

# TAGMA TIMES

NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

Volume 30 / Issue 2

(Private Circulation for Members Only)

October 2023



## Cutting Tools: **Shaping Precision**

**TECH FOCUS**  
Role of Cutting  
Tools

**EVENT REPORT**  
- TAGMA'S 32<sup>nd</sup> AGM  
- EMO Hannover 2023



**LAXMI**

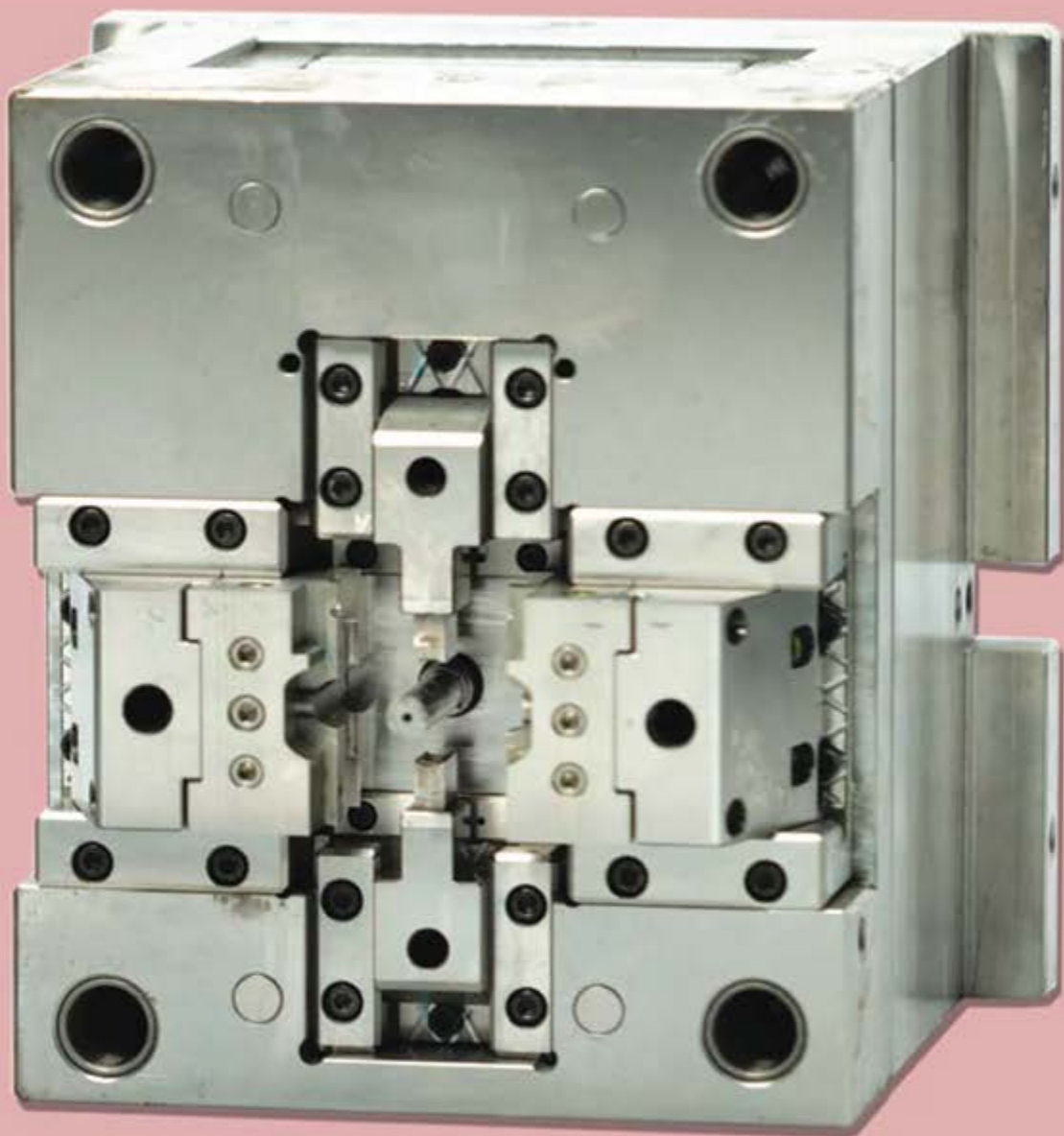


OF PRECISION MANUFACTURING

**Precision moulds designed and  
for high consistency and high p**



**manufactured  
performance**





**PUROHIT STEEL**  
GLOBAL STEEL SOLUTIONS

**ONE STEP RELIABLE  
STEEL SOLUTIONS  
FOR IMPROVED  
TOOL LIFE AND STABILITY**



Silver Sponsor

**TAGMA**  
INTERNATIONAL  
**Tooling**  
SUMMIT 2023



Purohit Steels is India's Largest Importer & Stockist of high-quality steels, providing comprehensive solutions for businesses like yours.

Our Steel Grades Are Most suitable for Very High Productive Tools for Automotive, PVC, White Goods, Toys, Medical, Caps & Closures, Machine Building, Earth Moving, Forging & Cold Work Applications.



GET IN TOUCH  
**7798815678**

✉ [info@purohitsteels.com](mailto:info@purohitsteels.com)  
🌐 [www.purohitsteels.com](http://www.purohitsteels.com)

**NLMK Verona**

**SeAH Steel**

**BÖHLER**

DEUTSCHE EDELSTAHLWERKE  
Producing special steel solutions



# Hot Half Solutions

For long term durability

**mastip™**  
hot runner solutions

Visit us at



Hall - 2 / Stall F1



Multi-Cavity Thermal  
or Valve Gate Systems



**Madhu Machines & Systems Pvt. Ltd.**

Regd. Off : A-4/5, "Anurag", Ganesh Krupa Soc;

Chikuwadi, Vadodara - 390 007, INDIA.

