

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

THE MACHINIST

Cutting
Tools
Special

44

Plant Head of the Month

The link between
quality and discipline

50

Product Innovation

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competitive edge

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PX 10 Rapid, PX 20 Rapid



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SX 4, SX 6, SX 8, SX 10



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VMC (3 Axis C Frame)
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VMC 1260, VMC 640 APC, VMC 1050 APC



KX/K2X Series
VMC (3 Axis Bridge Type)
K2X 8L, KX 10L, K2X 8, K2X 10,
K2X 20, KX 10, KX 30



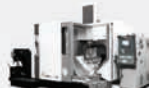
NX Series
VMC (3 Axis Double Column)
NX 1810, NX 2215, NX 3215,
NX 3222, NX 4222



EX Series
VMC (3-4-5 Axis Moving Column)
EX 1280, EX 1680, EX 2480



MX Series
VMC (5 Axis Linear)
MX 4



KX Five Series
VMC (5 Axis Bridge Type)
K3X 8 Five, K2X 10 Five



HMC Series
Horizontal Machining Center
HMC 450, HMC 560, HMC 860, HMC 1200,
HMC 1600, HMC 450 - MP PRO,
HMC 560 - MP PRO



MU TECH Series
VMC (5 Axis Milling Machine)
MU TECH 6



TMX Series
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TMX 200



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Machine)
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VMC Linear Series
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KX 50 M, KX 50 L, KX 100, KX 200



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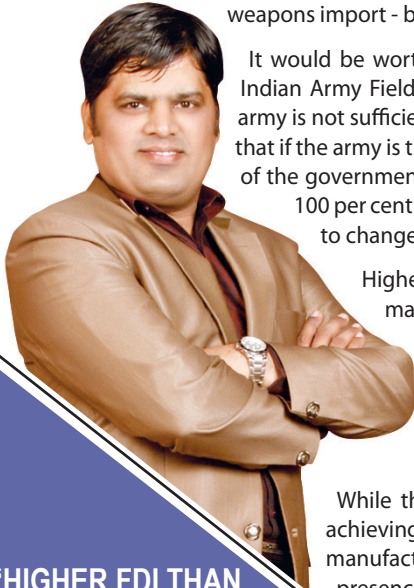
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"Jyoti CNC Automation Limited is proposing, subject to receipt of requisite approvals, market conditions and other considerations, to make an initial public offer of its equity shares and has filed a [draft red herring prospectus with the Securities and Exchange Board of India (the "SEBI")] ("DRHP"). The [DRHP] is available on the website of the SEBI at www.sebi.gov.in as well as on the websites of the Book Running Lead Manager at [www.avendus.com] and [www.sbicaps.com]. Investors should note that investment in equity shares involves a high degree of risk and for details relating to the same, see the section titled "Risk Factors" of the aforementioned offer document."

The second line of defence

According to the Stockholm International Peace Research Institute (SIPRI), India is the biggest buyer of weapons and ammunition in the world. In the last five years, India's imports of major weapons increased by 111 per cent against 2004-08, SIPRI data says. Surrounded by hostile neighbours, India certainly needs to be well-equipped; no doubt about that. But what hurts is the fact that after more than six decades of independence, India has not been able to create and nurture a strong domestic defence equipment manufacturing industry. And yes, there are two more direct and definite evils related to weapons import - burden on foreign exchange and corruption in the form of kickbacks.



It would be worthwhile to recall what the first Indian Commander-in-Chief of the Indian Army Field Marshal KM Cariappa had once said: "In modern warfare, a large army is not sufficient; it needs industrial potential behind it." Cariappa had further said that if the army is the first line of defence, the industry is the second. Surprisingly, none of the governments have paid attention to this insightful remark. So far. By allowing 100 per cent FDI in defence manufacturing, the new government may be looking to change this.

Higher FDI than what existed till now will also directly boost the overall manufacturing scenario in the country. Besides generating lakhs of new jobs, it will add to the nation's GDP. It will not only curb the two evils mentioned previously but will also open up bigger opportunities for the SMEs. It will also provide a big boost to defence related R&D activities in the country by creating serious competition for the state run defence agencies.

While the construction equipment (CE) manufacturing sector is far from achieving its peak in India, it is a fair model of growth for defence equipment manufacturing. Almost every major global player in the CE segment has presence in India now and each one of them is providing impetus to local manufacturing in many ways. There is no reason why this success story cannot be replicated with better results. In the meanwhile, with infrastructure activities all set to change gears, the CE industry is in for good times. Giants like JCB will be increasingly enhancing their manufacturing footprint in India. *Manufacturing ke liye, acche din aane wale hai!*

"HIGHER FDI THAN WHAT EXISTED TILL NOW WILL DIRECTLY BOOST THE OVERALL MANUFACTURING SCENARIO IN THE COUNTRY. BESIDES GENERATING LAKHS OF NEW JOBS, IT WILL ADD TO THE NATION'S GDP."

Niranjan M
Editor

EDITORIAL

THE MACHINIST

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Unlocking Cash by Improving
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NEWS

Freudenberg Group sustains its success in India

The Freudenberg Group in India successfully withstood the challenging economic conditions in 2013. Compared with 2012, sales rose slightly to Rs1,128 crore (previous year: Rs1,114 crore). “We are investing steadily in this key market to which we are committed in the long-term,” said Dr Jörg Matthias Grossmann, Regional Representative India of the Freudenberg Group and CFO of Freudenberg Chemical Specialities in Bangalore recently at a press conference.

Freudenberg continues to invest in India. EagleBurgmann KE opened a new production facility in Chennai in March 2014. Answering the demand



Officials at the press conference

for fabric and metal expansion joints, the firm invested Rs7 crore and started the manufacturing of one-stop solutions. Production capacity at the site has doubled. In addition a new R&D facility of EagleBurgmann India was opened in Pune in joint venture.

IMFA commissions Low Density Aggregates with fly ash

Indian Metals & Ferro Alloys (IMFA) has started production of Low Density Aggregate (LDA), which is an eco-friendly product made from fly ash generated by thermal power plants. Given its fully integrated business model, IMFA operates 258 MW captive power generation capacity and own chrome

ore mines. Although LDA is in use globally, it is being produced in India for the first time. The composition is about 85 percent fly ash and this plant which has been put up at a cost of Rs75 crore will gainfully utilise about 120,000 tonnes per annum of fly ash. IMFA also has two units of fly ash brick plant.

Aerospace component manufacturing to grow in India

A 10-member delegation from the Indo-American Chamber of Commerce (IACC) visited Aequs SEZ in



IACC Chairman Rabintra Srikantan inspecting the Aerospace Processing India facility

Belgaum, Karnataka. The delegation, headed by Rabintra Srikantan, Chairman IACC, toured the facilities and held discussions on the capabilities, investment benefits and tax exemptions in the SEZ. The 250-acre Aequs SEZ is an integrated aerospace manufacturing ecosystem that houses several inter-related capabilities.

Explaining the visit and discussions, IACC Chairman Srikantan said, “Several US aerospace majors are looking towards India. There is a growing base for manufacturing several aircraft components from India.”

WTC, AIAI to have EU Desk

In order to foster greater trade and bilateral relations between India and the European Union (EU), an EU Desk has been jointly by MVIRDC World Trade Centre and the All India Association of Industries during an interactive meeting with Dr Joao Cravinho, Ambassador of the European Union to India. The Desk is formed on the similar lines of a previously formed ‘China Desk’ by the organisations. The EU Desk is expected to facilitate bilateral trade, enhance communications, and disseminate information, exchange trade delegations and host trade fairs amongst the nations. The EU is a prominent trading partner of India with India’s export to EU worth US\$ 50.42 billion and India’s imports from the EU worth US\$ 52.27 billion with total bilateral trade summing up to US\$ 102.69 billion.

Eaton’s new President, Vehicle Group, A-Pac

Power management company Eaton has named Krishnakumar Srinivasan the President, Vehicle Group, Asia-Pacific, reporting to Ken Davis, President, Vehicle Group. Srinivasan most recently served as MD in India for the Vehicle



Group, where he was responsible for all truck, bus and automotive operations. Srinivasan will be based in Shanghai.

Srinivasan said, “Asia-Pacific is a growth region for Eaton’s Vehicle business. My new role will hence focus on sustaining the growth momentum and exploring opportunities to further supercharge our efforts towards achieving Eaton’s overall goals.”

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Tata Power Solar expands manufacturing capacity

Tata Power Solar announced a 60 percent expansion of its manufacturing facility in Bangalore, taking the total production capacity to 200 MW. This is based on the significant increase in demand that the company has seen for its solar modules, as well as the expected increase in demand due to supportive policy steps announced recently by the Government. Commenting at the inauguration, Ajay Goel, CEO, Tata Power Solar said, "This substantial expansion, in an extremely competitive and price-sensitive sector, is a testimony to our products' superior quality and



global competitiveness." Tata Power Solar initiated its manufacturing expansion in 2011 by laying the foundation stone on a 10 acre facility at Bangalore. Currently, the company operates three manufacturing units in Bangalore.

Renishaw acquires US metrology specialist

Renishaw has purchased the business of Advanced Consulting & Engineering, Inc (ACE), a US-based supplier of dimensional measurement products and services focused on the



automotive industry. The acquisition of family-owned ACE provides Renishaw with further specialist programming capabilities using leading industry packages and will help to support Renishaw's sales of co-ordinate measuring machine (CMM) probing systems and Equator gauges in the US. For over 15 years ACE has provided a range of in-house and on-site measurement services to its customers including contract inspection, CMM fixture design, machine retrofits, CMM programming, training and full turnkey solutions from conception to completion.

ElectroMech successfully launches its knowledge forum

India's largest industrial overhead cranes manufacturer ElectroMech re-



Tushar Mehendale, MD, ElectroMech, speaking at the forum

cently organised the first edition of its 'Knowledge Forum' in Mumbai. The aim of the 'ElectroMech Knowledge Forum' is to bring to the forefront how ElectroMech solutions can add value to customers' projects by bringing the stakeholders on a common platform and communicating insights from both. Tushar Mehendale, MD, ElectroMech gave the audience an insight into the company's operations and its focus areas for future growth.

IndoSpace delivers facility to ATS Automation

IndoSpace has leased a 64,000 sq ft light manufacturing facility in IndoSpace Industrial Park Chakan I to ATS Automation - a leading provider of assembly systems and feeder technology. The facility will be used to manufacture assembly systems for automotive, life sciences and consumer industry.

Speaking about the new plant in Pune, Rajendra Phatak, MD, ATS said, "Large international manufacturers use Pune as a springboard for international markets like Europe and North America, and wherever they go, their suppliers follow."

KPMG global data & analytics insights lab in Bengaluru

KPMG International has announced the launch of KPMG Insights Labs. The Insights Labs is a virtual R&D centre that will serve as a global innovation hub with the aim to incubate and develop data-driven business solutions for KPMG member firms' clients. As the global R&D resource for D&A solutions, the Insights Labs will undertake R&D for the assets acquired by KPMG Capital as well as for existing KPMG intellectual property.

Eaton opens customer experience centre in China

Eaton has recently unveiled a customer experience centre in Asia Pacific. The Centre is spread across 2,045 sq ft and is located at Shenzhen in China. The centre will enable customers to test complex integrated systems before installing them at their facilities and give them an opportunity to experience real-life electrical conditions in a safe and controlled environment.

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Mark your diary

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

Surface & coating Expo 2014

July 4-6, Chennai

www.ciitradefairsouth.in/scexpo/index.php

Automation 2014

October 15-18, Mumbai

<http://www.iedcommunications.com/index.php>

Amtex

July 25-28, New Delhi

www.amtex2014.com

KnowledgeExpo

November 20-22, New Delhi

www.ciiknowledgexpo.in/Default.aspx

Himtex 2014

September 4-6, Hyderabad

www.himtex.in/

International Mining and Machinery Exhibition (IMME)

December 3-6, Kolkata

<http://www.immeindia.in/index.aspx>

International Manufacturing Technology Show

September 8-13, Chicago

www.imts.com/

Imtex 2015

January 22-28, 2015, Bangalore

<http://www.imtex.in/>

India Manufacturing Show

September 11-13, Bangalore

www.indiamanufacturingshow.com/

SPS Automation India 2015

February 5-7, 2015, Ahmedabad

www.spsautomation-india.in

Laser World of Photonics India

September 23-25, Bangalore

<http://www.world-of-photonics.net/en/laser-india/start>

India Automation Technology Fair

February 26-28, 2015, Mumbai

www.iatf.in



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Answers for industry.



Over 400 attend Haas Demo Days in Nashik



To the right - Ashish Chandra Verma, Prime Industries & to the left - Mr Gune, Nashik Engineering Cluster)

More than 400 customers visited the recent Haas Demo Days held at the Nashik Engineering Cluster, Ambad, hosted by Haas Factory Outlet - A division of CNC Servicing and Solutions. A ribbon cutting ceremony, facility tours and live cutting demonstrations were among the highlights of a highly successful event at this thriving city in western India.

“To attract over 400 people highlights the growing importance that this high tech, engineering-driven city gives to adopting the latest CNC technology,” states Terrence Miranda, MD, Haas Automation India Pvt. Ltd. “It also reinforces how Haas solutions offer an unmatched combination of technology and affordability, which are so crucial in today’s competitive environment.”

Nashik is a rapidly expanding industrial hub located around

100 miles northeast of Mumbai. Sectors like automotive, aerospace, steelmaking, automation, power generation and printing are well represented in the area.

All this made for a well-attended series of Nashik Demo Days 2014. The event opened with the ribbon cutting ceremony performed by Ashish Chandra Verma of Prime Industries and Mr Gune of the Nashik Engineering Cluster. Visitors witnessed live cutting demonstrations on two of the company’s best-selling CNC machine tools: VF-3 CNC vertical machining centre; and ST-10Y CNC turning centre. Like all Haas CNC machines, the VF-3 and the ST-10Y are built at the company’s one and only factory in California, US. Haas Factory Outlet has a network of local HFOs in India that support all Haas products, each one employing factory-trained engineers and stocking official Haas spare parts.

Technology, processes & products for the die casting industry

Alucast 2014 will take place from the December 4-6, 2014 and will be held at the Bangalore International Exhibition Centre. Organised by The Aluminium Casters’ Association of India, the event will be one of India’s most active industry forums that connect the industry members. The objective of the event is to provide a platform for the industry to enhance knowledge and gain expertise in Die-Casting Technology. It provides interactive forums enabling members to acquire technical expertise and apply their learnings towards an enhanced global competitiveness and increased market shares

High profile national and international professionals from core and allied industries including automotive, electronics, electrical appliances, mechanical and electrical instruments,

toys as well as many others are expected to visit the exhibition. The exhibition will be enhanced by a high level conference program incorporating a detailed examination of the Indian and international market. Experts from all over the world will discuss topics relevant to the sector like ‘Process Technology, processing and casting applications’.

Prasan Firodia, President of Alucast is upbeat about the scope and future of the Indian Die-Casting Industry. He says: “India is being increasingly seen both as a manufacturing and sourcing hub for automotive giants, there is an enormous growth potential for the domestic market and plenty of opportunities for international companies looking at India. As an association we strive to provide a global forum for Indian casting producers on matters of common concern and interest.”

Continental, Schaeffler present hybrid project



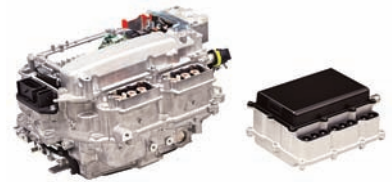
International automotive suppliers Continental and Schaeffler presented the Gasoline Technology Car at the 35th International Vienna Motor Symposium. The joint project demonstrates how a networked integration of key mild hybrid technologies can cut fuel consumption as well as CO₂ emissions by an additional 17 percent in the case of an already highly efficient car with downsized 3-cylinder gasoline engine – the Ford Focus 1.0 l EcoBoost. “The results we achieve with the vehicle point up the potential of this strategy,” says José Avila of Continental.

Mahindra expands presence in the US

Michigan Governor, Rick Snyder joined Anand Mahindra, Chairman, Mahindra Group recently in Ann Arbor, to inaugurate the Mahindra GenZe electric two-wheeler facility and the North American Technical Centre in Southeast Michigan. The Mahindra Group was also represented at this milestone event by Dr. Pawan Goenka, Executive Director and President - Automotive & Farm Equipment Sectors. “The North American Technical Centre and GenZe represent important disruptive product incubators for the Mahindra Group. Constant innovation focused on improving the lives of our consumers, employees and the communities they impact is at the core of Mahindra’s ‘Rise’ philosophy,” said Anand Mahindra. This facility has the capacity to assemble up to 9,000 vehicles per year, with the ability to ramp up to 20,000 vehicles if needed.

Toyota develops new SiC semiconductor

Toyota Motor Corporation, in collaboration with Denso Corporation and Toyota Central R&D Labs, Inc, has developed a silicon carbide (SiC) power semiconductor for use in automotive power control units (PCUs). Toyota will begin test driving vehicles fitted with the new PCUs on



public roads in Japan within a year. Toyota aims to improve hybrid vehicle fuel efficiency by 10 percent under the Japanese Ministry of Land, Infrastructure, Transport and Tourism’s JC08 test cycle and reduce PCU size by 80 percent compared to current PCUs with silicon-only power semiconductors.



Rashtriya Udyog Award

Presented by Ms. Krishna Sahi (Minister of Industries, Govt. Of India) for outstanding Services at International Economic Forum, New Delhi



Recognition for ‘EXPERTS’ pioneering Services in Machine Re-Conditioning & Re-Building



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EVENT



Gateway to the manufacturing world

The ninth edition of Amtex promises to be the glittering event of the year 2014 where exciting business opportunities, world-class technologies and enthusiastic participants from across the globe will converge on a single platform

The ninth edition of Amtex promises to be the glittering event of the year 2014 where exciting business opportunities, world-class technologies and enthusiastic participants from across the globe will converge on a single platform. Happening from July 25 to 28, 2014 at the Pragati Maidan in New Delhi, it will undoubtedly be a gateway to the world of opportunities, a show of runtime for the seasoned houses and a prospect for the new entries. The requisition is persisting; the pressure is to buck up. Standing at this doorstep will it be able to meet the sustainability on the trade issue?

The Exhibition is an attempt to create a platform for all the relevant sectors and technologies to interact with industries like aerospace, automobiles, defence, electrical and electronics instrument, material handling and so on. The opportunity for the exhibitors is enormous to present brand new technologies to enhance productivity. According Suresh Patil, an exhibitor, "We came to Amtex with high expectations. The market is

picking up; our sales have increased by 62 percent. For us as a company, Amtex is a key trade fair, a real highlight. We see people from every sector. All the machines on display at our stand have prospective buyers and will be shipped to our customers immediately after the show." Patil is a representative of the Accurate Engineering Company Pvt. Ltd. Nilesh Patil of Darshana Industries Pvt. Ltd asserts: "My objective in coming to the Amtex Exhibition was to find out about new process technology which has been achieved primarily because everything here is well organised and laid out very clearly."

