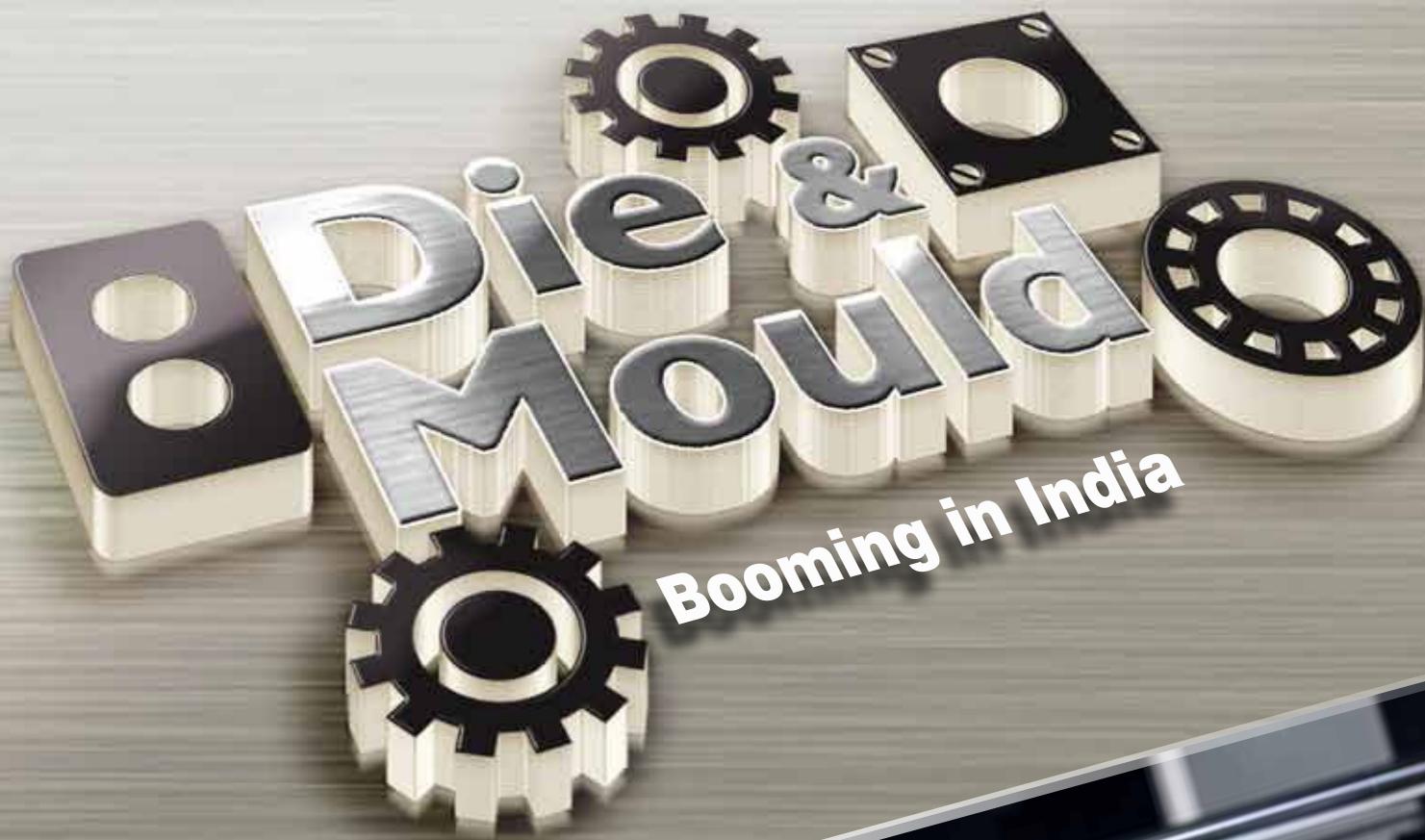


# OEM UPDATE

For Efficient Manufacturing



**Booming in India**



**How 3D Printing**  
is changing the medical field?

/oemupdate

/oemupdate

oem-update

OEM Update

OEMUpdate



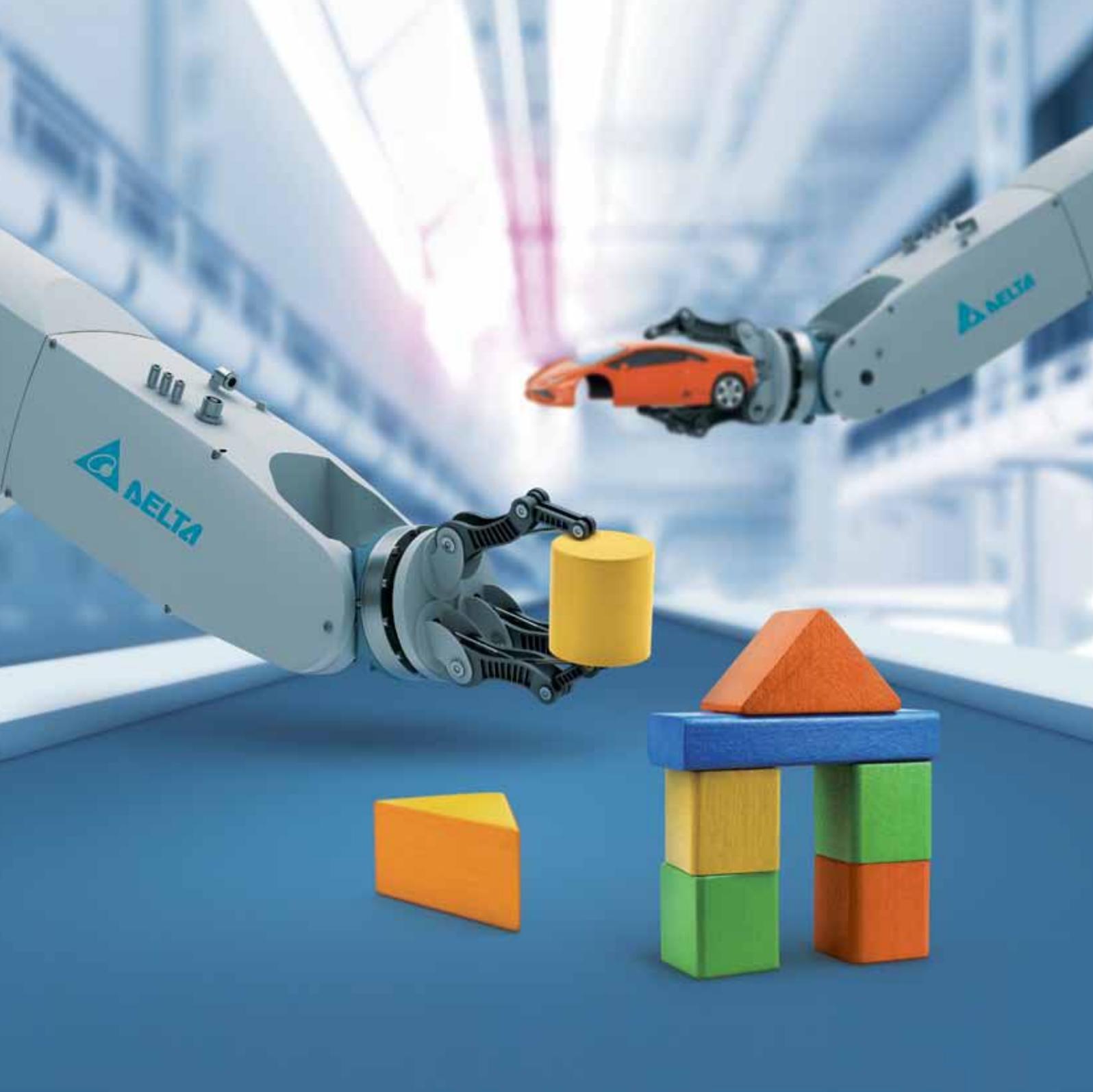
**NEXT GENERATION INDUSTRIAL  
TRANSPORT TECHNOLOGY**

[www.br-automation.com/transport-technology](http://www.br-automation.com/transport-technology)

office.in@br-automation.com  
+91-20-41478999

ETHERNET POWERLINK open SAFETY

PERFECTION IN AUTOMATION  
A MEMBER OF THE ABB GROUP



# Your Wisdom Makes It Smart

Automation for your Smart Manufacturing

By implementing our expertise in the smart production line, Delta realizes smart manufacturing, in customized as well as mass production, to put intelligence into production and let manufacturing respond to human nature.



[www.deltaelectronicsindia.com](http://www.deltaelectronicsindia.com) | [automation@deltaww.com](mailto:automation@deltaww.com)

 **DELTA**  
Smarter. Greener. Together.



**SIEMENS**

*Ingenuity for life*

## License to link

**SINEMA Remote Connect –  
the management platform for secured  
connections and easy remote access**

Service calls at distributed industrial plants require fast response. With SINEMA Remote Connect, we developed a management platform that enables secured remote access to remote machinery at all times using SCALANCE industrial routers – IP-based and without location and time restraints. Via the SINEMA Remote Connect Server, authorized users can access specific machinery using a VPN tunnel, while sensitive data remain protected.

**Expertise in industrial networks.**

For more information call us on 1800 209 1800 or write to us on [enquiry.ci.in@siemens.com](mailto:enquiry.ci.in@siemens.com)

[siemens.com/sinema-remote-connect](http://siemens.com/sinema-remote-connect)



## Die & mould: Booming in India

An exclusive report on how die and mould industry is striving for growth.

# 12

# CONTENTS

## FEATURES



20

**What is Metal Injection Moulding?**



24

**How 3D Printing changing the medical field**

Things one must know what changes 3D Printing is bringing in the healthcare industry



30

**Objective is to put India among top global markets: Universal Robots**



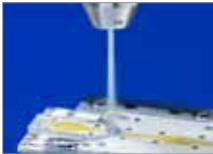
32

**"For the user, standardised means future proof"**

An interaction with Dietmar Bruckner, Technical Manager of open automation, B&R



34 **Schneider Electric keen to make India "EV Ready"**



36 **Cleanliness is more than biocompatibility**  
In the medical engineering world, the concept of cleanliness is primarily associated with microbiological contaminations.



40 **Dürr builds resource-efficient paint shop for ŠKODA**



42 **Shell's Tonna range allows smoother movement of machine tools**

An interaction with Siva Kasturi, Asia Pacific Regional OEM Manager, Shell Lubricants



44 **Right lubricants improve machine performance**  
Manufacturers aim at improving the performance and health of CNC machines.



46 **Die Lubrication in Hot Forging & Plunger Lubrication in Aluminium Casting**



48 **Sterling & Wilson integrates MEP business, eyes ₹ 3000 cr revenue**  
An interaction with T.P. Prakasan, COO – MEP Business, Sterling and Wilson



50 **When grinding gets an unimagined dimension**



## Your Project Our Weighing Components

Our catalog presents an in-depth look into the wide range of weighing components your projects require. These components are designed for easy integration into machines, process plants, tanks, vessels, hoppers, conveyor systems, and process instruments. Most components have global metrology approvals like OIML, NTEP and also ATEX, FM for hazardous areas.

Download the new Weighing Components Catalog and learn more about OEM Weighing Solutions from METTLER TOLEDO.

**Contact us on Toll Free :**  
1800228884 / 18001028460  
Email : sales.mtin@mt.com

► [www.mt.com/NA-WCC](http://www.mt.com/NA-WCC)

**METTLER TOLEDO**

# Editorial

**OEM UPDATE**

www.oemupdate.com

**GROUP EDITOR\***

Subhajit Roy  
Email: editor@oemupdate.com

**EDITORIAL**

Shashi Kumar Sharma  
Karan Rawat

**ADVERTISING**

Swati Mistry  
Email: swati@itmgrouppedia.com  
Sudhanshu Shekhar  
Email: sudhanshu@itmgrouppedia.com  
Call: +91-22-65556045 / 46

**SUBSCRIPTION**

Poonam Sukheja  
subscribe@oemupdate.com

*\*responsible for selection of news under PRB Act*

**I-Tech Media Pvt Ltd,**

604, 6th Floor, Surya House,  
7th Road, Vidyavihar East,  
Mumbai - 400077 (India)  
Tel.: +91-22-65556045 / 46

Printed and published by Ms. Radha N. Poptani on behalf of I-Tech Media Pvt Ltd and printed at Print, Process Offset Printers, B-23, Royal Industrial Estate, 5-B, Wadala, Mumbai-400031 and published from 1, Gayatri, Karumari Amman, Chheda Nagar, Chembur (West), Mumbai- 400089.  
Editor: Ms. Radha N. Poptani.

All rights reserved. While all efforts are made to ensure that the information published is correct, OEM Update holds no responsibility for any unlikely errors that might occur. The information on products and services / technology on offer is being provided for the reference of readers. However, readers are cautioned to make inquiries and take their decisions on purchase or investment after consulting experts on the subject. OEM Update holds no responsibility for any decision taken by readers on the basis of information provided herein.  
Tel.: +91-22-65556045/46,  
+91-9821667357

## Welcome To The World of Innovation

3D Printing is an additive process that creates a three-dimensional object by building successive layers of raw material. Today 3D Printing, also known as Additive Manufacturing (AM), is dramatically changing the way goods are designed and made. The applications of 3D Printing range from manufacturing of personalised products to enabling compression of the supply chain resulting in cost reduction and shorter lead times, for various sectors.

Medical and healthcare vertical represents one of the strongest markets for application of 3D Printing. With the ever-growing demands of the healthcare industry, 3D Printing provides compelling solutions to battle the required industrial needs. Here, we highlight the changes 3D Printing brings in the healthcare industry.

The die and mould industry in India has evolved over the years and today competes in a global arena. With an increasing demand from industries such as automobiles, auto components, packaging, plastics, electronics, electrical, healthcare and machine tools, there is a huge opportunity in the die and mould making industry in India. With the globalisation within the die and mould industry, there is a qualitative improvement in the type of moulds being used by various industries. This time, we present you an in-depth analysis on how die and mould industry is performing on a global level.

Over the past decade, Metal Injection Moulding (MIM), the most advanced area of powder metallurgy, has established itself as a competitive manufacturing process of small precision components that can be produced in both large and small volumes with complex shapes. Components made by MIM technology are finding new applications in industry sectors such as automotive, chemical, aerospace, business equipment, computer hardware, bio-medical and armaments. Our overview of the MIM process talks about the newer possibilities.

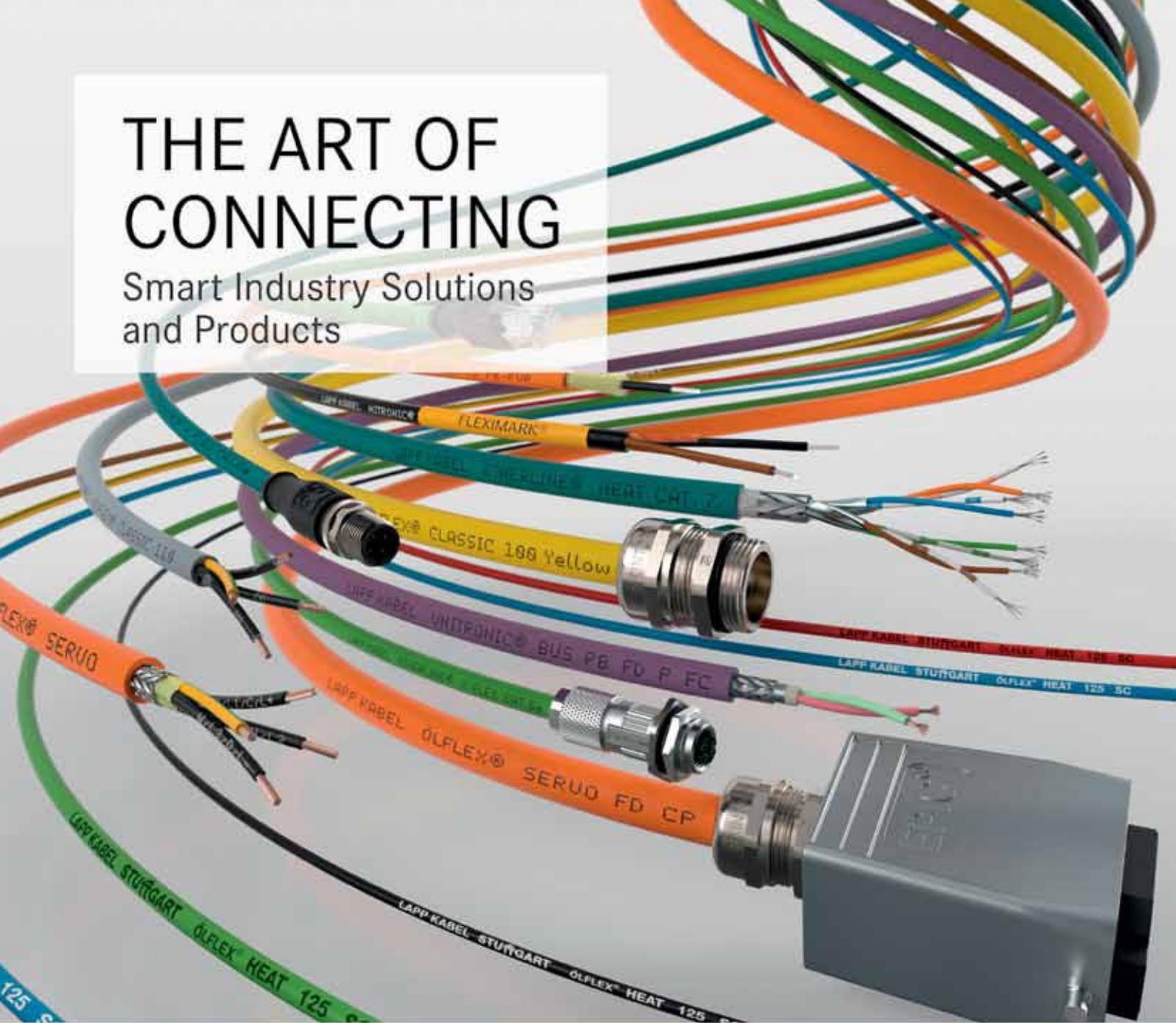
The role of lubricant is to reduce friction and offer adequate oil film between any two relative moving components. Here, we highlight the concept of lubricants systems and how it facilitates the smooth functioning of CNC machines.

I hope you'll enjoy reading this issue as always.

Please do send me your feedback at editor@oemupdate.com

# THE ART OF CONNECTING

Smart Industry Solutions and Products



Lapp, a leading German brand, is a supplier of integrated solutions and branded products in the field of cable and connection technology. It offers a wide range of innovative products and solutions including standard and highly flexible cables, industrial connectors and cable entry systems, customised system solutions, automation technology and robotics solutions for the intelligent factory of the future, and technical accessories.

We offer an ideal solution for every customer requirement, which ranges from tried and tested standard products to sophisticated customised production. Our core markets are in Textile, Machine Tool, Automotive, Automation, Food & Beverage, Oil & Gas segments.

The launch of ETHERLINE® ACCESS - the managed and unmanaged switches further strengthens and completes our offering for industrial network solutions to ensure reliable connectivity.

## Our International Brands



**OLFLEX®**  
Power and control cables



**UNITRONIC®**  
Data communication systems



**ETHERLINE®**  
Data communication systems for Ethernet technology



**HITRONIC®**  
Optical communication systems



**EPIC®**  
Industrial marking



**SKINTOP®**  
Cable glands



**SILVYN®**  
Resistive cable glands and cable gland systems



**FLEXIMARK®**  
Cable marking products

BUY ONLINE  
**SHOPASIA**  
shopasia.lappgroup.com/in

## ABB opens smart factory in Bangalore

ABB inaugurates smart factory at Nelamangala in Bangalore



ABB India has inaugurated one of the first smart factories in Bangalore for the production of electrical protection and connection solutions. The facility will be located on the existing factory premises of Nelamangala in Bangalore, the start-up and IT capital of India. The smart factory enables continuous monitoring of the production process through visualisation of operational data, to increase efficiency and flexibility of the manufacturing process.

The smart production line can track and display operational performance parameters across the entire manufacturing chain in real time. The factory also has digital lifecycle management with interconnected automation components, machines as well as data about processes and products. Real-time feeds monitor the entire manufacturing process.

Remote access and wireless communication with Radio Frequency Identification Devices (RFID) manage the production process, work orders and testing parameters. Taking the Make in India initiative to the next level of precision and smart technology, the newest member of the portfolio, Emax 2, includes product line features such as product assembly on track guided vehicles (TGV) powered by electric motors on a closed loop track.

"ABB has continued to invest in building capacity to cater to the evolving trends in the Indian market and bridging them with best-in-class global technology," said Sanjeev Sharma, Managing Director of ABB India.

The smart factory, which is part of ABB's manufacturing 19-acre Nelamangala campus, will house the production line for the entire range of ABB's protection and connection business, which helps to protect power systems from surges and enables a reliable power supply for various installations.

The Bangalore facility will manufacture ABB's range of air and moulded case circuit breakers, electronic and thermal relays, contactors, pilot devices and ABB's latest range of plug and play low-voltage circuit breaker, Emax 2. The products are key in optimising resources, reducing energy and life-cycle costs and boosting the productivity of industrial installations across sectors like process industries (cement, textile, chemicals, and metals), marine, data centers and automotive. 

## OMRON's '3-i' automation concept for creating smarter factories

OMRON Smart Manufacturing Solutions at the Automation Centre, Mumbai



OMRON reaffirmed its unique '3-i' concept for making the Indian factories smarter by exhibiting its key ILOR + S portfolio at the company's Automation Centre located in Mumbai. The brand has a wide portfolio of Smart Sensors, Robots, Vision, Machine Safety, PLCs, Servos and Drives - automation solutions.

The first 'i' in the '3-i' concept stands for the 'Intelligent' aspect encompassing solutions to make manufacturing smarter by utilising information technology. It aims creation of additional value to the shop-floor by enabling the makers to collect, visualise and analyse data.

The 2nd 'i' communicates 'Integrated' technology which involves seamless integration of technologies through advanced control aiding the makers to pursue maximisation of machine performance and accuracy.

