TAGMA TIMES

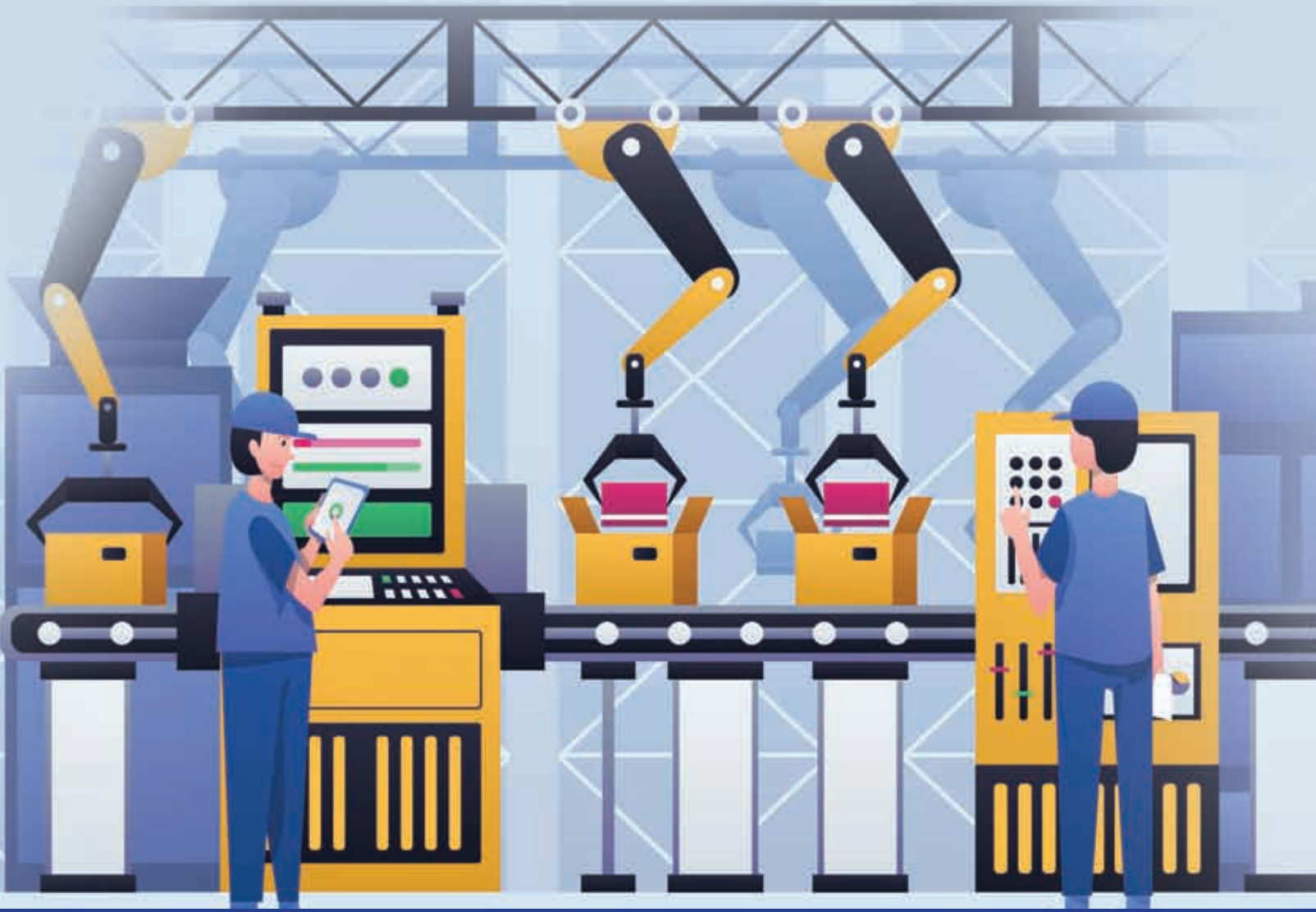
NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

Volume: XXVIII / No. 2 (Private Circulation for Members Only) October 2021

PLI Scheme:

A Step Towards *'Aatmanirbhar Bharat'*



PUROHIT STEEL

YOUR PARTNER FOR BEST QUALITY STEEL AND SERVICES FOR NUMEROUS APPLICATIONS.

What We Provide ?

- High quality mould steel for pvc, Switches, toys, rubber industry, automotive, caps and closures
- Machined & Ground plates
- Excellent hot work tool steels for forging and die casting dies
- High performance cold work too steels for stamping, forming, cutting tool
- Stainless steel grades for pharmaceutical industries
- EN series steel for machine parts, gears, hobs etc

Quality Steel Providers From around world

NLMK Verona

BÖHLER

For More Information

Phone: 7798815678 / 25678 / 35678
Email: info@purohitsteels.com

SERVO ELECTRIC UNSCREWING SOLUTIONS

servomold®, Germany is the leading supplier of system solution for the realization of servo-electric rotary and linear movements in injection molding tools. From single threads in technical plastic parts, linear slider-and corepuller movements to high-cavity cap molds - Servo mold has the innovative servo mold alternative for every injection mold.

Contact us, and we will propose the best solution for your Molds...!

MADHU®

Madhu Machines & Systems Pvt. Ltd.

Registered Office:
Vadodara, India.
91-9376215486
meeta@madhu-group.com

Factory:
Bengaluru, India
91-80-28360131
mms@madhu-group.com

SERVING THE PLASTICS INDUSTRY Since 1984

Innovative Solutions

www.madhu-group.com

CONTENTS

Editorial & Design Team

Nishant Kashyap	Kimberley D'Mello	Amol Padhye	Abhijjeet Bhowmik
Editor	Associate Editor	Design & Operations	Sr Technical Writer

Cover Image Courtesy: elements.envato.com

PCK-Buderus | Special Steels

Buderus | Edelstahl

THRUHARD SUPREME HH

"When designers at BMW-Germany are working on the new design for the 7 series, they also know what is the best mold steel that will meet their high quality requirements-THRUHARD SUPREME HH"

Injection molding tool for the Bumper

Injection molded Bumper part

PCK Buderus (India) Special Steels Pvt. Ltd.

Corporate Office
PCK HOUSE,
New No. 84, Old No.13,
South West Boag Road,
T. Nagar, Chennai - 600 017
Tel : + 91 44 2434 6503 / 1904 / 8638
Fax : + 91 44 2434 1181
Email : info@pck-buderus.com

Pune Stock Holding Center
Machining Division
New Gat 754, Pune Nagar Road
Wagholi, Pune - 412 207
Tel : + 91 20 2705 1958, 3254 6767
Fax : + 91 20 2705 0700
Email : punewh@pck-buderus.com

Ludhiana Stock Holding Center
C-I, Industrial Area C, Jaspal Main Road,
Kanganwal, Ludhiana - 141 120. Punjab.
Tel : + 91 161 6532016 / 2017 / 2510073
Fax : +91 161 2510072
Email : ludwh@pck-buderus.com

Kolkatta Office
Flat No. 403, Vishal Apartments
4th Floor, No. 18,
Prince Anwar Shah Road,
Kolkatta - 700 033
Tel : + 91 33 2417 1078
Email : info@pck-buderus.com

www.pck-buderus.com

TAGMA Executive Council

PRIVATE CIRCULATION FOR MEMBERS ONLY

EXECUTIVE COUNCIL 2020 – 2023

PRESIDENT

Mr. D. M. Sheregar
Devu Tools Pvt. Ltd., Mumbai – 400 072
Email: president@tagmaindia.org; sheregar@devutools.com

VICE PRESIDENT

Mr. D. Shanmugasundaram
S & T Engineers (P) Ltd., Coimbatore – 641 005
Email: shan@stengineers.co.in

MEMBERS

Mr. Akshay Kalyanpur
Sridevi Tool Engineers Pvt. Ltd., Vasai – 401 208
Email: akshay@sridevitools.com

Mr. Amit Kumar Parashar
Subros Tool Engineering Center (STEC), Noida – 201 301
Email: aparashar@subros.com

Mr. Arvind Chawla
ZAHORANSKY Moulds And Machines (P) Ltd - Coimbatore – 641 107
Email: arvind.chawla@zahoransky.com

Mr. D. Ravi
Classic Moulds & Dies, Chennai – 600 058
Email: ravi@classicmoulds.com

Mr. Gopalakrishnan T. S.
Multiple Special Steel Pvt. Ltd., Bangalore – 560 099
Email: gopalakrishnants@gmail.com

Mr. Paresh Panchal
Cam Tools, Mumbai – 400 072
Email: paresh@digitaltoolroom.com

Mr. Parveen Satija
Stitch Overseas Pvt. Ltd., Gurgaon – 122 004
Email: parveen@stitchtools.com

SECRETARIAT

Mr. Bhaskar Kanchan - Director
Mrs. Deepali Pandav - Deputy Director

FOUNDER MEMBERS

Anil C Kilachand
A R A Shaikh
J N Godrej
P N Rao
N Reguraj
S C Kalyanpur
S Samu
Vijay N Kulkarni

REGISTERED OFFICE

C/o. NTTF
23/24, Peenya Industrial Area,
II Phase, Bangalore - 560 058.
Tel.: 080-28397196 • Fax : 080-64509966
Email: tagma.bangalore@tagmaindia.org
Contact: Mr. Ashok Shetty - Secretary
Cell.: +91 98453 97780

CENTRAL OFFICE

A-33, NandJyot Indl. Estate,
Safed Pool, Mumbai - 400 072.
Tel.: 022-28526876 / 28508976
Cell.: +91 96534 27396 / 97694 07809
Email: tagma.mumbai@tagmaindia.org

PUNE OFFICE

Plot A-22/2, Chakan Industrial Area,
Phase II, M.I.D.C, Village Khalumbre 410501
Tal. Khed, Dist. Pune.
Cell.: +91-95276 89700
Email: tagma.pune@tagmaindia.org

COIMBATORE CHAPTER

C/o. S & T Engineers (P) Ltd.
22, Vasanth Nagar, Trichy Road,
Singanallur, Coimbatore - 641 005.
Tel.: 0422-2590810 • Fax : 0422-2573629
Email: tagma.coimbatore@tagmaindia.org

EDITED & PUBLISHED BY : D.M. SHEREGAR FOR TAGMA INDIA at A/33, Nand Jyot Indl. Estate, Safed Pool, Mumbai - 400 072.
Tel.: 2852 6876 • 2850 8976 / Cell.: 96534 27396, 97694 07809

THE NEW ART OF TECHNOLOGY

MILLUTENSIL spotting **presses provide the most advanced** technology for testing and proving the quality of your moulds and dies.

System

- ✓ Very high technological standard
- ✓ Best ergonomics
- ✓ Compact room-saving structure
- ✓ Very easy management

Services

- ✓ Ad hoc customer-specific solutions
- ✓ Multilingual professional assistance
- ✓ Special care to design
- ✓ Integrated diagnostic system

Security

- ✓ Maximum work safety
- ✓ Optimal access
- ✓ No dangerous handling of mould and dies
- ✓ Great saving of time and manpower

THE BEST SOLUTION TO VALIDATE YOUR MOULDS AND DIES

TAGMA DIEMOULD INDIA - 2022

12th DIE & MOULD INDIA
INTERNATIONAL EXHIBITION
27th April to 30st April 2022
Bombay Exhibition Centre, Goregaon, Mumbai, India

MILLUTENSIL®
SINCE 1955

Plant Via delle Industrie, 10
26010 Izano (CR) - Italia
info@millutensil.com
millutensil.com

Office Corso Buenos Aires, 92
20124 Milano - Italia
Tel. +39 02 29404390
Fax +39 02 2046677

NEW! BV 34 PLUS SPOTTING PRESS
size of press plates: 1.500x2.000 mm

EDITORIAL

The PLI Effect!

The manufacturing sector plays a prominent role in the growth and development of an industrialized nation. The sector's share in the GDP indicates its significance in the country's economy. However, in today's global market, one will find many instances where the domestic industry has been decimated by unfairly traded imports to the extent where it is difficult for a domestic manufacturer to compete against products imported from other countries.

To support domestic manufacturers and attract foreign direct investments into the country, the Government of India has launched many schemes and campaigns. One such promising scheme is the Production-Linked Incentive (PLI) Scheme. The PLI Scheme aspires to make India a competitive player in global markets and boost domestic manufacturing and exports.

In a bid to reduce the country's dependence on imports and enhance the domestic output, the government, in 2020, made several sectors eligible to avail of the PLI Scheme. And, the Scheme has caught the attention of many global and domestic manufacturers, who are keen to reap its benefits.

Implementing the PLI Scheme is definitely a step in the right direction. The Scheme will augment our manufacturing output, promote skill development, and provide business for domestic small job shops. Besides, when foreign companies set up their manufacturing base in the country, they will bring with them their best practices and advanced technologies. These are all likely to benefit Indian manufacturers.

This issue of Tagma Times, covers an in-depth story about the PLI Scheme. Read our 'In Focus' section to understand how it will impact you!

Nishant Kashyap
Editor
nishant@antechmedia.in

MEUSBURGER INDIA

NEW CHAPTER FOR MEUSBURGER

WE HAVE MOVED TO A NEW BUILDING

Besides our address change there will be no additional changes that are relevant for our business partnerships. Our GST number, email address, telephone number as well as our bank account number will remain unchanged.

OUR NEW ADDRESS:

Meusburger India Pvt. Ltd.
#20A/2, Block B, 1st Cross
KIADB Road, Peenya 1st Stage
Bangalore - 560058

meusburger
SETTING STANDARDS

Meusburger India Pvt Ltd.
T +91 98450 62529
sales@meusburger.in

BIG KAISER releases two dial indicator stands with 220 lb. capacity

BIG KAISER, a global leader in solutions for the metalworking industries, introduced the heavy-duty MU-VZ and SU-VZ dial indicator stands for precise, stable positioning of inspection devices. Both types have 220-pound (100 kg.) capacity magnets, rotate 360 degrees, and can use DGH 3 or 4 adaptors.

The SU Type has a length of 235mm and rubber bellows. The larger MU Type is 360mm in length and has a reinforced ball joint with a large collar. Both use serrated washers instead of flat washers to reduce slippage and increase stability of the center joint.

A singular star grip locks and releases quickly for flexible positioning of the dial gage. The mechanical tensioning technique employed produces a very high clamping force, which enables the repetition of highly accurate measurements. Manufacturing tolerances are extremely tight and high-quality materials result in practically no wear.

Low-leakage couplers for flawless and reliable temperature regulation in cleanrooms

ABSOLUTE cleanliness is required in production under cleanroom conditions such as in the food or pharmaceutical industries. Of course perfect cleanliness is also essential for temperature regulation. The new low-leakage couplers from Meusburger provide the optimal foundation for this.

Clean temperature regulation thanks to flat-face valve and O-ring seal

The new E 25... low-leakage couplers have a flat-face valve on both sides. This ensures that no empty space is created when decoupling so no media can escape, which allows for clean production and user safety. The long pilot guarantees complete sealing and durability, and thanks to the O-ring seal on the fitting, the coupler can be screwed in clean and quick - without any thread sealant at all.

Various styles available

The low-leakage couplers are available with hose or quick-fit nozzle and with thread in straight and 90° angled versions, available in the common nominal widths, DN6 and DN9. Couplers with convenient one-hand operation engage automatically. The minimal pressure drop is due to the optimised flow geometry.

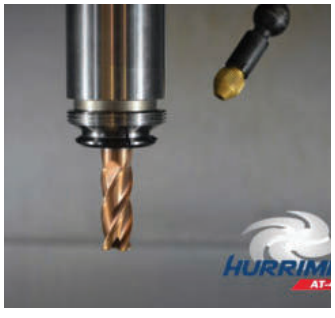
High-temperature version usable up to 220°C

The standard version is already equipped with special sealing for water up to 150°C and oil up to 200°C. The threaded version is also available in a high-temperature version with a turquoise ring for identification. The special FKM seals installed in them are specially designed for hot water up to 180°C and tempering oil up to 220°C and are extremely durable. This guarantees optimal process safety in the production.

GWS Tool Group releases new Hurrimill™ AT4 all-terrain end mill

THE new Hurrimill™ AT4 all-terrain end mill is a 4-flute high-performance solid carbide end mill for ferrous and non-ferrous applications.

This innovative new end mill is engineered for dynamic milling or conventional roughing, including slotting up to 2xD. Special radial end gashing enables drilling, steep ramping, and aggressive helical entry. The variable helix design with unequal indexing reduces vibration, while a double-eccentric margin creates smooth cutting action at high and low speeds. The Hurrimill™ AT4 all-terrain end mill utilises the FX7 nano coating, which possesses extreme hardness and thermal stability in wet or dry environments for ultimate tool life. This end mill comes with the new ultra-fine carbide grade with increased TRS, ensuring the perfect blend of hardness and toughness for all of your application needs.



Whether its slotting, profiling, ramping, plunging, roughing, finishing or high speed milling, the Hurrimill™ AT4 all-terrain end mill is designed to traverse a wide range of materials in a wide range of machining environments.

PVD COATING SOLUTIONS

Pioneers in PVD Coating for Dies & Moulds Applications

There is no one coating solution for all applications, we offer unique coating solution for each segment & application.