Tel.: 91 - 265 - 2353886

E-mail: meeta@madhu-group.com

[www.madhu-group.com](http://www.madhu-group.com)

*We make things better*

# CONTENT

## 18 IN FOCUS



TAGMA India elects Executive Council

## 26 TECHNO FOCUS



The role of cutting tools in the die & mould industry

## 38 EVENT REPORT



EMO Hannover 2023: Back with a Bang!

TAGMA EXECUTIVE COUNCIL.....	4
EDITORIAL.....	6
INDUSTRY UPDATE.....	8
FACTORY INSIGHT.....	32
TECH FOCUS.....	42
CASE STUDY.....	44
EVENT LIST.....	52
INDEX.....	54



◀ **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-1, 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**

Fiat 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

## EXECUTIVE COUNCIL 2023-2026

### 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.

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

### 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. Gopalakrishnan T. S.**

Multiple Special Steel Pvt. Ltd. - Bangalore – 560 099

Email: gopalakrishnants@gmail.com

**Mr. Raj Singh**

EQIC Group of Companies - Hyderabad – 502307

Email: raj@eqicindia.com

**Mr. Sachin Netrabyle**

Magna Plastic Corporation - Pune – 411044

Email: magnatooling@gmail.com

**Mr. Shijesh Kokkidan**

MacPro Technologies Pvt. Ltd. - Bangalore – 560048

Email: shijesh@macpro-technologies.com

### SECRETARIAT

**Mr. Bhaskar Kanchan - Director**

**Mrs. Deepali Pandav - Deputy Director**

### Editorial Team

Nishant Kashyap, Editor | Kimberley D'Mello, Associate Editor |

Sudhanshu Nayak, Sr. Research Analyst

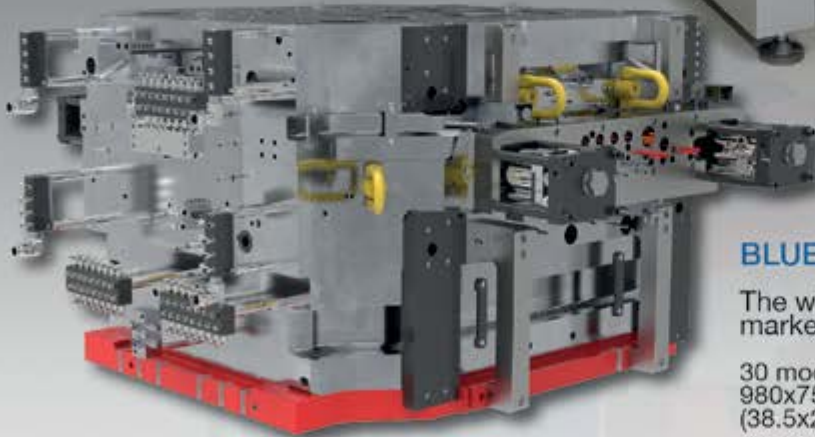


Edited & Published By: DM Sheregar for TAGMA INDIA at  
A/33, Nand Jyot Indl Estate, Safed Pool, Mumbai - 400 072  
Cell: 96534 27396, 97694 07809

'Private circulation for members only'



# MILLUTENSIL SPOTTING PRESSES THE BEST SOLUTIONS TO VALIDATE YOUR MOULDS AND DIES



## BLUE LINE

The widest range of spotting presses on the market.

30 models available with plate dimensions from 980x750 mm to 4000x4000 mm.  
(38.5x29.5 to 157.5x157.5 Inches)

 **MILLUTENSIL**  
SINCE 1955

MILLUTENSIL SRL  
Plant:  
via delle Industrie, 10  
26010 Izano (CR) - Italy  
info@millutensil.com

Office: Corso Buenos Aires, 92  
20124 Milano - Italy  
Phone +39 02 29404390  
Fax +39 02 20466 77  
www.millutensil.com

  
Italian  
Technology  
Center  
India

ITALIAN TECHNOLOGY CENTER  
Office no-003, Lunkad Sky Station, Near HDFC Bank,  
Datta Mandir Chowk, Viman Nagar, Pune-411014, INDIA  
Phone +91-20-41226111 - Mobile +91-9960865353  
marketing@itc-india.in - www.itc-india.in



## **NISHANT KASHYAP**

Editor

[tt.edit@tagmaindia.org](mailto:tt.edit@tagmaindia.org)

### **EDITORIAL ADVISORY BOARD**

**D. M. SHEREGAR,**  
President,  
TAGMA India

**D. SHANMUGASUNDARAM,**  
Vice President,  
TAGMA India

**D. K. SHARMA,**  
Immediate Past President,  
TAGMA India

Dear Readers,

Recently, I had the opportunity to visit EMO Hannover – the world’s largest machine tool exhibition held in Germany. I expected the trade fair to be a great learning experience for me considering all the latest innovative solutions and technologies were on display. And, it certainly was.

But there was one thing that pleasantly surprised me and filled me with a sense of immense pride. At the international exhibition, where global companies showcased their latest and best innovations, India took centre stage. The conversations were filled with enthusiasm about the growing Indian market.

In a rapidly changing global landscape, India holds incredible potential in the world of die and toolmaking. The buzz at the event was unmistakable – conversations revolved around India’s growth and the growing interest in investing within the country’s borders. It’s evident that companies worldwide are recognising the opportunities that lie within India’s thriving tooling industry.

As I reflect on the opportunities that await Indian toolmakers, it’s clear that now is the time to gear up for an exciting future. The world is taking notice, and the Indian tooling community must be prepared to meet this rising demand head-on. With the right skills, innovation, and a collective drive, there’s no doubt that Indian toolmakers can excel on the global stage.