The stage is gearing up for the most hyped event in the coming month as the largest show of machine tools, machineries and manufacturing technologies in the Asian continent. The organisers believe that this will undoubtedly be the gateway to the world of opportunities.

Besides the participation from industry giants of the machine tool and engineering segments from India, separate pavilions from Taiwan, China and Korea have added international edge to the exhibition. There is also a sizeable

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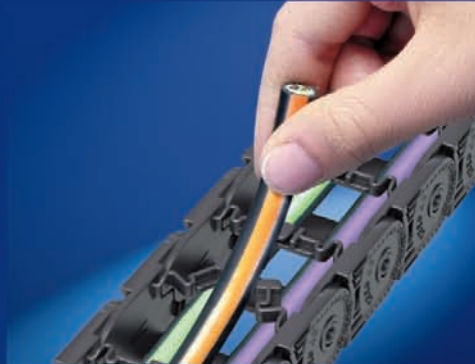
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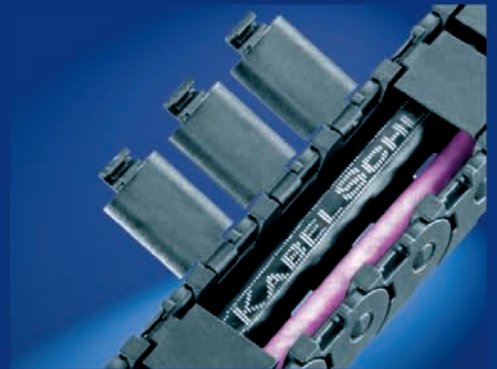
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Growing since inception

“Since its inception in 2001, Amtex has grown phenomenally to become one of the largest shows in machine tools, machineries and manufacturing technologies in India. In the wake of the successful prelude in 2008 and 2010 at New Delhi, Amtex-2012 witnessed over 1,400 stalls sprawled across



the exhibition space. It was a grand spectacle of the latest advances in machine tools and manufacturing solutions and provided a superlative stage for lively interaction between manufacturers, suppliers and users of the growing Indian market.”

- Cyril Pereira, Managing Director, Triune Exhibitors Pvt. Ltd.

participation from countries like Germany, Turkey, Singapore, Japan and so on. So the show will also be truly international.

The Indian machine tool industry stands 13th in production and sixth in consumption of machine tools in the world as per the latest survey. The country is all set to become a key player in the global machine tools industry and is likely to see substantial high-end machine tool manufacturing. Industry experts say that the phenomenon is linked to the spurt in manufacturing, for which the machine tools sector serves as the mother industry.

The Indian machine tool industry has around 1,000 units in the production of machine tools, accessories/attachments, subsystems and parts. Of these, around 20 in the large scale sector account for 70 percent of the turnover and the rest are in the SME sector. Approximately, 75 percent of the Indian machine tool producers are ISO certified. While the large organised players cater to India’s heavy and medium industries, the small-scale sector meets the demand of ancillary and other units. Many machine tool manufacturers have also obtained CE marking certification, in keeping with the requirements of the European markets.

The Indian machine tools sector offers several opportunities for investment. Given the current gap between demand and supply, there is a clear need for adding capacities in this sector. The industry is moving towards increasingly sophisticated CNC machines, driven by demand from key user segments, such as automobiles and consumer durables. Machine tool manufacturers need to develop capabilities to cater to this demand and investments in this area could yield long term benefits.

Indian machine tool manufacturing industries are now

ready and all set to expand their reach to the international market and Amtex-2014 is going to provide the space to showcase them not only to the domestic market but also to the international market as witnessed in the previous editions. For example, Amtex 2012 witnessed the representation of 14 countries such as exclusive pavilion from China, Taiwan and Korea, participation from US, Spain, Turkey, Japan, Slovenia, Italy, Israel, Singapore and others.


Starting from the year 2001, Amtex has constantly gained its position as one of the largest show of machine tools industry which has observed a growth of 300 percent in this period. Amtex with well over 1,200 stalls is expected to provide an exciting platform to all the participants and is expected to broaden up the horizon of machine tool industry. “Since its inception in 2001, Amtex has grown phenomenally to become one of the largest shows in machine tools, machineries and manufacturing technologies in India. In the wake of the successful prelude in 2008 and 2010 at New Delhi, Amtex-2012 witnessed over 1,400 stalls sprawled across the exhibition space. It was a grand spectacle of the latest advances in machine tools and manufacturing solutions and provided a

Besides the participation from industry giants of the machine tool and engineering segments from India, separate pavilions from Taiwan, China and Korea have added international edge to the exhibition. There is also a sizeable participation from countries like Germany, Turkey, Singapore, Japan and so on.

superlative stage for lively interaction between manufacturers, suppliers and users of the growing Indian market,” believes Cyril Pereira, Managing Director, Triune Exhibitors Pvt. Ltd.

Amtex exhibition holds tremendous significance for all levels in manufacturing organisations – be it CEOs and entrepreneurs, senior executives, corporate planners and strategists, manufacturing managers and executives, shop-floor professionals, engineers and technicians, as well as agents and dealers spanning industries.

Why in Delhi?

The National Capital Region’s (NCR) huge market, significant resources and conducive investment policies make the region a preferred investment location. Regions like Gurgaon and Noida have attracted MNCs who have in turn made way for R&D activities in this region. Besides being the capital metro, New Delhi is the second largest metropolitan city in India, an industrial hub, the seat of the central government and one of the fastest growing cities of the world. The city also provides good infrastructure in terms of travel and stay with ample boarding facilities, excellent rail and road connectivity and the metro rail system. 

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CUTTING TOOLS SPECIAL

The Indian cutting tools sector is a major contributor to the success of Indian manufacturing. In fact, the sector's role is now evolving from being a supplier or a vendor to being a partner. The Machinist spoke with some of the leading payers in this segment to get a comprehensive perspective of the industry.

Names of the companies appear in alphabetical order



ASHWANI SAREEN, MD
CERATIZIT INDIA



TOSHER G HORMUSJEE, CO-FOUNDER
GW PRECISION TOOLS INDIA
PVT LTD *(Currently not on board)*



BC RAO, MD
KENNAMETAL INDIA



MISHAL SHAH, COO
NICKUNJ EXIMP ENTP P LTD



PANKAJ GANGRADE, VP
SALES & MKTG. SECO TOOLS INDIA



L KRISHNAN, MD
TAEGUTEC INDIA PVT LTD



VIVEK BHONSLE, MD
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- ASHWANI SAREEN, MD, CERATIZIT INDIA

“We are also looking at new sectors like energy and oil transport, turbine blade manufacturing and bearing manufacturers for whom we have specialised tools.”

Last one year

The last year has been quite sluggish for the Indian economy. This has taken its toll on the manufacturing sector of our country as well. Out of the lot, the main hit was taken by the automotive industry to which we are a main supplier. When the automotive industry feels the crunch, so do we. But this lean period has given us time to retrospect and make changes in the way things have been done for many years. Now, through process rationalisation and improved machinery we have further strengthened our production processes and are confident of facing the challenges that this new financial year brings us.



“The synergy created by modern technology and tested and appropriated systems and practices ensure that our customers get world class products on time and at competitive prices.”

Performance vis-à-vis the overall market

Due to high inflation and currency rate fluctuation, our cost of raw material went up and the automotive industry, one of our major customers, also went through a slowdown. This meant their plants were running at lower capacities and thus cutting tools were low on demand. Thus, our costs went up and demand for cutting tools came down. In all, it wasn't a very promising year for the industry. I would rate our performance comparable to our competitors. The entire cutting tool

industry went through a tough period. We expect the coming years to be better than what we had been through. We are also better equipped now to take on newer challenges.

Customer segments

We get most of our business from the automotive industry. About 75 percent of our sales come from this sector. We are a major supplier to Hyundai Motocorp, Tata Motors, Maruti, Ashok Leyland and their vendors. We are also looking at new sectors like energy and oil transport, turbine blade manufacturing and bearing manufacturers for whom we have specialised tools to meet the specific needs of these segments. Apart from that, to provide customer specific and situation specific solutions we have also formed a team who will service only these specially identified segments.

Addressing customer needs

We have always been at the forefront of innovative solutions. Some of our products like the MaxiMill HFC or High Feed Cutters for milling application with XDLT and XOLT inserts that can negotiate very high feed rates and loads. Or the A273 milling cutter with OAKU inserts that have 16 cutting edges, which reduces tooling cost considerably. Another innovation that is very advantageous for our customers is our C900 drill cutter with SCLT inserts which too has the ability to take on high feeds and depth of cuts. These products are technologically advanced and have been performing well at our customers' shop floors. We are keeping on innovating and researching for ways to improve upon our existing product range and also to come up with newer and better solutions.

Delivering quality products

We give utmost importance to quality. We are an ISO 9001:2008 certified company. The systems that we have in place and the practices that we follow ensure that each and every product that leaves our plant is inspected to ensure that it is of top quality. Apart from these systems, in our state-of-the-art facility, we use machines that are technologically the best in its class. All of the machines that we use at our Kolkata facility are of the same quality standards as of our plant in Austria. This ensures that our products are of international standard. The synergy created by modern technology and tested and appropriated systems and practices ensure that our customers get world class products on time and at competitive prices.



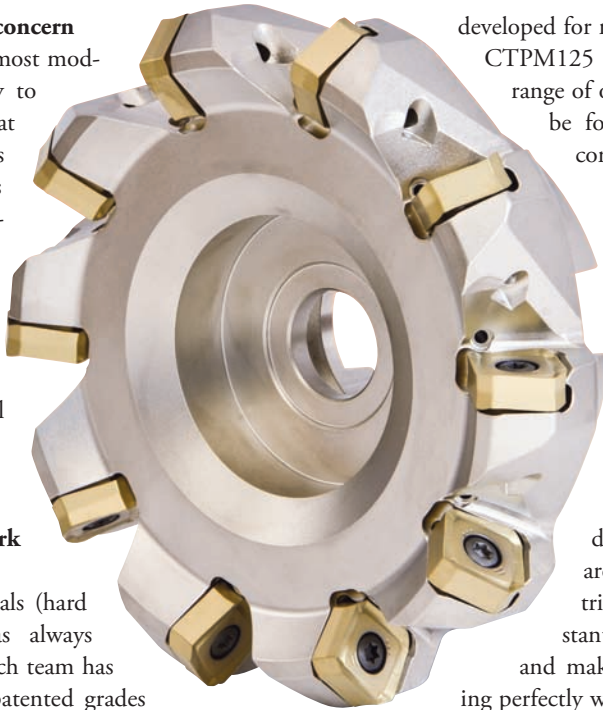
Environmental and safety concern

At our facility we have the most modern waste treatment facility to treat whatever little waste that comes out of our plant. As such our production process ensures that effluents are limited and pollution is low.

In order to reduce the use of metal cutting fluids in the shop floor most of our tools are designed in such a way that virtually all machining can be done with no or little coolant.

Difficult to machine work piece materials

Machining of exotic materials (hard to machine materials) has always been an area that our research team has focused on. Some of our patented grades like CTC5235, CTC5240, and CTC135 & CTPM125 have proved their mettle in real world machining conditions and have been game changers in the machining world. The grades CTC5235 and CTC5240 have been



developed for milling application and CTC135 & CTPM125 for turning application. The entire range of our grades and their specification can be found on our website www.ceratitis.com.

Becoming a partner

From the beginning we have thought of ourselves as a partner to our customers. Where a supplier would look at only ways to supply a particular material to their client, we think about finding the best possible solution to satisfy our customers machining needs.

In order to achieve this we have deployed more than 50 sales engineers around the country at strategic industrial locations. Our engineers are constantly interacting with our customers and make sure that our solutions are working perfectly well. They take feedback regarding the problem and communicate it back to the respective team at head office and they in turn work on the issue and ensure that the best possible solution is provided to our customer.



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Global Engineering Services at your Doorstep



- TOSHER G HORMUSJEE, CO-FOUNDER, GW PRECISION TOOLS INDIA PVT LTD (Currently not on board)

“The ever increasing demand for stress free cutting with high precision is increasing in all sectors, predominantly in aerospace and advanced mobility.”

Last year

The last year has been a turning point in our business where in we have seen a drastic change in the way customers place orders and monitor performance. It has helped us to fine tune and meet customer expectation with delight to improve our business relation. The growth has been moderate, but in the last few months there has been a significant improvement in enquiries and a moderate but positive increase in sales. We have done reasonably well considering that we cater more to a niche market segment

Customer segments

We mainly cater to the automotive component manufacturing sector but we have increased our focus on aerospace component manufacturers and also the die and mould industry. The ever increasing demand for stress free cutting with high precision is increasing in all sectors, predominantly in aerospace and advanced mobility. The demand for lightweight components in all products calls for this type of machining and hence the focus.

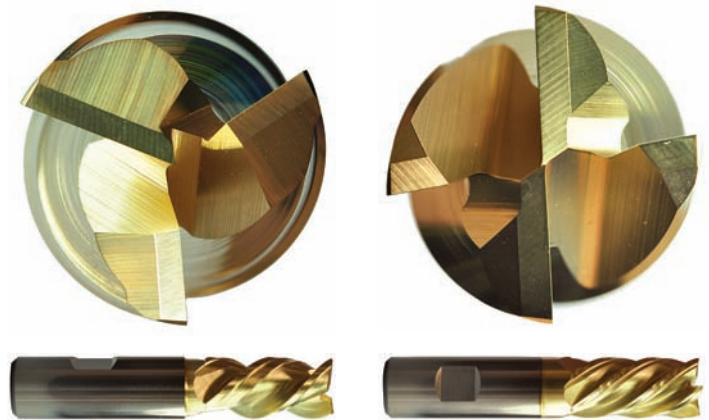


“We mainly cater to the automotive component manufacturing sector but we have increased our focus on aerospace component manufacturers and also the die and mould industry.”

of tools that do not need inspection has helped customer save time and money and maintain smaller inventory.

Delivering quality products

We have strengthened our operators and QC department to think quality at every stage of manufacturing; we are one of



the few companies in India which offer 100 percent traceability of tools produced at every stage of manufacturing. All tools manufactured are sent with an inspection report meeting customer requirement. We have the latest array of five and six axis machines, coupled with the best in industry metrology, and a supremely trained workforce. With constant training and improvement, we aim to raise the bar at every level. We are also AS certified. GWI is known for its zero compromise on quality policy.

Environmental and safety concerns

We have done away with water base metal cutting fluid which needs periodic change and switched over to neat cutting oil. We have installed equipment for reclaiming oil from mist and new generation filters for the oil to last much longer. We are declared pollution free and are certified for ISO14001: 2004, and REEF (Resource, Energy, and Efficiency Network)

Difficult to machine work piece materials

Our R&D constantly interacts with our customers to improve tool geometry performance, using this valuable data base we are able to overcome and give a better performance for new generation materials and exotic alloys.

Becoming a partner

True as you have said customers are not looking for suppliers but partners, and this can only be achieved when customer feel comfortable in working with us, quality, productivity, and on time support are the keys to make this a reality. GWI has always pursued a B2B approach and our business is generated by application excellence alone.

- BC RAO, MD KENNAMETAL INDIA

“We can deliver better value savings to customers through this technique by optimising the process parameters.”



“We have also expanded our product portfolio with technologies from acquisitions that offer differentiating products and services for additional markets including energy.”

Last year

Our business is primarily associated with the manufacturing sector and related industrial production index, and the growth in manufacturing for the last year has remained moderate, with slight and weaker improvement of business conditions across the country’s goods manufacturing sector.

Customer segments

In India, the majority of our business comes from the industrial markets. Its established base is a compelling attraction for global manufacturing OEMs. This trend is likely to continue in the coming years too and we see a strong growth in this sector including on export opportunities and local in-country economic growth. We have also expanded our product portfolio with technologies from acquisitions that offer differentiating products and services for additional markets including energy.

Addressing customer needs

It is evident that cutting tools contribute roughly four to five percent of the total manufacturing cost. Nearly 40 percent of the component manu-

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Additional feature:- (R-36C) Temperature, Transistor Test



Model:- R-603A / R-603B

Features:-
Voltage DC, Voltage AC, Ampere DC, Ampere AC, Resistance, Capacitance, Diode Testing, Continuity Buzzer, Data Hold.

Additional feature:- (R-603C) Temperature, Frequency



Model:- R-2070A / R-2070B

Features:-
Voltage DC, Voltage AC, Ampere AC, Resistance, Diode Testing, Continuity Buzzer, Data Hold, Back light, Polarity Measurement

Additional feature:- (R-2070B) Temperature, Capacitance



Model:- R-2025 / R-2025C / R-2025Hz

Features:-
Voltage DC, Voltage AC, Ampere AC, Resistance, Diode Testing, Continuity Buzzer, Data Hold, Back light,

Additional feature:-
1) Temperature (R-2025C)
2) Frequency (R-2025Hz)


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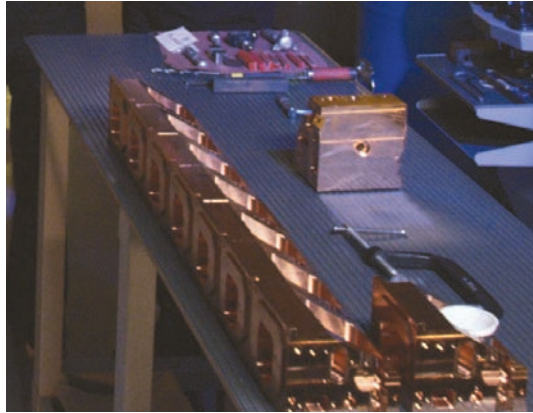
facturing cost is associated with machine tools and cutting fluids contribute around 12 percent.

Hence, right selection and application of cutting tools are very important not only to reduce the tool cost, but also to improve productivity helping to address the overall manufacturing cost. We are constantly engaged in communicating the productivity savings we bring to customers through 'Process Optimisation Programs' (POP). We can deliver better value

savings to customers through this technique by optimising the process parameters. Our application team will engage with key customers and identify the production bottlenecks. It is done in a systematic manner which starts with a detailed survey of the line, maps existing process and documents the areas of improvement. At the end of the study, key findings are shared with the customer and the Kennametal Process Optimisation team will propose a new set of tooling solutions for improved performance.

Delivering quality products

We produce thousands of products, both standard and custom solutions, and we have quality deeply rooted into our management operating system globally. We also invest back into our business to make sure we have the best equipment and facilities to deliver products to our customers.



ting fluids volume, reduced costs of fluid handling, decrease in the maintenance costs and increased machine up time. With the right lubricant, the right application and right machining system, it possible to increase tool life while saving money, and being environmentally responsible. We are excited to help our customers meet this challenge through our dedicated cutting tool program and expertise.

Difficult to machine work piece materials

"Necessity is the mother of invention" - No doubt, market dynamics are playing a very significant role driving the customer needs and cutting tool industry is not an exception. Machining processes become increasingly complex when it comes to difficult to machine materials primarily in aerospace, defence, power generation and oil & gas segments. As our customers' challenges change, Kennametal is there to address their machining needs with the best solutions. This is evident in our new product development, and in fact, we achieve more than 40 percent of our sales each year from new products that are less than five years old and deliver at least 20 percent productivity improvement.

