

THE ECONOMIC TIMES



BEST
METAL
CUTTING
BRANDS

2018



An Economic Times Initiative

THE ECONOMIC TIMES



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From the Editor's Desk



What is a brand? It is many things! A brand is a story. A brand is an experience. A brand is also the memory of an experience. A brand is an engagement. A brand is a heritage. In fact, it is a legacy that takes your organisation into the future.

Brand excellence is never about only visibility or recall. It is primarily about experience and engagement with regards to five basic principles – quality, value, innovation, delivery and service in the context of the customers' requirement. Only brands that successfully and consistently imbibe these fundamentals can become the best. And that's why, it is important to recognise and celebrate the best brands in every segment.

While the ET Best Brands initiative has been quite active in recognising the Best Brands from the B2C segment for a few years, we have now also extended it into the B2B segment. Recognising the Best Brands in the metal cutting industry is a step ahead in this direction. Of course, one cannot talk about brand excellence only in the context of B2C or B2B. After all, the fundamentals remain the same. And, so do the expectations from customers - who are looking for context, connection and commercial sense.

The metal cutting industry is rightly called as the mother industry of manufacturing. The success, the progress and the evolution of manufacturing, and in turn of the nation's economy, are directly related to the excellence that this industry brings to the table. So, it is all the more important to recognise, honour and celebrate the Best Brands in the Indian metal cutting industry.

The best of Indian metal cutting industry players are no more vendors; they are partners of their customers in the quest of excellence. With this coffee table book, The Economic Times celebrates these fantastic partners. They are indeed the best!

A handwritten signature in black ink that reads "Nirajan M." with a horizontal line underneath.

Editor



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About 'The Economic Times Best Brands in Metal Cutting' Initiative

The metal cutting industry plays a crucial role in the growth and development of the Indian manufacturing Sector. From machine tools to cutting tools, from metrology solutions to lubricants, from rotary tables to auxiliary equipment and everything in between, the metal cutting industry is a very complex and comprehensive segment.

The industry plays a vital role in the production of a diverse and huge range of products across different discrete manufacturing sectors. In the recent years, the Indian metal cutting industry has substantially raised its standards and it continues to do so while partnering with its customer segments.

The industry's evolution in terms of quality, technology, innovation and service is quite heartening and therefore it is necessary to take note of this pursuit of excellence. The rise of the Indian metal cutting industry is also the rise of some major brands – both home-grown and foreign-origin. Through sheer focus on customer delight, these brands have reached to the top of their games. While the Indian manufacturing industry today has a variety of options when it comes to choosing its metal cutting partners, it is important to identify, recognise and honour the best amongst these. Therefore, in the best interest of the Indian manufacturing industry, The Economic Times is introducing the first listing of the Best Brands in the Indian Metal Cutting Industry through this coffee table book.

This coffee table book highlights the key players from the Indian metal cutting industry by analysing their performance on the basis of their offerings, market presence and Brand Recall. The leading companies were shortlisted and made to go through an analysis of the overall performance of the company based on publicly available data before they finally made it to the list. The objective of this initiative is to serve the best interests of the Indian metal cutting industry by highlighting the Best Brands!

The Economic Times, through its series of Best Brands, has always endeavoured to highlight brands that have gained customers' confidence and maintained their positions even in the difficult times. The ET Best Brands series has already made its mark across different segments such as Banking & Finance, Education, Infrastructure, Technology, Corporate, Real Estate, Healthcare, Infrastructure as well as Plastics & Polymers. With this coffee table book, the ET Best Brands series now also covers the Indian metal cutting industry.



An Economic Times Initiative

About ET Edge

ET Edge strives to build global business intelligence through summits, conferences, communities, exhibitions in overarching lectures & presentations, hands-on workshops, panels, roundtables, case studies, buyer seller meets and networking platforms. The forums would ensure senior decision makers are equipped with information and networks to respond to challenges they face not just in India but also globally.

ET Edge was launched in 2013, making its foray through domestic conferences. It has now steadily moved into new formats not just covering knowledge sharing platforms such as conferences but also includes exhibitions, community building and more.

While ET Edge is well established in the domestic market with expertise in sectors panning Infrastructure, Education, Technology, Retail, BFSI and Telecom amongst other sectors, it is also expanding geographies by building initiatives in South East Asia and is covering new segments including the government segment as well as the B2C segment.

ET Edge conferences are primarily B2B platforms which bring together industry heads, vertical experts, academicians, government, visionaries and thought leaders for insightful conversations which aid in drawing the blue print for policy changes and giving directions to these critical sectors. Delegates at the conference are key management personnel and decision makers who further enrich the gatherings with their crucial insights and vast experience.

ET Edge builds engagement for its conferences through validated content through third party market research agencies and interactive formats. It deploys cutting edge formats such as fishbowl sessions, speed networking and other diverse formats such as key notes, one to one discussions, workshops, panel discussions, roundtables, case studies and awards.

Knowledge Partner

The Knowledge Partner for The Economic Times Best Brands in Metal Cutting 2018 is BDB India Private Limited. BDB India Private Limited is a leading Strategy Consulting and Market Research organisation specializing in Industrial, Agricultural and Healthcare sectors. As Market researchers and business analysts for over three decades, it has been BDB's continuous effort to produce innovative, aggressive and failsafe growth strategies for its customers.

Since 1989, BDB has had the privilege of working for leading, market savvy organizations, many of which are among the largest business houses of India. BDB also has had the privilege of working for various international organizations for their growth strategies. The geographical coverage of conducting Market Research includes South Asia, Middle East, Africa, Latin America and South East Asia.

For more details, visit www.bdbipl.com



Research Methodology

The Metal Working Industry can be broadly classified into Metal Cutting & Metal Forming.

India is the 16th largest manufacturer of machine tools in the world. Domestic manufacturers account for about 45% of consumption within the Indian machine tools market.

The consumption in this industry is primarily driven by the automobile sector which accounts for nearly 40% of the market. The Die & Mould, Aerospace, Railways, and Industrial Machinery are the other key user sectors in this industry.

Overall ecosystem of the industry is wide comprising of several entities like Cutting tool companies, lubricant suppliers and allied equipment and system suppliers associated with metal working industry.

The process of identification of companies in the Metal Cutting sector began by classifying the overall industry on:

- OEMs
- Consumable Suppliers - Cutting Tool, Lubricants etc

- System & component suppliers – Automation, Work Holding, Rotating Tables, Hydraulics etc

During the process of identifying companies the focus was on organizations who have created value for their stakeholders on the back on investment in innovative products, customer orientation, marketing & brand building initiatives, prominence across B2B trade avenues.

Inputs were also taken form key industry bodies, secondary databases, BDB data bank and allied institutions associated with the industry.

Overall Industry can be categorized in to:

Metal Cutting OEM - HMC, VMC, Lathe, EDM machines

Cutting Tool Suppliers – Carbide, HSS suppliers

Consumables Suppliers – Lubricant, Coolant, etc

Component & System Suppliers –Automation, Hydraulics, Work Holding fixtures.



THE ECONOMIC TIMES



FEATURED BRANDS

Ace Designers Limited

Ace Manufacturing Systems Ltd.

Acemicromatic Manufacturing Intelligence Technologies (AmiT)

ACOEM Ecotech Industries Pvt Limited

Alex Machine Tools Pvt. Ltd.

Blaser Swissslube India

Blum Novotest Measuring & Testing Technology Pvt. Ltd.

Carborundum Universal Limited (CUMI)

Carl Zeiss India (Bangalore) Pvt. Ltd.

Cosmos Impex India Pvt. Ltd.

Doosan Machine Tools India Pvt. Ltd.

Forbes & Company Limited (Totem)

Grind Master Machines Pvt. Ltd.

igus (India) Private Limited

Jyoti CNC Automation Ltd.

LMT Tools India Pvt. Ltd.

Marposs India Pvt. Ltd.

Micromatic Grinding Technologies Ltd.

MMC Hardmetal India Pvt Ltd. a Subsidiary Of Mitsubishi Materials

MotulTech

Phillips Machine Tools India Pvt. Ltd.

TaeguTec India

UCAM Pvt. Ltd.

Wendt India Limited

**Company names arranged in alphabetical order*



TURNING CENTERS



UNDISPUTED MARKET LEADER IN TURNING SINCE 1996

WIDE RANGE OF MACHINES

The large range of product line includes high-end machines with sub spindles and Y Axis with latest technologies of Integral spindles, linear scales, etc.,

Machines with synthetic filled bed and with full synthetic bed are also a part of the portfolio to offer higher performance levels.

Special machines with both 2-axis and 4-axis are also a part of product portfolio both in horizontal and vertical configurations. Projects are also being executed on automation solutions with both stand alone and integrated line automations.



Ace has also moved into offering SPM solutions with the recent acquisition of "Taurus Pvt. Ltd.," and this will enable it to provide complete lines as solutions for specific projects.

Ace Designers, led by three experienced design engineers and powered by a dynamic team of more than 500 members, is one of India's largest machine tool manufacturing companies. With a spread of over 50,000 square meters, its manufacturing plants, located in Bangalore, India, are equipped with state of the art technology to deliver large scale high quality products.

Ace Designers was founded in 1979 as a design-consulting firm. Initially, the team developed product designs for various machine tools including special purpose machines. Three years hence, in 1982, Ace stepped into the world of manufacturing with a range of special purpose import substitution machines for the I. C. engine valve Industry.

Since then, Ace has rapidly grown to become India's largest manufacturer of CNC turning centres and has remained the undisputed leader for nearly two decades. With a strategic focus on manufacturing of CNC turning centres, Ace has developed a wide range of indigenous cost-effective products to meet the changing needs of its customers. Ace has ensured product excellence through quality driven manufacturing processes supported by meticulously



www.acedesigners.com



planned world class infrastructure.

Having played a vital role in the Indian industrial renaissance, Ace machines have established their footprint in the global arena too. They have found acceptance in Europe, USA, South America, UK, Middle East, China, South East Asia, Japan and Australia.

Over the years, Ace co-founded several companies and collaborated with a few others to form the Ace Micromatic group, India's largest machine tool manufacturing conglomerate.

It is well known that one of the main factors contributing to high quality products are high quality inputs. To ensure on time delivery and to maintain the quality of its machines, the company has built expertise in design and production of its critical subsystems. Over the years, Ace has established state of the art manufacturing and assembly facilities spanning an area of more than 50,000 sq m in Bangalore, India.

Highlights

- State of the art foundry with capacity of 1000 tonnes per month.
- State of the art Innovation center housing R&D, Design and IT
- High quality plant & machinery for in-house manufacturing of key components
- Assembly of machines on conveyor lines for volume production
- Current plant capacity of 5000 machines annually.

Flow Line Assembly

Taking a cue from the automotive manufacturing industry, the company has evolved the flow line system



“The vision is to deliver value driven customer experience by providing engineered products and solutions with leading-edge technologies. This will be enabled by agile manufacturing systems and vibrant & inspired people being the back bone of the organisation. Nurturing and strengthening the trust placed on us by the customers is the base on which the organisation has been built.”

T.P Sridhar

CEO

Ace Designers Limited

of machine assembly for our standard machines. This methodology of machine building has resulted in reduced throughput time, improved productivity and ensure levelled production leading to on-time delivery of our machines. Some additional benefits of the flow line system are:

- Streamlined material supply
- Work specialization
- Waste elimination
- Improved visibility of production status on the shop floor
- Improved output measurement.





MACHINING CENTERS



AMS – THE LARGEST PRODUCER OF MACHINING CENTERS IN INDIA

PRODUCT HIGHLIGHTS

- High Speed Drill Tap Centers - DTC-400 XL & DTC-400 XL-L:** Reduced chip to chip time of 1.8 Sec with an acceleration capability of 1g and pocket tilting ATC.
- Compact & Fast VMC - 540V / 740V:** Offered for medium & light duty application. Effective chip handling system with Twin chute type chip disposal. Cost effective design for maximum ROI.
- Twin Spindle Machining Centers - Gemini Series:** Two spindles, two tool changer & magazines with single set of axes motors & control system. Effective single-chip management system. High-volume production machine.
- High Performance HMC - MCH-400 XL & MCH-500 L:** Suitable for high-precision heavy applications. Rigid machine structure. Ease of chip removal & maintenance friendly.



Ace Manufacturing Systems (AMS), a Manufacturer of CNC Machining centers, was founded in 1994 by P Ramadas. It is part of the Ace Micromatic Group and is one of the largest CNC machine tool builders in India.

AMS has an expertise in manufacturing CNC Vertical Machining Centers, Horizontal Machining Centers, Twin-Spindle Machining Centers, and Drill Trap Machining Centers. It also offers tooled up solutions, jigs & fixtures and integration with automation solutions across its product range.

The state-of-the-art production, R&D facility and a talented team led by experienced professionals from the machine tool industry has fuelled the growth of AMS.

With a humble beginning of three machines dispatched in the first year of its inception, AMS, today, caters to over 4,500 customers across different locations in India and the world. It has successfully installed more than 12,000 machines with 70 machine variants at these locations.



AMS's customer base includes large corporates and SMEs. Apart from major industrial hubs in India, AMS exports its machining centers to China, Mexico, South Korea, and Russia among others.

Automotive is the strongest industry segment for AMS. In recent years, AMS has seen demand from segments such as die & mould, general engineering, medical equipment, electronic components, aerospace and defence as well.

Being an ISO 9001:2015 company, AMS has reposed great importance in its quality driven manufacturing processes and performance-oriented management practices.

Infrastructure / Plant Capacity

The AMS facilities have the capacity to build over 3,200 machines every year. The newly built multi-storeyed assembly facility, inaugurated in 2018, is one of its kinds in the country today. It has the capacity to build over 2,000 machines per year.

In 1994, AMS dispatched three machines from its small facility. In the year 1997, AMS moved to its own 14,000 sq. ft. facility to meet the rising customer demands. It produced nearly 500 machines in year 2005, before moving to the newly owned 2,00,000 sq. ft. premises (Unit 1) in 2006 with capacity of building 1,200 machines per year.