A German based PVD coating technology from voestalpine eifeler Coating GmbH helps to support our Indian customer in various application to increase the tooling performance.

Our PVD Coating Centre located at Chakan near **PUNE** specializes in creating custom coatings for the automotive, cold work, die casting and plastic mould tooling applications.

	Hot Work	Cold Work	Plastic
Application	HPDC/LPDC/ Warm Forging/ Extrusion	Cold Forming/ Bending/Deep Drawing/Forging	Injection Molding / Compression Molding / Extrusion
Solutions	**ABP + Duplex Tigral**	**Duplex Variantic, Variantic 1000, Variantic 1400**	**TiN Ultrafine, Exxtral Ultrafine, Moldadur P, CrCN, Duplex Tigral**
Advantages	Protect from early Heat cracks, Erosion & Soldering	Protect from Abrasive & Adhesive Wear	Protect from Corrosion, Abrasive wear, Sticking, Easy Part Release & Reduced Maintenance activity

Visit our website

voestalpine High Performance Metals Pvt Ltd.
office.india@voestalpine.com

voestalpine
ONE STEP AHEAD.

Optimised milling for vibration-free machining

LEADER in metal cutting, Sandvik Coromant has launched a new high-feed milling tool. The CoroMill® MH20 is primarily designed for milling cavities, or pockets, in ISO S, M and P materials. Ensuring secure and vibration-free machining, especially at long overhangs, the CoroMill® MH20 delivers best-in-class edge security for a variety of industries and is particularly suited for machining aerospace components.

The CoroMill® MH20 complements existing products in the CoroMill® range, and fills a strategic gap in the high-feed indexable milling product line. Designed to deliver reliability with minimal vibration, the CoroMill® MH20 has been adapted for applications, where components are notoriously difficult to machine, such as in the oil & gas, mold & die, and aerospace sectors.

The tool's ability to machine at long overhangs makes it especially beneficial to the aerospace sector. This method is an important requirement when machining deep, narrow pockets to produce the components that form an aircraft's frame, such as its supporting beams found within the sub-segment aerospace frame. These beams are often machined from forged titanium and when paired with the requirement for long overhangs, this creates a difficult machining environment with a high risk of vibration.

In contrast to the conventional four-edge concept, the CoroMill® MH20 is designed with a two-edge insert. This is especially beneficial as it means the weakest section of the insert is far away from the main cutting zone, delivering greater reliability and protection against wear. It also means that machining against a corner or wall will not impact the next edge or leading corner, ensuring an equal performance per edge.

Another area of innovation is the CoroMill® MH20's insert cutting edge geometry. While the sloped edge design delivers a gradual and light-cutting action that requires less power consumption to enable the use of smaller machines, the optimized edge line of main cutting edge and insert corner radius delivers further process security and enables reliable, unmanned machining.

Designed to deliver reliability with minimal vibration, the CoroMill® MH20 has been adapted for applications where components are notoriously difficult to machine, such as in the oil & gas, mold & die, and aerospace sectors.

"Machining components for industries like aerospace, oil and gas and mold and die can be challenging," said Sangram Dash, Application Manager at Sandvik Coromant. "In the aerospace sector alone, manufacturers must handle conditions such as thin floors and walls, deep pockets and tight corners. When designing the CoroMill® MH20, we kept the stringent requirements of all these sectors at the fore. For example, the tool is capable of completing several different operations to reduce the number of tools, changeovers and tool handling required during manufacturing, thus reducing cycle times and improving manufacturing economics. Furthermore, for the first time within high feed concepts, Sandvik Coromant is introducing dedicated insert geometries for different ISO areas to deliver greater optimised process security and productivity. In particular, engineers working in aerospace machining cannot afford to make mistakes, especially when the quality control standards for aircraft engine components are so high, so being able to deliver reliable tools with consistent tool life is a top priority for Sandvik Coromant."

When designing the CoroMill® MH20, extending tool life with higher reliability was of great importance. In fact, when compared to another Sandvik Coromant high-feed milling tool, CoroMill® 415, it demonstrated a 32% increase in tool life with a significantly better component quality when machining a titanium aerospace wing support component. In addition, further testing against competing tools has demonstrated superior reliability and a more secure machining performance when machining steel and stainless steel workpieces.

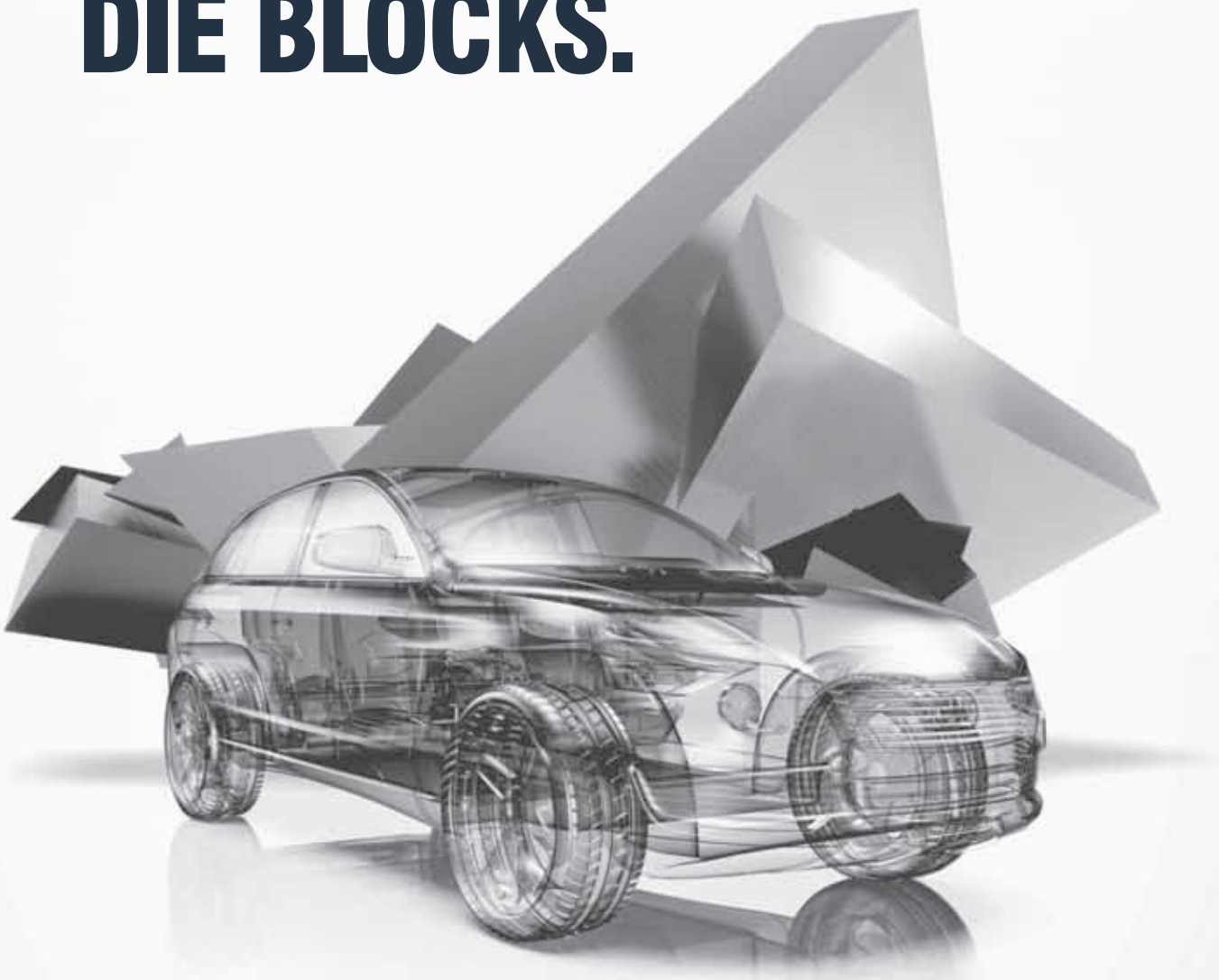
Authorized
Official Dealer
for India

FORGING&
CASTING
DIVISION

GROUP
LUCCHINI RS

EXTRA LARGE FORGED DIE BLOCKS.

For light alloys structural parts for automotive.



ESKY LOS®

2343 DC/HDC
2344 HDC

Dimensions:
Width 1700mm max.
Thickness 700mm max.

1. Fine grain size
2. Optimal micro-structure
3. Optimal "Heat Check" resistance

Alstom delivers the first trainset for Kanpur Metro

ALSTOM has completed handover of the first trainset for the Kanpur Metro, to Uttar Pradesh Metro Rail Corporation (UPMRC). The unveiling was recently done at Alstom's rolling stock manufacturing facility in Savli, Gujarat, by Shri Yogi Adityanath, the Chief Minister of Uttar Pradesh, in the presence of Shri Kumar Keshav, Managing Director, UPMRC, and Alain Spohr, Managing Director, Alstom India. These metro trains are 100% indigenously manufactured at the facility in Savli, Gujarat.

Alstom completed the acquisition of Bombardier Transportation (BT) on January 29, 2021, and going forward, Alstom will be responsible for the delivery of Kanpur and Agra Metro rolling stocks and signalling, including scope of all BT technologies.

Valued at approximately INR 2051 crore (245 miilion EUR), Alstom's scope on the Agra-Kanpur metro project includes – design, build and delivery of 201 metro cars (67 units of MOVIA metro three-car trainsets) and advanced signalling solution (CITYFLO 650). The customer also has a provision to exercise an option for an additional 51 metro cars.

The new metro trains will benefit around 5 million citizens in Kanpur. Additionally, the overall project will significantly contribute towards the socio-economic development of the region.

Image courtesy © Alstom 2021

"We are proud to deliver the first metro trains, for Kanpur Metro in record time. After successfully delivering Rolling Stock & Signalling solutions for the state's capital, Lucknow, we are happy to strengthen this partnership with UPMRC and redefine the mobility needs of Kanpur & Agra," said Spohr. "Our MOVIA metros are world renowned for their operational reliability, appealing design and enhanced safety features – everything that makes metro an attractive mode of transport," he added.

Inspiration from Uttar Pradesh's rich cultural heritage combined with best-in-class design has resulted in an attractive look for India's latest metro fleet. Aerodynamic modular design of the new MOVIA metros will offer a host of safety, security and environmental benefits along with great passenger experience. Built with light but strong stainless-steel car bodies, the air-conditioned cars will have automated sliding doors, comfortable seating & standing spaces, dedicated areas for entry of specially abled, who use wheelchairs and modern passenger information systems, combining to provide an accessible and welcoming environment for passengers.

The trains will be equipped with FLEXX metro bogies and the MITRAC propulsion system to increase energy efficiency, reduce operating costs, and ensure the new trains meet the highest environmental standards. Each train will accommodate approximately 960 passengers in the three-car configuration.

Government committed to bolstering IPR ecosystem in India: Union Minister

THE Government of India is committed towards bolstering the ecosystem of patents, design, trademarks, GI (Geographical Indication) systems; encouraging innovation, research and development (R&D) in the country to achieve the vision of 'Aatmanirbhar Bharat', Union Minister of State for Commerce & Industry, Mr. Som Parkash said at an ASSOCHAM virtual event held in October.

Image used for representation only. Courtesy: Envato Elements

"The industry must work in mission mode along with the Government of India to achieve the ambitious target for the country to be ranked among the top 25 nations of Global Innovation Index (GII)," said Mr. Parkash, while inaugurating an ASSOCHAM IP Excellence Awards-cum-Conference on the Role of Intellectual Property in 'Aatmanirbhar Bharat'.

"For examination of the trademark applications it used to take 72 months in 2016. Now, in 2020, it takes just 12-24 months. So, we are making all efforts," said Mr. Parkash.

He congratulated the winners, complemented them for building an IPR ecosystem in India and said, "I hope you would continue doing such exemplary work and wonderful job in this field."

MAKING
THINGS
POSSIBLE

25 Years
1996-2021

Pawan®
Standard Engineering Products

MADE IN INDIA
Pawan
MADE FOR WORLD

Practic®

N FORCE®

www.pawan-ec.com

From 'Fragile Five' in 2013, India now one of the most preferred investment destinations: Secretary, Economic Affairs, GoI

MR. Ajay Seth, Secretary, Economic Affairs, Government of India, recently said that from being clubbed as a part of the 'Fragile Five', a term coined by Morgan Stanley that represents emerging market economies that have become too dependent on unreliable foreign investments to finance their own growth ambitions, in 2013, to becoming the one of the most favoured destination for investment in 2021, India has come a long way.

Image used for representation only. Courtesy: Envato Elements

Addressing a webinar on 'Sewa aur Samparpan Abhiyan' - Social and Economic Reforms under the Modi Government, organized by FICCI, Mr. Seth said the global investor community now looks at India as the most favoured destination for investments. "India has risen to become not only the favoured destination for investments but also in terms of resilient and sustainable global supply chains. This has been possible due to fundamental structural reforms undertaken by the government under the leadership of the Prime Minister and coupled with a very strong focus on inclusive development," Mr. Seth said.

Foreign capital chooses India because of high returns that the Indian economy promises, he added.

Mr. Seth further elaborated that there are fundamental enablers for inclusive development — the JAM (Jan Dhan-Aadhaar-Mobile) trinity being one of them — that have been transformative and a game changer. "There has also been a targeted support for persons and entities with weak economic capacities, not just in the pandemic period but throughout the past seven years. Starting with the PM Kisan Yojana, to PM Awas Yojana for both urban and rural segments, the Jal Jeevan Mission and electricity for all, the pace of delivery has been amazing," he added.

The structural reforms brought in by the government addresses various challenges as we move over to much more efficient use of factors of production, he noted.

"The focus of reforms during the past 18 months of the pandemic period was not just management of impact, but a very strong emphasis on stepping up the reforms so that economy bounces back, and fast growth rates can be reached. Further, Mr. Seth said that the Finance Ministry looks forward to an industry and government partnership for transparent and constructive exchange of ideas.

Speaking at the event, Mr. Rashesh Shah, Past President, FICCI and Chairman, Edelweiss Group, said that the social and economic transformation that India is currently going through have all been under the aegis of the Prime Minister. "India is always a work in progress, but India is at a different place than what it was 20 years back. The economic opportunities are getting democratised, and prosperity is percolating down," he said.

Mr. Shah added that multifaceted interconnected reforms have transformed and touched many lives in India. "In the last seven years, we have made significant progress in transparency, ease of doing business, and removing discriminatory practices so that we truly achieve equality of opportunity," he said.

"We need to look at the interconnectedness of reforms in India. Improving competitiveness, transparency, innovation, and policy stability have been the foundation of all the reforms that we have seen in the last seven years. Local savings, strong investment, consumption, propelled by the reform agenda will result in the start of the Golden Era for the Indian economy over the next five years," Mr. Shah noted.

Dr. Arvind Virmani, Chairman, Foundation for Economic Growth & Welfare, and Former Chief Economic Adviser, Government of India, said, one of the significant changes in India over the last few years has been a change in philosophy to a market economy and modern welfare democracy.

Mr. Sunil Sanghai, Chair, FICCI National Committee on Capital Market, and Founder & CEO, Nova Dhruva Capital Pvt. Ltd., said that there has been an equitable focus on social, economic, and cultural upliftment of India on the world map in these past seven years.

Mr. Dilip Chenoy, Secretary General, FICCI, said that India is on a progressive path. "We salute the Prime Minister's dedication and commitment towards building of a New India — a nation that will ascend to new heights of prosperity and development," he added.

BE A PART OF TOOLING EXTRAVAGANZA!

TAGMA DIEMOULD INDIA - 2022

27 28 29 30
APRIL 2022
Bombay Exhibition Center, Goregaon (E), Mumbai, India

Unlock your Potential
Attain Newer Heights
Expand Globally!

EXHIBIT CATEGORY

- Additive Manufacturing / 3D Printing
- CAD/CAM Software
- Cutting Tools
- Coating
- Die Casting Machines
- Die/mould Polishing/ Die Spotting machines
- Dies & Moulds,
- Die Casting Machines
- Heat Treatment
- Hot Runner System
- Injection Moulding
- Jigs & Fixtures, Gauges
- Measuring Machines
- Machine Tools
- Mould base
- Precision Machining / Aerospace
- Press Tools,
- Rapid Prototyping and Tooling
- Sheet Metal Presses
- Surface Treatment
- Texturizing
- Tool Steel

ORGANISED BY:

TAGMA INDIA | TOOL AND GAUGE MANUFACTURERS ASSOCIATION - INDIA

Tel.: +91 22 28526876, 28508976, 28503273,
+91-9653427396
E-mail : tagma.mumbai@tagmaindia.org,
tagma.diemould@tagmaindia.org

www.diemouldindia.org

Government to aim for 30% EV sales penetration for private cars by 2030: Union Minister Gadkari

THE government intends to have EV sales penetration of 30% for private cars, 70% for commercial vehicles and 80% for two and three wheelers by 2030, as there is an immediate need to decarbonize the transport sector, Union minister Nitin Gadkari recently said.

Gadkari added that if electric vehicles penetrate to 40% in the two-wheelers and cars segment and close to 100% for buses by 2030, India would be able to reduce crude oil consumption by 156 million tonne worth INR 3.5 lakh crore.

