian Development Outlook 2014, ADB raised its forecast for growth of Indian gross domestic product (GDP) in the fiscal year ending 31 March 2016 (FY2015) to 6.3 percent from 6.0 percent anticipated

in April. ADB maintained its forecast of 5.5 percent growth in FY2014. "By advancing its structural reform plans and proceeding with large infrastructure projects, the government can spur private sector investment that will build strong growth momentum for the next few years," said ADB Chief Economist Shang-Jin Wei in launching the new report. "Given its labour cost advantage and vast overseas diaspora networks, by putting the right policy package in place India could replicate or even exceed its best growth performance of the past."

The report also emphasises that achieving sustainable growth will require many bolder reforms.

China to invest US$ 20 billion in Indian manufacturing and infrastructure; also to improve market access

The Chinese President during his state visit to India has signed agreements with Prime Minister Narendra Modi to strengthen the economic ties between the two countries. China will invest US$ 20 billion dollars in Indian infrastructure development and the manufacturing sector in the next five years. The Indian PM said both leaders have agreed that the current economic relations between the two countries do not do justice to the potential. He expressed concern at the slowdown in trade and the worsening trade imbalance and has sought the Chinese President's partnership in improving market access and investment opportunities for Indian companies in China. President Xi, in turn assured the Indian PM of his commitment to address the concerns.

Aequs and Magellan Aerospace JV to expand

Aequs and Magellan Aerospace will expand their API JV plant (Aerospace Processing India) in Aequs SEZ at Belgaum, India as a measure to further strengthen their capabilities in the growing global aerospace market. The API plant expansion is aimed at enhancing aerospace special processes. The expanded facility will mainly cater to processes such as Tartaric Sulphuric Acid anodizing and Cadmium plating for the aerospace OEMs. Aravind Melligeri, Chairman and CEO, Aequs said, "This will also add to India's expertise in the aerospace manufacturing sector."

Ingersoll Rand to invest Rs100 crore in its Naroda facility

Ingersoll Rand will invest Rs100 crore to upgrade its manufacturing facility in Naroda, near Ahmedabad in Gujarat. This reinforces Ingersoll Rand's overall growth strategy in India that is focused on driving innovation, technology and product development and is a reflection of their long standing commitment to the country. Products and solutions manufactured at the Naroda plant will be distributed across both, Indian as well as global markets. With this investment, one of the oldest and most significant facilities of Ingersoll Rand globally, will transform into a modern, state-of-the-art facility. This strategic investment will support production of the complete range of compressors in Reciprocating, Rotary and Centrifugal ranging from 0.75 to 4500 kW. The facility will add new product lines with high level of innovation. The new improved Naroda facility will also help us to drive technology innovation," said Venkatesh Valluri, Chairman and President, Ingersoll Rand India.

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KEPL launches India's first indigenously-developed next-gen API steam turbine

KEPL has announced the launch of India's first indigenously-developed next generation API steam turbine 'K-Tur'. KEPL is the first Indian company to develop the steam turbines in compliance with the American Petroleum Institute (API 611) specifications.

"K-Tur" is built on the breakthrough technology developed by an Indian company. Appreciating the "Make in India" call, KEPL has developed K-Tur through its in-house capabilities and an intensive R&D programme. K-Tur machines will also have KEPL's core value "Reliability" and will have limited or no dependency on foreign technology.

Speaking at the occasion, Sanjay Kirloskar, Chairman & Managing Director, Kirloskar Brothers Ltd, said: "The next-generation steam turbine is an effective alternative to imported ones and I feel privileged to announce that India has successfully developed the technology for commercial use."

Autodesk unveils 'Spark', its open software platform for 3D printing at its flagship event AU India & SAARC 2014

At its annual mega-design event, Autodesk University India & SAARC, 2014 held in Mumbai recently. Autodesk demonstrated Spark, an open software platform for 3D printing. Spark aims to make the process more reliable, simpler and easier to control.

Along with the Spark launch, Autodesk also showcased its own 3D printer that helps as a reference implementation for Spark. Pradeep Nair, MD, Autodesk, India & SAARC, said, "Spark is the manifestation of our vision to democratise design technology and make it accessible for every person who wants to design and make things."

Steve Blum, Senior Vice President Worldwide, Autodesk said, "3D printing has the potential to revolutionise manufacturing and bring powerful new ways to design and cater to businesses around the world. Imagine, design and create a better world using this transformative technology."

Kabelschlepp President and CEO visits India office

Olaf Huebner President and CEO of the Kabelschlepp Group, Headquartered in Wenden, Germany, visited for the first time in Kabelschlepp India in the recent past. His visit coincided with its Kabelschlepp India's eighth anniversary celebrations. During the visit, Huebner also inaugurated a new office complex to accommodate the growing team in India and expressed satisfaction in the growth of the Indian subsidiary over the last eight years. He thanked Kabelschlepp India team for the commitment and wished all the best for the success and future growth in Indian market.

10 lakh rural youths to be trained for jobs in 3 years: Nitin Gadkari

The Union Minister for Rural Development Nitin Gadkari said that Government will launch skill development training centres on a large scale to address the problem of unemployment particularly in rural India. Launching the Deen Dayal Upadhyaya Grameen Kaushalya Yojana here, the Minister said, skills imparted under the programme will now be benchmarked against international standards. He said, the kaushalya yojana will complement the Prime Minister's Make in India campaign. The programme aims to train 10 lakh rural youths by 2017. The Minister also underlined the need for imparting training to differently-abled persons. Gadkari also asked the private sector to chip in a big way in this mission.

India to be Partner Country in Hannover Messe 2015

India has agreed to be the 'Partner Country' at the Hannover Fair in Germany to be held from April 12-17, 2015. By accepting the invitation of German Chancellor Angela Merkel for India to be the Partner Country at Hannover Messe 2015, the Government has sent strong signals about strengthening global trade and inviting investment into India. Prime Minister Narendra Modi is expected to be present at the world renowned engineering and technology fair beginning April 12, 2015.

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Saving Lives

India's defence industrial policy needs to be in line with the objective to boost defence exports, says **Neeraj Gupta**, Managing Director, MKU Pvt. Ltd.

> The government should interact more with vendors and look towards making the procurement process faster. Rather than the current policy of accumulating requirements for several years, the government should come up with yearly or half-yearly procurement plans."
>
> **Neeraj Gupta,**
> Managing Director, MKU Pvt. Ltd.

By Niranjan Mudholkar

Q. Defence manufacturing is still a niche segment in India. What was the motivation behind starting this organisation more than two decades back?

MKU started as M. Kumar Udyog more than two and a half decades back. When we went international, we changed the name to MKU and today we are known globally by this name.

Defence manufacturing is indeed a very niche segment and hitherto much neglected segment. Till very recently it was the exclusive preserve of the Government and open only to DPSUs. The private sector participation started in earnest only after 2001 when the government started opening up the sector for private industry. However, this has received a boost with the new government's thrust on promoting the private industry in sector.

We at MKU always felt that this sector offered opportunities for growth and employment. Besides, we were spurred by the desire to develop manufacturing capability within the country. It was this motivation that led us to break the frontiers and venture out. We are happy that today we stand vindicated with the government's belief that this sector can help increase the contribution of the manufacturing sector and also provide employment.

We truly stand behind Prime Minister Modi's call for 'Make in India' and want to take the Indian footprint even further into the international market by promoting 'Made in India'.

Q. What are the different categories under which MKU offers defence equipment?

MKU manufactures protection solutions basically under two categories – a) Personnel Protection and b) Platform Protection. Under the former we have the various categories of personal protection gear for the security and defence forces. We specialise in providing state of the art, technologically superior protection equipment that reflects the latest technological trends globally. We have our own Technical Centres in India and Germany, where our team of engineers

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work on developing new solutions and effectively using the latest materials.

MKU acquired an armouring company in Germany in 2008 and with it ventured into platform protection. Today, we have the capability and experience to provide armour solutions for a wide variety of platforms including naval vessels, land vehicles and aircrafts. We have provided armour solutions for many Indian projects including the ongoing procurement of 80 patrol boats by the Indian Navy. Our production facilities in India and Germany are certified according to the stringent AS 9100 C. MKU GmbH, our 100 percent subsidiary in Germany, is on board the F125 project for the German Navy.

Q We understand that MKU offers complete project management for design, development, manufacturing and integration of protection solutions for Land, Air and Naval platforms. Tell us more about this.

MKU offers end to end solutions in armouring of Aircraft, Naval Vessels and Land Vehicles. MKU specifically works on developing Light Weight solutions for Land, Sea and Air platforms. Not only do we design and manufacture the armour solution, we provide the complete ready to fit kit including the special attachment systems. Our solutions are comprehensive and proven over the years. MKU works on armouring solutions with customers globally. Over the years MKU has executed several contracts successfully for clients including, Armoured Mi-17 helicopters for Mexican Police, Armour for several naval projects in India for Fast Patrol Boats and Protection kits for helicopters for German forces amongst others. However, what makes us very happy is that our solutions have never failed in the field.

MKU has recently introduced its sixth Generation armour technology - Polyshield V6. Solutions made using the new technology are up to 40 percent lighter and much thinner than standard solutions. Weight is extremely critical for helicopters and every gram saved results in a corresponding increase in the effective payload of the platform. This technology has been developed after extensive R&D by MKU's team of experts and engineers based in Germany and India.

> "Private manufacturers need to be provided a level playing field with the defence PSUs in order to encourage advances in technological development as these require investment of time and money."

Q What kind of manufacturing set up do you have?

MKU's infrastructure spans two state of the art units in India and one in Germany. Together, these units have a capacity to produce over 200,000 helmets, 150,000 ballistic jackets and 300,000 inserts for defence and security personnel. Our production facilities in Germany and India are certified according to AS9100 C and ISO 9001.

Q Where do you source your raw materials from?

MKU believes in using only the best raw material available globally. This is why we source our raw material only from the leading manufacturers in Europe and US.

Q Tell us about your R&D activities.

R&D plays a very critical role in keeping MKU ahead of the technology curve. In order to be globally competitive, it is critical that we remain abreast of all technological advances. We at MKU understand this and spend 5-6 percent of our turnover on R&D. We have established a technical centre in Kanpur to focus on product and technological development. Our team of engineers in Germany and India are engaged in continuous R&D. It is a result of this focus that we have been able to keep ahead of the curve technologically and continue to develop superior products to meet the requirements of the forces all over the world. MKU has recently introduced the sixth Generation Armour Technology AMMOFLEX 6, POLYSHIELD 6 & POLYSHIELD V6, which have helped reduce the weight and thickness of existing solutions by almost 40 percent. Solutions manufactured using this new technology were showcased in the recent exhibitions in India and abroad.

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Do you have any kind of technical collaborations or partnerships with international companies? Tell us about the same.

We are proud of the fact that our technology is indigenous and the result of the hard work and dedication of our team of engineers in India and Germany. In MKU we do not have any partnerships with international companies for the manufacture of protection solutions. We do have a 100 percent owned subsidiary in Germany.

The Government has recently further opened up the defence manufacturing sector for foreign players. How do you think it will impact the industry?

This is a welcome move from the government. The increase of FDI in defence from 26 percent to 49 percent will help bring in foreign capital by way of private equity and immediately help small and medium sized companies, which are not yet public. This would make more funds available in the Indian defence market, which is a relatively new sector.

What are the different challenges faced by the defence manufacturing sector in India? What more can the government do to improve the situation?

Among several issues being faced by this important and critical sector, there is an urgent need to streamline the procurement process. Currently, there is lack of clarity in the RFPs which are issued, leading to scrapping or withdrawal of RFPs after the process has moved for a year or two leading to losses for the companies participating and the services not getting the desired equipment.

The government should interact more with vendors and look towards making the procurement process faster. Rather than the current policy of accumulating requirements for several years, the government should come up with yearly or half-yearly procurement plans. This will create multiple options for procurement as well as regularity of supplies.

India's defence industrial policy needs to be in line with the objective to boost defence exports. The government has to follow a proactive and favourable defence export policy and by leveraging the offset policy suitably.

The government support for promoting Indian made products has to extend to the concept of "Indian Pavilions" at International trade shows. There needs to be a mix of Public and Private companies. The focus should also be on advances made in technological development and remove the image of India being only a component manufacturer. The private manufacturers need to be provided a level playing field with the DPSUs in order to encourage advances in technological development as these require investment of time and money. The current policy of development on "No cost no commitment" basis also needs to be re-evaluated to encourage more participation. There should be well defined timelines for decision making.

The government should look to incentivise exports. Another way to support indigenous industry will be the path of co-production and co-development with international OEMs and Government Labs.

What kind of growth targets have you set for the next two years?

We are happy to note that we have been consistently growing

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over the past few years. Our export performance has been quite encouraging and today we are exporting to over 100 countries. We were the proud recipients of awards for excellence in exports by the Export Promotion Cell of the Ministry of Commerce.

What will be the driving factors behind this growth?

MKU has over the years invested in technology and state-of-the-art equipment to provide best in class equipment and protection solutions. MKU has been investing in R&D efforts towards developing lighter and safer solutions for personnel and platform protection. With the latest technological and R&D facilities in India and Germany, a state-of-the-art ballistic lab and over 1000 proven solutions, MKU remains ahead of the technological curve both in relation to quality excellence as well as providing a wide range of solutions. We have large capacities and are among the few companies globally with the wherewithal to process both hard and soft armour. MKU has developed body armour conforming to NIJ 0101.06 standards which is considered to be the most stringent test protocol for body armour. Going forward MKU is continuing investing in technology, infrastructure and building capacity as well as expansion of offshore production facilities.

> "The current policy of development on 'No cost no commitment' basis also needs to be re-evaluated to encourage more participation. There should be well defined timelines for decision making."

Survival in today's high tech battle and riotous environments requires sophisticated protection and surveillance equipment.

Due to its exposure in the global markets, MKU has acquired a keen understanding of the ground scenarios, environmental conditions and threat scenarios faced by soldiers and law enforcement personnel This, coupled with its in-house development centers, its access to the latest technology, its in house ballistic testing facility and its wide ranging domain expertise puts it in a unique situation to develop and offer, custom solutions that are technologically superior and match the specific requirements of its customers.

Till date, MKU has already provided protection to over 1.5 million soldiers across the globe, and has designed and delivered protections solutions for more than 1,500 platforms (Land, Air & Sea). MKU has a comprehensive range of over 1,000+ products and solutions in its portfolio that offer protection from more than 100+ threats. It is amongst the very few companies in the world which has the capability to offer both hard armour and soft amour solutions from under the same roof. It uses only proven raw materials and dependable processes to manufacture its protection solutions. It is a registered supplier to NATO since 1993 and has manufacturing facilities in India and Germany.

What is your vision for the organisation?

Our brave soldiers constantly live on the edge. They are our Heroes, fighting wars, against enemies and terror…, in extreme conditions, against unknown enemies… constantly conquering their inner fears to discharge their duties because nothing is more important to them than their commitment to their nation and our freedom. MKU feels proud to be in a position to provide and extend a safety blanket to the families of these brave soldiers because when these soldiers are protected, their families feel secure.

MKU Pvt Limited, a manufacturer of ballistic protection solutions for personnel and land-air-sea platforms from India reiterates its commitment to its mission of 'Saving Lives' by adopting the philosophy and mission of 'Saving Lives Earning Smiles'.

MKU was setup in 1985, with a vision to become a leading defence solutions company in the protection and surveillance space and since then has provided protection to more than 1.5 million soldiers. It has, in its repertoire, 1,000+ solutions covering more than 100 threats. Its products are used and trusted by over 230 forces worldwide.

MKU's vision of growth is supported by a keen sense of responsibility. Our operational, social and ethical conduct has far reaching consequences and therefore, it is our constant endeavour to execute our responsibilities, responsibly'.

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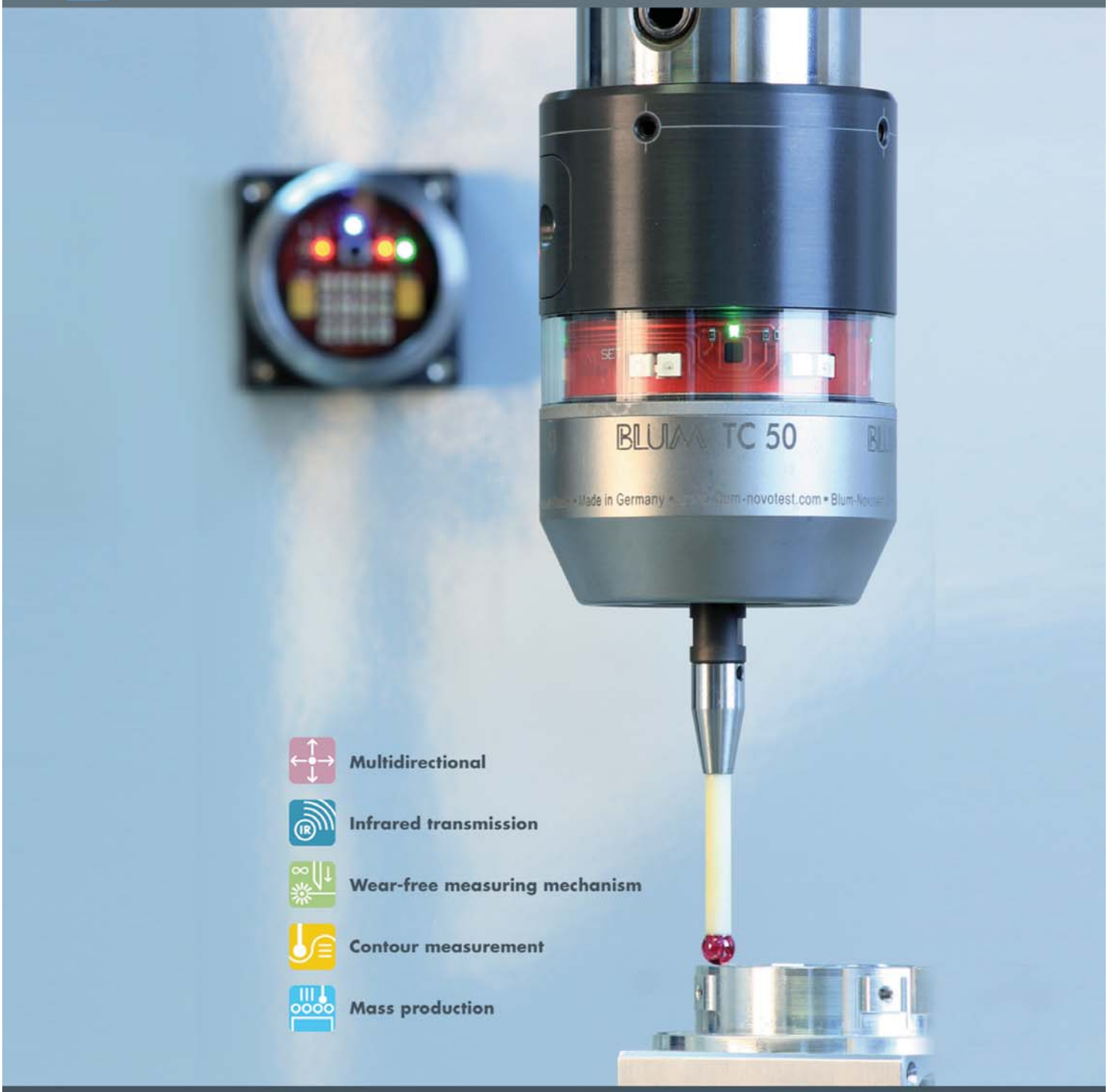

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Industrial licensing regime

The move of restricting list of defence items from industrial license is a step towards galvanising defence manufacturing in India.