AMS's corporate office and factory is built in accordance with the Green Building Concept. The facilities have a rain water harvesting tank which has the capacity to collect water up to 1.8 million litres of water. The solar panels installed on the ceiling of the existing factory building have a capacity of 500 kWh, which meets about 60 to 70 percent of the company's existing demand of power.

Market Share

As of today, around 12,000 machines are performing in India and



"Our vision is to be a global leader in engineering and technology. We continuously work towards innovation that makes our machines smart, reliable and competitive. To achieve this vision, we are constantly upgrading our technologies, systems and working methodologies. AMS is implementing Industry 4.0 in our offerings that enable customers and partners to achieve higher productivity and quality in line with global manufacturing standards whilst minimizing environmental impact."

L S Umesh

Director & CEO

Ace Manufacturing Systems Ltd.

over 500 machines are successfully performing overseas. The market share is around 20 percent in India and the Company is growing 50 percent year on year in export orders.

Product Offerings

- Over 70 machine variants - DTC, VMC, HMC, Twin Spindle VMC and 5 Axes machines.
- Over 2,500 tooling solutions provided to customers in India and worldwide.
- High speed machines with chip-to-chip time of 1.8 sec are few critical performing parameters with a competitive pricing giving tough competition to global products with a similar spec.
- Twin spindle VMC has doubled the production capacity of its customers.

Customers

- 70 percent of business is from repeat customers.
- Over 4,500 customers.
- Components produced from AMS machines are used in highest selling two-wheeler to luxury cars to aerospace and defence.
- Its tooling solutions have improved customer's production capacity by bringing down the cycle time by 40 percent to 60 percent.
- AMS's customer satisfaction data indicates the machining quality achieved and performance by its machines are superior compared to competitor products.



SMART MANUFACTURING SOLUTIONS



MachineConnect™
Automate collection of accurate, rich production data and machine parameters



Industry 4.0

LEADING INDIA TOWARDS INDUSTRY 4.0

CASE STUDY: SUPER AUTO FORGE LTD. (SAFL), CHENNAI

SAFL is a Rs. 600 crore manufacturer of auto parts, to customers worldwide. With four plants and 300+ high-tech CNC and other machines, SAFL has been progressive in implementing innovative solutions.

Mr. S. Muralishankar, MD of SAFL, describes benefits from using AmiT solutions: “We’re happy to be producing significantly more in two shifts, than what we were able to achieve in three shifts, using production analytics and KPIs from AmiT’s TPM-Trak software solutions. Eliminating night shift has eased our operating challenges and costs.”



AceMicromatic Manufacturing Intelligence Technologies Pvt. Ltd. (AmiT) is India’s leader, and first mover, in the space of Industry 4.0 and Smart Manufacturing software.

Founded by domain experts, and leaders with global operating experience, it brings the best-of-breed technical, product and solution expertise to its customers.

With its solutions deployed across a wide variety of 15,000+ machines, assembly lines, and other production assets, AmiT is helping drive significant manufacturing productivity and profits.

Its platform has also been deployed to process industries, such as FMCG and textiles. AmiT is India’s No. 1 choice for large, medium and small scale discrete manufacturing industries for their Industry 4.0 and Smart Manufacturing journey.

Its solutions have been deployed in select countries such as China, Italy, Thailand, Russia, Germany and others.

AmiT solutions have been architected to acquire real-time data



www.amitpl.com

from a wide variety of production assets, such as Conventional, PLC, CNC machines, assembly stations, robots, metrology and other production assets.

Production and process parameters, real-time metrology, benchmarks, operational and financial data combine together in a deep learning analytics engine to provide real-time outputs that drive Strategic, Tactical and Operational initiatives.

Footprint of AmiT's platform and solution set covers Traceability, Production Analytics, Visual Factory, Energy Vectoring, Online SPC and feedback, Digital Factory, Assembly and Conveyor monitoring, Machine Diagnostics and Prediction.

Its platform provides integration hooks to corporate systems (such as ERP, PLM, CRM) for implementing enterprise workflows, and poka-yokes.

Integration with 3rd party snap-ins, and escalation systems provide alerting to enable JIT, MES workflows.

With its extensive service footprint that covers 42 cities across India and select countries, AmiT has the reach to serve needs of customers, from technical to last-mile services such as customization, training, analytics support, and embedded onsite services.



“Our vision is to be a global provider of appropriate Smart Manufacturing and Industry 4.0 software solutions, which provide a very high ROI. Towards this vision, we've kept up an unrelenting focus on customer needs, ability to work closely with last-mile factors that drive end-to-end productivity and profits, using our deep domain expertise in manufacturing.”

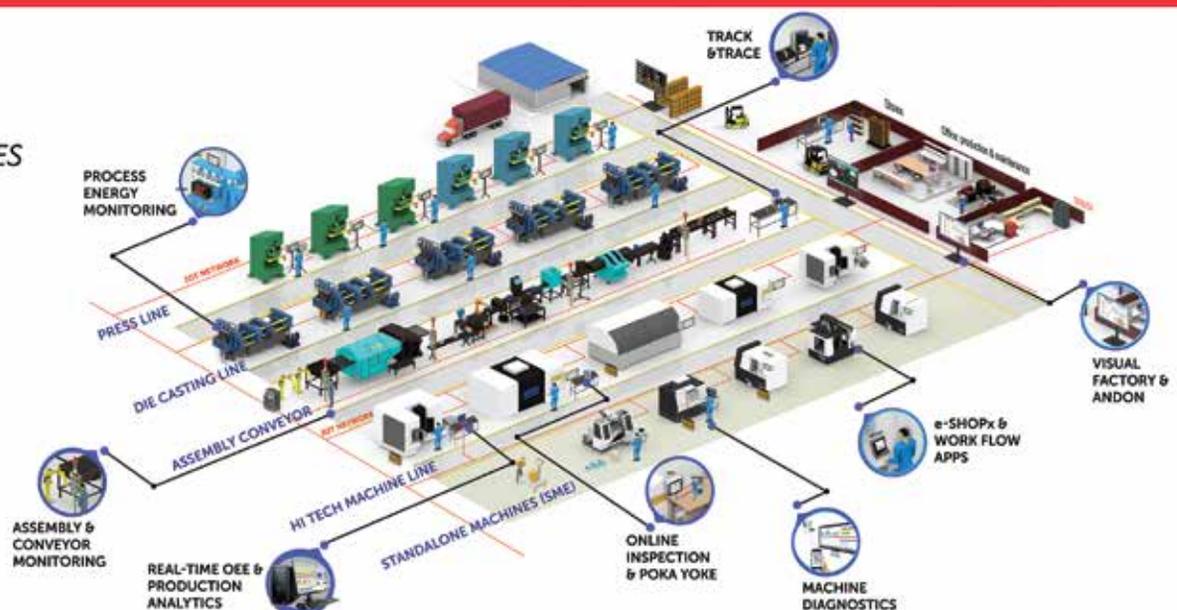
Madhusudan Kestur

Director

AceMicromatic Manufacturing Intelligence Technologies Pvt. Ltd. (AmiT)

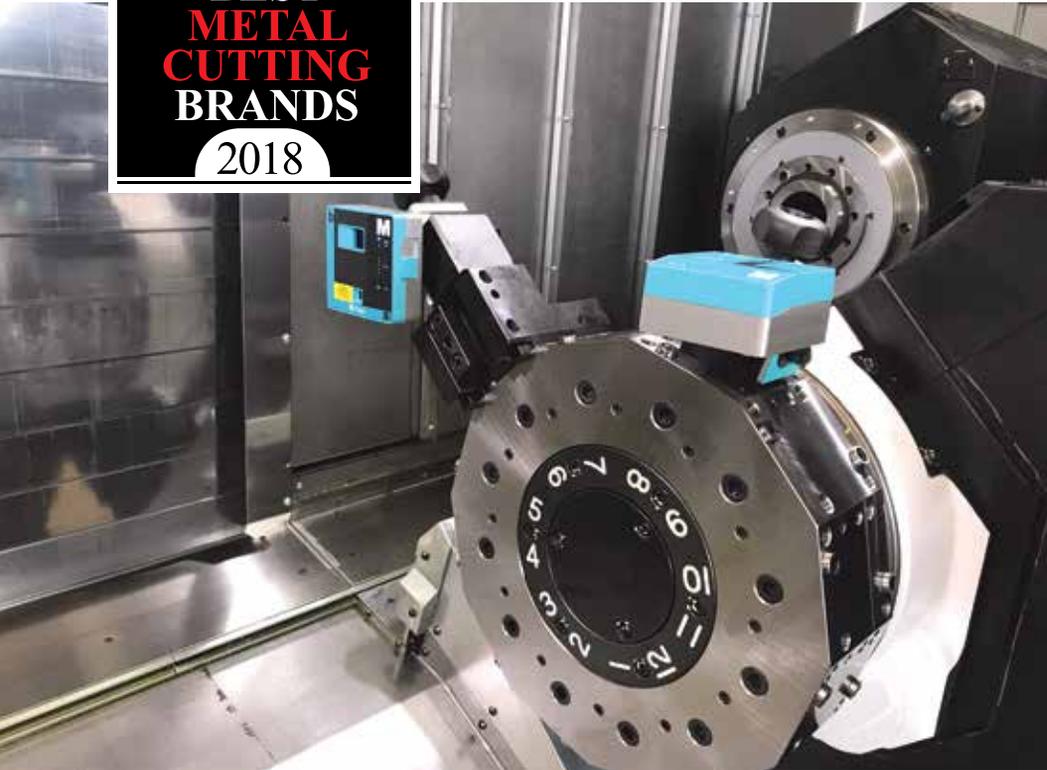
ENABLING YOUR INDUSTRY 4.0 & IoT INITIATIVES

OUR LATEST GENERATION CNC MACHINES FROM ACE, AMS & MGT ARE NOW IoT ENABLED





METROLOGY SOLUTIONS



ENHANCED MACHINE GEOMETRY CHECK SYSTEM

LATEST PRODUCT

MEAX MT30 is a specially designed measuring system for conducting checks of the geometric status of machine tools in a short time and with high accuracy. The instrument measures the geometry of the machine's movements in a number of simple steps using the various applications that appear in the display unit. Meax MT30 contains five measuring sensors that are all connected wirelessly to the display unit in which all measurement results are calculated and presented immediately to the user. The results of the measurements are presented both graphically and numerically for a simple assessment and can be stored in the memory on the display unit. A measurement report with all measurements in a machine can be created in PDF format directly in the display unit, or the results can be exported using a USB stick for further documentation.



A COEM Group works with innovations in the fields of products for efficient operation and maintenance of machineries. It has launched a dedicated brand for machine tools measurement and geometrical calibration system.

ACOEM Group through its various brands – OneProd, Fixturlaser, Ecotech, 01dB, Metravib offers innovative products for various applications in the complete industry spectrum.

The MEAX product line brings to the table more than 30 years' of machine measurement experience with the introduction of these user-friendly devices for faster and accurate measurement.

The ACOEM Group provides sustainable solutions to help companies and public authorities limit their environmental impact by offering products and services that:

- Increase the productivity and reliability of industrial machinery
- Prevent and control air, noise and vibration pollution
- Contribute to the development of effective, robust & noiseless products



We are looking to collaborate, develop and partner with companies looking to put in place a process at par with international manufacturing standards. On a larger scale our company is eyeing to integrate the latest technologies from the ACOEM Group basket within the Indian manufacturing sector. We have received overwhelming response from our customers and we are poised to emerge as key player in Indian market in next five years.

Samir Sabnis

Managing Director
- India & Middle East,
ACOEM Group



- Protect soldiers, sites and vehicles in military theatres of operation

The group has 670+ employees at their offices and subsidiaries in 17 different countries around the world. Together with a distributor network in over 150 countries, the ACOEM Group can provide local presence, high level of support and customer service.

MEAX is an innovative solution that unites the use of new sensor technology, which is wirelessly connected to handheld display unit with a unique user interface especially for machine tools.

The MEAX system quickly determines if the machine is in correct geometric condition following the procedures described in ISO-standards. Documentation and measurement reports are generated



on-site and stored in a database to analyse historical data with present geometric status to predict and plan maintenance activities.

Having control of the geometry condition results in:

- Increased quality of produced parts
- Increase tool economy
- Increase machine efficiency – LCP, Life Cycle Profit
- Reduce time for rigging and adjustment
- Reduce unplanned maintenance stops
- Reduce the need for post-process measurements

The compact and flexible MEAX system is delivered in robust roller cases making it easy to transport and handle even at tough work-shop environment. No need for special tools, mandrels, granite squares, complicated and sensitive measuring instruments which requires delicate handling and special transport procedures.

MEAX systems are used in

- Manufacturing /overhaul
- Acceptance test
- Check before end of warranty period
- Periodic maintenance check
- Check after collision/crash
- Relocation (before/after)



MACHINING CENTERS



EXCELLENCE IN GRINDING

CASE STUDY

Alex Machine Tools was challenged with the task of developing a flexible yet highly robust and automated solution for grinding a variety of sizes of brake disks for commercial motorcycles. The team developed a completely customized vertical double disk grinding solution with automatic load, unload, dry and stack system, the 'First' solution of its kind developed in India.

The focus was on a target cycle time of 30 seconds, user friendly operation of the machine, hands free cycle, 24 x 7 operation, CBN grinding to eliminate dressing and a component ready to package at the end of the cycle.

The solution was successful, accuracies achieved, and the customer is producing parts as per the target.



Alex Machine Tools Pvt. Ltd. was founded in 1964 by Alex Lobo - a visionary, who was the first to design and manufacture Surface Grinding Machines in India. At that time, imports were not available and machine tool makers had to design and build inputs as well as machines. He grew the Company to be the leader in the design and manufacture of high precision surface grinding solutions, with machines successfully operating in more than 20 countries. Clients are leaders in major engineering sectors. Today, over 5000 Alex grinding solutions are in successful operation.