The 3rd 'i' expresses the 'Interactive' element. The solutions based on this component help manufacturers achieve the right harmony between humans and machines leading to creation of those manufacturing sites where machines adapt to human needs and work together to enhance productivity.

These '3-i(s)' were collated and made to experience in the form of demonstrations comprising of OMRON's Big Data/IIoT, Traceability, Robotics, Motion-Control, Quality and Inspection, Safety, and Engineering solutions.

Another significant part of the whole experiential display stood out to be OMRON's advanced Robotics solutions denoting flexible automation for creating super-productivity and super-flexibility at the shop floors of the future factories. 

Making In India



**Innovation. Reliability. Safety.**

**Standard Parts for Dies & Moulds**



**Rotary Tables for Machine Tools & Automation systems**

**Stall No : D18**  
**11<sup>th</sup> to 14<sup>th</sup> April 2018**

**Bombay Exhibition Centre,  
Goregaon, Mumbai**

**FIBRO INDIA PRECISION PRODUCTS PRIVATE LIMITED**

Head Office & Works: Plot no: A-55, M.I.D.C, Phase II, Chakan, Pune - 410 501

**D** +91 2135 670 900 **E** info@fibro-india.com **W** www.fibro.com

## Rolls-Royce, Force Motors sign JV for engines



Andreas Schell, President and CEO, Rolls-Royce Power Systems and Prasan Firodia, MD, Force Motors at the announcement of the joint venture

Rolls-Royce Power Systems and Pune-based vehicle manufacturer Force Motors signed an agreement on a joint venture in which Force Motors will hold a 51 per cent and Rolls-Royce Power Systems a 49 per cent stake.

The new joint venture will be named 'Force MTU Power Systems Pvt. Ltd.' and is to produce MTU's renowned 10 and 12-cylinder Series 1600 units with power outputs from

545 to 1050HP (400 to 800 KWm). Series 1600 engines are particularly suitable for power generation and rail underfloor applications.

Besides manufacturing Series 1600 units, the JV will also build Series 1600 generator sets for the Indian and global markets.

Generator sets built and supplied by the JV to customers in India, Nepal and Sri Lanka will carry the 'Force - MTU' brand while those destined for the rest of the world will be sold under the name 'MTU Onsite Energy'. The engines will continue to have the brand MTU.

Overall, the parties are investing more than ₹ 300 crore in the JV in proportion to their respective stakes. To meet Rolls-Royce Power System's exacting standards, the JV is to build a

state-of-the-art, dedicated manufacturing facility at Chakan near Pune. The facility will be equipped with nearly all core functions and is to operate as a stand-alone enterprise. The new factory is expected to launch serial production by the third quarter of 2019. The JV will use Force Motors' expertise to lead localization efforts and aims to achieve consistently high local content without compromising on quality.

MTU launched its Series 1600 engine family in 2009 and now has thousands of units in service. Renowned as a state-of-the-art engine with common rail injection, turbocharging and electronic control, it is well-established in the market for power generation and rail applications.

The JV will handle sales and service of Series 1600 generator sets for end users in India, Nepal and Sri Lanka territory, while Rolls-Royce Power Systems will handle sales and service in Rest of World territory.

Andreas Schell, President and CEO of Rolls-Royce Power Systems, said, "The JV opens new opportunities for a bright future with our Series 1600 products. In Force Motors we have found a reliable partner whose excellent production quality is proven by decades of experience in building engines for premium automotive brands."

"Once serial production capabilities for 1600 units have been established within the JV, we will have opportunities to add other applications, engines and power systems to the JV portfolio," he added. 

## Maxxis Tyres opens its first manufacturing plant in India



Maxxis Tyres plant inauguration in India

Two-wheeler tyre manufacturer Maxxis Rubber India, a sub-company of Maxxis Group, inaugurated its first manufacturing facility in Sanand, Gujarat. The plant was inaugurated by Gujarat Chief Minister Vijaybhai Rupani.

The plant with an investment of over ₹ 2,640 crore, is spread across a massive 106 acres. The facility is currently dedicated to manufacturing of Two-Wheeler

tyres and tubes and will have a capacity to produce around 20,000 tyres and 40,000 tubes per day. With this size and capacity, the company is targeting a market share of at least 15 per cent of India's tyre market within 5 years.

Commenting on the occasion, Cheng-Yao Liao, President, Maxxis India stated that Maxxis Global is targeting to become one of the top 5 tyre manufacturers in the world by 2026 and India market will play a vital role in their growth.

"We are fully committed to the government's Make in India initiative and our intent is to Make in India for the world. We monitored the market for over two decades and then devised the strategy for entering India. The manufacturing plant in Sanand is only the first step of Maxxis's full range appearance in the country," Cheng-Yao Liao asserted.

Maxxis currently serves as an OEM tyre supplier to Honda (Two-wheelers), Maruti Suzuki, Mahindra, Tata and Jeep in India. Apart from catering to the domestic tyre market, the product portfolio from the facility will be exported to South Asia, and will further expand to Africa and Middle East countries in the coming years.

The production from the first phase of the facility began in August, 2017 and Maxxis has been selected as the original equipment tyre supplier to India's number one selling model, Honda Activa, since 2015.

"The plant currently employs a workforce of 600 people and we are working to extend our manpower to 2,000 human resources within a span of five years," said Jia-Ciao Liou (Gary), Spokesperson, Maxxis India. 

# TruLaser Cell Series 7000



Cost-efficient  
manufacturing.



Easy, ergonomic  
operation.



Youtube.com/  
TRUMPFtube

TRUMPF TruLaser Cell 7000  
Scan QR for video.



## 3D Cutting

- 3D-cutting of automotive sheet metal components.
- 3D-cutting creates fastest prototype parts as compared to mould and die methods.



## Laser Welding

- Universal welding for all types of joints.
- Deep penetration possibilities for critical jobs.
- Fast & economical technology with minimum heat dissipation.



## Laser Metal Deposition (LMD)

- Possibility to repair any mould and die.
- Moulds & Dies repairs with 3X strength than parent material.
- Deposit multiple layers to form new structures with Laser.



# Die & mould: Booming in India

An exclusive report on how die and mould industry is striving for growth.

The die and mould industry in India has evolved over the years and today has been a major contributor in Indian economy. Die and mould plays a pivot role for most of the manufacturing industries like auto components, packaging, plastics, electronics, electrical, healthcare, machine tools, etc. Here's an analysis on the status of die and mould industry in India, its potential, major growth drivers and various challenges faced.

#### Die and mould industry is getting matured every year

According to K. Manickam, Managing Director, CAD Macro Design and Solutions Pvt Ltd, as the mother industry of all manufacturing verticals, definitely Indian die and mould industry deserves a promising market size and growing consistently in the past 3 decades by taking up the advantages of globalisation. He adds, "In fact, the changing technology trends in the

vertical, integrated approach in the overall production, improved tool room management systems are the key factors in speeding up the growth status of this industry and converging Indian tool room market as a promising sector. Indian die and mould industry is getting matured with an average growth of 12 per cent to 15 per cent every year with consistent development on capacity building and international standards."

#### Estimated to grow at about 16.28 per cent CAGR

Raju Battula, National Manager - Technical Support, DesignTech Systems Ltd, says, "The die and mould market in India is estimated to grow at about 16.28 per cent CAGR of during 2013-2018. This has largely been an unorganised and geographically scattered sector. However, they are slowly migrating away from traditional development methodologies and



Indian die and mould industry is getting matured with an average growth of 12 per cent to 15 per cent every year with consistent development on capacity building and international standards.



**K. Manickam, Managing Director, CAD Macro Design and Solutions Pvt Ltd**



With the government of India focussing increasingly on 'Make in India' initiative, this industry is set to boom manifolds in the coming years.



**Raju Battula, National Manager- Technical Support, DesignTech Systems Ltd**

Continued to 14 →

# Delivering PERFORMANCE for Decades

✉ [salesmmt@acemicromatic.com](mailto:salesmmt@acemicromatic.com)



With over 10,000 satisfied customers, upto 63% repeat orders and more than 40,000 running machines across the globe, the group has been delivering performance for decades.



TURNING SOLUTIONS



MILLING SOLUTIONS



GRINDING SOLUTIONS



SALES & SERVICE



AUTOMATION SOLUTIONS



INDUSTRY 4.0. & IoT SOLUTIONS

Visit us at

**DIE MOULD INDIA 2018**

Bombay Exhibition Centre ,NSE Nesco Complex,  
off Western Express Highway, Goregaon (E), Mumbai, Maharashtra

11<sup>th</sup> April to 14<sup>th</sup> April, 2018

Hall No.1 Stall No. F03

embracing the proven new and modern approaches and technologies for machining, manufacturing and allied developmental activities. These new age technologies such as 3D modelling software, CAE software solutions, CAM solutions, 3D Printing technologies, etc will give them the competitive edge by helping them optimise their working processes and resources, better the products quality and that too in reduced turnaround time and costs."

He adds, "With many of the suppliers working with large tier 1 companies or directly with the OEMs, they are now a part of their networked and integrated communication systems like PLM, CRM, SCM, ERP which has brought in more discipline and streamlined approach to their working processes. This has compelled them to adopt and adapt to the new technologies and systems of better management, administration, products development, communication and sharing knowledge."

#### Quality and lead time- are the major issues

There are very few commercial tool rooms in India but many small and medium scale tool makers exist in the country. Vivek Nanivadekar, Executive Director, FIBRO India informs, "The quality meeting global standards and the lead time are the major issues faced by the local die and mould making industry which we need to overcome. The new large investments are not seen coming thru. This could be due to majority of tool makers are small and medium size. We need to double the capacity considering



The quality meeting global standards and the lead time are the major issues faced by the local die and mould making industry which we need to overcome.



**Vivek Nanivadekar,**  
Executive Director,  
FIBRO India

the growth prospects. We have good training institutes which deliver few hundred tool makers every year but not everybody finds the right job."

However, Nanivadekar feels that the silver lining is the initiative taken by the government for the SME sector. In fact the new classification of MSME based on the turnover and not on the investment proposed by the government should make positive impact on the die and mould making industry as well.

#### Highlighting the growth potential in India Enormous potential in coming years

Sanjib Chakraborty, Managing Director, Hurco India informs, "India has already registered as fastest growing economy in the world and is capable to maintain the position with expected growth rate of 7 per cent plus in coming years. So there will be strong demand in manufacturing sector. The Indian die and mould industry is mainly driven by automotive industry. When government of India aims to make automobile manufacturing (passenger car) the main driver of 'Make in India' initiative with a 3 times growth target by 2026, then the growth potential is enormous. So, one shouldn't focus on the short-term high point and low point of the growth curve. Instead one should look at the large numbers for India having enormous potential in coming years."



Today's die and mould industry need highly efficient processes, machine and management system. Our investment plan should be with wider and deeper prospective.



**Sanjib Chakraborty,**  
Managing Director,  
Hurco India



According to the Indian tool room manufacturing forums, the domestic average market size of die and mould industry could touch around ₹ 30,000 crore by 2021 from its current average market size of ₹ 18,000 crore. The proposed growth definitely demands a sustained relationship among the research forums, government bodies, trade associations and the policy makers in a right mix towards next level growth.

Manickam states, "As the proposed average market size of health care sector is around 27 billion USD by 2030, it is evident that thousands of MSMEs would grow accordingly. Apart, the major sectors like automotive, consumer electronics, infrastructure development, mass engineering projects and national energy development

Continued to 16 →

# SHOP PLAN

Die Mould ERP / Scheduler



## Your Key to Success

The turn key solution to the Mother Industry  
The Return on Investment

### Time Plan



### Project Dashboard



### OEE



### M/C Schedule

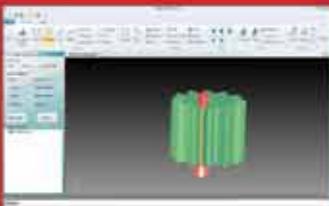


### ADVANTAGES

- User friendly GUI
- Ease of use
- Macro CAD viewer
- CRM
- Customer & Supplier portal
- Tool tracking
- Expand knowledge of key business data
- Fast analysis of workload
- Cost estimation
- Resource Planning Management
- Machine efficiency analysis
- Task Entries
- Procurement planning
- Out-source tracking
- Inventory management
- Job work & Spare processes
- Schedule based machining
- Rework management
- Alert & event system
- Early decision making
- Project cost analysis
- Work history recording system
- Notes & CAD files management
- Calendar Task Pinning

### Our other products:

#### Macro Wire



#### Macro Design



#### Macro Turn



#### Macro Feature



## CAD MACRO

CAD Macro Design & Solutions Pvt Ltd

# 33, CREW Building, Sapthagiri Colony, KR Layout, Jafferhanpet, Chennai-83  
Phone - 96000 13015-18, +91 44 43589050 E-mail - info@cadmacro.com

www.cadmacro.com

Visit us :



11<sup>th</sup> DIE & MOULD INDIA  
INTERNATIONAL EXHIBITION

11 - 14, APRIL 2018

BOMBAY EXHIBITION CENTRE, GORGAON, MUMBAI, INDIA

Booth No. C-06 • Hall-1

road maps would support Indian die and mould industries to win over substantial growth in the years to come."

#### Die and mould industry: set to boom manifolds

Companies in die and mould industry cater to companies from cross vertical domains including automotive, industry machinery, consumer goods, heavy engineering and many more. Battula says, "With the government of India focussing increasingly on 'Make in India' initiative, this industry is set to boom manifolds in the coming years. Other factors set to make positive impact on



Die and mould makers in India can today confidently compete with the global market and over the years have recorded phenomenal all-round market growth.



**Ram Grover,**  
Managing Director,  
Elesa and Ganter India

this sector are initiatives such as, dedicated SEZs for aerospace manufacturing, ease-of-doing business policy reforms, encouraging greater FDIs, overall infrastructure development, promoting and forming dedicated engineering clusters, skill development initiatives that will ensure availability of trained manpower to do the specific jobs etc. These efforts would enormously provide the greater thrust to this industry making it one of the key growth contributors to the manufacturing industry GDP in India."

#### All set to meet new growth challenges

Ram Grover, Managing Director, Elesa and Ganter India Pvt Ltd, says, "With a positive recovery trend in the overall economy and tremendous growth prospects possible with government's focus on manufacturing growth the Indian die and mould industry is poised to meet the new growth challenges."

He adds, "Die and mould makers in India can today confidently compete with the global market and over the years have recorded phenomenal all-round market growth. Die and mould associations in India is looking forward to gain engineering excellence with an aim to establish India as global manufacturing hub. With globalisation benefits, we are seeing qualitative improvement in the type of moulds being used in various industries. It is a highly competitive industry but the opportunities are plenty as well."

#### Featuring the major growth drivers

##### 'Make in India' initiative

Nanivadekar says, "The good sign is that the import of

die and mould is decreasing and local manufacturing is increasing, as per the recent survey conducted by TAGMA. The overall die and mould market is expected to grow by 10-15 per cent for the next three years. Secondly 'Make in India' initiative taken by the government will give further boost. Many of the auto OEMs have responded positively to this drive and decided to increase the contribution of local manufactured components."

He opines "We cannot neglect the international market. The couple of advanced countries are likely to stop manufacturing die and mould for two reasons competitiveness and non availability of skilled manpower. On the other hand, the current destinations of die and mould makers have started facing the above two problems. This situation opens up the doors of international markets for Indian tool makers."

#### Automotive industry: The major growth driver

The automotive industry is the main growth driver for Indian die and mould industry. Chakraborty says, "The consistent growth in automobiles with launching target of new products within a short period increased the demand in multi scale in last couple of years. Most of the customers started sourcing 100 per cent mould from India and also opened the flood gate for export to their other overseas division. Beside that the increase in purchasing capacity of rural and urban India will boost the growth in manufacturing sectors of auto components, packaging, plastics, electronics, electrical, healthcare and machine tools. It is directly proportionate as a growth factor for die and mould industry."

#### Potential growth drivers

The current demand of die and mould are met out as 60:40 percentage in terms of its import; Domestic Production Mapping (DPM), rational moves in this sector could still reduce the importing stream and would eventually improve the domestic contribution of Indian tool rooms. Manickam explains, "As explored earlier, manufacturing process related to automotive sectors or any mass engineering products would require integrated approach in the tooling industry to ensure optimised costing, improved efficiency and advanced forecasting in all the phases. In addition, inclusion of 3D Printing for prototyping, precision machining, rapid tooling systems and utilisation of advanced CAM tools are the potential growth drivers in the Indian die and mould sector."

#### Challenges faced in die and mould industry

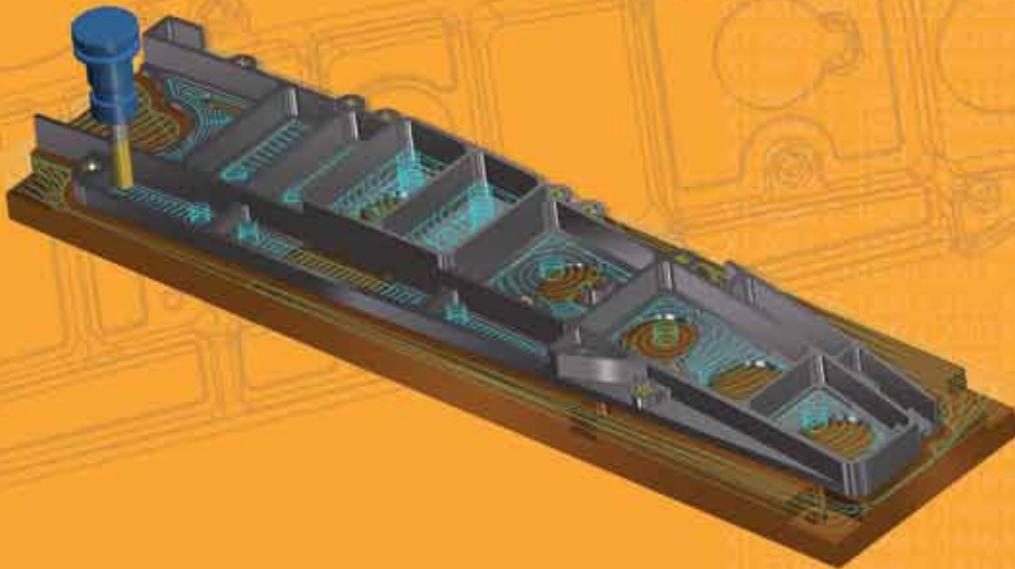
##### Investment plan should be wider and deeper prospective

Chakraborty informs, "There are lots of challenges but it is not from outsiders. These are within our own die mould community. With the globalisation of the Indian manufacturing industry, we are seeing a qualitative change with increasing complexity of the product profiles and higher accuracies, coupled with demand for extremely fast deliveries."

Continued to 18 →



# DIFFICULT MATERIALS MADE EASY



LESS CHATTER. SHORTER CYCLES.  
YOU CAN HEAR THE DIFFERENCE.

Mastercam's Dynamic Toolpaths deliver a consistent chip load, making difficult material easier to cut. That means longer tool life, reduced machine wear, and shortened run times.

See and hear the difference at [Mastercam.com/dynamic](http://Mastercam.com/dynamic).

**Phone: +91 7378 55 2000**

For more information, visit  
[mastercam.com/dynamic](http://mastercam.com/dynamic)

**Email: [info@mastercamindia.com](mailto:info@mastercamindia.com)**

**Mastercam**<sup>®</sup>



He adds, "Today's die and mould industry need highly efficient processes, machine and management system. Our investment plan should be wider and deeper prospective."

#### Critical business factors

The critical business factors like global competency, thin margin and reduced delivery time are crushing the die and mould industry to operate more rational. Manickam informs, "Eventually, this becomes the critical challenge of the industry as the said operational pressure demands high degree of co-ordination, precious design and advanced programming inputs across all the phases."

He adds, "Availing skilled labour, poor utilisation of manpower and machines, lack of advanced monitoring and scheduling tools and unorganised approach in the overall production are the key threats of the sector immaterial of its conceived growth in its landscape."

#### Open to adopt the latest technologies

Battula states, "Die and mould sector still largely relies on their experience based traditional ways of products development and manufacturing. They will have to be open to adopting the latest technologies to stay attuned to the current industry working trends. Availability of skilled and trained manpower to best leverage the technologies to derive greater benefits is another concern. Arranging for capital to be invested in modern technology is also a challenge."

#### Lagging in international quality

The infrastructure in terms of availability of raw materials and lack of standardisation are the stumbling blocks in reducing the lead time of the tools. Nanivadekar said, "I am sure the healthy competition and increasing demand will improve the situation over a period of time. Another big challenge is the international quality in which we are lagging. We need to look at this seriously. I am confident that the more exposure and the experience will make us reach there."

#### Industry's performance

##### High-end technology is getting good response

Hurco started the journey in 1968 with a mission to provide unique and innovative software and control system to help customers to maximise the productivity and profit. Five decades later, the original mission statement is still the cornerstone of 21st century Hurco. The company has started promoting the high end technology in India and is getting very good response. The population of 5 axis machine, multi axes machines, high performance die mould machine and large double column machine increased substantially in last couple of years. Chakraborty says, "We always addressed customer's concern to make customer more competitive. Our latest innovation is 3D printing technology on 3 axis VMC will help customer in prototyping task on the same machine. And also 3D DXF transfer software which will reduce the dependency on cam software to large extend."

##### Supporting the tool rooms for more than a decade

Considering the current challenges of die and mould industry, CAD Macro Design have been consistently supporting the tool rooms for more than a decade by supplementing them various CAM tools for wire EDM, lathe, nesting and press tool design segments. By considering the critical gap existing in the overall delivery cycle of die and mould industry, the company came out with a comprehensive tool room management system in the form of an ERP tool which effectively compliment the complete delivery cycle starting from order, purchase, scheduling, resource management, data analysis, maintenance, dash boards and integrated management reports. Manickam says, "By and large, in our decade long journey, we are complimenting CAM tools and tool room ERP system to our clients thereby enabling them with improved margins and effective resource management."