By Nidhi Goyal

In order to streamline the industrial licensing process for manufacturing of defence equipment, the Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce & Industry has issued on June 26, 2014 a list of defence items which requires industrial license.

This list has been finalised by the Department of Defence Production, Ministry of Defence which is to be read in conjunction with existing list of licensing of DIPP. The Items not included in the list would not require industrial license for defence purposes. It has also been clarified that dual-use items, having military as well as civilian applications, other than those mentioned in the list, would also not require industrial license from defence angle.

FDI Policy on the defence industry

Recently, FDI limit of 26 per cent has been increased to 49 percent under the Government approval route. The defence industry has now also been re-opened up for portfolio investors (foreign institutional investors, foreign portfolio investors, non-resident Indians, Qualified Foreign Investors and foreign venture capital investors, however, FDI limit for these portfolio investors is set at 24 percent of total equity of JV and to be part of overall limit of 49 percent. For FDI above 49 percent, the application shall also be submitted to the Cabinet Committee on Security (CCS) besides Ministry of Defence (MoD) and Foreign investment promotion board (FIPB) and is evaluated on a case by case basis.

Industrial licensing

Section 11 of the IDRA provides for licensing of new Industrial Undertakings. The First Schedule to the IDRA provides a list of industries for which an industrial license is mandatory for manufacturing or production of articles. The said list includes, inter-alia, "Defense industries – arms and ammunition".

"The National Manufacturing Policy emphasises on aerospace and defence industries to have a strong value chain addition element from the standpoint of national security and to accelerate growth of manufacturing sector in India."

Press Note 9 of 1991 issued by DIPP on procedures for industrial license provides a list of industries at Schedule II in respect of which industrial licensing is compulsory. Entry no. 13 to this Schedule provides for requirement of industrial license in case of "Electronic aerospace and defense equipment: all types' (See box*). Note 2 to the aforesaid Schedule II to the Press Note 9 provides as under: "other items in respect of which industrial licensing is not exempted includes all items of electronic aerospace and defense equipment, whether specifically mentioned or not, in this list." Thus, broadly, all types of defense equipment required an industrial license. The recent Press Note 3 (2014 Series) has now reduced the list of defence items requiring industrial license mentioned herein.

Press Note No. 3 (2014 series)

Covered Items: As a step towards boosting self-reliance in defence production, encouraging private sector manufacturers to enter the sector,

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Akash Surface to Air Missile System successfully flight tested at the Integrated Test Range (ITR), Chandipur.

cutting expensive imports, bringing more clarity on the guidelines, the DIPP has issued a concise list of defence equipment which require industrial license for manufacturing in India.

Excluded Items: Items not included in the list would not require industrial license for defence purposes. (As an example, this would mean that the equipment used in rescue operations, certain category of bullet-proof vests, parts of warships and aircraft, solutions for personal armour and vehicle armour, specified test equipment, castings, forging, assemblies, components, sub-components and other smaller items have been left out of this list for industrial license. This example is only an illustration hypothetically provided by us and has not been specifically mentioned in the Press Note 3 (2014 Series)).

Further, it is clarified that dual-use items, having military as well as civilian applications, other than those specially mentioned in the list, would also not require industrial license from defence perspective.

ITC (HS) classification	Electronic aerospace and defence equipment: all types
87.10	Tanks and other armoured fighting vehicles
88.01 to 88.05	Defence aircraft, spacecraft and parts thereof
8906.01	Warships - all kinds
93.01 to 93.07	Arms and ammunition; parts and accessories thereof

Press Note 5 (2014 Series)

Extension of validity of Industrial License: DIPP has granted industrial licenses—initially valid for a two-year period—to industrial undertakings that seek extension if production does not start within the stipulated timeframe. Owing to the inordinate delay in awarding defence contracts, industrial undertakings have been deferring their plans to set up production facilities. Thus, they are not able to use approval of industrial license and seek extensions. In view of this and to ease of doing business in the sector, DIPP has extended the initial validity of industrial license. The salient features of the Press Note 5 (2014 Series) include increasing the initial period for validity of industrial license from two years to three years. It also covers granting extension of three years' validity of industrial license by two more years where the license holder has not commenced production. This measure ensures that the initial industrial license is valid for five years. If commercial production does not begin within the five-year period, the license shall automatically lapse. In industrial undertakings where production has commenced, no approval from the Licensing Committee is required for extending the validity of industrial license.

The Government of India has set its target to achieve higher indigenisation of the Indian Aerospace and Defence industry and self-reliance in the design, development and production of equipment/weapon systems/platforms required for the armed forces. Various policy documents have been promulgated for meeting the said objectives. The National Manufacturing Policy emphasises on aerospace and defence industries to have a strong value chain addition element from the standpoint of national security and to accelerate growth of manufacturing sector in India. The Planning Commission of India has identified the aerospace and defence industry as a strategic sector.

Presently the Indian defence industry has been at the bottom of the value chain with less incentive for anyone to set-up defence industry in India. The move of restricting list of defence items from industrial license is a step towards galvanising defence manufacturing in India. This move should streamline the issuance of industrial license for manufacturing of defence items and encourage new entrants into the defence sector.

The author is Director, Deloitte Haskins & Sells LLP

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In appreciation of the critical role played by Plant Heads in the success of manufacturing organisations, The Machinist has started a section called 'Plant Head of the Month'. We feature some illustrious plant heads in this section giving preference to the ones whose plants have accomplished noteworthy milestones recently.

Journey of Excellence

By working as a team and by taking a performance oriented approach, the Faridabad Plant of Jaycee Autofab completely transformed itself in three exciting phases, explains **Sanjay Agarwal**, the Plant Head

By Niranjan Mudholkar

The Faridabad Plant of Jaycee Autofab started its journey of excellence about two years ago on October 18, 2012, at the fifth CII National Cluster Summit. Two team members had attended the three day Summit and returned to the plant with ideas and the hope of bringing about a positive change at their plant. They even showed the recordings of the Summit on a DVD to all other team members. And so, under the leadership of Sanjay Agarwal, the Plant Head, it was unanimously decided to follow the CII JCB Cluster Road Map at the plant.

"Self satisfaction, customer delight, cost competitiveness, recognition & rewards and, of course motivation are the key reasons why we undertook this journey."

Sanjay Agarwal

The first Phase of this journey lasted from October 2012 to December 2012. "This included creation of a proper plant organisational structure along with assignment of roles and responsibilities to each team member. We also formed the Steering Committee to keep a check on the progress," shares Agarwal. The plant was divided into six zones and a leader was appointed for each of the zones giving them all a sense of leadership and responsibility. With more than two and half decades of relevant work experience at his back and the passion for excellence, Agarwal himself led from the front. He had a clear vision about why he was undertaking this journey. "Self satisfaction, customer delight, cost competitiveness,

Plant statistics

Name of the company: **Jaycee Autofab Pvt. Ltd.**

Plant location: **Plot # 213, Sector 58, Faridabad**

Date when manufacturing started at this plant: **Aug 17, 2011**

Total land area: **1 acre**

Key products manufactured: **Boom, Dipper, Loader Arm & Loader Tower Machining. Boom & Dipper – Stress Relieving.**

Key client: **JCB India Ltd**

Capacity: **Machining capacity - Loader Arm 3000, Loader Tower 2150, Boom 1664 & Dipper 1664 per Month. SR Capacity - 2520 set per month (1340 tonnes)**

Number of employees: **115**

Recent milestones achieved: **Awarded with most improved supplier award at JCB Annual Supplier Conference 2013. Achieved first position of CII-JCB (Level II) cluster ranking – June 2013.**

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All machine stands were modified to reduce operator movement / space saving as well as maintenance friendly.

recognition & rewards and, of course motivation are the key reasons why we ventured into this," he says.

Recognising the importance of employee engagement, Agarwal and the management started 'Employee of the Month' concept from November 2012. This not only motivated the shopfloor employees to perform at the individual level but also encouraged them to get aligned with the overall objectives of the plant. Employee suggestions were now getting noticed and implemented with the 3R concept (Recognition, Respect & Reward). "Next, our plant started 5S activities and established the JCB Quality Command Centre,"

The requisites*	
Essential qualities	**Approach to people management**
Should work like a coach / leader.	Involve, engage and motivate
Should be very good listener.	Set clear objectives and follow up with regular review (weekly / fortnightly / monthly) as required.
Should discuss issues thoroughly and calmly to reach the optimum solution.	Implement the 3R concept – recognition, respect and reward.

**According to Sanjay Agarwal*

> "The Plant started conducting regular problem analysis resulting in Kaizen implementation. This reduced break downs, drastically decreased rejection (with some of the related problems getting eliminated) and increased productivity."

This further enhanced team engagement through common display of Kaizen, customer feedback as well as ratings and team photographs including that of the 'Employee of the Month'. "We paid equal attention to sustainability issues and initiated the energy saving drive. We replaced all the Sodium Vapour Lamps with CFL & T5 Lights in the lighting area," Agarwal shares.

The efforts undertaken in the first phase received appreciation from the customer as well as the CII mentor. This obviously gave a big boost to the team's morale and increased its involvement and dedication. Everyone now worked towards improving the plant in every possible way. All machine stands were modified to reduce operator movement / space saving as well as maintenance friendly. Input / Output conveyor was installed at the loader tower area and the RM & FG Storage was moved from the shopfloor to the outside gallery. This resulted in a whopping space saving of 2,560 sq ft on the shopfloor. "We further enhanced the 5S of the plant as well as overall team work. The Plant started conducting

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Rejection of parts at the TAL 1 machine was eliminated by adding Air / Coolant blast during tool change to ensure chip removal between Boring Bar and Spindle Face.

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Reducing costs at the shopfloor level

- Maximum activates performed by the team. If any activity is outsourced then we take the training and do it in-house next time.
- OEE calculation, analysis & corrective action on Daily basis.
- Keep spares as per our experience and arrange spares from suppliers who give us big advantage in terms of cost and quality.
- Have a team approach.
- Continual improvement approach.

Safety

- Top most priority.
- Regularly change the lifting hooks of the tackles as per their frequency.
- All the hoists / wire ropes checked by third party as per their frequency.
- Many Kaizens for easy handling of parts.
- Minimise parts movement.

Eco-friendly

- Tree plantation at parking area.
- Treated waste water used for flushing in wash-rooms
- All waste oil disposal to the authorised dealers.

regular problem analysis resulting in Kaizen implementation. This reduced break downs, drastically decreased rejection (with some of the related problems getting eliminated) and increased productivity. We made savings in the lighting area as well. Importantly, the overall plant appearance and ambience improved," Agarwal adds.

With the huge success in Phase I, the team under Agarwal's leadership implemented the second phase from January 2013 to September 2013. This included having the Sun Rise meetings, daily loss time analysis and Kaizen Implementation. "It was followed by improving the OEE (Overall equipment effectiveness), identification of CTQs (Critical to Quality parameters) & the related SPC (Statistical Process Control) as well as monthly cost of poor quality & its analysis." The plant also implemented tool cost reduction by looking at various options like drill & tap re-sharp, re-coat, order scheduling, advantage of yearly sales promotion schemes from cutting tools supplier and alternate sourcing of capital tools. With training from CII, BEE, GEF and WB, energy saving drives were also implemented.

All these activities resulted in many positives. Stoppages in machines due to 'no air after power trip' or 'low air pressure' were reduced. Air cleaning points and air leakages also decreased and a 500 L air reservoir was added. General break downs were reduced and specific break downs were eliminated by implementing additional checks. For example, the rejection of parts at the TAL 1 machine was eliminated by adding Air / Coolant blast during tool change to ensure chip removal between Boring Bar and Spindle Face.. Tool breakage on all BFW machines were eliminated by adding Hydraulic Counter Balance (BFW performed this activity on FOC Basis). The cutting tools order scheduling was modified to 10 percent extra discount. Milling cutter was acquired during

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The journey of excellence brought all employees on a common platform

yearly promotion sales. Additionally, there was substantial savings in energy consumption: Power factor achieved 0.99 against 0.85 from June 2013, and air compressor leakage came down to 7 percent against earlier 34 percent (resulting in no machine stoppage). On time for TAL 1 reduced from 17 Min to 3 Min.

In Phase three (from October 2013 to August 2014), all RFQs were converted into orders. Innovative ideas were implemented with positive results. The loader tower manual operation (debarring) was reduced by 50 percent through Boring Bar Modification. Loader tower probing was implemented in Z Axis to eliminate Part Reference variation. Seventy percent fork lift movement was reduced. "We managed to enhance the overall team competency level," says Agarwal. The efforts and achievements during this Phase also included combination fixtures implementation for machining Boom & Loader Arm new variants with existing model. Loader Tower Rough Boring Bar added chamfering cartridge (No cycle time or cost increase as dead inserts used). Loader Tower depth variation reduced from 3 mm to 0.3 mm by implementation of Z Axis Probing (Auto Z Axis offset measurement). Rail trolleys were implemented for shifting of parts. "And importantly, outsourced services were minimised to give us further cost savings."

> "The biggest challenge was merging different teams into one team. The second challenge was implementing a performance oriented approach against the routine work approach."

Of course, the journey had its own set of challenges. "The biggest challenge was merging different teams into one team. The second challenge was implementing a performance oriented approach against the routine work approach. But the journey of excellence brought all employees on a common platform. Working like a coach, I encouraged all team members to work towards one organisational goal. We overcame the challenges by changing our overall approach through the 3R concept (Respect, Recognition & Reward)," says Agarwal.

Milestones

- Achieved ISO: 9001-2008 Certificate from TUV within a week.
- Supplier Rating from JCB India – 97.5 to 100% since Jan'13 onwards.
- 2Dx Cabin score achieved 2.7 / Cabin against 4.
- Energy cost reduction by 17%.
- Productivity improvement by 20% through DWM implementation & TEI.
- Winner of Manufacturing Excellence award at fourth CII National Cluster Summit 2011.

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FURY and GRACE

Indigenisation, capacity building for larger production, meeting the production orders ahead of schedule and ensuring different variants of the flagship missile is what **Sudhir Kumar Mishra,** the MD & CEO of BrahMos Aerospace, wants to achieve during his tenure.

By Niranjan Mudholkar

Although it's been only a few months that he has taken charge as the MD & CEO of BrahMos Aerospace, Sudhir Kumar Mishra is a seasoned campaigner in this field. He has already looked after all major missile programmes of India as the Director Missile Programme at the DRDO Headquarters. Considered as the top missile scientist in India today, he has also coordinated international joint missiles development programmes with Russia, Israel and France. He has also worked closely with two stalwarts in this segment: the present DRDO chief and India's missile man Dr APJ Abdul Kalam. With this robust background, Mishra is now aiming to take missile manufacturing in India to the next level.

The Missile

BrahMos is a two-stage missile with a solid propellant booster engine as its first stage which brings it to supersonic speed and then gets separated. The liquid ramjet or the second stage then takes the missile closer to Mach 3 speed in cruise phase. Stealth technology and guidance system with advanced embedded software provide the missile with special features. The missile has flight range of up to 290-km with supersonic speed all through the flight, leading to shorter flight time, consequently ensuring lower dispersion of targets, quicker engagement time and non-interception by any known weapon system in the world. It operates on 'Fire and Forget Principle', adopting varieties of flights on its way to the target. Its destructive power is enhanced due to large kinetic energy on impact. Its cruising altitude could be up to 15 km and terminal altitude is as low as 10 meters. It carries a conventional warhead weighing 200 to 300 kg.

"Indigenisation of missile development in India, capacity building for larger production, meeting the production orders ahead of schedule to ensure delivery of missiles on time and to ensure different variants of BrahMos missiles to meet the aspirations and requirements of the defence force including Army, Navy and Air Force are my immediate priorities. In order to meet the above requirements, we now have to focus more on production of engine and seeker in India," he says.

In addition, BrahMos Aerospace is now gearing up for the testing of the air-launched version of the missile from the IAF's Su-30MKI fighter aircraft by this year-end or early next year. "Once the integration and ground tests are over, we will carry out the flight trials from the frontline fighter aircraft." According to Mishra, BrahMos is a total solutions company which handles all the stages of the missile operation including design, development, serial production, marketing, delivery, after sales support & maintenance, upgrades and new products creation.

"We have formed a unique public-private consortium, to speed up production of the missile system. Industry partners are the strength and backbone of BrahMos. More than 200 industry partners from India are committed to the BrahMos programme. They are continuously producing and delivering various systems and sub systems ranging from small rubber components to technologically advanced airframes and navigation systems. Together, we are also focussing on enhancing the indigenous contents of the BrahMos missile system."

Meeting the demand

Given India's volatile neighbourhood, it is imperative that the armed forces are well stocked with the appropriate arms and ammunitions. So, is BrahMos Aerospace able to meet the demand from the Indian armed forces in terms of its production

The Joint Venture

BrahMos Aerospace was formed as a joint venture between Defence Research and Development Organisation (DRDO) of India and Joint Stock Company "Military Industrial Consortium" "NPO Mashinostroyenia" (earlier known as Federal State Unitary Enterprise NPOM of Russia). The company was established in India through an Inter-Governmental Agreement signed on February 12, 1998, between The Republic of India and The Russian Federation.

The company was established with an authorised capital of US$250 million with 50.5 percent from Indian side and 49.5 percent from Russian side. The company is responsible for designing, developing, producing and marketing the BrahMos supersonic cruise missile with active participation of a consortium of Indian and Russian industries.

The JV Company has become a role model by integrating public-private industries from India and Russia as a consortium of 'Missile Industry Complex'. It has penetrated the international market with the most potent weapon system for precision strike and a Force Multiplier in Network Centric Warfare.

capacities? "Yes, BrahMos has been successful in meeting the requirements of the Indian armed forces pertaining to their delivery demands. We have excelled in delivering the missile to the services ahead of schedule which clearly highlights our production commitments and users' satisfaction." The Indian Navy has currently deployed the missile system on almost all the frontline surface warships of the maritime force. The Indian Army, till date, has placed orders for BrahMos to be deployed in three of its regiments and two of them are already fully operational with the Army with orders for many more in the pipeline. "We are enhancing our production capacity in Hyderabad, Nagpur and Pilani by developing further dedicated production lines and product support centres simultaneously," Mishra shares. Development work for the third production centre in Nagpur, which will be exclusively dedicated to the Air Version, is in progress. "We expect full-fledged production from this centre very soon."

> "Industry partners are the strength and backbone of BrahMos. More than 200 industry partners from India are committed to the BrahMos programme."

Scope for exports

There has also been a demand for the BrahMos missile from other countries too given its extraordinary capabilities. The Inter-Governmental Agreement stipulates the use of this advanced missile system by the Indian and Russian Armed Forces as well as export to friendly countries. Several South-East-Asian and Latin American countries have expressed their interest in the system, particularly for the naval and coastal defence versions. A definite list of such countries already exists. "We are progressing with our marketing strategy for exporting BrahMos to certain nations. We expect several export contracts to be signed with the nations friendly to both India and Russia in the near future. But the decision to export will be taken only after the approval of both Indian and Russian Governments."