Alex offers a comprehensive range of surface grinding machines - from reciprocating hydraulically operated surface grinders to high power rotary surface grinders to precision double disk grinders to special purpose grinding solutions. This includes a wide variety of sophistication including CNC controls, automatic in-process and post-process gauging and material handling automation, depending on the customer's need and application. To quote founder Alex Lobo's mantra, "We sell less to sell more - Our comprehensive full line allows us to offer our customer exactly what he needs, no more. This value keeps him coming back for more."

Today, the Company is under the capable leadership of Vernon Pontes and Nisha Lobo who are focused on propelling Alex as a



www.alexmachinetools.com



world class brand of machines that customers the world over are proud to own. Both bring years of global experience to the business. Nisha has a Masters in Machine Tool Design from Cornell University, USA. Vernon is a Business program graduate from Harvard University, USA. Both have grown multi-national companies globally before taking over the reins of the family business. With a focus on growth, global vision, commitment to technology, highly dedicated team they have come to know as family and a unique work culture - this family owned company is carving out its niche in the global grinding space.

Over five decades, Alex Machine Tools has developed a reputation for precision, accuracy and reliability. With rich experience in flat and profile grinding application engineering, the Company has a proven solution for almost every component requiring grinding. Developing turnkey solutions including configuration, grinding parameters, type of cycle, wheel and coolant selection, etc. for maximum quality and production is a strength that has grown with decades of application engineering experience. Alex is the first to develop twin spindle rotary grinding solutions in India complete with fixturing and gaging for several applications. It is the first in India to develop and install several multi spindle profile grinding solutions for the ferrite industry. It is also the first to develop automated gaging and dressing compensation as part of the grinding cycle in their double disk grinding line - a feature that allows superior process capability results.

Quick to respond, 'Best in class' technology, and an ability to provide experienced after sales service from the field and factory, Alex is now aggressively pursuing turnkey solutions that in the past have been fulfilled only by imports. Recent developments include four, seven and ten axis CNC grinding solutions completely integrated with the customer's production line.

Alex Machine Tools has a passion for innovation and with a dedicated, capable and highly motivated team, will continue to advance and stay ahead of the technology curve.



"Our products, design, manufacturing and service have to be 'Best in Class'. Today, our customers expect a grinding solution, automation and Industry 4.0. Through FEA and state of the art design technology we are able to optimize designs, reduce prototype iterations, and develop new models at a pace we have never done before. From robotic work piece handling to hands free pick and place, to in-process and post process gaging, our vision is to engineer grinding solutions that can scale globally.

We will continue to expand our range and develop turnkey solutions for key markets. We believe this strategy will support our growth plan and our global vision.

We are very excited about the future of Alex Machine Tools, both domestically and globally. Today, customers from Europe, USA, Japan are not only looking to India to set up operations for local supply and distribution, but also looking at equipment made in India that is able to be moved around their plants anywhere in the world. This has been a significant challenge and opportunity for us to become a world class Company.

I sincerely thank our customers, employees, and all other stakeholders for their trust, commitment and support in shaping the Company to be on the cutting edge of grinding technology."

Nisha Lobo

Director

Alex Machine Tools Pvt. Ltd.



HELPING CUSTOMERS WIN!

BLASER PRODUCTIVITY TROPHY – LIQUID TOOL BECOMES A SUCCESS FACTOR!

As a part of our global company philosophy, we have committed ourselves to work with customers in manufacturing with an aim to execute the projects on different dimensions of productivity and add value through our unique Liquid Tool.

Blaser Productivity Trophy was created all across the globe, wherein we honour the customers for the highest demonstrated added value (mutual success) in five categories. In the selection of the 3rd edition awards in India, were those customers, who were willing to document their achieved added value through collaboration with Blaser Swisslube in 2017 and 2018.

A glimpse into these awards – Tool optimisation @ M/S Bajaj Motors Ltd.

Tool costs were saved and improved surface quality was achieved. The investment paid back in a month's time and generated an annual net saving of almost INR 5.6 million.

Total costs of ownership @ M/S Carbide Cutting Tools [OSG (India) Pvt Ltd].

Reduced cycle time and a 12% productivity increase were accomplished along with annual savings of INR 14 million.

Metalworking fluid optimisation @ M/S Highway Industries Ltd.

Improved sump life, coolant stability and substantial reduction in tool cost trump up. The optimisation achieved an annual saving of INR 1.1 million for 23 machines.

Productivity increase @ M/S Mahindra Vehicle Manufacturers Ltd.

The cycle time was reduced by 15% (from 10 mins 30 secs to 8 mins 56 secs). Like that Mahindra saved INR 3.6 million. Furthermore, the accuracy in machining cylinder blocks improved by more than 33%.

Process optimisation @ M/S Cummins Technologies India Pvt Ltd.

The central system of 120,000 litres is running smoothly with excellent corrosion protection behaviour, a good cutting performance and reduced rejections. Blaser helped as well to train Cummins operator's in good coolant monitoring practices.

All five cases prove the importance of the right coolant and the tailored customer service of a competent coolant partner. All customers are eager to continue and expand their cooperation with Blaser Swisslube. The contest will continue in the future and Blaser Swisslube India is looking forward to improve more machining processes with their Liquid Tool.

Blaser Swisslube

Blaser Swisslube develops, produces and sells high-quality metalworking fluids. Using Blaser's metalworking fluids, customers all over the world successfully produce a range of parts – tiny parts for the watch-making industry, demanding parts in the medical industry, huge structural elements for the aircraft industry and mass produced critical automotive parts.

The independent and family-owned Swiss company was founded in 1936 and has since grown from a small business into a global player leading in technology. Since the foundation of the company, the requirements of the market and the products' best possible compatibility for people and the environment have always been the driver of Blaser Swisslube.

Blaser Swisslube India

The Entry to the Indian market was a unique affair: A new automotive plant belonging to the Indian industry giant TATA was equipped with the very latest machines and the manufacturer recommended the use of Blaser metalworking fluids for production operations. That was



in 1998 and defined the beginnings of Blaser Swisslube India. This was followed in 2001 by the founding of a subsidiary, Blaser Swisslube India, with its head office in Gurgaon.

The Liquid Tool by Blaser Swisslube

Productivity, cost-effectiveness and processing quality are factors that critically depend on the selection and quality of the metalworking fluid. With our extensive machining know-how, customized services and technologically advanced products, Blaser Swisslube can help customers to fully capitalize on the potential of machines and tools and to convert the metalworking fluid into a key success factor – a Liquid Tool.

The Blaser Swisslube expertise

Blaser Swisslube created optimum conditions for simulating and testing the latest machining technologies in its in-house Technology Centre in Switzerland. The Technology Centre is unique in the industry and its where we develop and test the latest metalworking fluids.

Blasocut Bio-Concept

It is a global requirement for all manufacturing organizations to contribute towards a greener planet, either due to global regulations or self-consciousness towards the environment. Blaser Swisslube has designed Blasocut, a water-miscible metalworking fluid, which works in harmony with nature. It allows the colonization by specific, waterborne bacteria (termed “primary bacteria”) that push back all other bacteria by consuming the available nutrition, which limits their own growth as well. The result is long-term emulsion stability, process stability and one of the safest formulations in the world.



Liquid Tool – Our way of life!

India is a growing economy and manufacturing has been growing well with good prospects over a long term. It looks bright, however there is a challenge of competitiveness in the market. Low cost competitiveness is eroding.

The Manufacturing Industry is realising that investment in technology is required to succeed and to keep the winning edge.

The Team of Blaser India is passionately driving with a committed approach to help our customers in building sustainable business. This means increasing the competitiveness in manufacturing through many different dimensions. Like Productivity, Machining Expertise and serving with tailored on-site customer service.

The Leverage effect - It is fascinating to see the positive impact, which can be brought by little investment in the area of metalworking fluids. Blaser Swisslube has been able to demonstrate this dimension very well over the years.

Providing added value through our Liquid Tool approach has become our way of life!

Punit Gupta

Managing Director
Blaser Swisslube India



METROLOGY SOLUTIONS



FOCUS ON PRODUCTIVITY

HIGHLIGHTS

From a one-man engineering office to a technology and global market leader in just 50 years - a rare occurrence even in Germany. Blum-Novotest GmbH has achieved this not only through hard work but by being innovative, intelligent and diligent.

The brand-new laser measuring system "LC50-DIGILOG" for tool measurement and monitoring in machine tools is an excellent example for the innovativeness of the company: By providing thousands of measuring values per second, the integrated DIGILOG technology now makes tool measurement 60 percent faster, more precise, extremely in-process reliable.

Users will also profit in the future from new, ground-breaking applications. These include the i.e. the 3D ToolControl software, which enables continuous digilog-based contour measurement of tools – including the visualisation on the control screen. Or the new 'SpindleControl' technology cycle, which can be used to record and evaluate the state of a spindle bearing.

Precision in the engineering, aerospace and automotive industries is one of the most important quality factors and therefore a vital parameter for success. Software-assisted detection of broken tools and tool wear, along with exact measurement of work pieces during the manufacturing process are gaining increasingly in significance. The German company Blum-Novotest provides innovative and high-grade measuring and testing technology for this purpose.

Established in 1968 and based in Ravensburg, Blum-Novotest GmbH is one of the world's leading manufacturers of high-quality measuring and testing technology for the international machine tool, aerospace and car industry. Today the family-run company employs more than 550 staff at a total of 18 sites worldwide. Together with specially trained system integrators and regional sales offices, this sales and service network guarantees comprehensive support for BLUM products in use worldwide.

The company is split up into three business divisions. In the "Measuring Components" division Blum-Novotest develops and manufactures tactile and optical measuring systems. In machine tools



“In 1968, when Blum-Novotest was founded, my father had the vision to combine innovative mechanical engineering with electronics to design new and much more efficient machines. The initial vision, complemented by software technology, best service and application support, remain the key factor for our strategy. “focus on productivity”, your productivity, that is what Blum-Novotest is standing for in a time when you and your customers are facing more and more the challenges of global competition. As a reliable partner to you, we are following our guideline of keeping highest quality standards at competitive prices. We support you in the optimisation of your processes to put you in the position to provide highest quality at competitive prices to your customers.”

Alexander Blum
President of Blum-Novotest GmbH,
Germany

you can measure workpieces and tools under roughest conditions precisely and reliably, while guaranteeing a constant production quality coupled with minimum downtimes. The offer encompasses laser measuring systems and probes for tool setting and monitoring, touch probes for workpiece and tool measurement as well as sophisticated software for comprehensive production control in the original setting. The state-of-the-art system generation provides measuring accuracy of less than a micrometre (thousandth of a millimetre). The measuring technology supports customers in many industrial sectors to boost productivity of their production operation along with improving the quality of the manufactured products.

In the second business division, “Measuring Machines”, the company develops and produces measuring machines, in particular for the global motor-vehicle industry. Integrated into manufacturer

production lines they take a close look (in the μm range) at a wide range of components, using state-of-the-art tactile and optical measuring systems, and they can even be equipped to perform non-destructive testing for open-surface material blemishes and cracks (Eddy-Current Testing). Automatic testing equipment is used in high-volume and series production, for example in the manufacturing of wheel hubs, torque-converter housings or brake disks.

The development, manufacture and sale of complicated function, performance and service-life test stands forms the basis for the third business division “NOVOTEST Test Engineering” located in Willich in the north of Germany. The scope of supply and services incorporates planning, design and construction as well as the integration into customers automation systems. Customers include renowned manufacturers from the aeronautics and motor-vehicle industries, mechanical engineering and the hose industry.





ABRASIVES, ELECTRO MINERALS & CERAMICS



MAKING MATERIALS MATTER

NEW DEVELOPMENT

As the manufacturing industry has matured, it has challenged us to keep learning and developing products that support the trends – precision, evolving component surfaces, productivity and lower costs.

Machine speeds higher than 80 meters per second have always posed a challenge both to the grinding wheel manufacturer and to the user. The result of a CUMI research on this subject is a two-system grinding wheel (Fero Grinding wheel) with a solid fibre core. The specially treated core is strongly bonded with thermosetting resins and glued to the parent ceramic bonded grinding wheel.

The newly-developed FERRO two element grinding wheel has achieved the following

- High bursting speeds of 200mps+ that allows a conventional grinding wheel to be operated comfortably at speeds of 125 mps.
- Reduction of wheel weight to the tune of 20-30%, depending on the usable diameter of the wheel. This is a significant achievement as this reduces the idle power of the grinding system and also provides for easier mounting of the grinding wheel.
- Lesser vibration in the grinding wheel, as a result of better mass distribution in the grinding wheel.

CUMI is part of the Murugappa group since 1954. It was incorporated as a tripartite joint venture between Carborundum Co., USA, Universal Grinding Wheel Co. Ltd., U.K. and the Murugappa Group. Since its inception, CUMI stays committed to serve the manufacturing industry by building capabilities in the material science space to address a diverse range of engineering products – emerging as a key player in India’s growth story.

The company pioneered the manufacture of Coated Abrasives and Bonded Abrasives in India in addition to developing capabilities in the fields of Super Refractories, Electro Minerals, Industrial Ceramics and Ceramic Fibres. Today the company’s range of over 20,000 different varieties of abrasives, refractory products and electro-minerals are manufactured in over 25 locations across India and the world.

CUMI has a leadership position in the Abrasives and Electro Minerals business – having fully integrated operations – from mines to end product. In the Ceramics and Super Refractories business, the company has been producing niche, customized products, as per market trends, with a dominant portion of its sales coming



www.cumi.murugappa.com



from exports.

Today, the company believes and works towards sustainable development. In line with CUMI's sharpened purpose of Making Materials Matter we make and offer products to improve productivity, quality and sustainability in the industry.

CUMI has over 25 manufacturing locations across India, Russia, South Africa, Australia and Thailand across its various divisions.