#### Promoting the use of technologies to the engineering sector

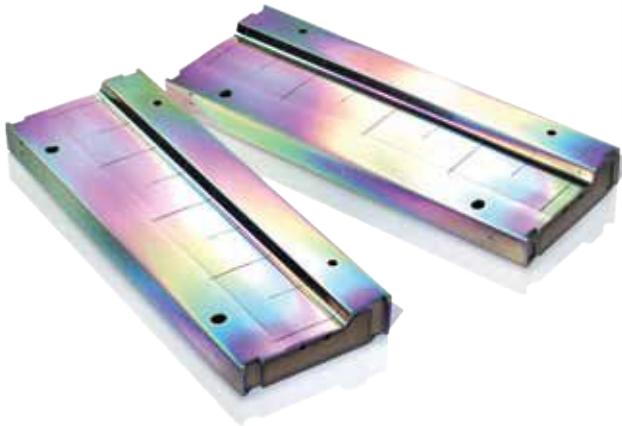
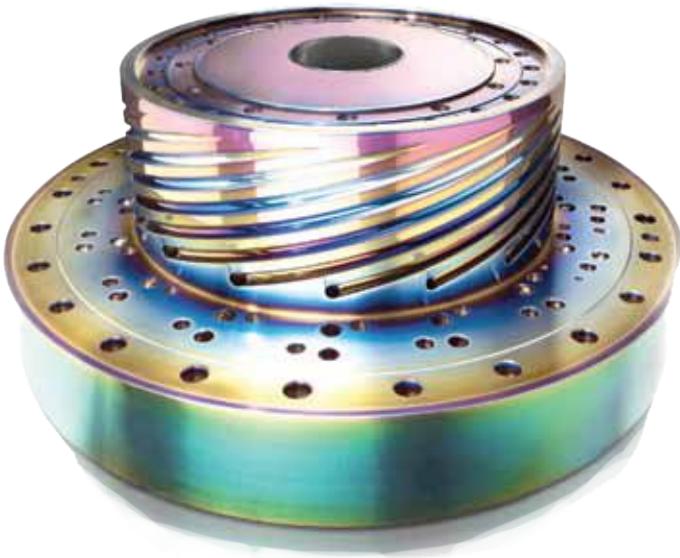
DesignTech Systems Ltd promotes the use of CAD/CAM/CAE, PLM and additive manufacturing technologies to the engineering industry in India. The company in association with Siemens Industry software entered into MoUs with various states governments of India including Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu and Jharkhand to set up Siemens Centres of Excellence to train the students on the latest products development and manufacturing technologies from Siemens. Being into engineering services, DesignTech Systems work closely with the mechanical and products development companies in India and overseas as their extended R&D teams, making valuable contributions to their engineering initiatives. In the recent past the company has set-up a joint venture with Integrity Mould tool and Die Inc., as their products design and engineering partner. Battula asserts, "For Dassault Systèmes, we are the largest CATIA certification partner in India. Established in 1998, today we have customers over 2,200 together in India and overseas and have been consistently growing at about 20-25 per cent every year, making us a leader in products development technologies suppliers, engineering services providers and PLM training offerings in India."

#### Increasing new machines to meet market demand

Nanivadekar informs, "It was the mixed year. Though we did not achieve our targets but we did better than the last year. We introduced few new products like spring plunger, guide posts, CAM units etc in the standard parts range where as we started construction of our new plant to be dedicated to rotary tables. We hope to complete the construction and start manufacturing of rotary tables for the world market by July 2019."

FIBRO has added couple of new machines to increase the capacity to meet the anticipated increased market demand and has added more than 50 new customers. The company has increased the stock of fast moving products so as to deliver them to the customers with the short notice.





## BALINIT® CROMA

### Maximum performance for plastics processing

- Greater production efficiency and reliability
- Reduced or even eliminated sticking
- Excellent scratch protection
- No chemical interaction

## BALITHERM PRIMEFORM

### Make your products shine with PRIMEFORM

Oerlikon Balzers offers with BALITHERM® PRIMEFORM an innovative and highly efficient treatment for brilliant mould surfaces. BALITHERM® PRIMEFORM is a plasma-assisted treatment that perceptibly boosts the surface hardness of your moulds with a diffusion coating. Additionally, it prevents build-up, flaking and embrittlement at edges.

### **PUNE:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
EL-22, J Block, MIDC,  
Bhosari, Pune - 411026, India  
T +91 20 30616000  
F +91 20 30616033  
[www.oerlikon.com/balzers/in](http://www.oerlikon.com/balzers/in)

### **BANGALORE:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
Plot:109, 4th Phase Kiadb,  
Bommasandra Indl. Area,  
Bangalore- 560099, India  
Ph: +91 80 27839191/93/94

### **GURGAON:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
Plot: GP- 55, Sector- 18,  
HSIDC, Gurgaon-122015,  
Haryana, India  
Ph: + 91 124 4567203

### **JAMSHEDPUR:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
C-14, Road No.-3, Near Industrial Estate,  
Adityapur, Jamshedpur - 832 109  
Jharkhand, India  
Ph: + 91 657 2203376 / 6513080

### **CHENNAI:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
Plot: A-15, Sipcot Industrial Park,  
Irungattukottai, Thandalam,  
Sriperumbudur TK, Kanchipuram Dist  
Tamil Nadu - 602 105, India  
Ph: + 91 44 47115310/11

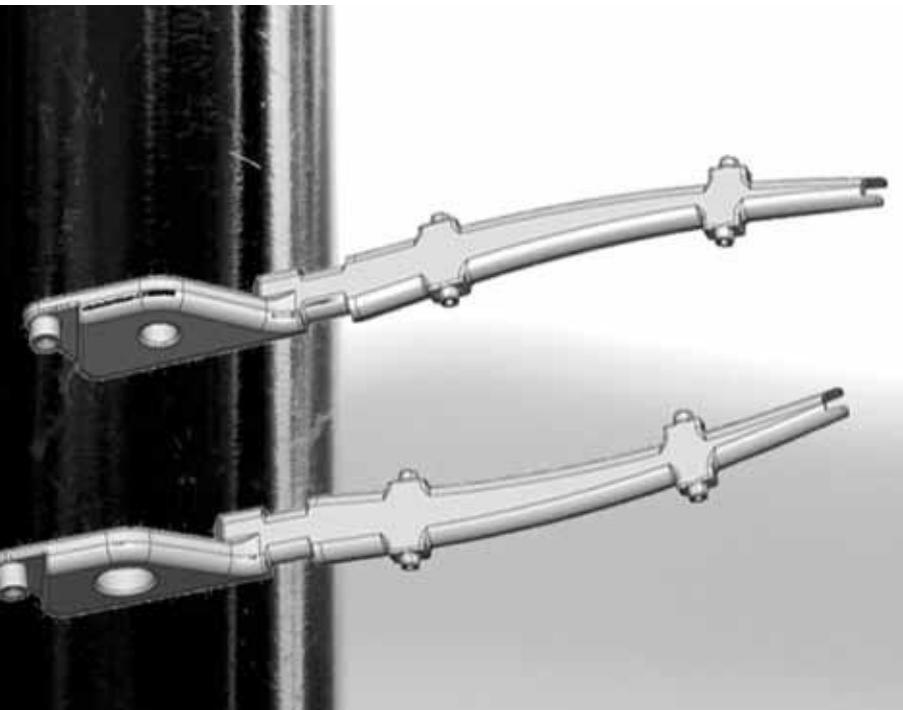
### **GUJARAT:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
Plot: 931 & 932 , Kerala G.I.D.C.  
Village- Kerala, Taluka-Bavla  
Dist- Ahmedabad, Pin-382220,  
Gujarat, India  
Ph: +91 2714 308005

### **CHANDIGARH:**

**Oerlikon Balzers Coating India Pvt.Ltd.**  
Industrial Plot No: B-23, Focal Point,  
Chanalon, Kurali, Tehshil - Kharar,  
Dist. Mohali (Punjab) - 140103, India  
Ph: +91 160 3018233

# What is Metal Injection Moulding?



## Explaining the key advantages of metal injection moulding over conventional technologies.

The inclusion of Metal Injection Moulding (MIM) in the die and mould industry is an imperative capability in producing complex shapes at large scale in cost effective way. In its core, it involves the processing of fine metal powders through a binder (custom built) and then getting it fed into multiple cavities at its injection moulding process. Hence, here we will be discussing how efficient is metal injection moulding in comparison with conventional technologies.

### MIM: A fabulous process to make smaller finished products

Nishant Shah, Director – Engineering, Imaginarium India Pvt Ltd, says, "MIM has been around for quite some time but is still not as popular as die casting or investment casting or sand casting. MIM is a fabulous process to make smaller

finished products, typically up to 100 gms, rather than conventionally making them using different technologies and then assembling it as one. It still remains one of the lesser known processes but an important one."

### Benefits to have fewer manufacturing processes

Vineet Seth, Managing Director – South Asia and Middle East, Mastercam India Pvt Ltd, informs, "It is always beneficial to have fewer manufacturing processes or setups for parts with complex geometries. MIM or powder injection moulding as it is commonly known, takes a well-established process of plastic injection moulding and applies it to metal powders, less than 20 microns in size, with binders. The result is a very efficient way of producing metal compacts for small and intricate components which can be sintered in a furnace to quickly and efficiently produce the finished metal components."

He adds, "Most of the components go through a tertiary finishing process, before they are put to use. This process is ideal for manufacturing surgical, electronic and smaller consumer parts."

### Advantages of MIM

#### MIM is capable of producing a wide range of geometries

MIM has some great advantages as compared to other processes. First and foremost, one can make parts in ferrous materials, the most common materials being low alloy steels, tool steels, stainless steels, magnetic alloys and bronze. Shah informs, "MIM is capable of producing a wide range of geometries and so is utilised in many industries. The accuracy and speed of the process make it ideal for

“

MIM is a fabulous process to make smaller finished products, typically up to 100 gms, rather than conventionally making them using different technologies and then assembling it as one.

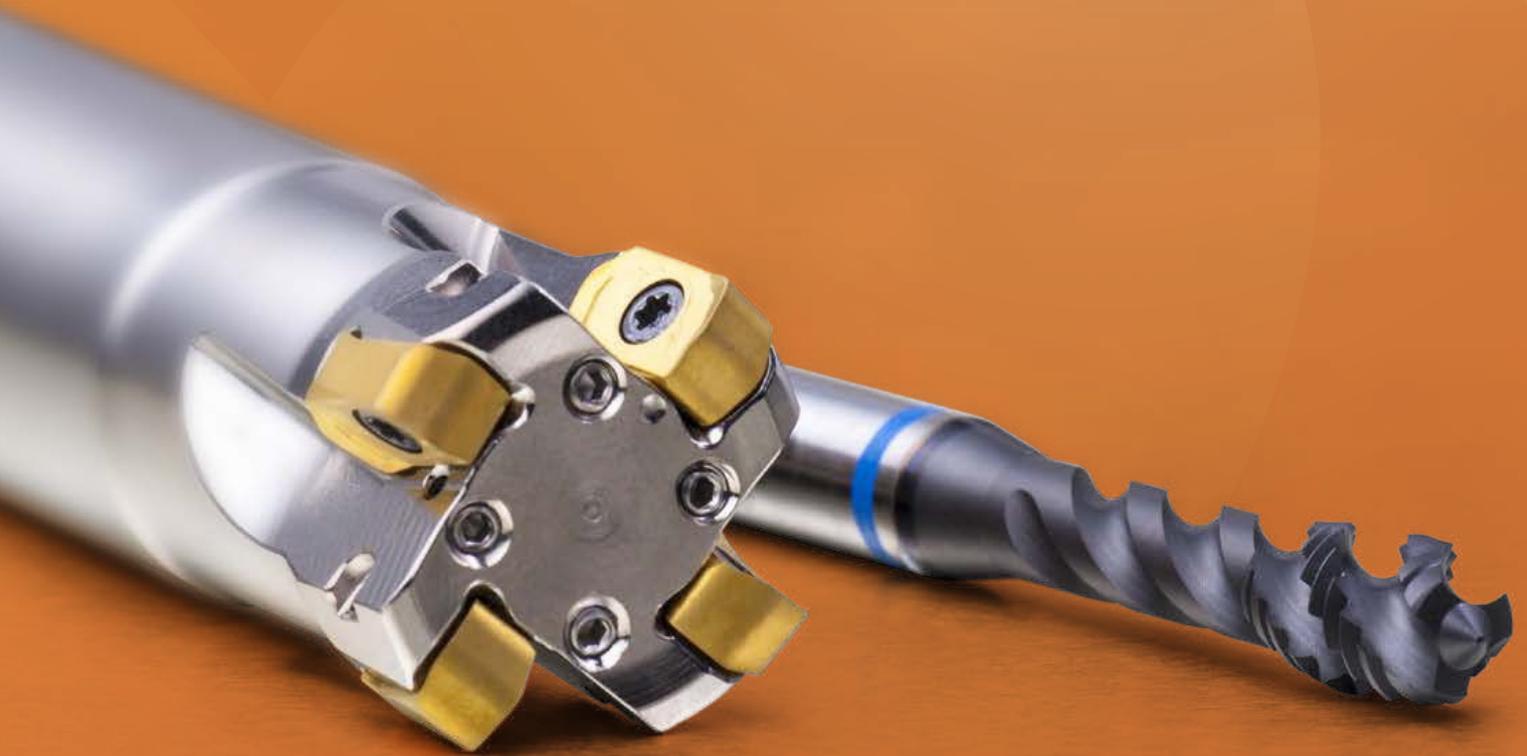


**Nishant Shah,**  
Director –Engineering,  
Imaginarium India Pvt Ltd

Continued to 22 →

**DORMER PRAMET**

# RAISING THE STANDARD



Our second product launch of 2017 delivers a variety of new threading and milling tools which raise the performance of several existing assortments and extend the options available to customers. This includes a new range of economical high feed cutters and inserts, a new milling grade for a variety of engineering materials, extensions to our Shark Line program of material specific taps and additions to our assortment of inserts and cutters for copy milling. **Simply Reliable.**



manufacturing components for the aerospace, automotive, medical, dental and consumer electronic industries. The high pressures used in this process ensure good surface finish, fine reproduction of details and of course excellent repeatability. Also the MIM parts are resilient, ductile and strong which makes them easier to do post process on, like other metal parts."

**Provides high equipment productivity compared to conventional tools**

Seth informs, "Using MIM one can avoid machining processes like threading, grooving, gripping patterns, insignias, emblems and pores or lubrication channels. It also provides high equipment productivity compared to conventional tools, offers a higher material utilisation rate, reduces scrap and waste – all while providing decent tolerances and good surface finish."

He added, "A key advantage of MIM is the elimination of multiple manufacturing setups and processes for small and intricate components, thereby reducing the time to market along with a reduced per component price. It is also a relatively non-polluting and a cleaner method."

**MIM supports mass production of tiny materials**

MIM supports mass production of tiny materials with unlimited shape and micro geometric nature without compromising high production volume by adapting comprehensive multi cavity tooling with even less than 10 seconds if proposed. The interesting point in the technology is all about the size of the powders used. As the feedstock generally available for MIM is even about 20 microns level, it could ensure ultra flexibility at any challenging shapes against other conventional technologies in the market.

**MIM ensures cost effective production streaming at large scale platforms**

The moulding scope of wide range of alloys and pre-alloys are possible through MIM, it also extends an additional advantage of minimum finishing time. K. Manickam, Managing Director, CAD Macro Design and Solutions Pvt Ltd says, "MIM ensures cost effective production streaming at large scale platforms with minimum wastage and highest usage of materials which usually touches 98 per cent most of the times based on the design and tooling strategy.

“

A key advantage of MIM is the elimination of multiple manufacturing setups and processes for small and intricate components, thereby reducing the time to market along with a reduced per component price.



**Vineet Seth, Managing Director – South Asia and Middle East, Mastercam India Pvt Ltd**

“

MIM stands unique while processing high temperature metals as the applied temperature is custom regulated by the relevant binder in the process.



**K. Manickam, Managing Director, CAD Macro Design and Solutions Pvt Ltd**

Beyond anything, MIM stands unique while processing high temperature metals as the applied temperature is custom regulated by the relevant binder in the process. By and large, MIM sustains a large scale production support up to the scale of 1,50,000 to 2,00,000 parts per day using multi cavity system which is relatively a big number by deserving high accuracy and ultra precision as its key driving factors."

**Disadvantages of MIM**

**Few potential defects**

Shah states, "There are a few potential defects in the process like sink marks, weld lines and flash. But unlike plastics metals can be reworked, ground and polished to improve surface finish. Downside is that the parts have to be typically below 100 gms or so, hence limiting the process to manufacture larger components."

**Higher investment and initial costs**

- Seth explains some of the disadvantages of MIM as:
- Process becomes less and less favourable as the component size increases.
  - Higher investment and initial costs makes it a slightly difficult process to adopt by most manufacturing setups.
  - MIM powder costs tend to be expensive in comparison to powder metallurgy.
  - Suitable for larger production runs as opposed to short ones.
  - The most suitable component size for this method is between 10-20 mm.

**Demands expensive finishing compared to conventional technologies**

Manickam observes, even though MIM stands supportive for large scale production of tiny and complex parts in a production flow, it becomes expensive at initial cost and investment proportions of bigger parts and when it becomes lower scale. He adds, "Same way, the material cost of the MIM process becomes very high during the production of large size components as the effective utilisation of finest powders are negatively proportionate for higher size finishing until and other wise there is a scope to recycle. It is also a critical setback in MIM that larger size outputs from the process demands expensive finishing compared to conventional technologies".



**WE GENERATE EXCITEMENT.**



## **ECONOMICAL, PRECISE, QUICK**

- THE AMF ZERO-POINT SYSTEM

Numerous advantages speak for themselves and make the AMF zero-point system a technology that revolutionizes the zero-point clamping market.

**ANDREAS MAIER WORKHOLDING TECHNOLOGY PVT. LTD.**

(Subsidiary of : **AMF** - GERMANY)

# 116, 2nd Cross, NHCS Layout, Basaveshwaranagar, BENGALURU-79

✉ [amfindia@amf.de](mailto:amfindia@amf.de) ☎ 080 23238444 🌐 [www.amf.de](http://www.amf.de)



Request your free  
catalogue today!

**ANDREAS MAIER GmbH & Co. KG**  
Fellbach (Germany)

# How 3D Printing changing the medical field

Things one must know what changes 3D Printing is bringing in the healthcare industry



Image: Imaginarium

With the ever growing demands of the healthcare industry, Additive Manufacturing aka 3D Printing provides compelling solutions to battle the needs. At its core 3D Printing is building of successive layers of material to form an object with computer guidance. The applications of 3D Printing range from manufacturing of personalised products to enabling compression of the supply chain resulting in cost reduction and shorter lead times, for various sectors. However, here we discuss the numerous ways 3D Printing is changing the medical field.

### From healthcare to manufacturing: 3D Printing is all set to grow

Atit Kothari, Business Development- Leadership Team, Imaginarium India Pvt Ltd, says, "The medical and healthcare vertical represents one of the strongest markets for application of 3D Printing. In addition to providing solutions for stock items such as hip and knee implants, it is being used to manufacture bespoke patient specific solutions such as hearing aids, orthotic insoles for shoes, personalised prosthetic devices and one-off implants for patients suffering from diseases such as osteoarthritis, osteoporosis and cancer, along with accident and trauma victims."



The medical and healthcare vertical represents one of the strongest markets for application of 3D Printing.



**Atit Kothari, Business Development – Leadership Team, Imaginarium India Pvt Ltd**

### Ability to produce items cheaply

Kothari believes another important benefit offered by 3D Printing is the ability to produce items cheaper. He explains, "Traditional manufacturing methods remain less expensive for large-scale production; however, the cost of 3D Printing is becoming more and more competitive for small production runs. An added advantage to mass customised solutions is aesthetics. The social stigma attached with medical conditions, deformities or injuries can cause uncomfortable situations for patients. With mass customisation, aesthetics is a relative effect helping patients fight prejudices and lead a normal life."

### Role of 3D Printing in the era of Industry 4.0

Kishan Kamani, Technical Director, Fibrox 3D Printing Solutions, says, "3D Printing is a technology that playing a vital role in fourth industrial revolution. Specifically in medical field it is very useful in many segments like – doctors are doing pre-surgical planning, by choosing the right sized standard implant, by practicing on the implant before surgery, by forming and cutting the implant for the specific patient. This all lead to minimum OT time and cost of the treatment." He informs, "By 3D Printing technology doctors are able to design and print patient specific implants. In dental Segment doctors are preparing patient specific aligners, this will decrease the time line of treatment."



Fibrox offers Fx-550 machine which is suitable for doctors and hospitals to develop 3D Printing lab facility in-house.



**Kishan Kamani, Technical Director, Fibrox 3D Printing Solutions**

### Ways on how 3D Printing will change the world

Vishal R. Jariwala, Co-founder and Chairman, J Group Robotics, points out few ways on how 3D Printing will change the world:

#### 3D Printed prosthetic

As soon as 3D Printing began to take off people were quick to see the opportunity for creating amateur prosthetics for their pets – from puppies to geese, and even tortoises. Unlike for humans, there was no mass-supply chain of prosthetics for pets. But mass-supplied prosthetics are likely to be a thing of the past as 3D Printing is increasingly used to manufacture prosthetics that are exactly tailored to a patient's needs. For example, with hip replacements,



Today, 3D Printers uses tend to develop toward final products, which would be the future ultimate goal of 3D Printing in the dental sector.



**Vishal R. Jariwala,**  
Co-founder and Chairman,  
J Group Robotics

surgeons have to cut and ream a patient's bone to fit the prosthetic, but in the future it will be normal to 3D Print a prosthetic to fit a patient.

#### Customised medical implants

Thousands of 3D Printed replacements for bony body parts: knees, hips, ankles, parts of the spine, and skull, are implanted every year, and the future holds more promise with 3D Printed patient-specific parts. Although not generally approved by the food and drug administration, some have taken place under FDA's emergency clearance process.