Becoming a partner

Any customer who buys a Kennametal product is supported by the global Kennametal service network. In order to reduce the turnaround time, we have regional reconditioning centers for round tools in all major manufacturing locations in India. For some of the fast moving standard products like PCD milling inserts, we do have a "Blue box" system wherein customer need not have to wait until the product sent is received back after reconditioning. Reconditioned products already available in stock will be exchanged against the quantity received from customer. This improves the turnaround time to a great extent and helps customer to manage production with less inventory. We also offer Tool Management System (TMS) and going further one step ahead we also offer "Cost per Part" (CPP) program to our customers.

We understand cutting tools and process engineering better and when we manage customer lines it actually enables to deploy proven production methods with guaranteed savings to customers. The CPP program reduces overall costs per part by managing tooling, increasing efficiency, and tracking outcomes. We guarantee a specific cost per part savings and partner with customers for long-term success. I am proud to say that we are the only one solution provider in the industry today who can deliver entire solutions ranging from special purpose machines, fixturing, process engineering and tools to our customers in India.

“Manufacturers using MQL have tremendous advantages including better tool life, significant reduction in cutting fluids volume, reduced costs of fluid handling, decrease in the maintenance costs and increased machine up time.”

Environmental and safety concerns

Kennametal follows strict Environmental, Health and Safety standards throughout its global operations and, as part of the company's Protecting Our Planet commitment, we continually focus on improvements in energy and water conservation, materials recycling, waste reduction and other practices consistent with our tradition of responsible environmental stewardship. Minimum Quantity Lubrication (MQL) technology is the process of applying the lubricant required for cutting exactly in the interface between the cutting tool and work piece. Today this technology is very effective in various applications like sawing, drilling, turning, milling and tapping. Manufacturers using MQL have tremendous advantages including better tool life, significant reduction in cut-



- MISHAL SHAH, COO, NICKUNJ EXIMP ENTP P LTD

“We enjoy strong goodwill in the market, making us more than a general product sales company.”

Market analysis

The cutting tools market in India today is quite diverse and full of a varied range of global as well as local products. The competition faced by the end customer is to understand his position in the value chain and utilise the available solutions accordingly in a specific way. In view of the intense competitive nature of the current automotive market with regards to cost effective cutting tools today, we are seeing more and more global players offering value added solutions.

The market offers special solutions for few of the specific applications as well as general solutions for a range of applications, aiding the customer in the making of an informed and educated decision. We feel, the ones who utilised their time during the recession on focusing for improvement in value addition, will see better results as many are now able to compete at a global level since export of engineering goods are on the rise.



“We are focused in expanding our reach within the automotive industry. We already have a foothold in segments such as aerospace, die & mould, general engineering as well as oil & gas.”

commercial teams combined with expertise from our overseas suppliers, we are able to address specific needs of the market faster and better.

Our team of qualified engineers works in close coordination with customers to understand the challenges faced in all



areas of metal working and offer solutions most suited for specific applications.

USP

As mentioned earlier, we have a certain advantages to offer to our customers which are –

- A vast product range to choose from.
- End to end solutions provider.
- Knowledge and expertise of various products manufacturers in specific application segments.
- Local availability of expertise as well as products.
- Unparalleled customer service.

This is what makes us a better choice for the customer as a solutions provider against a product provider and enhances our position allowing us to make room for improvement in our basket of offerings. We enjoy strong goodwill in the market, making us more than a general product sales company.

Key customer segments

We are focused in expanding our reach within the automotive industry. We already have a foothold in segments such as aerospace, die & mould, general engineering as well as oil & gas. At Nickunj, we are more about customer enrichment and satisfaction.

Outlook for the next five years

As the market today requires niche solutions for their specific requirements, we are positive that we are and will continue to be in a position to offer solutions from different application specific expert brands. With positive signs from the market, we aim to strive to make our proposition to the customers as a partner rather than a product sales company.

Anything else that you would like to add?

In the Indian Manufacturing segment, we are positive towards accelerated growth of the Industry as all signs are indicative towards positive development.



-PANKAJ GANGRADE, VP, SALES & MKTG. SECO TOOLS INDIA

“The most important thing is to envisage the future machining development and to introduce solutions in line with the changing requirement matrix.”

Last year

Market has been quite challenging in 2013, especially as the automotive industry had a downward trend. However, this gave us an opportunity to do more re-engineering projects at customer end. The year has been almost flat for us.

Market position

Even under these precarious market / economic conditions, we could manage to gain market share. Seco is recognised as the practical expert offering high performance products coupled with value added services, thereby making us the most preferred tooling partner across all industry segments.

Customer segments



With a very strong concern for environment, health and safety, Seco has been promoting dry machining since long. Seco already has a wide range of product portfolio which can be efficiently used for dry machining.

Traditionally in India cutting tool business is concentrated around industry segments like automotive, general engineering, power generation, die and mould, etc. Sectors like aerospace and medical requiring high technical skills and competence are now gaining grounds in India.

Addressing customer needs

Yes, productivity and speed are the trends which are very much in demand in India now. Seco has been a pioneer in technological innovations with a very strong R&D base. To name a few innovations which changed the industry standards are Duratomic, Jetstream Tooling, Double Octomill, etc.



Environmental and safety concerns

With a very strong concern for environment, health and safety, Seco has been promoting dry machining since long. Seco already has a wide range of product portfolio which can be efficiently used for dry machining. Intensive R&D efforts are on to further enhance our product development in this area.

Difficult to machine workpiece materials

Cutting tool industry is one of the most dynamic industries from the product innovations perspective. Pace of product innovations is highly being driven by developments in machine tools, work piece materials, components complexity, programming and other machining variables. The most important thing is to envisage the future machining development, to align the R&D efforts and to introduce products / solutions in line with the changing requirement matrix.

Becoming a partner

By choosing Seco, customers get more than just a comprehensive portfolio of advanced metal cutting solutions and expert services. You get a partnership based on trust, respect and communication and a team that is always ready to help you gain the competitive advantage.

Delivering quality products

We follow stringent quality assurance practices to ensure consistent delivery of high quality products.



- L KRISHNAN, MD, TAEGUTEC INDIA PVT LTD

“Increasing competition and manufacturing cost make it harder to stay competitive in a market where costs are rapidly on the rise; the only way forward is to improve productivity.”

Last year

The entire sector, led by auto, has had a tough year so far. Low levels of activity in the manufacturing industry impacted demand for cutting tools. Due to this, we did not experience any growth in the year 2013-14.

Market position

Our desire is to become the preferred supplier of cutting tools. We believe we are strengthening our position in this regard.

Customer segments

Metalworking industry is dominated by automotive and automotive component makers in India. Consequently, our



“Our desire is to become the preferred supplier of cutting tools in the market. We believe we are strengthening our position in this regard.”

business is largely coming from these sectors. However, we are working with most other sectors including general engineering and aerospace.

Addressing customer needs

Increasing competition and manufacturing cost make it harder to stay competitive in a market where costs are rapidly on the rise; the only way forward is to improve productivity. We’re offering an entire range of Gold Rush products for turning, drilling, milling, grooving etc. to significantly enhance productivity.

Delivering quality products

Our entire range of Gold Rush products – namely Turn Rush, Mill Rush, Chase2Hepta, Drill Rush, Top Drill to name a

few – is focused on improving productivity and machining accuracy.

Environmental and safety concerns

Cutting tool makers around the world are working on environment friendly options in areas of base and additives. We, as a leading cutting tool manufacturer, are developing tools to work with different types of coolants, MQL, and dry machining.

Difficult to machine workpiece materials

As a tooling solution provider, it is important for us to respond to emerging needs of the market. We have developed several solutions with unique geometries, coating, alternate materials like ceramic, cermet and CBN to address tooling needs of difficult to machine materials.

Becoming a partner

TaeguTec offers tool management services around the world. We have simple logistics management services to comprehensive tool management services in our bouquet. We also offer Matrix dispensers to facilitate effective tool management for our customers.

Based on Indian market and customer needs, we have geared up ourselves to offer a range of these products and services. However, such services are still not being widely used in the industry due to various constraints like tax complications.



-VIVEK BHONSLE, MD, WALTER TOOLS INDIA

“Modern machining is about solutions and objectives that today are considered unachievable but tomorrow will be regarded as the new standard.”

Customer segments

While the automotive segment contributes to a major share of Walter’s business, Walter has established its dominance in other resilient segments like railways, aerospace, power equipment and so on. Walter offers modern and innovative solutions that are perfectly tailored to the requirements of the transportation, energy and aerospace industries. After all, we want to support our customers as precisely as possible to achieve their targets.

Addressing customer needs

The perpetually growing competition in the manufacturing sector, both from local and global players, has led to increased end-user expectation towards cost and technological competitiveness. These are demanding times, which calls for manufacturers to device processes and technology that not only address the markets requirement of price with profitability but also technological innovations that provide a competitive edge to meet the end user’s demand.



Identifying customer’s needs – often before they realise it themselves and creating the right solution, drives business growth.

Difficult to machine workpiece materials

The machining industry has seen rapid evolution during the past decade. The industry has a continuously evolving appetite for improvement which calls for challenging applications, surfaces and materials to be machined. On top of that greater precision are needed to be achieved at an ever increasing productivity rate with rock solid process security.

The unprecedented pace of technological change gives op-



portunities to businesses for creating growth through rapid conversion with newer technologies. Identifying customer’s needs – often before they realise it themselves and creating the right solution, drives business growth. For Walter, an Engineering Kompetenz brand it is most important to leverage the voice of the market and respond to their dynamic requirements. The recently inaugurated Walter India Technology Center is a live example of innovation and technology a step towards customer engagement. Simulation, Testing and Implementation drives the importance of Technology.

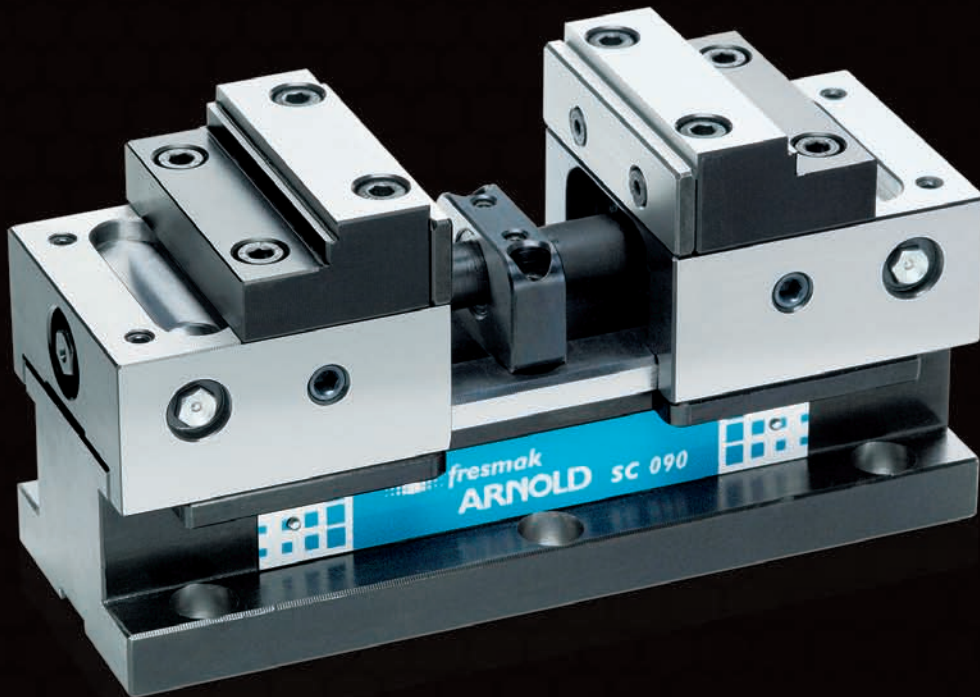
Becoming a partner

Modern machining is no longer just about turning, milling, drilling and threading. Perfection and precision are only basic requirements. It is about solutions and objectives that today are considered unachievable but tomorrow will be regarded as the new standard. Walter’s ‘Engineering Kompetenz’ is a Brand Promise that we make to our customer – and a promise that we keep with each of our products and each of our solutions.

Every tool, every machining strategy, every solution is polished until it performs to perfection. Walter pioneers in offering Customers a complete machining solution backed with technologically innovative and advanced products.

Selecting a cutting tool supplier with such competence in product innovation, backed with local engineering support & availability of the entire spectrum of cutting tool products in a single portfolio helps customers to have an edge in the industry against the competition.

Innovation is not an option but
an ATTITUDE



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Equipped for SUCCESS

India's technology in the construction equipment segment is at par to that offered in developed countries, says Vipin Sondhi, MD & CEO, JCB India Ltd

By Niranjan Mudholkar

Almost every second construction equipment sold in India today is a JCB machine. And it has been like this for almost seven to eight years. From construction projects to mining sites, and from urban missions to rural programmes, the JCB machine is ubiquitously present across the country. In fact, the brand has now become a generic name to the extent that it is a common practice amongst government departments, municipal corporations and contractors to mention JCBs (to simply imply construction equipment) in their tenders or contracts. Maintaining market leadership in the segment since 2006-07 is indeed a long time by any standard. It is more so when many of these years have been accompanied by a distinct recessionary trend not just in the infrastructure sector but also across the entire economy. So what has been the key to this leadership, we ask Vipin Sondhi, MD & CEO, JCB India Ltd. "Keeping our customer at the heart of every decision we take", is the quick answer.

Driven by innovation

According to Sondhi, JCB is a customer driven company and all efforts intend to satisfy the customer in the best possible manner. JCB's success story is based on hard work and innovation. "We design our products after taking constant feedback from our clients so that we have a clear understanding of what



"Lean manufacturing principles are followed through JCB Production system. The manufacturing process of the engine plant works on the 'no fault forward' production model. To maintain high quality standards, the engine is verified at every stage of production."



our customer needs. Hence, we have always been the preferred choice. We understand the need to continually innovate, keeping our existing product-line abreast with latest technology and therefore, we invest heavily in R&D,” Sondhi elaborates.

The construction equipment (CE) industry – in many ways – is similar to the automotive segment. Both are manufacturing intensive and both rely heavily on component suppliers and dealers. Of course, the functions and the end users of the products are different. One creates

“India’s technology in the CE segment is at par to that offered in developed countries. Products manufactured in India are absolutely world class in terms of technological innovation, safety, comfort, productivity.”

infrastructure and the other uses it. But just like the automotive industry, the CE market too needs to be kept refreshed by introducing new products to suit customer dynamics. And this requires a huge focus on R&D, which JCB is famous for. Not surprisingly, at the Excon 2013, one of the biggest exhibitions for the CE industry, JCB introduced 19 new products. “This is the largest number of products introduced by any CE manufacturer in India and all the products are doing extremely well in the market,” informs Sondhi. Another key reason





Exports rising



JCB has seen exponential growth in exports in the past few years - 82 percent in 2013 over 2012 and slightly higher at 85 percent in 2012 over 2011.

for JCB's success is the focus it puts on the operator. "We provide best in class operator comfort through ergonomically placed operator controls, all around visibility during digging, loading and positioning," he says.

Manufacturing prowess

Currently, JCB has three operational manufacturing units; one in Ballabgarh and two in Pune. Besides, it also has two upcoming units in Jaipur. The first unit was set up in early 1980s in Ballabgarh, Haryana, in an era when infrastructure growth was not the priority for the Government. So initially, the plant was barely churning out 50 or 100 or at the most 200 machines per year. Today, capable of producing 100 machines just in one shift, it is the world's largest backhoe loader plant. In fact, JCB has more than 60 percent market share in

this product segment in India. The Ballabgarh plant also manufactures Liftall, JCB's pick-&-carry crane and the 'ecoMAX' engine, which is the first domestically built engine developed exclusively for off-highway applications. The engine boasts of high fuel efficiency under Indian working conditions.

Spread over 100 acres, JCB also has two facilities in Pune; the first plant manufactures exports oriented fabrications and components while the second plant manufactures heavyline machines like tracked excavators, wheel loaders and compactors with a manufacturing capacity of 4,500 machines per annum. "Lean manufacturing principles are followed through JCB Production system. For example, the manufacturing process of the engine plant works on the 'no fault forward' production model. To maintain high quality standards, the engine is verified at every stage of production using cutting edge technology, cameras, and sensors providing optimum engineering value to the manufactured product."

There is an increasing pressure on CE OEMs to keep their prices competitive in the face of poor market conditions and intense competition. "Costs are managed at manufacturing level through efficient and lean supply chain practices. In addition to that, we have set up an excellent supplier base that meets world class levels of component manufacturing," Sondhi says

Some experts believe that there is still a substantial gap between the Indian CE market and the developed CE markets in terms of technology maturity, particularly with regard to system engineering and use of embedded electronics. Sondhi dismisses the thought saying that India's technology in the CE segment is at par to that offered in developed countries. "Products manufactured in India are absolutely world class in terms of technological innovation, safety, comfort, productivity. The dif-

“
The infrastructure industry hopes that mechanisms will be put into place to ensure that the top 20 projects of National importance are implemented expeditiously. The need to remove the severe infrastructure deficit across the country is evident and imperative.”





“We understand the need to continually innovate, keeping our existing product-line abreast with the latest technology and therefore, we invest heavily in R&D. We introduced 19 new products at the Excon 2013 exhibition – the largest by any CE manufacturer in India.”

ference exists in terms of features as different markets have different requirements depending on the terrain, weather conditions etc. However, products manufactured in India are now used globally. Talking specifically about JCB, all products are manufactured on the company philosophy of ‘One Global Quality’. Products manufactured in India are of global quality and can be used in any part of the world,” says Sondhi.

According to CII, like the automotive industry, the construction equipment industry would soon position India as a global hub for manufacturing, design, R&D and components outsourcing. But Sondhi believes that it is already happening. He says: “India has already become a global hub for manufacturing, design, R&D and components. All the CE companies (domestic as well as foreign MNCs) have set up their manufacturing facilities in India and are investing heavily in establishing their design and R&D centers.”

JCB India also functions as a global manufacturing hub and currently exports finished machines to Africa, Middle East, South East Asia as well as the Indian sub-continent.

“Component parts, engines and transmissions are exported to our sister units in UK, Brazil and Germany,” shares Sondhi. While it has dominated the domestic market, JCB has also seen exponential growth in exports in the past few years clocking 82 percent in 2013 over 2012 and slightly higher at 85 percent in 2012 over 2011.

Support to customers

Sondhi says that a key reason why JCB India has done so well is that it provides the best after sales support to its customers. “We aim to provide immediate and world class assistance to our customers in any part of the country. Currently, we have 59 dealers and 575 service outlets. Our dealers employ over 5,500 people in India who are regularly trained by JCB India to ensure they are always abreast with the latest in the industry. Our dealers have made strategic investments in establishing world class infrastructure/ facilities, which are at par with global standards,” he says.

Progress on Jaipur facility

In 2012, JCB acquired 115 acres of land in Jaipur to set up two plants. Currently, the two plants are in the final stages of construction. This includes JCB’s fourth and the largest facility in India being built on a combined floor space of over 700,000 sq ft. The investment planned for this facility is in the tune Rs500 crore. “We will initially begin with fabrications and will continue to upscale its production facilities as per the market requirements,” says Sondhi.