"There is an immediate need to decarbonize the transport sector and make it sustainable with the economy, ecology, and environmental point of view," he said while addressing an event organised by industry body FICCI virtually.

"The government intends to have EV sales penetration of 30% for private cars, 70% for commercial vehicles, 40% for buses, and 80% for two and three-wheelers by 2030," he added.

The road transport and highways minister pointed out that in the EV mission, NITI Aayog has inspired 25 states to come up with EV policies, out of which 15 have already announced state EV policy.

He said a potential pilot project is being planned to install an electric highway between Delhi-Mumbai expressways, which will facilitate the movement of heavy-duty trucks and passenger buses on electricity.

Noting that transport plays a crucial role in the overall development of a country, Gadkari said, "Globally India has the highest rail-line length and the second-largest road network, which carries millions of passengers and tonnes of goods every day."

To fulfill everyday transport needs of a large population, he said his ministry is focusing on the development of efficient and affordable public transport systems such as metro rail, rapid rail transit, mono-rail, BRT, intra and intercity bus services.

Courtesy: PTI

NHAI developing EV charging infrastructure along highways: Gadkari

UNION Minister Nitin Gadkari recently said that the National Highways Authority of India (NHAI) is developing charging infrastructure for electric vehicles along the highways. Addressing an event virtually, the road transport minister further said that the automotive industry is going through a challenging phase due to the impact of the COVID-19 pandemic and he is happy that it is now in a recovery mode.

"NHAI is also developing electric vehicle charging infrastructure along the highways to promote the use of electric vehicles," he said.

Gadkari pointed out that India's auto sector contributes 7.1% to the overall nation's GDP and 49% to the manufacturing GDP, with an annual turnover of INR 7.5 lakh crore and export of INR 3.5 lakh crore. "I am happy to note that several global brands are entering India, as well as several local entrepreneurs are setting up large facilities to mass-produce electric vehicles," the minister said.

As per a report, Gadkari said that electric two-wheeler sales in the country recently stood at 13,345 units for July 2021, witnessing a massive 229% month-over-month jump and a year-over year leap in registrations of 836%. "This is extremely encouraging," he noted.

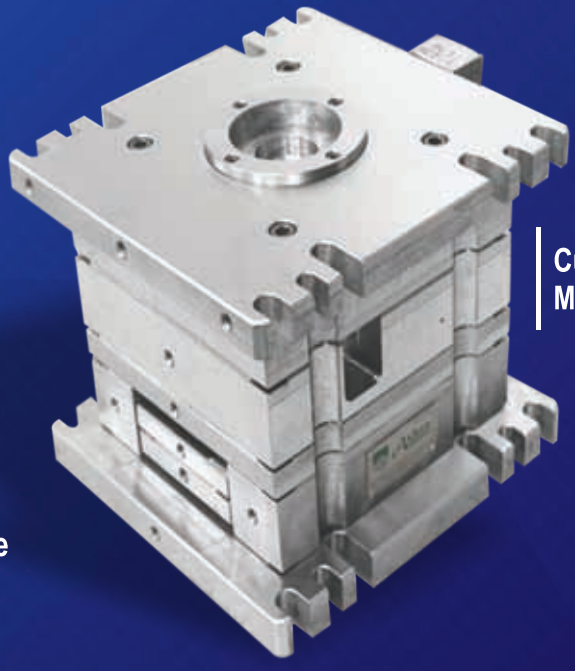
According to Gadkari, there is a massive response seen in the domestic market for electric scooters from new start-ups. The minister emphasised that simultaneously research on developing long-life, low-cost, high-efficiency batteries and EV components is also the need of the hour. "One of the solutions to reduce pollution from existing diesel buses is the use of retrofit technologies," he said.

Courtesy: PTI

ASHNA
Toolroom Excellence

ACCURACY. TIMELY DELIVERY.
STATE-OF-THE-ART INFRASTRUCTURE

It has been 20 years that we at Ashna Enterprise are moulding quality and accuracy. Our manufacturing facility spreads over 35,000 sq. ft. area, and we are backed with 60+ highly skilled and experienced professionals.
We are one of the pioneering companies in Standard and Customized Mould Base, Die Set, Machined Plates and Accessories. Today, we, at Ashna Enterprise, have acquired a reputation as a reliable mould base partner ensuring top quality products, representing excellent value for money.



Customized
Mould Base

PDC
Mould Base

900 Cavity Rubber
Mould Base

Mould Base | Machined Plates | Machined and Bore Plates | Die Set

ASHNA ENTERPRISE

P: 0250 - 2450407 / 08 | **M**: +91 9322 519511 / 9028 002982
E: ashnaenter@rediffmail.com / info@ashnaent.com | **W**: www.ashnaent.com

Chip shortage: Auto retailers staring at huge losses this festive season

AUTOMOBILE retailers are staring at huge losses this festive season, as manufacturers struggle with vehicle dispatches to dealerships amid the ongoing semiconductor shortage crisis, according to a top Federation of Automobile Dealers Associations (FADA) official.

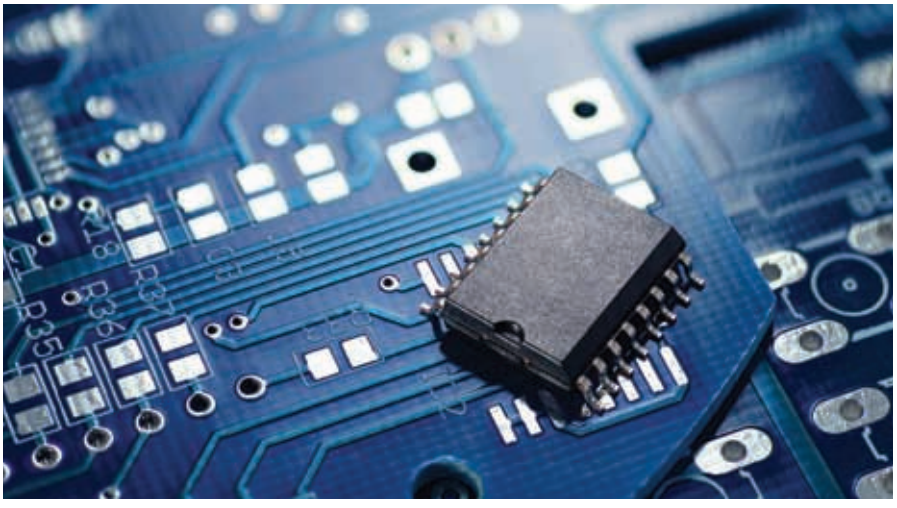


Image used for representation only. Courtesy: Envato Elements

With chip shortage continuing unabated, auto manufacturers are faced with production issues, forcing them to curtail supplies to dealer partners. With the 42-day long peak season having commenced with the first Navratri, dealers are finding it difficult to convince the customers to wait indefinitely for the vehicles of their choice.

Amid robust demand for several models, dealers are witnessing booking cancellations and there is also a drop in on the spot buying due to dearth of inventory at their end. "Festive season is the most important period in terms of sales for us. On an average, the two-month period accounts for 40% of our total sales during a year. This is the time when we actually earn and save for operations for the rest of the year. This year, we are not getting adequate vehicles and are staring at losses," FADA President Vinkesh Gulati told PTI.

He noted that in the passenger vehicle segment, the waiting period on most of the models has gone up drastically from the earlier period of 1-3 months. Gulati said that with lack of inventory at the dealerships, spot purchases are hampered as well. "As per our data, while 50% to 60% buyers go for prior booking, etc., the rest 40% are those who just come to the dealership and buy a model. So, this chapter is just closed for us, as there are no extra units," he stated.

Terming the overall situation as very challenging, Gulati said that the industry would indeed be lucky if it is able to do normal kind of sales during the ongoing 42-day festive period, starting from first Navratri to Diwali.

"We are staring at big losses. During the festive period, our retail sales used to be in the range of 4-4.5 lakh units in the 42-day period. But this time around, it is going to be just around the 3-3.5 lakh sales mark. We would be lucky if we are able to achieve even such a sales number," he noted.

"We are staring at big losses. During the festive period, our retail sales used to be in the range of 4-4.5 lakh units in the 42-day period. But this time around, it is going to be just around the 3-3.5 lakh sales mark. We would be lucky if we are able to achieve even such a sales number."
Vinkesh Gulati, President, FADA

When asked if FADA is speaking to carmakers to increase the supplies, Gulati noted: "They are helpless. They do not have answers. They are not sure what is going to happen in future. They tell us that there would be an increase in dispatches from next week, but nothing happens in reality."

Till the time the semiconductor issue is not sorted, vehicle supply issues are going to remain, he said. "When a customer comes to a dealership and selects some model, he asks us as to when we can deliver him the vehicle. We don't have an answer to that question. It sometimes even leads to arguments and unpleasant situations," he noted.

Gulati said that while the PV segment suffers from robust demand and poor supply, the situation is quite opposite for the two-wheeler segment, where the inventory level is better but demand is uninspiring.

"There is an impact on the lower middle class and rural regions due to a drop in income levels amid COVID-related issues, which has impacted the demand. Also, the prices of two wheelers have gone up by around 30% in the last one year alone. Besides, high petrol prices are an impediment. So, there has been an impact," he stated.

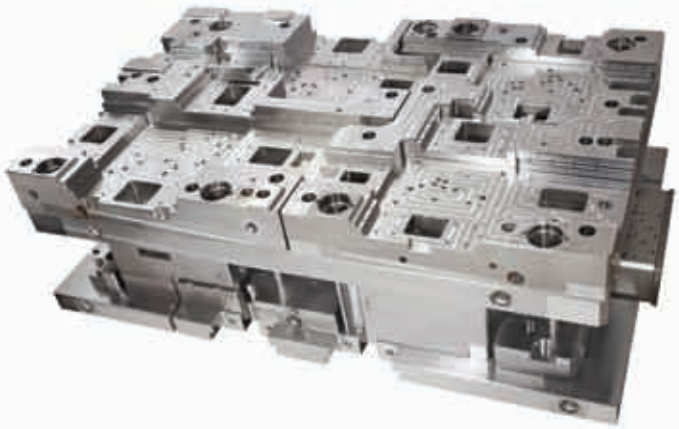
Opening of schools and offices is one factor, which could help the segment in the coming days, Gulati said.

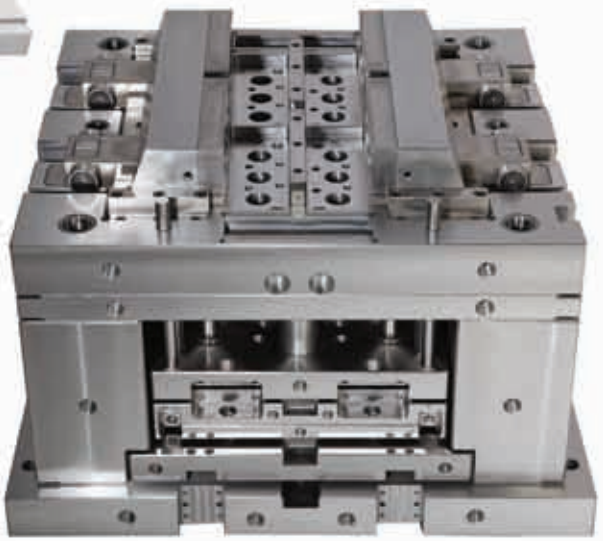
Courtesy: PTI

KALYANI

WORLD CLASS PRECISION STANDARD, CUSTOM-MADE MOULD BASES &, INTERCHANGEABLE COMPONENTS FOR PLASTIC AND DIE CASTING MOULDS

Kalyani standard or custom made mouldbases are manufactured with the highest precision and finish exactly to customer specifications ensuring perfect interchangeability of sub assemblies





KALYANI MOULD BASE PVT LTD

14, Raju Industrial Estate, Penkar Pada Street,
Near Dahisar Octroi Check Post, Post - Mira,
Dist - Thana 401104
91-022-28966637 / 28974586 / 28285290
info@kalyanimouldbase.com
www.kalyanimouldbase.com

HAL delivers heaviest Semi-Cryogenic Propellant Tank to ISRO

THE heaviest Semi-Cryogenic Propellant Tank (SC120- LOX) ever fabricated by HAL has been delivered to Indian Space Research Organization (ISRO). The Propellant Tank was handed over by Mr. M. K. Mishra, GM of Aerospace Division, HAL, to Mr. T. K. B. Kumaresh Babu, GM (LHWC), Head of the Resident Team of LPSC, ISRO, in the presence of Mr. P. Srinivasa Rao, GD (SR)-LPSC, at a function held recently in HAL.

The semi cryo-liquid oxygen (LOX) tank — the first developmental welded hardware — is a part of the SC120 stage intended for payload enhancement by replacing the L110 stage in the existing Mk-III launch vehicle.

Last year, HAL had delivered the biggest-ever cryogenic Liquid Hydrogen tank (C32-LH2), which is four meters in diameter and eight meters in length, much ahead of its contractual schedule.

HAL has mastered the skills and technologies required for fabricating welded propellant tanks. Till date, its Aerospace Division has delivered 244 propellant tanks and 95 water tanks to ISRO for the space programmes of PSLV, GSLV Mk-II, and GSLV Mk-III, of diameter 2.1, 2.8, and 4 meters, where the length of the tank varies from 2.5 meters to 8.0 meters.

As a strategic reliable partner, HAL has been associating with ISRO for India's prestigious space programs since the last five decades. HAL has delivered critical structures, tankages, satellite structures for the PSLV, GSLV-Mk IIand GSLV-Mk III launch vehicles. Various new projects like PS2/GS2 integration, semi-cryo structure fabrication, and manufacturing of cryo and semi-cryo engines are being taken up at HAL, for which installation and commissioning of unique infrastructures are nearing completion.

HAL has supported ISRO right from the developmental phase of Crew Module Atmospheric Re-entry Experiment, PAD Abort test for Crew Escape for Human Space Mission, and is currently supplying hardware for full-fledged launch vehicle, GSLV Mk-III, for the prestigious Gaganyaan programme.

Maharashtra govt bags INR 2,800-cr investment for manufacturing EVs

THE Maharashtra government recently signed a pact with Causis E-Mobility Pvt. Ltd. to set up an electric vehicles manufacturing facility in the state, making it the first big-ticket investment under the recently announced Maharashtra EV Policy 2021.

"Taking our commitment to make Maharashtra the lead state in electric mobility in India, the state government and the Maharashtra Industrial Development Corporation (MIDC) have signed an MoU with Causis E-Mobility to set up an EV production unit in Talegaon. The investment of INR 2,800 crore will generate 1,250 employment opportunities," the state's Environment and Tourism Minister Aaditya Thackeray said in a statement.

Maharashtra EV Policy 2021

- Under the Maharashtra EV Policy 2021, the state has drawn up a road map to bring in a transition in the transportation ecosystem of Maharashtra.
- It is aimed at attracting investments, facilitating the establishment of manufacturing units, and encouraging the production of EVs, their components, and EV supply equipment.
- Maharashtra's second capital Nagpur is the first Indian city to pilot electric mass mobility with a fleet of 200 electric vehicles.

He added that the memorandum of understanding (MoU), signed with Causis E-Mobility Pvt Ltd, a joint venture (JV) of the UK-based Causis Group, is set to transform Maharashtra into a leading state in terms of the adoption of electric vehicles in the country.

The state government had unveiled a comprehensive electrical vehicle policy in July 2021, to stimulate the manufacturing of battery electric vehicles in the state.

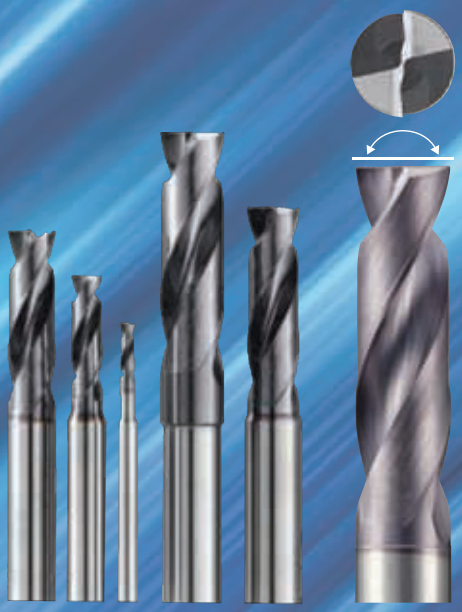
The MoU for the phase-1 unit at Talegaon, Pune, was signed here recently. In phase-2, Causis E-Mobility Pvt. Ltd. will set up its own battery giga factory in Maharashtra to manufacture and supply EV batteries.

DIJET
www.dijet.co.jp

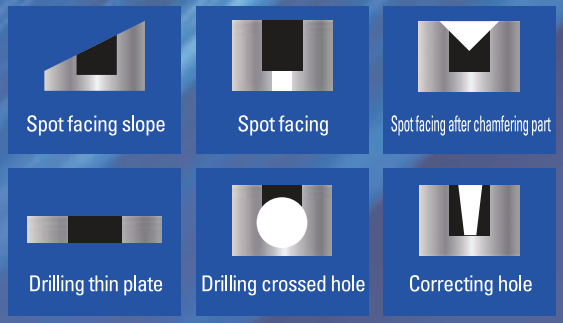
Hole Making tools by DIJET

Indexable Drills Up to L/D 8

Solid Carbide Spot faceing Drills



Indexable Spot Facing tool



Economy

Adopting unique low cutting force geometry (EZ geometry) reduced max.30% power consumption.