Supply chain excellence

BrahMos is an excellent example of collabora-

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Why it is so special

The BrahMos Missile is the world's first and only supersonic cruise missile. It is a precision strike weapon for Army, Navy as well as Air Force and can be fitted in Ships, Mobile Launchers, Submarines and Aircraft against land and sea targets. Compared to existing state-of-the-art subsonic cruise missiles, BrahMos has three times more velocity, 2.5 to 3 times more flight range, 3 to 4 times more seeker range and nine times more kinetic energy. The missile has identical configuration for land, sea and sub-sea platforms and uses a Transport Launch Canister (TLC) for transportation, storage and launch.

tive excellence in a supply chain. It has led to the establishment of a robust Missile Industrial Complex (MIC) in both India and Russia. The MIC is a conglomeration of public and private sector defence firms in both the countries that have been actively involved in developing, producing and supplying various critical systems and sub-systems for the weapon. As already mentioned, there are over 200 companies (205 to be precise) as part of this supply chain at present from India.

"Since the demand for BrahMos is quite high, with present orders for it worth over thousands of crores, it is our topmost priority to meet the delivery timelines and ensure users' satisfaction. And in order to meet our deadlines, we need to systematically manage our supply chain. One focus area here is full capacity building, to ensure production of the entire BrahMos system in both the countries. Being JV partners, our goal is to ensure that both countries should be able to produce 100 percent of the missile in India as well as Russia." This means, all the associated partners should produce and supply the necessary components ensuring interchangeablity by following common standards, which will ensure meeting the user requirements. "This will not only double up our scale of production, but would also enable us to meet any immediate or future large-scale requirements."

> "We are enhancing our production capacity in Hyderabad, Nagpur and Pilani by developing further dedicated production lines and product support centres simultaneously."

Readying for the skies

At present, the BrahMos Missile can be launched from land and water. Work is in progress to make it deployable by the Air Force as well. "We are hopeful that the first flight trial of BRAHMOS-A from the Su-30MKI will take place by early next year. BrahMos Aerospace is closely coordinating with HAL, the Indian Air Force and our Russian partners to ensure that the maiden trial of the BrahMos air-launched version takes place at the earliest as deliveries are to be commenced from 2016," Mishra says.

BrahMos Aerospace is also planning to develop a 'mini' version of the missile and the organisation is currently doing a feasibility study for the new revolutionary weapon. The primary features of the new missile would be that it will be lighter, smaller, more agile, highly lethal and more precise over its predecessor. It will have a top speed of Mach 3.5. The weapon will carry a similar payload and will have the same range like its predecessor. "However, BrahMos-Mini will be around six metres in size. Our main purpose of developing BrahMos-Mini is to ensure that it is deployed on a larger number of military platforms. In particular, torpedo tubes of submarines and fighter aircraft like SU-30 MKI, MiG-29 and FGFA. We have just initiated work on the new project and it will take around three years to design, develop and validate this miniature variant of BrahMos."

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As of now, BrahMos Aerospace has set the date for the year 2017-2018 by which time the new missile would be inducted into our armed forces.

Amongst the best

Having played a key role in the nation's missile programmes, Mishra has also worked on several international projects. And he ranks India's capabilities in this field amongst the finest. "Having years of enriched experience in India's defence programmes, especially in the missile projects, I must say that India today stands tallest among many nations in designing and developing a wide range of sophisticated missiles successfully. The foremost being the Agni series of ballistic missiles. Despite the restrictive technology denial regime imposed on us by the developed nations for several decades, we have emerged victorious in developing our own critical systems and technologies as deterrent and are now proud to own and produce many tactical and strategic missiles. DRDO work ethics, value system and technical training has created deep impact on me and prepared me to undertake the challenging task as head of the World's best cruise missile company. Moreover, Dr. Avinash Chander the present DRDO Chief has groomed me to undertake leadership and challenges, and deliver weapon systems to the nation on promised schedule," Mishra explains.

Vision for BrahMos

BrahMos today is the world's leading supersonic cruise missile, with flight results which has established accuracy, reliability, ease of operation, fastest reaction time and practically no maintenance during storage when compared to other cruise missiles available in the world market. The missile system is planned to be launched from submarine and Su-30MKI platforms. The supersonic cruise missile system has already been inducted in the Indian Army and Indian Navy.

> "In future, BrahMos endeavours to develop the fastest hypersonic missile in the world, which would travel at speeds above Mach 5 being practically invincible to enemy radars owing to its stealth technology and speed."

The name BrahMos represents the fury of India's Brahmaputra River and the grace of Russia's Moskva River. Mishra wants to unleash this potent power in the segment of missile manufacturing in India. "In future, BrahMos endeavours to develop the fastest hypersonic missile in the world, which would travel at speeds above Mach 5 being practically invincible to enemy radars owing to its stealth technology and speed. Our vision is to remain as the world leader in the field of Cruise Missile Systems, excelling through Research and Development efforts in design and software upgrades and delivering a state-of-the-art weapon complex. We want to retain our leadership as the producers of world's best cruise missile system in the years to come in both supersonic and hypersonic arena."

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मेक इन इंडिया MAKE IN INDIA

Following up on his invitation to the world to 'Come, Make in India', Prime Minister **Narendra Modi** officially launched the 'Make in India' campaign. A quick snapshot of industry response.

Lion's Step

"This is a lion's step. Lion's step – Make in India. When I talk of it and I am speaking from my Chief Minister's experience, industrialists don't come due to some fancy incentive scheme. One can say you will get this or that, will make this tax free or that tax free. Incentives don't work. We need to create development and growth oriented environment."

■ **Narendra Modi,** *Prime Minister of India*

"A new idea in the PM's speech was that India is ideally placed to Look East and Link West. This will help products manufactured in India to enter the global value chain. It is interesting that the PM has equated FDI to the notion of First Develop India. Also, Digital India should lead to much better governance that will help India improve its rank in the Ease of Doing Business.

■ **Ajay S Shriram,** *CII President*

"We would now like to see a greater and more rapid push from the Government of India towards creating a significantly better environment for businesses to operate in. We will on our part bring in new investments and create high value manufacturing jobs not only to cater to the Indian market but to also to export in larger numbers from India."

■ **Mahesh Kodumudi,** *Chief Representative Volkswagen Group India & President & MD, Volkswagen India Pvt. Ltd*

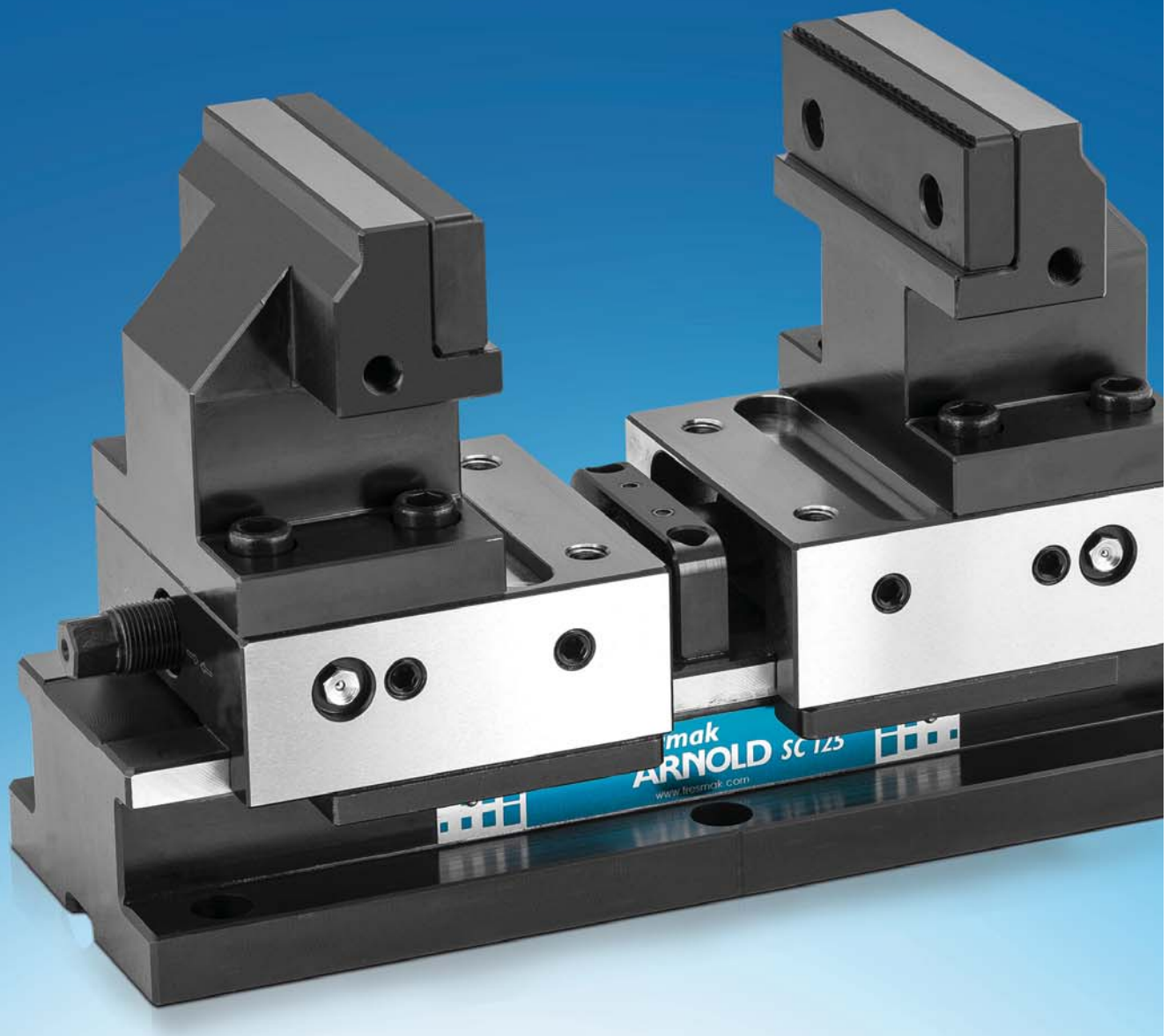
"Indians and India are renowned for innovation. We start with an idea and then work backwards to develop state-of-the-art manufacturing facilities. This enables us to do things quicker and better than anyone else. India definitely has the capability, inclination towards innovation and the skill sets. Hence, we urge the world to come and make in India."

■ **Sunil Mathur,** *CEO, Siemens India*

"This is a call to arms for all corporate chieftains from General Modi who is all set to lead India into the war of dominating the global manufacturing industry. All of us hope that the government indeed becomes a facilitator in the coming years as opposed to being a stumbling block, and that the PM's promise to make this change happen, comes true in the shortest possible time."

■ **Tushar Mehendale,** *MD, ElectroMech*

Innovation is not an option but
an ATTITUDE



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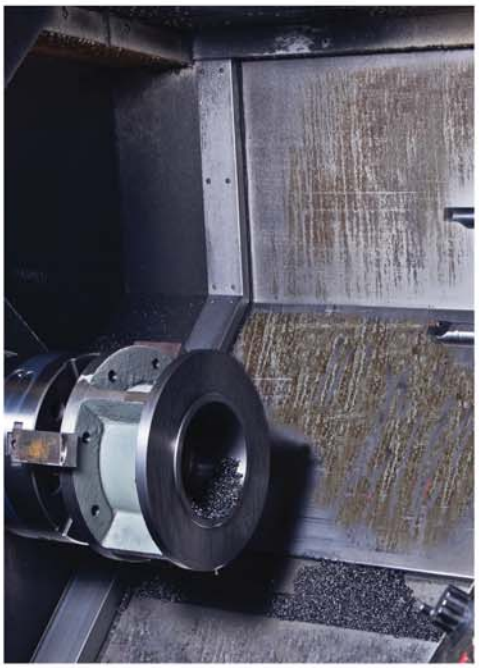
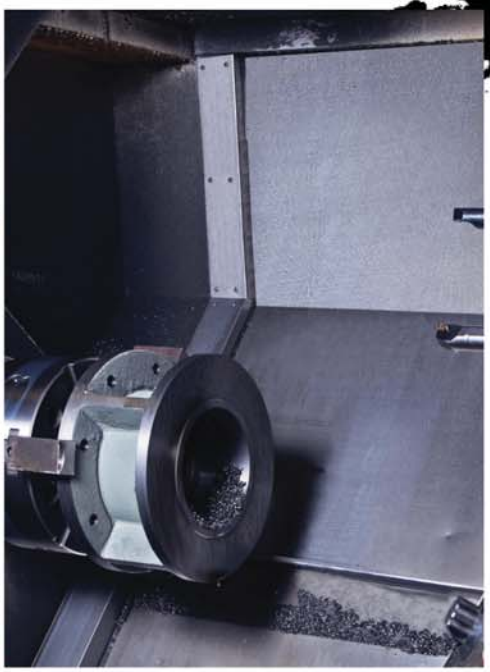
Dirty machines can affect your shop floor productivity and your morale

Machining of Cast Iron, is a tricky and demanding process. Inherent composition and properties of the metal pose stiff challenge to even the experienced machinist. The fine graphite residues generated during the machining process tend to stick on to the machine parts rendering it with an unenviable look.

If unattended, these impurities tend to form a thin oxidized film on surface of the machine parts. Chances of rust formation also cannot be ruled out. These can not only lead to choking of pipelines and nozzles but also significant reduction of machine lifetime. Dirt on the machines is not only a blot to your reputation but can also impede efficiencies. While chances of tool breakage and poor finish increase, the biggest impact is on the morale of the operator!



Scale formation with ordinary cutting fluid



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Mark your diary

A list of key events happening between October 2014 to October 2015, both nationally and internationally

Automation 2014
October 15-18, Mumbai
www.iedcommunications.com/index.php

SPS Automation India 2015
February 5-7, 2015, Ahmedabad
www.spsautomation-india.in

JIMTOF 2014
October 30 – November 4, Tokyo
http://www.jimtof.org/eng/index.aspx

India Automation Technology Fair
February 26-28, 2015, Mumbai
www.iatf.in

KnowledgeExpo
November 20-22, New Delhi
www.ciiknowledgexpo.in/Default.aspx

ACMA automechanika
February 26-March 1, 2015, New Delhi
www.acma-automechanika.in

International Mining and Machinery Exhibition (IMME)
December 3-6, Kolkata
www.immeindia.in

ProMat 2015
March 23-26, 2015, Chicago
www.promatshow.com

India Rubber Expo and Tyre Show
January 15-17, 2015, New Delhi
www.indiarubberexpo.in

Hannover Messe 2015
April 13-17, 2015, Hannover
www.hannovermesse.de/home

Imtex 2015
January 22-28, 2015, Bangalore
www.imtex.in

EMO MILANO 2015
October 5-10, 2015, Milan
www.emo-milano.com/en/home

Machine Tool Expo

August 20-23, 2015
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www.mtx.co.in

September 24-27, 2015
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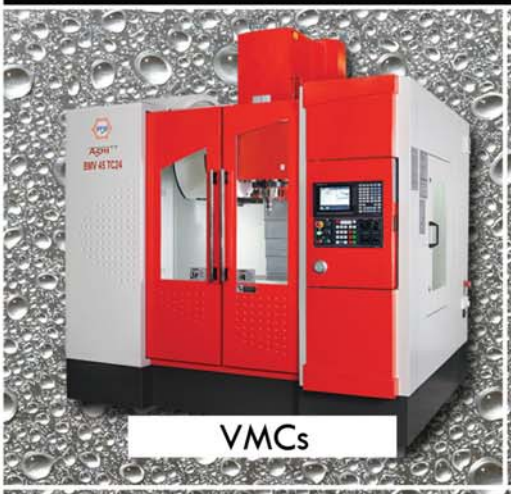
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New Enthusiasm

EMAG India is focussing on increasing the reach of its products, improving service and assembling machines in India to achieve the local benefits, says **Andreas Zieger,** Director of the Company

By Niranjan Mudholkar

Tell us about your association with India

After the opening of the Indian economy EMAG has thought about approaching the market and serve the customer. Since 1996, we have catered to the Indian market with own personnel. Focus was and is to offer the latest technology often developed together with our international customer ending up in manufacturing systems for precision metal components. Today we can combine technologies like turning, milling, grinding but also hobbing, shrinking, laser welding, hardening and electrochemical manufacturing to offer dedicated lines focusing on quality output in the demanding automotive industry.

Driven by the globalisation of the industry and our effort to give first class service to our clients we have started in India and try to improve our support day by day. Today we sell all technologies, install whole production lines, give preventive and reactive service and develop new machines with leading Indian companies to serve the special Indian needs.

> EMAG India is focussing on increasing the reach of its products, improving service and assembling machines in India to achieve the local benefits"
>
> **Andreas Zieger,** Director of the Company

What have been the key challenges in this market?

Without being negative or arrogant I want to name some points which require additional efforts compared to other market. Often mention already the infrastructure like power or transportation. On the other side the bureaucratic requirements are big even for smaller organizations like us, corruption is in each country disturbing and actually sheeting the whole people. But, at the end I saw over the several years in India an unhealthy development of the value system of the youth. Focus on fast money not necessarily linked to performance and an education system focused on marks instead of practical experience lead to the fact that despite a great number of young engineers it is difficult to find enthusiastic, interested young people.

How do we overcome these challenges? First by taking away our Europe centric glasses, adapt to the infrastructure weaknesses by supporting the generator business of India, fight everywhere corruption and put lot of effort to train our young employees.

Indian buyers are known to be very price sensitive...

Yes we are also facing that situation, in my eyes driven by the different value system and a short term planning. Service is considered as cheap because your vegetable is served in front of your door step, the iron man sits around the corner and any service provider comes on short notice. But the quality is a different pair of shoes. Here we also face the same situation although our clients appreciate that our service engineers come fully equipped and not only with a worn out screw driver. Some are using also our maintenance contracts, which have shown that with that preventive maintenance the service cost can be reduced by 20%-30% beside the much better break down time. In short I can say that the price as sole decision criteria has come down; I see it in the private world where people spend for quality or branded products but it is also visible in our segment. Clearly driven also by the globalisation

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where the end-customer is sitting anywhere in the world and expects for his hard earned money a quality product, and here EMAG is the right solution provider.

Most machine tool players have engaged with their customers through technology centers. Tell us what EMAG has been doing on this front.

Technology centers have different task, very often it is understood as show room to touch the machines. For us with our wide range of technologies available and customised solutions for specific customer problems we understand our Bangalore center as the first interaction point, where we can show first renderings and simulate first solutions. In case of international support our technology experts from various companies in the world use our centers as local support for our customers to bring comfortably together the know-how and experience of EMAG.

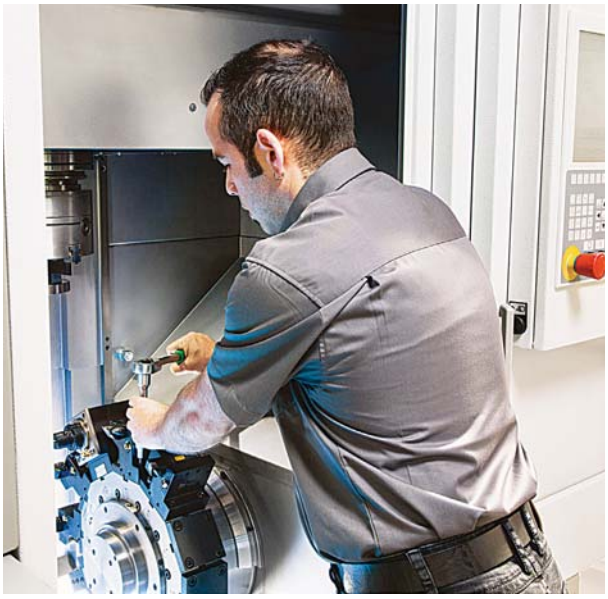
Tell us about your customer engagement initiatives.