Another huge challenge faced by the CE customers in India is the availability of skilled operators. “A potential shortage of around 20 percent is anticipated by 2015. If the industry grows as predicted, the gap could widen up to 30 percent by 2020,” says Sondhi quoting an AT Kearney report. Sondhi believes that a trained operator can certainly increase the machine lifespan as he will reduce the risk of errors and will increase the machine efficiency by handling it right. “While the Government has put an impetus on skills training, a lot of work needs to be done to ensure India’s young population is trained and skilled. The need is to ensure OEM-level collaborations and tie-ups with industry bodies to provide affordable vocational training for aspiring employees.” JCB India along with its dealer network has set up 11 fully functional operational training centers across India and one in Nepal. It has trained over 20,000 young men as operators till date.

Growth ahead?

The last few years haven’t been good for the CE industry in India due to the slump in the infrastructure sector for various reasons. Does Sondhi see the scenario changing now with a new government in place? The answer is in positive. Sondhi believes the new Government should instil a fresh perspective in an economy which is

“
To help India meet its targets of increasing the sector’s contribution to the GDP to 25 percent from the current 16 percent, the need is to revisit and implement the National Manufacturing Policy.”

currently battling issues like decline in the infrastructure output growth, high inflation and weak growth etc. It will have to focus on building up investors’ confidence in the Indian infrastructure market which has drastically gone down in the past two years.

“We are hopeful to see movement in the infrastructure sector in the second half of the current financial year. The new Government will have to start by unleashing a wave of reforms in multiple sectors particularly in the infrastructure sector. The primary agenda should be to debottleneck stalled infrastructure projects on ground and increase investments in the sector. The infrastructure industry hopes that mechanisms will be put into place to ensure that the top

20 projects of national importance are implemented expeditiously. The need to remove the severe infrastructure deficit across the country is evident and imperative,” he says.

Sondhi wants the new government to be equally focussed on the manufacturing industry. He says it should work towards creating employment in the manufacturing sector to ensure equitable growth. “To help India meet its targets of increasing the sector’s contribution to the GDP to 25 percent from the current 16 percent, the need is to revisit and implement the National Manufacturing Policy. Reviving manufacturing is critical to the overall growth in India as it will lead to immense employment generation,” he says.



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Globally Proven Solutions, Abundant Experience in Automotive Parts Production



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MOTORUM

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Unlocking Cash by Improving Operating Decisions

A successful application of integrated decision making techniques for “Order Allocation” to minimise Total Cost of Manufacturing

By Niladri Roy and Kiran Shetty

In an article published in the April issue of this magazine, the authors delved upon the impact of the “**quality**” of decisions on operating performance. This article alluded to the concept of including all the “*relevant decision variables*” while taking an operating decision. It briefly touched upon the reasons why “*identification of all decision variables*” is not common-place in most organisations.

Inclusion of multiple variables (multi-variate) in decision making can often go in to the realm of relatively complex mathematical modelling and its application becomes a challenge in large organisations. Hence decisions are localised and sub-optimal.

While there may be no escape from mathematics, there needs to be a significant focus on issues on breaking silos, cross function collaboration et al. Most organisations attempt this task only as a mathematical problem and even if they get their



1% to 3%
Reduction in overall manufacturing cost after implementation of the model for all the order allocation decisions

math right, the models do not get implemented and thereby do not realise their potential. In this article the authors describe a process/methodology to implement multi-variate decision making, using a case example.

Case brief

The case is of Birla Carbon - India Operations. Birla Carbon is one of the largest producers of carbon black in the world. Carbon black is used in tyre manufacturing. The business has three units in India producing multiple grades of carbon black (approximately 30). The customers are spread across the country and South Asia (spanning 50 locations). The plant productivity, manufacturing cost, the steam/power generated through the exhaust gases varies with the type of grade produced and with the plant location as well.


Problem definition

The organisation wanted to minimise the landed cost of its product to the customer and hence wanted to know “*Which grade* needed to be manufactured *by which plant* to *service which customer* (order allocation)? Technically speaking it is a cost minimisation linear programming problem.

Solution design

The organisation is profitable, implying that its existing order allocation process is feasible (if not optimal). Simply put, it means that the existing set of decisions is appropriate in its context. However, every correct decision (feasible decision) is not necessarily the best optimal.

The task for the authors was to ascertain the following.



“Most organisations attempt this task only as a mathematical problem and even if they get their math right, the models do not get implemented and thereby do not realise their potential.”

Kiran Shetty

Step 1: Were **all** the **relevant** variables considered in the existing decision making process?

Step 2: Were **all** the *constraints **adequately** captured?

Step 3: Were all the **relationships** between the **variables known** to the decision makers and correctly modelled?

In doing so, the authors' immediate task was identifying "Completeness" (Were all the variables, constraints adequately captured in the process?) and "Validity & Accuracy" (Were all the relationships known and understood accurately and incorporated in decision making?).

Step 1: Relevance & completeness of variables

The quality of the solution is largely dependent on the variable identification, which had two critical dimensions.

1. Relevance - Have I identified the appropriate variable?
2. Completeness - Have I identified all the variables?

This is a non-trivial task, because each function will only be able to identify "variables" that are in their control. Hence to answer both the relevance and completeness dimensions, a cross function team needs to be created and facilitated to come to a conclusion. In this case it was an iterative process involving a team from sales and marketing, operations, sourcing and finance functions.

Step 2: Identifying & incorporating constraints*

In this context, constraint is a limitation which is physical (capacity of plants, changeover time), process led (dedicated lines to a customer) or customer requirement (customer approval of outputs only from specific lines), which need to be modelled in the decision problem. The task of constraint modelling process is to discern between real constraints (as mentioned above) and superficial ones (performance issues). Inability to sell in a certain market or improving market share of a particular grade are performance issues. Once these issues were resolved, the major task of variable and constraint identification was accomplished.

Table A is an illustrative listing of few variables and constraints.



Integrated decision making can lead to significant savings on the total cost of manufacturing.
Pic for representation only

Model Objective

Minimise Overall Cost = Manufacturing cost – Revenue generated from steam/Power + transportation cost + Taxes/ Warehouse costs

Model Equation

Minimise Overall cost TC = Minimise $\sum_{m=0}^m \sum_{i=0}^i ((MCim - P\text{Rim}) * Xim) + \sum_{m=0}^m \sum_{n=0}^n ((TCmn + TAmn) * Xmn)$

Variables

TC = Overall cost of manufacturing and meeting all the customer demand.
 MCim = Manufacturing cost per unit quantity for producing grade "i" at plant "m"
 PPrim = Power revenue per unit quantity for grade "i" at plant m.
 TCmn = Transportation cost per unit quantity for supplying from plant "m" to customer location "n"
 TAmn = Taxes and/or warehouse costs incurred while supplying from plant "m" to customer location "n"
 Xim = Quantity of grade "i" supplied from plant "m"
 Ximn = Quantity of grade "i" supplied from plant "m" to customer location "n"

Constraints

This is subject to following limiting factors/constraints**

- Total time for producing all the grades in plant m = Total time available for production at plant m
- All the grade wise customer orders /demands to be fulfilled
- If a plant "m" is not approved by the customer "n" for supplying grade "i", then the quantity to be supplied from plant "m" Ximn = 0
- Minimum quantity of grade "i" to be produced at plant "m"

Relationships

Following relationships are established

- Impact of grade on power revenue
- Impact of production volume on manufacturing cost
- Grade wise yield for each plant

And so on.....

***Only limited variables and constraints are shown here as against what was considered in the actual model for easy understanding of the reader.*

Table A: Mathematical depiction of the problem

Step 3: Modelling of relationships

In steps 1&2 the variables and constraints have been identified through a cross functional discovery process. The next task, probably the most complicated one, is to establish the relationship between variables. These variables are rarely independent. For instance, the grade mix impacts yield, yield impacts throughput and costs. Mathematical equations (both linear and nonlinear) were established for each relationship basis past data. Often these equations were nonlinear which was "smoothened" through standard tools in excel and thereafter using an optimisation solver, the "best optimal solution" was established.

Step 1 to 3 establish the model, however in such models the likelihood of error still remain very high. In order to get longer acceptance of the model and

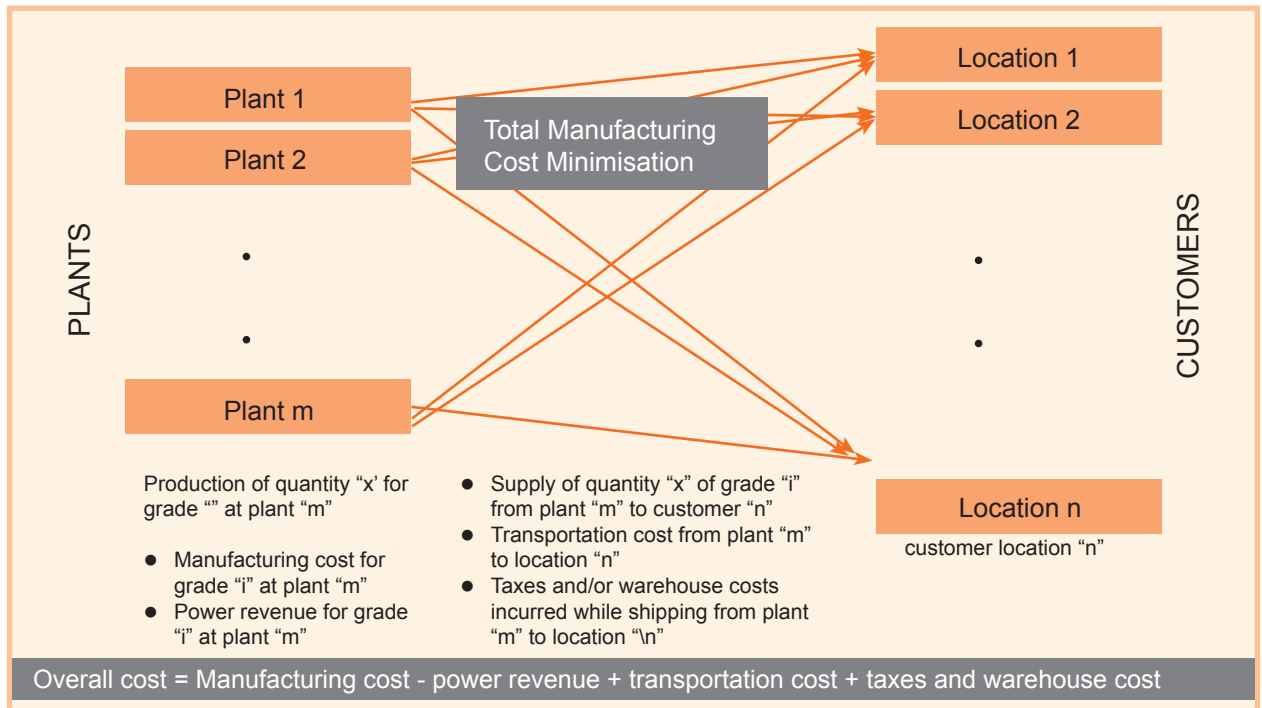


Table B: A pictorial depiction of the model

reduce errors the consulting team followed what was called "Test of Reasonableness".

Test of reasonableness

This is a process wherein the reasonableness of the model output was tested by functional experts to validate if the output made business sense. Engaging the client in this process has been critical to remove small and medium bugs in the algorithms and also to create a larger buy in.

Implementing the model

The implementation of the model had two distinct phases. Trying out the model logic on past decisions (back testing) to compute the impact of the model on operating cost. This was done with data for 4 past months. Once the back testing process was robust, the implementation team went live with the model and currently all its order allocation decisions basis the model

Table B is a visual representation of the problem, which would help the reader understand the problem and its implications holistically.

Results

The model is currently being used for all order allocation decisions. The implementation was sponsored by Dr Sanrput Misra, CEO, Carbon Black Business & Director Group HR, and Mr SS Rathi, Regional President, South Asia & Middle East. It has resulted in a one percent to three percent reduction in the overall manufacturing cost.


Conclusion – The key learnings for the authors were:

1. While every multi-variate decision or an optimisation

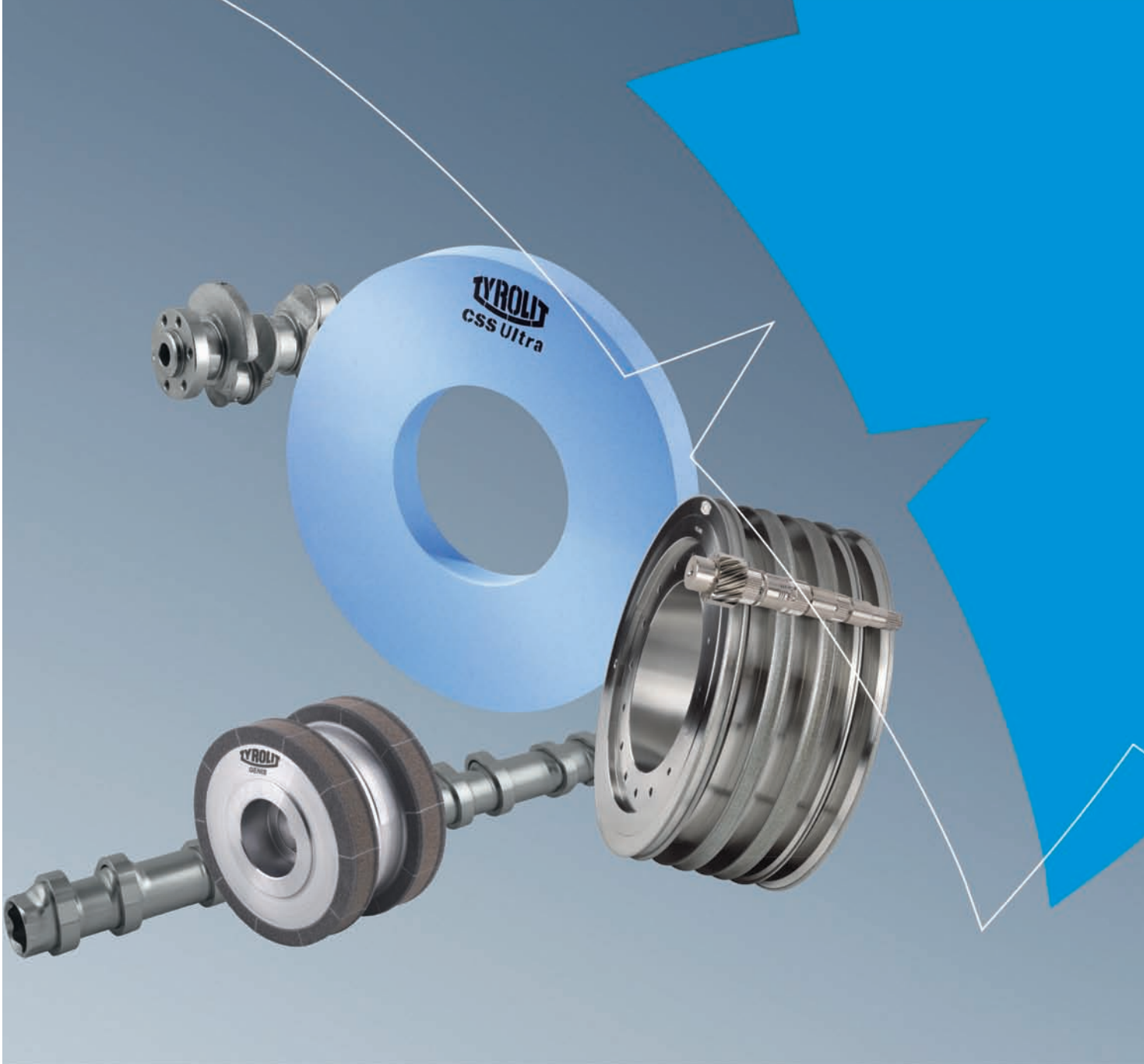


“ The key to improving decision quality in large organisations is to build multiple platforms of cross functional dialogues across the organisation, this will ensure that the variables impacting the decision are identified.”

Niladri Roy

1. problem is a mathematical task, treating the same merely as a rational/technical problem does not lead to adoption of such models in improving decision making in real life.
2. The key to improving decision quality in large organisations is to build multiple platforms of cross functional dialogues across the organisation, this will ensure that the variables impacting the decision are identified.
3. Every constraint that the client identifies is not a “real constraint”, performance issues are couched as a constraint very often. 

**Constraint is limitation of a value of a variable. This can be either range of values (described by upper and lower limit) variable can take or a value, the variable cannot take (inequalities).
The authors are members of the GHR-Performance Management Team of the Aditya Birla Group.*



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Removing hurdles

Undertaking reforms in key aspects of doing business in India is critical to restoring growth trajectory, says a new CII-KPMG report on ease of doing business in India

CII has recently released a report titled 'Ease of Doing Business in India' in partnership with KPMG. Despite being one of the fastest growing economies in the world and potential investment hub, India lags behind in terms of ease of doing business. Taking cognisance of this anomalous situation, CII and KPMG have jointly prepared a report aimed at improving India's position in the World Bank's Ease of Doing Business rankings, where India has repetitively been ranked India low compared to 184 other economies.

The report identifies key areas for reform which will enable doing business in India, including setting up of business, land acquisition, taxation and contract enforcement. In fact, the latest rankings place India 134th among 185 countries; lower than all its BRIC counterparts. Therefore, there is an urgency to focus on improving the business environment and arrest the decline in relative performance.



“Having an environment that facilitates entrepreneurship, promotes investments productivity and growth is critical for improving business climate in India.”

Richard Rekhy,
CEO, KPMG in India

On release of the report, Chandrajit Banerjee, Director General, CII said, “CII hopes that the findings of this report would help bring the issues to the fore and also serve as a reference point for the imminent need to pursue reforms in

business practices and processes. Indian industry hopes that the new Government would accord due importance to this extremely important and urgent agenda that would help churn the wheels of investment and growth.”

The report is based on a survey conducted amongst Indian industry followed with extensive primary and secondary research to assess the prevailing business regulatory environment in the country. Key issues highlighted include lack of an effective land acquisition process, unfavorable taxation regime, high cost of starting a business, complicated and time consuming contract enforcement process.

Commenting on the findings of the report Richard Rekhy, CEO, KPMG in India said, “Having an environment that facilitates entrepreneurship, promotes investments productivity and growth is critical for improving business climate in India. The ease with which this is achieved can be a source of strategic advantage.”