Hight cost performance

High rigid G-body produced long tool life of holders and inserts.

approx. holder life is more than 2,000m

High cutting performance

- Exclusive flute geometry and smooth surface treatment
- achieved body durability and excellent chip control.
- Adopting unique cooling system achieved
- surely coolant supply to cutting edge.

Spot facing tools

- Avalable in indexable as well as solid carbide
- Wide flute design for excellant chip control
- Stable drilling without pilot hole
- Reduced power consumption
- Achived accuracy & longer tool life

Contact Us:

Office: 322, Arcadia, Hiranandani Estate, Patlipada, G. B. Road, Thane (W) 400 607
Email: india_office@dijet.co.jp
Phone: +91 22 40121231 / +91 2241005361
Web: www.dijet.co.jp / www.dijetindia.com

PLI Scheme:

India's Attempt at Going Indigenous

Image used for representation only. Courtesy: Envato Elements

Kimberley D'Mello

The Production-Linked Incentive (PLI) Scheme is designed with a goal — making manufacturing in India globally competitive by eliminating hurdles for various sectors, helping companies achieve economies of scale, and ensuring efficiency. The Scheme is expected to attract global investments, generate employment opportunities, and increase exports substantially. It is also likely to lead to investments in innovation, research and development, and upgradation of technology. Toolmakers believe global and domestic companies, including MSMEs, are likely to benefit from the Scheme.

In Focus

As the pandemic-stricken countries across the globe struggle to get their economies back on track, India introduced the Production-Linked Incentive (PLI) Scheme in March 2020. The aim of the scheme is to "make India a competitive player in global markets and boost domestic manufacturing & exports". This goal is to be achieved by supporting the establishment of new manufacturing units as well as encouraging existing manufacturing units to expand. The scheme also invites foreign companies to set up a manufacturing base in India, thereby reducing India's dependence on imports, while generating more employment opportunities.

"The scheme was originally designed for FY20 for a few select industries such as mobile phones and allied equipment manufacturing, pharmaceutical ingredients and medical devices. This was implemented by the Ministry of Electronics and Information Technology (MEITY) and the Department of Pharmaceuticals with a financial outlay of INR 51,311 crore (US$ 7,089 million) to be used over a five-year period. In FY2020, the scheme benefitted ~150 manufacturing units, generating incremental sales of INR 46,400 crore (US$ 6,187 million) and showcased significant potential for additional employment over the next eight years," stated the India Brand Equity Foundation (IBEF) on its website.

"As a result, the scheme has been expanded to accommodate an additional 10 'sunrise' sectors to boost the economy and India's self-reliance. This initiative was announced by the Union Finance Minister Ms. Nirmala Sitharaman during the 'Aatmanirbhar Bharat' 3.0 Stimulus Package for FY20–21, with an estimated allocation of INR 145,980 crore (US$ 20,169 million) spread across five years," highlighted ibef.org.

Key Pillars of PLI Scheme

According to various reports on the PLI Scheme, the following factors have been termed as its key pillars:
Setting up large-scale manufacturing units: The scheme offers incentives on production capacity, thereby, persuading investors to expand or set up large-scale manufacturing units.

Employment opportunities: Large-scale manufacturing units will require additional manpower. The PLI Scheme aims to tap into India's available manpower.

Reduction in imports: Presently, India's import rate is high. The PLI Scheme promotes the domestic production of goods, which can reduce imports in the long run.

Foreign direct investments: Owing to the ease of doing business in India, more and more foreign companies are registering their names in the country. Foreign direct investments will not only introduce India to newer technologies and best practices followed globally, they will also facilitate the abovementioned three key pillars.

Making sectors 'Aatmanirbhar'

Introduced as a key element of 'Aatmanirbhar Bharat', "the PLI Scheme across these 10 key specific sectors will make Indian manufacturers globally competitive, attract investment in the areas of core competency and cutting-edge technology; ensure efficiencies; create economies of scale; enhance exports and make India an integral part of the global supply chain," stated a government press release.

According to the press release, the PLI Scheme will incentivize these 10 key sectors in the following ways:
ACC battery: ACC battery manufacturing represents one of the largest economic opportunities of the 21st century for several global growth sectors, such as consumer electronics, electric vehicles, and renewable energy. The PLI Scheme for ACC battery plans to incentivize large domestic and international players in establishing a competitive ACC battery setup in the country.

Electronic products: India is expected to have a USD 1 trillion digital economy by 2025. Additionally, the government's push for data localization, Internet of Things market in India, and projects such

Image used for representation only. Courtesy: Envato Elements

Investments in auto technologies

According to an ICRA Report on the Indian auto industry, the Ministry of Heavy Industries, Government of India, announced an INR 25,938 crore production-linked incentive for the auto and auto components sector on September 15, 2021. Further clarifications on the scheme were issued via a notification dated September 23, 2021.

"The auto PLI Scheme aims to provide sales-linked incentives to both OEMs and component suppliers. The OEM incentives are only for electric vehicles (EVs) and Hydrogen Fuel Cell Vehicles, while those for suppliers are applicable for advanced automotive technology components. The incentives are sales-linked and are expected to range from 13% to 18% on determined sales values for OEMs and 8% to 13% of determined sales values for auto component manufacturers. An additional 5% is to be given for manufacturing components for battery electric vehicle and hydrogen fuel cell vehicle components," stated the ICRA Report.

"The auto PLI Scheme aims for a future-ready and globally competitive Indian auto sector, by fast-tracking investments in technology and components where India needs to leapfrog. The Scheme will increase localization of auto components, accelerate investments towards a local EV ecosystem and has the potential to make India an export hub in the global auto supply chain. As tier-1s scale up, the tier-2s will also have growth potential, resulting in a multiplier effect," added the report.

as 'Smart City' and 'Digital India', are expected to increase the demand for electronic products. The PLI Scheme is expected to boost the production of electronic products in India.

Automotive: The automotive industry is a major economic contributor in India. The PLI Scheme is expected to make the Indian automotive Industry more competitive and will enhance globalization of the Indian automotive sector.

Pharmaceuticals: The Indian pharmaceutical industry is the third largest in the world by volume and 14th largest in terms of value. It contributes 3.5% of the total drugs and medicines exported globally. India possesses the complete ecosystem for development and manufacturing of pharmaceuticals and a robust ecosystem of allied industries. The PLI Scheme seeks to incentivize the global and domestic players to engage in high-value production.

Telecom equipment: Telecom equipment forms a critical and strategic element of building a secured telecom infrastructure and India aspires to become a major original equipment manufacturer of telecom and networking products. The PLI Scheme is expected to attract large investments from global players and help domestic companies seize the emerging opportunities and become big players in the export market.

Textiles: The Indian textile industry is one of the largest in the world and has a share of ~5% of global exports in textiles and apparel. But India's share in the manmade fibre (MMF) segment is low in contrast to the global consumption pattern, which is majorly in this segment. The PLI Scheme looks to attract large investments in the sector to further boost domestic manufacturing, especially in the MMF segment and technical textiles.

Processed foods: The growth of the processed food industry leads to better price for farmers and reduces high levels of wastage. Specific product lines having high growth potential and capabilities to generate medium- to large-scale employment have been identified for providing support through the PLI Scheme.

Solar PV Panels: Large imports of solar PV panels pose risks in supply-chain resilience and have strategic security challenges considering the electronic (hackable) nature of the value chain. A focused PLI Scheme for solar PV modules will incentivize domestic and global players to build large-scale solar PV capacity in India and help India leapfrog in capturing the global value chains for solar PV manufacturing.

White goods: White goods (like air conditioners and LEDs) have very high potential of domestic value addition, which make these products globally competitive. A PLI Scheme for the sector will lead to more domestic manufacturing, generation of jobs, and increased exports.

Specialty Steel: Steel is a strategically important industry and India is the world's second largest steel producer. It is a net exporter of finished steel and has the potential to become a champion in certain grades of steel. A PLI Scheme in Specialty Steel will help in enhancing manufacturing capabilities for value-added steel, leading to increase in total exports.

What toolmakers have to say?

According to a government press release, the PLI

Multi-coupling system

The new HASCO clean break multicoupling system allows the connection of cooling circuits in a single step. Set-up procedures can be carried out quickly and easily without the risk of mixing up the cooling circuits and hoses. The modular structure allows individual configurations as well as integration into existing systems.

- Central connection of cooling lines
- Easy and reliable locking
- Rapid set-up times
- 6, 12 and 20-point systems available
- No risk of confusion
- Can be equipped individually

HASCO®

Easy - Online - Ordering

www.hasco.com

Scheme is designed to create a complete component ecosystem in India and make the country an integral part of the global supply chains. The scheme will be instrumental in making manufacturing in India globally competitive by removing sectoral disabilities, creating economies of scale and ensuring efficiencies. But what do toolmakers have to say about the PLI Scheme?

"The Government of India announced the PLI Schemes across ten key sectors in November 2020. Its announcement of similar schemes for mobile phones, pharmaceuticals and medical devices were appreciated by the industry. PLI Schemes can prove to be a game changer in the Indian manufacturing industry," said Ravi Moolya, CEO, Speroni India Pvt. Ltd.

"It will enhance India's manufacturing output and skill development, and provide business opportunities to thousands of job shops. The PLI scheme will also promote Government of India's iconic 'Make in India' initiative, as it will encourage manufacturers to produce more and reduce the overall costs," added Moolya.

Vishal Purohit, Director, Purohit Steels, said, "The PLI Scheme is going to be a game changer. PLI Schemes in various industries will offer a boost to various sectors. It will definitely help toolmakers looking to diversify into other industries. Such initiatives can boost domestic manufacturing output and increase the localization of goods and parts, which will have a positive impact on the Indian manufacturing industry in the long run."

Image used for representation only. Courtesy: Envato Elements

Gopalakrishnan T. S., Managing Director, Multiple Special Steel Pvt. Ltd., said, "A scheme like the PLI Scheme is the need of the hour. The PLI Scheme is a very good initiative undertaken by the Government of India."

"To produce anything, we have to start with basic tools. Depending on the end purpose, it could be a press tool, aluminium/zinc/magnesium die-casting tool or injection moulds for plastics. All these need the expertise of toolmakers and tool rooms," stated Gopalakrishnan. "In India, these small tool rooms fall under the category of MSMEs. Numbering 60+ million, second only to China, the contribution of MSMEs to the GDP is 29% and they are responsible for 50% of the total exports from our country," added Gopalakrishnan.

"Unfortunately, due to the apathy shown to this sector, all these MSMEs have been wallowing in red-tapism. So, if the government really wants to boost and encourage MSMEs, then it must rope in associations like TAGMA and empanel a council to study, evaluate and, execute these pro-industry scheme. By this, we can ensure the allocated funds/ benefits reach the deserving and productive MSMEs. In this way, the PLI Scheme can bring the desired results for the industry and the country," explained Gopalakrishnan.

Viral Shah, Managing Director, XCUT Technologies, said, "The recently announced PLI Scheme is beneficial. The government is making an effort, but we need to speed up and implement them soon. The tooling industry is a strategic sector and plays a vital role in the development of the overall manufacturing sector. The industry needs some exclusive policies to uplift the condition of Indian toolmakers."

"'Aatmanirbhar Bharat' and PLI Scheme will help us enhance our manufacturing industry, as well as help in skill development, and employment generation. India is blessed with a huge pool of skilled manpower. These campaigns will not only help the industry grow, but will further help in employment generation," concluded Shah.

HIGH QUALITY PRECISION COMPONENTS

For Moulds And Dies

PPD®

Mould and Die Accessories

Undercuts Release Mechanisms

- Best Quality Steels and processes
- Manufactured to international standards
- Attractive Prices
- Shortest Lead Times

Contact us

PRECISION PUNCHES & DIES

+91-7777039765 / +91-7777039632

5-B, Raju Industrial estate,Penkarpada Street, Near Dahisar Check Post,P.O.Mira, Mumbai-401107, Maharashtra,India

www.ppdejectorpin.com

info@ppdejectorpin.com

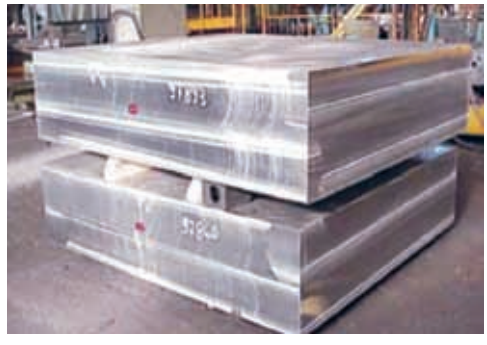
ppd.punches@gmail.com

PCK-Buderus | Special Steels Your Reliable

The Partner for Plastics Industry

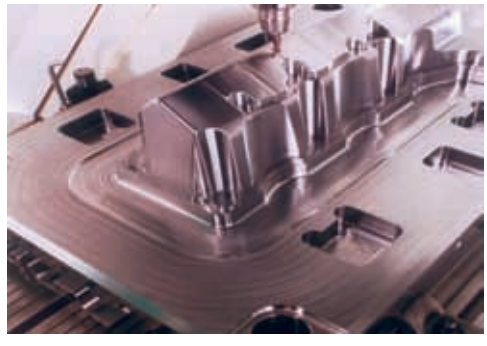
- Comprehensive Stock Holding of Plastic Mold Steels
- Service centers at Chennai, Pune and Ludhiana
- Express delivery in cut to lengths for blocks and rounds
- Contour Sawn Blocks for Cores and Cavities
- Machining Facility to handle piece weights upto 60 tons
- Delivery of 3D pre-machined Mold halves upto Bumper dimensions
- Deep Hole Drilling
- Technical Support on Steel Selection, processing, welding, Polishing and Texturising.

Stockholding Steels



6 Sides milled with Lifting hole

3D pre-Milled Dash board Mold



3D Machining to CAD Data

Grades in Program : • Buderus 2311 ISO-BM mod • Buderus 2738 ISO-BM • CONQUEROR SUPER CLEAN ISO-B • Buderus 2083 ISO-B

Partner in India for Buderus | Edelstahl

Partnership of 50 years with

Buderus | Edelstahl

and Indian Industry,
based on Reliability and Trust.

ALL FROM ONE SOURCE

Corporate Office
PCK HOUSE,
New No. 84, Old No.13,
South West Boag Road,
T. Nagar, Chennai - 600 017
Tel : + 91 44 2434 6503 / 1904 / 8638
Fax : + 91 44 2434 1181
Email : info@pck-buderus.com

Pune Office :
Warehouse & Machining Division:
Gat. No. 191, 192, 193, Alandi-Markal Road,
VaduKhurd, Tal. Haveli, Pune - 412216/INDIA
Tel. : 020 66783000/66783002 to 66783023
Fax : 020 6678 3001
E-mail : punewh@pck-buderus.com
pckpune@vsnl.net

Ludhiana Stock Holding Center
C-I, Industrial Area C, Jaspal Main Road,
Kanganwal, Ludhiana - 141 120. Punjab.
Tel : + 91 161 6532016 / 2017 / 2510073
Fax : +91 161 2510072
Email : ludwh@pck-buderus.com

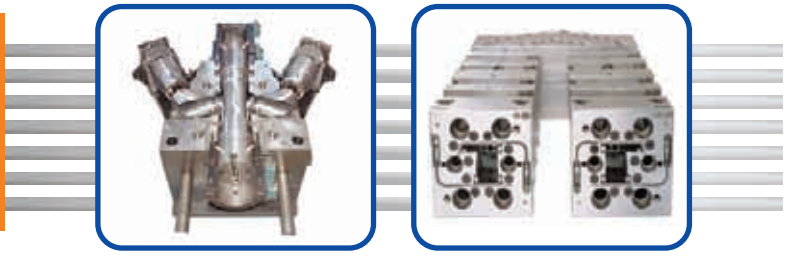
Kolkatta Office
Flat No. 403, Vishal Apartments,
4th FloorNo. 18,
Prince Anwar Shah Road,
Kolkatta - 700 033
Tel : + 91 33 2417 1078
Email : info@pck-buderus.com

www.pck-buderus.com

• THRUHARD SUPREME HH/HG • Buderus 2711 ISO-B • Buderus 2344 ISO-B
• Buderus 2316 ISO-B mod • Buderus 2767 ISO-B • Buderus 2379 IOSO-B

NITRO-B®

New Generation Corrosion resistant Pre-hardened Mold Steel



Nitro-B® is Nitrogen alloyed Corrosion resistant Plastic Mould Steel developed further on our reliable Buderus 2316 ISO-B Mod. The special analysis also allows the user to further heat treat the tools to 53 HRC.

SALIENT FEATURES

- Excellent microstructure
- Excellent machinability
- Higher wear-resistance
- Higher Hardness: 320-370 BHN (34-40HRc)
- Excellent Corrosion resistance event at Higher Hardness
- Can be heat-treated up to 53HRc

PCK Buderus (India) Special Steels Pvt. Ltd.