We see in the Asian market that some black sheep have spoilt the market with exorbitant prices in the after sales market. With that and the price sensitive market in general, we also face cases where the customer is avoiding services or intents to save money. But our machines are high tech tools and here we recommend to use the original service. You service your car without questioning and you are also concerned if original parts are used. Why treat machine tools differently? Similarly, I also want to stress the safety aspect. Each machine has an operator working on the machine and if clients are using unauthorised parts or service the machine in a wrong way it can lead to harm the operator. We do trainings on the machine but over the years, and affected by a common laziness the daily maintenance can suffer. Therefore we offer various support by our service team and we realise that the clients using more and more preventive services, to avoid uncontrolled break downs and ensure quality maintenance of the machines. Thus we can offer balancing test to analyse the actual situation and by that we can indicate if from the operator or the maintenance team something can be improved. It is an interesting part of our work, we see that the customer is interested in that cooperation and thus our strategic target is to give better support.

> “Customers using our maintenance contracts have seen that with preventive maintenance the service cost can be reduced by 20%-30% beside the much better break down time.”

Do you see a strong revival in the domestic market?

I see a new enthusiasm in the Indian people, and enthusiastic managers with a drive to conquer the world. On the other side also the international world sees the benefit of the new



government and hopes that the old growth scenario comes back. This will bring back income and domestic consumption and by this I hope manufacturing will see revival.

Highlight of your participation at IMTS 2014?

EMAG is launching at the moment a new modular machine concept. We realise that the life cycle of products in our key market the automotive industry is getting shorter and shorter. Here optimal customised solutions have to become more flexible. Thus we have developed a machine concept within the proven vertical machine layout, which allows production line concepts built up with small modular systems and that also with different technologies. To illustrate that I use often the LEGO toy blocks as comparison. Here you can add modules according to required technologies or ramps in demand or you can use machines out of one line for later other solutions. Another benefit for the client is the maintenance of the machines or the spare part logistic. And during the design of the machines we have considered topics like footprint of the machine and electrical consumption, which become more and more important factors in the price per piece calculation for our clients.

Are you launching any new product for India?

Also in India we are introducing that modular machine concept. Here we have demo machines in our tech center and could also offer sample machines for our clients.

Any plans of expansion in India?

In general we are focussed to increase the reach of our products as we focus on a direct sales concept to promote the products and work on solutions with our clients. That requires permanent knowledge and experience transfer from all our worldwide locations and all technology centers. On the other side we target to improve our service to make it more comfortable and proactive. Last we start our first assembly activities of machines in India to achieve a benefit of that local production and transfer it to our clients. Facing the above mentioned challenges and motivated by the new enthusiasm we are committed to the Indian market and our clients and look positive in the future.

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Building the MSME... Driving the Economy

Geared up for customers

Technology, flexibility, speed and cost reduction are key to success in the automotive market and MAG machines are fully developed to address these requirements, says **Shashank MP** Deputy GM, MAG India Industrial Automation Systems Pvt. Ltd.

Q MAG has been known as an innovative partner for the international automotive and truck industry and their suppliers. Tell us about the latest trends in terms of technology development at MAG with reference to machining centers.

Technology, flexibility, speed and cost reduction are key to success in the automotive market. The automotive industry is also faced with the challenges of faster replacement of parts due to technology developments and market. MAG machines are fully developed to address these customer requirements. The traditional metal cutting processes on machines are being extended to honing on our machines which provides the customer advantages of quality, reduced honing steps, spare parts commonality, parallel operation which improves line efficiency and hence reduced cost per piece. These CNC machines are capable of identical features as compared to traditional honing machines with some key technologies like the NC drawbar spindle, online continuous measuring for special forms and linear motor technology integrated.

> The traditional metal cutting processes on machines are being extended to honing on our machines which provides the customer advantages of quality, reduced honing steps, spare parts commonality, parallel operation which improves line efficiency and hence reduced cost per piece."
>
> **Shashank MP,** Deputy General Manager, MAG India Industrial Automation Systems Pvt. Ltd.

MAG honing processes on machining centers have been received very well by our key customers and the process is running in continuous production at some of our OEMs in Germany and China.

Today customers focus on life cycle costs. With focus on dynamic part modernisation and retool cost, automotive companies require highly flexible equipment. For most of the modern projects, MAG has been supplying 5–axis machines for a part of the system to be prepared for any future part changes to be managed.

At several of our key automotive customers MQL (Minimum Quantity Lubrication) process technology has been well established and is being used globally. In India the first line being commissioned at Ford Motor Company's Sanand engine plant. This technology has also been established in countries with extreme environmental conditions. MAG is a pioneer in this technology with an advanced and unique thermal compensation. Customer derives benefits like lesser running costs as there is no coolant required, there's no contamination by coolant and

Energy efficiency

Energy consumption is one of the significant cost indicators for production. The latest generation machines at MAG are incorporated with minor modification of components replaced by energy saving components, energy monitor with software and energy recuperation. These changes today allow us to save approximately 25 percent of energy consumption in comparison to the traditional machines. Today machines switch off coolant, air, hydraulics etc. until the next part comes into the machine for manufacturing. When this is coupled with processes like MQL, there is further scope for reduction in energy consumption. These features like energy on demand are available as options for customers. "We see an increasing trend for such requirements in the future and will possibly be incorporated as standard features with the machines," says Shashank.

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no disposal is required. This also improves the tool life of the system.

MAG's proven adaptor plate technology supports customers with highest levels of flexibility. The adaptor plate has a standard interface to the machine table / fixture and the automation. With this process, customers can easily introduce new part types and involves only supply of new cutting tools and NC programs. Each adaptor plate is equipped with a read / write tag which makes the operation extremely safe and ensures tracking of operations. Volume flexibility is achieved by parallel processes and provision for phased installation of equipment based on market demand.

Q. Tell us about your customer engagement initiatives

Our plants in Germany and USA have decades of experience in customer service. We have pooled this expertise specifically to improve our service and provide effective support to customers. MAG also believes in regional service and spares support globally. We have been quite successful in replicating this model in India with regional teams and two spare part hubs. This allows us to be close to the customer for any support requirements. Our highly trained and skilled service and support team also draws up fully customised maintenance schemes and concepts with specific customers. We also see a trend that our other manufacturing units in Europe and US will utilise our support for global projects. We also have critical support being established like the spindle repair and reconditioning which will be undertaken in-house at MAG India from January 2015 to support all our key customers. We also ensure supporting our customers for the complete life cycle of the equipment, not only the current machines but also all the legacy products.

Q. Retrofitting and retooling are two of MAG's additional areas of expertise. What response MAG is getting in India?

MAG has been operating a retrofitting centre at its Göppingen site for more than 20 years. At this plant, we have been restoring ageing systems and machining facilities to state-of-the-art condition, overhaul machines and carries out full retrofits. In many cases, retrofitting an existing system makes more sense than procuring a new machine giving such systems and machining facilities a technology update by replacing obsolete components and installing modern enhancements makes them fit for another 10 or 12 years. Our experience is that the cost of such a retrofit machine is approximately about 30 percent lesser than a new machine.

We are in the process of transferring this technology of retrofitting available at Germany also to India with a core team of engineers to handle all our machines. We have been receiving very good response to this segment in India and are working with some OEMs and largely with tier suppliers. We also have some requests from some of the Government companies using our equipment for over 15 to 20 years. Based on this response, moving forward we intend to increase our involvement in this segment. Our key strength is the internal engineering support from our parent units to provide necessary documentation for these machines. We also have the advantage of producing the core components in-house.

Q. Have you launched any new product recently?

Recently at the AMB show in Germany, we launched the dual spindle machining center SPECHT 500 DUO+ with pallet changer as a world premiere. This machine caters to the requirements of all the component manufacturers with provision for manual loading and flexibility for lower volume production. The dual spindle MAG center in B-, A- or A-/B-axis machine configuration can be compensated in all axes and guarantees highest machining quality through the independent axis of both spindles in parallel operation. The smart axis arrangement (z-axis with work piece, x- and y-axes on the tool side), following the jig boring machine principle, ensures top quality of the work piece and makes it possible to use long tools and boring bars. The incorporation of our fastest tool changer on this machine ensures higher productive times on the equipment.

Q. Any plans of expansion?

Since 2010, MAG India has been extremely successful with the localisation program. We see this as the ideal base business model for the India market and are working on further developing this with enhanced localisation to support customer cost targets. However we intend to execute this program in a phased manner to ensure the same levels of quality and reliability of the equipment and maintain our commitments on machine availability.

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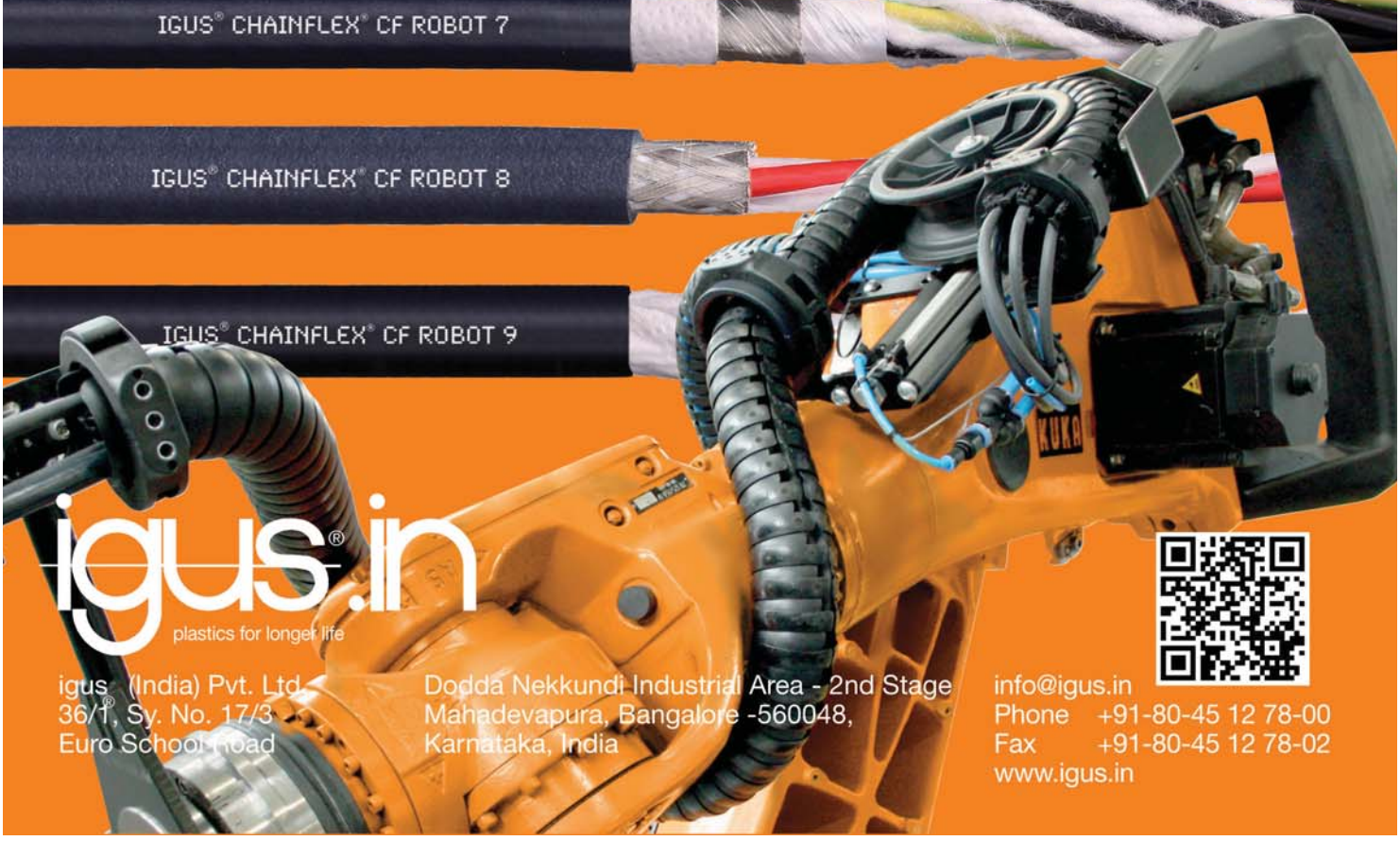

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Commitment towards 'precision'

With the change in guard and with special thrust on manufacturing industry ('Make in India' campaign) his Company is seeing a positive trend in almost all the segments, says **MK Suresh**, General Manager, Production Machinery, Makino India Pvt Ltd

By Niranjan Mudholkar

Q. Makino is globally known to take a comprehensive approach as a metal-cutting and manufacturing technology company. Tell us how you are using this approach to help customers in India.

Makino came to India with the aim of providing comprehensive machining solutions, rather than just sell equipments. That is why, within the first two years of direct operations, Makino had set up its Technology Center in Bangalore (1998) to develop and provide turnkey solutions to our customers, locally. Over the years, Makino has set up many such Technology Centers throughout the country and these centers are focused in providing local solutions in the areas of Machining Process, Work holding Fixtures, Specialised cutting tools and Process Automation. These technology centers are equipped with the latest machines and equipments to perform actual integration and testing of all these processes. Our customers have immensely benefited from this comprehensive approach and their patronage has helped us grow to this level in the Indian market.

> In our Engineering Training Centre (ETC), there is a high sensitivity scale; so sensitive that it responds to a hand holding it. This sensitivity applies to every aspect of our machine building and demonstrates our precision in machine tool building."
>
> **MK Suresh,** General Manager, Production Machinery, Makino India Pvt Ltd

Q. How can your customers optimally utilise your tech centres for their benefit?

Our Tech Centers are knowledge centers, and in today's competitive world, knowledge is the key. We use our tech centers to transfer knowledge (technology) to our customers. Various training programs in the areas of machine operation, programming, and advanced machining processes are conducted at these tech centers regularly. Apart from Makino's own products, these tech centers also showcase many of the associated products such as Cutting Tools, Work Holding fixtures, Measurement systems, Coolant etc. This comprehensive showcasing of machines and related peripherals helps customer understand the latest machining techniques. Regular interaction with our Tech Centers and our experts help customers improve efficiency in their machining process. Moreover we do lot of test cuts in the technical center where in customer can come and witness the actual process/ performance of our machines.

Q. You have been emphasizing on what you call 'the Makino way' to differentiate yourself. What exactly is this?

We differentiate ourselves through 'the Makino way' by persisting on our core values. This persistence governs our strategy, planning and execution, and over the years, these values have become a part of Makino culture. This is what we call "The Makino Way".

Precision in Machine Building: In our Engineering Training Centre (ETC), there is a high sensitivity scale; so sensitive that it responds to a hand holding it. This sensitivity applies to every aspect of our machine building and demonstrates our precision in machine tool building.

We take into consideration environmental conditions like room temperature and dust level. Humidity is controlled by treating the fresh air before it enters the production floor. Air recirculation maintenance system removes moisture in the air. Whenever the system detects any irregularity in humidity and temperature, it will start processing the air automatically. By controlling the humidity, rusting of metal part can be eliminated. Only under such stringent temperature and humidity control less than 5-micron accuracy can be achieved. This commitment towards 'precision' ensures that customers get a high quality machines. This philosophy is reflected across all functions of our company.

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Continuous Training: To ensure that our staff is able to perform and meet our top quality standard, continuous training, from the very basic of good workmanship to highly specialised skills of machine building is provided. The Makino Asia's technical training program is one such training that illustrates the company's commitment to pursue continuous improvement as embodied in our quality policy. The program not only equips the staff with the basic knowledge of the machine tool building trade but also ensures that the individuals suitably apply the acquired knowledge and skills. With the structured and systematic training program, we are able to keep to our first belief – 'Quality First'.

Quality First: Our corporate philosophy since the company was found in 1937 has always been 'Quality First'. This commitment means more than just providing high quality products; it involves the pursuit of superior quality in every facet of our organisation, technology, service, based on mutual trust with our customers and partners.

The key in maintaining quality lies in having clear, concise production processes, identifiable checkpoints to monitor and control the quality of work as well as specifying work performance standard for every stage of the assembly.. We have built a system of auditing completed work to ensure that the superior quality is maintained.

Good Housekeeping: To ensure a clean working environment, housekeeping audit is done monthly. The housekeeping committee will check each and every individual's work area to ensure the standard of cleanliness is adhered to. The way we regard housekeeping at our workspace reflects our attitude to our work. Housekeeping policies are not just restricted to the offices. All the shop floors have to keep to the standard as well – machines and all items have to be kept clear of the walkway.

Conducive environment: Makino, having achieved certification for Environment Management System ISO 14001:2004, renders full support to environmental protection and works towards the prevention of pollution in balance with socio-economic needs. We go further to assess and control the impact of our activities, products and services to the environment. The OHSAS 18001:2007 certification provides guidance on managing the health and safety aspects of our business activities. This certification positively improves the efficiency of internal operations, and consequently reduces accidents, risks and downtime.

Q Makino Asia, Makino India's parent organisation, has the International Research and Development (IRD) Centre in Singapore. Tell us how are your leveraging on the R&D activities for the benefit of your customers?

The International R&D center was setup in Singapore, in order to bring in a global team of experts who can focus on developing cutting edge technologies in the field of metal cutting. Cutting across geographical boundaries, this multi-cultural team is able to bring in a global outlook towards R&D, exchange ideas on customer expectation from various parts of the globe, which may differ from region to region. Asia being the future growth market for the manufacturing industry, Singapore is the most appropriate location to attract the best of talents and also to keep a close connection with the emerging market.

Q Which are the key industry sectors that you are focussing on in India? Do you see a strong revival in the domestic market with a change in guard?

Our traditional focus is on the automobile industry – both high volume parts machining and die & mould industry. During the last few years we have started to focus on the Electrical, Aerospace and Medical industry. With the change in guard and with special thrust on manufacturing industry ('Make in India' campaign) we are seeing a positive trend in almost all the segments. In my opinion the driving factor for investments would be exports and positive improved sentiments in the domestic market.

Highlight of your participation at IMTS 2014?

During IMTS 2014, Makino displayed several of its latest machine technologies, including the new a51nx-5xu 5-axis horizontal machining center with a unique work changer, the new a81nx horizontal machining center, EDBV8 EDM hole-drilling machine ideal for film cooling holes and diffuser shapes and the D800Z 5-axis vertical machining center. Makino also demonstrated a variety of new technologies designed to produce aerospace jet engine components, including grinding of high temperature nickel alloys. Many of these technologies are planned to be integrated within a variety of automation systems. For sure we will be brining in these products in to India based on the market demand.

Q Any plans of expansion?

Yes, we are building a Global Service Training Center at Bangalore and also looking at expanding our network of Technology centers to include one more each in the West and South.

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Reducing scrap, saving time

Whilst efficient and economical productivity is a major factor behind the success of most sub-contract machine shops, quality is of paramount importance.

The advanced manufacturing division of Intoco (Independent Tool Consultants Ltd) a Gloucestershire, UK, based company, is a showcase for precision subcontract engineering. Five-axis simultaneous machining centres and 3D solid modelling capabilities are supplemented by an unerring commitment to quality control, with three of the company's high-specification CNC machine tools being fitted with touch probe technology from Renishaw.

Whilst efficient and economical productivity is a major factor behind the success of most sub-contract machine shops, quality is of paramount importance in a market place where "right-first-time", with zero scrap allowance is critical. After all, rejected components mean unpaid invoices.