Land Acquisition Process	Starting a business	Taxation	Contract enforcement
<ul style="list-style-type: none"> • Setup large designated industrial zones with pre-clearances and ready to move in • Single window registration and mutation process • Move from a deed based registration to Title based registration(Torrens System) • Streamlined process for land use conversion. • A market-based pricing system, where price is determined by an independent body 	<ul style="list-style-type: none"> • Reduce approval turnaround – make eBiz portal more effective • Wider and effective adoption of Deemed approval principle • Automatic approval for power, water and sewerage • Moving away from Department centric approach to Business centric approach • Labor reforms • Continuous skill development • Access to funds for Micro Small and Medium Enterprises (MSME) 	<ul style="list-style-type: none"> • Implement Goods & Service Tax (GST) • Reduce the number of taxes and the ambiguity / discretionary nature of taxes, especially in Transfer pricing cases • Efficient, effective and time-bound taxation related dispute resolution • Ensure taxation does not hinder free flow of goods • Implement independent Grievance Redressal Cell • Operational reforms required to get the tax base right • Administration reforms required for consistency and increased efficiency in approach to taxation 	<ul style="list-style-type: none"> • Create a centralized contract repository with Non-repudiation • Effective implementation of e-courts • Increase number of courts and tribunals • More international treaties for increasing “reciprocative territories” • Update antiquated laws <p>Recognize and update laws keeping in mind the trends of higher technology updation, greater trade based on IPR and greater global trade</p>

Survey identifies key issues against the four parameters studied, and suggests recommendations to arrest the rapid decline in ease of doing business.

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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 will be featuring some illustrious plant heads in this section giving preference to the ones whose plants have accomplished noteworthy milestones recently.



The **DISCIPLINARIAN**

Andreas Lauenroth, Executive Director Technical, Volkswagen India Pvt Ltd says quality is the topmost priority for his plant and it can be achieved only through strict discipline.

By Niranjan Mudholkar

He is a true blue Volkswagen worker. Having started his career as an apprentice tool maker in 1980, Andreas Lauenroth, Executive Director Technical, Volkswagen India Pvt Ltd has spent 33 years of his entire professional journey spent at the company. And he is extremely proud of it. The sense of pride emanating from his organisation's relentless focus on quality and discipline, he believes.

“ The plant follows Kontinuierlicher Verbesserungsprozess or KVP as the standard working procedure. Meaning 'continuous improvement process', this aims towards optimum utilisation of available resources.”

Andreas Lauenroth,
Executive Director Technical,
Volkswagen India Pvt Ltd

Plant Data

Date when manufacturing started: **March 31, 2009**

Total land area: About 575 acres

Car models manufactured: **Volkswagen Polo, Volkswagen Vento and ŠKODA Rapid**

Capacity: **130,000 cars per year (in current two-shift system)**

Number of employees: **About 3,400 direct and indirect employees**

Investments made so far: **An initial investment commitment of 580 Million Euro.**

Additional approximate EUR120 million invested in 2012 and 2013.



130,000 cars
Capacity of the Chakan
plant to produce cars in
one year

“And my aim is to instil this sense of pride in every single employee working at Volkswagen in India as well,” he says. “At Volkswagen, quality is our topmost priority and we are driven by discipline. We want our employees to breathe this passion for quality. Quality must be part of the DNA of our employees,” he says, with great zeal.

Having worked across a wide range of departments like planning, logistics and production, Lauenroth is well versed with every single aspect of his job. And while he finds India a very challenging place to work in, he is equally happy about the huge opportunities that the country presents. “I have been here since 2012. My experience – apart from the fact that it is a very hot country with lots of rains – is that it is a country with huge possibilities of growth. Importantly, it is a very young country. But you need to focus on infrastructure, education and discipline to unleash its potentials,” he says.

It is not surprising that he has focused on all these three aspects at the Volkswagen Chakan plant in Pune. “India is a very complex and diverse country and it is not possible to import or enforce any outside culture on this society. So we are looking to combine the best of Indian and German culture at our factory. We are working towards it and making improvements.” He

then explains the importance of discipline in the context of the plant. The Chakan plant uses about 35 percent automation. The rest is obviously done manually. “Combining and coordinating the automated process with the manual process requires lots of discipline. And that’s why training is a vital aspect of

our plant culture. We are continuously communicating with our people on this aspect,” Lauenroth says.

Under Lauenroth’s leadership, the Volkswagen Chakan plant is focused on standardisation of the processes. This is achieved both manually as well as through automation. For example, Volkswagen is the only Indian manufacturer using the Laser Roof Welding technology, which is one of the core strengths of Volkswagen. “With our constant training, the employees in the shop floors are able to produce highest quality consistently,” he says. The plant follows Kontinuierlicher

The next level - Mach 18. Factory

The Volkswagen Group is implementing a strategic initiative aimed at achieving a comprehensive optimisation both in ecological as well as economical aspects. This initiative is based on six pillars: Productivity, Quality, Innovation, Team Culture, Expertise and Ramp Ups. For example, innovation is driven by the need to come with new ideas, sharing of those ideas and effective implementation of the same. “We plan to have at least 30 robust innovation ideas by 2018,” shares Lauenroth.



Verbesserungsprozess or KVP as the standard working procedure. KVP simply means ‘continuous improvement process’. “KVP aims towards optimum utilisation of available resources – both in terms of manual as well as the machinery. To make our people inculcate this system, we have been regularly conducting KVP workshops. Last year we did 72 workshops and this year we will be doing 67 workshops. This has helped us cut down cost at the manufacturing level to a great extent.”

Even in terms of the plant layout, Volkswagen follows standardisation across the world. “The Chakan Plant layout is also planned to optimise logistics and the overall flow of work. We established this Plant with a long term perspective.

50,000th export car

Since the beginning of its export business, Volkswagen Chakan plant has been able to ramp up the export volumes and in just two and half years, 50,000 cars have been shipped to various countries. Starting with South Africa as the first, single export market, Volkswagen India now exports to 32 countries across three continents. Volkswagen India started the export of cars from its Pune Plant in 2011. The big breakthrough for its export business came with the successful entry into the Mexican market with the Indian Vento in October 2013. Originally developed for Indian market, the Vento became an instant success in the sedan segment in the North American country as it replaced the Jetta Classico. This year, almost every third car manufactured at the Volkswagen Pune Plant will be shipped to Mexico. Additional to the completely built units, the parts and components of Volkswagen Vento and the Volkswagen Polo cars manufactured at the Pune Plant are also being shipped to Malaysia since April 2013. These parts and components are assembled in Malaysia for their local market.

Combining and coordinating the automated process with the manual process requires lots of discipline. And that’s why training is a vital aspect of our plant culture. We are continuously communicating with our people on this aspect.”

Automation, wherever implemented, was done in a way that it could be adapted to the changes and improvements done in manufacturing over a period of time. Also, we are using the same robots for manufacturing different products. For example the ‘Konzern Framer’ enables us to build up to four different types of bodies on the same line through automation,” he explains.

The plant has also installed a new system of cleaning skids at its robotic paint shop. “With this new automated system, we are saving water and energy for cleaning the skids

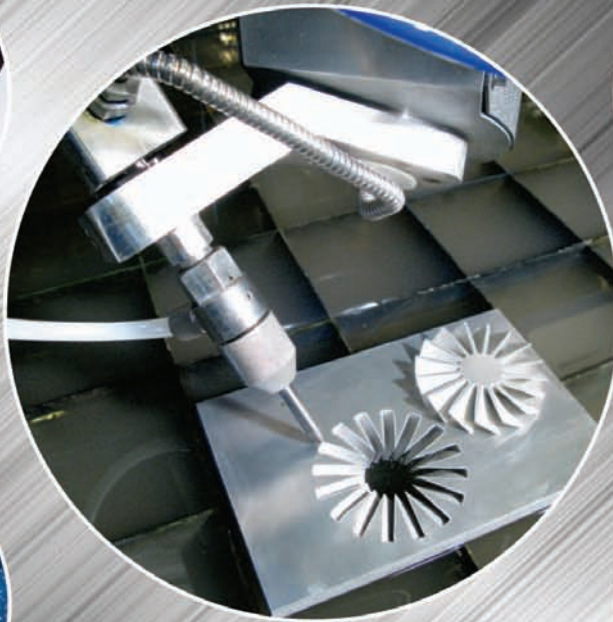
to a great extent as compared to the traditional method of manual cleaning.” There is a huge focus on waste reduction at the plant as part of the ‘Think Blue. Factory.’ Initiative*. Lauenroth explains: “In the last two years, our teams have worked vigorously towards achieving the set goals and they will continue to strengthen our commitment towards environment. I am proud that we were able to cut down on

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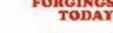
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*Waste reduction achievements

Volkswagen Chakan Plant is one of the 27 Volkswagen production facilities worldwide which follow the 'Think Blue. Factory.' initiative. This initiative aims to reduce the impact on environment due to manufacturing processes by 25 percent per car globally. Through this initiative, Volkswagen India continued implementing measures in 2013 to cut down the impact on environment caused by its manufacturing processes after a successful start in 2012.

Specific waste generation: The maximum reduction has been achieved in waste generation. As compared to 2012, the Chakan Plant has been able to reduce specific waste generation by 21.8 percent (8.4 kg/car in 2012 to 6.57 kg/car in 2013). One of the main measures contributing to this reduction was the recycling of paint sludge. This reduction was achieved by cutting down the moisture content from paint sludge through centrifuge and further recycling the paint sludge to produce primer as a by-product.

Specific water consumption - 17.4 percent: Remarkable progress was also noted in the area of fresh water consumption at the Chakan Plant. From utilising 5.4 M3/car to 4.46 M3/car, there was a total reduction of 14.8 percent in consumption of fresh water during the production process of each car. The water saving measures include optimised flow of water through special faucets and reuse of water for various processes.


Specific energy consumption & CO2 emissions - 10.8 percent & - 10 percent respectively: From utilising 1,016 KWh energy per car, the consumption was brought down to 914 KWh energy per car through actions such as optimising the usage of electricity throughout the plant and arresting compressed air leakages. With lesser energy being consumed, there was also a direct reduction in CO2 emissions.

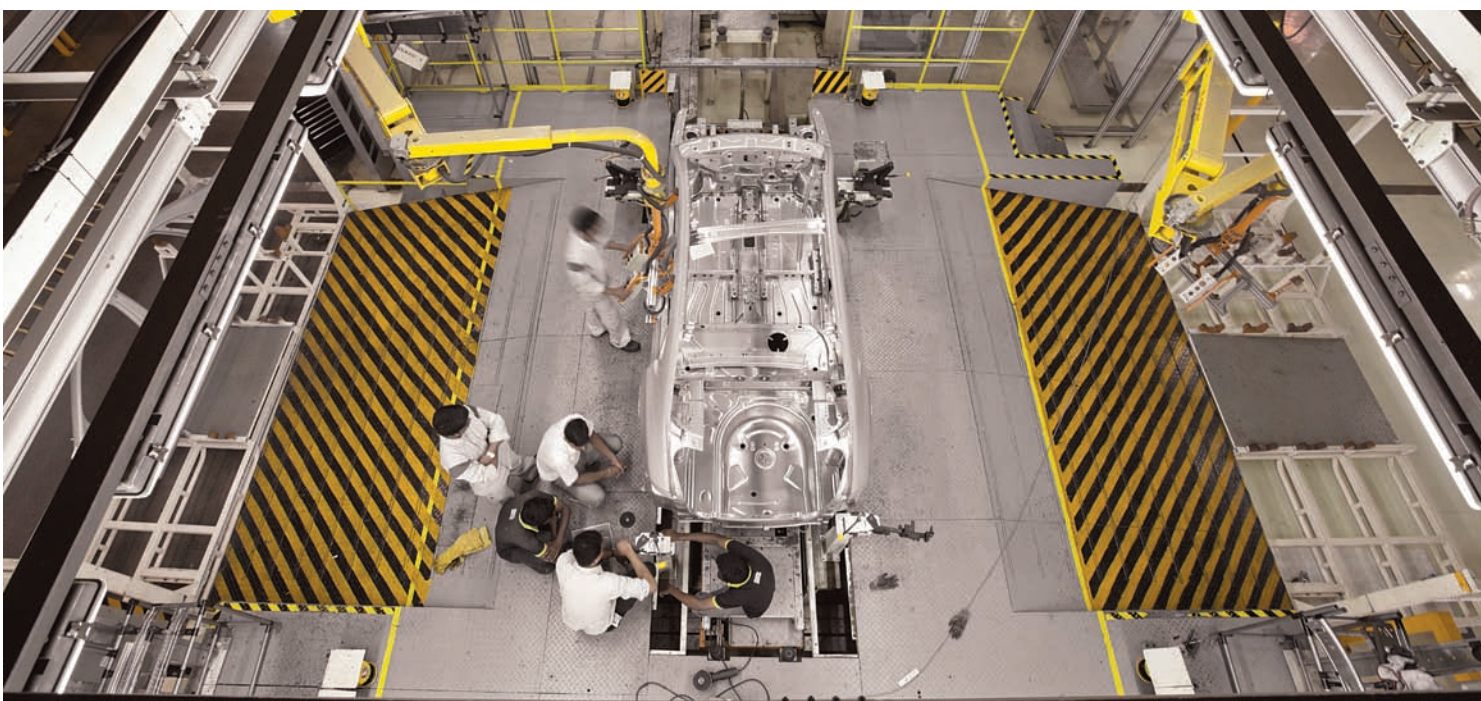
Specific VOC (Volatile Organic Compounds) emissions: The fifth defined area for reducing the impact on environment is through reduction of VOC emissions. A number of measures have been chalked out to cut down these VOC emissions in the coming years. Through pilot projects, results from these measures will be calculated and the best practices will be implemented to curb VOC emissions too.

the waste generation in excess of 20 percent this year. I am sure that our water saving actions of over 17 percent are extremely important given the fact that there is a lot of scarcity of water in the neighbouring areas. We have various projects under investigation and we will go on implementing them once we have evaluated the savings from each one of them. There will be no compromise in our commitment towards environment."

Lauenroth recognises the importance managing costs in a highly competitive market. "We came to India to produce and sell quality cars that are affordable. And by affordable we do not mean cheap cars. So while we are focussed on localisation on

Currently, the Chakan plant uses up to 72 percent of local content and it is looking to gradually increase the same. It will soon have an engine plant so the local content will be increasingly accordingly.

content, we are nowhere compromising on quality. We have a well structured RFQ that defines what we require from our supplier. The RFQ is double checked by our quality department. We know that tomorrow if something goes wrong in terms of quality, the customer will not ask about the suppliers. The customer will ask for Volkswagen. And we can never let that happen," he says adding that his biggest nightmare is recall of products. Currently, the Chakan plant uses up to 72 percent of local content and it is looking to gradually increase the same. "We will soon have an engine plant so our local content will be increasingly accordingly. 





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The edge

With increasing competition and widening geographical presence, more and more companies are realising the significance of product innovation as a means to acquire competitive advantage.

By Niranjan Mudholkar

In a highly dynamic and complex business environment, innovation is the factor that can sustain long-term growth and success of any organisation. Today, with increasing competition and widening geographical presence, more and more companies are realising the significance of product innovation as a means to acquire an edge in the market. Of course, it is important for firms to appreciate that while innovation is also about technology, it should primarily be driven by creating and addressing customer needs in an efficient manner and cost effective manner. Research in technology is drastically reducing the shelf life of products and it is in this scenario that continuous re-invention in the form of new product innovation becomes critical.



RSB's 5th Wheel coupling

or development, has been in place for more than a decade now with our high tech professionals manning our subsidiary, I-Design Engg Solutions Ltd. RSB brand of propeller shafts, again an off-shoot in-house innovation, tested under very tough conditions, have significant global presence for its quality, ruggedness and durability.”

Biggest driver

Not surprising then that SK Behera, Vice Chairman & Mg Director, RSB Group believes that the biggest driver for product innovation is where the challenge is: “We believe ‘the tough gets going, when going is tough’ and we attempt to make our products redundant by continual innovation, lest, they are made so by the global competition’. We believe in doing differently, uniquely and innovatively. Innovative approach in every step, whether in products, process, design, research

Aditya Arora, COO, Base Corporation Ltd, believes that innovation in design and development is a key to increase production as well as to reduce production cost. At the same time, he emphasises on the need for quality as well. “Through introduction of latest technology in production, and operation of products and services and by using latest machinery and equipment we are able to manufacture quality products in a short period of time. Base R&D team is continuously brainstorming to upgrade and modernise the production process. Base does not cut corners to compromise the quality of the product, hence we believe in offering the best products to the customer, even if that comes at a slight premium.” Accordingly, all the products at Base undergo strict quality checks before they reach the market. “We have introduced daily analysis and root-cause problem solving using 8D methodologies for all our products. Stringent 5S practices are followed, as well as routine quality compliance audits from TS16949, ISO 9001:2008, and ISO 14001,” he says.

Umesh Rao, Founder & CEO, Vector Projects (I) Pvt. Ltd, has an interesting perspective due to the nature of his business. While Vector provides turnkey interior solutions in the residential and commercial space, Artmatrix, its brand in modular furniture and chairs with manufacturing facilities



“The biggest driver for us today is where the challenge is: We believe ‘the tough gets going, when going is tough’ and we attempt to make our products redundant by continual innovation, lest, they are made so by the global competition.”

SK Behera,
Vice Chairman & MD, RSB Group

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“We need more innovations in design engineering to keep up with the challenges of manufacturing industry in terms of automation, supply-chain, and reduction of wastage at every stage of the manufacturing process.”

Aditya Arora,
COO, Base Corporation Ltd.

in Malaysia, looks after the product innovation aspect. Rao believes blending cost of products, speed to the market and functionality of the products are the biggest drivers of product innovation in today’s times for manufacturing companies. “If you have all these three factors, you have the market,” he insists.

George Sleeba, Director - Production & HR, V-Guard Industries Ltd, says that to be competitive in the marketplace, organisations need to drive more innovation in their products and services. “Competition and changing customer preferences are the key drivers which have been in focus for long now. Companies need to modernise rapidly and should be able to do it cost-effectively, which has been a need over the last several years. At V-Guard, we believe that innovation drives on efficiencies which eventually leads to a competitive advantage. In today’s times, manufacturing companies determine the kind of innovations they would need. Mix and match innovation along with sustaining innovation brings about a change in both performance and aesthetics of the product.”

Availability of the latest technologies in design, development and manufacturing are also considered as the key drivers of product innovation. For example V-Guard largely uses Rapid Prototyping technique for developing functional prototypes which are specifically used for plastic related products, like the mixer grinders. Also there are

the CAD/CAE tools, which help the design engineers to bring in new innovations and modifications for achieving better performance and quality thus providing value added features within the scope of the product. “Thus the ability to increase business value through innovation is a critical success driver for us,” Sleeba says.

Challenges

Sleeba of V-Guard says that rapid technology obsolescence and the need to quickly adapt to the new technologies while developing innovative products to meet the aspirations of the customers and to be competitive are some of the key challenges. “To bring in the required changes, a trade-off between performance and price becomes a challenge in the decision making due to which many additional innovations might be discarded in the development of the product. Another major issue would be any change in the external factors like change in the price of raw materials or its non-availability in market as required for the product design or assembly, may again reduce the utility of an innovation. Finally in present scenario, the capability and availability of machines and other resources like skilled manpower, electricity etc. also needs to be addressed in realising the innovation as such in the product.”

Rao says that one should design their company to function in manner by which challenges are easily overcome. “The Human resources should be trained and well verse in the market requirements. Decision making has to be compressed and pushed downwards to get things done faster. The number of new products into the market a year has to be fixed by the management with the R&D teams and the entire organisation has to complement their efforts and provide total support,” he says.