Corporate Office : PCK HOUSE, New No. 84, Old No.13, South West Boag Road, T. Nagar, Chennai - 600 017
Tel : + 91 44 2434 6503 / 1904 / 8638 Fax : + 91 44 2434 1181 Email : info@pck-buderus.com

Chennai Stock Holding Center
Machining Division
No. 1/512, Ponni Amman Koil Street,
Gandhi Nagar, Vengaivasal,
Chennai - 600 073.
Tel : + 91 44 2278 1107
Fax : + 91 44 2278 1869
Email : info@pck-buderus.com

Pune Stock Holding Center
Machining Division
Gat N o 191-192-193,
Alandi-markal Road,Vadu Khurd,
Tal-Haveli, Pune - 412216.
Tel : + 91 20 6678 3000
Fax : + 91 20 6678 3001
Email : punewh@pck-buderus.com

Ludhiana Stock Holding Center
C-I, Industrial Area C,
Jaspal Main Road, Kanganwal,
Ludhiana - 141 120. Punjab.
Tel : + 91 161 6532016 / 2017 / 2510073
Fax : +91 161 2510072
Email : ludwh@pck-buderus.com

www.pck-buderus.com

CAD MAcRO

Be part of Smart and Digital Tool Room

SHOP PLAN

eFACT
Industry 4.0 Initiative

PROCESS PLANNING / SCHEDULING / ERP SOLUTION

OUR EXISTING SHOP PLAN CLIENTS

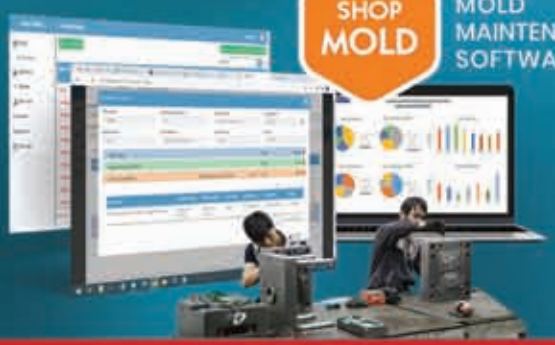
Sivananda Moulds & Dies · GOEL · Goldmedal · Hitech · CRAFT · MUTUAL · Pioneer Tooling Services · kangaro · MPI MODERN · EIGEN

OTHER PRODUCTS

MACRO EDM — EDM DETAILING AND CAM

MACRO WIRE — WIRE EDM SOLUTIONS

SHOP MOLD — MOLD MAINTENANCE SOFTWARE



Visit us @

ACMEE 14th International Machine Tools Exhibition
An AIEMA Initiative
Stall # D59
9 -13 Dec. 2021 Chennai Trade Centre, Chennai, India

IMTEX 2022 · ToolTech 2022 · IDEX
H5 C125
20 - 26 January 2022

DIEMOULD INDIA
12th DIE & MOULD INDIA
INTERNATIONAL EXHIBITION
27th APRIL TO 30th APRIL 2022
BEC, Goregaon, Mumbai.
HALL: 1 • STALL: A-13

CAD Macro Design & Solutions Pvt Ltd

33, CREW Building, Sapthagiri Colony, KR Layout, Jafferkhanpet, Chennai-83
Phone: **96000 13015-18, +91 44 43589050**
E-mail : info@cadmacro.com • www.cadmacro.com

'Toolmakers have to build relations with tier-1s and OEMs in India'

"When I say build relations, it is not only about going across and meeting companies. They have to create an environment wherein all the stakeholders of the system sit together and develop tools, share knowledge and challenges," says V. T. Venkateshwara Rao, DGM - Tooling Cell (CDMM), Mahindra and Mahindra.

Nishant Kashyap

Q What are the key trends in the global automotive industry?

Globally, the automotive industry is witnessing a lot of developments on the autonomous mobility solutions' front. Companies like Google and other major OEMs are working on completely restructuring the interior and exterior design of vehicles. When it comes to autonomous mobility solutions, sensors are set to play a major role. It is also predicted that the process of injection molding might change, as there will be lots of sensors embedded in the plastic parts. Also, there might be many transparent parts in a car going forward.

There are developments related to electrification and sustainability as well. When I say electrification, I refer to electric vehicles, while sustainability refers to alternative sources of energy, such as battery solutions. I must add here that there would be challenges with regard to recycling of batteries. Electric vehicles will create a huge demand for energy. We need to ensure we have enough renewable energy to sustain. Many companies, including OEMs, are already working in this direction. I'm sure there will be many innovations in the coming days to ensure sustainable energy sources.

The use of laser technology would be another global trend. In fact, several OEMs have started using laser technologies in lighting systems. Connectivity in the car is gaining prominence globally too. The latest models of cars are inbuilt with electronic architecture equipped with infotainment systems and digital clusters.

Q What about India? What would you say are the key trends here?

A few global trends are being followed in India, but it's mostly different here. Things are moving upwards in the electric vehicles segment as well as in the electronics, software, and connectivity space. A lot of work is happening on our cars in terms of implementing advanced driving assistance systems, adaptive cruise controls, front collision warnings, and infotainment systems. Digital clusters have advanced too.

The next area of development is what I'd like to categorise as "well-being features". This is not just because of the pandemic. I think, in general, it's because car manufacturers are trying to add more features, such as air purifiers, safety features to reduce fatalities, and additional features for the convenience and comfort of people, keeping people in mind.

Q To be at par with global trends, what do Indian manufacturers need to keep in mind?

Moving forward, trends like sustainability will become a prominent feature. The sustainability that is talked about at the global level may differ from what we perceive at the Indian level. So, apart from, let's say, the alternative energy sources or battery solutions, India probably has to look at maintaining the craftsmanship of the vehicle, figure out how to make it "greener", resolve issues related to recycling certain materials, etc.

Battery solutions pose the dilemma of weight. But this isn't an issue only for India, it's an issue faced globally as well. A battery will increase the vehicle's weight. A lot of work would happen on lightweight materials to reduce the overall weight of the vehicles. This is something that needs to be focussed on. For instance, sheet metal could be replaced with plastics, wherever feasible and low-density materials can be used.

Q What major changes will the Indian automotive industry witness? How will these changes impact Indian tooling companies?

After General Motors' and Ford's exit from India, my observation is that we will have to watch how newcomers and existing companies grow in the country. Apart from this, we have to see the pace at which vehicles are sold. Some OEMs may increase the volumes at a higher pace, while others might decrease their volumes because of various reasons. Also, we have to observe what type of vehicles will be sold. For instance, some OEMs may stress on commercial vehicles, others may stress on SUVs, while some others may want a mix of small cars and SUVs. One also needs to consider changes in the car's interiors. For instance, there could be a lot of smart surfaces being introduced inside the car. All these factors will definitely impact the tooling businesses.

Tooling companies will need to keenly observe the frugal mind set or frugal systems or methods that the new OEMs will bring to India. Besides, there is a need to focus on start-ups. With the emergence of electric vehicles, a number of start-ups have emerged in the automotive industry.

Q What are the major expectations of toolmakers from automotive OEMs with respect to the procurement of tools?

It's very simple! Based on my interactions with tooling companies I work with, or I have visited, the demand is clear: OEMs want the right tools, and the right parts (at the right cost). With overseas companies and tooling suppliers that I have worked with, I have not faced issues related to timelines and quality.

Q What are the key evaluation factors for any automotive OEM before finalising on a tool room for any project?

Well, there are some key evaluation factors that we look at when we assess the tool room to bring them on board. They are:

The company's attitude: In general, based on my experience, I would say the priority is the attitude of the company. It's important to know how everyone in the company, i.e., right from the director at the top to the machine operator, are they aligned for a specific project. I believe that if you have the right attitude, you tend to do what is right.

Design competency: We look at the competency that a company has in the design department. What software they use, and the skill level of designers and design heads in that company, among other aspects.

Manufacturing capabilities: We understand their manufacturing capabilities in terms of machine configurations, what make machines they have, and machine condition, among others.

Trained manpower: We look at the overall experience of people in each department, competencies and number of years put in the company.

Quality check: We inquire about the quality and inspection process they follow. This includes an understanding of the machines and technologies they possess, the process they follow, etc.

Cutting tools: We also look at the kind of cutting tools these companies use. After all, toolmaking is not just about steel cutting.

Trial facilities: We need to know if the company has tool trial facilities in-house. If they don't, then do they have any available external support, which we can depend on to do urgent trials.

Systems and procedures: Finally, we look at what systems and procedures they follow in terms of manufacturing. For instance, how they manage the program, whether they update their customers with a daily or weekly status, etc.

Specialization in making tools for automotive parts: We look at the know-how in each department. We try to gauge if they have the know-how on making tools for the auto sector.

Q Most major global auto manufacturing countries have a strong domestic tooling industry. India, however, is an exception, as a significant part of the tooling demand is still met through imports. What do you think could be the reason for the same?

Let's not downgrade ourselves. At Mahindra, we procure about 60% to 70% of our tools from Indian suppliers. In certain projects, it has even gone to the extent of 90%. Also, when I say tooling, I am referring only to the plastic injection tools.

Now, let's talk about why it is not 100%? The only reason why OEMs are importing tools is that for certain types of tools, there is no competency in India. For example, lamp tooling. The Indian ecosystem is not developed for such tools. Besides, there are many other complex tools that are not extensively developed in India. For example, most air vents' tools, which are normally complex and need close tolerance manufacturing both in a part and the tool. That's why they are imported.

Mahindra, as a group, has tried developing vendors and handholding some toolmakers to develop competencies. We have been very successful in these efforts.

Q Electric vehicles are said to be the biggest game changers in the global automotive industry and will impact component suppliers as well. In your opinion, how will the emergence of electric vehicles impact the demand for tools in the automotive industry?

The major change that electric vehicles will create will be related to the engine compartment. Components such as intake manifolds, water inlet, gas inlet or outlet will be eliminated from electric vehicles. However, there could be lots of plastic parts that will be needed in the battery compartment area. Also, from a business point of view, I don't see the emergence of electric vehicles having any larger impact on tooling suppliers. Of course, some parts will go, but there will be many new parts that will be introduced. They will need tools for those parts.

Q Any suggestions to Indian toolmakers?

The Indian tooling fraternity needs to focus on a lot of factors. They are:

Quality: Indian tool rooms have to improve their quality of tools, the quality of their deliverables, in terms of the tool and the part.

Build relations: Toolmakers have to build relations with tier-1s and OEMs in India. When I say build relations, it is not only about going across and meeting companies. They have to create an environment wherein all the stakeholders of the system sit together and develop tools, share knowledge and challenges.

Infrastructure: Tool rooms have to look at their infrastructure. They need to gauge the opportunities and build their infrastructure accordingly. You have to give quality tools, quality products, which is only possible if you have the right infrastructure in place.

Skill development: This is critical. Toolmakers have to probably spend a lot of money on training people. Team building inside the company is also very important to ensure that skill development is done properly, and employees are motivated.

Disclaimer: *All the answers or discussions are the opinions of V. T. Venkateshwara Rao and not those of Mahindra and Mahindra. He isn't representing Mahindra and Mahindra's viewpoints or opinions.*

MAKINO

Promise of Performance

"Defining the art of Precision Mold making"

F3/F5

- High Speed Vertical Machining Center
- Significantly improved productivity for small and medium molds

PS65/105

- Flexible Vertical Machining Center for compound machining
- Main shaft BT40 but with machining capacity of standard BT50

U3/U6

- High precision wire cutting machine
- Flexible, competituve operating costs and easy operations

+91 89517 66477 infomai@makino.co.in

Makino India Pvt. Ltd. 11, EPIP Zone, Whitefield Road, Bangalore-560 066

'India is in the best position to become the second factory for the world in future'

"India is the best alternative, as we are the biggest democracy, have a stable government, and highly skilled manpower. I see the current geopolitical situation is perfect for India. Now it's all up to how we grab these opportunities. We are already a hub for medicine manufacturing, and automotive manufacturing. Now, we should aim to become a hub for tool manufacturing," says Viral Shah, Managing Director, XCUT Technologies.

Amol Padhye

Q What is the present state of the Indian tooling industry?

At present, the tooling industry in India is growing at a fast pace, and we see vast opportunities in the coming days. The growth is due to several reasons, like:

- The present geopolitical situation between India and China has given opportunities to Indian manufacturers, as companies want to reduce their dependency on China.
- The ongoing pandemic has also taught why it is important to be self-reliant in the long run, resulting in the localisation of tools and parts.
- The emergence of sectors like aerospace, railways, medical, infrastructure, and agriculture is also leading the growth.
- Changes in the auto industry like facelift and new safety norms will also help drive business for toolmakers.

However, several tools are still imported from Taiwan, Korea, and China because of the quality and delivery. But I feel, Indian toolmakers have grown and are ready to serve the complex and growing demands of customers.

Q The market size of the tool room industry in India is estimated to be ~INR 18,000 crore with ~70% of demand being met domestically and ~30% from imports. What should Indian toolmakers do to reduce imports?

There are a few factors that impact the tooling business in India and make it tough to operate. They are:

Duty structure of machines: Some of the critical machines are not manufactured in India, so toolmakers import machines like 5-axis CNCs, high-end CMMs, and injection moulding machines. The duty structure is so high on importing these machines that it becomes very expensive for toolmakers. If we have to make quality tools and compete globally, we must make these critical machines easily available to toolmakers.

Awareness: In terms of cutting tools, we are more or less at par with the global brands. Tooling companies need to trust Indian cutting tool suppliers. It will help them reduce the cost and enhance delivery.

Policy framework: The Indian government needs to help the industry with more business-friendly policies that include easy finance options, export incentives, and skill development, among others. The government needs to understand the needs of toolmakers and form policies accordingly.

Q What are the various schemes and policies that support Indian tool rooms?

There are a few schemes by the Ministry of MSME to support the industry. Also, the government is providing several different packages to uplift the

condition of the Indian tooling industry. The recently announced PLI schemes are also beneficial. The government is making an effort, but we need to speed up and implement them soon. The tooling industry is a strategic sector and plays a vital role in the development of the overall manufacturing sector. The industry needs some exclusive policies to uplift the condition of Indian toolmakers.

Q How will campaigns like 'Aatmanirbhar Bharat' and Production-Linked Incentive (PLI) Schemes help domestic toolmakers in the long run?

For the economy to further grow, we must increase our manufacturing output. These campaigns will help the Indian manufacturing industry achieve that. It will further help in FDIs, technology transfer, employment generation, and business opportunities for SMEs. PLI schemes are a great initiative and will help the tooling industry as well.

And, 'Aatmanirbhar Bharat' or 'Self-reliant India' campaign encourages localisation. This campaign has given SMEs the much-needed confidence and business. Many OEMs are now looking for Indian alternatives for parts and tools, which is a good sign. The idea of this campaign is to increase our production capacity and reduce dependency on imports.

These campaigns will help us enhance our manufacturing industry, as well as help in skill development, and employment generation. India is blessed with a huge pool of skilled manpower. These campaigns will not only help the industry grow, but will further help in employment generation.

Q Automotive is the largest consumer of tooling accounting for almost 60% of the total demand. However, the new trends in automotive such as EVs, BS-VI, shared mobility, etc., have led to uncertainties among the suppliers. In such cases, what are the other emerging sectors that the toolmakers can focus on?

This is a good question. The automotive industry will remain the biggest consumer of tools even in the coming days. I feel all the changes taking place in the automotive industry will help toolmakers, as more and more tools will be needed. ICE or EV vehicles will not make much of a difference to toolmakers, as the car would need the body to be sturdy and new models would mean more tooling opportunities.

Apart from that, we are seeing good growth in the aerospace and defence sectors. The government expenditure on defence is increasing and we are seeing good FDIs in the aerospace sector in India. The medical equipment and implant industry is also growing rapidly in India and will grow further.

The power sector is also on the rise. Other sectors like agriculture and construction equipment industry will also generate good business in India.

Q What are the technology trends in the tooling industry? How will the emergence of industry 4.0, hybrid manufacturing, and machine learning shape the industry?

The world is moving towards automation and intelligent manufacturing. Let's talk about robotic machines, the productivity of the non-robotic machine and a robotic machine is unparalleled. One high-end component machine with robotics does the same work as four regular CNC machines and the chances of error are negligible. This way of work is very successful in a mass production environment. But when it comes to die mould making, things are different.

Coming to smart manufacturing, I think the world is shifting from automated manufacturing to intelligent manufacturing. Smart manufacturing is something where you generate data, analyse it and make informed decisions related to the health of the machine and the outcome of the project.

We need both, many of our job shops are not yet there in terms of automation. We should make a gradual shift towards automation and smart manufacturing but adopt a futuristic solution.

Q What, short and long-term, opportunities do you see amid this COVID-19 crisis and growing geopolitical situation?