The target then, was to build measured accuracy into and during the manufacturing process. Machine shops that fit CNC machines with measurement probes quickly realise the benefits derived from automated tool setting, broken tool detection, component setting, in cycle gauging and first-off inspection. Intoco, based in Staverton near Cheltenham, UK, is a prime example of a subcontract manufacturer taking advantage of the touch probe technologies available from Renishaw.

Managing Director Tony Preece founded Intoco in1972. Originally serving the aluminium extrusion industry, the company has evolved to serve a variety of markets that demand high quality products, fast delivery times and price competitiveness. Intoco is particularly responsive to very short lead-times, partly because the company also has a special steels and alloys division, which means it has stocks of raw material on site ready for component machining. Preece states that the fastest return on any investment that Intoco has made has been the Renishaw probing.

Rapid turnaround

A probing system can eliminate costly machine downtime and the scrapping of components associated with manual setting and inspection. This was first appreciated at Intoco around seven years ago when the company invested in a Mazak Integrex e-1850V - a machine so large it arrived in kit form in about 30 crates. It came fitted with a Renishaw RMP600 touch probe, a factor which opened the company's eyes to the competitive gains on offer.

"Currently the metals extrusion industry commands 50 percent of our production capacity, but we also manufacture components for the oil and gas, green energy and pharmaceutical industries," says Wayne Parkins, Intoco's CNC Production Development Engineer. "We purchased the Mazak Integrex e-1850V to machine very large critical components up to 2300 mm in diameter and 1500 mm in height, manufactured in Alloy C22, super duplex and high alloy pre-hardened tool steels. With our clients not allowing any possibility of 'weld repair' in the event of a mistake, 'right first time' on one-off components is critical with no margin for error. This was the reason for the integration of the Renishaw inspection probing on our Mazak Integrex e-1850V."

Inspection Plus

The Mazak INTEGREX e-1850V at Intoco also has Renishaw's Inspection Plus software for machining centres

installed. This is an integrated package of macro software which includes vector and angle measuring options, print options and an extended range of cycles, as well as an SPC cycle, one-touch or two-touch probing options, tool offset compensation by percentage of measured error, and data output.

"Inspection Plus is great because you can do in-process measuring and adjust tool sizes automatically with the controller," explains Parkins. Intoco also machines 1500 mm diameter turbo fans on the same machine, where once again Inspection Plus is highly valuable: "We measure the fans using Inspection Plus and export the data to a suitable file, such as a Word document or an Excel spreadsheet," says Parkins. "We can then present a document to the customer showing nominal size, check size and tolerance band."

> "The elimination of the 'off machine' inspection process and manual measuring gives us an improved 'floor-to-floor' time together with printed accurate measurement data to pass to our clients."
>
> **Wayne Parkins,**
> Intoco's CNC Production Development Engineer

More investment

Recently Intoco has added further Mazak multitasking machines to its production facility, including a Mazak Integrex e-650H. A typical batch size at Intoco is one to four, with ten being the maximum.

Parkins explains: "Originally the Mazak Integrex e-650H was delivered without a Renishaw touch probe. However, we required it to machine components up to 1000 mm diameter, which were difficult to measure with conventional inspection equipment. We then contracted Renishaw to fit a touch probe with a radio signal transmission to enable Intoco to inspect and record tight tolerance dimensions."

Intoco now also has a smaller capacity Mazak Integrex e-420H, fitted with Renishaw touch probe technology and it also uses a Renishaw MH20i manually adjustable probe with a TP20 touch trigger probe on its co-ordinate measuring machine.

"The biggest challenge for us is the demand for very fast and critically urgent delivery of components to our clients," says Parkins. "The elimination of the 'off machine' inspection process and manual measuring, with the potential for inaccuracy and misreading that can occur, coupled with the length of time that this entails and the machine delays involved, gives us an improved 'floor-to-floor' time together with printed accurate measurement data to pass to our clients."

Source: Renishaw

Financing machine tools

Increasing efficiency and productivity requires a commitment to implement up-to-date equipment and, hence, considerable capital investments, says the spokesperson of Electronica Finance Ltd

Tell us about Electronica Finance Ltd

Electronica Finance Ltd (EFL) is a Non-Banking Finance Company (NBFC) engaged in providing finance to Micro, Small and Medium Enterprises (MSMEs) in India. To deliver services faster and better by resolving capital shortages for customers, we have 35 associate offices across India. EFL has ensured that easy and flexible machine loans are provided to customers, in a remarkable time of seven days as against the industry standard of about one month. EFL, which commenced its operations in 1990, became the first company to be registered as an NBFC with more than 230 employees. In our journey of 25 years, we have catalysed some of the key changes leading to India's emergence as the global destination.

Why did EFL start financing machine tools?

The industry is moving towards increasingly sophisticated CNC machines. Machine tool manufacturers need to develop capabilities to cater to this demand and investments in this area could yield long term benefits. EFL started financing with the machine tool vertical as a natural extension to its manufacturing activity. As the market becomes increasingly competitive, machine tool operators must seek to underpin their businesses with increased efficiency and productivity. This requires a commitment to implement up-to-date equipment and, hence, considerable capital investments.

The Indian machine tool users are often anchored in the supply chains of high value-added manufacturing. Since many of these companies are MSMEs with difficulty in accessing traditional bank financing for equipment acquisition, availability of affordable and appropriate finance will prove increasingly crucial.

What are the financial products offered by you?

Term Loan: Loan for a specific amount that has a specified repayment schedule and a floating interest rate. The tenure ranges from 2 years to 5 years. Term loans are a good way of quickly increasing capital in order to raise a business' supply capabilities or range and matching repayment with utilisation of that additional capacity.

Business Loan: An entrepreneur requires a continuous flow of funds not only for setting up business, but also for successful operation as well as regular up-gradation/modernization of the industrial unit. Although mainly used to fund working capital requirements, the funds from business loans can be used for business expansion or repair and renovation.

SIDBI Scheme: With our unique association with SIDBI, we provide attractive loan schemes to MSMEs under the CLCSS arrangement. MSMEs can avail the benefit of subsidies for acquiring new assets if these new assets are classified as eligible under the scheme.1000 customers served under this scheme without single default.

Industrial Property Loan: his loan basically serves the same purpose as business loans but the loan amount is slightly bigger. If you have any unencumbered, free of charge Industrial property then you can avail these loans. These funds can be utilized for business expansion, working capital or repair and renovation.

Non Fund Services: In Non-fund Services we cater

1. Business advisory
2. Syndication & Insurance
3. Technical and System Advisory
4. Training or Capacity building related to finance.

List of machines financed by EFL

Metal Cutting	Metal Forming	MT Others
Wire cut	Laser Cutting Machines	CMM
EDM	Press Brake	Welding Machines
CNC Lathe/ CNC Turning Center	Shearing Machine	Robots
Vertical Machining Center (VMC) – Single & Double Column	Turret Punch Press (TPP)	Foundry Machines
Horizontal Machining Center (HMC)	Laser Marking Machine	Milling Machine
Jig Boring Machines	Presses of various types	Grinding Machine
Drilling Machine	Water Jet Cutting	Manual Lathe
Boring Machine	Plasma Cutting	Automation
M1TR	Welding Machines	

Technology shows

The popular HaasTEC shows are returning to India at Ahmedabad in November and at Manesar in December.

HaasTEC Ahmedabad 2014 - November 19 to 22	HaasTEC Manesar 2014 - December 10 to 13
Vatva Industries Association, Phase I G/1, GIDC Estate, Vatva, Ahmedabad, Gujarat 382445	HFO, a division of CNCSSIPL, Plot No. 226, Sector 6, IMT Manesar, Gurgaon, Haryana-122 050

The popular HaasTEC shows are returning to India later this year with two events arranged for different regions of the nation. Managed by the Haas Factory Outlet (HFO) in India (Phillipscorp, CNCSSIPL division), the first HaasTEC will take place between November 19 to 22 at Ahmedabad in the western state of Gujarat and will be followed closely by HaasTEC Manesar from December 10 to 13, in the industrial district of Gurgaon near New Delhi.

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 UMC-750 five-axis universal machining centre and the ST-35 big bore CNC lathe. 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.

A glimpse from last year's edition

"Visitors are invited to bring along components or drawings for a full evaluation of optimised machining solutions."

The 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.

The Haas ST-35 big bore CNC lathe can accommodate bars up to 102 mm in diameter and offers a capacity of 533 (dia) x 660 mm (length) with 806 mm of swing. The 29.8 kW, 2400 rpm spindle is served by a two-speed gearbox, while additional features include a 381 mm chuck, 12-station bolt-on turret and rigid tapping capability.

Other Haas CNC machine tool models scheduled to appear at both HaasTEC events include the ST-10Y turning center with Y-axis, the ever popular DT-1 Drill Tap machine with new 30 taper 15,000 rpm spindle, a VF-2 VMC, a VF-2YT VMC with a new inline 15000 rpm 40 taper spindle, and the VF-3YT/50 VMC, which provides extended Y-axis travel and the heavy cutting capacity of a 50-taper machine in a mid-sized footprint.

Visitors are invited to bring along components or drawings for a full evaluation of optimised machining solutions. Indeed, 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. In fact, there are even plans to give away a limited edition Haas wrist watches to those who pre-register before November 4. Pre-registrations go live on October 1 at: www.haascnc.com/openhouse

Strong growth ahead

According to a recent Roland Berger study, the SCV segment will continue to grow at a CAGR of 13 percent till 2020 and reach a staggering volume of 919 k units by then.

By Dr. Wilfried Aulbur

The SCV segment is a truly Indian invention. Brought to life by the path-breaking Tata Ace in 2005, SCVs saw blistering growth until FY2012. With roughly 446k units that year, SCVs cornered an impressive 50 percent of the overall CV market.

While the last two years have been difficult for the overall CV industry, SCVs managed to escape the economic downturn largely unscathed. Compared to a negative CAGR of 11 percent from FY12 to FY14 overall, SCVs declined only by a CAGR of 1.4 percent driving the SCV market share up to 61 percent.

Drivers for the success of SCVs are many. Increasing rural consumption drives growth in the light CV segment. SCVs are an integral part of the hub and spoke model and necessary for last mile distribution. Opportunities also arise from increasing urbanisation, stringent traffic regulations and an expanding metro rail network. Interest rates and relatively easy availability of loans have supported the segment as well. However, some banks have taken a more cautious approach of late due to rising delinquencies in the sector. Improved product quality and perceived increased safety of SCVs vs 3 Wheelers, some of the key initial selling arguments in favour of the Tata ACE, go a long way in increasing pride of ownership.

The socio-economic impact of SCVs cannot be underestimated. SCVs are mostly driven by owner-operators who get into the transport business often due to lack of a viable employment alternative. For many applications, these owner-operators achieve higher profitability with SCVs rather than 3-Wheelers.

The SCV cargo segment <2T is a skewed two horse race. Tata Motors has been able to leverage its first mover advantage to the fullest extent and holds onto 78 percent market share in FY14. Mahindra, relegated to a distant 2nd place with 17 percent market share, is however able to extend its traditional strength in SUVs to pickup trucks in the 2-3.5 T segment. Here, the Bolero Pickup and the Bolero Maxi Truck drive sales and are the mainstay of Mahindra's dominant market share of 64 percent.

The pickup segment has been growing strongly over the last few years aided by aggressive pricing. It currently accounts for about 54 percent of the segment and is likely to be hotly contested by all three major players, Mahindra, Tata and Ashok Leyland with its successful, albeit late, entrant Dost.

Interestingly, the 3-Wheeler cargo segment has managed to hold on to its volumes of 90-100 k units/year over the last five years despite stiff competition from SCVs. Price differentials of about 40 percent between the 3-Wheeler and entry level SCVs explain this resilience to a large extent. The 3-Wheeler segment itself has seen some interesting shifts, however, notably significant market share gains by Atul Auto, a rather late entrant in the segment.

Image courtesy: Tata Motors

SCV passenger carriers amount to about 191 k units in FY14, about 20 k units less than in FY11. Here, SCVs have not managed to displace 3-Wheelers (about 385 k units sold in FY14) due to cost issues, fuel efficiency differences and government regulations (most routes require permits). Overall, a shift in customer preferences from hard top vans towards soft tops and MPVs is visible. This results in stagnant volumes in the SCV passenger carrier segment going forward.

According to a recent Roland Berger study, the SCV segment will continue to grow

at a CAGR of 13 percent till 2020 and reach a staggering volume of 919 k units by then. The bulk of this growth will be in the cargo segment driven by OEMs development of new applications, e.g., poultry, milk and water distribution, easily accessible finance and continuous focus on driver education and training. Nevertheless, profitability in the segment will be a concern in the short to mid-term due to relatively low capacity utilization and increasing competition.

OEMs that want to win in this space will have to continue to develop a keen understanding of evolving customer requirements (e.g., the shift from the 2T segment to higher tonnage pickups). Spotting and potentially even creating segment shifts will provide an excellent opportunity for profitable growth.

Liaising with local government authorities in order to promote SCV passenger carriers will be crucial as well as spreading the awareness around the benefits, applications, etc., of SCVs among potential customers. Development of new applications to expand the market (e.g., paint/ gas cylinder/ water distribution, waste disposal, etc.) will remain a key focus for growth. Last but not least, OEMs will have to develop drivers for the segment as the majority of the end users belong to lower economic sections of society and will most likely be first time users of any kind of motorized vehicle.

Government needs to support the segment by investing in and promoting infrastructure projects such as Metro rail networks across various congested cities. The permit issuance system for SCV passenger carriers should be streamlined to create an environment for healthy competition between SCV passenger carriers and 3-Wheelers. Especially in rural segments, schemes for cheaper financing options should be explored to promote the usage of SCVs and with it improve the connectivity of rural areas with urban centers.

"OEMs that want to win in this space will have to continue to develop a keen understanding of evolving customer requirements (e.g., the shift from the 2T segment to higher tonnage pickups)."

The author is Managing Partner at Roland Berger Strategy Consultants, India

India in top three markets by 2020: GM CEO Mary Barra

GM CEO Mary Barra visited India in September to visit key stakeholders. "India represents a great opportunity for Chevrolet," Barra said. "With a relatively small vehicle population and rapidly growing, young middle class, India is expected to become one of the world's three largest markets by 2020. "GM is working to better understand the Indian market so we can give Indian customers what they deserve -- safe, high quality Chevrolet vehicles with exceptional designs." During a visit to the Talegaon manufacturing facility, Barra participated in the celebration of the production of the first Chevrolet vehicle for export. Vehicles initially will be exported to Chile starting later this year.

WABCO inaugurates fifth manufacturing facility in India

Officials at the inauguration

WABCO Holdings Inc recently inaugurated its fifth manufacturing facility in India, located in Lucknow. The latest plant inauguration demonstrates the company's continued ability to anticipate and align with the requirements of its customers in India through the supply of just-in-time, locally adapted safety and efficiency technologies for trucks and buses built in India. At Lucknow, it will manufacture advanced technologies, including anti-lock braking systems (ABS), actuators and a range of braking valves for multiple global commercial vehicle makers operating in India.

The new plant expands the company's manufacturing capacity in India beyond its four existing plants.

Daimler premieres made in India trucks at Hanover CV Show

Daimler AG has unveiled two made-in-India products at the 65th IAA show in Hanover, Germany. The new BharatBenz 3143 (Concept) and FUSO FJ 2528 R Left-Hand Drive trucks were showcased at the fair along with other key brands of Daimler. These products were developed and designed in India to cater to the niche requirements of the domestic and wider choice for the export markets, respectively.

The BharatBenz 3143, showcased as a concept vehicle is slated for launch in the year 2015 and is specially designed keeping in mind the ultimate requirements of the Indian mining sector. It will be made and sold in India, targeting the niche deep-mining segment. The product is developed on the existing HDT platform – the Mercedes-Benz Axor platform.

Honeywell boosts India's first locally engineered petrol turbo engine

Honeywell Turbo Technologies has partnered with Tata to develop their first ever petrol turbocharged engine. The new Tata Revotron 1.2T engine recently launched in the 2014 Tata Zest delivers best-in-class power and torque and a first-in-segment multi-drive mode. Honeywell's engineering teams in Pune and Bangalore have leveraged unique local capabilities and global expertise in petrol turbo technologies to address the specific needs of a local customer.

Magna International expands in India

Magna International Inc. has announced the establishment of two new facilities in Sanand, Gujarat. While the new plants reflect business awards for vehicle programs built off global-platforms, they also help position Magna for further growth in India as vehicle production expands. At one of the new Sanand facilities, Magna will make complete seat systems for a leading automaker. The 215,000 sq ft plant will employ approximately 200 people and is expected to begin volume production in 2015. At the second new facility, the company will manufacture body and chassis systems for multiple customers. The 356,000 sq ft plant also expects to begin volume production in 2015.

Cooperation of Daimler and Renault-Nissan Alliance continues to accelerate

The Renault-Nissan Alliance and Daimler AG enjoy a long-term and stable future, and all of their shared projects remain on track, the companies' CEOs told the media in their annual media update at the Paris Motor Show. Renault-Nissan and Daimler launched their partnership in 2010. The scope of the original collaboration in 2010 was limited to three projects primarily in Europe. The combined portfolio shared between Renault-Nissan and Daimler has since quadrupled to 12 projects in Europe, Asia and North America. "The global scale of our projects ensures that this collaboration will continue to grow, and we expect to remain partners for the long run," said Renault-Nissan CEO and Chairman Carlos Ghosn. "This partnership has accelerated the time-to-market for significant vehicle launches."

Dr. Dieter Zetsche, Chairman of the Board of Management of Daimler AG and Head of Mercedes-Benz Cars, and Carlos Ghosn, Chairman & CEO Renault-Nissan Alliance, at the Daimler – Renault-Nissan Media Lunch 2014 in Paris

GM will put first V2V-enabled car on road in two years: CEO Mary Barra

GM CEO Mary Barra addresses the Intelligent Transport Systems World Congress. *(Photo by Steve Fecht for General Motors)*

General Motors CEO Mary Barra has announced that GM will put its first V2V-enabled car on the road in about two years. Speaking at the 21st annual Congress of the Intelligent Transport Society in Detroit, Michigan, she said that if the automotive industry has to thrive well then it has to provide solutions to mitigate – if not eliminate – problems like traffic congestion, pollution and traffic accidents. "We have to be passionate and fearless advocates for safety technologies like vehicle-to-vehicle (V2V) communication, vehicle-to-infrastructure (V2I) communication and ultimately, fully autonomous driving. No other suite of technologies offers so much potential for good. That's why I'm announcing today that GM will put its first V2V-enabled car on the road in about two years."

Delphi Automotive signs agreement to acquire Antaya Technologies Corp

Delphi Automotive PLC has signed a definitive agreement to acquire Antaya Technologies Corp., a leading provider of proprietary on-glass connectors, enhancing the company's portfolio in the rapidly growing automotive electrical connectors business. Antaya is the largest manufacturer of on-glass connectors for the automotive glass industry in North America, with a growing customer base in China and Europe. Antaya also supplies lead-free connectors, another area of growth, as global automakers seek more lead-free content in their vehicles. The transaction is expected to close in the fourth quarter of 2014 subject to receipt of regulatory approvals. Terms of the transaction were not disclosed.