Arora of Base Corporation believes waste is the biggest challenge accordingly selection of right machinery is the key to reduce wastage. “From day one our focus has been wastage control, hence all manufacturing lines ordered from vendors have been carefully assessed from this angle. We focus on continuous improvement in designs to reduce the processing wastage and have introduced measures like quality circle, Kaizen, and Sig sigma projects.”

At Base, all machines are connected through a common



PLC. Sensors are installed at critical points, which feed data directly into the production module of its ERP. This data is analysed and parameters are set for deviation. Any deviation out of the specified parameters is quickly addressed and corrected. “We have a highly skilled team of engineers who continuously upgrade and take care of the automation of the machineries,” Arora says.

Behera of RSB says uneven depressing swing in auto-comp market, unfriendly fiscal measures, dollar strengthening, volatile swing in crude prices and unpredictable inflationary trends, leading to decrease in purchasing power, fills the basket of challenges. “With power shift happening, perhaps these challenges may get nullified with expected easing of fiscal controls,” he adds with optimism.

Some examples of product innovations

RSB: In the recent past, RSB has offered the latest art-of-technology Fifth Wheel Coupling in collaboration with Fontaine 5th Wheel, UK. This high quality product was manufactured within a short span of six months, after sign off, with zero rejection at RSB’s Jamshedpur facility.

Base Corporation Ltd: Base was one of the first to introduce VRLA batteries into the Indian market in 1985. Base along with the HRT Formula one team developed India’s first ever Formula one Battery to the supercars circuit in India in 2011. In 2013-14, Base developed its in-house designed VRLA, maintenance free automotive battery and 2v traction, solar & telecom batteries.

Artmatrix (Vector Projects): The Xenic Chair which is designed with a set of parameters that is uncommon in office chair design. Xenic’s headrest comes with height adjustment and allows side tilt movement thus making it a more ergonomic head support system. Through usage of special plastic materials, the manufacturer has incorporated a see through effect on the lumbar support which in itself is a first for the office chair. This special effect through a translucent resin exposes the mechanical functions of the support movement.

V-Guard Industries Ltd: The V-Guard Enviro Pedestal fan which is India’s most energy efficient and high speed pedestal fan. It is supported with an innovative drive inside which consumes only 45 percent power compared to other high speed fans. The Enviro pedestal fan is equipped with an innovative MMD technology which is developed by V-Guard.

V-Guard has also recently brought out a range of ‘Roof-Top Solar Power (SPV) Generating Systems’ for home applications and a new corrosion resistant technology for long term protection of the water heaters where the inner surface of the tank is lined with a special polymer. This technology is called EPAC (Engineered Polymer Anti Corrosion) which separates the inner tank surface from water contact. Impact of external forces will not affect the polymer lining, thus increasing the life span of the product.



Artmatrix factory: Testing facility



“Blending cost of products, speed to the market and functionality of the products are the biggest drivers of product innovation in today’s times for manufacturing companies. If you have all these three factors, you have the market.”

Umesh Rao,
Founder & CEO, Vector Projects (I)

Role of design engineers

RSB’s Behera believes that design engineers are the back-bone of innovation for his firm. “They take the lead in our product strategies through our subsidiary, I-Design Engg Solutions, to ensure that we always do better than the best in technology.”

According to Arora of Base Corporation, expertise in design engineering is crucial to the operation of machinery for any manufacturing industry. “We need more innovations in design engineering to keep up with the challenges of manufacturing industry in terms of automation, supply-chain, and reduction of wastage at every stage of the manufacturing process.”

Sleeba says that at present, design engineers have multiple roles to play in addition to designing the product just for its functionality. Along with designing products based on manufacturing, assembly and servicing, design engineers also need to look for feasibility in using alternative materials,



Tata companies introduce 1010 innovations in 2013-14

Tata Innovista 2014, a group-wide programme, held annually by the Tata Group Innovation Forum (TGIF) to encourage, recognise and showcase outstanding innovations done by Tata companies across the globe, received over 1700 entries, this year.

According to Dr Mukund Rajan, Member – Group Executive Council and Brand Custodian, Tata Sons, “Tata Innovista has become a very good indicator of the success of the innovation drive in the Tata group — and of the inherent capabilities of its people. The trends observed in the 2014 edition signify a growing culture of innovation in the group with elements of Frugality, Customer delight, Service innovation and Collaboration. We have observed that almost 70 percent of the participants are in the age brackets of 20-30 and 30-40 years, indicating that the innovation eco-system in the group is encouraging and empowering young managers to think out of the ordinary. Interestingly, a significant number of projects were collaborative projects, signifying that Tata companies are increasingly able to come together to leverage the synergies a diverse group like ours offers.”

In 2006, the Tata group started the process of capturing and celebrating innovations of Tata companies through Tata Innovista. The objective of this programme is to capture innovations in Tata companies, encourage innovators and innovations in Tata companies, share the levers used by them to identify and execute innovation projects, and create a culture of risk-taking. In order to support Tata companies in their journey of innovation, TQMS, a division of Tata Sons, formed the Tata Group Innovation Forum (TGIF) in 2007. The objective of TGIF is to encourage, inspire and help create a culture that promotes innovation in Tata companies. Over the past six years, TQMS, under the guidance of TGIF, has been connecting Tata companies all over the world, stimulating innovative thinking and encouraging collaborative research.



“In today’s times, manufacturing companies determine the kind of innovations they would need. Mix and match innovation along with sustaining innovation brings about a change in both performance and

aesthetics of the product.”

George Sleeba,

Director - Production & HR, V-Guard Industries Ltd

Role of supply chain partners

Supply chain partners play an important role in an organisation’s quest for creating innovative products. “The role of supply chain partners is now well-built in our system and an integral part of Deming process, where stringent audit is conducted at Supplier Chain partners’ site prior to award of Deming Prize. We have in-house team who visit supply chain partners regularly and offer innovative solutions so that we grow together innovatively,” says Behera of RSB.

Rao says supply chain partners must possess the same passion as their principals. “As vendors they have to constantly upgrade their capacity and capability in terms of technology and the trends in the market.”

Sleeba says too agrees that supply chain partners play a crucial role in order to achieve and realize the total effect of innovation onto the product. “They are equally important as they meet the challenges of shortening ‘Time to Market’. The synchronisation of the supply chain partners along with the product development team, with the vision, can sustain in various developmental activities on a long run. Both the teams should be transparent on the advantages along with the difficulties to work and get a win-win situation in all their efforts.”


methods and tools for manufacturing in order to achieve the cost and size improvisation. “The design engineers would require an in-depth knowledge not only the total process of product development but also needs to be updated on the latest technologies and trends in achieving the goal of bringing new innovative products that meets the required functions and quality at a reasonable price for the consumers.”

Rao of Vector agrees that the role of design engineers is prominent however there are a lot of other factors that play a role in the design decision. “The design decisions are based on the decisions by top level management along with inputs from the design engineer after much market survey and painstaking customer feedback.”



V-Guard’s technology called EPAC separates the inner tank surface from water contact. Impact of external forces will not affect the polymer lining, thus increasing the life span of the product.

Conclusion

Indeed, innovation is today a top priority for businesses. By providing new ways of understanding and addressing customer needs and demands, product innovation actually defines the corporate identity of firms. 

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June 2014

MAC



Taking precision to new heights

The third edition of the Grinding Symposium saw the launch of five new innovations

The Bernese Oberland (Ober meaning high!) is a well known tourist spot in the Swiss Alps. And global grinding major United Grinding Group couldn't have chosen a more symbolic place for its annual event, the Grinding Symposium. (Of course, it also helped that Switzerland is home to the Group.) This year's event was the third edition of this international show and it took grinding to new heights with not just one but with the launch of five world innovations.

It all happened in three days between May 21 and May 23 in a lovely place called Thun, situated right between a beautiful lake and magnificent mountains. All group companies of United Grinding were well represented across 16,294 sq m space at the Thun Expo exhibition centre with a total of 28 machines. The highlights were of course the new launches in Blohm Prokos XT, Jung JE600, Studer S141, Schaudt CrankGrind, and Ewag Ewamatic Laser Line Ultra.

There were visitors from 40 countries and these included the Group's customers, researchers, experts, employees of the Group and journalists. Your editor was amongst the three journalists from India. Together, all participants witnessed and experienced grinding innovation in action at 14 stations. Knowledge exchange was facilitated by practical demonstrations and 154 presentations. Twenty prominent

speakers including experts from the United Grinding Group as well as from research background and industry provided cutting edge information and insights.

Thanks to their customer oriented focus on customers, the United Grinding Group companies have been steadily expanding their leading market position. Their business development during last year and in the first quarter of 2014 reflects this success. The business year 2013 was the second most successful in the Group's history, with a turnover of more than EUR500 million. The United Grinding Group has emerged as the clear number one in the relevant grinding machine market.

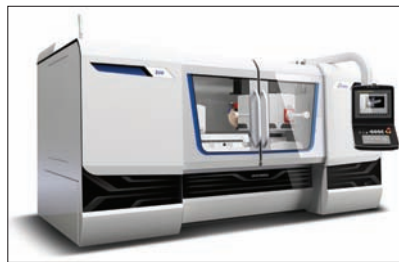
Stephan Nell, CEO of the United Group emphasised during the Symposium that the Group companies were driven by the objective of making customers more successful. Accordingly, 2,200 employees in the Group are engaged with customers from a wide range of industries helping them become more competitive. Aerospace, energy, automotive and automotive suppliers, transport and heavy industry, tool and die making, machine construction, tools, precision mechanics and medicine make up the nine customer segments, which increase their competitiveness with solutions from the United Grinding Group. According to Sreekanth S, President of United Group in India, most of these customer segments are already being addressed in India as well.

Select new launches

Studer S141

With the S141 universal internal cylindrical grinding machine, Studer is advancing into a new market segment, namely that of long work pieces. This is the ideal machine for grinding spindle shafts, spindle housings, rotor shafts or axes. Many work pieces are in the areas of machine tools, drive elements, aerospace and tool making.

Short work pieces with an overhung grinding spindle, but primarily long work pieces up to 1300 mm with an additional steady-rest are the speciality of the S141. The maximum



Studer new internal cylindrical grinding machine S141



Internal grinding of tapers on long spindles.

internal grinding length is 250 mm while the external length is 150 mm. The swing diameter above the table is 400 mm, the maximum work piece weight is 250 kg.



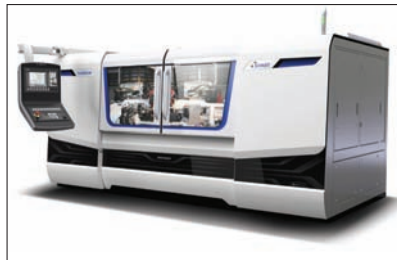
Technical details:

- All axes are equipped with linear drives.
- The StuderGuide guide way system ensures fast, high-precision axis movements.
- Automatic swiveling of the work piece table for axis-parallel grinding of cones / tapers.
- The perfect dressing strategy for every application, with up to two dressing stations.
- Grinding software developed by grinding specialists for demanding users.

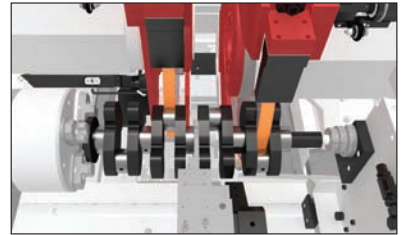
- Granitan machine bed with outstanding damping characteristics.
- Grinding spindle turret with direct drive, up to four grinding spindles, including a maximum of two external grinding spindles.
- Grinding mandrel length up to 265 mm.
- Integrated axial/radial measuring probe for length positioning and process support.
- Consistent implementation of BlueCompetence.

Schautd CrankGrind

The new CrankGrind from Schautd celebrated its world debut at the Grinding Symposium 2014. This machine is perfectly designed for high speed grinding of crankshaft main and pin bearings. This machine for the high speed grinding of crankshafts is equipped with a dual cross slide. This enables synchronous machining of adjacent main and pin bearings with two



The new Schautd CrankGrind crankshaft grinding machine



Crankshaft grinding on the Schautd CrankGrind with two grinding wheels in use

wheels with a minimum grinding wheel distance of 15 mm. The machining time is thus significantly reduced, while the grinding quality is improved.

The basis for high-precision, stable grinding processes is provided by the proven Granitan machine bed, which is characterised by its high thermal stability and optimum vibration damping. The Z-axis of the CrankGrind is equipped with the well proven StuderGuide guideway, a combination of hydrodynamic guideway and hydrostatic guideway. It offers the highest precision, load bearing capacity and strong damping across the entire speed range. The X-axes, on the

other hand, are equipped with fully hydrostatic guideways with an undercut. The drive is provided by linear motor, in order to guarantee the highest precision and dynamics.

When developing the CrankGrind the primary focus was on the operability and ergonomics of the machine, in addition to workpiece precision and productivity. All access points are designed to be very maintenance-friendly and easily accessible. An enlarged field of vision in the machine interior provides the operator with a better overview during grinding. The compact machine design also enables both manual loading and automatic loading via a loading portal without any problem.

Ewag Ewamatic Linear

Walter Ewag presented a further development of the proven Ewamatic Line, with the new name Ewamatic Linear. The drive concept of the Ewamatic Linear now features direct drives on all machine axes. The use of these high quality drives further enhances the machine dynamics and increases the maximum travel speed, thus further increasing productivity for high-precision tools. The unique 6-axis kinematic system in conjunction with the six-position spindle star offers maximum application flexibility. The grinding spindle stations can be equipped with grinding wheels with up to 300 mm wheel diameter and wheel changes can be carried out with the highest precision in just 2 seconds. Thanks to the integrated dressing and regenerating unit all wheels can be kept dimensionally stable and easy



The flexible 6-axis grinding centre for all tool types

cutting. Iterative measurement between the grinding processes in combination with the grinding pressure regulation guarantees absolute dimensional stability of the tools across the entire production batch and offers the ideal basis for autonomous production. The Ewamatic Linear uses the proven NUMROTOplus grinding software for programming rotationally symmetrical hard metal applications.

The optional new robot cell, equipped with the HSK63 loader carousel, can accommodate up to 100 tool positions. The high efficiency of the grinding operation is also increased by the possibility of 'chaotic' loading with different tools.

Flexible loading is optimally supported with the 6-axis Fanuc robot. Reclamping stations, cleaning station through to optional laser inscription in the robot cell can be integrated.



Indian and German faculty members. For imparting this training, Komet allotted and purchased separate machines and brought specialists from Germany.

Komet India also recruited fresh engineers from various colleges. These engineers were given specific training in different areas of design, production and project management. Moreover, Komet India didn't limit the programme to just students; it focused on improving knowledge level of its customers and partners by giving special emphasis on advanced areas of mechatronics. For this programme, Komet India went beyond training students, customers

Transferring technology

Through a public private partnership programme in association with Federal Republic of Germany, a cutting tools major is imparting vocational training to young students


Upholding the vision of its founder Robert Breuning, the Komet Group (Based in Besigheim, Germany) has been a contributing significantly to social causes. In India, the focus of Komet has been on vocational training of students. India is known across the world for its abundant labour pool but finding a trained candidate has been a challenge for most industries. The main cause for this is that Indian Universities restrict themselves to imparting knowledge, without promoting the practical skills of the students. In an effort to bridge this growing gap, Komet India initiated a Public Private Partnership (PPP) Programme with the Federal Republic of Germany.

Through this PPP initiative, this leading manufacturer of precision cutting tools is looking to leverage on as well as share its vast expertise and experience in cutting tool engineering accumulated over many years. The main aim of the project is to transfer technology to society. This is possible with the initiation of cooperation between industrial partners and educational institutions. With this view Komet India tied up with NTTF (Nettur Technical Training Foundation). Interested students from this institution were placed under the programme. The training included both classroom training as well as practical workshops in factory. These students were paid stipend and were trained by



and partners' they also trained their own trainers by sending them to machine builders as well as to Germany for further skill enhancement. Komet India believes that train-the-trainer measures shall ensure the transfer of knowledge in the long term and contribute to its spreading ('domino effect').

Komet India doesn't want to stop here, they have planned to spread knowledge through their decentralised service centre in Pune, and later also at further Indian industrial locations. With the integration of local specialists, students, users and through the close cooperation with the educational partners, Komet India hopes for creation of more qualified engineers and specialised personnel.

Komet, the internationally successful group sees itself as more than simply a tool manufacturer; it perceives itself as a provider of innovative ideas. And its participation in the unique PPP programme can be considered as an extension of its corporate philosophy even in the CSR sector. "We are happy with the participation of Komet India in PPP project which is helping us to raise the technical and skill levels of students so that they can participate in modernisation of industry in future. We feel satisfied with our CSR initiatives and we will take these initiatives ahead in future as well, wherein we will continue to participate in the technical development of the Indian society," says Atul Nagpal, MD, Komet India. 

“
We are happy with the participation in PPP project which is helping us to raise the technical and skill levels of students so that they can participate in modernisation of industry in future.”

Atul Nagpal,
MD, Komet India

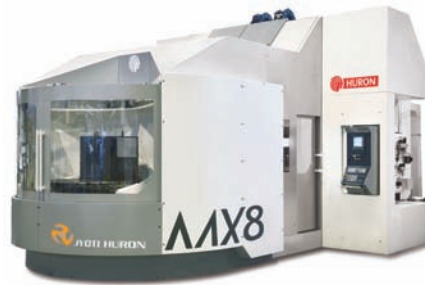


Dynamic and versatile machines



MU Tech 6 – For milling operations

This series of machine offers a one stop solution of versatile milling operations with geometrical accuracies with high speed and power. Thus with this versatile machining features, large and complex 5-Axis components can be machined in shortest cycle time with highest accuracies and minimum set-ups. This compact Universal Machining Centre comes with standard-equipped with 5-Axis, high speed electro-spindle, combination of which offers higher universal productive with excellent dynamics in all 5-Axis. All structures are made of heavily ribbed cast iron ensuring high level of machining stability & excellent damping capacity offering a rapid of 30 m/min.



MX-8 – Multifunctional design

Aside from high machine dynamics that are reached through high static masses and weight optimised moving components, the FEM-optimised MX-Multifunctional series design accommodates high clamping devices or machining of work piece with large job envelope with constant accuracy/precision in uppermost traversing range. The impressive performance is enhanced by comprehensive option packages & spindle alternatives. The faster & more space-saving pallet changer in connection with high flexibility of 5-Axis Universal Machine, with a combination of Milling & Turning, builds foundation for efficient production even at rapids of 40 m/min.