#### Body organs

While an entire organ has yet to be successfully printed for practical surgical use, scientists and researchers have successfully printed kidney cells, sheets of cardiac tissue that beat like a real heart and the foundations of a human liver, among many other organ tissues. While printing out an entire human organ for transplant may still be at least a decade away, medical researchers and scientists are well on their way to making this a reality.

#### Cancer research and treatment

In the same way that tissue and types of organ cells are being printed and studied, disease cells and cancer cells are also being bioprinted, in order to more effectively and systematically study how tumors grow and develop. Such medical engineering would allow for better drug testing, cancer cell analysing and therapy development. With developments in 3D and bioprinting, it may even be a possibility within one's lifetime that a cure for cancer is discovered.

#### Dental sector

At first, 3D Printers were just used to make some components used in final restorations. Today, 3D Printers uses tend to develop toward final products, which would be the future ultimate goal of 3D Printing in the dental sector. Still, in order to reach this goal, 3D Printing materials should significantly improve in terms of durability and nature.

In the future, one might have the possibility to go to the dentist to have a provisional restoration, directly shaped from one's mouth with Zirconia material.

#### Affordable 3D Printed medical devices

One should not underestimate the portability of some 3D Printers. This means that the technology can be deployed even in poverty-stricken areas of the world. This flexibility helps the medical teams over there to 3D Print every tool they need and cannot afford with traditional manufacturing means. After the earthquake in Haiti, Field Ready continued its journey in using this layer-by-layer technology to create medical supplies to improve the health care for people who live in remote areas in Nepal.



## Announcing

# ARES Mechanical 2017 !

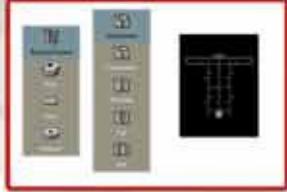
**ARES Mechanical, based on the award winning ARES platform, is a new software for Mechanical Designers from Graebert GmbH .**

**ARES Mechanical** is an intuitive, customizable and extensible CAD tool to support Mechanical CAD design work.

Supports standards such as ANSI, ISO, BSI, DIN, and JIS, so you can be standards compliant.



**Includes standard parts which can be selected and inserted in the drawing directly, saving hours of drawing time.**

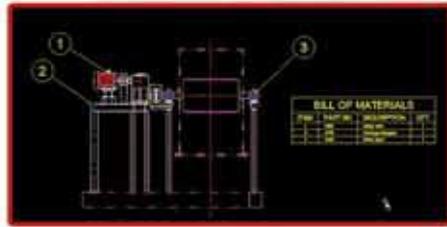


**Title blocks for the selected standard template are created automatically for you.**



**ARES Mechanical uses .DWG as its native drawing format so others can work with your drawings easily.**





**Bill of materials can be created automatically.**

**To learn about the other exciting new features of ARES Mechanical or to schedule a demo, call 8527569991.**

Gräbert India Software Pvt Ltd.  
I-Thum Tower A, Sector 62,  
Noida 201301, UP.  
**Tel:** 91 120 240 3040  
**Web:** [www.graebert.in](http://www.graebert.in)  
**Email:** [sales.india@graebert.com](mailto:sales.india@graebert.com)



**Precision CAD technology from Germany.**

Vishal informs, "Some small villages didn't have the medical access as they had a terrible road infrastructure in which it was hard to reach. Field Ready manufactured some of the medical devices such as otoscopes, tweezers, forceps and stethoscopes using a 3D Printer in order to give small villagers a medical check-up. Through 3D Printing, the tool can be made directly in the field which is faster and less expensive."

**Latest 3D Printing solutions in the medical field**  
**3D Printing: Innovation in healthcare**

Swapnil Sansare, CEO and Founder, Divide By Zero Technologies, says, "Right from idea of 3D Printed organs to printing bone replacements technology is evolving and many organisations and individuals are contributing to drive utilisation of 3D Printing in medical industry."

He adds, "3D Printing mock operation models and robotic surgery 3D Printed jigs is done widely now and accepted by medical industry."

3D Printed Titanium bone implants and support plates for accidental cases or cranio facial surgeries have grown in numbers due to ability of titanium 3D Printed porous tissue graftable structure to cause minimum inflammation.

Sansare informs, "Sooner or later tissues 3D Printing will conclude towards organ 3D Printing the question is when and who."

“

Right from idea of 3D printed organs to printing bone replacements technology is evolving and many organisations and individuals are contributing to drive utilisation of 3D Printing in medical industry.



**Swapnil Sansare,**  
**CEO and Founder,**  
**Divide By Zero Technologies**

**Bringing patient specific solutions and surgical guides**

Imaginarium life is dedicated to bringing patient specific solutions with the best of 3D technologies in practice. Customised or patient specific implants and surgical guides along with surgical planning models, dental and hearing aid solutions are at the forefront for the company. Kothari from Imaginarium explains, "With personalised implants or prosthetics, such as those used for spinal, dental, or craniomaxillofacial disorders the fit is so perfect that there are no modifications required during surgery. This results in shorter operating time reducing anesthesia time and hence helps with a faster recovery. 3D Printed implants are biocompatible and can be customised precisely as per the patient's needs."

Kothari adds, "Surgical guides on the other hand are cutting blocks or drill stents used to make accurate cuts and incision on the anatomy, are used in orthopedics and CMF/OMF widely.

Patient-specific cutting guides offer several potential benefits, including reduced surgery time, increased efficiency in case preparation, decreased blood loss and improved outcomes secondary to improved component alignment. Furthermore, Imaginarium efforts will be focused on innovations in the patient specific solutions arena.

**Fibrox offers Fx-550 machine**

Kamani notifies how Fibrox 3D Printing offers service and machine to help this field.

- Fibrox is 24x7 ready to meet any challenges given by doctor to design and print any implants.
- As a manufacturer of 3D Printing machine Fibrox offers Fx-550 machine which is suitable for doctors and hospitals to develop 3D Printing lab facility in-house.
- Fx-550 is industrial grade FDM 3D Printer, this machine is designed for accuracy and speed, while talking about BIG FDM machine there is only one constrain for every FDM Machine in the world is time.
- The company is using LM and Ball screw mechanism to drive the machine and using custom made tools head for higher flow rate of material, so one can get the 3D Print accurate and in unbelievable time.
- The bed size of this machine is 550 x 550 x 550 mm so one can print bigger part. Tool head of this machine is designed such a way that one can print any material including PEEK; PEEK is medical grade bio-friendly material. For any medical application it is preferable to use PEEK material.

**VICTREX 450 G PEEK Natural Medical Grade Filament**

J Group Robotics can print VICTREX 450 G PEEK Natural Medical Grade Filament and claims to be the only company which can print this on DELTA HC 666 3D Printer.



DELTA HC 666



VICTREX 450 G PEEK PROTOTYPE

**Specialisation of VICTREX 450 G PEEK Filament:**

- Patients are aging, staying active longer and demanding more from doctors, a wider range of treatment options are needed to address in shifting patient demographic and attitudes.
- Concerns over complications associated with metal implants and growing, clinicians are increasingly seeking proven alternative materials to overcome metal related issues.
- Pricing pressure and competition are increasing as resources become scarcer, medical manufacturers are seeking streamline designed. Manufacturing regulatory and supply-chain solutions that achieve more with less.

Recently, the company has supplied Delta HC 250 3D Printer to Armed Forces Medical College, Pune for surgical operation on live prototype, dental and oral operations, medical and healthcare. Vaibhav R. Jariwala, Co-founder & CEO, J Group

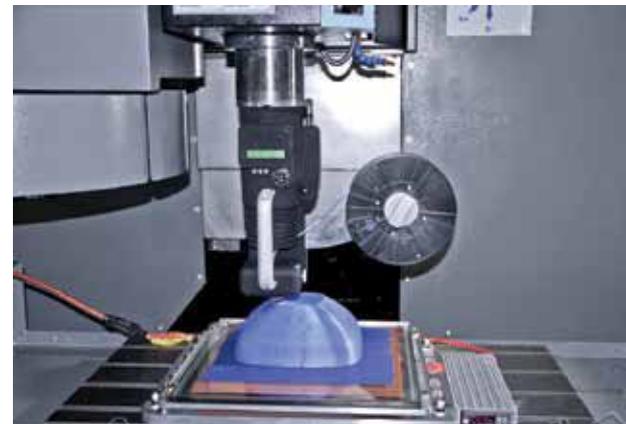
Continued to 28 →

# Technology that makes you profitable

Invite you to witness the new generation technology

- Hurco's new portable 3D Print Head can meet your prototyping task much easier on your standard Hurco VMC.
- Unique Solid Model Import software will reduce your dependability on CAM software to large extend.

## 5 axis VMC with smallest footprint



### Visit Us At

Die & Mould, Mumbai  
April 11-14 2018

Booth - E23 & E24

“Hurco Winmax doesn't talk about eliminating CAM, we talk about utilization of CAM in perfect way with the help of Winmax controller by reducing waiting time for Cam & Cam engineer”, said Mohamed Arshath, Leader Application , Hurco India.

# HURCO®

Head Office and Technical Centre

**Hurco India Private Ltd.**

No. 69, 2nd Main Road, Ambattur Industrial Estate,  
Ambattur, Chennai 600 058

Phone: +91 44 4310 8726 | Fax: +91 44 2624 3562

Mob: +91 9789052470

Email - [info@hurco.in](mailto:info@hurco.in) | [www.hurco.com/in](http://www.hurco.com/in)



J Group Robotics can print VICTREX 450 G PEEK Natural Medical Grade Filament and claims to be the only company which can print this on DELTA HC 666 3D Printer.



**Vaibhav R. Jariwala,**  
Co-founder & CEO,  
J Group Robotics

Robotics, informs, "We made medical prosthetics in very low cost, human heart direct to the CT-Scan Data, medical devices (drug delivery system) etc. We also made a sample of 3D Printed pills or medicine successfully."

J Group Robotics has collaborated with CIPLA and ZIM LAB, for many medical research projects. In future, J Group Robotics plans to launch Micro-dispensing 3D conformal systems and laser micro printing machine, which can print from computer aided design (CAD) to a tangible 3D object, is the norm now for medical product development and testing.

**Delta HC 666, Delta HC 500 and Delta HC 250 3D Printers**  
However Vaibhav explains, "J Group Robotics provides Delta HC 666, Delta HC 500 and Delta HC 250 3D Printers, specially designed for medical grade printing and operational processes, low cost prosthetic's and implants printing, skull prototyping, dental and oral operational and direct usable printing, printing of medical devices, 3D Printed pills or medicine, healthcare, hearing aid, 3D Printed plaster and many more medical applications."

**A case study**

**How 3D Printing helped in the exact imaging of the deformed skull**

To combat all the drawbacks presented by the current imaging techniques, 3D Printing was applied as the solution to get a scaled replica of the deformed skull. Sansare from Divide By Zero Technologies, explains, "The procedure of having the skull 3D Printed and the challenges that were faced."

**The procedure**

- The deformed skull underwent CT scan imaging. These images were converted into a 3D file.
- The 3D files were post-processed to get rid of the noise, for the print to be error-free.
- The file was 3D Printed.
- Mock surgery was performed on the replica of the patient's deformed skull.

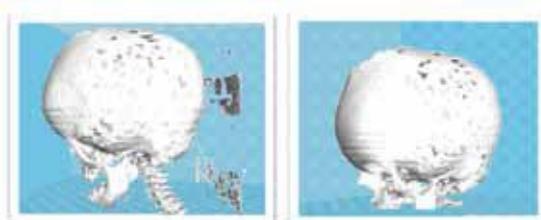
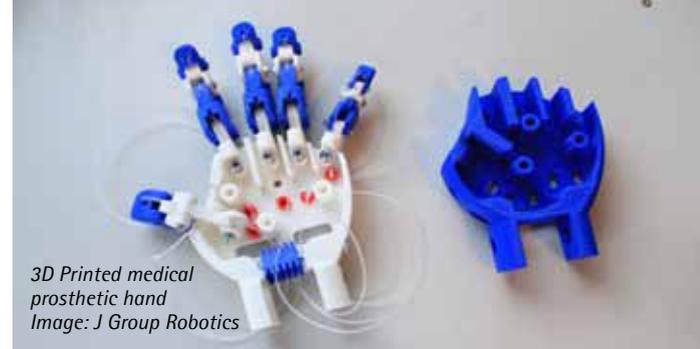


Image: J Group Robotics



3D Printed medical prosthetic hand  
Image: J Group Robotics

**The challenges**

The noise in the 3D file

One of the primary challenges was to do away with the noise from the 3D file from the CT scan imaging. The noises in the file may have resulted in erroneous or irrelevant printing.

**Solution**

Post-processing on the 3D files got rid of the noise. The file before the noise is depicted on the left-hand side and after processing, the actual image that is to be printed is seen in the figure on the right-hand side.

**Long print time interrupted by power cuts**

The estimated total printing time was about 9 hours. This wouldn't have been a problem in itself, except due to the frequent power cuts in Pondicherry; it was a problem to continue printing. The 3D Printer would have restarted at the beginning.

**Solution**

An auto resume code was developed to tackle this issue. This would help the 3D Printer to start off at the point it was printing last. Thus after every power cut, the printer would simply resume the printing where it had halted before the power cut.

**The thickness of the wall**

FDM/FF can print as thin as 1 mm. However, given the age of the patient, the deformed skull was of 0.7 mm thickness. The challenge here was to print something thinner than the permissible limit.

**Solution**

A special 0.2 mm (200 microns) nozzle was conceived and developed in order to achieve the skull wall thickness as low as 0.7 mm. With the new nozzle, the lowest thickness of the printing could be 0.4mm.

**The final product of the 3D Printing**

After curbing the obstacles and resolving the aforementioned challenges, the 3D Printer was engaged in the actual printing, based on the processed 3D file from the CT scans. The 3D file image can be seen on the left-hand side, while the actual finished product is seen in the image on the right-hand side.

**Final steps**

After the deformed skull was 3D Printed to the precise scale and thickness, mock surgery was performed in order to determine the actual plan of action for the patient.

**Current scenario**

The patient was operated on the 1st of October for craniosynostosis, and she is now recovering and doing fine with regards to her cranial condition.



## WAGO AUTOMATION AND INTERFACE ELECTRONICS

One system for every application



Our steadfast commitment to innovation and versatility enables us to continue setting new standards in usability, performance and reliability. WAGO Automation Control and Interface Electronics solutions are well suited for wide variety of applications ranging from industrial and building automation to measurement and data collection.

### WIDE RANGE OF QUALITY PRODUCTS

- **Automation Technology** – Fieldbus Couplers, Programmable Fieldbus Controllers & Software, I/O Modules, HMIs, Sensor/Actuator Boxes, Industrial Switches, Shield Connecting System
- **Power Supplies** – Advanced Power Supply Solutions, Electronic Circuit Breakers (ECBs), Uninterruptible Power Supply (UPS), Buffer and Redundancy Modules
- **Interface Electronic** – Signal Conditioners and Isolation Amplifiers, Relay Modules, Optocoupler Modules, Relay Sockets, Function Modules
- **Current and Energy Measurement Technology** – Current Transformers, Rogowski Coils, Current Sensors, Voltage Taps, Rogowski Signal Conditioners

#### WAGO Private Limited

C-27, Sector-58, Phase-III, Noida-201301

Phone: +91-120-4388700, 4369800 | Fax: +91-120-2580081

Email: [info.india@wago.com](mailto:info.india@wago.com) | Website: [www.wago.com](http://www.wago.com)

## Objective is to put India among top global markets: Universal Robots



*Jürgen von Hollen,  
President,  
Universal Robots*

**C**obots are designed to work with humans and assist them with a variety of tasks which help to automate and streamline repetitive and potentially unsafe processes thus, ensuring safe work environment while increasing productivity and efficiency.

Today cobots can automate virtually anything – from assembly to painting, screw driving, labelling, packing, polishing, and injection and whatever other tasks you can think of. Cobots are being considered as the third arm of an operator and a critical component for the factory of the future. They can be deployed in virtually any industry, by any employee.

In India, where labour is comparatively cheap, it is not advisable to eliminate all labour unlike robots do. However, according to Pradeep David, General Manager – South Asia, Universal Robots, "Cobots are very apposite of traditional robots and suitable for the Indian market as they are relatively inexpensive, safe, and easy to deploy."

### Targeting Indian market

Highlighting the company's core objectives as far as Indian market is concerned, Jürgen von Hollen, President of Universal Robots said, "For me, India means diversity in every context. There are tremendous opportunities despite challenges. So, delivering on the potential of Indian market should

**Denmark's Universal Robots, the pioneer of collaborative robots or cobots, expressed its commitment to expand and deepen business presence in India, reports Subhajit Roy.**

be another priority. We believe, if we are successful here, we can be successful anywhere."

Further, Jürgen believes, India has everything that it needs to be a manufacturing hub - let it be capability, competence and resources. He said, "This is the time for India to elevate itself to the global stage by bringing in the missing tools. I think, one of those may be our cobots. Therefore, our priority is to put India among our top global markets."

He adds, "We would like to see India aggressively adopt advanced technologies across the spectrum - not only restricted to automotive industry. General production manufacturing segment can be explored at least 10 times with the help of some advanced tools."

India's biggest strength is human resource, acknowledges Jürgen. He adds, "We would also like to tap in the fantastic resource base here - the education level is high and moreover the hunger for doing something innovative is high. People want to be successful here and that hunger is very important for us. So, one of our key challenges in taking our company to the global level would be to take advantage of the Indian workforce."

As cobots are becoming increasingly popular in India, Universal Robots desires to project the success stories of Indian market in the global level.



Our cobots are low-cost, easy-to-deploy, simple-to-program robotic arms that work on the principle of human-robot collaboration.

Pradeep David,  
General Manager – South Asia, Universal Robots

Jürgen said, "In the past, we leveraged our contacts to open up business opportunities in India and soon it will be altered. Indian companies will be our point of reference as the awareness for cobots is increasing in India."

Pradeep further adds, "Our cobots are low-cost, easy-to-deploy, simple-to-program robotic arms that work on the principle of human-robot collaboration. This is the most important message we need to spread. People in India, especially the small and medium OEMs, still believe that robotic technology is very expensive. An investment of around ₹ 18-20 lakhs will enable bringing-in robotics in a facility and the payback period is only 2 years."

#### To nurture Universal Robots+ ecosystem in India

Universal Robots+ is an online showroom that provides cutting-edge products to customise a UR robot application that perfectly meets any end-user's requirements. The platform provides all information related to cobots in one place – from end-effectors and accessories to vision cameras and software. Universal Robots would like to expand the Universal Robots+ ecosystem in India especially for Developers. The Universal Robots+ Developer Program gives access to the company's new open software platform which allows Developers to design products for UR robots.

#### Hits US\$ 170 mn revenue in 2017

In 2017, UR achieved revenue of US\$ 170 million with an impressive 72 per cent year-on-year growth. "Looking ahead at 2018, we expect further revenue growth of at least 50 per cent," Jürgen informed.

He added, "The cobot market is expected to continue to be one of the key growth drivers in the automation market the coming years. Universal Robots will continue to leverage its position as the market leader for cobots and grow at the same or above the collaborative robot market growth rate for 2018. This, however, can only be done by focusing on our goals of staying ahead technologically, expanding our Universal Robots+ platform and further globalising our regional sales and service footprint and reach."

In India, UR is witnessing a hopping 100 per cent year-on-year growth which is expected to continue for the foreseeable future, informs Pradeep. Globally, UR has deployed around 21,000 cobots whereas in India, the company entered in 2016 and has already deployed around 400 cobots.



# Real Technologies

Real Technologies Machines Pvt. Ltd. company with leadership in the field of designing, manufacturing & supply of industrial component cleaning machine, filtration systems & Painting systems



Rotary Basket Type Component Cleaning M/c.



Cabinet type Crankshaft Cleaning M/c.



Painting Booth



Component Drying Oven



Cabinet type cylinder Block Cleaning Machine



Converoyed cum Cage Rotation Dunking type Cylinder Head Cleaning M/c.

Customised applications to meet high precision cleaning for stringent millipore requirement & high production rates in time - with fixturing, specific wash with dedicated nozzle orientation.



#### Real Technologies Machines Pvt. Ltd.

2/10, Shiva Ganga Apartment, Near Dashbhuga Ganesh Temple Near Bus Stop, Pune - 411001, Maharashtra, India  
E-mail: real.technologies@rediffmail.com, realtechnologies123@gmail.com  
Mobile: +91-8149107643, +91-9850579403  
www.realfiltration.com

## “For the user, standardised means future proof”

**POWERLINK has been adopted by the IEEE under international standard IEEE 61158. It is the only Industrial Ethernet protocol to achieve this status. We asked Dietmar Bruckner, technical manager of open automation at B&R, to describe the standardisation process and explain what advantages we can expect to come out of it.**



*Dietmar Bruckner,  
Technical  
Manager of open  
automation, B&R*

### Why is it significant that POWERLINK has been standardised as IEEE 61158?

It's a differentiating factor that will further accelerate the spread and acceptance of POWERLINK. It makes implementation easier and cheaper. At the same time, it reminds us that Industrial Ethernet continues to gain significance. In the age of Industrial IoT and Industry 4.0, real-time communication is becoming more and more important.

### What sets Industrial Ethernet apart from regular Ethernet?

Two things: determinism and semantic context. Working at our office PC, connected to a fast IT network, we may get the impression that we're sending and receiving data more or less in real time – but that's not the case. Whenever you have large numbers of simultaneous requests or large files being sent, the network may get sluggish or even crash. That can be frustrating, but it's not the end of the world. In an industrial setting, network congestion can cause much bigger problems.

### Like what?

Imagine an automotive assembly line with a robot that mounts the windshield onto the chassis. There are sensors that tell the robot how much farther to move until the windshield is in the right position. If the signal telling the robot to stop is delayed by just a second, or if the robot doesn't understand the semantics of the message, you're cleaning up a broken windshield. If a human operator is nearby, the consequences can be even more serious. That's why it is imperative that all the data needed to control a machine is guaranteed to arrive at a clearly defined time and that it is understood by every node in the network.