Sounds exciting? There’s another reason why we’re thrilled! A new Executive Council has been elected at TAGMA India’s recently held Annual General Meeting. I would like to extend my heartiest congratulations to the newly elected Executive Council. Together, we are committed to working tirelessly for the betterment of the Indian tooling community in the days to come. Your support, dedication, and insights are invaluable, and I look forward to the collective progress we’ll achieve, as we continue to steer the Indian die and toolmaking industry towards a brighter future.

You can read all about these exciting events and much more in this issue of TAGMA Times.

Happy Reading!



Manufacturing Unit  
of S&T Group

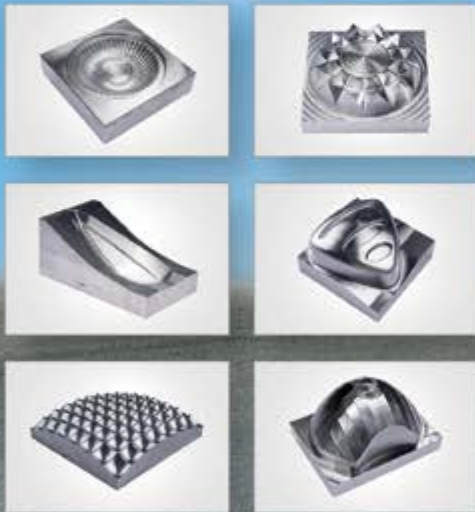
# DON'T COMPROMISE ON PRECISION IN MACHINING STM VD Series

## VD850 Vertical Machining Center

Looking to buy a vertical machining center? Then look no further than the **VD850 Vertical Machining Center** made by one of India's most **trusted manufacturers, STM**. VD850 can create complex die and mould. With the direct drive spindle to achieve Higher precision than most VMCs in the market.

Excellence in  
**QUALITY,  
PRODUCTIVITY  
AND SERVICE**

**3000+**  
INSTALLATIONS



\*T&C apply

### PRODUCT RANGE : VD 510 - VD 2090

LM Roller Guideways  
on all axes

Easy chip disposal  
on rear side

Wide casting  
base for rigidity

Direct drive  
Spindle

Large working area  
for ease of use

**S&T MACHINERY (P) LTD.**

+91 95974 34111 | info@stmcnc.com | www.stmcnc.com



**DISCOVER THE MEANING OF VALUE**



## Battery maker IBC to set up plant in India's Karnataka for nearly \$1 billion

International Battery Company (IBC) has signed an investment pact worth 80 billion rupees (\$971.89 million) with India's southern state of Karnataka to build a battery manufacturing facility, the state's minister recently said.

The manufacturing facility will be spread across 100 acres in the state, Minister for Commerce & Industries, Infrastructure MB Patil said in a post on messaging platform X.

Bloomberg News had reported that the company would



Image used for representation only. Courtesy: Envato Elements.

manufacture lithium-ion cells at the facility.

IBC plans to begin production by 2025, Bloomberg News reported, citing Gunjan Krishna, commissioner at Karnataka's Industries and Commerce Department, adding that the private company is aiming to ramp up capacity to 10 gigawatt by 2028.

The company, which met state government officials in June, had then expressed an interest in investing on battery production in Karnataka, Patil had said in a post in June. ♦

Courtesy: Reuters

## Boeing starts production of Indian Army's Apache choppers

American aerospace major Boeing recently said it is starting production of the Apache choppers to be delivered to the Indian Army. The company will deliver a total of six AH-64E Apaches to the Indian Army. The AH-64 Apache is one of the world's most advanced multi-role combat helicopters and is flown by the US Army. "Boeing is starting production of the Indian Army's Apaches in Mesa, Arizona," the company said.

Earlier this year, Tata Boeing Aerospace Limited (TBAL) delivered the Indian Army's first AH-64 Apache fuselage from its advanced facility in Hyderabad. "We are pleased to reach yet another significant milestone, highlighting Boeing's unwavering commitment to support India's defence capabilities," said Salil Gupte, President, Boeing India.

"The advanced technology and proven performance of the AH-64 will enhance the Indian Army's operational readiness and strengthen its defence capabilities," he said.

In 2020, Boeing completed

delivery of 22 E-model Apaches to the Indian Air Force and signed a contract to produce six AH-64Es for the Indian Army. The delivery of the Indian Army's Apaches is scheduled for 2024. "The AH-64E continues to be the world's premier attack helicopter," said Christina Upah, Vice President of Attack Helicopter Programmes and Senior Executive at Boeing's Mesa site. "The AH-64 provides customers with unparalleled lethality and survivability, and we are thrilled to provide those capabilities to the Indian Army," the official said.

The IAF had signed a multi-billion dollar contract with the US Government and Boeing Ltd. in September 2015 for 22 Apache helicopters. Additionally, the



Boeing's AH-64 Apache helicopter.

Image courtesy: Boeing

Defence Ministry in 2017 approved the procurement of six Apache helicopters along with weapons systems from Boeing at a cost of INR 4,168 crore for the Army. ♦

Courtesy: PTI News

# NO TIME FOR COMPROMISES

When rubber molding products become life savers, it is no time for compromises: voestalpine BÖHLER India mold steels

- BÖHLER M315
BÖHLER M303
- BÖHLER W400
BÖHLER W403
BÖHLER W360
- VMR
VMR
ISOLOC
- BÖHLER M310
BÖHLER M333
BÖHLER M340
BÖHLER M368
- ISOPLAST
ISOPLAST
ISOPLAST
MICROCLEAN
- BÖHLER M789 Powder for Additive Manufacturing  
**AMPO**

A BÖHLER Tool Steel is the optimum answer to any application in the manufacture of plastic mold parts, meeting the increased expectations of users as regards shape, function, aesthetics, product quality and durability. After all, a product is only as good as is the mold in which it is produced.