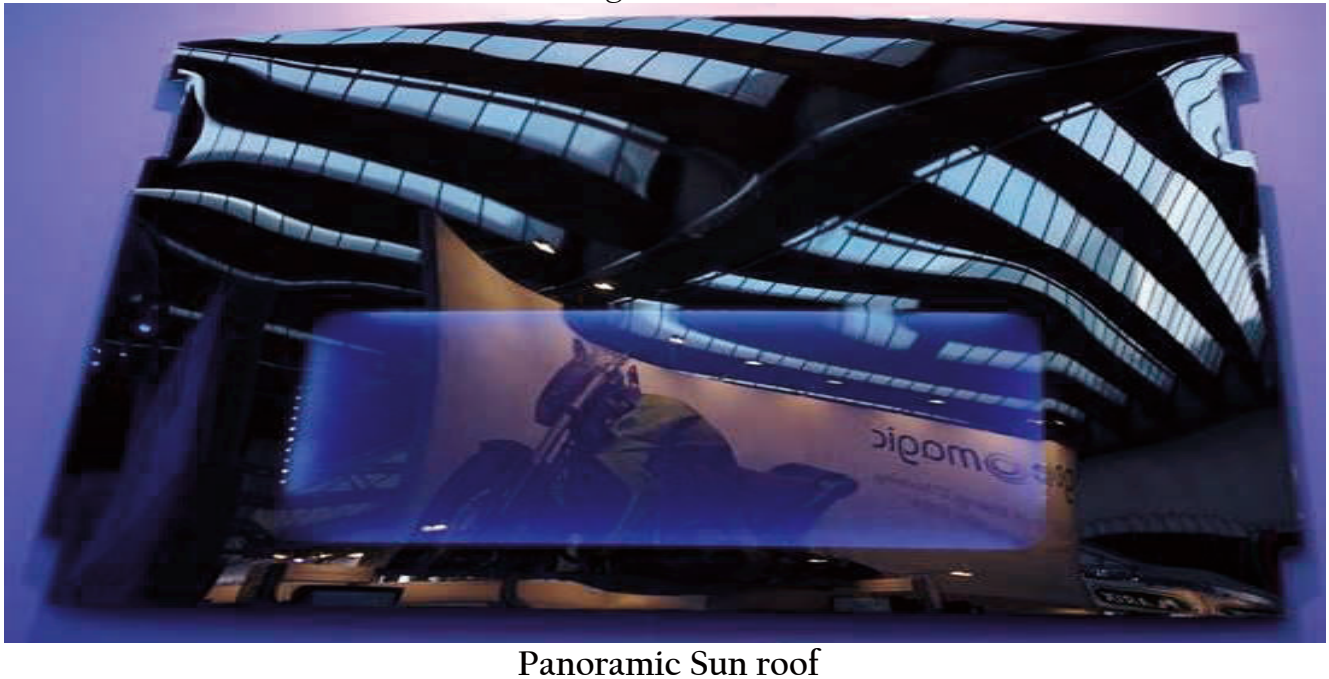
Businesses have been affected, the purchasing pattern of consumers changed, but as we are gradually coming out of the pandemic, I see there is a huge, suppressed demand coming in for us. Some companies are not able to serve the demand because they are already running at full capacity.

Regarding the long run, I feel India is in the best position to become the second factory for the world in future. We have seen how many companies are reducing their dependence on China and India is the best alternative, as we are the biggest democracy, have a stable government, and highly skilled manpower. I see the current geopolitical situation is perfect for India. Now it's all up to how we grab these opportunities. We are already a hub for medicine manufacturing, and automotive manufacturing. Now, we should aim to become a hub for tool manufacturing.

THRUHARD SUPREME HG

For Glossy or Chrome plated parts

Front grille



Panoramic Sun roof

THRUHARD SUPREME **H**igh **G**loss is stocked extensively at:

PCK Buderus (India) Special Steels Pvt. Ltd.

Corporate Office : PCK HOUSE, New No. 84, Old No.13, South West Boag Road, T. Nagar, Chennai - 600 017
Tel : + 91 44 2434 6503 / 1904 / 8638 Fax : + 91 44 2434 1181 Email : info@pck-buderus.com

Chennai Stock Holding Center
Machining Division
No. 1/512, Ponni Amman Koil Street,
Gandhi Nagar,
Vengaivasal, Chennai - 600 073.
Tel : + 91 44 2278 1107
Fax : + 91 44 2278 1869
Email : info@pck-buderus.com

Pune Stock Holding Center
Machining Division
Gat no 191-192-193,
Alandi-markal Road,Vadu Khurd,
Tal-Haveli, Pune - 412216.
Tel : + 91 20 6678 3000
Fax : + 91 20 6678 3001
Email : punewh@pck-buderus.com

Ludhiana Stock Holding Center
C-I, Industrial Area C,
Jaspal Main Road,
Kanganwal, Ludhiana - 141 120.
Punjab.
Tel : + 91 161 6532016 / 2017 / 2510073
Fax : +91 161 2510072
Email : ludwh@pck-buderus.com

www.pck-buderus.com

PCK-Buderus | Special Steels

Buderus 2738 ISO-BM

PREMIUM QUALITY PRE-HARDENED MOULD STEEL

Shopping Trolley Mould

Corporate Office :
PCK HOUSE
New No. 84, Old No.13,
South West Boag Road,
Chennai - 600 017
Tel : + 91 44 2434 6503, 2434 1904
Fax : + 91 44 2434 118
Email : info@pck-buderus.com

Pune Office :
Warehouse & Machining Division:
Gat. No. 191, 192, 193, Alandi-Markal Road,
VaduKhurd, Tal. Haveli, Pune - 412216/INDIA
Tel. : 020 66783000/66783002 to 66783023
Fax : 020 6678 3001
E-mail : punewh@pck-buderus.com
pckpune@vsnl.net

Ludhiana Office,
Stock Holding Center
C-I, Industrial Area C,
Jaspal Main Road, Kanganwal,
Ludhiana - 141 120. Punjab.
Tel : + 91 161 6532016, 6532017
Fax : + 91 161 2510072
Email : ludwh@pck-buderus.com

www.pck-buderus.com

PCK-Buderus | Your reliable Partner in India for Buderus | Edelstahl

3D Printing and Optimization of Pump Impellers

Whenever any industrial challenge arises, there is likely a capability and a team of people available to overcome it. The following industrial solution case study fits the same bill. In this case study, Objectify Technologies Pvt. Ltd. explains how using a 3D-printing application has helped them develop and manufacture pump impellers for a client.

Located in Delhi-NCR, Objectify Technologies Pvt. Ltd. (OTPL) is a leading name in additive manufacturing solutions. OTPL believes in investing in state-of-the-art capital of well-trained engineering staff. The latest Powder Bed Fusion-type Selective Laser Melting machines (by EOS – M280, M290s, including M400-4) and allied post-processing 3-axis and 5-axis CNC milling centers cater to Indian and overseas clients, who need to produce quality parts with improved productivity within the least possible lead time.

"With the onset of new and improved additive manufacturing adaptation, India has come a long way in idealizing the prospects of 3D printing for their manufacturing processes. This case study highlights when an industrial challenge is tackled well, a new frontier of solutions evolves that helps build a competitive advantage for the industry," said Mr. Rahul Pise, GM – Design & Operations, Objectify Technologies Pvt. Ltd.

Figure 1 – A schematic of a centrifugal pump.
Figure 2 –Types of impellers as illustration (Open, Semi and Closed).

The challenges

An industrial player, our client (who deals with fluid flow machinery and is a control solutions provider for the oil and gas, energy and power, process industries), needed custom design and custom-built centrifugal pumps [As shown in Figure 1]. These types of design and make are the low-volume, high-mix type due to a variety of reasons, namely the fluid flow rates, pressure head essential to move the bulk fluid to elevation or to a distance, the fluid media corrosiveness dictates geometry of setup, the choice of metal alloys to be used, and the manufacturing techniques for construction of rotating machinery of fluid pumps. These types of custom-build solutions are not the usual kind – high-volume production units of saying water irrigation pumps with better streamlined low-cost casting techniques for the centrifugal pump housing and its main rotating component – the pump impeller.

For a particular customer of our client, a pump was designed with an impeller to be made with non-corrosive stainless steel grade SS316L. It was a closed impeller type and had a dia of 300+mm [As shown in Figure 2]. The development cost and lead time to cast such uniquely shaped impellers with conventional means of investment, requires laborious efforts (almost to the extent required by manual craftsmanship right from pattern making for lost-wax approach). It also came with several quality risks such as unknown shrinkage of geometric features, unpredictable porosity voids due to hot spots, rough surface finish of internal undercut

features, which are difficult to process for manual grinding/polishing, etc.

"We had to develop new parameters for SS316L to facilitate the build process. Various iterations of support structures needed to be simulated for optimum results without failures. Also, since undercutting the part wasn't an option in conventional manufacturing via CNC milling, this gave a good lead for us to proceed with EOS – M400-4 and we could make 100 parts per batch, which even most foundries don't offer unless appropriate tooling for wax patterns and serious investment casting mould making facility investments," said Mr. Arpit Sahu, Director, Co-founder, Objectify Technologies Pvt. Ltd.

Our client's R&D team had been researching the adoption of additive manufacturing for such low-volume, high-mix need of 3D printing, and complex closed impeller geometries under their new flagship of 'Digital Products and Solutions'. They wanted to produce digital designs using digital data with the least human interventions that would allow for competitive advantages. Some of the competitive advantages include:

- Virtual storage of design and production lifecycle know-how for later duplications with near-perfect repeatability and quality reliability.
- Distributed manufacturing for supply and sourcing of products and replenishment parts made to order, just in time with localized production facilities, which do not require hefty investments, like in big foundries for tooling, and facilities for casting.

The client needed a 3D printing solution for an impeller of size 300+ mm, which is not able to fit on the usual-build-envelope of 3D printers that are of size 250mm x 250mm x 300mm. EOS, a German manufacturer of powder bed fusion-type 3D printers, under flagship products Direct Metal Laser Solidification (DMLS), had recently built a system that has a-build-envelope of 400mm x 400mm x 400mm, and could accommodate an impeller of that size.

However, with default EOS-recommended processing parameters to solidify the powder layer upon layer with part orientation, the time taken was quite long with quality risks involved. The risks included layer shifting that affects geometric integrity, machine stop and start stress lines/insufficient bonding, if subsequent layers melting takes too long a time in case of re-coater jamming issues, etc.

"With metal and polymer manufacturing capabilities, Objectify has made its mark in providing efficient additive manufacturing services to industries across the globe. From white goods to aerospace components, we have been working relentlessly in improving our process and deployment strategies."

Mr. Ankit Sahu,
Director, Objectify Technologies Pvt. Ltd.

Technical challenges in 3D-printing closed impellers

The geometry is a closed hollow shell. This is a classical problem that can only be tackled by 3D printing, as even 5-axis machining can't cut curved vanes. 3D printing can allow us to accommodate hollow shells, but the geometry needs to be supported for a variety of reasons, as the process dictates. For quality and obvious difficulty in processing of internal features, them having support structures is simply not a choice available. Part orientation and support strategies needed to be optimized for successful 3D printing without geometric integrity or strength quality issues.

Overcoming the obstacle

Objectify Technologies Pvt. Ltd. is already equipped with an M400-4 machine, which can accommodate a 300+mm dia closed impeller. Isn't the need already served here? Is it that simple to load the digital design data on the available machine and be done with it?

Although the media paints a rosy picture of the impressive geometry of 3D printing simply growing at a click of a button, there is a team of engineers and research & development with the know-how of how to tackle situations like several build crashes, master the craft with optimal process parameters of layer thickness and laser power exposure speed, geometric orientation, and support structure strategies. Once these things are locked, getting successful prints, as duplicates, is quite reliable.

How optimization is done?

Through a thermal simulation of the process based on the voxel-based approach via Simufact (MSC's AM FEA package), the software gives an idea about thermal deformations induced due to thermal stress. Probable problem areas can be identified [As shown in Figure 3] and improved iteratively with a combination of change in part orientation, type and choice of support structures location, and the amount of support structure volume.

When process planning is robust, the application's

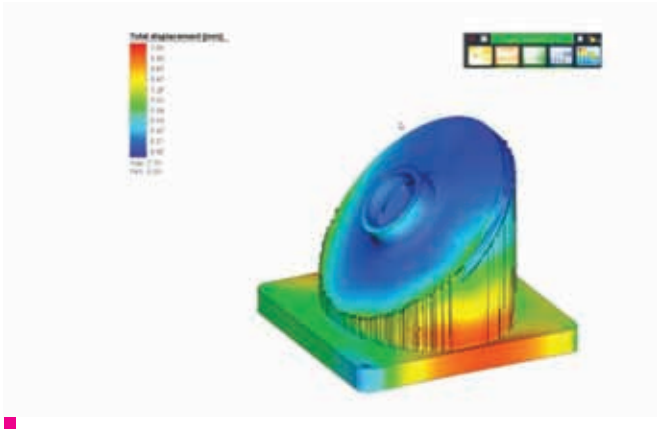


Figure 3 –Thermal induced stress causing displacement.

execution is precise. Figure 4 shows successful print completion.

Figure 4 – Over 300mm size impeller 3D printing in SS316L completed on M400-4.

Post-processing and finishing the part for delivery

Compared to the usual timeframe of 6 to 8 weeks for investment casting and finishing, 3D printing took 1.5 weeks of printing and 2.5 weeks overall to produce this case study part, as an alternative to casting. Post-processing comprised of:

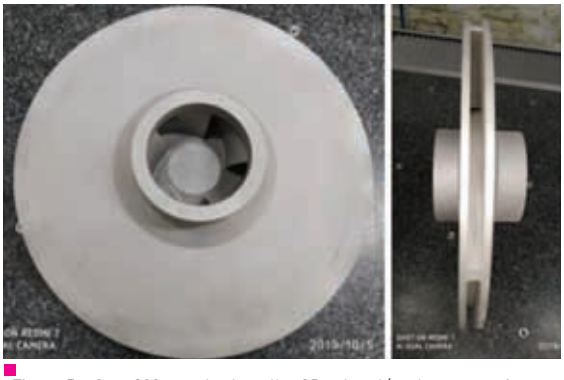


Figure 5 – Over 300mm size impeller 3D printed (replacement of investment casting process).

- Stress relieving heat treatment to ward off isotropic properties,
- Support structure removal,
- Outside skin machining to remove support structure marks,
- Shot blasting.

What lies ahead?

The client has realized the potential of digital solutions for similar geometric complexity or other complexities to be tackled. Non-corrosive type alloys, like titanium, used for pumping specific chemical media can be 3D printed rapidly and in a timely manner with Objectify to meet their customers' needs.

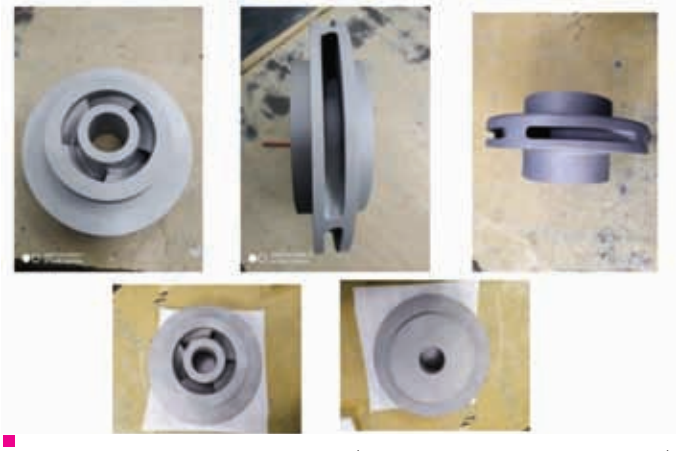


Figure 6 – Several sizes impellers 3D printed (titanium and stainless steel alloys used).

"Additive manufacturing will pave the path for a better, sustainable future for mankind. The parts that were built in this case took us only 6 days from ideation to post-processing, which would take 10 days or more for conventional manufacturing processes with several by-product wastes (wax, broken molds, etc.) and energy consumed. It goes without saying that we have learned a lot from this project, as we had to test our capabilities to the utmost gravitas. With 100+ hours of non-stop machining time without failures and offering 99.9% density of the material, additive manufacturing delivers the future in the present," concluded Mr. Ankit Sahu.

The client applauded Objectify Technologies' "teamwork and workmanship" as well as their "ability to deliver as promised". Objectify Technologies' team is proud and happy when customer satisfaction is achieved through focused and deliberate efforts to elevate the additive manufacturing standards and their applications.

Courtesy: Objectify Technologies Pvt. Ltd.

NLX 2500 | 700 with Gantry Loader GX 10 T

NLX SERIES
UNIVERSAL TURNING

BMT REVOLVER

with 10,000 rpm

up to ø 80 mm

Bar machining (Chuck components up to ø 460 mm)

INTEGRATED AUTOMATION

z.B. Gantry Loader GX 10 T for workpieces up to ø 200 × 150 mm

Exclusive Technology cycle

gearSKIVING

Highly productive machining process: up to 8 times faster than gear shaping!

Find out more about NLX Series

nlx.dmgmori.com

DMG MORI

Additive manufacturing technology enables servo valve innovation

With the help of metal additive manufacturing (AM) technology from global engineering company, Renishaw, UK-based Domin Fluid Power Ltd. (Domin) has produced a new range of direct drive valves. Founded in 2012, in Bristol, Domin, is disrupting the hydraulics industry by redesigning servo valves from first principles to achieve a better performing, more sustainable product at a lower price point.

"While there has been a huge amount of innovation across the manufacturing industry in the last few decades, none of it has been significant enough to achieve true disruption in the fluid power sector," explained Marcus Pont, Chief Executive Officer of Domin. "Much of the fundamental technology in our industry was established decades ago, little has changed until now."