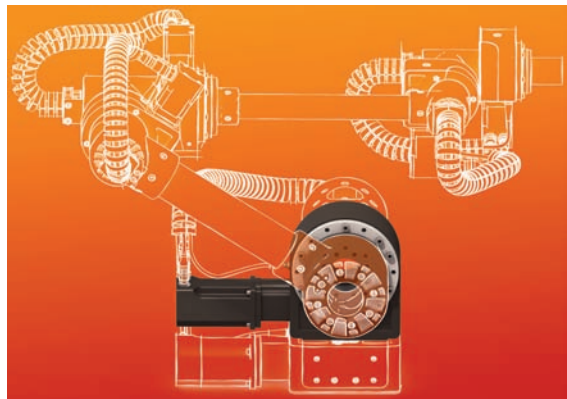
For more information, visit www.jyoti.co.in/

New direct-driven articulated arm supporting lean automation

Gripping, turning, pivoting, picking up and putting down again, then returning back to the starting position – articulated arms in industrial robotic systems perform the exact same movement time after time. For this purpose, igus has developed the new modular and cost-effective robolink D. In this new system, the robolink articulated arm is driven directly by positioning the motor directly on the axle. The new development is based on igus' line of self-lubricating PRT slewing ring bearings, which are installed in a plastic housing.

The system is driven by a worm gear drive and a NEMA 17 or 23 stepper motor. These and other engines are controlled with commercially available standard control modules. The new robolink D system differs from previous igus robotics in its drive technology. Until now, the stepper motors were not placed in the robotic arm itself, but instead in a separate drive unit, driven by means of rope hoists coupled to it. This has the advantage of keeping the system very lightweight. and the direct drive makes the robolink articulated arm tougher and more durable, opening up more opportunities for lean automation. Here, robots carry components from cell to cell. This allows manufacturers to respond to adaptations more flexibly, and to achieve a significant cost savings.

robolink joint systems: The robolink D system is available in three sizes, and can also be combined using plastic or aluminum fasteners, taking articulated arms from one axis to as many as six.



The robolink D articulated arm system is driven directly by a motor on the axle. The basis of the joint is an igus self-lubricating PRT polymer slewing ring.
(Source: igus GmbH)

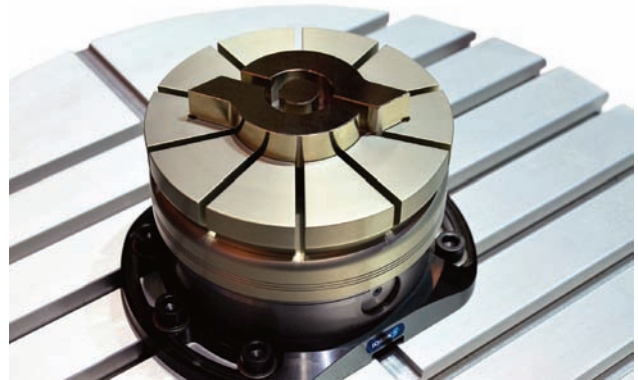
This, like other robolink products from igus, is a modular joint kit, perfect for individually implementable robotic systems. The joints and components of both robolink systems are able to be combined freely with one another. Whether used in individual components, or as a complete system, the modular design allows a high degree of flexibility to be maintained.

Contact Santhosh Jacob, Product Manager, igus (India),
Phone: +91-80-39127810 (Direct); Cell: +91-9535200466;
Email: santhosh@igus.in; website: www.igus.in

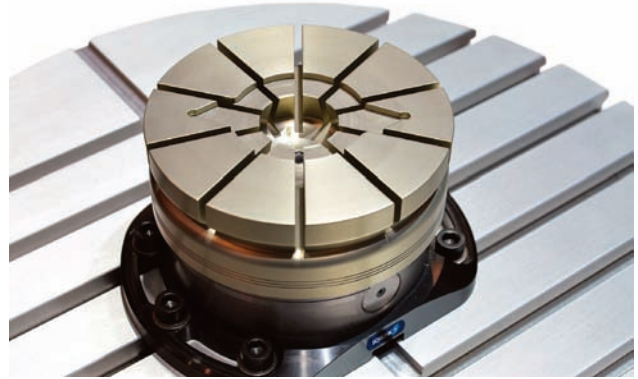


Direct clamping with a membrane

SCHUNK has developed the SPM plus 138 fixture membranes made of aluminium, where work pieces of various clamping geometries are clamped from all sides with a pull-down effect. First, a 0.5 mm high tuning ring is inserted between the quick-change pallet module and the fixture membrane, then the exact work piece geometry is milled according to the blank of the fixture's clamping surface. Once prepared, the work pieces can be inserted within seconds, and the complete circumference is clamped by locking the VERO-S module and the fixture membrane is specifically deformed. Since the whole process is carried out within the elastic range of aluminium, the clamping operation can be repeated several thousand times. In contrast to conventional clamping blocks, the clamping force of this clamping type is carried out at the circumference of the whole work piece contour and not just along an axis. The resulting force-fit clamping ensures an even, gentle, yet very secure clamping. The membrane is actuated via an SPC quick-change clamping pin, and connects it with the pneumatically actuated quick-change pallet module. Due to the clamping depth of only a few millimetres, the work piece is fully accessible from five sides. The fixture membrane can be located on the quick-change pallet module at a repeat accuracy of less than 0.01 mm. The use of an additional clamping unit is unnecessary. If required, it can be milled off several times, and different work piece geometry can be used. The clamping unit is suitable for light machining of various materials and work piece contours for the second set-up. The maximum work piece diameter amounts to 120 mm.



Fixture membrane with workpiece: Via a force-fit clamping operation, the workpiece can be clamped from all sides. Additional clamping units are unnecessary.



Fixture membrane without workpiece: Various workpiece contours can be milled off from the surface of the fixture membrane.

Search for the World Cup Soccer Tipster Champion



The tipster game from SCHUNK, the competence leader for clamping technology and gripping systems, promises lots of fun and thrills during the World Cup Soccer Championship 2014: With the SCHUNK World Cup Soccer tipster app, soccer fans can simply compete via smart phone for the winning World Cup positions as a single player or as part of a tipster community. The most prominent competitor who will personally participate is the SCHUNK brand ambassador Jens Lehmann, who will regularly provide exclusive analyses and assessments too. The winners can look forward to 101 attractive prizes: a 3D LED backlight TV, a smart phone, a tablet computer, an annual subscription to Sky TV, an mp3 player, signed goalkeeper gloves, SCHUNK World Cup jerseys, leather footballs, and many more. Moreover, the best tipster community wins a visit to an exciting Bundesliga game with an all-inclusive box for ten persons, which promises to be a unique experience. The SCHUNK Tipster Champion app will be available free as of May, 27, 2014 in every iOS and Android app store. *For more information please visit: www.gb.schunk.com/top-tipster-2014*

The Tipster App provides thrilling World Cup moments with Jens Lehmann directly to your smart phone.

Contact: Satish Sadasivan

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



Benefits of a high pressure vice



models are available with a clamping pressure regulator. This produces ultimate repeatability from part to part since any deflections of clamping system and parts will always be exactly the same, regardless of operator, shift, time of day, etc. Other vices: Clamping pressure can be controlled with a torque wrench (typically at lower clamping pressures), but it is up to the operator to decide if he is going to give it one more whack after the torque wrench click.

Since 1967 Fresmak has been producing the Arnold line of high pressure vices for milling machines and machining centres – vices with exceptional precision and durability. Fresmak continuously improves and refines its products, using customers’ feedbacks as a basis for the extensive product development program. The combination of top quality raw material and components, a motivated and qualified production team, modern manufacturing techniques and equipment, and a meticulous quality control program has made Fresmak a market leader in the field of high pressure vices – and will continue to secure a strong position in a global market place.



High pressure clamping is achieved through a power booster which is activated after the jaws make solid contact with the workpiece. There is no stress on the spindle and therefore the spindle mechanism will not wear out.

What does high pressure mean?

High pressure clamping is achieved through a power booster which is activated after the jaws make solid contact with the workpiece. There is no stress on the spindle and therefore the spindle mechanism will not wear out.

What kind of benefits does a high pressure vice grant?

1. No operator fatigue
Arnold vices: High pressure clamping is achieved with very little effort (no operator fatigue). Other vices: Relative high pressures can be obtained, but with great effort, hammer or cheater bar extension.
2. Repeatability: Arnold vices: Clamping pressure is absolutely repeatable - there is a positive stop. Some

High pressure clamping uses about 1/3 of the cutting tools as compared to high speed cutting or low-pressure clamping. The savings in cutting tools alone will typically pay for the vice in very little time.

3. Saves time and cutting tools: High pressure clamping allows faster cutting because parts will not fly out. Normal pressure clamping requires about three times the passes to remove the amount of material you can remove in one pass with Fresmak Arnold vices. High speed spindles can remove material in about the same time, but will wear out cutting tools much faster. Non-scientific experience is that high pressure clamping uses about 1/3 of the cutting tools as compared to high speed cutting or low-pressure clamping. The savings in cutting tools alone will typically pay for the vice in very little time.
4. Allows high precision milling: The clamping pressure will always be the same, regardless of operator, time of day or shift; this is because the system has a positive stop. You go past the stop, and the handle will break. This means absolute repeatability in clamping. Together with the



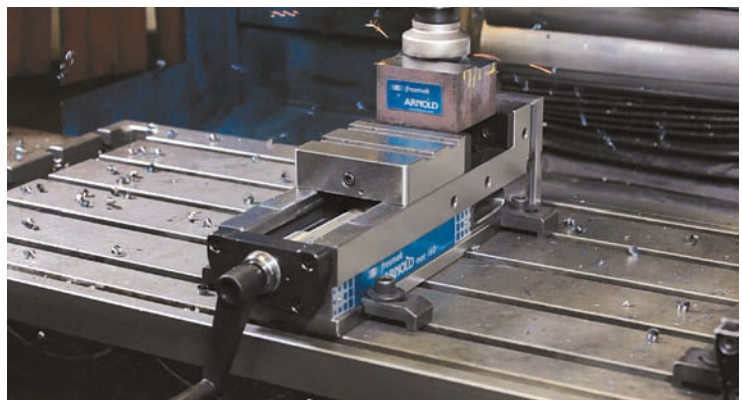
The Arnold mat vice, the company's most sophisticated model.

- Sizes:
 - 90mm
 - 125mm
 - 160mm
 - 200 mm
- Maintains constant overall length, regardless of jaw opening
- Different versions:
 - Manual clamping mechanism with hydraulic power booster,
 - Manual clamping mechanism with mechanic power booster,
 - hydraulic clamping mechanism,
 - hydro-pneumatic clamping mechanism (air over oil 6-7 bar, 90-100 psi)
- Built in pressure amplifier able to maintain the clamping pressure for hours
- In the case of manual clamping mechanism the power boosters are available with optional power preset control. Can be mounted in any of 4 positions (normal, left side, right side, vertical)
- Jaw slots for top jaws to hold larger parts
- Possibility to clamp outwards in the case of mechanical power booster (pieces in U-form)
- Clamping pressure - depending on the size - from 2.5 tonnes up to 5 tonnes
- Vices are identified by serial number, registering their relevant measures.

The Arnold twin vice clamps two workpieces at the same time with a single handle.

- Available in sizes:
 - 90mm
 - 125mm
- Maintains constant overall length, regardless of jaw opening
- Different versions:
 - hydraulic spindle,
 - hydro-pneumatic spindle,
 - oleo-dynamic spindle
- Built in pressure amplifier able to maintain the clamping pressure for hours
- Can be mounted in any of 4 positions (normal, left side, right side, vertical)
- Possibility to clamp just one single piece
- Clamping pressure - depending on the size – 2.5 tonnes or 4 tonnes
- Vices are identified by serial number, registering their relevant measures.

The clamping pressure will always be the same, regardless of operator, time of day or shift; this is because the system has a positive stop. You go past the stop, and the handle will break.



- high accuracy of the Fresmak Arnold vices themselves this means about as much accuracy as you can get with any workholding system.
5. Accuracy: All relevant surfaces precision ground to 0.02 mm or better.
 6. Durability: Designed for long life.
 7. Long-time investment: All critical dimensions of every single vice are kept on record with the serial number. If a customer needs a 'perfect match' to a vice he has in operation it can be

done. Fresmak Arnold can reproduce vices!

The production line does include the traditional Arnold classic vice - patented since 1969 - for traditional milling and drilling machines as well as vices for the most demanding machining centres as the Arnold mat or Arnold twin vices, which can be fully automatised.



Most items are available in different sizes and with different spindles adapting the articles to the individual needs of each application. As example we would like to point out the special properties of the Arnold mat and the Arnold twin vices.

Please, do not hesitate to ask for technical advice. We are sure to find the optimal solution for your application problem.

Contact: Vanessa Olañeta; Email: vanessa@fresmak.com; Website: www.fresmak.com



Digital Intelligence to Accelerate Productivity in Customer Manufacturing Processes

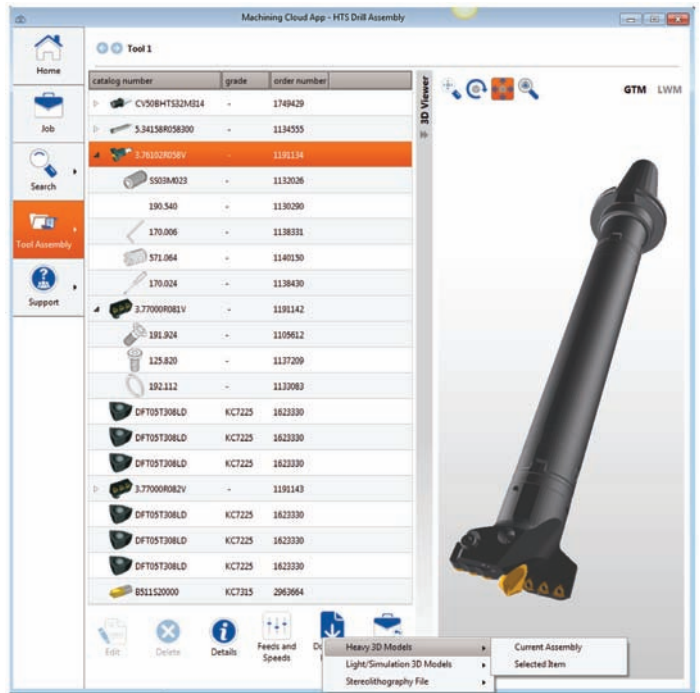
Revolutionary solution integrates collective machining knowledge and experience to dramatically change the way that work gets done.

In a revolutionary development designed to address the critical need for improved productivity and process knowledge for manufacturing companies, Kennametal is launching NOVO, a new set of digital tools that promises far-reaching improvements in manufacturing efficiencies.

“This is a huge leap beyond simply providing a digital version of the tool and its physical properties,” says John Jacko, VP & Chief Marketing Officer at Kennametal. “With NOVO’s embedded intelligence in application engineering and process planning, Kennametal and our partners are opening the path to a completely connected digital art-to-part-to-profit process. NOVO is a big step in bringing such a vision to reality.”

Experience powering productivity

Online catalogs and tool selectors have become common options for manufacturers looking for the latest tool solutions



Tool selection, tool configuration, and the best applicable tooling advice based on the customer’s part and process requirements are all at the touch of a few mouse clicks in Kennametal’s revolutionary NOVO. CAD models, complete assembly lists, automated job report functionality and much more all promise new levels of process planning efficiency.

Here, a model of an HTS Drill Assembly is shown with all associated inserts, adaptors, and spare parts. NOVO accomplishes in minutes what formerly took hours and yields an optimized solution backed by Kennametal expertise, every time.

for their production process. NOVO goes far beyond the concept of the online catalog by integrating the application engineering and production experience of Kennametal’s 75-year history.

“This is the true integration of our knowledge with our customers’,” says Francois Gau, Vice President, Strategic Marketing and New Business Development. “Simply put, NOVO is a process enabler – a true digital assistant with data-rich machining strategies that starts working from the moment you receive a parts drawing. With a refined and intuitive tool advisor, tool selector, and tool configurator, everything down the line gets more efficient—from parts quoting through programming, presetting, and production. The result is the absolute assurance you have the right tool to do the job.”

NOVO is process knowledge delivered via the cloud. It stands alongside such web-available solutions as MTConnect for data gathering and ISO 13399 for standardising tool data.

NOVO solves many challenges for process planners, manufacturing engineers, and those who want the most

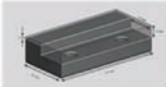
Sample Component

Machining Cloud App Date: 8/8/2013 3:21:37 PM

Author: T. J. Long

Material:

Notes:



Tool List

Tool Name	Catalog Number	Grade	Order Num	Description
Tool 3	KM63TSMC32040M		3950896	KM63TS SHELL MILL ADAPTOR
Tool 3	KSHR100BIRS45HN09		3325168	FACE MILL KSHR D=100 Z=11
Tool 3	HNGJ0905ANSNGD	KC725M	3331176	HNGJ0905ANSNGD KC725M
Single Tool	KF2X400V1308S150L200		5338771	KenFEED2X CUTTER D=4.00 Z=8 S=1.50 SHELL
Single Tool	VOEJ130713SRHD	KCPK30	5320580	KENFEED2X INSERT IC13 HEAVY GEOMETRY
Tool 7	KM63TSMC22028M		3950894	KM63TS SHELL MILL ADAPTOR
Tool 7	50A08RS90ED10D		3745677	MILL 1-10 SHELL MILL 90° D=50 Z=8
Tool 7	EDPT10T320PDERHD	KC725M	3642097	MILL 1-10 INSERT P=2.0
Drill Hole	KM63TSHCH4080M		2388654	KM63TSHPHC4080M
Drill Hole	B731A0992IHP	KCPK15	4175426	SC STEP DRILL 7/16-20/3906/ SHORT COOLA

When identifying tools needed to machine the component pictured above, NOVO provides the user with one comprehensive report listing all necessary tools, and detailed dimensional data and application parameters for each tool. The result empowers users by providing the right solutions specifically tailored to their operations.

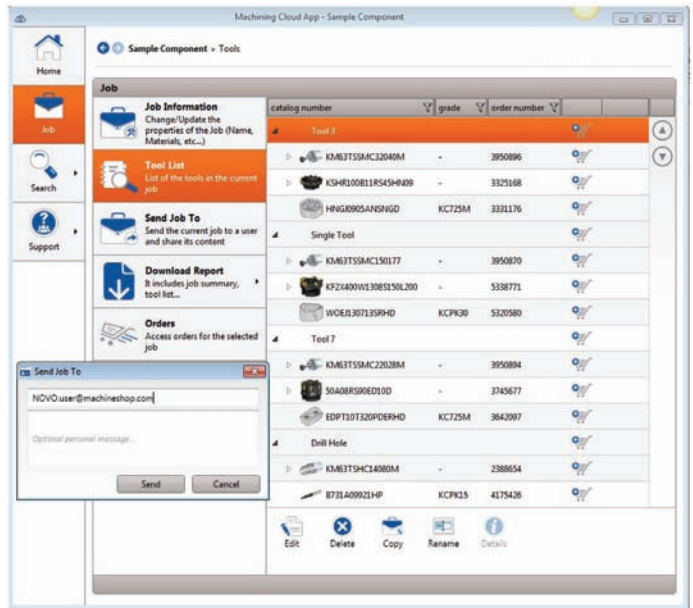


efficient machining strategies based on the features of their parts. Customers are able to access NOVO via a PC application and tablet solutions coming later this fall. With the click of a button, the user will have access to all of the knowledge from more than 50,000 branded Kennametal products to achieve a more productive solution in a fraction of the time spent searching catalogs.