## CERATIZIT announces the acquisition of Changzhou CW Toolmaker Inc.

CB-CERATIZIT, a joint venture company of CERATIZIT, part of the Plansee Group, has acquired 70% of all shares of Changzhou CW Toolmaker Inc. The privately owned company based in Changzhou, China, specializes in the design, production and sales of tungsten carbide cutting tools for the electronic industry, and a variety of industries including aviation, railway, as well as mould and die industries.

The acquisition of Changzhou CW Toolmaker Inc. is an important part of CB-CERATIZIT's growth strategy in Asia, as Dr Andreas Lackner, Speaker of CERATIZIT's Executive Board, explains: "We want to strengthen our footprint



in the production landscape of solid carbide cutting tools in China and Asia Pacific. The acquisition of Changzhou CW Toolmaker helps us to reach this goal."

The experience of the Chinese company also offers CERATIZIT the opportunity to enter new markets. Andreas Fritz, CERATIZIT President of the Regional Unit Asia Pacific, explains: "The expansion of the CERATIZIT portfolio to include machining solutions for electronic

components in the 3C sector (computers, communications, and consumer electronics) is crucial for our success. By being able to draw on the high-quality production technologies and extensive manufacturing capacities of both CW and CERATIZIT, we offer our customers significant added value throughout the full value chain."

Both sides have agreed not to disclose the financial details of the transaction. ♦

## BAE Systems and Larsen & Toubro team up to bring BvS10 All-Terrain Vehicle to India

BAE Systems Inc. and Larsen & Toubro Limited (L&T) have partnered to bring the world-leading Articulated All-Terrain Vehicle (AATV), the BvS10, to the Indian market. The two companies have signed an agreement to offer the BvS10 for an Indian Armed Forces programme.

Under the agreement, L&T is the prime bidder for the Indian market, with the support of BAE Systems Hägglunds, the Swedish manufacturer of the highly successful BvS10 family of vehicles. BAE Systems and L&T have upgraded the BvS10 to meet the specific requirements of the Indian Armed Forces. This new variant will be known as the 'BvS10-Sindhu'. The AATV programme aims to



deliver vehicles from L&T's Armoured Systems Complex, Hazira along with Integrated Logistic Support (ILS).

"Our BvS10 all-terrain vehicle will demonstrate the critical capabilities the Indian Army needs. Unsurpassed mobility, flexibility and the ability to work in extreme climatic conditions are at the core of BvS10 design," said Tommy Gustafsson-Rask, Managing Director of BAE Systems Hägglunds. "Our teaming with Larsen & Toubro gives us the opportunity to expand into the Indo-Pacific market."

Larsen & Toubro sees this

opportunity as an impetus for L&T's Armoured Systems business to build on the aegis of a strong manufacturing and design base coupled with the experience of BAE Systems. "L&T and BAE Systems' tie-up synergizes our strengths to provide a solution to meet the requirements of the Indian Army," said Mr. Arun Ramchandani, Executive Vice President & Head L&T Defence. "The BvS10-Sindhu is the ideal vehicle for the extremely challenging terrain and climatic conditions in which it is proposed to be deployed." ♦



Authorized  
Official Dealer  
for India

GROUP  
**LUCCHINI**RS



# FORGED IN NATURE

Lucchini RS Tool Steels are made in the heart of Italy,  
nestled by the scenic shores of Lake Iseo, and forged in nature.  
Our sustainable manufacturing process begins with careful selection of scrap materials,  
88% of which are recycled.

We use advanced technologies, resulting in premium quality steel.  
Our Tool Steels are a testament to sustainability and performance,  
even in the challenging environment and projects.

**FORGING  
VALUES  
IN TOOL  
STEELS**



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

## US-based Milacron® ships largest injection moulding machine of its kind in North America

Milacron®, a leading manufacturer in the global plastics technology and processing industry, has created the largest injection moulding machine ever manufactured by a North American-based OEM for long-time customer, 20/20 Custom Molded Plastics, LLC of Holiday City, Ohio.

Known as the “big brother” to Milacron’s C-6750 machine, also produced for 20/20 in 2021, the C-8000’s platen design, as well as its functional size-to-fit multiple moulds, give this machine a leg up in the plastics manufacturing space. It features a clamping force of 8,000 U.S. tons, and total shot weight of 325 pounds, that’s received from two -130,000 injection units with a 260 mm feed screw providing a 5-inch-per-second injection velocity.

The C8000 weighs 1.8 million pounds, excluding the mould. The moving platen cast weight comes in at 152 tons, and the guts of this machine contain nearly 38 miles of wire.

“The sheer size of this machine is hard to put into words, but its unique design and processing stats speak volumes,” said Mac Jones, President of Milacron. “The C8000 is a large-part powerhouse designed by some of the best plastics processing



engineers in the world that delivers the highest performance, functionality and flexibility possible in the large-tonnage space. Partnering with customers like 20/20 by providing cutting-edge solutions remains our focus, as well as our commitment, to the plastics processing industry.”

The new four-tie bar design enables more versatile access and overhead part retrieval than the eight tie-bar retrieval systems other OEMs provide on their large-tonnage machines. In addition, the machine’s four massive tie bars reach nearly 38

feet in length and 1.75 feet in diameter.

Its sprawling length of 94 feet allows the C8000 to provide an ample amount of a resource that’s often sought after in the plastics processing space – daylight. The greater the extended daylight a machine possesses, the larger the mould the machine can handle, and the larger plastic part it can produce. The C-8000 provides a bit more than 28 feet of daylight from its 24-foot clamp-stroke capacity. The maximum mould size this dynamic machine can produce clears 21 feet, while the minimum mould size is just under 4 feet. ♦

## Foxconn aims to double jobs, investment in India over next 12 months



Apple supplier Foxconn aims to double its workforce and investment in India by next year, a company executive said recently. Taiwan-based Foxconn, the world’s largest contract manufacturer of electronics, has rapidly expanded its presence in India by investing in manufacturing facilities in the south of the country.