"We believed that metal AM was the final puzzle piece and we're confident we could generate true industry change and make a positive impact," continued Pont. "By combining AM with other innovations like high-speed motor control, modern electronics, big data and connected technology, there is real potential for disruption."

"There is a compelling reason disruption is needed — sustainability. In the US, the fluid power sector alone wastes about 300 million tonnes of CO2 per year through system inefficiencies," added Pont.

"To put this into context, this is about the same as the total output for all CO2 emissions in the UK. More efficient technology could make a real difference to global emissions."

Metal AM involves building a solid metal component layer-by-layer from metal powder. Due to its inherent design freedom, additive manufacturing enables Domin to build complex parts, free of tooling and with minimal operations and assembly. For example, metal AM provides the ability to design complex geometries with internal features like lattices and

Case Study

Domin's direct drive valve.

cooling channels. It produces parts with good strength-to-weight ratio and creates less waste.

Challenge

Despite the huge potential of the technology, AM has traditionally been used in low-volume custom applications in aerospace, medical and automotive, rather than in high-volume, off-the-shelf products like valves.

"Some of the traditional barriers to additive manufacturing were limited production speed, the cost of a machine, and variation in build quality between machines," said Bryan Austin, Director of Sales at Renishaw's Additive Manufacturing Group. "While AM grew in popularity for rapid prototyping, many companies are yet to realise the benefits it can bring to series production."

Domin redesigned its servo drives from first principles for the AM process. It wasn't just a redesigned manifold, but an entirely different product. This involved combining and removing components and using clever hydraulic connections to reduce both mass and volume. The company spent several years testing different prototype designs to produce drives that were smaller, lighter and more powerful. However, it needed a way to produce them economically.

Solution

Recent innovations in the AM market have seen the introduction of multi-laser machines. The RenAM 500Q, Renishaw's four laser system, was the solution that Domin needed to produce its new range at a competitive price point.

The machine features four 500W lasers, each able to access the entire powder bed simultaneously, which means it can achieve significantly higher build rates — up to four times as fast as a single laser system. By improving productivity and decreasing cost per part, it is broadening the appeal of AM into applications where it was previously uneconomical.

The system also offers automated powder and waste handling systems that enable consistent process quality, reduced operator intervention time and ensures high standards of safety. Alongside this, the machine offers intelligent gas flow to remove process emissions and extend filter life. It can be combined with Additive Manufacturing Process Monitoring (AMPM) software to improve quality, overcoming another traditional barrier.

"We could see that Domin and Renishaw had a shared vision," added Austin. "We wanted to be part of Domin's journey to disrupt the market. Because Domin already had a fully designed product but needed a productive route to market, we started a project to prove the production capabilities of the RenAM 500Q for the specific application and to ensure the manufacturing process was consistent, stable and could provide the required throughput."

Renishaw also provided input into printing strategies, for example making recommendations about how to increase heat dissipation, such as allowing more time to cool between each layer during the first 130 layers. Another option was to decrease the energy input by using fewer layers or building support structures with just two lasers, while building the parts with all four, exporting them as separate geometries from CAD.

The build process takes 17 hours and 21 minutes, with a machine set-up time of 30 minutes. Twelve parts are produced on each build plate, with each laser producing three components. Renishaw also designed support structures to enable easy powder removal.

"Every valve we sell saves over a tonne of CO_2 per year compared with alternative products. The next step for us is to improve the efficiency of hydraulic systems by 400%, which could make a real difference to global emissions."

Marcus Pont,
Chief Executive Officer, Domin Fluid Power Ltd. (UK)

Marcus Pont, CEO of Domin, visiting Renishaw.


Testing an AM direct drive valve.

"The productivity of the RenAM 500Q is what enabled us to take our range to market competitively. It significantly drove down cost per part compared with alternative machines," emphasised Pont.

Results

The company has now launched its range of off-the-shelf electrohydraulic valves for servo applications, which perform better than current state-of-the-art products, and cost less to produce. Customers can easily configure the design online to order valves with good power density and dynamic performance. They are suitable for use in a broad range of applications, from injection moulding machines, to actuation on vehicles and landing gear in aeroplanes. Domin is already working on projects with leading businesses, such as Aston Martin Lagonda.


Additively manufactured direct drive valves from Domin.

"Our range of valves is just the first step of a bigger picture for us," explained Pont. "We've already proven that AM can be used in genuine series production of off-the-shelf products in a cost sensitive market. Long term, we plan to create change across entire systems and develop complete solutions for the fluid power sector."

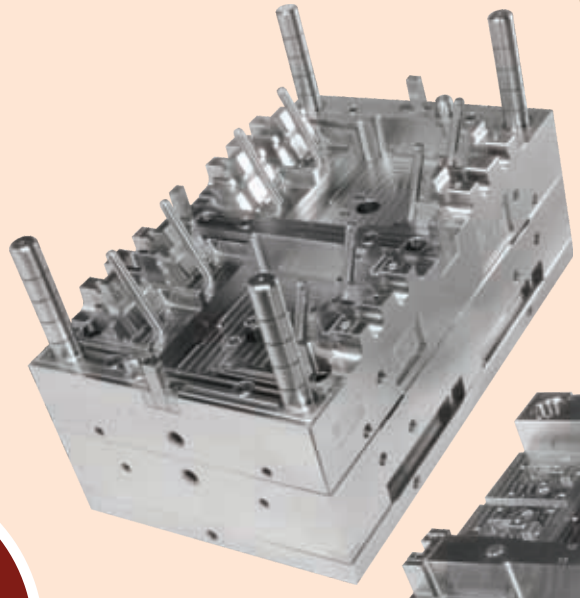
"Every valve we sell saves over a tonne of CO2 per year compared with alternative products," added Pont. "The next step for us is to improve the efficiency of hydraulic systems by 400%, which could make a real difference to global emissions."

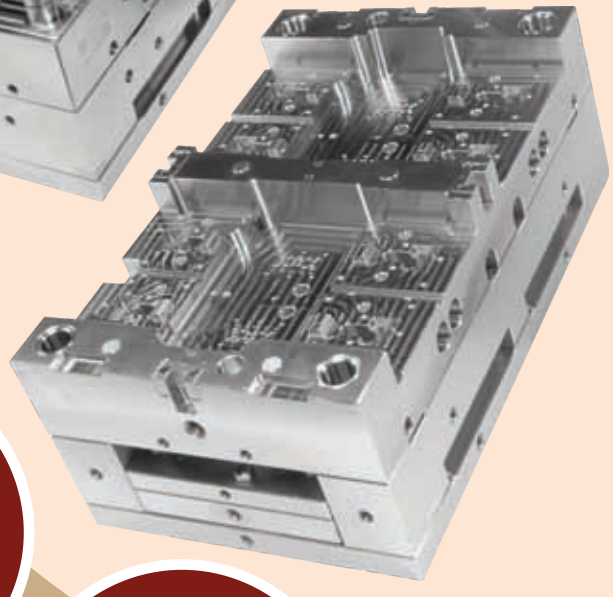
"Britain has several of the world's leading engineering companies — Renishaw included — but the majority of these were founded in the 20th Century," continued Pont. "It is time that smaller businesses raised their aspirations. It's really exciting to see what can be achieved using the latest technology from British business and seeing the potential value that engineering innovation can drive for UK industry."

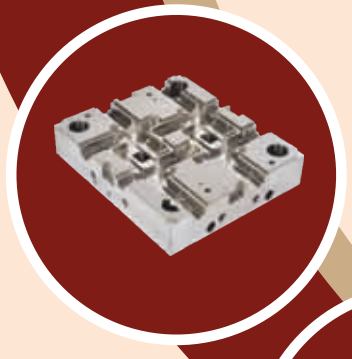
"Renishaw is always looking for opportunities to develop emerging technologies that can make a positive change to the wider industry," added Austin. "AM is a key enabling technology in this application, as it provides the technical and commercial benefits needed for Domin to make high-performance, lightweight parts rapidly and cost effectively. We're excited to see what it achieves in the future."

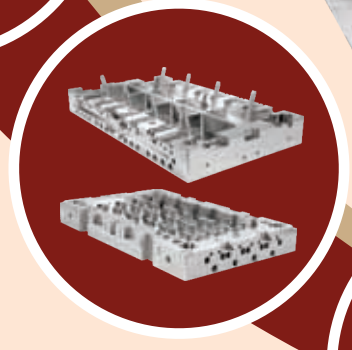
Article and images courtesy: © 2021 Renishaw plc.

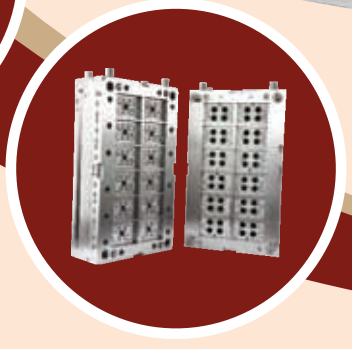
WORLD CLASS PRECISION MOULD BASES

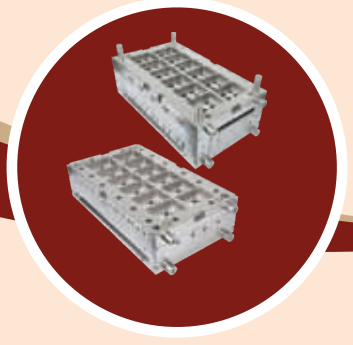












Are you looking for
Precision engineering...
Machining competency...
Timely delivery..

PMT™

PRECISION MOULD TECH

Your Success Partners

No. 159, 3rd Main Road, Industrial Town, Rajajinagar, Bengaluru - 560 044
Phone : +91-080-23405544, +91-080-23503142 Fax : +91-080-23402760
E-mail : info@precisionmouldtech.com Website : www.precisionmouldtech.com

Nissan unveils Nissan Intelligent Factory

Innovative manufacturing technologies aim to help company achieve carbon neutrality by 2050.

Nissan unveiled a production line at its Tochigi Plant featuring the Nissan Intelligent Factory initiative, in October. This unique initiative supports the manufacture of next-generation vehicles using innovative technologies and contributes to the realization of carbon neutrality. Nissan also announced a roadmap to achieve carbon neutrality by 2050 at its production plants around the world.

Hideyuki Sakamoto, Nissan's Executive Vice President for manufacturing and supply chain management, said, "The automotive industry is in a period of great change, and solving the global challenge of climate change is urgent. We see this as an opportunity to build the strength of monozukuri (manufacturing), a part of our DNA, to develop and apply innovative technologies to overcome the challenges we face."

Nissan Intelligent Factory

Since its foundation, Nissan has honed its ability to manufacture vehicles through high quality and highly efficient production processes and the superb skills of the company's takumi (master technicians). However, the business environment surrounding manufacturing is undergoing major changes. In Japan, there is a need to break away from conventional labour-intensive manufacturing to cope with an aging society and serious labor shortage. Unforeseen situations, such as climate change and pandemics, also need to be managed. At the same time, industry trends in electrification, vehicle intelligence and

SUMO.

Integrated painting and baking.

connected technologies are making vehicle structure and functionality more advanced and complex.

Nissan introduced the Nissan Intelligent Factory initiative at its Tochigi Plant to respond to these needs and trends. Nissan Intelligent Factory enables Nissan to:

1. Use robots that have inherited the skills of takumi to manufacture next-generation vehicles; of the highest quality,

2. Create an improved environment where a wide range of people can work comfortably, and;

3. Realize a zero-emission production system, thereby accelerating efforts to achieve a decarbonized society.

Tochigi Plant is scheduled to start production of the all-new Nissan Ariya crossover electric vehicle this fiscal year.

Intelligent operation support system.

Automated paint inspection.

Achieving carbon neutrality

Nissan aims to achieve carbon neutrality across its operations and the lifecycle of its products by 2050. The company aims to realize carbon neutrality in manufacturing by promoting innovations to support higher productivity in vehicle assembly, starting with the Nissan Intelligent Factory initiative, and by improving energy and materials efficiencies at plants. Plant equipment is to be fully electrified by 2050 by introducing innovative production technologies and by reducing energy use. To achieve carbon neutrality at production plants, all electricity used will be generated from renewable energy sources and or generated with onsite fuel cells that use alternative fuels.

"By rolling out the Nissan Intelligent Factory initiative globally, starting at the Tochigi Plant, we will more flexibly, efficiently and effectively manufacture next-generation vehicles for a decarbonized society. We will also continue to drive innovation in manufacturing to enrich people's lives and to support Nissan's future growth," said Sakamoto.

Article and images courtesy: Nissan Motor Corporation

Automated Driving:

Activity detection inside the vehicle

Is the driver tired or even asleep? Cameras in the vehicle's interior can already monitor this. Especially in the case of automated driving, interior cameras are important and prescribed by law. A new system developed by the Fraunhofer Institute for Optronics, System Technologies and Image Exploitation IOSB is the world's first to be able to use image data to draw conclusions about the driver's activity and analyze how quickly they would be able to take control of the vehicle.

In automated driving, the vehicle decides what it needs to do — it steers, brakes and accelerates. However, until vehicles can completely dispense with a driver, semi-automated vehicles will support whomever is at the wheel to give them increasingly more freedom. In the case of semi-automated vehicles, it goes without saying that handovers from the vehicle to the driver are still required, for example, if there is construction work on the highway or when transitioning from driving on the highway to the city. The vehicle must therefore be intelligent on two levels: it must be able to interpret traffic and monitor what is going on inside the vehicle, as well as interact with the driver. What is the driver doing? How quickly could they take control of the vehicle? Although driver monitoring systems already exist, so far these use hardly any camera image data and are mainly limited to fatigue detection.

© M. Zentsch/Fraunhofer IOSB

In addition to the body poses of all passengers, the occupant monitoring system developed by Fraunhofer IOSB also detects activities and associated objects.

Artificial Intelligence detects what the driver is doing

Researchers at Fraunhofer IOSB are focusing on the interaction between the driver and the vehicle — and working to bridge the gaps. "Our technology not only enables us to identify facial features but also the current poses of the driver and the passengers," says Michael Voit, Group Manager at Fraunhofer IOSB. "We can then determine from these poses what the driver and passengers are currently doing."

At the core of the development lie machine learning algorithms and processes, such as Artificial Intelligence (AI). Algorithms analyze the camera data in real time to find out whether the driver is on the phone, playing with children or looking at a passenger's cellphone. IOSB technology therefore goes beyond image recognition and interprets the activities in context. The researchers first trained the system by manually annotating numerous camera shots: Where are people's hands, feet and

INTO ENERGY GREEN

MOULD STUDIO LLP
Manufacturer & Exporter of all kinds of Plastic Moulds

MOULD STUDIO LLP is backed by technocrats having years of experience in the field of plastic molding, guided by Successful industrialist and innovative tool manufacturing ideas has made it successful in aligning to the demanding requirements of it's customers.

OBJECTIVE :

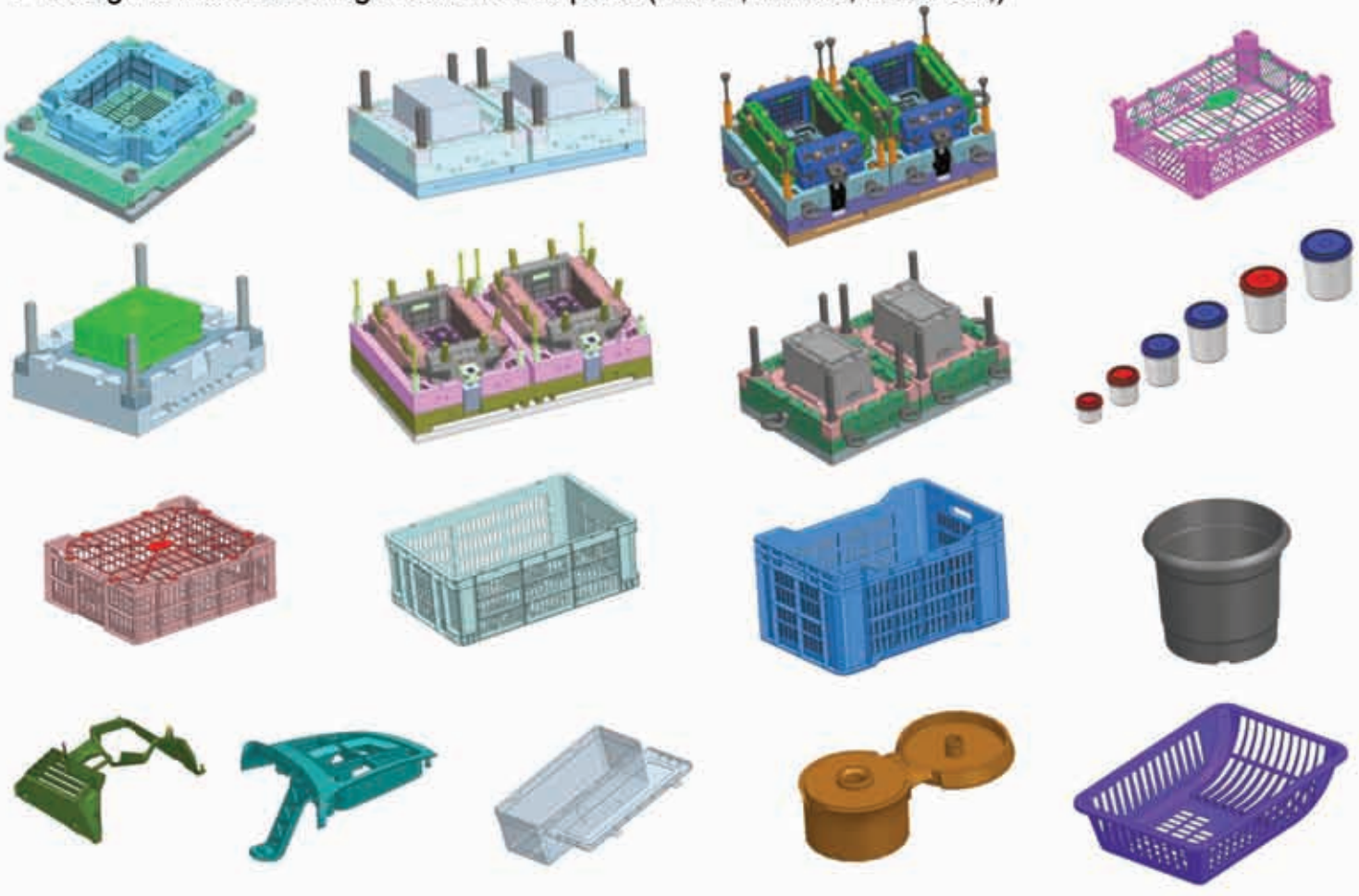
- Design & Manufacturing Of Injection And Blow Moulds.
- Modern Production Technology.
- Tool Related Innovation For Improved Product Design.