### How do you do that?

There are a number of mechanisms involved. The network nodes all need to be on the same page with regard to timing and data types, for example. This and many other functions are what's provided by the Industrial Ethernet protocols.

### Which brings us back to POWERLINK. How did it come to pass that POWERLINK is standardised by the IEEE?

For a long time, real-time communication was uncharted territory for the IEEE. That's why, in 2014, I started pushing for the IES to address the topic. IES stands for Industrial Electronics Society – it's a subgroup within the IEEE, the world's largest professional organisation for electrical and electronics engineers. The IES sponsored a working group within the IEEE tasked with adopting a standard for real-time communication.

### How does a working group like that operate?

We had 38 participants from all over the world – representing everything from industrial companies and consulting firms to universities and research institutes. We introduced a draft for the specification, and it was discussed exhaustively. But, the IEEE sets very strict criteria for new standards. Not only the technical content, but also potential conflicts with other IEEE standards, structure, formatting, even spelling and punctuation – were all checked, rechecked and fine tuned.

### Were any protocols other than POWERLINK evaluated?

No. The working group was very quickly in agreement that POWERLINK satisfied the requirements of the IEEE perfectly. Not just because of its excellent technical qualities, but also the fact that it is 100% compatible with the Ethernet standard. As open source technology, POWERLINK also doesn't have any proprietary rights to deal with.

### When did the working group complete its evaluation?

There were several steps involved. First, we had a number of rounds of discussion and voting within the group. Next, a group was formed within the IEEE to conduct two rounds of voting on technical matters. Then the development process itself and the formal requirements were examined. This is a clearly defined process within the IEEE, and occurred over the first half of 2017. The final specification was published in August, and since then, POWERLINK is now officially IEEE 61158.

### What advantages does this standardisation have for OEMs?

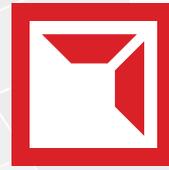
IEEE standards are valid for a minimum of ten years. So, for the user, standardised means future proof. It also guarantees interoperability of all POWERLINK devices, as long as manufacturers adhere to the standard. This same interoperability also applies to POWERLINK and OPC UA, by the way. The Ethernet POWERLINK Standardisation Group published the companion specification in early 2017.

### Are there any other advantages?

I believe we'll see manufacturers of microcontrollers for Ethernet hardware starting to implement POWERLINK more and more. Factory automation suppliers will benefit from more and cheaper Ethernet controllers with POWERLINK. Ultimately, plant and machinery operators who use POWERLINK will see their costs go down as well. 

# EPPINGER

## PRECISION GEAR SOLUTIONS



Since 1925

(A German Company. ISO Certified.)

Wide range of Planetary Gear Heads and Cycloidal Gear Boxes  
with Cutting Edge Technology

### Planetary Gear Heads



PE Series



PF Series



PT Series



PEB Series

### Cycloidal Gear Boxes



CYK



CYKM



Servo Hypoid Spur Gear Boxes



Bevel Gear Boxes



Bevel Planetary Gear Boxes



Hypoid Gear Boxes



Cycloid Gear Boxes



Custom Built Gear Boxes

**CUSTOM BUILT / NON-STANDARD GEARS, GEAR COMPONENTS AND GEAR ASSEMBLIES**

For more information, please contact:

**EPPINGER TOOLING ASIA PVT. LTD.,**

S.F.No.345/2A-2B, Kondampatty Village, Kinathukadavu Taluk, Coimbatore - 641 202.

Ph: 04259 201132, 33, 34 Mobile: +91 88700 13053 Fax: 04259 201118

E-mail: [marketing@eta-tools.com](mailto:marketing@eta-tools.com), [eppinger@dataone.in](mailto:eppinger@dataone.in) Website: [www.eppinger-gears.com](http://www.eppinger-gears.com) / [www.eppinger.de](http://www.eppinger.de)

Dealers / Agents enquiries solicited from all over India

## Schneider Electric keen to make India "EV Ready"



Schneider Electric, the global specialist in digital transformation of energy management and automation, announced that the company is keen to tap into the Indian electric vehicle charging infrastructure market.

Given the huge potential in the electric vehicle charging space, Schneider Electric displayed its EV charging infrastructure named EVLinks at its first Innovation Summit in India on March 19 and 20 in New Delhi.

"EVLinks is already available in different markets across the world and the company is keen to tap into the nascent Indian market for the same. The EV charging platform

can be installed both at homes as well as public places," a company statement said.

The Innovation Summit brought together more than 2,000 customers, policy makers and industry leaders. Leaders shared critical insights on how automation and digitisation are helping to manage energy with disruptive technology tools leading to efficiency in business. The summit also reiterated Schneider Electric's commitment to a sustainability agenda and complete alignment with the Indian government's long-term goal of bringing down carbon footprint.

Addressing the plenary, Amitabh Kant, CEO of Niti Aayog, said the country is poised for paradigm shifts with huge disruptions in physical infrastructure. He adds, "We are creating 100 smart cities with another 50 cities which will be connected by metro and a few connected with bullet trains. The government is converging physical infrastructure with biometric-based digital infrastructure to improve human lives with uninterrupted water and electricity supplies, efficient public transportation, quality education and healthcare services."

Opening the plenary session of the summit, Anil Chaudhry, Zone President and Managing Director of



CEO of Niti Aayog Amitabh Kant at Innovation Summit 2018

Schneider Electric India said, "Schneider Electric's technologies are powering businesses and key government programmes including Make in India, Smart Cities Mission and Electric Mobility. Nearly 15 per cent of India's solar capacity is based on Schneider technology. Digitisation and IoT are going to transform India's energy ecosystem so that all citizens have access to uninterrupted electricity at affordable rates."

#### Making New India Energy Positive

The event featured strategic discussions and interactive deep-dive sessions among over 50 expert speakers from Schneider Electric besides a diverse group of customers and partners from India and across the Asia Pacific region. It was designed to further accelerate digital solutions to make New India Energy Positive. The expert sessions included those on intuitive industries, living spaces of the future, leveraging IoT in manufacturing facilities, enabling digital hospitals, re-imagining data centres for a connected tomorrow, empowering industrial OEMs for the digital era, inclusive growth of India through skill development and rural electrification.

#### Displays 'Connected Homes'

The summit also showcased Schneider Electric's Innovation Hub, an exhibition of the company's rich portfolio of software, solutions and services. The integrated zone displayed its next-generation EcoStruxure architecture and platform that delivers IoT-enabled open and interoperable solutions across user segments. The company also displayed its new range of IoT enabled smart home solutions called 'Connected Homes'. It ran digital demos bringing the innovative platforms closer to its customers as well as to a broader audience.

#### Developing India's first greenfield smart city

The event showcased the integrated command centre of the Naya Raipur smart city. Schneider Electric is developing the country's first greenfield smart city at Naya Raipur in Chhattisgarh. The integrated project for Naya Raipur Development Authority (NRDA) will cover the entire gamut of public services like transportation, surveillance, citizen applications, end-to-end smart grid solutions, end-to-end water management system and integrated building management system. It will have a centralised command and control centre to manage emergency responses as well. ⚙️

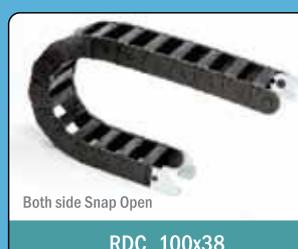
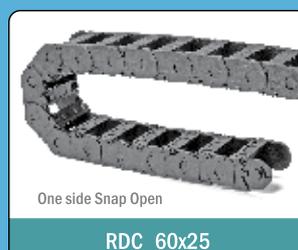
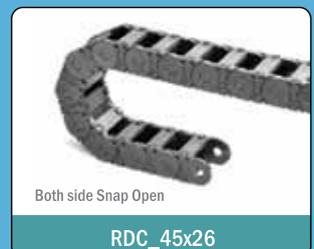
*Innovation Hub*



 [www.kppl.co.in](http://www.kppl.co.in)

*Trusted Name In Engineering Plastics*

### Cable Drag Chain - New Rounded Design



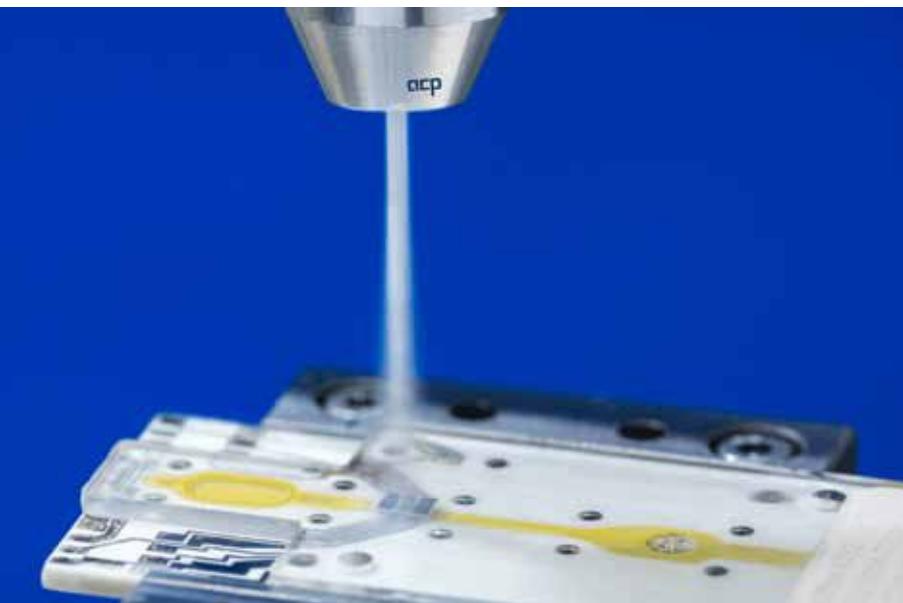
 **Kumbhojkar Plastic Moulders**

129, Narayan Peth,  
Sitaphal Baug Colony,  
Pune - 411 030.  
Tel : 91-020-24450055/60

[sales@kumbhojkarplastics.com](mailto:sales@kumbhojkarplastics.com)  
[www.kumbhojkarplastics.com](http://www.kumbhojkarplastics.com)

## Cleanliness is more than biocompatibility

In the medical engineering world, the concept of cleanliness is primarily associated with microbiological contaminations. In order to protect both operatives and patients there has been a growing emphasis in recent years on the removal of residues left by the manufacturing or assembly process, whether in the form of particulates or chemical films. This calls for cleaning solutions that are consistently reliable, and at the same time cost-effective.



*For the cleaning of microfluidic systems, such as lab-on-a-chip products, CO<sub>2</sub> snow blasting has proved to be an effective technique. Source: acp – advanced clean production*

In the case of microbiological contaminations, or so-called bioburdens, the manufacturers of medical engineering products such as implants, medical instruments and operating instruments for traditional and minimally invasive surgery are able to refer to a whole raft of norms, standards, regulations and procedural instructions which tell them how to deal with different types and quantities of contaminants. But it is a very different story when it comes to other organic and inorganic substances such as the residues of processing media or processing aids, release agents and chemical surfactants, particles, fibres and dust. Hitherto these have been covered by only a handful of norms and regulations, such as ISO 8536-4. But these substances – even if they have been sterilised along with the medical engineering product itself – can still pose a risk inside the body of a patient; so the need for effective cleaning has now become a growing concern. This means, on the one hand, achieving high standards of cleanliness and biocompatibility, while on the other hand it is necessary to ensure that the surface and other characteristics of the product are not modified or altered by the cleaning process itself. Proper validation of the cleaning process poses a further challenge for manufacturers.

### Factors governing the choice of the cleaning process

Various technologies are available for cleaning, including wet chemical cleaning processes, CO<sub>2</sub> blast cleaning and plasma cleaning. Key factors governing the appropriate choice of process include the material or combination

of materials involved, component size and geometry, the type and degree of contamination, throughput rate, required flexibility, the cleanliness specification with respect to particulate residues and surface films, and the production stage. A number of other aspects also need to be considered: At which points in the production operation are the parts contaminated, and with what? Do the contaminants need to be removed immediately, typically because they would jeopardise the next processing stage? Are the processing operations carried out with different agents or aids which could make cleaning problematic if they are intermixed? Is there a risk of cross-contamination if parts made from different materials, such as titanium, stainless steel, tungsten carbide and ceramics, are treated in the same cleaning plant?

The optimum cleaning solution, both technically and commercially, quite often consists of a combination of different procedures.

### Wet chemical cleaning – standard procedure in the medical engineering sector

With metal or plastic parts, the required results in the majority of cleaning applications in medical engineering can be obtained by using wet chemical processes.

When choosing a suitable cleaning agent, the chemical principle “like dissolves like” is a useful guide: aqueous cleaning agents are generally used to deal with water-based (polar) contaminants such as polishing pastes, salts, dust and grit, and other solids. It is advisable to carry out tests to establish that the materials are compatible and the end results satisfactory. It is also important to check that the cleaning agent is a suitable match for the particular type of process being used, such as spraying or ultrasound; failure to do so can lead to unwanted consequences such as foaming. In order to ensure the required biocompatibility when cleaning with aqueous agents, it is usual to carry out final cleaning in several stages. This is normally done, at least at the final rinsing stage, using fully desalinated water. This ensures that no cleaning agent residues or water stains are left on the surfaces which would impair the quality and biocompatibility of the components.

In the case of nonpolar contaminants such as oils and greases, a solvent of some kind is generally the right choice. Depending on the specific contaminant involved, the best solution is likely to be a chlorinated hydrocarbon,

Continued to 38 →

chip protection



safe energy, data, media



dirt resistant...hot



[igus.in/machinetools](http://igus.in/machinetools)



igus® (India) Pvt. Ltd.  
36/1, Sy. No. 17/3  
Euro School Road

Dodda Nekkundi Industrial Area - 2nd Stage  
Mahadevapura, Bangalore -560048,  
Karnataka, India

Phone +91-80-45 12 78-00  
Fax +91-80-45 12 78-02



*Final cleaning of medical engineering products is normally carried out in a multi-stage aqueous immersion cleaning system. Fully desalinated water is generally used for the final rinsing stages to ensure biocompatibility and eliminate water staining on the components.  
Source: UCM*

a non-halogenated hydrocarbon, or a modified alcohol. The latter possess both lipophilic and hydrophilic properties, which means that they can remove nonpolar and – to a certain extent – polar contaminations as well. There are also products available here that allow manufacturers to achieve biocompatible surfaces.

#### Mechanical action optimises the cleaning effect

The effect of the cleaning medium is enhanced by a number of physical processes of varying intensity such as spraying, immersion, ultrasound and pressure flushing. The technique most often used in medical engineering applications is ultrasound. A relatively new wet chemical process that has so far been used in the semiconductor industry, some specialised areas of medical technology and in the optical industry is cyclical nucleation (CNp). Like ultrasound cleaning, it is based on the physical effect known as cavitation, which is here combined with an asymmetric volume flow rate. This combination makes it possible to dislodge particulate and film-like contaminants even from very fine capillaries, borings and 3D structures with consistently dependable results, and without damaging the substrate material. Cleaning is carried out in a closed chamber filled with cleaning agent, which is placed under vacuum. This causes millions of tiny gas bubbles to form in the liquid, which are then deposited on all the surfaces of the workpiece – even inside capillaries, borings and complex 3D structures. The vacuum is then released, causing the bubbles to implode. This cycle produces short, powerful pulses that have a strong mechanical effect on the component surfaces, effectively dislodging any contaminants attached to them. The critical cleaning effect results from the definition of a fixed cycle between the upper and lower switching point in the vacuum. This can be repeated and varied at will – hence the name “cyclical nucleation”. The pressure amplitudes cause the tiny gas bubbles to form and implode in an endless cycle. Cyclical nucleation can be used on its own, or in combination with traditional wet chemical cleaning processes.

#### Special processes for special applications

For special applications in the medical engineering sector, processes such as CO<sub>2</sub> and plasma cleaning have been found to be effective. CO<sub>2</sub> cleaning is typically used for the final cleaning of metal and plastic endoscope components, the micro-deburring and ultra-fine cleaning of one-way systems made of plastic, such as lab-on-a-chip products, and also for combined lubrication, cooling and cleaning during the machining of implants and medical engineering components made from PEEK.

Biocompatible plasma is typically used in medical engineering for the fine cleaning of stents, surgical and dental implants, and guidewires prior to coating with hydrogel or PTFE, and for increasing surface energy in microtiter plates.

#### Solutions for the verification of cleanliness

Norms and standards for the verification of residual particulate contaminations in the medical engineering field are virtually non-existent, apart from a few that relate to specific products or product groups. And the verification procedure is often described in vague terms, making it effectively impossible to compare different results. The standard reference work used in the automobile industry, known as VDA 19 or ISO 16232, offers some useful guidance on testing for residual particulate contaminations that can be applied to medical engineering products. A number of test laboratories that specialise in industrial cleanliness already offer services that are applicable in the medical engineering field.

Residual contaminations in the form of chemical films can be identified and quantified on components of any geometry with the aid of a measurement process based on vacuum-induced desorption. In this procedure, the quantity of residual contamination on the surface of the component is determined in grams, so that appropriate threshold values can also be defined. Furthermore, contaminants can be clearly identified, along with their source – for example, residues left by manufacturing aids. ⚙️

parts2clean, the international trade fair for industrial parts and surface cleaning, takes place from 23 to 25 October at the Stuttgart Exhibition Centre (Germany). The show provides comprehensive information about cleaning systems, alternative cleaning technologies, cleaning agents, quality assurance and test procedures, cleaning baths and tanks, the disposal and conditioning of process media, handling and automation, services, consultancy, research and trade publications.

Author:  
Doris Schulz

# REVOLUTIONIZING THE HEAT TREATMENT INDUSTRY



**MODERN METALS INDIA**  
METALS INDIA Group Co.

## VACUUM HEAT TREATMENT



- Vacuum Hardening with Isothermal Quenching
- Vacuum Tempering
- Stress Relieving / Tempering
- Vacuum Brazing
- Low Pressure Vacuum Nitriding
- High Temperature Nitriding of Stainless Steel
- Vacuum Carburizing

## PLASMA NITRIDING PULSPLASMA® SURFACE TREATMENT



- Plasma Nitriding (PulsPlasma®)
- Plasma Nitrocarburising
- Pre & Post Oxidation
- Oxynitrocarburising
- Plasma Assisted Carbonitriding

## VACUUM GAS NITRIDING



- Vacuum Nitriding
- Gas Nitriding
- Gas Nitrocarburizing
- Pre & Post Oxidation

## CRYOGENIC TREATMENT

## ATMOSPHERE HEAT TREATMENT



- Gas carburizing
- Carbonitriding
- Nitrocarburizing
- Stress Relieving
- Tempering
- Neutral Hardening
- Annealing

## INDUCTION HARDENING



- Induction Hardening
- Induction Annealing
- Induction Heating
- Induction Brazing

## CRYOGENIC TREATMENT



- Sub Zero Treatment
- Cryogenic Treatment
- RA Reduction
- Cold Stress Relieving

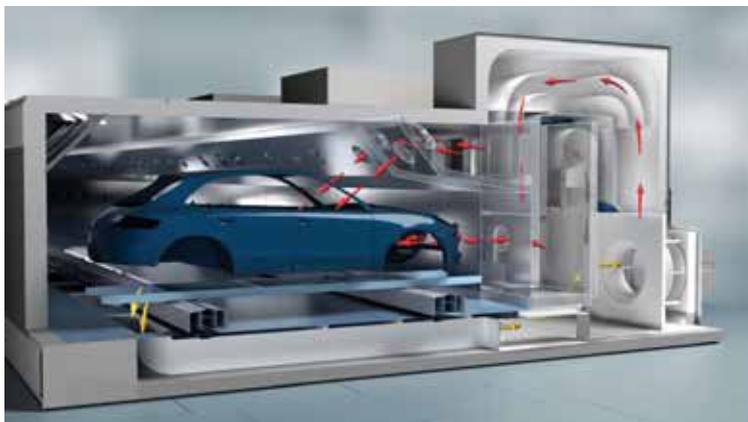


## MODERN METALS INDIA PVT. LTD.

Plot No. 131, Sector-25, Ballabgarh- 121 004, Faridabad (Haryana) INDIA, Phone: +91 9910012626  
www.modernmetalsindia.com, info@modernmetalsindia.com



## Dürr builds resource-efficient paint shop for ŠKODA



*Improved paint quality thanks to EcolnCure by heating the body from the inside.*

World's leading mechanical & plant engineering firm Dürr announced the launch of EcolnCure that offers best possible top-coat quality and maximum process reliability by heating the bodies from the inside in combination with the innovative transverse mode of operation. ŠKODA will use the benefits of the new Dürr oven in the future in the Mladá Boleslav main plant in the Czech Republic. Dürr is supplying all the system and application technology, including the building, for the new paint shop.

EcolnCure features nozzles with long throw distances that blow hot air into the inside of the body through the opening for the windshield. The flow velocity around the outer skin of the body during this process is minimal. This results in an undisrupted paint appearance with maximum quality. At the same time, optimum transfer of heat inside the body enables extremely homogeneous heating of both thin sheet and mass parts. The result is up to 30 per cent shorter heating times with minimized thermal component stresses, which is especially important for drying electric vehicles and multi-substrate bodies. The heating concept of EcolnCure reduces the electrical energy requirement by 25 per cent and regulates the drying temperature with previously impossible precision and speed. The exhaust air from the ovens is purified via the integrated Ecopure TAR afterburning system with heat recovery and then used for the oven heating system. The entire plant including data acquisition, data evaluation, and plant monitoring is controlled by the Dürr software solution iTAC.MES.Suite. The modular MES system provides detailed information on the production workflows and the consumption data at all times. For the first time, for example, Dürr is using the electronic quality card for the drying process, which makes it possible to track the drying quality of each body. This tried-and-tested technology from Dürr is already used to coat well over 10 million bodies worldwide each year.