In Abrasives CUMI has a capacity to produce 20000 MT of Bonded Abrasives spread across its manufacturing plants in Chennai –custom built, Hosur – standard vitrified bonded abrasives and in Roorkee –Thin Wheels for the distribution market. It also manufactures about 4000 tons of abrasives for the Russian market in Volzhsky, Russia. The Coated Abrasives plant in Sriperumpudur has a capacity of 16 Million Square Mts, producing a broad range of Alumina, Silicon Carbide and Zirconia based Paper, Cloth and Fibre backed products in various forms - Sheets, Rolls, Belts, Discs, Flap Discs and Mops.

CUMI has also developed capabilities to produce a number of important adjacencies for the market, such as the Non-Woven products – industrial and home care, Power Tools for a variety of applications and Metal Working Fluids for grinding as well as for machining applications.

The Electro-Minerals Division has manufacturing facilities in Russia, India and South Africa. The Volzhsky Abrasive Works plant located in Volzhsky, Russia produces 80000 tons of Silicon Carbide. The fusion plants based in the state of Kerala India produces grains that are used to manufacture abrasives, refractories as well



“CUMI's various business units are focussed on creating capabilities that further the Company's vision of Making Materials Matter. Whether by Engineering Surfaces in its Abrasives Division, or addressing the materials challenges of Surface Engineering, Energy and Environment, or pushing boundaries in the functional ceramics space in its Industrial Division – CUMI is Engineering the Future.”

Ananthashan N

President

Abrasives Business, CUMI



as a range of other applications. It has a total capacity to manufacture 20,000 TPA of Brown Fused Alumina, 10,000 TPA of White Fused Alumina, 11,000 TPA of Zirconia and 5,000 TPA of Silicon Carbide. CUMI has also invested in facilities to produce a wide range of High Performance friable, semi-friable and ceramic grains and micro-powders for specialized applications.

The joint venture facility, Foskor Zirconia, in South Africa produces about 5000 tons of Fused Calcia Stabilised Zirconia and Monoclinic Zirconia for the steel refractories and ceramics industries.

The Ceramics Division has its footfall in Hosur, Tamil Nadu. The Hosur facility has the capability to produce a range of customized wear resistant products for coal washeries, mining and power industries and metallized ceramics for the high voltage electrical transmission supported by advanced manufacturing facilities including robots in the manufacturing and inspection lines.

The Ranipet facility houses the Super Refractories and Prodorite businesses – providing thermal, wear and corrosion lining solutions to the power, steel, cement and a host of other industries as well as producing complex, pre-cast composite products for industrial applications. Another plant for producing castable refractories is located in Jabalpur, Madhya Pradesh.



PRECISION & BEYOND

MADE IN INDIA FOR THE WORLD

Carl Zeiss started assembly of CMM machines in India in the year 2012. Machines assembled in India follow the same processes and same quality as coming out of any other global assembly facility of Carl Zeiss.

Three models are currently produced in the India assembly line – Contura G2, Spectrum 2 and CONTURA. The India assembly setup is located in Bommasandra, Bangalore.

Initially what started as an operation to serve the Indian market with small volume entry level machines, has today grown into a multi model production and assembly line serving around 15 global markets as varied as Thailand, Korea, Mexico, Brazil and Russia. Approximately 50% of the overall production gets exported out of India.

ZEISS is an international leader in the fields of optics and optoelectronics. ZEISS has been contributing to technological progress for 170 years – with solutions for the semiconductor, automotive and mechanical engineering industries, biomedical research and medical technology, as well as eyeglass lenses, camera and cine lenses, binoculars and planetariums.

The broad portfolio of the ZEISS Group encompasses six business groups and various strategic business units. The ZEISS Group develops, produces and distributes measuring technology, microscopes, medical technology, eyeglass lenses, camera and cine lenses, binoculars and semiconductor manufacturing equipment. With its solutions, the company constantly advances the world of optics and helps shape technological progress.

ZEISS is divided up into the four segments Research & Quality Technology, Medical Technology, Vision Care/Consumer Products and Semiconductor Manufacturing Technology. The ZEISS Group is represented in over 40 countries and has more than 50 sales and service locations, upwards of 30 manufacturing sites and about 25 research and development facilities around the globe.



www.zeiss.co.in/imt



Journey in India

ZEISS in India is head quartered at Bangalore and is present in the fields of Industrial Metrology, Microscopy, Medical Technology, Vision Care and Sports & Cine Optics.

Carl Zeiss Industrial Metrology is a leader in CNC coordinate measuring machines and complete solutions for multidimensional metrology and production. The company is a recognized partner to the automotive, aerospace, medical industries and its suppliers.

ZEISS India started as a pure sales unit twenty years back and has developed into a full scale representation. It includes, an R&D centre, 3 production facilities, Competence centers at various cities, Global IT services, and 30 Sales & Service offices in almost all Tier I and Tier II cities in India.

The offering encompasses bridge-type, horizontal-arm and inline measuring machines, non-contact 3D Scanners, form, contour and surface measuring machines. All relevant modules, such as controllers, software, measuring systems and sensors are developed and manufactured in-house.

New developments

Recent new developments include a system to measure extremely small parts and a Computer Tomography for industrial quality assurance. DuraMax, a small CNC measuring machine and COMET Blue light 3D scanners, T-SCAN-laser scanners allows cost-effective entry into the ZEISS scanning world.



Customer centric and Value addition is our motto. ZEISS started its operations in India in the year 1998 and provide metrology solutions to its customers.

Assembly of Coordinate measuring machines in Bangalore offers customers a Value for money products with local sales, service and application support.

To be closer to customers, Competence Centers have been established pan India with state of the art machines, backed by application expertise to cater to industry needs. The competence centers are located in Bangalore, Chennai, Coimbatore, New Delhi and Pune.

Smart production, interconnectivity and communication between machines are offered to customers by deploying Industry 4.0, at-line, in-line and offline techniques. ZEISS promotes skill development & training both in Academia and Industry by offering courses for trainers.

Ravikumar Sirige

Divisional Manager

Industrial Metrology Division

Carl Zeiss India (Bangalore) Pvt. Ltd.

ZEISS offers measurement services in Contact, Optical, Computer Tomography, Form, Surface, Contour, 3D scanning, Reverse engineering and AUKOM training. Automation and Industry 4.0 Data management services are also being offered.



MACHINING CENTERS



“YOUR PARTNER IN PROGRESS”

VISION & MOTTO

The vision of Cosmos is to be a trustful, innovative and technology driven company with robust manufacturing systems and capabilities to become customers’ partner in progress.

Cosmos wants to partner in India’s growth by providing the latest and most optimal machine tool solutions required by the Indian industry.

It also aims to empower the manufacturing industry by imparting latest skills and training to young technicians and engineers.

By establishing world class manufacturing, and Cosmos looks forward to exporting its products to various countries and be a source for foreign exchange for the country’s economy.

The company believes in building relationship both internally and externally and it is committed to protect Health & Safety of its employees and community where it operate.



Established in year 1987, Cosmos Impex India Pvt. Ltd. has grown from a start-up to a small group enterprise comprising of interest in CNC machine tools, accessories, precision component manufacturing, as well as in Industry 4.0 and digital factory enabling software.

Established with the philosophy, ‘A Partner In Progress’, driven by a strong team of over 600 employees with HQ situated at Vadodara and 18 branch operations across Pan India.

The company’s main products are vertical machining center, surface grinding machines, special purpose machines, hydraulic turrets, CNC rotary tables, precision machine components and digital factory software.

Cosmos enables Indian manufacturing by catering to various Industries like die & mould, automobiles, aerospace, power & steel, 3C, infrastructure, medical and various precision machining application.

The Company brings to its customers the latest technology by participating with International companies who have long experience



www.cosmos.in



and expertise. It also imports state-of-the-art machines to fulfill the designing needs of our nation.

Highlights

Cosmos has its manufacturing locations spread across 250,000 sq ft equipped with in-house machining and assembly, infrastructure, powered by latest manufacturing systems.

It is equipped to produce over 1,200 machines of various models per year and over 100 surface grinding machines and special purpose machines.

The company's machine tool accessories division is equipped to produce over 5,000 turrets and 500 rotary tables annually.

The Gujarat government had recognized Cosmos as BEST MSME Entrepreneurship, and has bestowed us with the award as the most promising MSME in Gujarat.

Cosmos' machine tool division has catered to very prestigious MNC companies who are into manufacturing of turbine-blade, tur-



“At Cosmos, our team provides machining solutions to a broad spectrum of industries like job shops, die-mould, automotive, infrastructure, medical and aerospace application. We provide a wide range of technologies from the simplest to the most complex so that we can be the most trusted partner throughout the growth journey of our customers. The most optimal solution that we provide and ensure is their continued profitability and growth. With a major thrust in manufacturing and technical collaboration with the reputed international brands, we are committed to make our country self-reliant in key technologies that would result in a robust and stable economic growth.”

V. Nagesh

Director

Cosmos Impex India Pvt. Ltd.

bo-charger-impeller grinding and have exported to countries like Mexico, China, Germany and many more.

Coupled with the company's imported products division, it is a one-stop shop for any machining solution in India.

It has numerous installations of high tech and multi axis machines for medical implants and has also helped customers to absorb latest technology.

Cosmos has various installations at turbine, bearing, and energy factories like Alstom, Leitner Shriram Manufacturing Ltd. Voith, Suzlon, Toshiba, & Jindal steel, Sunflag Steel, Bhushan Steel, Siemens, Rothe Erde, SKF and many more.

The company is in the process of expanding its manufacturing capabilities and capacity manifold in the next five years' time line. It is establishing a Greenfield facility over 10 lakh sq ft to cater the rising needs of its customers. Cosmos is also buying new products and technology by building long term association with world renowned companies.



MACHINING CENTERS



MACHINE GREATNESS!

5-AXIS MACHINING CENTER

The DVF 5000, Doosan Machine Tools' next-generation 5-axis compact machining center, offers a diverse range of tailored options, automation, and maximum convenience, enabling unmanned machining. The machine can be fitted with 12000 r/min direct-connected and built-in spindles as optional features, while the built-in spindle offers a maximum speed of 18000 r/min, making it suitable for high-productivity machining of diverse workpieces. The table is designed for user-friendliness and consummate work efficiency, and the addition of supports makes it possible to machine workpieces weighing as much as 400kg with great power and precision.



Doosan Machine Tools started its business as a Daewoo Group's Daewoo Heavy Industry Machine tools business in 1976 and built its Changwon factory, Korea by 1979. Production of our first 1,000 units was achieved in 1980 after the introduction of the PUMA 10 series which was developed using our exclusive technologies. Beginning in 1981, we pioneered the global market and achieved high-growth by reaching production of 10,000 units in 1990 and surpassing aggregate production of 50,000 units in 2000. By integrating the separate machine tools businesses of Doosan Machine Tools and Doosan Mecatec in 2007, we have not only increased our competitiveness in the global machine tools industry but have laid the foundation to become the Global Leader.

Doosan Machine Tools has grown exponentially over the past 40 years. The company continues to expand its reach across industries and geographies by studying and partnering with dealers and customers.

Doosan Machine Tools is a specialized machine tool manufacturer. It is equipped with a line-up of 370 Turning Centers / Machining



Doosan Machine Tools

www.doosanmachinetools.com



Centers developed with its own technological process. It has global production capacity of 17,000 units.

The company's bestselling machines include Lynx, PUMA, DNM and Mynx series. The company is proud to have achieved a single model sales volume of 30,000 with constant market communication and devotion to product development in accordance with customer needs.

Doosan Machine Tools enjoys the largest market share in Korea, Italy and South Africa and second largest market share in the UK, Turkey and Australia. Moreover, on the parameter of market share, the company is amongst the top 5 in other major countries such as the United States, China, India and Russia. Globally, it is amongst the top 5 seller of Turning Center / Machining Centers.

Manufacturing edge

In all, Doosan Machine Tools has three manufacturing facilities located in Korea and China. The company's headquarters in Korea produces machines for the global market whereas the Chinese factory manufactures for only China market. Due to growing demands in China, the company has expanded its product line-up by 40 models in the country. In addition, Doosan Machine Tools has increased its reach across the globe and has 164 dealers in 63 countries across Asia, Europe, America and the rest of the world.

The company runs the largest R&D centre in the country playing central role in the development of machine tools technologies with the help of customer oriented product development system. Also, to identify customer's needs, the company operates the Optimal Solution Center such as demo cutting, suggestion cutting condition



We aim at enhancing our efforts to develop products for our clients & come up with solutions & response systems suiting their needs.

We are looking at laying groundwork for continuous corporate growth through -- implementation of growth strategies tailored for each region, enhancement of our competency to respond to our customers' needs, and upgrade internal capabilities to make continuous improvements in quality & customer service. Through these efforts, we aim at emerging as one of the top 3 companies in the world in the metal cutting field.

We have been one of the earliest foreign Machine Tool Builders to enter India in mid 80's. Since then, we have grown strongly along with customers. Having installed around 5,500 machines in India, Doosan Machine Tools has become a preferred choice of customers. With a sales & service network spread across 16 industrial cities, Doosan Machine Tools India is gearing up to meet the customer's changing needs.

Youngsam Kim

Director – India Operations

Doosan Machine Tools India Pvt. Ltd.

and machining solution.

Apart from the machines, Doosan Machine Tools provides its customer integrated services ranging from technical assistance to on-site services, part supply and training. It fulfils needs of its customers across the industries in major markets around the world. Usually, the company introduces market leading products through DIMF (Doosan International Machine Tools Fair, factory open house) and all major global trade fairs of the industry.



CUTTING TOOLS



COMPLETE TOOLING SOLUTION

PRODUCT RANGE AND STRENGTH

Totem's latest introduction of long oil hole series for crankshaft oil hole drilling placed against best brands internationally with very big success & customer voice in value for money & reliability. Totem's introduction of difficult to machine material tapping application is first by any Indian company.



Forbes & Company Limited engineering division is manufacturer of high precision cutting tools under the brand Totem and manufacturer of laser marking, traceability and industrial automation solutions for automotive & non automotive sector.