“NOVO works like a process planner,” explains Thomas Long, head of the newly formed Virtual Machining RDE department at Kennametal. “It works from the feature back to the machining strategy and then finds the best tools for each strategy. In addition, each project is tied to application data gleaned from Kennametal’s experts and decades of experience. Search for a specific Kennametal part and you also get models and all associated inserts, adaptors, and spare parts. Not only does it accomplish in minutes what formerly took hours, it yields an optimized solution, backed by Kennametal expertise, every time.”

Addressing the skills gap

Facing ever-increasing demands for productivity and efficiency,



More than a catalog, NOVO brings users into a community, enabling collaboration. All jobs are stored on the Machining Cloud and can be easily shared with fellow NOVO users. The dimensional data of the tool items and assemblies can be output in an XML format that can be imported directly into CAM and tool management systems to eliminate the need for manual data entry.

manufacturing technology providers have responded with computer-driven machine tools, digital-based computer-aided design and manufacturing software (CAD/CAM), and significant advances in tooling. Yet one major barrier threatens this scenario: a significantly widening skills gap as older workers retire and new workers fail to engage in manufacturing careers.

“To effectively bridge the skills gap for our customers, we have developed this innovative platform to distribute the collected knowledge of Kennametal,” says Gau. “More than a catalog, NOVO brings users into a community, harnessing all ongoing expertise, and providing fast access to best-in-class process knowledge. The result empowers users by providing the right solutions specifically tailored to their operations. It solves problems instead of managing data.”

Only the beginning

The vision for NOVO is to be integrated with major CAD/CAM packages and machine tool CNC controls, so designers or programmers will have instant access to Kennametal knowledge at the touch of a button without having to leave their function.

“NOVO means new way of doing things— the ability to get information quickly combined with the best strategy on how to use it,” Gau says.

Tool 3

Item List

Image	Catalog Number	Grade	Order Number	Description
	KM63TSSMC32040M		3950896	KM63TS SHELL MILL ADAPTOR
	KSHR100B11R545HN09		3325168	FACE MILL KSHR D=100 Z=11
	HNGJ0905ANSNGD	KC725M	3331176	HNGJ0905ANSNGD KC725M

FACE MILL KSHR D=100 Z=11

Property	Value
order number	3325168
catalog number	KSHR100B11R545HN09
D1	100
D1 max	110.98
D	32
D6	80
L	50
Ap1 max	4.47
Z	11
kg	1.73
max RPM	6300

Performance

Property	Short Name	Value	Unit
Material		PS	
Axial Depth of Cut	(ap)	2.0000	mm
Radial Width of Cut	(ae)	60.0000	mm
Feed Per Tooth	(fz)	0.1200	mm
Cutting Speed	(Vc)	204.0000	m/min
Feed Rate	(Vf)	857.1449	mm/min
Spindle Speed	(n)	649	rev/min
Material Removal Rate	(MRR)	102.8574	cm ³ /min
Feed per Revolution	(fn)	1.3200	mm/rev
Number of Effective Inserts/Flutes	(i)	11	

In each comprehensive report, NOVO provides all associated data for each tool assembly, including detailed dimensional data and the application parameters to machine the component.

For more information, visit www.kennametal.com/novo



High speed machining made easy



small diameter finishing applications like end-milling, drilling, chamfering, engraving are done inefficiently due to limitations of machine RPM. For example, it can be used in the industry which deals with machining aluminum to produce automotive components, small computer parts or medical devices. Or the die & mould industry which requires dealing with finishing of hard materials. In the latter category, it is important to machine with high speed and to keep high accuracy.

High speed machining however finds limited use in the industry owing to reasons of cost and set-up. But the Typhoon opens up big possibilities of high-

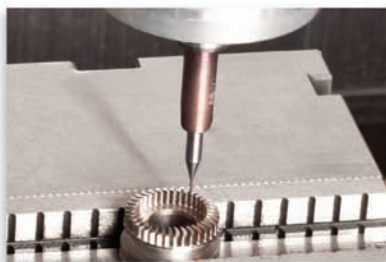
What if you could deploy high spindle speeds for all your machining in the shop floor without changing your machines or adding to your capex?! TaeguTec's revolutionary new technology, Typhoon, will do just that – facilitate High Speed machining on your existing set-up enabling you to increase efficiency, accuracy and quality of workpieces, while saving you significant cost and time!

High speed machining

HSM can be mainly envisaged in all industry sectors where

Key highlights

- Use existing machines with internal coolant facility through spindle.
- 3 types of spindles for 20000, 30000, 40000 rpm are available to suit application needs
- Wireless speed monitoring and display to assist operator.
- Can be used on CNC Milling Machines, Machining Centres, Turn Mills and CNC Lathes.
- Can be used on Tool Magazines & Auto Tool Changers on Machining Centres.
- Tool cutting diameters from 0.2mm up to 3.5 mm could be effectively used.
- Milling, Thread Milling, Drilling, Chamfering, Engraving and Grinding can be done.
- Can be used with Collet type holding or Shrink Collets.



Milling



Thread Milling



Drilling



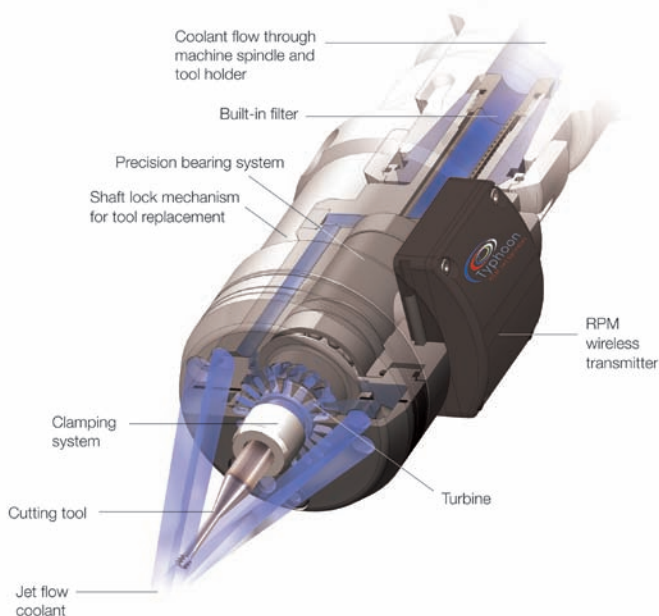
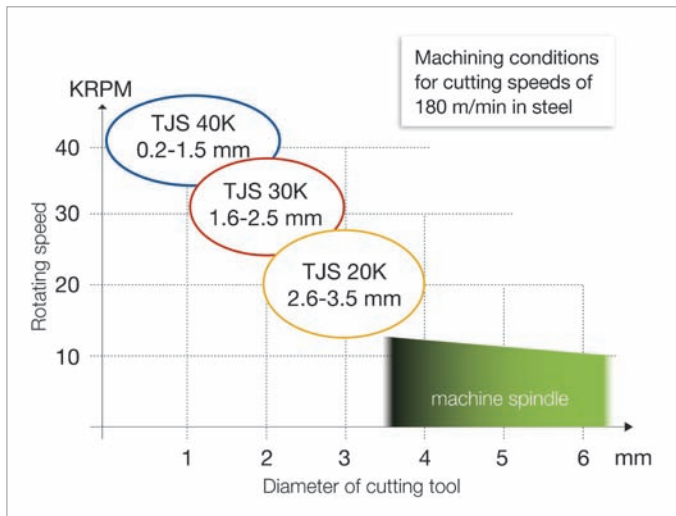
Grinding



Chamfering



Engraving



speed finishing on several existing good, low-medium spindle-speed, high-rigidity machines.

Old machine new machine!

The Typhoon system uses the existing machine’s coolant supply, reaching rotation speeds of up to 40,000 rpm while the main machine spindle remains idle. This new coolant-driven spindles are a unique patent-pending line of high speed machining spindles, recommended when high rpm is required on standard CNC machines. it makes it is possible to combine roughing applications using regular tools at regular parameters and low diameter finishing applications at high RPMs. The Typhoon can be mounted on tool magazines without any special adaptation and can be handled by ATC, improving the flexibility and efficiency of the existing machine by a great extent in the process.

Applications

The Typhoon serves the growing demand for finishing and semi-finishing operations on a wide range of processed materials in industries such as the die & mold, automotive, aerospace, medical and others for milling, drilling, engraving, chamfering (deburring), thread milling, and G-grinding applications.

Range

The new spindle is available in three variants, each covering a range of diameters and speeds for a wide range of materials and cutting tools. The Typhoon can be supplied either as right-hand or left-hand rotation direction and supports cutting tools up to 3.5 mm diameter, with shank diameter up to 6.0 mm.

Direct wireless rotation speed monitoring

The Typhoon is equipped with an on-line speed display system, monitoring the actual cutting tool rotation speed during machining.

- 2.4 GHz radio frequency transmission
- Direct wireless rotational speed monitoring up to 5 meter range
- Enables data reading of all the Typhoon units being used on the same machine.

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Smaller size insert for popular milling line



machining making it an efficient and smooth set of tools.

In order to cover a wider range of machining applications, the dual usage of TaeguTec's Chase2Hepta 6 mm inserts are a screw type cutter for primarily steel machining and a wedge type cutter for cast iron machining.

The new line of mini cutters comes in three geometries – the 'M', 'MM' and 'ML'. The 'M' geometry 6 mm Chase2Hepta line is used for roughing applications of steel and cast iron work pieces and its smooth machining with good tool life is due to its reinforced, positive rake angle. For general cast iron machining applications, the optimised cutting edges of 'MM' geometry chip breakers translate to low cutting forces in cast iron machining. The 'ML' geometry for the 6 mm line is ideal for cast iron light machining and difficult to cut materials such







TaeguTec has introduced a smaller size insert for its highly popular Chase2Hepta milling line. As the need for machining smaller volume work pieces made from cast iron and steel has grown, so has the need for smaller size tools that can enhance productivity and reduce operating cost.

The Chase2Hepta 6 millimeter size inserts and cutters are now available to meet the challenges posed by technical trends in forging and casting technologies which is demanding higher productivity and economical tools that can handle lower depth of cut conditions.

The Chase2Hepta line is already renowned for offering 14 corners on one insert – the double-sided and highly effective 45 degrees entry angle is the ideal solution for high performance on cast iron and steel machining. Its positive cutting edge geometry lowers cutting loads during rough

Features

- Economical double sided insert - 14 corners, 45° entry angle
- Suitable chip formers for various applications

M geometry			<ul style="list-style-type: none"> • For steel and cast iron roughing • Smooth machining with good tool life due to a reinforced, positive rake angle
MM geometry			<ul style="list-style-type: none"> • For cast iron general machining • Optimised cutting edge means low cutting force in cast iron machining
ML geometry			<ul style="list-style-type: none"> • For difficult-to-cut material (stainless steel, heat resistant alloy) & cast iron light machining • Sharp, positive cutting edge for minimal cutting force

as stainless steel and heat resistant alloys.

In one test against a leading competitor's tool, TaeguTec's 6 mm Chase2Hepta line was not only able to increase tool life twice over, but also lowered the cutting force by 40 percent while machining a con rod cap made from AISI 4140.

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Complete Metrology Software

Faro Technologies Inc has released Faro CAM2 Measure 10.3, its newest software for the FaroArm, Faro Laser ScanArm and Faro Laser Tracker. CAM2 Measure 10.3 offers a complete contact and non-contact metrology solution. The new capabilities and enhanced functionality provide customers the value of having a single partner, with an integrated software and hardware solution, that is supported by a worldwide service network.

"The new CAM2 Measure 10.3 fulfills the customer need of a single, intuitive solution for tactile measurement, scanning and point cloud management. Perfectly suited for

future metrology challenges, in which scanning will play an increasingly important role, the new release will effectively support our customers in improving their processes and products," stated Ralf Drews, MD at FARO Europe.

CAM2 Measure 10.3 can be used with all of Faro's major metrology hardware, such as the FARO ScanArm for CAD-to-Part analysis, and is perfectly suited for tasks such as the inspection of free and complex forms and even soft or flexible materials that are difficult to inspect with a tactile system.

For more information, you can also visit: www.faroasia.com/CAM2Measure/in



High Performance End Mills for aerospace sector

Aerospace tools are specially designed for machining Aluminium and special materials like Titanium, Inconel etc. New generation geometry prevents oscillation of the tool against the component enabling optimum surface quality with maximum feed rates, specifically to minimise stress on materials and allow very thin wall machining even at maximum material removal rates.

Following are two of GW India's wide range of technologically advanced products designed for high performance aerospace applications:



Highlights

- For machining Inconel, Titanium, SS and other austenitic steels.
- Advanced tool geometry with differential pitch and helix enables this tool to cut steel with high depth.
- Increases tool life.

- Finds wide ranging application in aerospace and automotive component machining.

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Transforming engineering data

Dassault Systèmes has renamed its recently acquired Realtime Technology (RTT) to '3DXCITE'. The new brand's ambition is to enable a 3D experience strategy that goes beyond engineering and encompasses a customer's entire business cycle across all communication channels with powerful, streamlined and efficient storytelling. Bernard Charlès, President & CEO, Dassault Systèmes believes that the refocusing of the new brand on enabling the 'PLM of the marketing asset' will have significant impacts across Dassault Systèmes' customer base and vastly increase the value of the digital assets they create every day. CAD assets for instance, already well-integrated in manufacturing, requirements, and engineering processes, will be fully reusable across millions of digital touch points, including sales, point-of-sales, interactive showrooms, flyers, or consumer web experiences.



"No customer is in the business of just engineering or manufacturing. Consumers buy experiences and our customers

must connect the dots, from design to sales, to deliver that experience," said Monica Menghini, Executive Vice President, Corporate Strategy, Industry & Marketing, Dassault Systèmes. The 3DXCITE portfolio will consist of Upstream Experience offers, such as visual HMI design and visual design configurators, Sales & POS Experiences that include visual sales management book and visual flagship stores, and Consumer Journey Experiences with visual personal shoppers and visual web configurators.

"From the artistry of an experience to its industrialisation, we can now literally engineer the excitement for consumers, from the first idea all the way to omni-channel digital marketing and sales," said Roberto Schettler, CEO, 3DXCITE, Dassault Systèmes. With this new brand, we've expanded the scope of value we bring to our customers and begun truly fulfilling Dassault Systèmes' long-held ambition."

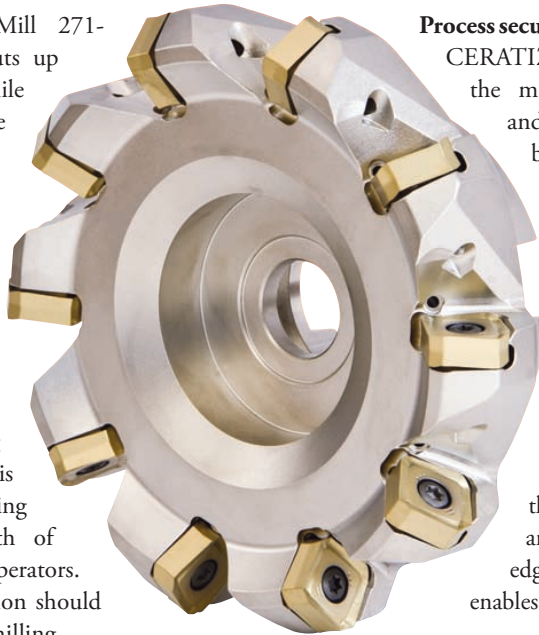
For more information, visit www.3ds.com/3dxcite



Maximum stability at full depth of cut

CERATIZIT presents MaxiMill 271-17, a milling cutter that cuts up to a depth of 8.4 mm. While reaching a higher metal removal rate it shows reduced power consumption. Its eight usable cutting edges make it economically even more attractive. The patented cutting edge geometry enables a smooth cutting action and good surface quality when roughing.

For the machining of large parts such as steel components or motor blocks, an efficient milling system is required. As time saving is extremely significant when machining blank surfaces, the increased depth of cut represents an advantage for operators. Simultaneously the power consumption should be kept as low as possible. The new milling cutter absolutely fulfils these requirements



While reaching a higher metal removal rate MaxiMill 271-17 shows reduced power consumption.

Process security and optimum wear resistance

CERATIZIT considers it important that the milling processes are both stable and secure. Mario Wolf says: "We built extra-large chip pockets in the MaxiMill 271-17 which optimally evacuate the swarf. At the same time we have managed to keep the cutter body stable and compact." Another advantage is that vibration is reduced to a minimum, which ensures the excellent stability of the milling process.

Furthermore, when designing the geometry of the insert it was an important goal that the cutting edges are inclined downwards which enables a peeling cut. The cutting forces and thus also the heat are evenly distributed. "Thanks to the combination of maximum

cutting parameters and the selected HyperCoat carbide grades, optimum wear resistance and maximum tool life of the inserts is guaranteed," explains Wolf.

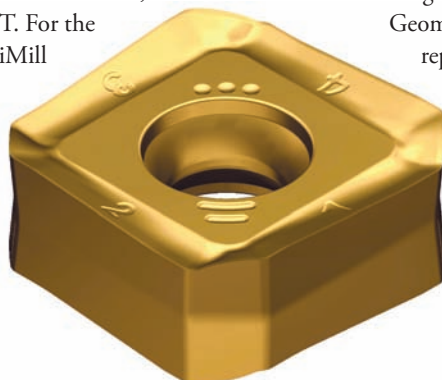
MaxiMill 271-17 shows excellent results in the field of mechanical engineering, automotive industry and medium heavy-duty machining, but is as well extremely successful when applied in machining operations of the ship building sector and the oil industry. There the components applied consist of nickel-based alloys which are both tough and abrasive, a challenge easily met by MaxiMill 271-17 thanks to the positive cutting action.

Customer benefits

- High economic efficiency due to 8 usable cutting edges
- Smooth cutting behaviour and low cutting forces at highest chip volume and cutting depth
- High productivity with cutting depths up to 8.4mm
- Good chip evacuation due to open chip gullets assures high process reliability

reaching depths of cut up to 8.4 mm on steel, stainless steel and cast iron.

When developing the new milling cutter the CERATIZIT R&D department put particular emphasis on the cutting geometry. "Applying a special technology we have produced double positive rake faces thanks to which the tool cuts particularly smoothly," explains Mario Wolf, Product Manager at CERATIZIT. For the operator this means that MaxiMill 271-17 consumes around 20 percent less power compared to conventional milling cutters while being able to obtain notably larger depths of cut. In addition, customers are able to benefit from this economically attractive tooling solution as the insert is provided with eight usable cutting edges.



The inclined downwards cutting edges enable a peeling cut.

Flexible application

This CERATIZIT tooling solution is available with various chip grooves. Geometry -F is characterized by a smooth cutting action which is why customers normally use it for finish machining or for the machining of stainless steel.

Geometry -M is suitable for universal application and represents the first choice for steel as it provides an optimum combination of smooth cut and stability. For severely interrupted cuts and generally difficult machining conditions geometry -R with its robust and very stable cutting edge is the best choice.

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