Apollo Tyres to build new factory in Hungary; will invest EUR 475 milllion

Apollo Tyres has recently confirmed Hungary as the location for the same. Hungary was chosen after a consideration of various factors over some of the neighbouring Central Eastern European and Asian countries. Apollo Tyres will invest Euro 475 million over the next five years to setup this facility in the new industrial zone near Gyongyoshalasz, Hungary. Once completed, the plant will have a capacity to produce 5.5 million passenger car & light truck (PCLT) tyres and 675,000 heavy commercial vehicle (HCV) tyres per annum. This facility will produce both, Apollo and Vredestein branded tyres, and will cater to the entire European market.

Tata Steel opens new automotive finishing line in the Netherlands

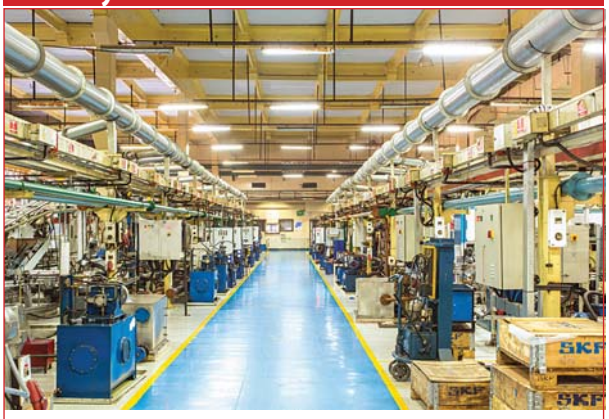
Tata Steel has opened a new finishing line at its IJmuiden steelworks in the Netherlands to strengthen the supply of high-value steels to the automotive sector and other markets. Tata Steel invested EUR12 million in Finishing Line 32, which will process up to 400,000 tonnes of galvanised (corrosion resistant) steel coil a year. Henrik Adam, Tata Steel's Chief Commercial Officer, said: "The new finishing line enables us to meet the most stringent quality standards for advanced steels, some of which are used by automotive manufacturers for vehicle body panels and safety-critical components. These steels are often stronger and thinner, enabling our automotive customers to produce more fuel-efficient and lighter-weight vehicles."

Setting new standards

The Machinist recently visited the SKF Pune factory to understand why it is an important engineering and manufacturing resource for the Group.

By Niranjan Mudholkar

Factory file



Location: Chinchwad, Pune
Start of operations: 1965
Area: 415, 000 sq m
Covered space: 69,954 sq m
Staff strength: 970
Product range offered
Taper Roller Bearings (TRBs), Deep Grove Ball Bearings (DGBBs), Thin Section Ball Bearings (TSBBs), Seize Resistant Ball Bearings (SRBBs), McPherson Strut Bearing Units (MSBUs), Hub Bearing Units (HBUs), and Taper Hub Bearing Units (THBUs).
Number of channels: 21 (TRB – 8), HUB – 2, THBU – 1, MSBU – 1 and DGBB – 9)
Market segments served: automotive, electrical, industrial, off-highway, service, vehicle after market.

It is the oldest and the largest bearing manufacturing site of the SKF Group in India. But there's more to the SKF Pune factory in Chinchwad than the 'oldest' and the 'biggest' tags. As Ulrich Selig, Director, SKF Automotive, Asia, says, the Pune factory is an important engineering and manufacturing resource for the Group. Offering a wide spectrum of bearings and hub units, the Pune factory is driven by about 1,000 highly trained and motivated people.

Focus on quality & innovation

Selig says that the Pune factory is driven by a passion for quality. This plant was among the first in the Group to adopt the Six Sigma approach. In fact, more than 50 percent of the Plant's staff is Six Sigma certified and the plant boasts of the highest number of Six Sigma black belts in the entire Group. This has resulted in a quality culture that is based on 'Zero Defect'. In line with its emphasis on quality, the Plant regularly upgrades its existing machinery and also invests in new technology. "This total approach has considerably reduced downtime and wastage while improving productivity and efficiency," says Selig.

According to Selig, the Pune factory also has a strong emphasis on in-house capabilities and competence. That's why from critical metallurgical processing to sophisticated product and process testing, all important functions are taken care of in-house. "Our in-house capabilities are well supported by our competent suppliers who are well-aligned with our quality requirements," he says. Interestingly, while

the global quality policy has been a driving force for the Pune factory, many local innovations too have added great value to the plant's operations. In fact, innovation focused on customer requirement has been a key component of the Pune factory's success story and the Global Technical Center India (GTCI) located at Bangalore has also played an important role in this journey. The GTCI helps develop products and solutions for the local as well as global customers faster and more cost effectively.

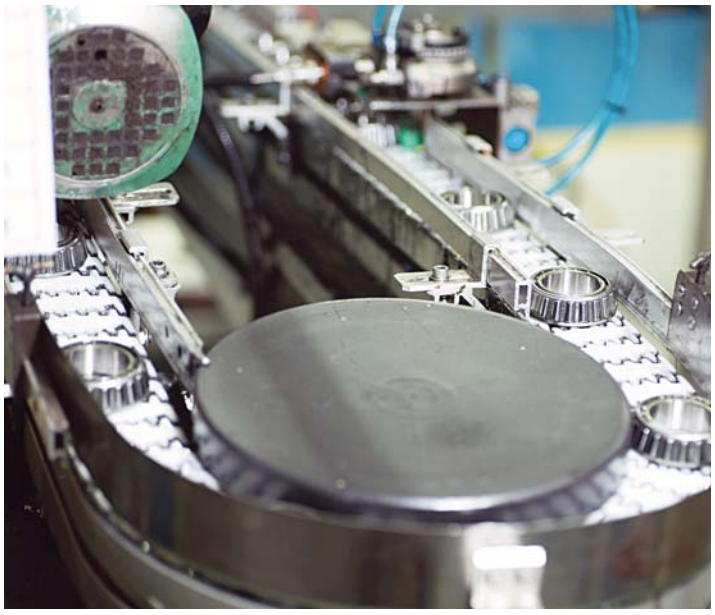
Bridge of Manufacturing Excellence

SKF has developed the Bridge of Manufacturing Excellence, a global programme that encourages the sharing of manufacturing knowledge and expertise around the world. And the Pune factory operates on this 'Bridge'. "This initiative touches every area of operations and involves every employee in the process of quality assurance and continual improvement. Among other things, the programme includes the standardisation of work activities and process to SKF best practices to assure stability and repeatability," informs Selig. It takes care of the ongoing training of employees to maintain channel quality and assures that new employees acquire knowledge of SKF standards and procedures. It leads to the empowerment of employees and teams for personal involvement in quality control and improvement.

The 'Bridge' ensures the implementation of Six Sigma continuous improvement tools to create new and better manufacturing standards and procedures. It follows a demand-driven workflow to help assure that the Company makes the products required by its customers. The SKF Bridge of Manufacturing Excellence programme involves every employee in the process of quality assurance and continual improvement. This bridge structure of business excellence illustrates SKF's processes as a link. "Working together with our suppliers and customers helps SKF in creating tangible customer value by optimising the manufacturing flow, improving the efficiency and quality, shortening the delivery time and thus serving customers better," says Selig.

A demand-driven workflow assures and makes products required by customers

> "Working together with our suppliers and customers helps SKF in creating tangible customer value by optimising the manufacturing flow, improving the efficiency and quality, shortening the delivery time and thus serving customers better"
>
> **Ulrich Selig,** Director, SKF Automotive, Asia



The Pune factory also has a strong emphasis on in-house capabilities

Kushal – The training centre

One of the highlights of the Pune factory is an excellent training centre called Kushal *(which means 'skilled' in most Indian languages)*. Located within the factory premises, Kushal offers training programmes in safety, basic bearing knowledge, quality and measurement systems, lubrication basics, grinding processes, machine operations, resetting, PLC training, TPM and business excellence. The SKF Group strives on its multi-skilling approach for its employees and Kushal plays a key role in furthering this. At a time, 35 people can be trained at this centre. Each employee has to undergo a mandatory training course of four man-days at Kushal, which aligns them to the business goals. Started about three years ago, Kushal has already trained more 2,000 people so far. The success of this training center has now motivated other Group companies to replicate this model at their respective factories.

Thus, by blending technology with training, knowledge with experience and quality with innovation the SKF Pune factory is setting new standards in terms of delivery, performance and fulfilling customer expectations, says Selig.

Dignitaries at the inauguration ceremony

Path-breaking show

Laser World of Photonics India 2014 received record visitor growth

The third edition of Laser World of Photonics India 2014, held from September 23-25, 2014, had a grand opening at the Bangalore International Exhibition Centre, Bengaluru. Organised by Messe München International, the event proved to be an integral part of the laser industry and an important gateway for the growth and use of lasers and optoelectronics in production for various industry sectors in southern India and other regions.

The show played host to 103 exhibitors with participation from 6,667 trade visitors. China, Japan, Germany, Lithuania and Great Britain were among the countries exhibiting in national pavilions. The major attraction this year was the live laser demo zone that demonstrated the live application of lasers in sheet-metal cutting.

The three day event showcased the use of lasers in various application industries It witnessed industry professionals and technical experts from sectors like Automotive, Diamond Cutting, Semiconductor, Metal Forming, Industrial Automation and others.

Lalit Kumar, MD, Laser Science, stated: "The current edition of Laser World of Photonics India is definitely witnessed a higher visitor turn-out. It was also a master-stroke by MMI India to organise electronica India 2014 and productronica India 2014 in conjunction with Laser World of Photonics India 2014, since they are sectors that complement each other and visitors have taken an avid interest to the technologies on display. For a technology-intense company like ours, it is a great platform to meet the industry as well as the scientific community, who also complete their entire client mix."

> "For a technology-intense company like ours, it is a great platform to meet the industry as well as the scientific community, who also complete their entire client mix."
>
> **Lalit Kumar,**
> Managing Director, Laser Science

The trade fair was established as a business platform for key decision makers and the who's who of the industry. Additionally it worked as a network forum where the Laser and Photonics industry, Associations and Scientific experts exchanged their ideas in several conferences and

seminars. The first day of the event was a huge success with short courses offered by The Optical Society (OSA) on Packaging of Optoelectronic Components and Nanophotonics: Design, Fabrication and Characterisation. Also, MMI India along with The Optical Society of India organized a Seminar on Laser Basics and Applications: The Way Forward. Besides the basic technology information, two application panels were held with major focus on laser application in machine tool and electronic industry. The accompanying programs witnessed more than 200 delegates.

For the first time, the Automotive Component Manufacturers Association of India (ACMA) joined hands with Laser World of Photonics India in organising a national conference on "Smart Manufacturing" to keep the automotive industry updated on the latest technologies and application of lasers for innovating manufacturing capabilities. Vinnie Mehta, Director General, was seen expressing his gratitude on being associated with Laser World of Photonics India.

"ACMA is pleased to associate with Laser World of Photonics India as its conference partner, to spread awareness and advantage that industry could gain using laser and photonics technology. The exhibition also had a good display of lasers and photonics applications and ACMA members visited the show to look at potential for application."

Speaking on the growing prospects, Bhupinder Singh – Acting CEO of MMI India said, "India's adoption of Lasers in the application industry has given the sector a major fillip, making it one of the world's largest and fastest growing markets for Lasers and its application. The motive of organising a show like the Laser World of Photonics India is that it brings together the industry experts and research fraternity under a common platform and at the same time showcases the latest in technology that the industry has to offer. This year, the exhibition saw an increased participation from leading associations and technical experts.

"The show established itself as an enabler for the development of the laser and photonics industry in India. Strongly endorsed by the industry and major trade bodies, the event has successfully brought participating exhibitors and buyers together to engage and offer business solutions. Moreover the technology will be crucial for the efforts to establish a higher production volume which is intended by the 'Make in India' initiative."

> "India's adoption of Lasers in the application industry has given the sector a major fillip, making it one of the world's largest and fastest growing markets for Lasers and its application."
>
> **Bhupinder Singh,** Acting CEO, MMI India

Earlier, Dr. Niloufer Shroff Scientist G, Head of Dept. EMCD Division, DeitY Government of India inaugurated the third edition of Laser World of Photonics India 2014. Key dignitaries present at the event included Dr. Bishnu Pai Professor, Mahindra Ecole Centrale Hyderabad President, Optical Society of India (OSI) and Seminar Chairperson, Dr. LM Kukreja Head, Laser Materials Processing Division Raja Ramanna Centre for Advanced Technology (RRCAT), Dr S K Sarkar President Indian Laser Association (ILA), Prof. AK Nath Indian Institute of Technology – Kharagpur, Sahajanand Laser Technology Ltd., TRUMPF India, Laser Science Services Pvt. Ltd., IPG Photonics, Amada Miyachi, Simco, Advanced Photonics and Magod Laser were amongst the top key exhibitors who displayed their world class technology at the show.

The first day of the third edition of Laser World of Photonics India 2014 itself proved that the scope for the potential of this technology is tremendous. With over 103 exhibitors from nearly 14 the countries Laser World of Photonics India crossed a new milestone. The event was also marked by informative series of Seminars, Educational Workshops and Panel Discussions.

To ring-fence information and to ensure each region had a share of voice vis-à-vis this sector, MMI India, the organisers of the show, staged series of road-shows focusing on application industries in specific locations. The road-shows were kick-started at Mumbai focusing on the Importance of Lasers in the Metal Forming Industry, followed by the path-breaking show at Surat which showcased the use of Lasers in the world-renowned Diamond Industry. The last leg held in Pune culminated with the application of Lasers in pushing productivity in the Automation sector.

The show saw participation from 6,667 trade visitors

Preventive maintenance simplified

Proper plasma system maintenance can help prolong life and performance of system.

By Clayton Gould

The list of items needing regular maintenance in your shop is likely long. It probably seems there is always something to be done. Unfortunately, while most shops are great at inspecting items like cranes, forklifts, and air compressors, an item that tends to slip through the cracks is the plasma cutting system. It might be the old adage "the squeaky wheel gets the grease" proves true here. Plasma systems, at least good quality systems, don't tend to be troublesome. The systems go about the job day in and day out, slicing through whatever metal is thrown at it, but while your plasma system may appear to work just fine, failure to properly maintain it is quietly impacting its performance and life. Mechanical parts will start to wear out, causing rough machine motion. Part tolerances will deviate. Cut quality, particularly at higher speeds, will suffer.

"The systems go about the job day in and day out, slicing through whatever metal is thrown at it, but while your plasma system may appear to work just fine, failure to properly maintain it is quietly impacting its performance and life."

It is kind of like the tyres on your car. To get the best life and performance, you need to make sure your tyres have the right amount of air and are rotated regularly. If you don't do those two things, will your car still roll? Sure. Will the ride and gas mileage suffer? Will your tyres last as long? No. Are you more apt to get a flat tyre at the worst possible time? Yes. It's the same thing with your plasma system. If you don't take good care of it, it's going to break down when you need it most. Like when you're in the middle of the largest plate-cutting job you've ever had for your most lucrative customer. Not only have you just let down an important customer, at up to US$200 per hour fully burdened, you've just cost your shop a lot of money.

The other problem is when components in the machine fail, as troubleshooting and servicing can take days. This brings us to another old adage, "an ounce of prevention is worth a pound of cure." Fortunately, it doesn't take much to keep a plasma system up and running. A small investment of your time is often all it takes to keep your system in good shape. The key though is to establish a regular preventive maintenance routine.

Figure 1: Inspect the air filter daily, and do a replacement every six months.

Cleaning and inspection

Your routine should contain two components: (1) routine cleaning and inspection, and (2) replacement of common wear items. Part one of your program can be divided into daily, weekly, and monthly tasks. Let's start with the daily tasks. There are four things you'll want to do for every single day your system is turned on.

First, verify inlet pressure of gases in both the "test pre-flow" and "cutflow" modes by making sure your regulator dial reaches the recommended PSI.

Second, inspect the air filters. You're checking for moisture, oil, and particulates. If you see moisture, oil, or a lot of metal dust for example, you'll need a new filter. If you only see a little dust or dirt, try to lightly vacuum it off. All

air filters need eventual replacement, but if you're going through more than your fair share, then you likely have an issue with the quality of your air and should check its purity.

Step three is to check your coolant level and condition. If the level is below the neck of the tank, add more. If the coolant looks dirty, flush out your tank and refill it with fresh coolant.

The final daily task it to inspect your torch. We strongly recommend taking your torch into an office or other clean place to do this. Also, wash your hands. Typically, the two items requiring careful inspection are the o-ring and coolant tube. Remove the o-rings from the torch and check for damage. If all looks good, apply a very small amount of lubricant to your fingertips and lightly rub this lubricant onto the o-ring. The o-ring should look shiny but you should not see any lubricant. If you do, you've applied too much and should wipe some off. Replace all o-rings so they fit snugly, then inspect all threaded consumables and remove any dirt that you see. You'll also want to inspect the water tube to make sure it isn't out of round, bent, or pitted. Inspect the nozzle and electrode mating surface for damage, then take a clean cloth and wipe off the torch, both inside and outside. Use a cotton swab if needed to clean hard to reach areas.

Next up are the weekly tasks. First step, inspect all air hoses, coolant hoses, and torch leads. Look for scrapes and cuts, punctures, chemical spills and burns, or any kinks or bends that would restrict flow.

Second, check for gas leaks by conducting the built-in leak and flow tests. Before doing this last test, make sure you are using the right consumables and have selected the correct plasma process for the test.

Figure 2: A cotton swab can be used to clean hard to reach areas

> "Fortunately, it doesn't take much to keep a plasma system up and running. A small investment of your time is often all it takes to keep your system in good shape. The key though is to establish a regular preventive maintenance routine."

Finally, check your coolant flow. If you have an auto-gas console, this can be done right from your CNC. If you have a manual gas console, go to your console to read the flow rate. If the CNC detects a problem, then you'll need to perform the specific Coolant Flow tests found in your owner's manual.

Monthly tasks include cleaning the inside of your power supply, inspecting electrical components, and checking your ground and table-to-work piece connections. First, turn off the power to your power supply, then remove the top and side panels. You'll likely see a lot of metal dust and other particulates that you'll want to either blow out or vacuum. Don't forget to vacuum build-up on the fan and fins. Next, gently remove dust and particulates from your circuit boards, taking extra care not to damage them.

Cleaning and inspection checklist

Daily	Weekly	Monthly
• Verify inlet pressure of gases • Inspect all air filters • Check coolant levels and condition • Inspect torch for leaks (o-rings and water tubes).	• Inspect hoses and leads for cracks • Inspect gas fittings for leaks • Verify coolant flow.	• Clean inside of power supply • Check with main contactor • Conduct a more thorough coolant flow test • Inspect pilot arc relay • Inspect gas line connections • Inspect ground and table-to-work piece connections.

Parts replacement recommendations			
Every 6 months (or 500 arc hours)	**Every 12 months (or 1,000 arc hours)**	**Every 2 years (or 2,000 arc hours)**	**Every 3 years (or 3,000 arc hours)**
• Torch o-rings and bullet plugs • Air filter • Coolant filter.	• Torch main body • Pilot arc relay • Main contactor.	• Torch receptacle • Coolant pump • Torch leads.	• Check valves • Cooling fans • Coolant pump motor • Gas and pilot arc leads.

The next step, with your power still off, is to check the main contactor for excessive pitting, or a blackened or rough surface. If you see any of these things, replace your contactor

Third, though you should check your coolant flow once a week, you'll want to conduct a more thorough test each month. Typically, this test is more comprehensive and should be conducted by a trained service technician or other specially trained resource. At the same time, you'll want to inspect all connection points—for example where the hose connects to the ignition console, the torch body, and the power supply.

The fourth task you should do once each month is to inspect the pilot arc relay. Remove the cover, and inspect the contacts for excessive pitting. Again, if you see a lot of pitting, you'll want to replace the relay.