Totem is leading manufacturer in round cutting tools in high speed steel & carbide. The product range of Totem includes threading taps, drilling & milling tools, carbide burs & high speed steel drills for automotive, die and mould, aerospace & medical application specific solutions.

Totem has two ISO 9001-2005 certified state of art manufacturing facilities in Mumbai & Aurangabad supported by design & application centre. All products are produced conforming to different international standards example DIN, JIS, ANSI and ISO. Complete manufacturing & customer service are based on ERP system with complete batch/product traceability. All tools are produced from world's best steel / carbide producers to ensure customer expectation of performance are exceeded.

We have 50 years long relationship with our existing channel part-



www.totem-forbes.com



ners all over India supported through 10 regional offices with sales & application engineers. International coverage is supported by 50 plus distributors over 28 countries.

Our Product range includes High Speed Steel Taps, High Performance Taps, NIB Taps, Solid Carbide End Mills & Drills, Carbide



Our vision for the company is “To be a market leader by empowering customers with innovative solutions in precision cutting tools and industrial automation through world-class practices.” and we are continuously moving forward in that direction. We have a comprehensive and complete portfolio of round tools enabling us to act as a one-stop solution to serve our customer. We always provide our customers an experience of product offering, services and technology which has helped us to increase market penetration in domestic as well as international markets. Customised solution is the driving factor, which helps us succeed over our competition.

Ravi Prem

Chief Operating Officer
Forbes & Company Limited,
Engineering Division



Reamers, High Speed Steel Drills, Tungsten Carbide Rotary Burrs, High Speed Steel Drills, Annular Cutters, TCT Annular Cutters, Centre Drills and Dies & Die Nuts. Totem offers product portfolio for Automotive, Defence & Aerospace application. We are the only Indian manufacturer to have exhaustive range of products in HSS Taps, Solid Carbide End Mills & Drills and special tools for special application. We are working with international customer for compressive product solutions in round tooling.



MACHINING CENTRES



ASPIRING TO BE GLOBAL TECHNOLOGY LEADER

GLOBAL FOOTPRINT

With a view to expanding international operations, Grind Master acquired SPMS, France in 2017 and took a major leap in European market. This opened many opportunities in Europe as well as in Americas. With this acquisition Grind Master became an Indian Multinational Group and looking forward to setting a global footprint in Superfinishing Sector.

Robotics is one of the most sought-after technologies across the globe. The demand for Industrial Robotic Automation systems is rising exponentially. The company has recently created separate business unit for Robotic Automation at its new facility at Waluj MIDC in Aurangabad. Grind Master is also in process of setting up new technology centre in USA which will work extensively in field of Robotics & superfinishing technology.

These actions resulted in getting orders from new customers around the globe. Some of them are Dunung Industries, Blackhawk Mexico, Act Robots USA and many more.

G grind Master is pioneer & leader in special purpose machines for Metal Finishing, Deburring, NANOFINISH and solutions including Robotic automation and Abrasives, providing total solutions for surface finishing requirements.

With over 4500 machines across 6 continents, serving a wide range of industries, we bring a world of experience of over 34 years in machine technology & process knowledge.

Grind Master competes with the best in the world. It constantly strives to exceed customer expectations with Innovative & trustworthy solutions. Grind Master accounts for 20-25% of all Indian Machine Tools Exports. It's the only established Indian Machine Tool Supplier to Global Automotive Companies like Renault Nissan & GM.

Wide range of metal finishing & deburring solutions: Along with its subsidiaries in China & France and Technology Centre in USA, GM Group has strong technology collaborations with over half a dozen leading companies globally. It's a key solution provider for Automotive, Aerospace, Foundry, Metal, Printing & Packaging & Education sectors.



We envision to become a global technology leader by fostering culture of enduring excellence and exceeding expectations through passionate & empowered people ensuring sustainable and inclusive growth.

GM is committed to become a global supplier of machines by providing latest Technology and Innovation.

Mohini Kelkar

Director, Business Development
Grind Master Machines Pvt Ltd



Grind Master Culture

Based on core values of Innovation, Passion, Expertise and Trustworthiness, Grind Master Team Loves Building Machines. The often-said statement is 'We eat sleep dream machines'. This is reflected across the company's culture. With strong commitment to Quality with a simple policy '100 - 1 = ZERO', the Grind Master team is geared to exceed customer expectations with its solutions.

Employee Engagement levels in Grind Master are fairly high, due to the challenging nature of work and management philosophy of inclusive growth. Opportunities for Vertical growth within Business Units, Horizontal Growth with committees, etc. motivate team members to grow in performance. There is intensive training and mentoring for everybody with 50 hours/man/year achieved consistently for the last 3 years. Several initiatives including Sports clubs and CSR engage not only employees but also their families.

Manufacturing capabilities

Grind Master Machines has world class set up for machine tool building. The company has 5 Business Units and one Manufacturing Unit spread over 17,000 Sq mtr. These business units cater to specific range of machines with dedicated design, stores, assembly, quality and support teams.



GM Group started with Metal finishing & Deburring solutions for metal & cookware industries. Today, it delivers specialized solutions for NANOFINISH range of machines for Automotive, Aero-space industries. The group has firmly established its presence in specialized applications using industrial robots delivering solutions for fettling of castings in foundry sector. GM is also contributing to 'Skill India' initiative by establishing Centre of Excellences across the India in collaboration with various government and private engineering institutions.

Moreover, Grind Master is the only established Indian Supplier to Global Automotive Companies such as SGM, SGMW, Great Wall and DPCA for Machinery. It started Machine tool export to China in 2008 and today the company holds 25% market share of Crank & Camshaft Microfinishing. Grind Master has supplied more than 16 Crankshaft Macrofinishing Machines to General Motors worldwide. The largest crankshaft microfinished on Grind

Master machine is over 3000mm long and weighs over a ton. The machines for Automotive Crankshafts have microfinished over 1 Crore Crankshafts!

In India, Grind Master is preferred supplier for the OEM's like TATA Motors, Bajaj, Renault Nissan, TVS Group and their Tier-1, Tier-2 suppliers. Today over 75% of vehicles running on Indian roads have components processed on Machines supplied by GM Group.



AUXILIARY EQUIPMENT



■ igus GmbH Headquarter: Cologne, Germany

METAL CUTTING



HIGHLIGHTS

igus® in use for machine tool industry for its lean, reliable and cost-efficiency - Save 50% weight, save 80% assembly time and save 95% harnessing time. Motion plastics development has been making huge leaps into previously untested areas. Some of our newest product families are low cost robots, light industrial assembly robots which are also in use at igus's own assembly factory. 3D printed wear parts which eliminate spare parts stock or machine downtime caused by manufacturing lead time. Smart plastics for industry 4.0 which eliminate unplanned down time. Intelligent high flexible cables, e-chains and linear bearings that tell you their expected life time in real time.



Fast assembly, longer service life, light weight from e-chains to bearings, as a motion plastics pioneer we move borders even if they are not always apparent at first sight igus motion plastics make motion easy all around the world.

Through technological progress over the years machines are growing ever faster & motion has become even more precise. Gunter Blasé a German engineer had a vision for solving, challenges with high performance polymers. His promise, “show me your problem part & I will find you the right solution” has been the motto of igus ever since. igus had humble beginning in a modest double garage in Cologne, Germany in 1964.

Over 50 years of tribo polymer research in the industry's largest test lab resulted in highly specialised materials, all based on the same thought - lower cost and longer life time. The philosophy of igus globally still reflects the same problem-solving approach and goes “the cheapest solution that works is the best solution”.

igus India is the wholly owned subsidiary of igus GmbH, operating in the Indian Subcontinent started in the year 1998 with its headquarters in Bangalore. With twenty years of existence in India and still returning double digit growth, igus will continue to invest in expansion both in facility and man power in the coming years.

Today, igus India has 160 employees and 30 percent more outside sales engineers added every year to be nearer to the customer with PAN India presence in over 20 locations. Huge local stocks ensure



www.igus.in



“Machine Tools are all about repeatable precision. We at igus focus our activities around the same, ‘consistent’ & ‘precisely what is needed’. When an Engineer anywhere would like to make a choice for his Energy Management or Motion Bearings requirements, our online life calculators sift through an array of test data evolved over 3 decades of continuous testing (avg. 10,000 tests per year). This is backed by an outstanding team of Engineers just a phone call away who will bring smart frugality that will ensure that ‘the cheapest solution that works is the best solution’.

A brand is built over years of honest and diligent efforts, wherein every single service aspect, be it the technical consulting, availability from stock or on-site support all must score a perfect ten. Our customer centric approach which is amply evidenced through our igus Solar System where the Customer is the center of our universe is the guiding light for all our activities in our attempt to continue to be a Brand that excels.”

Deepak Paul
Managing Director
igus (India) Pvt Ltd



■ igus India Headquarter: Bangalore

our products or service within a window of 24-48 hrs.

igus has grown as an outstanding brand providing solutions over conventional metallic components with specific advantages like maintenance free, lubrication free, corrosion free, ready to fit, easy installation, lighter weight, resistance to adverse conditions like chemicals, atmospheric conditions & other aggressive environments.

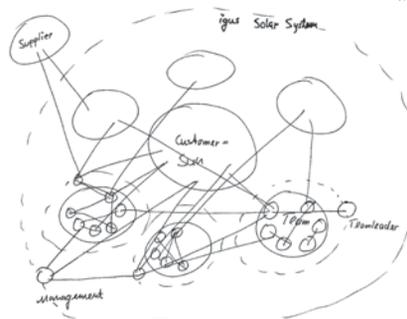
igus offers detailed technical literature and life time calculations based on real tests done in the igus laboratory over the years. On average, igus runs around 10,000 tests apart from customer specific tests in a year. igus continues to grow globally in stature and size as much as in vision & innovative products.

Today, igus globally has more than 3800 employees distributed between the head office in Germany and 26 subsidiaries globally. igus also has representative partners in another 36 other countries. The company has almost doubled the factory space from 23,000 to 43,000 sq mtr in 2018.

Today igus offers components & systems for machines from 16 distinct product categories. Its wide range of products including, e-chain systems®/Cable drag chains, High-flexible chainflex® cables, iglidur® polymer bearings, igubal® spherical bearings, drylin® linear bearings & guide systems among others enable us to serve all industry segments in the country.

The core of igus offering remains tested & proven reliability with predictable lifetimes. igus India has undertaken many huge turnkey projects in moving cable management system in industries like machine tools, material handling, power plants, mining, steel, ports, defence, automation etc including prestigious projects of our nation in astrophysics and Chandrayan Moon mission. 280 bulk handling equipment

have been installed with igus ready chain systems. Most of these have been retrofit projects resulting in huge productivity and safety improvements



■ igus solar system

Be it the 20,000 plus cranes running in India with igus energy chains or 6 million parts of our lubrication free dry-tech bearings that have been supplied to the automotive industry every month or the countless innovative solutions that we develop with our customers for machine tool all stands testimony to our commitment and global promise.



MACHINING CENTERS



GET SET GROW!

FOCUS ON INNOVATION

Since inception, Jyoti has consistently adopted innovation as the base element for growth and development. Its products have won many prestigious awards from renowned institutes. VMC 70 Liner was the first Indian machine to introduce and showcasing linear motor technology in CNC machine tools. Jyoti was the first one in India to take up the challenge of making CNC Oval Turning machine. Jyoti enjoys three consecutive wins of Golden Award from Quality Circle Forum of India.

The Company is first in India to build Multitasking Machines (MTX 300). MTX Series finds critical application for single piece components demanding both 5-Axis complex precise milling and precise turn-mill operations on single machine. Tachyon Series is another product for fastest drill-tap requirement. MX Series is another multifunction high flexible machine enabling Milling & Turning operation where roughing to finishing in one setup part clamping is made possible.

Huron primarily caters to aerospace, automotive, die-mould, general engineering segments. It is considered as pioneer for 5 axis machining technology. K3X8Five is most versatile 5-Axis machine with negative angle rotary table built with TRIM technology. KX Series is another demanding machine built with HSM concept. UMill Series machines are 5-Axis machines with portal structure and cradle mounted swivelling rotary tables.

With the mission of Propelling Technology, Prospering Life, Jyoti CNC Automation Ltd is committed to excel and enhance human life through technology since 1989. Today, it is one of the largest multinationals. It originated at Gujarat's industrial hub Rajkot and yet never restricted to any boundary in expansion. Jyoti acquired a 160 years old French machine tool giant Huron Graffenstaden SAS since 2007. Jyoti-Huron has a wide sales and service network across the globe making them real global player. At present, Jyoti has the widest range of CNC machines which is a perfect blend of simple to most complex machines starting from simple turning CNC machines to most advanced multitasking CNC machines finding applications from automobile to aerospace. Jyoti has a dedicated exclusive R&D center established to design and develop technologically advanced world class machines for the better quality, reliability & productivity. The company is passionate about its business growth and yet is embedded with higher human value taking care of every entity affiliated to it directly or indirectly. Being part of Indian manufacturing fraternity, Jyoti is committed to extend the best of its efforts for the development of the nation economically as well technologically. Jyoti is a market leader by bringing innovation and advancement



www.jyoti.co.in



in Indian machine tool sector. It is known as a path setter by setting-up many technological trends to embrace excellence cross the field. At present, Jyoti-Huron has 1,11,111+ successful installation globally and is serving the metal cutting fraternity with pride for prestigious clients such as Airbus, Audi, BMW, Boeing, Mercedes-Benz, NASA, Peugeot, Rolls Royce, Siemens, TAI, Volvo Aero and many more.

Jyoti has established manufacturing and machine building facility in five different plants, out of which three plants are located in India and two plants are at France with combined capacity to manufacture 5000 machines annually. The plants are equipped with world class infrastructure like state-of-the-art machine shops with modernised and technologically advanced machineries, environmentally controlled assembly shops, mechanised and non-polluting captive foundry, advanced sheet metal, fully automated paint shop and other allied infrastructure. Manufacturing excellence and backward integration have helped Jyoti grow vertically year by year through strong methodology, management and consistency of processes which provides the environment for achieving perfection through resource developed over a period of just 25 years.