V. Lee, Foxconn’s representative in India, in a LinkedIn post to mark

Indian Prime Minister Narendra Modi’s 73rd birthday, said the company was “aiming for another doubling of employment, FDI (foreign direct investment), and business size in India” by this time next year. He did not give more details.

Foxconn already has an iPhone factory in the state of Tamil Nadu, which employs 40,000 people. In August, the state of Karnataka said

Foxconn will invest \$600 million for two projects in the state to make casing components for iPhones and chip-making equipment.

The company’s Chairman Liu Young-way recently said in an earnings briefing that he sees a lot of potential in India, adding: “several billion dollars in investment is only a beginning”. ♦

*Courtesy: Reuters*



THE EPITOME OF  
FINE FINISH & HIGH ACCURACY



JG Series – High Speed Vertical Machining Centers



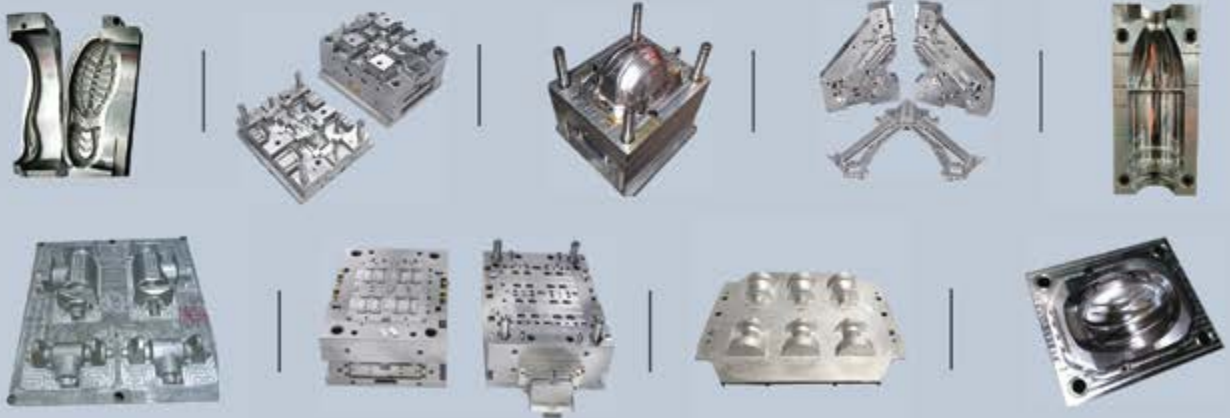
JV Series – Large Vertical Machining Centers



J Series – Next gen Vertical Machining Centers



LL Series – Horizontal Turning & Turnmill Centers



www.lmwncnc.com



FOLLOW US ON:  
f in y  
LMW CNC

INDIA'S FINEST  
RANGE OF  
CNC MACHINES

LAKSHMI MACHINE WORKS LIMITED  
MACHINE TOOL DIVISION

+91 422 719 1300

mtd\_marketing@lmw.co.in

## HASCO Loc Check allows GSM tracking of injection moulding tools

It happens quite often that injection moulding tools are used at different locations. It may be that the production of plastic parts is moved around, for example, in large companies, or that the moulds are loaned to different injection moulders.

### Fast localisation of moulds

The new HASCO Loc Check A5900/... makes it possible at any time to establish the location of a mould – worldwide – wherever GSM network is available.

### Easy-to-use web interface

With the GSM tracking, the location can be called up

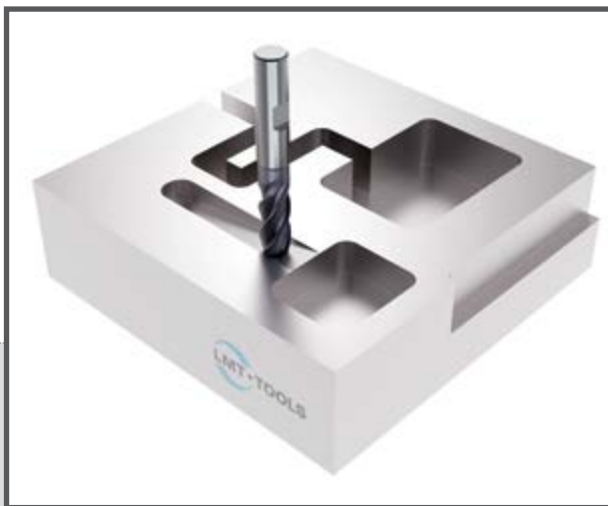


via an easy-to-use web interface. A maximum of data security is guaranteed through the use of certified servers.

### Magnet attachment offers maximum flexibility

A battery charge lasts for more than 3,000 transmission cycles, which, depending on the transmission frequency,

corresponds to an operation period of up to three years. With a magnet attachment, the Loc Check A5900/... can be easily mounted directly on the mould. Because the transmitter can be used up to a temperature of 120°C, a flexible attachment on suitable free surfaces is possible. ♦



## New Solid Carbide Milling Cutter EASYMill: One milling cutter, full flexibility for all milling operations

With the introduction of the new EASY product series, LMT Tools expands its assortment with universally applicable plug-and-play tools that are characterised by maximum efficiency, great flexibility in application and ease of handling, and enable a significant reduction in process costs with optimum performance. The first product of the new EASY segment from LMT Tools is the EASYMill, a solid carbide milling cutter for the process-reliable machining of steel (e.g. case-hardened steels) and stainless steel materials (CrNi steels).