The latest Dürr robotic generation is used in all process steps involved in painting. From the primer to the base coat and the clear coat line, a total of 61 EcoRP third-generation painting robots ensure efficient paint application. The exterior painting is done by the EcoRP E043i, the first painting robot where the seventh axis is integrated into the robot's kinematics. Two or four robots are installed in each of the exterior painting cells. The stop-and-go painting process means that they do not need a rail. This enables a much better view of the booth, and eliminating the positioning axis significantly reduces the maintenance effort in the robot cell.

The interior painting stations are equipped with the six-axis robots of the type EcoRP L133i, which are mounted on a rail. The identically constructed EcoRP L033i model without rail is used for opening the hoods. The robots are assisted by Scara door openers. The latest Dürr robot generation has a modular structure. The only difference between the six- and seven-axis models is the additional axis of rotation in the main arm. The otherwise identical components simplify spare parts management, save storage costs, and make maintenance easier.

The robots are equipped with the latest Dürr application technology. The EcoBell3 atomiser series together with the associated EcoBell Cleaner D2 and the EcoLCC2 colour changer delivers low paint and solvent consumption as well as fast colour changes within the cycle time.

The third generation of Dürr robots is controlled by the also newly developed EcoRCMP2 process and motion controller. The control platform combines a multitude of sensors and actuators in the painting robot and the higher-level maintenance or control systems. An integrated interface makes the robot "cloud ready" and provides all relevant data for current and future requirements in the Industry 4.0 landscape.

Even before the bodies get their layer of paint, the welding and gluing seams are sealed fully automatically. This ensures that no water can infiltrate into the vehicle interior later. Dürr is installing a total of 19 EcoRS sealing robots with the latest application technology at ŠKODA in Mladá Boleslav. These robots undertake the task of sealing the seams from below, inside the body as well as at the roof seams. The EcoDryScrubber, a dry separation system with limestone powder as the binder, will take over the paint overspray separation in the spray booth. This system requires no manual handling as it is fully automated, robust, and easy to maintain, and requires no adaptation to different paint systems. This makes it ideal for high-volume plants such as at ŠKODA. An important point is the energy saving of up to 60 per cent in the spray booth. By completely eliminating water and chemicals, up to 90 per cent recirculated air can be used in production. This reduces the cost of conditioning fresh air and is the deciding factor in the outstanding energy efficiency of the spray booth.

The performance of the EcoDryScrubber is further improved through the use of the new V5.X system software. It enables the system to be self-regulating. As a direct result, optimum use is made of the limestone powder for binding the overspray, thereby reducing consumption.

The dry separation system results in highly concentrated and especially efficiently filtered exhaust air. This enables a very compact air purification system, consisting of a highly efficient VOC adsorptive concentration system (Ecopure KPR) with downstream thermal exhaust air purification system (Ecopure TAR). The energy needed for the Ecopure KPR system's desorption air is recovered from the purified gas of the thermal exhaust air purification system.

The plant is designed for a throughput of 30 vehicles per hour, and will be painting ŠKODA's mid-range models from June 2019. 

# HACOP PUMPS

MAKING  
LIQUID  
HANDLING  
SMART &  
CONVENIENT

[www.hacoppumps.com](http://www.hacoppumps.com)

## MOTORIZED BARREL PUMP SUITABLE FOR

- ◆ Diesel Transfer ◆ Lubricants ◆ L D O ◆ HSD
- ◆ Hydraulic Oils ◆ Machine Oils ◆ Cutting Oils
- ◆ Transformer Oils ◆ Coolants ◆ Thermic fluids
- ◆ De-greasing solutions ◆ Chemicals
- ◆ Acids ◆ Toxic Chemicals
- ◆ Pharmaceutical Industry ◆ Food Industry
- ◆ Breweries & Distilleries ◆ Paint ◆ Solvents
- ◆ Essential & Edible Oils ◆ Perfume
- ◆ Preservatives ◆ Emulsifiers



**HACOP**



## HACOP PUMPS PVT. LTD.

S. No. 1, CTS no.694, "Raje Manor" Apart. B1/B2 Hingne Budruk, Karve Nagar, Pune - 411052.  
Ph: +91- 20- 25431638 / 25431639 Email : [hacoppumps@gmail.com](mailto:hacoppumps@gmail.com)

## Shell's Tonna range allows smoother movement of machine tools

**Shell Tonna range of slideway lubricants are Shell's top-performing slideway oils allowing smoother movement of your machine tools and excellent machining accuracy for helping unlock your productivity: less re-work, faster machining.**



*Siva Kasturi, Asia Pacific Regional OEM Manager, Shell Lubricants*

Shell being one of the global lubricant players, delivering market-leading lubricants to consumers in over 100 countries. Shell Lubricants brings world-class technological insights to its products, offering the best formulations for varied applications. In an interview with OEM Update, Siva Kasturi, Asia Pacific Regional OEM Manager, Shell Lubricants gives an overview on the concept of lubricants systems and it's functioning in a CNC machine.

### **How do you see the concept of lubricants systems catching up?**

As we are aware, the role of lubricant is to reduce friction and offer adequate oil film between any two relative moving components. In addition to friction reduction, the role of lubricant is to reduce the amount of wear that occurs during operation, reduces operating temperatures, minimises corrosion of metal surfaces, and assists in keeping contaminants out of the system.

Lubricants have many properties that can be mixed and matched to meet your operating needs. For example, there are different chemicals that can be added to allow a machine to efficiently run at extreme temperatures. We can also make a lubricant more effective in protecting machine surfaces under extreme pressures.

A recent survey commissioned by Shell in about 8 countries with key decision makers and industry influencers on TCO (Total cost of Ownership), we had some interesting observations on how effective lubrication can help lower Total Cost of Ownership. We have Total Cost of Ownership (TCO) defined as the total amount spent on industrial equipment, including cost of acquisition and operation over its entire working life, including costs of lost production during equipment downtime.

With effective lubrication management, about 30 per cent of total maintenance budget annually can be saved by preventing unplanned downtime and frequent breakdowns. OEMs and end users in general manufacturing industry are becoming more familiar with the modern advancements in

lubricants and lubrication systems including the importance of filtration, cleanliness, regular monitoring of oil through Shell LubeAnalyst.

### **How a lubrication system works in a CNC machine?**

Lubrication of CNC machines is one of the most complex challenges the speed and torque of slideways change with respect to different types of machining processes.

Typically a slideway is a special type of bearing called linear bearings and these slideways are found where linear motion is used (various machine tools, measuring equipment and press die sets). Depending on type of slideways, the bearings can be linear plain bearings, rolling element linear bearings and hydrostatic or aerostatic linear bearings

Addressing the challenges of wear and tear and effective lubrication are extremely important for maintaining machine tool accuracy. Higher friction on slideways will not only hamper machine efficiency, but will have serious implications on machine productivity.

Choosing the right slideway lubricant for slideways can significantly improve production quality of machined parts which prevent friction, phenomenon of stick slip etc. Stick slip phenomenon can be described as surfaces alternating between sticking to each other and sliding over each other with a corresponding change in the force of friction. Typically the static friction coefficient between two relatively moving surfaces is larger than the kinetic friction coefficient. In simple terms it's the jerky motion which can occur when two objects are sliding over each other.

Apart from lubrication and eliminating stick slip phenomenon, slideway lubricants should have excellent compatibility with different water soluble cutting oils and excellent demulsibility which will aid in quick water separation.

### **What is your latest offering in this area?**

Shell Tonna range of slideway lubricants are Shell's top-performing slideway oils allowing smoother movement of your machine tools and excellent machining accuracy for helping unlock your productivity: less re-work, faster machining. It is always important to follow OEMs recommendation in terms of fluid usage for various applications in CNC machines. Depending on the direction of slideways, many types of tackifiers are required to prevent oil from being squeezed out of the slide ways. Viscosity, demulsibility, tackiness becomes the most important properties of slideways lubricants. Shell Tonna range of slideway lubricants demonstrate excellent frictional properties and compatibility with metal on metal and metal on plastics including PTFE and various epoxy resins slideways to allow for accurate and precise movements during machining to prevent stick slip phenomenon. ⚙️



# Kraus & Naimer

BLUE LINE switchgear

[www.krausnaimer.com](http://www.krausnaimer.com)

## Marine Application



## Machinery & Services



## Train Application



## Mining & Forestry



## Defence & Weapon



## International Standards and Approvals



### DISTRIBUTOR AMBIONICS

Shed No 3, S. No. 135, Dalviwadi, Dhayari, Pune, Maharashtra – 411 041, India

Phone no : +91 20 24380468

Mob no : +91 982 243 1299 / +91 922 552 8463

E-mail : [sgm@ambionicsindia.com](mailto:sgm@ambionicsindia.com)

Web : [www.ambionicsindia.com](http://www.ambionicsindia.com)

## Right lubricants improve machine performance



### Types of lubricants

There are two types of lubricants used in CNC machine operations. First is the cutting oil also known as production oil which is directly responsible for machining performance. Second is lubricants that are used for lubrication of internal machinery mainly slides, tool movement mechanism, hydraulic system.

### Classification of cutting oils

Cutting oils are classified into two types - neat and soluble. Neat oils are used as is whereas soluble oils are mixed into water before subjecting them to application. Several factors such as type of material being machined, type of operation, operating parameters like speed, feed, depth, required tool life need consideration along with price while choosing the right cutting oil. OEMs and mid to large size customers expect coolant management service and overall cost per component improvement while selecting the fluid. Gulf offers a wide range of neat and soluble cutting oils under brand names Gulfcut and Gulf Emulsil for a range of operations on different materials. These oils are formulated using selected base oils and additives in right proportion to achieve maximum efficiency at the same time improving tool and oil life. Gulf oil works closely with the customer right from checking water quality, training concerned team on cutting fluid handling and storage, emulsion preparation and usage of instruments to maintain concentration and pH.

### Hydraulic oils, waylube oils, greases

Second product line includes hydraulic oils, waylube oils, greases as a part of machine operation and maintenance. Location of lubrication points as well as time and human constraints make it impractical to manually lubricate these points. CNC machines come equipped with lubrication system for lubricating internal machinery. Reservoir, pump, supply line, and metering valves are basic components of these systems. Basic adjustments, maintaining reservoir pressure, filtration are essential for effective performance.

Hydraulic oil is used for clamping of jobs and tool movement. Quality of hydraulic oil is critical for consistent hydraulic response, protection of hydraulic system components viz.

**Manufacturers aim at improving the performance and health of CNC machines. There are several different variables that need to be taken into consideration in order to achieve it. Most important are metallurgy, evolution of tools, higher productivity, lowest downtime and correct lubrication process.**

pump, valves and hence uninterrupted superior machining performance. Waylube oil on the other hand is used for horizontal or vertical surfaces and where machine parts move over the top of each other. Waylube oils must hold in place to do their job and tackifiers are added to help the same. Slideways are prone to stick slip motions and to overcome friction due to it slideway lubricants are formulated with inbuilt anti stick-slip property. Hydraulic systems do not require this property. It is unwise to use hydraulic oils in place of slideway oils for mere rationalisation and saving cost. Gulf oil has complete range of industrial lubricants: Hydraulic - Gulf Harmony, Waylube - Gulfway, Gear oil - Gulf EP lubricant for specific applications.

Any oil used in machine eventually ends up entering into cutting oil to some extent. For cutting oil this is called as tramp oil which works against cutting fluid performance by destabilizing emulsion and creating food for bacterial growth. Gulf soluble oils are designed to reject tramp oil rather than emulsifying it and keeps it floating for ease of removal. Unavoidable small quantities need removal using oil wheel, oil skimmer or absorbent pads (in simple form could be a piece of paper). Semi synthetic oil - Gulf Emulsil NT has superior tramp oil rejection properties along with machining performance and cleanliness.

### Soluble cutting fluid

Soluble cutting fluid is a complex blend of various components required for enabling emulsion formation, lubricity, rust and corrosion prevention, impart anti wear and EP properties. Global and local legislation restricts the use of certain chemicals such as boric acid, formaldehyde releasing biocides, chlorinated additives, and sodium nitrite. These components are hazardous to operators and environment. Gulf follows very stringent filters while selecting additives and believes in offering operator and environment friendly solutions to its customers. ⚙️



Author:-  
Vivek Kale, Assistant Manager - Technical Services,  
Gulf Oil Lubricants India Ltd  
vivek.kale@gulfoil.co.in



**SUNLUBE**  
INDIA PVT. LTD.



**HOT FORGING  
DIE LUBRICANTS**



**SPRAY GUNS &  
SPRAYING EQUIPMENTS**



**GREASES**



**Metal Working  
Fluids**



**Casting  
Lubricants**

Sales Office: B107, World of Mother, Jai Ganesh Vision, Akurdi, Pune - 411 035. Maharashtra, India.

 +91 20 4670 1934  +91 85549 08888 / 77980 32480

 [sales@sunlubtech.com](mailto:sales@sunlubtech.com)  [www.sunlubtech.com](http://www.sunlubtech.com)



**H**ot forging process is performed at extreme high temperature (up to 1250-degree C for steel, 360-degree C to 520-degree C for Al-alloys, 700-degree C to 800-degree C for Cu-alloys). These temperatures are necessary in order to avoid strain hardening of the metal during deformation.

Die lubricant acts as an important role in hot forging, making forging process possible. Hot forging done mainly on forging presses and hammers. Depending upon application, profile and metallurgy of forging component die lubricants can be divided into two major categories: water-based and oil-based. Both types again divided into two sub-categories - with graphite and without graphite.

#### A perfect die lubricant must:

- Avoid sticking of forging component in die cavity
- Reduce forging load
- Provide better surface finish
- Maintain proper die temperature
- Give higher die life
- Be user friendly
- Be economical.

#### Major types of die lubricants

**Water based graphite lubricants:** It's a suspension of ultra-fine graphite powder with water add on with special additives. It's a most popular and highly consumed type of die lubricant. It can be sprayed, brushed or can be used by manual swabbing. This is a best type of lubricant for heavy and critical press forging operations. It gives higher dilution ratios with water, provides low per tonnage lubrication cost and gives excellent die life.

**Water based non-graphite lubricants:** These are special water-soluble polymer-based lubricants. They contain no graphite thus they keep working are clean. These lubricants are best for shallow cavity dies. These lubricants are having excellent cooling and lubrication properties and proven cost-effective solution.

**Oil based lubricants:** These are basically suspensions made with base oil or vegetable oil add on with graphite and special additives as per forging process lubrication demand. Some grades come without graphite also. These lubricants are having excellent release properties and provide better material flow. These lubricants can be used in deep cavity hammer forgings, heavy stainless-steelforgings, critical brass and aluminium forgings, and deep extrusions.

#### About Sunlube India Pvt Ltd

Incorporated in 2012, Pune-based Sunlube India Pvt Ltd is

## Die Lubrication in Hot Forging & Plunger Lubrication in Aluminium Casting

one of the leading manufacturers that offers a wide range of die lubricants for forging and die casting industry. "We are driven by innovation and dedicated to provide better and high-end solutions. Manufactured under the brand name 'SHINE', our products are high in quality and lowest in cost," informs Sandeep Gaikwad, Managing Director, Sunlube India.

#### Sunlube's range of products:

- Water based graphite and non-graphite forging lubricants
- Oil based graphite and non-graphite forging lubricants
- Die coats for PDC applications
- Dry plunger lubricants (graphite beads) and dispensers
- Spray guns and spraying equipment.

#### Super-speciality products offer by Sunlube

**High performance water based hot forging die lubricants with graphite:** This product is based on fully defoliated graphite in water. A special milling technique is used for delamination of the graphite crystal. During the manufacturing the micro crystals are mechanically shaped and dispersed until they reach nano thickness. This product range is very effective for carbon steel, aluminium and titanium forgings.

**Graphite beads and dispensers for aluminium pressure die castings:** Graphite beads are basically for dry plunger lubrication for the improvement of the life of the plunger and shot sleeve. The moment the beads start melting inside the shot sleeve, they become liquid and start spreading and penetrating the cavity between the plunger and sleeve, ultimately improving lubrication.

Graphite beads dispenser is a dosing machine used to dispense desired quantity of graphite beads inside shot sleeve. It is equipped with a technologically advanced dosing head, providing extremely accurate process assurance.

Sunlube's manufacturing unit is located in Ahmednagar MIDC and sales office is in Pune. It has dealer and distributor network in Aurangabad, Rajkot, Bangalore, Chennai, Delhi and Rudrapur. 

#### Contact:



Sandeep Gaikwad, Managing Director  
**Sunlube India Pvt Ltd**

B-107, World Of Mother, Jai Ganesh Vision,  
Akurdi, Pune, Maharashtra - 411035  
Tele: +91-20-46701934

Mobile: +91-8554908888 | E-mail: sales@sunlubtech.com  
www.sunlubtech.com

## FARO unveils VR-enabled FARO Zone 3D 2018



FARO, the source for 3D measurement and imaging solutions for factory metrology and public safety forensics, announces the availability of the next generation of the FARO Zone 3D software platform, FARO Zone 3D 2018. The FARO Zone 3D platform is specifically designed to enable investigators and security professionals to enhance the quality of site and evidence capture, documentation, reconstruction, and analysis, for crime, crash, fire, and security applications.

FARO Zone 3D 2018 is the first VR-enabled software solution for law enforcement

and forensics professionals that provides a comprehensive platform for documenting, analysing, and reconstructing scenes that includes powerful forensic analysis, 3D diagramming and animation tools.

Additionally, with integrated virtual reality, FARO Zone 3D 2018 enables a completely immersive first-person environment. Users can now revisit and walk through the scene, analyse the events leading up to the scene and create full animated reconstructions of the scene just as if they were there when it happened.

### Virtual Reality analysis

Build a repository of training scenarios by turning every scene into a real-world training environment.

### Visual Impact

- Create stunning diagrams and animations with new smoke, fire, and explosion animations, shadows, moving wheels, and trailer articulation.
- Create dynamic videos with Total View, a unique presentation tool for fly-throughs and walk-throughs of scenes that are ideal

for courtroom presentations, classroom training, and security debriefings.

### Advanced Smart Tools

- Dramatically increase productivity with the enhanced Blood Spatter Analysis Smart Tool that detects edges of blood droplets and automatically creates trajectory lines through FARO Zone 3D's artificial intelligence engine
- Automatically generate courtroom ready reports detailing each trajectory with the enhanced Bullet Trajectory Smart Tool that makes bullet trajectory analysis easier than ever, now featuring elliptical trajectory cones and the ability to extend trajectory lines beyond the plane of impact.

### Extensive Training Support

Optimise the beneficial use and return on investment of FARO Zone 3D through unlimited access to live instructor-led online training as well as self-paced training modules through the FARO Academy learning management system. 

For more details, visit [www.faro.com/Zone3D/in](http://www.faro.com/Zone3D/in)



**Pushkar Engineers**  
One Stop Drilling Solution



Niraj P. Rajpura  
Mob : +91 90110 81238

## Design and Manufacturer of Drilling and Tapping SPMs



3 Spindles Drilling Head



4 Spindle Cnc Drilling Machine



4 stationed Rotary Indexing Multispindle Drilling & Tapping Machine



5 spindle Drilling head having 20mm Drill Diameter



12 Spindle Drilling Machine



2 Spindles Drilling Head



4 Spindles Dia 40mm Drilling Machine



Hydraulic Operated Double Spindle Drilling Machine

**Pushkar Engineers**

W-253, MIDC Bhosari, Pune-411026, Maharashtra, India

Email : [niraj252@gmail.com](mailto:niraj252@gmail.com)

Web : [www.pushkarengineers.in](http://www.pushkarengineers.in)



A CRISIL RATED COMPANY

## Sterling & Wilson integrates MEP business, eyes ₹ 3000 cr revenue

Coupled with the integration, the five newly introduced services- Industrial Fire and Safety, Flue-gas desulfurization, Process Control and Instrumentation, Industrial Clean Room EPC and IBMS Special Projects (smart cities and defence segments) are expected to take the company to soaring heights, with a predicted ₹ 3,000 crore for the MEP division by 2020.



T.P. Prakasan, COO – MEP Business, Sterling and Wilson

Over the past 5 years, Sterling and Wilson has shown exceptional growth; with operations all over the globe, as well as an expansion in its range of services, the company's turnover has shown an extremely positive growth. From a turnover of ₹ 1,760 crore in 2012, Sterling and Wilson group crossed a turnover of ₹ 6,000 crore and is likely to exceed ₹ 10,000 crore by 2020. On the sidelines of the inaugural event, T.P. Prakasan, COO – MEP Business, Sterling and Wilson speaks to Shashi Kumar Sharma and gives an overview of the company's growing footprint in India, with a predicted ₹ 3,000 crore for the MEP division by 2020.

### What was the thought process behind the integration of the MEP business?

As the Government of India spearheading its focus on infrastructure development, dominant players such as Sterling and Wilson are keeping in line with the industry's demand. The company is currently contributing to more than 25 per cent of the passive infrastructure space in India. Commercial and industrial projects across the country have also witnessed accelerated demand with the integrated MEP services market showing immense potential. In this regard, Sterling and Wilson realised the opportunity early and today, it has evolved as India's leading MEP contracting company, having integrated its various offerings and services under a single MEP entity.

As MEP continues to remain at the core of Sterling and Wilson's future growth, Electrical, HVAC, Firefighting and Plumbing to IBMS – all five services been successfully incorporated in to a single business

unit which today has an order intake of about ₹ 1,600 crore. The integration has enabled the company for multiple services to be streamlined for a seamless and unified direct project delivery system with a lean organisational structure operating at lower overheads thus, making Sterling and Wilson a very competitive and strong leader in the market.

### What is your take on the rising demand for infrastructure development in India?

Over the next 20 years, the infrastructure sector in India is expected to see close to ₹ 65,000 crore in developments.

As the EPC and MEP industries witness increased demand, engineering and construction services will see a subsequent demand for greater and more efficient management. This will significantly increase market growth opportunities for leading EPC players such as Sterling and Wilson.