Jyoti has imbibed the objective of designing and manufacturing technology driven and innovative machines with high grade quality. To fulfil the same, Jyoti has developed a well-versed and versatile Leonardo Da' Vinci R&D Center which is India's first dedi-



“The mission statement “Propelling Technology, Prospering Life” is much aligned with thought and adopted in actions. Our purpose leads to the advancement of technology in machine tool arena and thus contributing the comfort and enhancement to the existence of human life. We would like to be considered as the major contributor to the society economically and culturally. Technology is the way through which we would like to reach at our final goal. Nurturing technology is the answer to make our future and living comfort better. We treat campus as Temple of Technology than factory, where one can satisfy their thirst for knowledge.”

Parakramsinh G. Jadeja
CMD
Jyoti CNC Automation Ltd.

cated R&D facility for machine tools with a competent team of 120 design engineers and technocrats. This center is equipped with world class infrastructure and facilitated by resources such as latest software,

modern assembly shop, testing & validation stations loaded with equipment from world renowned manufacturers.

Jyoti is also the pioneer to establish the concept of Technology Centers in India. Presently, it has active tech centers at all major manufacturing hub across India. Jyoti is the first among the Indian machine tool manufacturers in adopting SAP R/3 ERP and SAP ECC 6.0. ERP helps Jyoti to accelerate the manufacturing process and at the same time to optimize inventory.

Jyoti has its direct presence for Sales and Service support located at more than 20+ major cities across India. Today Jyoti-Huron finds their presence in every continent. Huron is having two manufacturing plant at Strasbourg with strong sales network and service support all over Europe.



CUTTING TOOLS



PRECISION IS OUR PASSION

TECHNOLOGY UPGRADATION

When it comes to carbide technology, LMT has been working closely with its suppliers. This helps the company offer apt solutions for applications like steel, cast iron, stainless steel or exotic materials. The company has come up with new generation materials for the aerospace industry. Additionally, the company has established in-house coating team, which is constantly working towards new ranges of coatings to be brought in, e.g., nano-mold, nano-sphere, etc. Coating by and large is not enough on its own. LMT also has developed substantial technology from manufacturing perspective especially with respect to edge preparation, de-burring and host of other areas. Thereby, the company ensures the advancements in the substrate and coatings are translated and easily brought on to the material. One can easily witness these specific advancements in manufacturing technology upon visiting the company's plant in Pune or anywhere in the world.



LMT Tools is one of the most renowned specialists in the development and production of precision tools. The company's passion for precision ensures that industrial customers implement unparalleled quality at the interface between the machine and the workpiece, allowing them to offer excellent products.

LMT Tools is a part of the LMT Group, a German conglomerate having offices and production sites across the world. The LMT Group consists of the manufacturing companies LMT Belin, LMT Fette, LMT Kieninger and LMT Onsrud, as well as a globally active sales company.

At international production, sales and service locations, more than 1,200 employees at LMT Tools develop a wide range of precision tools – all the way down to the customer-tailored design of complex solutions. The company's portfolio does not only cover tools, but goes above and beyond to include things like cutting materials and a wide array of services.

LMT Tools India Pvt. Ltd is a 100% owned subsidiary of LMT Group. It is conducting business in India since year 2000. The



exactly yours

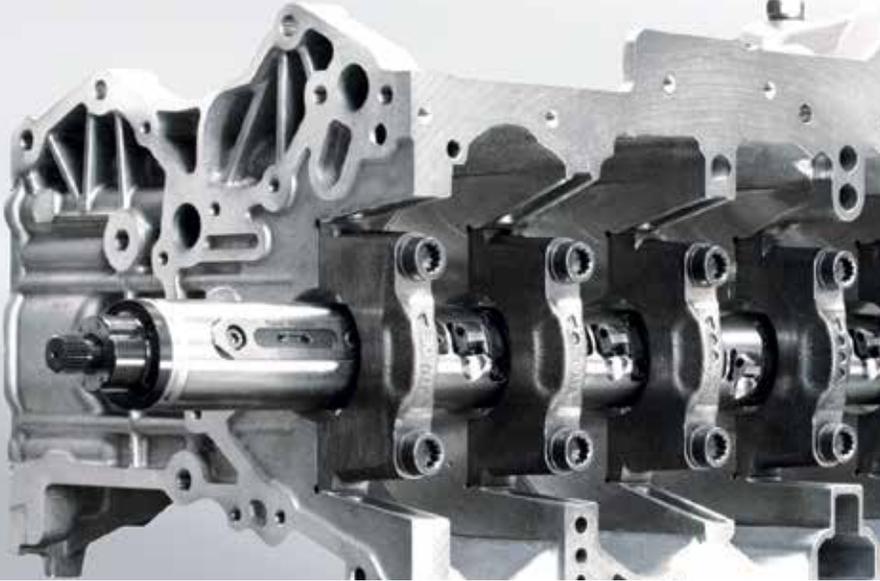
We always have the right solution for our customers' requirements – that's what 'exactly yours' stands for: It is our promise to our customers.

LMT Tools India is committed to fulfil this promise by providing our customers with best-in-class solutions customized exactly for their projects – whether for gear cutting, rolling, milling and threading or for reaming and advanced tooling.

We aim to strengthen our local manufacturing to serve our customers better.

Ramakant Reddy

Managing Director
 LMT Tools India Pvt Ltd.



company has the state-of-the-art manufacturing facility in Chakan, Pune with branch offices & residential executives in Bangalore, Chennai, Delhi, Hyderabad & Coimbatore.

This state-of-the-art manufacturing facility manufactures more than 1,000 Gear Hobs per month and significant quantity is also exported to various countries like Germany, USA, Mexico, etc.

With employee strength of more than 130, the company caters to the demands from various industries including Automotive, General Machining, Aerospace, Die & Mould, Energy and Medical. To support regional customers, the company has more than 30 dealers across India for sales and service.

Product portfolio

The products that LMT Tools makes are niche and highly focused in specific areas. For example, the products manufactured in Fette are essentially the tools which are used to produce gears. Under the brand of LMT Fette, the company ranks amongst top 2 or 3 globally while within India and Europe, the company definitely tops the list of suppliers for Hobs. Moreover, LMT Fette has the complete range in both materials and modules-starting from powder metallurgy steel to solid carbide to the Indexable version and from Module-1 to almost up to Module-50.

Additionally, LMT Fette also offers unique Thread Rolling System, where the company certainly claim the pole position globally. Here, the company has set the benchmark for range of applications and is the preferred supplier to many internationally acclaimed end users. The third line that LMT Fette offers is Round Tools in the field of high feed milling and special Solid Carbide End-mills. These tool are especially used in the aerospace and medical industries where the product is carving a name for itself.

With the LMT Kieninger range of products, one will get to see the complex tools, which are predominantly used in the automotive industry specially for –

- Line boring bars, which are needed to produce Crank & Cam bores
- Cylinder boring bars
- Tools to produce spherical shapes.

The company is amongst the top three suppliers of these tools and is working closely with most of the machine tools manufacturers and end-users. LMT Kieninger has shared the same technology with quite a few companies in India. Renault, for example, has been testing these products and is quite happy with it. The company also has supplied to Cummins, TATA and Ashok Leyland being its principle customers.

Moving on to other brands—LMT Belin offers a range of reaming tools, which involves high precision. And the tools' manufacturing technology from this French company stands out in the product.

Other range of products comes from LMT Onsrud. With these tools, the company caters to the needs of the aerospace industry for machining of composites, honeycombs and host of other applications. The range of tools especially works well with exotic material like Inconel.



METROLOGY SOLUTIONS



QUALITY FIRST

INVESTING IN THE FUTURE

Research and development are the lifeblood of the constant technological innovation that characterizes today's global manufacturing community. Marposs invests approximately 10% of its revenue in Research and Development and participates with a number of partners in international research programs. All Marposs gauging solutions (mechanical, air-electronic, contact-electronic, optical) have their origins in the Research and Development Centers.

Marposs focuses on many industry segments including Glass industries, Injection, Aerospace, Energy, Hi-Tech & Biomedical. E-Mobility is the new sector where Marposs is investing. Optoflash is the new born of the flexible family.



Marposs was established by Mario Possati in Bologna in 1952. From the beginning, the company has manufactured standard and custom systems for industrial applications of measurement and dimensional, geometric, and surface control of mechanical components, as well as for the control and monitoring of manufacturing processes. Marposs works with both end users and machine tool manufacturers from the early stages of a project to its completion, but also provides longterm support and customer care.

The company supplies a wide range of products, from measuring components to turnkey automatic machines and fully automated lines. After 2000, Marposs has also started a program for the acquisition of solid and well-structured firms, each capable of providing a product of excellent quality in its own field. It has thus become a world leader in the measurement technology sector, offering its customers a combination of advanced products, market knowledge and commitment to a long-term global partnership. On this basis, the firm has created an international organisation that offers applications and support virtually anywhere in the world. Its head office is located in Bentivoglio (BO, Italy), in the middle of the most



www.marposs.com



industrialised area of Italy and it coordinates the entire company. Marposs is present with its own sales and technical assistance companies in 25 countries with 80 offices, and it has a dedicated network of agents and distributors in other 9 countries. About 92% of production is for export, especially to countries with a strong technological tradition.

Marposs supplies precision gauging equipment to industries worldwide. In its manufacturing sites Marposs has several metrology laboratories, accredited as calibration centers.

The Manufacturing Centers work in close cooperation with the R&D department and with the three commercial divisions:

- the Machine Tool Division operates in the world of measurement and control on machine tools
- the Standard Products Division works in the field of standard gauges and components for the gauge makers
- the Special Applications Division covers the area of customized gauging stations (manual benches and automatic machines) tailored to the specific customers' requests.

Marposs provides a full range of measuring / testing equipment to help with manufacturing and assembling their products:

- In process gauge heads, touch probes and sensors for machine tools; e.g. grinders, lathes, milling machines and machining centers.
- Hand held gauges for various checks; in particular wireless gauges with local display, and data transfer to a fixed PC for data storage / statistics, which make it easy to measure large parts (e.g. airframes) without



With the shifting of manufacturing sector to Asia and India now emerging as a highly potential global supplier of precision components, the focus on continuous improvement in each machining operation is the key to enhance productivity.

Marposs is committed to engineer solutions to achieve high precision in each stage of machining by part measurement and monitoring tools & machine parameters. We have made it possible by keeping close proximity with customers to know their real needs, continuous R&D & acquiring best technology in the world.

Our worldwide network, trained engineers for after sales support, periodic preventive maintenance ensures smooth running of our products throughout its life cycle with the same precision.

Being a true global metrology partner, Marposs always thrive for laying solid foundation for future growth & development in manufacturing.

S.M. Sood

Managing Director

Marposs India Pvt Ltd.

wires or pipes limiting freedom of movement.

- Standard gauging components (probes, interface boxes, gauge software, full industrial PC packages) to allow end users and subcontractors to build their own gauge stations.
- Leak testing equipment (pressure decay, flow measurement and helium sniffing techniques).
- Special, tailor-made gauge fixtures and stations with various levels of automation: manual and semi or fully automatic.



GRINDING MACHINES



NO. 1 MANUFACTURER OF GRINDING MACHINES IN INDIA

“PLUTO -18”

“Pluto -18”, a cutting-edge CNC Grinder, was designed with a few penetrative pointers in mind. Compact to beat space constraints. Economical to beat cost swings. High performance to beat frequent errors. Wheel OD 40mm max, Width 50mm and grinding length up to 180mm.



PLUTO-18 will increase production by 30-40%. Suited to produce high precision small parts and is capable of performing plunge/ traverse grinding operations. Its standard configuration makes it adaptable for factory automation. Effective guarding design makes it TPM friendly.

The name “Micromatic” is synonymous with ‘Precision Grinding Machines’ in India since 1973. Over the years Micromatic Grinding Technology Ltd. (MGT) has strived to build an organization with the motto of “Becoming the Best”. Starting in a rented shed, MGT now has three plants at Ghaziabad with a fourth plant in Bangalore (started in 2008), covering a total working area of approx. 25,000 sq. m. The two Ghaziabad plants have fully air-conditioned assembly and sub-assembly areas with a 10,000-class dust-free spindle assembly room. Sheet Metal Machine enclosures are manufactured, and powder coated in the third plant at Ghaziabad (at a wholly owned subsidiary Micromatic Manufacturing Systems Pvt. Ltd- MMS).

Infrastructure / Plant Capacity

Their first model, Universal Cylindrical Grinder GCU-100 won the Best Design & Best Product Awards at IMTEX 1979 Exhibition. Numerous awards have followed since then. Over the years, MGT has strived to have a complete product line-up in OD, ID, Universal & Centerless Grinding machines thus offering its customers total integrated solutions. This has resulted in MGT achieving the No. 1 position as manufacturer of Grinding machines with nearly



“MGT founders strongly believe in “Becoming the Best” not only in their products and services but inclusively for the Society & the Environment. Through many sustainability initiatives, partnering with local stakeholders, MGT is trying to contribute to the health and education of the less privileged sections of the society around MGT’s plants.”

N K Dhand

Managing Director

Micromatic Grinding Technologies Ltd.

50 percent market share in India since 2010.

High-speed grinding solutions are also offered through technical association with Toyoda (JTEKT) Japan for Cam Lobe Grinding & other products since 2006. Toyoda Micromatic Machinery India Pvt. Ltd.-TMI, is the marketing joint venture, also started with JTEKT in 2008.

As part of customized grinding solutions for many industries including high precision diesel fuel-injection parts, automotive engine valves etc., system integrated capability to conceive, design & develop, manufacture, commission & service automation, is the strength of Team MGT.

The company has an in-house R&D centre recognized by the Ministry of Science & Technology, Govt. of India since 1982.



Highlights

Over 500 strong dedicated workforce, some of whom have been trained at their associates in Switzerland and Japan, is recognition of MGT’s ability to nurture & sustain relationships globally.