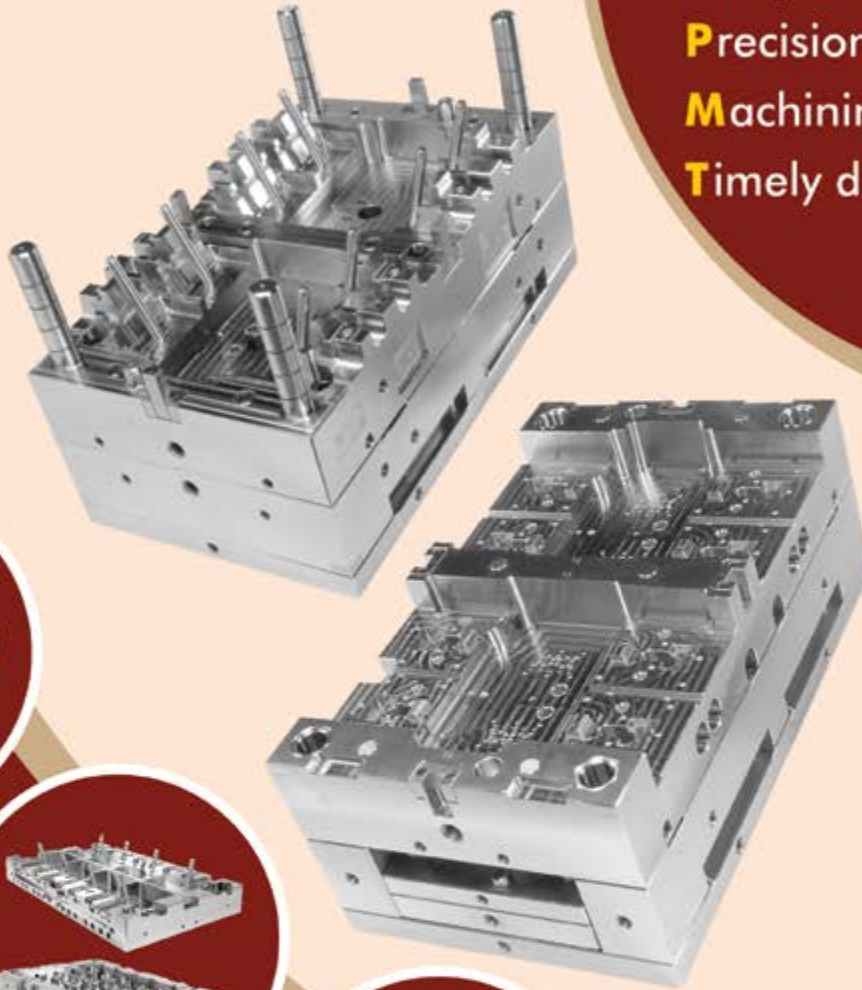
The EASYMill features high stability as well as smooth

milling operations with very good surface quality. Geometry and coating have been specially adapted to the machining of low-alloy steels and austenitic materials and enable particularly flexible use. All common milling operations can be covered with just one tool – whether roughing, finishing, slot milling, ramping, pocket milling or helical plunging. The unequal helix pitch and positive cutting-edge design reduce cutting pressure and cutting forces, resulting in a significant reduction in vibration. This also makes the EASYMill ideally suited for use on turning/milling machines. The adapted, sharp cutting edge ensures low build-up and guarantees smooth chip evacuation. A sticking of the chips and thus chip jams and tool breakage are prevented effectively. The EASYMill cuts up to the center and, thanks to the neck relief, enables infeed depths of up to three times the milling diameter. ♦

# WORLD CLASS PRECISION MOULD BASES



Are you looking for  
**P**recision engineering...  
**M**achining competency...  
**T**imely delivery..



## 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](mailto:info@precisionmouldtech.com) Website : [www.precisionmouldtech.com](http://www.precisionmouldtech.com)

## Innovative travelling column concept for maximum machining versatility

The newly designed DMF 200|8 and DMF 300|8 have raised the travelling column machine segment at DMG MORI to a new level. Based on this consistent further

development, the machine tool manufacturer is now also presenting the larger DMF 300|11. The rigidity here has also been increased by 20 percent compared to the previous series. Its positioning accuracy is 5 µm thanks to the stable machine bed, three linear guides in the X axis and a holistic cooling concept. With traverse paths of 3,000 x 1,100 x 1,050 mm, DMG MORI was able to increase the work envelope by 40 percent compared to its predecessor, and the unique as well as process-reliable tool change behind the work table was also adopted from the smaller sister models. The standard version of the tool magazine offers space for 40 tools with lengths of up to 400 mm. Constant projections also ensure consistent milling performance. In its ergonomic



stealth design, the DMF 300|11 is also comfortable to operate and prepared for productive automation solutions.

For the machining of long components, the travelling column machines from DMG MORI have always been the right choice. The DMF 300|11 also offers plenty of space in the Y and Z axes. The optional partition wall creates two separate workspaces that enable setup during machining time by pendulum machining of the spindle. The rigid table is designed as standard for workpieces weighing up to 5,000 kg. As an option, DMG MORI can integrate one or two rotary tables, each of which can be loaded with components weighing 1,200 kg. An add-on table as an A-axis with 500 kg loading is also available. The modular system is completed by an FD rotary table for demanding mill & turn operations and larger tool magazines with currently up to 120 places. ♦



## Fastems' new modular automation FPS for 4- and 5-axis milling machines fits any shop floor

The new Fastems Modular Flexible Pallet System (FPS) enables lights-out manufacturing and high spindle utilisation in high-mix production with 4- and 5-axis milling and mill-turn machines, and also compact vertical 5-axis machines. This modular CNC automation solution handles machining pallets and zero-point plates of 300-630mm and its unique 360-degree design ensures a fit for any shop floor – including tight spaces and low-ceiling facilities. FPS can integrate CNCs of over 90 brands and be extended or upgraded if there is a change in production needs.

What sets the new Fastems FPS apart from other pallet handling solutions are its modular 360-degree design, integration capability with over 90 machine brands, and state-of-the-art production planning capabilities. To meet the needs for even the tightest shop floor, FPS' modular design allows machine tools, pallet storage units, and operator loading stations to be placed flexibly on all four

sides of the system. With maximum height of only 3.1-4.1 meters, FPS is a perfect fit for low-ceiling facilities as well.