Next, inspect your gas line connections by spraying them with soapy water. If bubbles appear on a gas line, tighten or replace it as necessary.

Lastly, inspect your ground and work lead connections. Verify that all system components are individually grounded to a driven earth ground and that your work lead connection—particularly the connection at your cutting table—is clean and tight. There should be no paint or oil directly on the connection, as you need a clean metal-to-metal contact.

"Regular, ongoing maintenance is the smartest and most efficient way to optimise output, reduce unplanned downtime and minimise the operating costs of your cutting system. It's an active approach as opposed to a costly reactive approach."

Replacement of common wear items

With your routine maintenance out of the way, you'll now want to focus on common wear items. Because plasma systems are precision machines with moving parts like torches, main contactors, relays, and such, these parts are going to wear out. The frequency of part replacement will vary depending on system usage, but typically you'll want to replace items after a set number of months or arc hours.

In order to make part replacement easy, some manufacturers have put together comprehensive preventive maintenance programs, along with annual replacement kits. Companies such as Hypertherm have taken it a step further by providing this information with every system it we sell and establishing a dedicated landing page on our website for preventive maintenance.

Like your forklift, crane and air compressor, your cutting system requires care to operate at peak efficiency. Regular, ongoing maintenance is the smartest and most efficient way to optimize output, reduce unplanned downtime and minimise the operating costs of your cutting system. It's an active approach as opposed to a costly reactive approach. This way, you'll not only extend the life of consumables, but also, the life of your entire cutting machine.

Figure 3: Clean the inside of your power supply by blowing out contaminants

The author works with Hypertherm Inc.

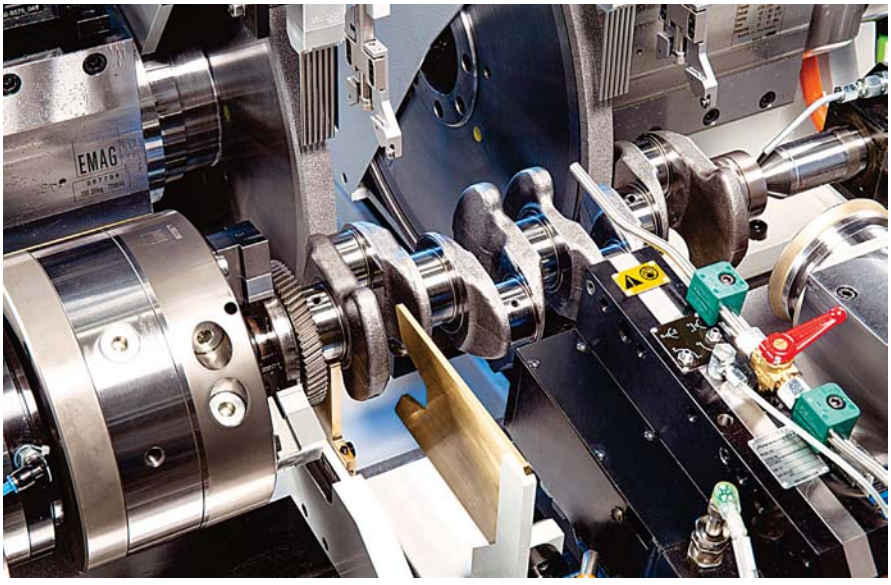
Grinding down the cost

When it comes to reducing manufacturing cost for crankshaft a lot depends on the grinding process. In future, the process needs to be of greater precision and subject to an even higher degree of efficiency.

International competition in the automotive industry is increasing apace. According to the latest studies so are the technological demands on vehicles – and with them the costs. But increasing prices in the face of stiff competition in the market is no longer easily defensible. In production terms, the costs incurred in the manufacture of passenger cars need to be reduced by three to four percent per year to retain current profitability levels – according to a McKinsey study. And this is a staggering percentage. But what does it mean when it comes to manufacturing technologies? The example of the crankshaft clarifies the point. Here, a lot depends on the grinding process carried out on this core engine component. In future, the process needs to be of greater precision and subject to an even higher degree of efficiency. The grinding experts at Emag offer an interesting alternative in their PMD 2 Crankshaft Grinder. This machine from Emag NAXOS-UNION provides for high output rates and impresses with its excellent price-performance ratio.

Actually, the prospects for the automotive industry internationally are very good. The next few years are expected to see noticeable growth (especially in the Asian growth markets). But it is also true that the competition is, in many respects, becoming more complex. In Asia, for instance, new competitors are crowding onto the market. In addition to that, more rigorous national emission limits and safety requirements are leading to an increase in production costs. As a consequence, the eye of the planner is on the manufacturing technology. How can the cost increases be reversed? Crankshaft machining is again a good example. The efficiency and stability of the engine depends on this core component. The grinding process therefore includes a (work-intensive) fine-machining operation in the micrometre range. And this has always been a job for the expert – also where the manufacturer of the relevant technology is concerned.

> "The efficiency and stability of the engine depends on this core component - crankshaft. The grinding process therefore includes a (work-intensive) fine-machining operation in the micrometre range."
>
> **Dr Guido Hegener,** MD, EMAG Maschinenfabrik GmbH



Two grinding wheels are used for the simultaneous machining of two pin bearings, reducing the cycle time considerably.

New capital investment

The machine builders at Emag have, for decades, relied on a high degree of knowhow in this sector. Among other machine tools, the company – with headquarters in Salach, near Göppingen, Germany – also develops tailor-made grinding solutions for shaft-type components. The new machine PMD 2 complements its crankshaft grinder program. It is designed for the machining of crankshafts for passenger cars and features twin grinding heads that allow for the simultaneous grinding of two pin or main bearings in a single setup, using two grinding wheels. Its capacity

covers small components of up to 500 mm length. "With this machine we are rounding off our range of crankshaft grinders to include the machining of smaller components," explains Dr Guido Hegener, MD, Emag Maschinenfabrik GmbH. "Up to now, our range of machines did not include a horizontal twin-head grinder for smaller crankshafts. This gap is now filled with the PMD 2, a machine the excellent price-performance ratio of which is also ideally suited to combat the increasing competition in the automotive industry."

Outstanding precision guaranteed

The developers at Emag have been able to fall back on tried and tested technologies. The basis for the PMD 2 is the well proven 'Series 2' of Emag NAXOS-UNION and EMAG KOPP. These machines combine high-tech grinding technology with precision, great efficiency, process integrity and simple operation. That applies to the PMD 2 as well, of course, where two CBN grinding wheels machine crankshafts to the highest precision. To achieve this, the machine is

Compact design: The enclosure also contains the electrical cabinet and the energy container. Equipping the machine with an automatic loading system is no problem.

equipped with a direct-driven workspindle, hydrostatic guideways and a linear motor in the X-axis, as well as an in-process measuring control that allows for roundness monitoring and correction in the machine. "The operator enters the relevant command in the control and the measuring process is carried out once the bearing has been ground. The software, developed by Emag, then calculates the relevant correction values from the remaining roundness errors. This allows for the subsequent manufacturing processes to be successively optimised," adds Hegener.

Shorter cycle times

The technology also scores with its simultaneous use of two grinding wheels. The twin-tool process opens up a number of possibilities for

> "The machine is equipped with a direct-driven workspindle, hydrostatic guideways and a linear motor in the X-axis, as well as an in-process measuring control that allows for roundness monitoring and correction in the machine."

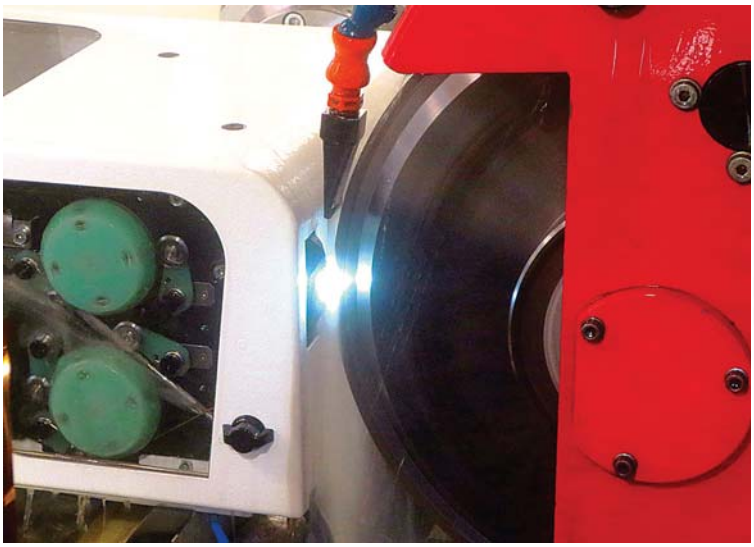
Access to the PMD 2 crankshaft grinder components is exceptionally easy.

the user, depending, of course, on component and machining requirements. Two pin bearings or main and pin bearing are machined simultaneously, leading to a reduction in cycle times. For instance, a four-cylinder crankshaft is machined in less than two minutes. The grinding wheels can, if required, be arranged very close together, so that adjoining pin and main bearings can be machined simultaneously. Both, grinding spindles and work headstock are direct-driven. This further increases precision and productivity levels. "We have strung together a technologically very interesting package," concludes Hegener.

Flexible configuration

The machine is also of compact but flexible construction. The enclosure includes the electrical cabinet. Connecting up an automatic loading system is also no problem. And both, emulsion and oil can be used as coolants. "Flexibility was for us of great importance in using this technology," confirms Hegener. "We tailor the machine exactly to the customer's requirements. Integration of the machine into an existing, complex production line is an important option. But we can also see the machine being used as a stand-alone solution, with manual loading."

Emag present the PMD 2 for the first time at the international metalworking exhibition, the AMB, in Stuttgart. The international character of this trade show perfectly suited the strategy of the machine builder from Salach, as the machine can be used in a multitude of markets and production environments. "We are expecting great things from this flexible, efficient approach," explains Hegener in conclusion. "The PMD 2 will give both Asian and European users a competitive edge. Component quality and production costs are gaining in importance everywhere."



The dressing unit is a wire erosion machine in principle. A new development from STUDER for dressing metal-bonded diamond and CBN grinding wheels directly in the grinding machine.

Example of an MD25 grinding wheel Ø400 mm, complex profile dressed with WireDress

New possibilities - higher productivity

The integrated electro-discharge dressing technology opens up possibilities for grinding with metal-bonded grinding wheels and drastically cuts auxiliary times.

The integrated electro-discharge dressing technology WireDress opens up brand new possibilities for grinding with metal-bonded grinding wheels and drastically cuts auxiliary times. According to Fritz Studer AG, it has been possible to increase grinding power in the grinding process by 30 percent and reduce grinding wheel wear by 70 percent in comparison with ceramic and resin bonds. Grinding wheels with very intricate contours can also be dressed.

Metal-bonded grinding wheels offer particular benefits when machining difficult-to-machine materials such as high-alloy, hardened steels, tungsten carbides and ceramics. Such wheels offer superior dimensional and thermal stability and dissipate the heat produced by grinding more quickly. The grinding wheels consist of a sintered metal matrix with embedded diamond or CBN grains (CBN = Cubic Crystalline Boron Nitride). They achieve very high removal rates, because the metal bond holds the abrasive grains very well.

"Metal-bonded grinding wheels offer particular benefits when machining difficult-to-machine materials such as high-alloy, hardened steels, tungsten carbides and ceramics."

Particularly effective: electro-discharge dressing

However, in addition to the advantages of metal bonds there are also disadvantages, as dressing these wheels involves greater expense and effort. Dressing with silicon carbide wheels, for example, often does not achieve satisfactory results, and intricate profiles are not possible. In addition, the grains are difficult to mechanically extract from the metal matrix and are sometimes damaged in the process. It is also not possible to create the high grain protrusion heights necessary to achieve the full efficiency of such grinding wheels. The extremely hard abrasive grains of metal-bonded grinding wheels also lead to heavy wear of the dressing wheels, which results in certain limitations in terms of geometrical precision.

Experts see alternatives in electrochemical (ECM) and electro-discharge (EDM) dressing processes, for example. Both create grains with high protrusion heights and operate without contact. However, electrical discharge dressing processes do not require any chemically active liquid to remove the metal bond.

Electrical discharge dressing processes use the basic principle of EDM electrical discharge machines (EDM = electrical discharge machining), which have been used for precision machining for many years. As with these machines, the material is removed without contact by extremely short direct current pulses following each other in quick succession, which generate a discharge in the gap between electrode and workpiece in the dielectric. During the discharge tiny areas of the metal bond of the grinding wheel are melted and flushed out of the gap as small particles by the dielectric medium. External dressing machines are sometimes used for dressing metal-bonded grinding wheels. The grind-

ing wheels have to be removed from the grinding machine, transported to the dressing machine and, after return transport, mounted on the grinding machine and set up again. It is very difficult to achieve micron precision using this method. Moreover, the handling and logistics effort involved, with its time and cost disadvantages, makes machine-integrated dressing systems appear very advantageous.

Integrated dressing with wire erosion

With STUDER-WireDress Fritz Studer AG brings a brand new dressing device to the market, which uses the wire erosion principle and is completely integrated into the grinding machine and its control system. The grinding wheel never has to be removed for dressing. Thanks to the high proportion of

The WireDress technology allows free geometries and intricate contours with internal radii of 0.05 millimeters and external radii of 0.2 millimeters.

grain space, the wheel is very free cutting. This allows much more grinding oil to enter the grinding slot, enabling a high feed with less workpiece deflection. The dressing intervals can be longer. However, as the dressing process requires so little expense and effort, very complex contours can also be dressed at shorter intervals. As the user can fully utilize the advantages of metal-bonded grinding wheels during rough and fine grinding, the STUDER-WireDress dressing system pays for itself in less than a year.

The dressing device is a small wire erosion machine in principle. The electrode is a wire, which is drawn with a small gap tangentially past the machining point at a constant speed of 100 millimeters per second. The opposite pole is the grinding wheel, which moves at peripheral speeds of 50 to 140 meters per second during dressing. It does not need any dielectric, as the grinding oil used during grinding fulfills this function. The dressing wire is guided in a groove on the circumference of a thin, circular ceramic disk. The ceramic disk has a notch at the point where the sparks jump between the wire and the grinding wheel. Feeds of 15 to 25 mm/min can be achieved when dressing a typical metal bond. In this way largely free geometries and intricate contours with internal radii of 0.2 millimeters and external radii of 0.05 millimeters are generated on the grinding wheel. Removal rates of up to 80 mm3/min are achieved. The grain retains its original shape during this contactless dressing process.

No wear on the dressing tool

As the wire is continuously advanced during the dressing process, an electrode with precise geometry is always located at the dressing position. The wire reel in the dressing unit contains ten kilometers of wire; this supply would allow dressing to be continued for approx. 16 hours without interruption.

The used wire is cut into short pieces immediately after the dressing process and collected in a container. The ceramic disk which guides the electrode wire is very resistant and only wears after several hundred hours. The circumference of the disk has three of the abovementioned notches; if necessary it is simply turned further round by one of the three segments and an intact wire guide is available again.

Control unit integrated into system

The STUDER-WireDress control unit is integrated into the control system of the grinding machine. It has all necessary dressing functionalities and also contains a software program for intelligent profiling with path optimisation (StuderDress integrated). The grinder does not need any special training for operating the dressing device, as he is guided by the clear and transparent guidelines on the screen of the control unit.

The new development also brings significant energy savings as part of the Blue Competence measures at STUDER: it only needs around 500 watts during dressing, and just 25 watts during the standby phases. For comparison: rotary dressing with diamond wheels uses 1.5 kilowatts; the energy required for the provision of sealing air, which is constantly necessary, is 1 kilowatt.

The development of the WireDress technology from basic research through testing to industrial product in seven years was also carried out on the S22. This is a production platform for the mass production of medium-sized workpieces. It enables machining operations such as cylindrical grinding, form and thread grinding, heavy-duty applications with 160 mm wide grinding wheels or high speed grinding (HSG) with cutting speeds up to 140 m/s. STUDER-WireDress is also available on the S31 and S41 CNC universal cylindrical grinding machines.

In the Fritz Studer AG Technology Center all new developments are subjected to tests under rigorous production conditions, often over a number of years. Improvements and optimisations resulting from practical use are implemented on the new developments in this phase. So-called “teething troubles” are then eliminated, so that the customer is presented with sophisticated, fully operational machines at market launch.

A new overhead crane for emerging markets

Konecranes has recently introducing a new overhead crane in India. The new crane, the CXT® UNO, has been developed to give small and medium-sized customers in emerging markets access to Konecranes' proven technology, and will extend Konecranes' product offering for these markets. The CXT UNO is primarily intended for companies operating in manufacturing, construction, and logistics.

The CXT UNO is based on Konecranes' existing CXT hoist, and delivers many of the industry-leading strengths of the CXT. It is Konecranes' second product to be launched for emerging markets this year and follows the BOXHUNTER, an innovative new type of RTG for ports and terminals.

The CXT UNO combines a strong range of features based on a simpler set of components and technical solutions compared to existing CXT products. This simpler design, together with easy access to spare parts, means that the CXT UNO will be easy to maintain.

"The CXT UNO is important for us because it expands our product offering into a segment where we haven't been present before," says Jukka Paasonen, Konecranes' Vice President, Head of Business Line Industrial Crane Products. "The CXT UNO offers customers in this category access to Konecranes' quality and reliability in what we believe is a very attractive and competitive overall package."

Capable of lifting loads up to 10 tons up to 9 meters off the ground, the CXT UNO features a 2-speed hoisting and travelling design with a fixed pendant controller, tagline festooning, and compact single-girder construction, and can operate over spans of up to 20 meters.

The design draws on input collected in the field and prioritizes issues such as quality, reliability in both intensive and less-frequent usage, and ease of maintenance.

The CXT UNO is being initially launched in India, a market with significant potential for industrial cranes and one where Konecranes has been building a growing presence over the last few years. Following the rollout in India, the plan is to introduce the CXT UNO in other countries in the near future. Thanks to its simple, standardized design, the CXT UNO will be available with very competitive delivery times.

For more information, please visit www.konecranes.com/cxtuno

Precision boring tool

Wohlhaupter GmbH has launched its newest precision tool, Primebore, at the recently concluded AMB show in Germany. This fine boring tool covers a boring range of diameter 6mm to 128mm. This boring range is covered with the help of insert holders of varying diameter ranges. With its 2microns setting dial and serrated design for stronger clamping precise boring gets a wider range. The radial stroke adjustment is 4.5mm and coolant is supplied internally. This tool & its accessories come in a kit thus helping customers in inventory management. The launch of Primebore tool kit is an answer to the low quality products available in the market. Customers can avail a special promotional price for this kit. Wohlhaupter supports its customers thru a nationwide team for quick & able technical and service support. The Primebore tool is immediately available for sale in the Indian market.

For more information:
Khurram Iqbal, Wohlhaupter India Private Limited, Phone: 91-8447398786;
Email: khurram.iqbal@wohlhaupterindia.in; Website: www.wohlhaupter.com

Efficient extras for clamping force blocks

Schunk, the competence leader for clamping technology and gripping systems extends its series of TANDEM KSP plus clamping force blocks with two helpful extras. With the jaw quick-change system BWM clamping blocks can be retrofitted independent from its installation position in less than 30 seconds onto a new chuck jaw set for O.D. clamping. The repeat accuracy achieves 0.02 mm. Since the base jaw and the changing jaw are connected with each other via an integrated diagonal pull, the interfering contour of the clamping block remains unchanged. A spring mechanism ensures that the changing jaw will not fall out in the open position. Since the locking mechanism can be optionally actuated from the top, from behind, or from either side, the dirt-resistant and maintenance-free set-up time turbo can be also used in confined spaces without any restrictions. A smooth-running drive ensures an extremely simple operation. The changing jaws can be equipped with standardized clamping inserts from the world's largest standard chuck jaw program from Schunk, as well as workpiece-specific changing jaws can be used. The changing system is available for every TANDEM KSP plus clamping force block in sizes 100, 160, and 250.