### What are the major growth drivers for the MEP business?

Commercial and industrial projects across India have witnessed accelerated demand with the integrated MEP services market showing immense potential. In this regard, Sterling and Wilson realised the opportunity early and today, it has evolved as India's leading MEP contracting company, having integrated its various offerings and services under a single MEP entity.

Coupled with the integration, the five newly introduced services- Industrial Fire and Safety, Flue-gas desulfurization, Process Control and Instrumentation, Industrial Clean Room EPC and IBMS Special Projects (smart cities and defence segments) are expected to take the company to soaring heights, with a predicted ₹ 3,000 crore for the MEP division by 2020.

### What is the company's business plans post integration of MEP business?

The integration of the MEP business will also pave the way for simultaneous, seamless services and timely project delivery for clients as well as reduced costs, time and coordination efforts for internal stakeholders.

Furthermore, the introduction of five new services and with one of the largest teams of engineers in place, Sterling and Wilson will create greater expansion, including a market share of 15 per cent and penetration in to foreign geographies such as Bangladesh, Bhutan and Nepal and beyond. 

## Vinpak excelling in EDM technology



Founded in 2015, Vinpak Machines Pvt Ltd is a well-established EDM manufacturing company based in Pune. Vinpak's area of operations includes manufacture and supply of manual, ZNC EDMs, EDM drill machines, retrofitted control panel, voltage stabilizers, EDM spares, consumables, EDM oil etc. The

company strongly supports the 'Make in India' movement and launched its new completely indigenous windows based ZNC model range covering entry level to big size EDMs.

Both founder directors of company have more than 45 years of combined experience in EDM field. With their highly experienced electronics and mechanical design team, they are geared up to accept any challenges in EDM technology. Their technical excellence is well demonstrated through its new range of EDM machines and retrofitting of control panels to all Indian brand machines and also to imported brands like ONA, AGIE, Sodick, Makino etc.

### Clientele

Vinpak Machines claims to be the only manufacturer and exporter of Windows base ZNC machine in India. Their esteemed customer list includes small and big size tool rooms and mold makers. The corporates like Aswan Group, Fortuna Engineering – UAE, Shapers India, Jaya Hind Industries, GlowtechMould, MTK Tooling, Savitri Auto, Cello Group, Maharashtra Scooters,

LibaEnterprses, Bharat Technoplast, Sahil Industries, Danson Mold, King Plastics, FIE, Venus Dies, Toy Zone Impex and many more are also amongst the list of their satisfied customers.

### Customer-centric service support

Vinpak's qualified service team not only ensures high uptime of all the machines but also provides in-depth application support through on job customer training. The company also undertakes on site specially designed training programs for EDM operators, this type of customer centric service support gives us an upper edge over the competitors.

Vinpak will participate in Die & Mould 2018 exhibition in Mumbai through which they are hoping to get a larger exposure for their appreciated products. At the expo, the company will organise live demonstration of its new Fixed Table Type ZNC EDM-Model RICCO suitable for large moulds. ⚙️

For more details, visit [www.vinpakmachines.com](http://www.vinpakmachines.com)

# VINPAK

We are pleased to invite you to witness the live demonstration of our new big size semi CNC EDM-RICCO.

Visit to get unbeatable price for this best in class Machine.



Stall No.  
A31



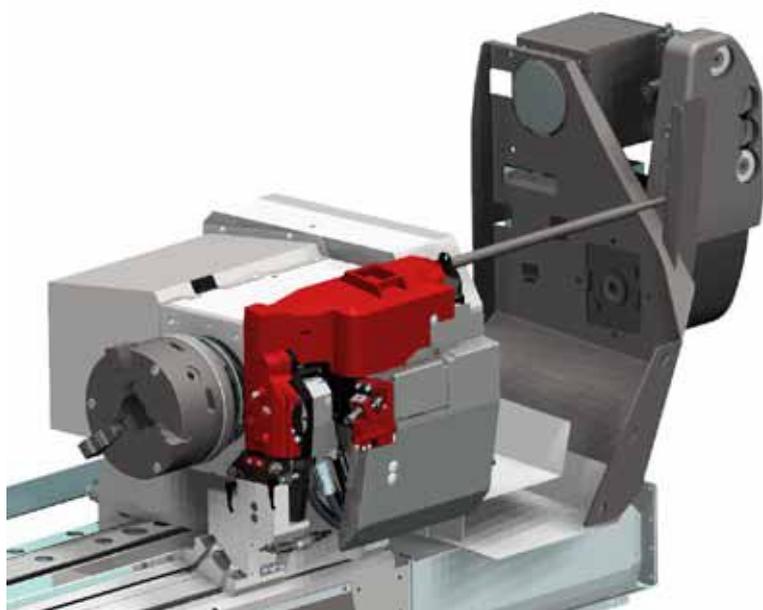
## Vinpak Machines Pvt. Ltd.

Committed to deliver....beyond expectations

Office: Ruchi-Rup, 484/35, Mitramandal Colony Parvati, Pune - 411009 MH INDIA

Works: Shed No. 3, S. No. 132, H. No. 1/4/1, Village Dhayari, Dalvi Vasti, Tal. Haveli, Pune - 411041 MH INDIA  
+ 91-93710 94310 + 91-98220 17298 Email: [info@vinpakmachines.com](mailto:info@vinpakmachines.com) Web: [www.vinpakmachines.com](http://www.vinpakmachines.com)

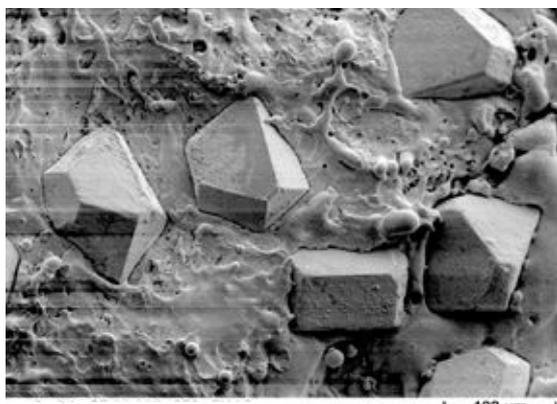
## When grinding gets an unimagined dimension



*STUDER WireDress - the latest generation of machine-integrated dressing technology for metal-bonded grinding wheels.*

Entirely new possibilities for grinding with metal-bonded CBN and diamond grinding wheels: this is made possible by STUDER's WireDress. Not only does this cutting-edge EDM technology save massive downtime, it also makes it possible to dress sintered metal bonds with the highest precision in the grinding machine at the full working speed.

But how does this dressing technology work? Michael Klotz, project manager for development at Fritz Studer AG, explains it this way: "It is a well-known fact that metal-bonded grinding wheels are much more durable and dimensionally stable when machining difficult-to-machine materials and ultimately enable higher productivity. The problem with this is that metal bonds can only be dressed to a very limited extent using conventional methods in the grinding machine. In addition to this there is a high dressing tool wear associated with a low cutting ability. This is neither an operator-friendly, nor a high quality and process consistent dressing method". That's why the "best" bond - the metal bond - is rarely used. "STUDER has developed, along with technology partners, the machine-integrated WireDress dressing technology. Here, the dressing is done at full wheel speed. In contrast to conventional mechanical or external EDM dressing,



*SEM image of a D126 grain*

WireDress dressing occurs by a modified wire erosion in the grinding machine, where the grinding oil serves as a dielectric.

The dressing process is contactless and wear-free. The grit itself is not dressed, the metallic bond around the grit is removed. Depending on how deep the grit is embedded in the bond, it either falls out or remains with original sharpness in the bond. The grinding wheel receives a high grain clearance for maximum cutting capability, lower grinding forces and low burning risk. You can now harness the capabilities of metal bond with WireDress. Using a bond with a high dimensional stability, almost any profile can be precision-contoured in the  $\mu\text{m}$  range. Long dressing intervals can be achieved. Yet another plus: the accurate processing of sophisticated or smallest geometries that was neither economical nor possible before, now becomes feasible. Compared to grinding with ceramic-bonded grinding tools, significant increases in productivity in the range of at least 30 per cent is realistic, with resin bonds, even more is possible. With a sintered metal bonded grinding wheel, you can even go beyond the limit - you can just re-dress it in the machine again. With a conventional with galvanic bonded grinding wheel you can only go over the limit once. "Maximize these limits without fear - that also makes greater profitability possible," adds Michael Klotz.

### WireDress - the new generation

WireDress had up-to-date the drawback that the device took up a lot of space on the table and limited the usable centre length in the machine. Now STUDER is launching the new generation on the market. WireDress is now much more compact and sits directly behind the workhead, making it more flexible and also more powerful than its predecessor.

### This has changed compared to the previous model.

- Now the full centre distance can be used, there is no restriction from the dressing device, which is now placed behind the workhead
- The new generation WireDress is 20 per cent faster than its predecessor
- WireDress is a right and left dresser in one, it can be automatically swivelled to two positions.
- By swivelling the dresser, higher shoulders and deeper profiles can now be dressed with a universal dressing tool - the wire
- Large grain sizes up to B151 (D151) can now be dressed for maximum cutting performance (depending on the bond)
- It has an extended sensory monitoring capability

### Conclusion

Thanks to WireDress, the dressing of metal-bonded grinding wheels is now a breeze. STUDER is convinced that this allows users to massively increase productivity and precision when grinding carbide, steel and ceramics. ⚙️

# OEM UPDATE

For Efficient Manufacturing

JUNE 2018

9<sup>th</sup> Anniversary



Loading...

**iiot**

Industrial Internet of Things

**For Advertisement**

please mail at [swati@itmgroupmedia.com](mailto:swati@itmgroupmedia.com) or  
Call Swati Mistry on +91 98215 75178 before 20th April

**For Editorial**

please mail at [editor@oemupdate.com](mailto:editor@oemupdate.com) or  
Call Subhjit Roy on +91 98195 80898 before 20th April

## WAGO-I/O-SYSTEM 750: One system for every application



As the leader in screwless interconnect and electronic interface technologies, WAGO developed the first finely modular, fieldbus-independent system in 1995. To this day, our steadfast commitment to innovation and versatility enables us to continue setting new standards in usability, performance and reliability. A compact design combined with the highest quality standards has made the WAGO-I/O-SYSTEM one of the world's most successful decentralised I/O systems.

WAGO offers programmable controllers in a wide variety of performance classes for performing any automation task. And, they can be used for both centralised and decentralised applications. For decentralised control tasks, the WAGO controllers can be incorporated into the most prevalent fieldbus networks and they record all field signals via I/O modules.

WAGO's IEC 61131-3 programmable controllers perform a variety of automation tasks, while providing all the benefits of standard PLC technology (e.g., strength, stability, reliability and near-high constant uptime).

Direct connection to numerous and varied I/O modules that are part of the WAGO-I/O-SYSTEM 750 enables a large number of applications to be created. With performance and capabilities extending from the fieldbus controller to the PFC100 and PFC200, WAGO's controllers provide scalable memory and speed along with a variety of interfaces and communication protocols.

WAGO's controllers are powerful solutions for a wide variety of applications ranging from industrial and building automation to measurement and data collection. They easily integrate into existing IT structures, providing a link between real-time process data and IT applications. The controllers ideally combine real-time requirements with IT

functionality. They support MODBUS TCP and ETHERNET/IP for use in industrial environments.

HTTP, SNMP, FTP and other protocols simplify integration into IT environments. Integrated Web pages and Web-based visualisation provide IT applications with real-time process data.

A large number of library functions are available to support both software/hardware interfaces and an integrated file system. With more than 500 different modules, the versatility and flexibility is so great that virtually every requirement in a wide range of industries is covered.

### Industrial Automation

A wide selection of I/O modules for various potential and signal types, as well as specialty functions, makes it possible to economically wire sensors/actuators – even in safety-related applications.

### Building Automation

The broad portfolio allows for flexible, cellar-to-ceiling solutions with conventional I/O modules, standardized industry-specific fieldbus protocols and subsystems for typical applications in lighting, shading, heating, ventilating and air conditioning (HVAC) and more.

### Marine and Onshore/Offshore Automation

International approvals coupled with industry-specific features permit use in shipbuilding and other harsh sectors. Addressing industry- and operating environment-specific requirements has enabled use on marine diesel and in the EMC-sensitive area of a vessel's bridge. Because the requirements are significantly greater for immunity to interference or emission of interference and mechanical performance in these sensitive areas, the system can readily meet the needs of other industries.

### Process Automation

Even under the harshest environmental conditions, use is possible with special approvals. Potential hazardous location applications include oil and gas production, the chemical industry and power generation. The WAGO-I/O-SYSTEM can be installed in Zone 2/22 with its intrinsically safe I/O modules making it possible to connect sensors/actuators in Zones 1/21 and 0/20. 

For more information, visit [www.wago.com](http://www.wago.com) or email at [info.india@wago.com](mailto:info.india@wago.com)



# Duct heater with flame proof junction box

## Application

Duct heater with flame proof junction boxes are available in rating upto 500 Kw and are used for heating air in duct systems, Central ventilation units and for various industrial processes in environments in where occasionally occur danger of explosion (Class 1, Zone 1 and Zone 2 Group IIA, IIB, T3). Our flexible production enables us to adept the duct heater to different sectors of applications such as offshore, chemical industries, pharmaceuticals, oil industries, shipyard, vessels.

elements with Continuous Finns are made of Stainless Steel which are suitable for black heat operations. The elements are attached with an alloy casted terminal Box with powder coating paint upto 500 micron. ⚙️

For more details, visit [www.daspass.in](http://www.daspass.in)

## Features

- Power rating 1.0 Kw to 400 Kw
- Supply: 230-415V/1-3 PH/ AC/50 Hz
- Temperature Class T3 (maximum 200-degree C)
- For use in areas in which the danger of explosion is due to gases or flames
- Degree of protection IP 64
- Can be installed horizontally or vertically
- Duct mounting.

## Construction

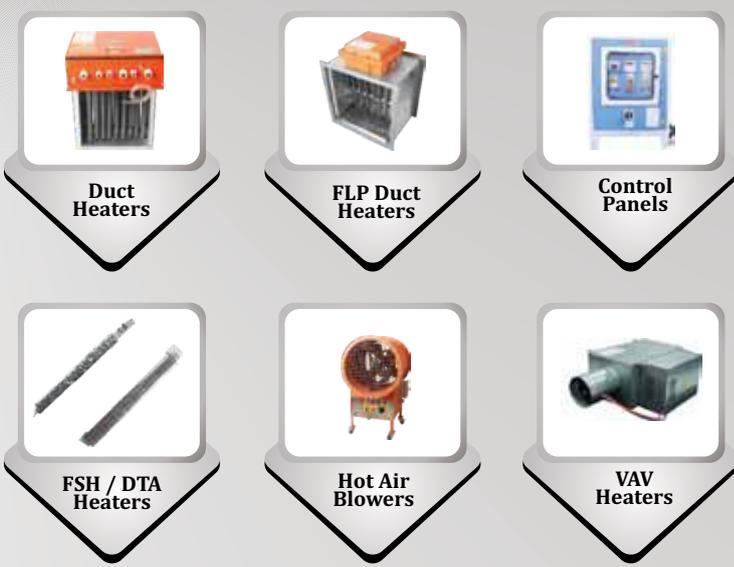
The casing is made of G.I. is available in different sizes. The duct heaters are produced to degree of protection IP64 accordance with EN6059. The tubular heating



Duct Heater With Flame Proof Junction Box



Manufacturers of Electric Heating Elements and Thermostats



**Daspass Sales Corporation**  
 Regd. Office : Plot no A4, Street no - 4, Anand Parbat Industrial Area, New Delhi - 110005.  
 Cont. : +91-9718998007 / 9718998027 / 9718998006  
 Email: [daspass@hotmail.com](mailto:daspass@hotmail.com), [info@daspass.in](mailto:info@daspass.in)  
 Website : [www.daspass.in](http://www.daspass.in)

## New HMI Software Features Improve Operator Efficiency



**FactoryTalk View software updates offer better information access, mobile support and software integration**

**R**ockwell Automation has updated its HMI software to equip industrial workers with better information to run and maintain their systems. New features in the FactoryTalk View software version 10.0 include greater access to information, new mobile device support and better cross-software integration to improve productivity.

Operators can now use the TrendPro tool in FactoryTalk View Site Edition (SE) software to overlay alarm information on trend data. This feature can help them connect alarm occurrences with data-point values to speed up troubleshooting. They can also use the tool to save and share ad hoc trends with other workers.

"This version also adds support in the HMI for flexible alarming with the Allen-Bradley Logix line of controllers," said Sharon Billi-Duran, product manager, FactoryTalk View, Rockwell Automation. "Previously, users had to manually create alarm conditions in both the controller and the HMI. With tag-based alarming, operators can now create the alarm configuration in Logix and the HMI will process it automatically, which saves time by reducing the need for programming."

FactoryTalk View SE v10.0 also integrates the ThinManager software login into the FactoryTalk View platform. In the past, users had to separately log in to both systems. Now, they can bypass the second security point with an automatic login pass-through for easier and faster operations.

For process industries, the FactoryTalk View SE software introduces an abnormal situation management (ASM)

multi-monitor framework. This feature allows operators to see different levels of data across multiple screens in accordance with standards-based ASM guidelines. It can also provide operators with more viewable information, helping them more efficiently run and maintain their systems.

The updated FactoryTalk ViewPoint software, which extends the FactoryTalk View SE software to mobile devices, now supports recipe management. This update allows workers to view and download recipes on the device of their choice. And now, with ViewPoint v10.0 software, FactoryTalk Alarms and Events alarm history is also available on their mobile devices.

The FactoryTalk View Machine Edition (ME) software v10.0 adds design-time and run-time enhancements to improve user efficiency and productivity. The HMI software now better supports restoring and upgrading legacy projects and improves usability when editing displays.

"Prior to this release, operator actions could be logged to an audit trail, but there was no guarantee that the system would capture them," said Sue Burtch, marketing manager, visualisation software, Rockwell Automation. "Now with onboard audit trails, this information is captured locally on the terminal, and audit data is securely stored there until it can be backed up. For highly regulated industries, like pharma production, this supports requirements such as US 21CFR Part 11 or EU Annex 11." 

## High feed with high versatility

**D**ormer Pramet, a global manufacturer and supplier of tools for the metal cutting industry, has launched an economical range of high feed cutters and inserts for productive machining of a wide variety of materials.

The versatile Pramet SBN10 cutters are suitable for copy milling, ramping, helical interpolation, slotting and plunging. Its unique pocket design can also carry inserts for shoulder and face milling, offering a complete package for, in particular, mould and die applications, from roughing to finishing.

A range of diameters are available from 16 - 42 mm and multiple types, including end mills, modular and shell mills.

To support this addition, Dormer Pramet has introduced an assortment of BNGX10 inserts for high feed roughing. The patented double-sided insert with four cutting edges provides an economical and versatile option.

Its design makes it suitable for high feed roughing even with long overhang, while being compatible with three geometries covering most machined materials. Geometry M is for steels and cast irons, MM for low carbon steels, stainless steels and super alloys, while HM is suitable for hardened steel.

Also, a new range of Pramet ANHX10 inserts is now available for finishing operations in shoulder and face milling. The



single-sided insert has two cutting edges and a positive geometry for long overhang, helping to decrease vibrations and reduce noise.

Both inserts offer a smoother cut, while a special through coolant design directs lubrication nearer to the cutting edge. This allows for high feed rates with axial depth of cut up to 1mm. A higher ramping angle improves chip control. ⚙️

*The versatile Pramet SBN10 cutters are suitable for copy milling, ramping, helical interpolation, slotting and plunging.*

For more information, details [www.dormerpramet.com](http://www.dormerpramet.com).



## Compressed Air Treatment & Industrial Chilling



**Refrigerated Air Dryer**



**High Pressure Refrigerated Air Dryer**



**Heatless Air Dryer**



**Water Chiller - Online**



**Water Chiller**



**Brine Chiller**



**Micro Filter**



**Auto Drain Valves**



**After Cooler**

### Annair Drychill Tech (I) Pvt. Ltd.

Works: Unit No.101, I wing, Plot No-K1, Udyog Bhavan2, Additional MIDC, Anandnagar, Ambernath East, Thane-421506, Maharashtra, India  
 Tel: 0251 262 0660 / 093209 50116 Email: [sales@annair.com](mailto:sales@annair.com) | [www.annair.com](http://www.annair.com)

## Safe cable guidance in the most confined spaces, with small e-chains from igus



*Low noise and secure cable guidance, in a small space with the low profile E2.10 e-chain. The simple e-chain opener ensures fast assembly. (Source: igus GmbH)*

Space-saving, strong and easy to assemble - these are the requirements for many machine components. This is true everywhere from general mechanical engineering to medical technology. To meet these requirements, igus offers the low profile E2.10 e-chain with an inner height of 10 millimetres and the smallest bend radii especially for very small installation spaces. The links of the series consist of only two parts: the bottom / side part and a crossbar. They have a quiet operation, a cable-friendly design and are easy to assemble, thanks to the chain opener.

In confined spaces on machines, a safe energy supply with highly dynamic travel of the cables is especially important. To ensure this, the motion plastics specialist igus introduces low profile e-chains in its product range. The E2.10 e-chain from the E2.1 series has an inner height of only 10 millimetres and an outer height of 15 millimetres. Therefore, its use is ideal for the smallest spaces. The chain links consist of, like all links of the E2.1 family, only one bottom / side part and one crossbar. This can be opened from the top and from the side easily with a screw driver. With each first order, a simple e-chain opener tool for opening the chain quickly is also included. Thus, the chain can be opened within a few seconds and, after fitting the cables, easily closed again by hand. The E2.1 series has a robust stop-dog for up to 25 per cent more unsupported length, 100 per cent higher fill weights and at the same time 10 per cent less weight than identical igus e-chain types. The "brake" on the stop-dog of the links provides very quiet chain running. This means they are great in automatic doors, vehicles or in medical furniture, for example.