To meet the unique production needs of high-mix or low-volume manufacturers, the pallet storage modules are configurable and use the vertical space efficiently. From four to twelve pallets can be accommodated in each module depending on the load size – and the top shelf accommodates higher loads if needed. In addition, the system ends can be also used for storing pallets. All the shelving units have an in-built coolant collection system to keep the produced parts and surrounding areas clean.

The control system of FPS is Fastems' Manufacturing Management Software (MMS) that is designed specifically for high-mix manufacturing needs. It is a tool for everyone working in production or managing it, giving a real-time view of production activities. When a rush job is received or anything sudden happens, MMS automatically adjusts the production plan. ♦

# Latest MACHINE TOOL Solutions



14 15 16 17

FEBRUARY 2024

BOMBAY EXHIBITION CENTRE  
GOREGAON, MUMBAI.

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



Grab a chance to showcase your latest machine tool technologies at  
India's largest Die & Mould exhibition.

**BOOK NOW**

ORGANISED BY

**TAGMA  
INDIA**

Tel. : +91 96534 27396 | +91 97694 07809  
+91 93266 75073 | +91 93267 69816

E-mail : tagma.mumbai@tagmaindia.org,  
tagma.diemould@tagmaindia.org

FOR DETAILS:



# TAGMA India elects Executive Council

At the recently held 32nd Annual General Meeting, the newly elected council says it will strive for progress and prosperity for the association and its members.



New executive council members

The Tool and Gauge Manufacturers Association of India (TAGMA) conducted its 32nd Annual General Meeting (AGM) at Hotel Taj Yeshwantpur in Bengaluru on September 29, 2023. At the AGM, the Executive Council for 2023-26 was elected.

## Welcome speech

The event began with a welcome speech by Mr. Devaraya Manjunath Sheregar, Managing Director and Chairman of Devu Tools Pvt. Ltd. He said: "I stand before you today with a profound sense of pride and gratitude, as I reflect on the journey we have embarked upon during our

tenure. Our efforts, dedication, and collective vision have led TAGMA to new heights."

"I am honoured to share some of our achievements with you. During our tenure, we introduced 'Tool Talk' and established the 'Tooling Academy', which have not only enriched our members' knowledge and skills but have also helped us connect with the user industry and learn their expectations. Another feat I would like to highlight here today is the substantial increase in our member count. We have expanded our family and strengthened our network, fostering collaboration and innovation within TAGMA," he added.

Mr. Sheregar also shared his observations of his recent trip to EMO Hannover in Germany. "It was an eye-opening experience. The world is looking at India with admiration. There's a significant interest in expanding operations in our country. This is our golden opportunity, and we must seize it," he emphasized.

## Unveiling of Indian Tooling Report

Mr. Sheregar's speech was followed by the unveiling of the 'Indian Tooling Report' by Mr. N. Reguraj, Founding President, TAGMA India & Managing Director, NTTF. The report, which was jointly created by TAGMA India and



Unveiling of Indian Tooling Report



TAGMA events, including the AGM, serve as excellent rendezvous points for toolmakers.

Nomura Research Institute, highlights the market size, demand trends, challenges, and future prospects, among various other aspects of the Indian as well as global tooling industry.

Mr. Reguraj said: "I feel proud to see where TAGMA has reached from our early days. When we started out, we were just a handful of companies or individuals, who thought of coming together to form an association to help the Indian tooling fraternity with their business. I am delighted to see that TAGMA has come a long way and has become the voice of the Indian tooling fraternity."



Devaraya M Sheregar



D Shanmugasundaram



N. Reguraj

### Elected Executive Council Members for 2023-26

- ▶ Akshay Kalyanpur, Sridevi Tool Engineers Pvt. Ltd.
- ▶ Devaraya Manjunath Sheregar, Devu Tools Pvt. Ltd.
- ▶ D. Shanmugasundaram, S&T Engineers (P) Ltd.
- ▶ T. S. Gopalakrishnan, Multiple Special Steel Pvt. Ltd.
- ▶ Raj Singh, EQIC Group of Companies
- ▶ Sachin S. Netrabyle, Magna Plastic Corporation
- ▶ Shijesh Kokkodan, MacPro Technologies Pvt. Ltd.

### Election results

The election results were subsequently announced. Mr. Sheregar was re-elected as President, TAGMA, while Mr. D. Shanmugasundaram, Managing Director, S&T Group, was re-elected as Vice President, TAGMA, for 2023-26. With their wealth of experience and expertise, Mr. Sheregar and Mr. Shanmugasundaram are committed to advancing TAGMA's objectives.

In his acceptance speech, Mr. Sheregar expressed his gratitude for the trust placed in him by the TAGMA members and outlined his vision for the future of the association. He emphasized the importance of innovation, collaboration, and industry growth and pledged to work tirelessly to promote excellence in the tooling industry.

"Today, as I take on the role of President of TAGMA India, I am excited about the immense opportunities that lie before us. Companies around the world are actively discussing investments in India, recognising our nation's potential as a hub for innovation and manufacturing. To capitalise on this momentum, we must work collaboratively, focusing on skill development and tapping into the growing demands of our industry. Together, we can shape a bright future for tool and gauge manufacturing in India," he said.

Talking about the new initiatives, Mr. Shanmugasundaram said, "As Vice President of TAGMA India, I am proud to be part of an organisation that has come a long way and has emerged as a front runner in fostering the growth of Indian toolmakers. In our previous term, we successfully launched several skill development initiatives that have contributed to the industry's advancement. In this term, our focus remains on expanding our horizons. We will actively work on taking our delegation to various countries, forging global partnerships, and welcoming new members into our ever-growing TAGMA family. Together, we will continue to propel the Indian tool and gauge manufacturing sector to new heights."