The jaw quick-change system BWM minimizes the set-up time of the TANDEM KSP plus clamping force blocks to less than 30 seconds.

The jaw monitoring increases flexibility and process reliability during automated machine loading.

The second addition is the multi-functional jaw monitoring, by which the whole jaw stroke can be detected. No matter if I.D. or O.D. clamping: With a few simple steps the positions "opened" or "clamped" for any desired base jaw position can be adjusted. Monitoring is done via two inductive proximity switches, which are integrated in the special recess of the base jaws. Since the system is enclosed, it is particularly resistant against dirt. As the signal can be directly processed in the machine's control unit, the flexibly monitoring clamping force blocks can be quickly and easily integrated into the existing machine.

Contact: Satish Sadasivan, Schunk Intec India;
Ph.: 080-40538999;
Email: info@in.schunk.com; Web: www.in.schunk.com

UPS to support mission critical applications

Power management company Eaton has introduced advanced 93E uninterruptible power system (UPS) in the range of 15 – 400 kVA. This extended range of 93 E UPS from 15 – 80 kVA will deliver superior power protection and support critical operations in various industries including heavy engineering and manufacturing.

The Eaton 93E UPS has been incorporated with Eaton's patented Hot Sync technology, which enables load sharing without any communication line, thus eliminating a single point of failure. It is around 30 percent smaller than competitive solutions and thus occupies minimal floor space.

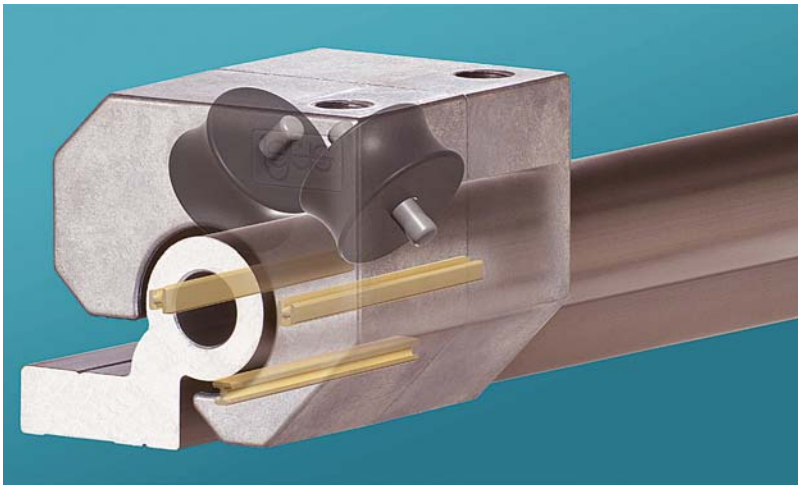
"Our efforts have always been to ensure efficient, reliable and safe operations for our customers," said Syed Sajjadh Ali, managing director – India, Electrical Sector, Eaton.

Eaton's extended range of 93E UPSs is an ideal solution for facilitating a lower total cost of ownership through a combination of energy efficiency and high reliability in extensive manufacturing and other mission-critical operations." With a transformer-free design and sophisticated sensing and control circuitry, the 93E is capable of achieving an efficiency rating of up to a 98.5 percent, making it one of the most energy-efficient UPSs in its class and still providing maximum load protection. The 93E provides surge suppression for the load, detects the location of faults (utility or load) and takes appropriate action and switches to double-conversion operation in less than 4 milliseconds. The 93E's high system efficiency reduces utility cost, extends battery run time and ensures cooler operating conditions.

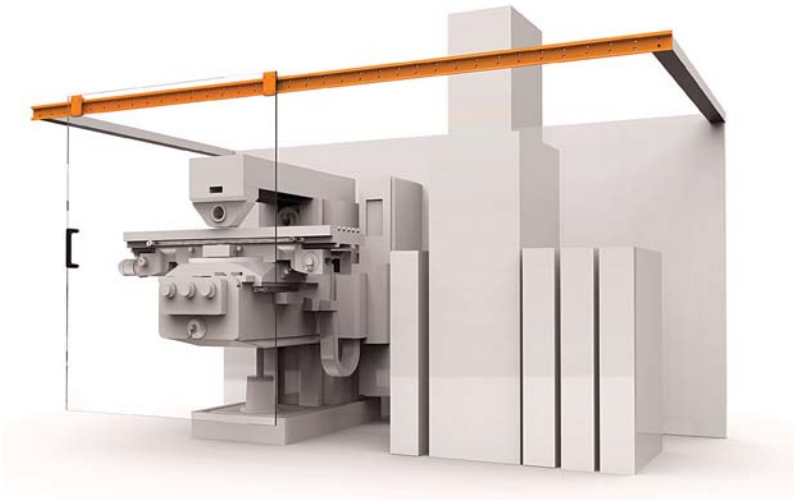
The 93E enhances real compatibility by providing 0.99 input power factor and less than 5 percent total harmonic distortion, thus eliminating interference with other critical equipment in the same network. The 93E is optimised for protecting modern 0.9 power factor rated IT equipment without the need to oversize.

For more information, visit www.eaton.com

Slide and Roll: hybrid bearings



The hybrid bearings from igus combine the advantages of plain and roller bearings alike and thereby entirely dispense with external lubrication. *(Source: igus GmbH)*



With just a guide rail as support, the drylin W hybrid bearings can be integrated in your design to save space. *(Source: igus GmbH)*

The drylin W hybrid carriage is, for example, suitable for the adjustment of sliding doors or control panels. *(Source: igus GmbH)*

The combination of linear plain bearings with supporting rollers offers low driving forces with no requirement for lubrication.

Wherever manual sliding applications are situated, for example on machine sliding guards, safety doors, control panels, and theatre stage actuation. Quiet operation without the requirement for lubrication is entirely possible with the drylin W hybrid system.

The hybrid carriage from igus on the drylin W rail profile, made from hard anodised aluminium, utilises the advantages of sliding and rolling ,since they are lubrication-free and can simultaneously move larger loads without excessive driving forces. This space-saving technology with only one guide rail is, for example, suitable for the adjustment of sliding doors or enclosures and allows for maximum freedom at the design process. They enable an easy manual adjustment with very quiet running.

The drylin W hybrid carriage is also available in a compact design with a length of only 90 millimetres. Thus, designers can minimise the impact of introducing a linear slide by using the hybrid system. At the same time, the overall structure remains inconspicuous, even here, since it does not require a second guide as support. As in the case of the larger version, the roller guide is secured on the rail, eliminating the risk of carriages leaving the rail.

Versatile applications: Like all plain bearing products from igus, the drylin W hybrid carriage does not require lubricating. This makes them, on the one hand, suitable for applications in the food and packaging sector, as there is no grease or oil to contaminate the food. On the other hand, they can also easily be used in adverse environments, such as in machine tools. No dirt or dust particles can accumulate on the bearings, which could hinder long-term operations. More sizes will be available soon.

For more details:
Vinayak Shetty, Product Manager,
igus (India) Private Limited;
Phone: 08045127800 / 09341136381;
Email: vinayak@igus.in; Website: www.igus.in

High Performance Grinding Machines

Wendt offers latest state-of-the-art CNC Rotary Surface Grinders – WRS 300 & WRS 600 in both horizontal and vertical spindle versions.

Exclusive features

- Offered in 2 axis & 3 axis configuration
- User friendly operating cycles for rough, semi-finish, finish grinding, spark out and dressing
- Retraction of wheel head in case of power supply failure and alarms
- Choice of CNC controls….Siemens 840DE/ 802DSL
- Specific custom built accessories and toolings
- Coolant filtration system with Paper band / Centrifuge and Fume extractor

Key Specification:

Models		WRS 300H	WRS 300V	WRS 600H	WRS 600V
Rotary table Ø	mm	630	630	1250	1250
Table speed	rpm	7.5-150	7.5-150	7.5-50	7.5-50
Max. Job weight	kgs	300	300	1800	1800
Spindle motor power	HP	15	25	15	25/40/60
Vertical axis stroke	mm	415	360	550	360
Vertical slide speed	mm/min	0.06-480	0.06-480	0.06-480	0.06-480
Cross slide stroke	mm	430	430	600	600
Cross Slide speed	mm/min	7.5-1400	7.5-1400	7.5-1400	7.5-1400

Some Application Areas:

- Precision Grinding of Auto Components like connecting Rods, Gears, etc.
- Engineering Components like Die & Moulds, Compressors, Valve Plates, Pumps, Circular knives, Slitting saws etc.
- Ceramic and Refractory parts.

For more information, SajuAbraham@wendtindia.com; Venkateshms@wendtindia.com;
Ph: #91-4344 405500, 405501; Fax: +91-4344 405620;
Web: www.wendtindia.com

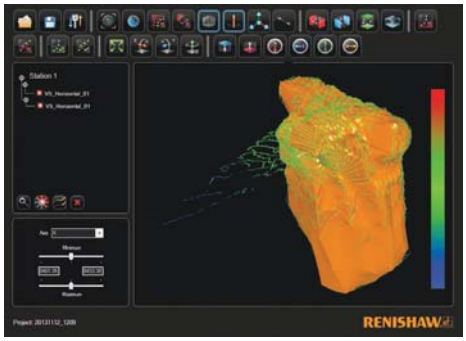
Note: Specifications are subject to change without notice as continual improvements being done.

New software for underground 3D laser scanners

Renishaw has launched new 3D laser scanning software to speed underground mapping and modelling operations for the mining and geo-technical industries.

The new software, Cavity Profiler, allows customers to progress projects faster, by enabling quicker deployment, more efficient scanning and rapid data visualisation, editing and processing. The software is available in two versions, to support either the Renishaw Void Scanner – a specialist, boom-deployable underground laser scanner - or the Renishaw C-ALS - a slimline, borehole-deployable laser scanner.

Void Scanner and C-ALS are two of the most widely adopted underground 3D laser scanners, popular because of their robust nature and ability to accurately gather data in previously inaccessible areas. Renishaw is committed to ensuring its customers benefit not only from unique deployment abilities, giving access to potentially dangerous underground voids without risk to workers, but software that supports business efficiencies. The Cavity Profiler software replaces all earlier versions and both Cavity Profiler – C-ALS and Cavity Profiler – Void Scanner are being made available by Renishaw to existing customers, free of charge.



Void Scanner software model image

Martin Carr, Business Manager, Mining Systems, says: "Training needs are reduced through intuitive design and guided workflow. Successful scanning is supported by better visualisation of the probe and live viewing of incoming point data. We've also introduced one-click surfacing and volume calculation for on-site modelling and ensured easy integration with third-party processing software packages. These changes make it quicker and simpler to capture accurate data, even in remote voids, and make it possible for them to use the data captured."

More information at www.renishaw.com/cavityprofilervoidscanner

High performance made universal

M4000: M4132 shoulder mill, M4002 high-feed milling cutter and M4574 chamfer mill equipped with SD..09T3.. system indexable inserts. *Image: Walter AG*

System tools, i.e. those that can be used universally for numerous machining requirements, reduce the complexity of and susceptibility to errors in production, thus making it more cost-efficient. The latest example of this product philosophy from the Walter Group is the new M4000 range with system indexable insert. The M4000 – four square indexable inserts that can be used in three different types of milling cutters and master many common milling operations: For example, face milling, shoulder milling or chamfering in all steel, stainless steels, cast iron, and even difficult-to-cut materials. So M4000 inserts can be used more universally and are coated with the high-performance cutting material Tiger•tec Silver.

Features of the system

Wave profile: The flank faces on the four cutting edges are provided with a wave profile, which displays the geometry of the indexable insert: The more waves that are visible, the more positive the geometry. The system indexable inserts have a positive basic shape with a clearance angle of 15 degrees. The effect: Less power is required for milling, energy consumption is reduced, and economic efficiency is increased. Currently the stable (D57) and universal (F57) geometries are available.

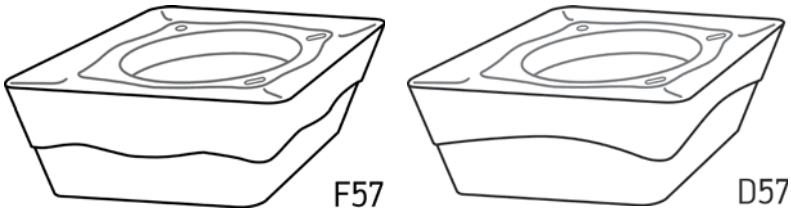
Applications can be extended: The M4000 mills can also accommodate special indexable inserts. For the M4002 high-feed milling cutter, there is a circumference-sintered insert with facet for improved surfaces. A special insert with a larger corner radius guarantees increased cutting edge stability when working with the high-feed mill and shoulder mill. For the M4132 shoulder mill in particular, an indexable insert with a fully ground circumference is available, which can also come with additional facets.

Ground support: As a result, the support in the tool body is more precise; the low vibration tendency increases the tool life. The rake face has markings to ensure unmistakeable orientation when changing the cutting edge.

Manufactured with CO2 compensation: The M4000 is the first Walter product to completely record and balance its CO2 footprint – from the delivery of the raw material, to when the finished product is shipped to the customer. The second step of the global system concept is CO2 compensation: As part of efforts to contribute to the reduction in greenhouse gases, Walter supports a climate-protection project on the island of Borneo in Indonesia. Tools that are manufactured with CO2 compensation carry The Walter Green Flag.

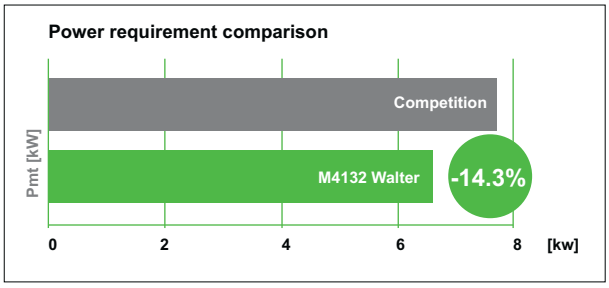
Wolfgang Vötsch, Senior Product Manager for Milling at Walter AG, explains why the M4000 range is the right product at the right time:

Increased cost-effectiveness and efficiency: One insert for several tools – since system tools can be used for a wide range of applications, this reduces storage and procurement costs for the user. In field tests, we were able to reduce cutting costs by half for each workpiece. The power requirement was also reduced by approximately 15 per cent.



Easy to distinguish: The wave profile on the flank face denotes the geometry. *Image: Walter AG*

Simple handling reduces complexity: With the M4000, we are introducing a new type of laser engraving – even on the smallest tool diameters, we can now include all the important information, such as details about the assembly parts and torque. New packaging makes it easier to retrieve tools.



Using resources sensibly and conserving them: For us and our customers, sustainability is an increasingly important competitive factor. Consumers want to know how something was manufactured. Added to this is the fact that many raw materials are becoming increasingly scarce and, as a result, increasingly expensive. The M4000 therefore involves an initial approach to recognising the CO2 footprint and to then being able to optimise it.

More information: Walter Tools India; Phone: +91 20 30457300, Email: service.in@walter-tools.com; Website: www.walter-tools.com

Transmission manufacturing with steel turning grades

With new technological developments, emerging on the automotive horizon, manufacturers are faced with extremely high demands in terms of quality, security and productivity. The new Sandvik Coromant grades GC4315 and GC4325 with Inveio™ are designed to support the automotive industry with outstanding reliability and process security.

Large batch production with low unit cost

Transmission manufacturing is a large volume production with a low cost per part. Therefore, requirements such as high process security, short cycle times and consistent quality are critical for achieving faster lead times and lower production costs. Soft stage turning is performed before the case hardening process. Offering high wear resistance and excellent tool life, this is where the steel turning grades GC4315 and GC4325 are to show a marked step up in performance.

Predictable performance for secure production

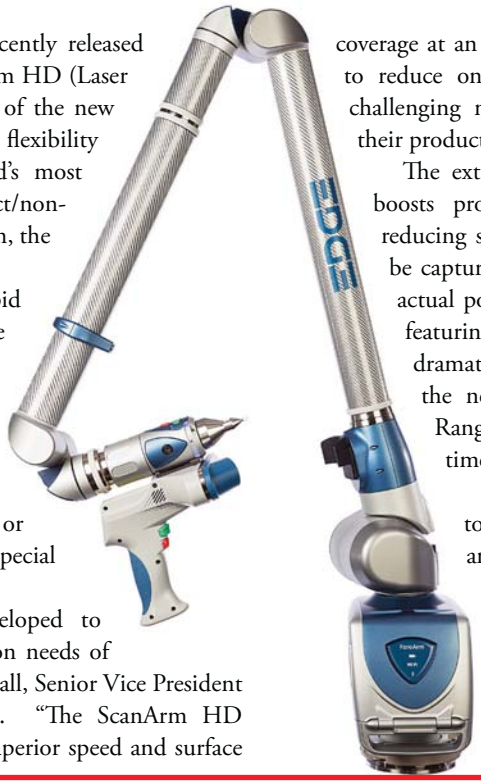
First choice grade for soft stage turning in stable conditions, GC4315, is designed for high-speed steel turning with a long and predictable tool life. Grade GC4325 is a tougher steel turning grade that manages interrupted cuts and uneven depths of cut at high speeds. Both grades enable high cutting data without sacrificing component quality. If the spindle speed limit prevents the full use of their capacity, maximum productivity can be achieved by applying higher feed rates. These two grades are excellent choices for outer-diameter turning, copying and profiling and guarantee predictable performance for secure transmission manufacturing.

For more details please visit:
www.sandvik.coromant.com

Fast scanning speed and HD data clarity

Faro Technologies, Inc. has recently released the all-new Faro Edge ScanArm HD (Laser Line Probe HD). The power of the new Laser Line Probe combined with the flexibility of the FaroArm creates the world's most affordable, high performance contact/non-contact portable measurement system, the Faro Edge ScanArm HD.

The ScanArm HD delivers rapid point cloud collection with extreme resolution and high accuracy – all in a compact, lightweight and easy-to-use system. The new functionalities enable users to seamlessly scan across diverse surface materials regardless of contrast, reflectivity or part complexity and without any special coatings or target placement.



"The ScanArm HD was developed to address the most pressing application needs of our customers," stated Kathleen J. Hall, Senior Vice President and Managing Director, Americas. "The ScanArm HD delivers high-definition data with superior speed and surface coverage at an affordable price, enabling our customers to reduce on-site measurement times, to scan very challenging materials, and to meaningfully improve their products and processes."

The extra wide scan stripe and fast frame rate boosts productivity by increasing coverage and reducing scanning time. Intricate components can be captured in fine detail as a result of the 2,000 actual points per scanline and the new blue laser featuring noise reduction technology. Users can dramatically reduce required training time with the new crosshair feature and existing LED Rangefinder functionality, which provides real-time scanning feedback.

The Faro Edge ScanArm HD is the ideal tool for product development, inspection, and quality control and offers capabilities such as point cloud comparison with CAD, rapid prototyping, reverse engineering, and 3D modeling.

For more information, you can also visit:
www.faroasia.com/Edge/in

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