A 60-member mechanical and electrical design team uses latest 3D modelling software and design analytical tools to develop faster and more reliable new products & solutions.

A network of nearly 40 offices and over 300 trained service engineers across India, China & Germany provide prompt service and backup support through the sole marketing arm, Micromatic Machine Tools Pvt. Ltd.- MMT, the joint marketing arm of the Ace-Micromatic Group.

In its pursuit for becoming a key player in the global market, MGT, together with its international partners has been successfully exporting to countries like Germany, France, Italy, Switzerland, Turkey, Mexico, USA and S.E ASIA.

ISO 9001:2015 Quality Management System is followed for the “Design, Development, Manufacturing & Servicing of Conventional & CNC Grinding Machines”, certified by TUV NORD since 1995.

Working with the academia to foster a culture of Innovation, MGT has also been working with IIT Madras and Dr. Subramanian of STIMS Inst. Inc. USA on several projects since 2010, funded by the Govt. of India. NGPG-Next Generation Precision Grinder project has been successfully concluded in 2016, and two more projects are underway.



CUTTING TOOLS



SIGHTING NEW HORIZONS

ENDMILL FOR MACHINING DIFFICULT-TO-CUT MATERIALS

Vibration control 'Smart Miracle Endmill' is the revolutionary performance for difficult to cut materials such as CoCr & Titanium alloys. It has been treated with a newly developed (Al,Cr)N group coating, which delivers substantially better wear resistance & longer tool life. The surface of the coating has been given smoothening treatment (ZERO- μ Surface) resulting in better machined surfaces, reduced cutting resistance & improved chip discharge. This is the next generation of the coated End-mills that promises longer tool life & amazing accuracy in machined surface, especially while machining difficult-to-cut materials like Titanium alloys, CoCr, Stainless Steel, etc.

TORX key machining of Orthopaedic Implants
 TORX key is one of the most critical areas to be machined in orthopaedic implants as it has small corner radius. Due to long overhang of the End-mills & smaller diameter, it often results in tool breakage & poor surface finish. To overcome this threat, Mitsubishi developed dedicated End-mill series that gives excellent breakage control & higher cutting parameters.

This revolutionary innovation in medical machining introduced by Mitsubishi is proving to be a game changer for medical fraternity and patients' rehabilitation process has become far easier & quicker.

M MC Hardmetal India Pvt. Ltd. is a subsidiary of world-famous Mitsubishi Materials Corporation, Japan (MMC). MMC is one of the most trusted brands in Metalworking Solutions. MMC India also operates in other markets including Gulf Region, Bangladesh, Sri Lanka, Iran etc.

The Company has completed 20 years of presence in the Indian market and 12 years of its Indian Operations. The company has its Registered office at Bengaluru and regional offices at Pune, Gurgaon, Ahmedabad & Chennai. We have very strong and dedicated network of more than 50 distributors across India. We are a powerful team of more than 100 people committed to establish and excel in the competitive market through the best and innovative tooling solutions, evolving means and mechanism for effective service support to our esteemed customers.

Over the years, the company has been successful in stepping in to the new segments. In order to cater the rising demands of the market we have set up a manufacturing plant at Aurangabad. The company has also made significant presence in the segments like non-conventional energy, oil & gas, medical and aeronautical sector.



Manufacturing Capabilities & Technical Centre

With a view to integrate with market more effectively and to provide quick services, we have recently established a manufacturing facility at MIDC, Walunj-Aurangabad with ultra modern facilities. This plant is set up to manufacture special and customised tooling to provide real-time solutions to Indian customers.

Shortly, the company is launching its highly advanced Technical Centre in Pune to extend best and most effective technical support to its customers. The company will be imparting them training & knowledge about its new products and vital know-how about critical machining processes. This will help the company to have more integrated relationship with its customers and expand outreach.

The company is also setting up a Regrinding Centre at Pune for regrinding of Solid Carbide Drills. This will not only reduce lead time for regrinding of solid carbide drills, but we can assure original Mitsubishi geometries after regrinding.

New Products: In the recent times, the company has developed exciting new products, like WJX, WSX445, FMAX & VPX Milling Cutters, New range of solid carbide drills for centring, chamfering & counter boring, CVD Diamond Coated Endmills for Graphite machining, GW Series Cutting Off & Grooving System, expanded range of iMX Exchangeable Head Endmill Series.

Case Study: One of the most significant case studies is about development of FMAX cutter. The FMAX cutter is developed to carry out extremely high efficiency machining at 20,000 mm/min table feed or more. FMAX is capable to shorten the longest takt time and play greater role in productivity improvement. Hence,



We are blessed with the glorious legacy of Mitsubishi Materials Corporation. Each of our business functions and even a minor step involved therein revolves around our fundamental values: For People, Society & the Earth. Naturally, our growth vision adheres to this policy. In the coming years markets will favor only those who demonstrate sensitivity and responsibility towards energy waste, disposal & recycling of waste, human safety, social & environmental responsibility. We are focusing on harmonized standards which include effective supply chain integration. Moreover, being the globally linked enterprise, we are putting thrust on global communication capable of exchanging information and making decision on the information in real-time across the world. We strive to become the only tool manufacturer globally offering "Your Global Craftsman Studio", a unique service for our customers. It is the place where customers can find state-of-the-art technologies and products, find solutions, anytime, anywhere in the world.

Prashant Sardeshmukh

Vice President & Director
MMC Hardmetal (India) Pvt. Ltd.

this method has gained popularity in the automobile industry & cellular manufacturing.

The FMAX insert is designed with the cutting-edge technology which can be used for both finish and rough cutting. Hence, it doesn't require to change tools by using the ATC. If tool change would be needed after rough cutting, sufficient takt time reduction cannot be expected, no matter how much the table feed increases to achieve higher efficiency.



AT MOTUL WE DON'T JUST MAKE OIL, WE RE-INVENT IT EVERY DAY

HIGH QUALITY AND PERFORMANCE PRODUCTS

MotulTech offers very specific product offer in demanding segments such as aluminium die casting and aeronautic machining. With its performance and technology background coming from automotive competition, Motul offers a different approach to the industrial customers, with tailor made solutions. MotulTech will adapt its solutions to its customers' needs where others will ask the customers to adapt to their products!

MotulTech guarantees to its Indian industrial customers high quality and performance products, extensive sales and technical support (including lab services), a performing supply chain, and overall innovative and smart solutions in the industrial lubricants field.

MotulTech is the industrial lubricants division of the Motul group, an international French industrial group, specialist for more than 160 years in high performance lubricants. More than a century and half of uninterrupted activity which has allowed the company to constantly modernise itself and climb to the vanguard of technology. This permanent quest and the determination to move forward has led the company to an envied position in its sector. The company enjoys worldwide reputation and is unanimously recognised for the quality of its products, capacity to innovate and for the involvement in the world of competition.

MotulTech develops, manufactures and markets industrial high technology lubricants for the machining and transformation of metals, as well as high performance lubrication of industrial equipment.



www.motul.com



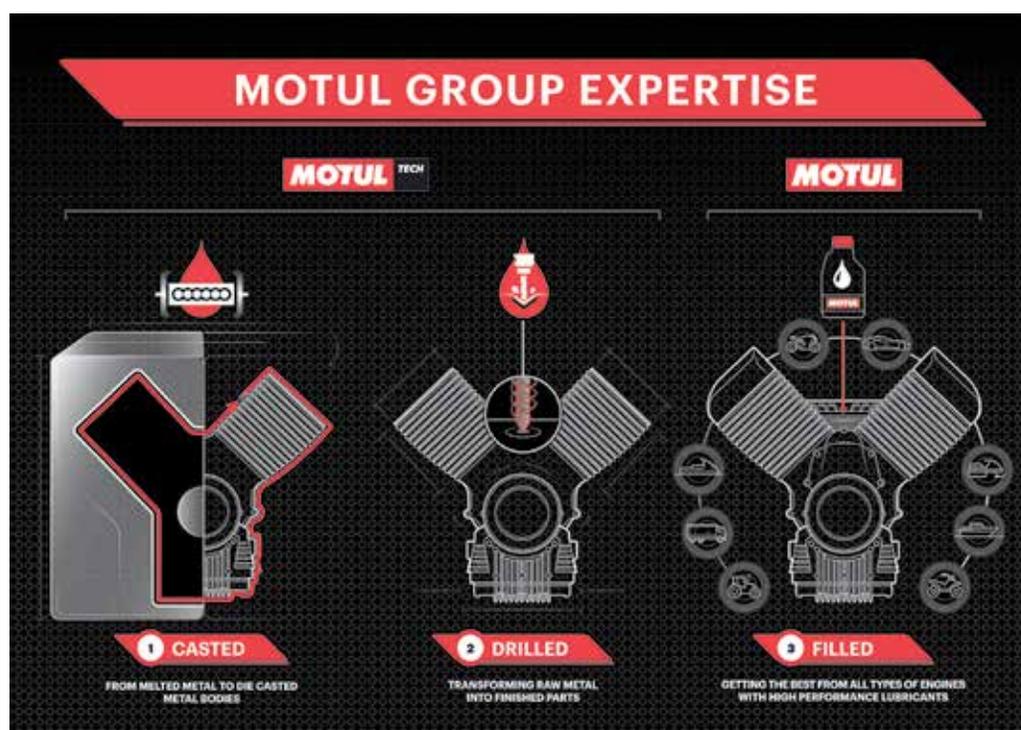
“We work towards the improved efficiency of our customers, by extending the life of the fluid and tooling without compromising effectiveness. We as a professional supplier understand how to assist our customers with this.”

Hugh Dowding

Vice President & Director,
Motul Group



MotulTech has its presence in many countries all over the world through its products and services as well as through production and R&D. In India, MotulTech develops and manufactures specific high-performance product ranges for the industry, in metal working, industrial and specialty lubrication as well as in aluminium die casting.





MACHINING CENTERS



PROVIDING LEGENDARY CUSTOMER-VALUE

LATEST LAUNCHES

Haas recently launched 2 new models in Universal Machining & Horizontal Machining Centers

1. Haas UMC-1000 - Larger 5-Axis UMC

The larger travels & bigger platter of the Haas UMC-1000 Series Universal Machining Centers make it perfect solutions for 3+2 machining & simultaneous 5-axis machining of large parts.

- 5-axis simultaneous machining
- Powerful inline direct-drive spindle
- Large capacity side-mount tool changer
- Includes Wireless Intuitive Probing System

Available with 8-Station Pallet Pool

High-volume production, unattended operation

2. Haas EC-400 - All-New HMC with Pallet Changer

Designed for high-volume production & unattended operation, the new EC-400 is faster, compact, rigid, and more capable than ever before. It features a larger work envelope, faster rapids, full 4th-axis pallet indexing, & much better chip management. For extended production and true 'lights out' capability, a 6-station pallet pool & high-capacity tool changer are available.

- Standard 30+1 tool side-mount tool changer, with options for 50+1 or 100+1
- Built-in pallet changer with 400 mm pallets
- Full 4th-axis indexing
- Available 6-station pallet pool

Phillips Machine Tools India is one of the most renowned machine tools brand in the country, with a reputation for new age distribution, manufacturing expertise and outstanding after sales service. Phillips Machine Tools is the biggest distributor for Haas CNC machines globally and in India as well.

The company is a global supplier of manufacturing technology products and services primarily focused on CNC machine tools & additive manufacturing. Phillips Machine Tools India is a 100% owned subsidiary of Phillips Corporation, USA.

Phillips' contribution to the machine tools industry is as long as 57 years. The company operations expand to USA, India, China, Middle East, Sri Lanka & Bangladesh.

Globally, the company has 50,000+ installations with 10,000+ installations in India alone. Clients in India include – ISRO, Godrej, TATA, L&T, Mahindra, Cummins, Bharat Forge, JCB, Siemens, IIT, Airbus, Sandvik, etc.

In India, the company has strength of 250+ employees, among them 100+ are field engineers. Phillips operations are spread across



9 Technical Centres, strategically located around major Industrial hubs and resident engineers who are mostly based out across geography.

Phillips as a partner is fanatical about services. Knowing that every minute of downtime matters, the company offers Industry's fastest response times, Affordable & ongoing preventative maintenance and Comprehensive annual inspections for peak productivity

Phillips represents Haas Automation, Inc. through Haas Factory Outlets' situated across the country.

Pillars of Haas Value:

- **Legendary Service:** When one purchases a Haas, they gain access to a global network of highly skilled service engineers and local Haas Factory Outlets (HFO). Plus, an access 24/7 to online technical documents, operator manuals, and video tutorials.
- **High-performance machines:** With more than 200,000 machine tools produced since 1988, Haas machines are found in all aspects of manufacturing from contract manufacturers to Formula 1 race shops.
- **Distributor network:** The worldwide network of more than 170 locally owned HFOs in 60+ countries provides Haas customers with an exceptional level of customer service and support
- **The Haas Control:** Every Haas machine is powered by user-friendly Haas CNC control. The control is simple, full-featured Haas control to be easy to learn and use. The intuitive control includes a complete alphanumeric keypad, and features one-button operation of many multi-step functions



We aim to be the best resource to our customers, providing legendary customer value as measured by our net promoter's number, resulting in our customers being compelled to buy our breadth of products and services. Our customers will perceive us as:

- Family on a mission
- Creating magic for me and my company
- Experts dedicated to me
- Wholeheartedly trusted - they care for me and take care of me
- I will buy my machines and related services from PHILLIPS
- Buying from any other source will be a disappointment for me

In the eyes of our customers, consistently achieve the PHILLIPS brand experience, globally, both externally and internally. Create a critical mass of brand ambassadors who, through their performance, establish and manage the brand to achieve the brand goal and our mission and vision.

Terrence Miranda

Managing Director – Phillips Machine Tools India Pvt. Ltd.