Vision :

- To become internationally acclaimed tooling center of excellence in the area of design, development & manufacturing of quality tools.

What we do :

- Design & manufacturing of various crates 2kg, 5kg, 10kg, 20kg etc.
- Design & manufacturing of food container, laundry basket, stool, chairs, pots, etc.
- Design & manufacturing of automobile parts (knob , handle, bezel etc,)



Contact Details: Work Add: D-9-35/36/37-A, Bhumi World Industrial Park, Pimplas Village, New BKC, Upper -Thane, Mumbai Nasik Highway, opp.Tata amantra, Thane - 421302.
Office Add:105, Vihan Commercial Complex, Walbhat Road, Goregaon East, Mumbai -63.
Email : info@mouldstudiollp.com website: www.mouldstudiollp.com
Contact : +91 9920060008 / 9820536710 Phone : 025 22672330

© M. Zentsch/Fraunhofer IOSB

Fraunhofer IOSB has a driving simulator equipped with extensive sensors in the vehicle interior, which was designed specifically for conducting studies and collecting data.

shoulders? Where are objects such as smartphones, books and other items located? They then evaluated the algorithms using new images and corrected or verified their results.

The system abstracts images of the driver or passengers to form a digital skeleton — a type of stick figure that replicates the person's body poses. It consequently deduces the activity using the skeletal movement and supplementary object recognition. "The algorithms can thereby tell whether someone is sleeping or looking at the street, how distracted the person is and how long it will take them to focus back on the road," explains Voit. The system supports both traditional video cameras and infrared cameras that can see in the dark, as well as 3D cameras that measure the distance between objects and the camera. The system even gives interior designers freedom in terms of camera placement.

The researchers have been dealing with issues related to activity detection in vehicle interiors in numerous research projects, collaborating with renowned car manufacturers such as Audi and Volkswagen, as well as with suppliers such as Bosch and Continental. The projects have been supported by the German Federal Ministry of Education and Research (BMBF), the German Federal Ministry for Economic Affairs and Energy (BMWi) or the Federal Ministry of Transport and Digital Infrastructure (BMVI). "We can not only detect the activities of the driver but those of all passengers, too — both in the front and back of the vehicle," confirms Voit. "The technology is ready for pilot production. We are already in contact with companies who want to use our technology." Linking the developments is the institute's own driving simulator, which industry customers can also benefit from in the context of individual R&D projects. Simulating traffic situations, it forms the basis for collecting relevant driving and behavioural data. Furthermore, its extensive sensor technology means that the behaviour of all passengers can be studied.

Data protection is a priority

As far as data protection and security aspects are concerned, the researchers made this a priority from the start. "The camera data are analyzed in real time, not saved and do not leave the vehicle at any point. Personalized models are also not needed for this, so no personal data is collected," says Pascal Birnstill, Senior Scientist at Fraunhofer IOSB, who specializes in data security, data protection and transparency. The technology respects privacy from the outset and thus complies with the strict regulations and high level of data protection awareness in the EU.

Numerous applications — even beyond activity detection

A new EU regulation highlights how important activity detection is; driver monitoring is to become mandatory in automated cars, no matter their level of automation. Using Fraunhofer IOSB technology, vehicle manufacturers can not only meet this requirement but also make numerous visions in terms of autonomous driving a reality. Let's take an example: voice recognition for communication between people and cars is fast approaching its limits. The command "Park there" is not meaningful in itself. However, when used in conjunction with body pose identification and activity detection, the system can determine which parking space the user is pointing to at that very moment. The system can also help with safety aspects of driverless vehicles. While it is currently still the driver's responsibility to ensure that all passengers comply with safety regulations and fasten their seatbelts, for example, this will soon be the job of the driverless vehicle — one example being autonomous taxis or buses. Reliable monitoring of the vehicle's interior is also essential for this.

Courtesy: Fraunhofer-Gesellschaft

BOOKMYTOOL

SKILL UP...SCALE UP...

Thank You!

To Our 650+ Associate Members From Various Categories Like

- Plastic Mould
- Rubber Mould
- Blow Mould
- Die Cast Tool
- Press Tool
- Jigs, Fixtures & Gauges

Do you belong to Tool Making industry? Register on BOOK MY TOOL App

And enjoy the benefits like

- Free platform to showcase competencies & capabilities of Indian Tool Makers
- Liquidate your inventory, old/new machines, auxiliary/standard components
- Showcase Job opportunities to get the desired candidates
- Hire freelancers for designing, tool making & related jobs of tooling requirements
- Share your thoughts & experience

And lot more exclusively for The Indian Tooling Industry!

Let's Be Vocal For Local!

Download On

GET IT ON Google Play | Download on the App Store

Visit us at www.bookmytool.com | Follow us on

Patron Members of TAGMA

NO	Existing Patron Members	CITY
1	ABHIJEET DIES & TOOLS PVT. LTD.	Vasai
2	ANAND MOULD STEELS PVT. LTD.	Navi Mumbai
3	BHARAT TECHNOPLAST PRIVATE LTD.	Mumbai
4	BRAKES INDIA PRIVATE LIMITED	Chennai
5	CRAFTSMAN AUTOMATION LIMITED	Coimbatore
6	DEVU TOOLS PVT. LTD.	Mumbai
7	ELECTRONICA HITECH MACHINE TOOLS PVT. LTD.	Pune
8	GODREJ & BOYCE MFG. CO. LTD - Tooling Division	Mumbai
9	HASCO INDIA PVT. LTD.	Bangalore
10	HTS HOT RUNNER SYSTEMS INDIA PVT. LTD.	Pune
11	JAIN IRRIGATION SYSTEMS LTD.	Jalgaon
12	KINETIC TECHNOLOGIES (a divn. Of Jayahind Sciaky Ltd.)	Pune
13	LMT TOOLS INDIA PRIVATE LIMITED	Pune
14	LUCAS TVS LTD.	Chennai
15	MAHINDRA UGINE STEEL CO. LTD.	Raigad
16	MANGAL INDUSTRIES LIMITED	Chittoor
17	METALS INDIA	Faridabad
18	MISUMI INDIA PVT. LTD.	Gurgaon
19	MULTIPLE SPECIAL STEEL PVT. LTD.	Bangalore
20	MUTUAL ENGINEERING PRIVATE LIMITED	Vasai East
21	NTTF	Bangalore
22	PCK BUDERUS (INDIA) SPECIAL STEELS PVT. LTD.	Chennai
23	PUROHIT STEEL INDIA PVT. LTD	Vasai East
24	SANDVIK COROMANT INDIA at SANDVIK ASIA PVT. LTD.	Pune
25	SCHUNK INTEC INDIA PRIVATE LIMITED	Bengaluru
26	SECO TOOLS INDIA (P) LTD.	Pune
27	SRIDEVI TOOL ENGINEERS PVT. LTD.	Vasai
28	SUBROS TOOL ENGINEERING CENTER (STEC)	Noida
29	SUNDARAM CLAYTON LTD.	Chennai
30	VASA SPECIALITY STEELS PVT. LTD.	Mumbai
31	XCEED TOOLINGS PVT. LTD.	Mumbai
32	YUDO HOT RUNNER INDIA PVT. LTD.	Vasai East
33	ZAHORANSKY MOULDS AND MACHINES (P) LTD.	Coimbatore

Advertisers Index

New Members

CREATIVE EDM ENGG PVT LTD

23 - ABCD, Sector - 3, Sagour Kuti, Pithmpur – 454775 Madhya Pradesh, **Contact Person:** Mr. Deepak Gupta,
Tel: + 91 9313066574, **Email:** edmtools@gmail.com, **Website:** www.edmcreative.in
Product: We are in the field of EDM Aftersales Market and Specialise in POCO Graphite Electrode, Tungsten Copper, Metallic Electrodes, Spares for WEDM, Filters. Single source for your mould polishing machines, Oil stones, Abrasives, Diamond compounds, Pneumatic Grinder.

www.ampcometal.com

AMPCO METAL

Our forged AMPCOLOY® 944/940 Beryllium free copper alloys having superior mechanical & physical properties than casted Copper titanium alloys

AMPCOLOY® advantages

- Materials are forged & extruded to get best physical properties
- Stock availability : No limitation on supply dimensions
- Available round bar sizes : Ø9.5mm -Ø370mm
- Available plate thickness : 10 mm-310 mm thick
- Increase productivity by min. 20%
- 50 % more thermal conductivity than Copper Titanium
- Cycle time & Mould life is better than Copper Titanium
- Excellent wear & corrosion resistance, Good Machinability

Mechanical and Physical Properties	Units	Beryllium-Free Copper Alloys		Copper Titanium Alloy
		AMPCOLOY® 940 Nominal Values	AMPCOLOY® 944 Nominal Values	
Tensile strength Rm	MPa	689	938	800-1100
Yield strength Rp 0.5	MPa	517	725	750-1000
Elongation A5	%	13	5	3
Brinell hardness	HBW 10/3000	210	294	270-320
Rockwell hardness	HRB	95	106	103-107
Modulus of elasticity	GPa	131	135	127
Density ρ	g / cm³	8.71	8.7	8.7
Coefficient of expansion α	10⁻⁶ / K	17.5	17.5	18.1
Thermal conductivity λ	W / m · K	208	156	100
Electrical conductivity	% I.A.C.S.	48	30	17

Food Approval of AMPCO®, AMPCOLOY® Materials
AMPCO® 18 · AMPCO® M4 · AMPCOLOY® 940 · AMPCOLOY® 944

Address

AMPCO METAL INDIA PVT. LTD.
A-8/4, At Village - Nighoje, Chakan MIDC,
Phase IV, Tal : Khed, Pune - 410501
MAHARASHTRA, INDIA
Tel: +91 2135 610 810 | Fax: +91 2135 610 811
infoindia@ampcometal.com
An ISO 9001:2015 Certified Company

AMPCO METAL S.A
Route de Chesalles 48 P.O Box 45,
1723 Marly Switzerland
Toll Free Phone: 800 8080 5050
Tel.: +41 26 439 93 00
Fax.: +41 26 439 93 01

AMPCO METAL EXCELLENCE IN ENGINEERED ALLOYS

HOT SOLUTION

YUDO

HOT RUNNER SYSTEM

Get the premium efficiency of prewired hot runner system that is setting benchmarks.

Product Features

- 100% Leak proof guarantee
- 0% heater and t/c failure
- Best in segment, cylinder cooling efficiency
- Customized system to suit gates at any angle

Part Advantages

- Perfect solution for GF and LGF applications
- Quickest color change
- Intelligently controls cascade injection moulding product with variable wall thickness
- Prevents over heat effect by optimizing thermal balance based upon casted heaters technology

YUDO HOT RUNNER INDIA PVT. LTD.

A/113 & 114 , Evershine Industrial Estate, Waliv Road, Chinchpada Junction, Vasai (E) - 401208, INDIA.

Tel.: +91 766639458, +91 7666920922 | Email: sales@yudo.co.in | www.yudo.com

VIJAYDEEP®
Standard Solutions

EJECTION ACCESSORIES

for Mould Manufacturing

Additional products

- Slides & Accessories
- Mould Cooling Accessories
- Three Plate Mould Accessories
- Mould Date Indicator
- Undercut Release Systems
- Mould Alignment Products
- Injection Accessories
- General Mould Accessories
- Die Springs

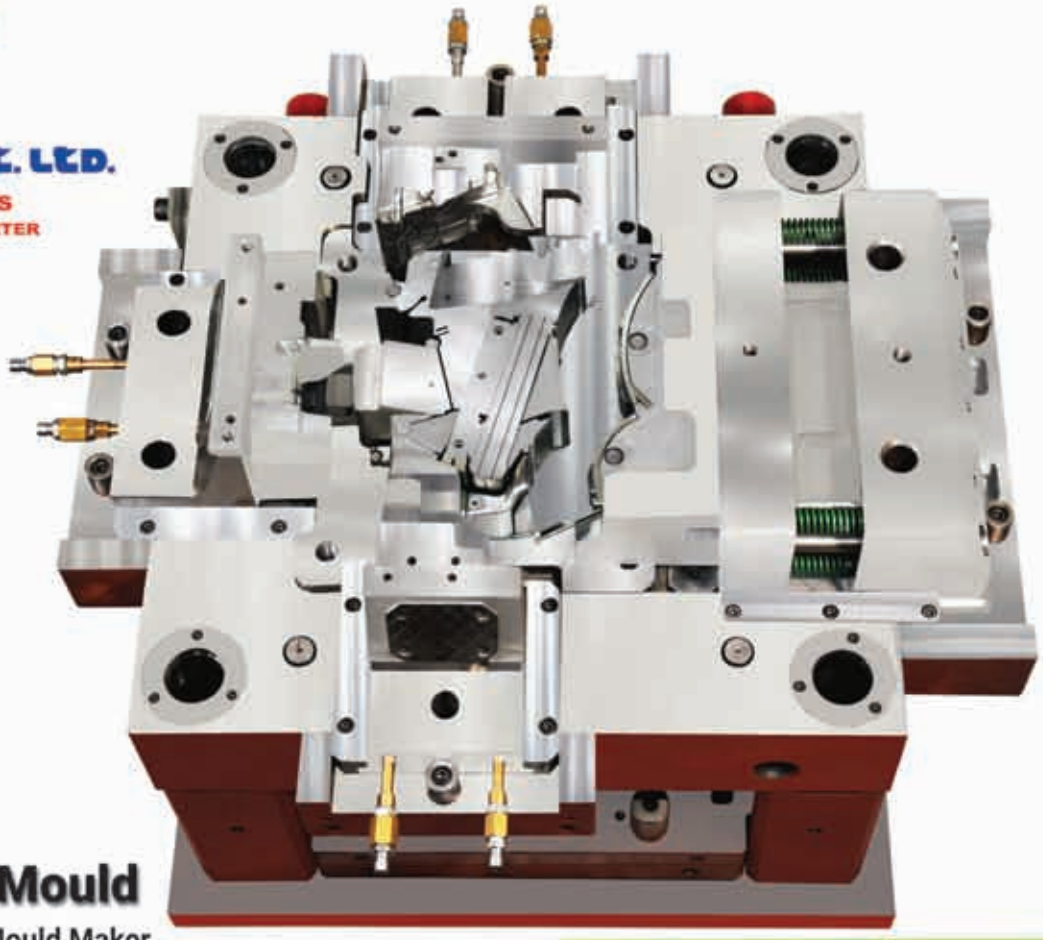
+91-22-6107 7900 (100 lines) | sales@vijaydeep.in | www.vijaydeep.in

Estd.1993

DEVU TOOLS PVT. LTD.

MOULD MAKERS

MANUFACTURER & EXPORTER



Excellence In High Precision Mould

India's One of the Largest Mould Maker

Mould making is an art, over the years we have mastered the 'Art'.

At Devu tools we begin with a complete understanding of your needs, problems and production requirements. An in-depth analysis from our experienced engineers, resulting in solution to meet your molding needs. With World-class facility, high-end technologies, and skilled manpower, we are well positioned to serve the growing demand for the complex mould requirements. We believe in changing with time and well equipped to face the changing market dynamics.

DEVU TOOLS PVT. LTD.

Corporate Office : A/44, 2nd Floor Nandjyot Indl. Estate, Kurla - Andheri Road, Safed Pool, Sakinaka, Mumbai - 400072, India

UNIT 2 : Plot Survey No. 57/7, Atgaon Indl Estate, Mumbai Nasik Highway, Post Pundhe, Atgaon, Taluka Shahapur, Dist Thane-421601, Maharashtra, India

Tel : +91-22-6128 2626 (100 Lines) / 2851 2635 / 6691 4412 Fax : +91-22-2851 8690 / 2859 0285

Mobile: +91-9820030764

Email : marketing@devutools.com, sheregar@devutools.com