**Energy chain E2.10 offers cable-friendly design and a quick and easy assembly, thanks to the simple e-chain opener**

### **Cable-friendly design and easy assembly**

Lightweight, yet sturdy and strong, the E2.1 series is suitable for a wide range of demanding application scenarios. Therefore, igus has now further expanded the E2.1 product range with three new sizes with 26, 38 and 48 millimetres inner height. Thanks to the smooth contours, the series has a very cable-friendly interior, offering up to three millimetres more inner height with the same outer height compared to the previous series. In keeping with the design of the interior of the chain igus offers separators with rounded edges for a long service life of hoses and cables. For a precise mounting of the separators, an integrated grid marking is provided on the crossbars.

### **Highly flexible chainflex cables for compact installation space**

In order for the energy chain and the cable to form a perfect unit, igus develops highly flexible chainflex cables, which are specifically designed for use in energy chains. With the chainflex CFBUS.LB.060 Profinet cable, for example, data can be transmitted in the tightest of spaces with a bend radius of just 7.5 x d. All chainflex cables are tested in the in-house test laboratory spread over an area of 2,750 square metres. This makes igus the only manufacturer on the market to offer a 36-month guarantee on its cable product line. As a ready-to-use readychain, which is a complete system consisting of cables and e-chain, the customer can immediately start using his application. ⚙️

For more details, visit [www.igus.in](http://www.igus.in)

# HARTING develops tailor-made charging equipment for e-mobility



The HARTING Technology Group is ready for e-mobility. At the 88th Geneva International Motor Show, the family-owned company will be presenting its innovative fast-charging technology on Rinspeed's Snap vehicle. Drawing on decades of experience in connection and transmission technology for data, signals and power, HARTING is an expert partner to almost all national automotive manufacturers as well as major OEMs.

"Air pollution control requirements will only be met with e-mobility, especially in cities. Early on, we recognised the increasing environmental awareness within society with respect to vehicle traffic and the resulting challenges and opportunities. Consequently, we've focused on this in our R&D and production and are also involved in all aspects of standardisation," emphasises Grinblats.

HARTING has registered a strong increase in demand for charging cables and as a result has significantly expanded its production capacities in the Romanian sites of Sibiu and Agnita in the past year. Here, power cables for e-mobility and actuators for automotive applications are manufactured. At the end of 2016, HARTING became a direct supplier to the VW Group for a specific e-mobility solution and supplies diverse charging equipment for different Group brands, e.g. the Porsche Panamera 4-Hybrid. HARTING has also been a Tier 1 supplier for BMW Group for the past few months. The technology group particularly sees good opportunities for the development of high-power current solutions. "We're working very hard on this since this technology will shape e-mobility over the medium term," Grinblats is convinced.

HARTING is a partner in the e-mobility area. Marco Grinblats (right), Managing Director of HARTING Automotive, is pleased with the positive development.

"Given our know-how and comprehensive portfolio, we're optimally positioned to help achieve the breakthrough in the transportation revolution technologically and in terms of infrastructure," says Marco Grinblats, Managing Director of subsidiary HARTING Automotive. Decisive for the acceptance and the success of electric vehicles is the number of charging stations, a nationwide charging infrastructure and, not least, an easy-to-use charging technology that saves time and money. As a pioneer of reliable, clean and environmentally friendly e-mobility, HARTING offers tailor-made solutions and components for all relevant markets, and develops and produces charging equipment for electric and plug-in hybrid vehicles.

For more information, visit [www.HARTING.in](http://www.HARTING.in)



## Gear Motor Torque Table :

Induction / Reversible / Electromagnetic Brake Motors / PMDC Motors

Unit : kg.cm.

RPM	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	15	12.5	10	8.3
Ratio	3	3.6	5	6	7.5	9	12.5	15	18	25	30	36	50	60	75	90	100	120	150	180
12W		2.8	4	4.8	6	7.1	10.2	12	14	18	21	23	33	38	40	40	40	40	40	40
25W	5	6	8.3	10	12	15	21	25	30	37	45	54	68	80	80	80	80	80	80	80
40W	7.3	8.7	12	15	18	22	30	36	44	55	66	79	99	118	145	145	195	200	200	200
60W	12	14	20	24	30	36	45	54	64	81	97	116	162	194	200	200	200	200	200	200
90W	18	21	30	35	44	53	67	80	96	120	145	171	200	200	200	200	200	200	200	200
180W	36	42	60	70	88	106	131	160	192	200	200	200	200	200	200	200	200	200	200	200
360W	65	75	110	90	135	200	260	300	330	350	350	350	350	350	350	350	350	350	350	350



Sr.No. 38/2/2, Manik Baug, Near Indian Oil Petrol Pump, Opp. Siddharth Hall, Sinhgad Road, Vadgaon BK, Pune- 411051./Ph.: 020-6522357054/Mob.: 09766363047

Email: [adeptmotors9@gmail.com](mailto:adeptmotors9@gmail.com), [mane.kd11@gmail.com](mailto:mane.kd11@gmail.com), Web: [www.adeptmotors.com](http://www.adeptmotors.com), [www.adeptmotors.co.in](http://www.adeptmotors.co.in)

## SKINTOP Cable Bushing System

SKINTOP CUBE

SKINTOP CUBE MULTI

SKINTOP MULTI



The rapid growth of industrialisation has given rise to a mounting demand of cables across Indian sectors. As manufacturing units are getting automated, there is a constant need for machines to be more interconnected, with use of multiple cables, especially in power, control and data applications. Proper organisation and management of the numerous cables will ensure seamless maintenance of these interconnected cables. There is always a demand for harness and then reconfiguration of these harnessed cables which may involve hours of effort.

LAPP being the leading supplier of integrated solutions and branded products of wires and cables, introduces SKINTOP Cable Bushing System which turns chaos into order. SKINTOP Cable Bushing System allows cables of different diameter sizes to be fitted into a single platform safely and in an orderly manner. It simplifies cable management for various applications and helps save manpower hours and costs at every stage of the installation process. The newly introduced SKINTOP Cable Bushing System is faster, easier and better. It has user-friendly design with expandable modules which helps in quick assembly. Innovative gel technology helps in effortless installation and offers a high degree of protection and long-lasting safety. The product is available in 3 variants, SKINTOP CUBE, SKINTOP CUBE MULTI and SKINTOP MULTI.

### SKINTOP Cable Bushing System is an ideal solution for:

- Customised and non-customised cables and wires
- Demanding applications or extreme stress resulting from water, dirt, vibrations, thermic or chemical strains
- Control cabinets, underfloor installation and housing where there is little space to insert cables, wires and media hoses due to a high packing density
- Maintenance, service and reconfiguration of components that require quick and easy changing or removal of customisations
- Flexible modular systems in keeping with Industry 4.0
- International use in accordance with UL50, UL508A, UL50E and CSA C22. Enclosures for electric equipment or industrial control panels.

### About Lapp India

Lapp India is a 100 per cent subsidiary of the Lapp Group.

Having started its operations in 1996, Lapp India provides about 150,000 km per year of power, control, instrumentation and data cables along with connectors, accessories and End-to-End Systems to over 5,500 customers pan India. Our customers are spread across different industry segments such as automation, textile, automotive, machine tools, oil and gas, renewable energy, process industries, as well as in the infrastructure and building sectors.

- 23 Sales offices close to customers all over India & 5 service points
- Strong network of 180 dealers
- 2 manufacturing units - Bangalore and Bhopal
- 5 Warehouses
- State of the art laboratory
- Fully Fledged Innovation and Engineering Centre.

In 2012, Lapp Group India completed phase one of its second manufacturing plant in Pilukedi, Bhopal which produces more than 216,000 kms of single core cables per annum, catering mainly to the Building Cable Segment. The production area at Jigani was also doubled in 2014 and a new multi core line was commissioned in Bhopal with a total investment of over 5 Million Euros.

Lapp brands – ÖLFLEX, UNITRONIC, ETHERLINE, HITRONIC, EPIC, SKINTOP, SILVYN, FLEXIMARK – are some of the best-known in the cable technology field.

LAPP now offers ÖLFLEX CONNECT, its customised cable assembly solution to meet the exact customer requirements. The solution ranges from cables or custom servo assemblies to complex drag chain applications. This plug and play solution displays superior German quality and high competence.

### About the Lapp Group

Headquartered in Stuttgart, Germany, the Lapp Group is a leading supplier of integrated solutions and branded products in the field of cable and connection technology. The Group's portfolio includes standard and highly flexible cables, industrial connectors and screw technology, customised system solutions, automation technology and robotics solutions for the intelligent factory of the future, as well as technical accessories. The Lapp Group's core market is in the industrial machinery and plant engineering sector. Other key markets are in the food industry as well as the energy and the mobility sector.

The Lapp Group has remained in continuous family ownership since it was founded in 1959. In the 2015-16 business year, it generated consolidated revenue of 901.5 million euros. Lapp currently employs approximately 3,440 people across the world, has 17 production sites and over 40 sales companies. It also works in cooperation with around 100 foreign representatives.

# New mapp component for database interfaces

B&R optimises data management with the mapp Technology software toolbox



*mapp Database allows both user data and data generated by mapps to be managed conveniently in an SQL data-base.*

It is now easier than ever to implement databases in applications. With mapp Database, it is possible to archive data directly from the field level to database, regardless of whether that database is located on site or in the cloud. This drastically simplifies the management of large volumes of data.

### Data archiving directly from the controller

Manufacturing machinery generates huge volumes of data, which must then be visualised, archived or passed on to higher-level systems. Giving mapp functions a database

interface makes it possible to send data directly from the controller to databases, where it can be processed or archived. Commonly used database functions, such as stored procedures, allow KPIs to be generated as needed, resulting in a cockpit for optimising manufacturing processes.

### Consistent exchange of data

mapp Database can be connected to any mapp component that saves or reads data. Instead of generating individual files for alarm lists, process values and audit events, all data is sent automatically via mapp Links to a database where it can be easily managed.

### About B&R

B&R is an innovative automation company with headquarters in Austria and offices all around the world. On July 6, 2017, B&R became a business unit of the ABB Group. As a global leader in industrial automation, B&R combines state-of-the-art technology with advanced engineering to provide customers in virtually every industry with complete solutions for machine and factory automation, motion control, HMI and integrated safety technology.

For more information, visit [www.br-automation.com](http://www.br-automation.com).

 Walk Behind Roller	 Forward and Reversible Plate Compactor	 ETL Hand Held Poker Vibrator	 Walk Behind Power Trowels	 Gear box & Motor	 Sepcom Solid Liquid Separator		
<b>Construction Equipments</b>		<b>Lievers Equipments</b>		<b>Motovario</b>		<b>Sepcom</b>	
 Oli Vibrator & Needle Vibrator		 Wam Dust Collector		 Wam Screw Conveyor & Feeder		 Loading Bellows	
 Oli High Frequency Converter	 Shutter Vibrator	 Vibrating Areators		 Microswitch box, Lever, Butterfly valve, Actuator			
<b>OLI Equipments</b>				<b>WAM Equipments</b>			
 Ganesh Marine Services Shop No. 1, Siddeshwar Park Cooperative Housing Society, Near Nisarga Colony, Pimple Gurav, Pune 411061. Ph no : +(91)-9004046769/ +(91)-8380045026 Email : ganeshmarineservices@gmail.com Website : www.ganeshmarineservices.com				  			

## Modern Metals India offers eco-friendly, reliable technologies

**M**odern Metals India Pvt Ltd is a group company of Metals India which is a professionally managed organisation allied with high level of industry expertise in heat treatment processes. Modern Metals India is a young company powered to introduce the modern and high-end technologies in the heat treatment and metallurgical industry. This company inherits the thoughts and vision of the mother company, to be on the top line of the heat treatment industry and meet the customer demands through technology, knowhow and the modern working styles to keep up with the pace of the industry.

Modern Metals India introduces heat treatment processes which are eco-friendly and technologies which offer high reliability. Modern Metals India will provide services to all types of manufacturing industries, oil and gas sector, power sector, automobile, defence, railways, aerospace, surgical, plastic moulds, tools and dies etc.

### Capabilities

The company is expert in designing and implementing thermal processes for steel, stainless steel, cast iron, powder metals, aluminium, nickel, and copper based alloys.

### Equipment

- Vacuum furnaces (IPSEN USA and SECO or WARWICK POLAND)
- Sealed quench furnaces (IPSE, Germany)

Vacuum Heat Treatment Services 12 Bar Quench Vacuum Furnace Ipsen International USA	Surface Treatment Services Nitempering Furnaces Ipsen India	Atmosphere Heat Treatment Services Sealed Quench Furnaces Ipsen India
Heat Treatment of Dies, Molds & Tools Vacuum Hardening & Tempering Vacuum Carburizing Vacuum Carbonitriding Vacuum Brazing Isothermal Quenching Bright Annealing Precipitation Hardening Stress Relieving Powder Metal Sintering Solution Treatment Cryogenic Treatment	Gas Nitriding Nitempering Nitrocarburizing Ferritic Nitrocarburizing Nitrotec Oxidation Case Hardening Nitriding of Plastic Mould Steel Austenitic Nitrocarburising Malcomizing (stainless steel nitriding) Plasma Nitriding Low Pressure Vacuum Nitriding	Gas Carburizing Oil Quenching/ Air Cooling Carbonitriding Neutral Hardening Annealing Tempering Normalizing Ageing Isothermal Annealing Heat Treatment in Inert Atmosphere Induction Hardening

- Gas nitriding furnaces (IPSEN Germany)
- ION or Plasma nitriding furnace (PLATEG Germany)
- Induction hardening machines (INDUCTOTHERM)
- Cryogenic treatment machines (CRYOGENIC INTERNATIONAL USA)
- Metallurgical laboratories

### Value Added Services

Assembly, clamp tempering or press tempering, component procurement, deburning, glass bed blasting, grinding, machining, metallurgical lab testing, packaging, parts washing, passivation, rust preventive, sand blasting, shot peening and straightening. 

For more details visit, [www.modernmetalsindia.com](http://www.modernmetalsindia.com)

## Constro 2018 unleashes multiple business opportunities



**A**BEC Exhibitions & Conferences Pvt. Ltd. and ITE proudly partnered with Pune Construction Engineering Research Foundation PCERF with a vision of taking the building and construction industry to greater heights, and organised Constro International Fair 2018 Pune, through the 18th to the 21st of January at the Agriculture College Ground in Pune.

"Constro International Fair 2018 has unleashed multiple business opportunities to the participants as a result of the, shared know-how during the event. It has proved to be the

information hub of rapid developments in the future of the building industry and also a launch-pad for many new services and technologies in the construction industry. Constro 2018 has matched international benchmarks in terms of facilities offered, overall business and social ambiance," said Sumit Gandhi, Chairman and Managing Director, ABEC Exhibitions & Conferences Pvt. Ltd.

The theme for this year, 'Latest Trends in Building Services and Products – The Future of Buildings', propagated the relentless purpose to constantly evolve and celebrate innovation. The fair sprawled across an area of 21,078.00sq.m, with participation from more than 250 Exhibitors, attendance of over 97,578 visitors and more than 15,000 business delegates.

Constro 2018 hosted and promoted innovations and technology in the industry as well as created better networking opportunities among procurement companies and suppliers and enabled Industry exhibitors to showcase their extensive range and promotions. 

# COMMERCIAL PARTNERS

Adept Motors .....	57
Ambionics India .....	43
Andreas Maier Workholding Technology Pvt. Ltd.....	23
Annair Drychill Tech India Pvt Ltd.....	55
B&R Industrial Automation Pvt Ltd .....	Cover Strip
Cad Macro Design & Solutions Pvt. Ltd. ....	15
Daspass Sales Corporation.....	53
Delta Electronics India Pvt Ltd.....	IFC
DMG Mori India Pvt Ltd .....	IBC
Dormer Tools India Pvt Ltd .....	21
Eppinger Tooling Asia Pvt Ltd.....	33
FIBRO India Precision Products Pvt Ltd.....	9
Ganesh Marine Services .....	59
Graebert India Software Pvt Ltd .....	25
Hacop Pumps Pvt. Ltd.....	41
Hurco India Pvt. Ltd.....	27
igus (India) Pvt Ltd.....	37
Keshkamat & Company.....	61
Kumbhojkar Plastics Moulders .....	35
LAPP India Pvt. Ltd. ....	7
Mastercam India Pvt Ltd.....	17
Mettler Toledo India Pvt Ltd.....	5
Micromatic Machine Tools Pvt Ltd.....	13
Mitsubishi Electric India Pvt Ltd.....	BC
Modern Metals India Pvt Ltd.....	39
Multi Axis CNC Robotics.....	62
Oerlikon Balzers Coating India Pvt. Ltd.....	19
Pushkar Engineers .....	47
Real Technologies Machines Pvt Ltd.....	31
Shree Prayag Air Controls Pvt Ltd.....	61
Siemens Limited .....	3
Sunlube Technologies .....	45
Trumpf India Pvt Ltd .....	11
Vinpak Machines Pvt Ltd .....	49
WAGO Pvt Ltd .....	29

KESHKAMAT & COMPANY

ISO : 9001 2008  
Manufacturers of  
Flameproof  
Weatherproof  
Camera Enclosures  
Pan & Tilt Junction Boxes  
for CCTV Systems

EXPLOSION PROOF, FLAME PROOF CLOSED CIRCUIT TELEVISION SYSTEMS (CCTV SYSTEMS)  
FOR REFINERIES, PETROCHEMICAL PLANTS, COAL MINES, OIL MINES, CHEMICAL &  
PHARMACEUTICAL PLANTS, DEFENCE ESTABLISHMENTS

EXPLOSION PROOF CCTV CAMERA

FLAME PROOF CCTV CAMERA

WEATHERPROOF CCTV CAMERA

KESHKAMAT & COMPANY

Office: 9/129, Adarsh Nagar, Prabhadevi, Mumbai 400030, MH (India)  
Tel: +91 22 2437 9103 Fax +91 22 2422 1989 Cell +91 98215 20667 | 9821520606  
Factory : Plot No. 11 & 12, Universal Indl. Estate, Sazgaon, Tal. Khoslaipur, Dist. Raigad, Pin 410 203, Maharashtra (India)  
Cell: +91 99753 13678 Web: www.keshkamat.com | www.keshkamat.co.in  
Email: dvkamat@yahoo.com | npcctv.keshkamat@gmail.com | npcctv@keshkamat.in

SPAC<sup>®</sup>

Pneumatic

Moving From Better To Best

www.spacpneumatic.com

SHREE PRAYAG AIR CONTROLS PRIVATE LIMITED

ADDRESS: A-56, SECTOR - 57, NOIDA, U.P, INDIA

TEL: 0120-4733333 FAX: 0120-4733334, MOB: +91-9971005601

EMAIL: sales@spacpneumatic.com, sales@spacpneumatic.co.in

April 2018 ■ OEM Update

61



# MULTI AXIS CNC



**Manufacturers of:-**  
VMC's ,CNC Engraving ,Table top Engraving ,  
Double Spindle Macket Milling ,FutureMill (Twin CNC milling)



## DIE & MOULD SOLUTION

- |                    |                       |                     |
|--------------------|-----------------------|---------------------|
| 1. INJECTION MOULD | 7. COPPER ELECTRODE   | 13. HEALTH CARE     |
| 2. PDC MOULD       | 8. GRAPHITE ELECTRODE | 14. TYRE INDUSTRY   |
| 3. PRESS TOOLS     | 9. FORGING DIES       | 15. JIGS & FIXTURE  |
| 4. RUBBER MOULD    | 10. STAMPING DIE      | 16. EMBOSING DIES   |
| 5. METAL PATTERN   | 11. JEWELLARY/COIN    | 17. BLOW MOULD      |
| 6. SHOE MOULD      | 12. FAISHON INDUSTRY  | 18. DENTAL SOLUTION |



 **MULTI AXIS CNC** 

Member



Indian Machine Tool  
Manufacturers' Association



Plot No.-G1-276 RIICO Ind.Area,Khushkhera(Bhiwadi)  
Dist.-Alwar -Rajasthan Pin -301707-INDIA  
Landline:91-1493-298143,M: 9717863403,9810455354,9717523803  
Email:-raj.kush@hotmail.com,info@multiaxiscnc.in  
Website:-www.multiaxiscnc.in  
GSTIN-08ALPPK6913Q178 ,TIN-08704205554 ,PAN-ALPPK6913Q

Manufacturers of:- VMC's ,CNC Engraving ,Table top Engraving ,Double Spindle Macket Milling ,FutureMill (Twin CNC milling)

Unit-2 :- Multi Axis CNC Robotics, Opp. Maruti Kunj,Sohna Road,Bhondsi-Gurgaon-122102-Haryana



VISIT US!  
BOMBAY EXHIBITION CENTRE  
11<sup>th</sup> – 14<sup>th</sup> APRIL 2018

CMX V SERIES

# HIGH PERFORMANCE MILLING



## PH 150 AUTOMATION

max. load capacity 250 kg



## 3 SIZES

CMX 600 V, 800 V, 1100 V  
more than 200 options

## 3 CONTROLS

SIEMENS, FANUC, HEIDENHAIN



### Exclusive Technology Cycle MPC 2.0 – MACHINE PROTECTION CONTROL

Vibration and torque  
monitoring of the process.



More about  
CMX V SERIES  
[cmx-v.dmgmori.com](http://cmx-v.dmgmori.com)

# DMG MORI



for a greener tomorrow



## CNC M800/M80 Series



### Infinite Possibilities

High productivity, usability and flexibility delivered by breakthrough performance.

The next-generation CNC M800/M80 Series empowers the manufacturing industry with unlimited possibilities and the capability to create innovative value.



**MITSUBISHI ELECTRIC CNC Solution**  
**The Best Partner for Your Success**

**Contact**

Mitsubishi Electric India Pvt. Ltd.  
CNC Technical Center, Plot No.56, 4th Main Road, Phase 3  
Peenya Industrial Area, Bangalore – 560 058, Karnataka, India.  
Tel: +91-80-46552121, Fax: +91-80-46552147

Visit us at:  
Hall A, Stall A113