- **Make it your own:** Haas machine tools are customizable products. The company believes in providing the right tool for every customer, so it offers an extensive list of proven options and features to empower customers to build the right machine to meet their demands
- **Online resources:** In addition to shopping for genuine OEM parts at the Haas online parts store, customers can also access procedures, manuals, diagrams, and more through online DIY guide

Haas Automation, Inc. is the official machine tool partner of Haas F1 Team and Stewart-Haas Racing.



CUTTING TOOLS



TAEGUTEC: PARTNER IN COST REDUCTION

BRAKING THE RANKS!

One of our recent solutions for Brake Caliper machining involved a Special: A cutter with a combination of cutting plus Wiper inserts which improved the customer's productivity by four times, after replacing the existing brazed-type cutter that was in use.



The use of PVD grade (TT6080) aided in extending tool life significantly, while the cutter design itself proved to be critical to productivity improvement. In addition, the use of Wiper helped with increasing the surface finish quality and ensured elimination of any mismatch.

TaeguTec India (TTIL) is a leading supplier of modern machining solutions and cutting tools to a wide variety of industries such as automotive, aerospace, heavy engineering and many others. TaeguTec is one of the leading players in the country for over a decade now. TaeguTec, headquartered in South Korea, is part of the IMC GROUP – one of the largest cutting tool manufacturing group in the world. TaeguTec is a leader amongst the major players and known for its innovative metal cutting solutions.

Established in the year 2000 in the garden city of Bangalore, TaeguTec India has a highly state-of-the-art facility that is AS 9100 Rev D and ISO 14001:2008 accredited, pursuant to the highest standard of service and delivery. The indigenous capabilities include advanced R&D and integrated manufacturing of cutting tools (steel bodies and carbide inserts).

The TaeguTec product lines of Tungsten Carbide cutting tools include Inserts and Holder bodies for turning, milling, drilling, grooving, parting applications, Ceramics, Cermets, CBN, PCD, Solid Carbide tools and tooling systems.



“TaeguTec strives to provide innovative and competitive machining solutions to customers by being active partners in the continuous improvement process and be a vibrant player in the Indian market.”

L Krishnan
Managing Director
TaeguTec India



TaeguTec has a wide reach in the Indian market with branch and channel-partner presence in every major industrial town. Our service to the customer is backed by a dynamic and competent team of sales and technical support engineers.

TaeguTec today has innovative solutions for all metal cutting industries including automotive, aerospace, heavy engineering, and medical among others. Our well-trained R&D and application teams are continually interacting with customers around the world to identify bottlenecks and provide solutions to improve productivity and reduce cost.

Our latest range of offerings include the Gold Rush™ products that have time and again proven their superiority.

Turning: Turn Rush™ line is a series that combines ingenious grade and unique geometry to provide excellent machining performance. The family of turning grades include coated, uncoated, cermet, ceramic, PCD and CBN grades to meet all application purposes.

Milling: Mill Rush™ range has been developed to increase productivity and reduce cycle time as well as cost to meet the industry's diverse milling application demands.

Holemaking: TaeguTec has engineered drilling solutions. The remarkable performance of the indexable Top Drill™ and head

changeable Drill Rush™ enable customers to enhance productivity as well as profitability.

Parting & Grooving: The revolutionary T-Clamp™ line is a multifunctional system that permits a host of operations such as parting, external turning and grooving, precision grooving & recessing, face grooving, face turning, undercutting & slitting.

Threading: TaeguTec is equipped with an ISO threading range and tailor made solutions that guarantee high profile accuracy, clear and easy identification, excellent chip control and not to mention, cost and productivity benefits.

Solid End Mills: TaeguTec's solid carbide series is designed to accommodate various materials and application demands of the modern machine shop.

Tooling Systems: The Tooling Program developed by TaeguTec offers versatile systems that are available to mount tooling on all types of machines.





ENGINEERING EXCELLENCE. EXACTLY

PERSISTENT R&D EFFORTS

The demand for higher clamping torque has made UCAM to bring out the latest version of CNC Rotary Table - URXH Series which is beneficial to the customers in increasing the productivity of machining operations. The need for high precision components that go into UCAM tables has resulted in backward integration and persistent R&D efforts. This has led to UCAM's diversification into new verticals viz., Nimble Machines & Nimble Electric.

Nimble Machines designs and manufactures sophisticated machines like precision Gear Hobbing Machines, Thread Grinding Machines and Surface Grinding machines.

Nimble Electric designs and manufactures high performance and high-speed Torque Motors which are used not only for machine tool applications but also across various industries like agriculture, aerospace, automobile and defence.

At UCAM, technology and challenges are a way of life!!

UCAM, Leader in India for CNC Rotary tables with the "MAKE IN INDIA FOR THE WORLD" philosophy offers technologically advanced machine tool sub-assemblies, sub systems along with rotary tables to the world market. The company has been serving the manufacturing industry, specifically the machine tool industry since 1986. The continuous patronage from the customers and the growth in the Indian Manufacturing Industry has made UCAM to move to the new state of the art facility at Dobbaspet, near Bangalore, India.

UCAM standard product range includes 4th and 5th Axis CNC Rotary Tables, Spindle Tilting Head, Integrated Rotary Table on Machine Bed and Cantilever Tables for 5 axis machines. Recently UCAM ventured into manufacturing of CNC Gear Hobbing Machine, Torque Motors and custom built rotary tables. The product line lays stress on quality, reliability, and performance, while matching the needs across industries - Aerospace, Automotive, Defence, Medical, Mining, Power Generation, General Engineering and others.

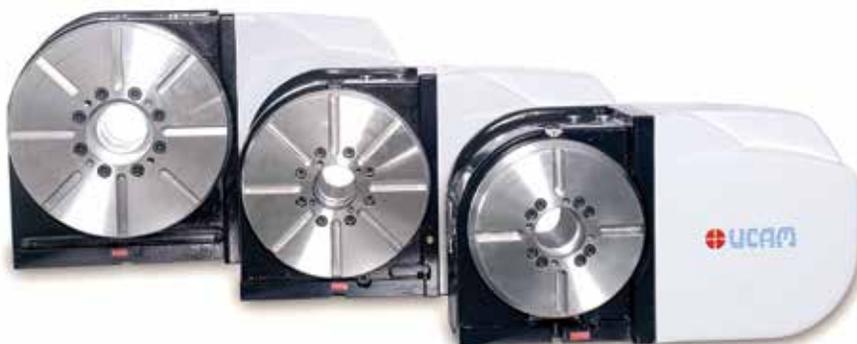
UCAM's differentiation lies in cutting-edge technology, unceasing



product innovation, and proactive customer relationship, making UCAM the most preferred brand in the Indian machine tool industry. UCAM is the proud winner of FIE foundation award for “Best Design & Innovation” for five times in IMTEX. Recently IMTMA has awarded the Managing Director of UCAM Indradev Babu as the “Outstanding Entrepreneur” for the year 2018.

UCAM’s state of the art manufacturing facility at Dobbaspet, near Bangalore is spread over an area of 28,000 square meters. The integrated world class plant is capable of manufacturing and testing a wide range of high precision products for the global market. The list of CNC Machines includes Horizontal Machining Centers, Vertical Machining centres, 5 Axis Machining Centers, CNC Gear Hobbing machines and CNC Thread Grinding Machines. The facility is air-conditioned, dustproof & equipped with the latest measuring instruments which enables the production of precision components for their demanding applications.

UCAM’s Research and Development centre is certified by the Department of Scientific and Industrial Research (DSIR), Govt. Of India. The centre designs and delivers innovative solutions to the manufacturing industry. The use of high end 3D software for product design validation, using FEA analysis software, ensures quality



■ The URX Series



“With Indian manufacturing industry looking up, UCAM is proud to cater to the growing machine tool industry with its indigenously engineered precision products of global standards. UCAM is a preferred partner for its ability to customize to the user needs, both in India and abroad. The stress on R&D has enabled us to produce differentiating products like Torque motors for Direct Drive applications, CNC Gear Hobbers, that benefits our customers with products that are of global quality at competitive prices. Anchoring ourselves in unflinching integrity, embracing the latest technology, we at UCAM, strive to provide the best customer experience, through an empowered and competent work force, striving for personal mastery and quality relationship with all our stakeholders. We create highest value to our customers and stakeholders, with a vision to become one among the top five globally in our chosen domains.”

Indradev Babu

Managing Director

UCAM Pvt Ltd

engineering. UCAM team works closely with its customers, right at the design stage, thus ensuring that the new products are in line with what the customer requires.

The top priority for UCAM is to bring “customer delight” to their customers spread all around the world. The dedicated customer support team network spread across the country and the channel partners abroad renders timely effective after sales support to their customers.



GRINDING SOLUTIONS



TOTAL GRINDING SOLUTION

FOCUS ON INNOVATION

Innovation is a continuous practice for both product and process at Wendt India, being a Total Solution provider company in the areas of Grinding and Honing where more than 95 percent of our products are customised to fulfil the customer needs.

Some of the innovative and new products in Super Abrasives that we developed and introduced in the recent past, are diamond dressing Roll for Gear & Aerospace industry, brazed tools for paint industry, CBN wheels for Machine tool and Components, added honing machine with twin spindle, CNC creep feed grinding machine and angular wheel head CNC cylindrical grinding machine with robotization incorporating innovative features.



Wendt India draws its technological superiority from Wendt GmbH which is a part of Winterthur Technology Group (WTG) Switzerland (now part of 3M group) and Sound and Ethical Management practices from Murugappa Group. WIL has been a 40 - 40 Joint Venture between Wendt GmbH (now part of 3M group) and CUMI. The public holds the balance 20 percent equity.

When it comes to complex grinding or tough-to-machine materials, Wendt has always been the automatic choice. Wendt Superabrasive products, Diamond (DIA)/ Cubic Boron Nitride (CBN) Grinding wheels, Machines and Services are used by a wide spectrum of Industries from Automobile, Auto Components, Cutting Tool, Engineering, Steel, Tile, Ferrite, Glass, Ceramics, Textile, Construction, Paper to Watch manufacturers.

Apart from being the market leaders in India, WIL Products are exported to European countries like Germany, France, Belgium and Spain, South East Asian countries, Russia, Middle East, Far East, UK and USA to name a few.



www.wendtindia.com



Our comprehensive product range backed by state-of-the-art technology, valued-added services and consistent performance, fulfils the needs and expectations of our customers from diverse industrial segment. We don't just sell products, we provide Total Grinding Solution through customisation. Most of our customers prefer working with Wendt, as we are the single window for providing complete solutions for grinding and honing ... from Tools -To Machines -To- Precision Components.

Rajesh Khanna

Executive Director & CEO
Wendt India Limited

In order to address the South East Asian markets, Wendt (India) Limited has service facilities in Thailand and UAE.

Wendt provides wide range of products and services which include Resin and Metal bonded grinding wheels and tools, Electroplating profile wheels & tools, High precision diamond Dressing rolls, Vitrified CBN wheels, PCD/PCBN wear parts, Dressers & Shape tools, Honing Machines & Sticks, Precision components, Precision grinding, dressing and profiling machines for specialized applications.

Wendt also offers high precision and high-performance specialized CNC Rotary Surface Grinding Machines, Wheel Profiling & Dressing Machines, Guide Roll/TC Rings Grinding Machine, Notch Tool Grinder, Notch Milling Machine and Special Purpose Grinding Machines.

Wendt leverages its's core competency in Super abrasive Grinding Wheels & and High Precision Grinding / Honing Machines and also offers Precision components to its customers.

Hence , in last 36 years, Wendt has graduated to being a “Tools -to -Machines -to- Components” Company.



50 Best Brands in the Metal Cutting industry

Ace Designers

Ace Manufacturing Systems Ltd. (AMSL)

Acemicromatic Manufacturing Intelligence Technologies (AmiT)

ACOEM Ecotech Industries Pvt Limited

Alex Machine Tools

Bharat Fritz Werner Limited

Blaser Swissslube India Pvt. Ltd.

Carborundum Universal Limited

Carl Bechem Lubricants India Pvt. Ltd.

Carl Zeiss India (Bangalore) Pvt. Ltd.

Castrol India

Ceratizit India Pvt. Ltd.

Cosmos Impex (I) Pvt. Ltd.

DANOBATGROUP India

DMG Mori India Pvt. Ltd.

Doosan Machine Tools India Pvt. Ltd.

Emag India Private Limited

Emuge-Franken India Pvt. Ltd.

Erwin Junker Maschinen Fabrik Pvt. Ltd.

Exxonmobil Co India Private Limited

Forbes & Company Limited (Totem)

Grind Master Machines Pvt. Ltd.

Hyundai Wia India Pvt. Ltd.

igus (India) Private Limited

Jyoti CNC Automation Ltd.



Continued

Kennametal India Ltd

LMT Tools

Makino India Pvt. Ltd.

Marposs India Pvt. Ltd.

Mastercam India

Micromatic Grinding Technologies (MGT)

MMC Hardmetal India Pvt Ltd. A Subsidiary Of Mitsubishi Materials

Motul Lubricants

Novotest Measuring & Testing Technology Pvt. Ltd.

Okuma India Pvt. Ltd.

OPEN MIND CAD/CAM Technologies India Pvt. Ltd.

Phillips Machine Tools India

Renishaw Metrology Systems Ltd.

Sandvik Coromant India

Schunk Intec India Private Limited

Siemens Ltd.

Taegutec India

Ucam Pvt. Ltd.

United Grinding GmbH India Branch

Vardex Tooling Private Limited (Vargus)

Walter Tools India Pvt. Ltd.

Wendt (India) Limited

Wikus-India Pvt. Ltd.

Yamazaki Mazak India

YG-1 Industries (India) Pvt. Ltd.

- *Company names arranged in alphabetical order.*
- *This is a listing of Best Brands. It does not imply ranking in any manner whatsoever.*

THE ECONOMIC TIMES



Disclaimer

The Economic Times Best Brands in Metal Cutting 2018 is the result of cumulative inputs taken from a sampling of brands and does not purport or claim to be a comprehensive study on the subject of branding. This book is not to be taken as a ranking of brands in the Indian context.

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