### Hope for a prosperous future

TAGMA India is excited about the new leadership under Mr. Sheregar's guidance and is confident that his tenure will usher in an era of progress and prosperity for the association and its members. ♦



Executives forging valuable connections and collaborations

## Executive Council 2023-26

## PRESIDENT



**Devaraya M. Sheregar**  
Chairman and Managing Director,  
Devu Tools Pvt. Ltd.

Devaraya M. Sheregar, started out as a Mould Technician in a reputed mould manufacturing company in 1983. It was here that he gained in-depth knowledge of mould manufacturing and assembling techniques.

After acquiring 10+ years of practical experience in mould manufacturing, technology and services, Mr. Sheregar established Devu Tools, in 1993, as a proprietorship firm. It was only in 1999 that the company acquired the status of a Private Limited Company.

With the support of a team of professionals, Mr. Sheregar handles the marketing of products. Over the years, he has built strong relations with the top management of renowned pipe fitting manufacturers, OEMs, Tier-1 suppliers across 2 and 4-wheeler vehicles. Among his other quality awards and achievements, Mr. Sheregar was awarded the Plasticon Award for developing and manufacturing an innovative "inline dripper mould" in February 2012.

## VICE PRESIDENT



**Shanmugasundaram  
Doraiswamy**  
Managing Director,  
S&T Group

Shanmugasundaram Doraiswamy graduated in Mechanical Engineering from Annamalai University in Chidambaram, Tamil Nadu. He started his career in 1994 with Gedee Weiler Pvt. Ltd. in Coimbatore. Although he came from a family that did not have a business background, Mr. Shanmugasundaram had a penchant for becoming an entrepreneur. He quit his job within 3 years and started the journey to set up S&T Group. Having established the S&T Group in 1996, he developed the business with limited resources. He started out at an interior city, like Coimbatore, and went on to represent the world's popular brands in the machine tool industry, such as Makino in Japan, YCM and Excetek in Taiwan, Tederic in China, KELCH in Germany, Tecnomagnete in Italy, and BEDRA in Germany, to name a few. Under his leadership, S&T has grown as a nationwide network of 16 branches with a team of more than 1000 people. Sensing the growing demand in India, now the S&T Group has entered into manufacturing of CNC machines with technology transfer from Taiwan and injection moulding machines with technology transfer from China. It is now engaged in every facet of the machine tool industry's needs. Among other achievements, S&T Engineers Pvt. Ltd. received the 'World's No. 1 distributor award' in 2015, 2016, and 2017 from Excetek. He was also recognised as 'Best Entrepreneur' by Times of India in 2012. STM was felicitated as 'ET Best Brand' in metal cutting for the year 2020. Welcare was recently awarded with the 'Innovation in Gym Equipment' presented by renowned health magazine, Men's Health.



# **MULTIPLE SPECIAL STEEL PVT LTD.**

ISO 9001:2015 & EN 9120:2018 (AEROSPACE) CERTIFIED COMPANY

## **LUCCHINI** RS

**Leader in tailor made tool steels...**

### **KEY**LOS

MOULDS FOR  
PLASTIC

### **BEY**LOS

- HOT STAMPING  
- LP/GRAVITY  
DIE CASTING  
- MOULDS FOR  
PLASTIC

### **ESKY**LOS

ESR STEEL GRADES  
- LP/HP DIE CASTING  
- MOULDS FOR  
PLASTIC

AEROSPACE ALUMINIUM

 **Yefong Aluminium**

5083 H111 | 6061 | 6082 | 7075 T651  
aerospace@msspl.co

**CELEBRATING  
SIX DECADES**

TOOLING ALUMINIUM

 **Constellium**

ALUMOLD 350 | 400 | 500 | 600  
aluminium@msspl.co



MACHINING DIVISION



MILLING | GRINDING | DEEP HOLE DRILLING | TAPPING

machining@msspl.co

## **MULTIPLE SPECIAL STEEL PVT LTD.**

Ramanath Complex, Sy No. 30/11, Shanthipura Main Road, (Near Veerasandra Indl. Area),  
Huskur Post, Bengaluru - 560099, Karnataka, INDIA

 +91 80 27848058 / 67 / 89 [info@msspl.co](mailto:info@msspl.co) Commercial : +91 9731331101 Logistics : +91 9731334008

**BRANCHES:** COIMBATORE 9363103620 PUNE 9823780363 GREATER NOIDA 9811204736

[www.msspl.co](http://www.msspl.co)



## EC MEMBER



**Akshay Kalyanpur**  
Director,  
Sridevi Tool Engineers Pvt. Ltd.

Akshay Kalyanpur is the Director of Sridevi Tool Engineers Pvt. Ltd. Akshay's academic journey began with a Bachelor of Engineering in Mechanical Engineering from Rajiv Gandhi Institute of Technology, affiliated with Mumbai University, in 2009. Recognizing the importance of honing his business acumen, he pursued a diploma in Family Business Management at S.P Jain Institute of Management and Research in Mumbai, graduating in 2011.

Akshay's professional journey started on the shop floor of his family-run company, Sridevi Tool Engineers, where he gained invaluable hands-on experience. Over the years, his dedication and expertise have propelled him to take charge of all aspects of the business as the Director.

With a passion for innovation and a keen eye for business development, Akshay continues to drive Sridevi Tool Engineers towards greater heights. As a proactive leader, he remains committed to the company's growth and success, utilizing his engineering background and business management skills to steer the company towards a prosperous future.

## EC MEMBER



**Gopalakrishnan T. S.**  
Marketing Director,  
Multiple Special Steel Pvt. Ltd.

Gopalakrishnan T. S. completed his schooling and college at Palakkad in Kerala. He hails from a family of entrepreneurs and so, he was naturally drawn to becoming an entrepreneur himself. He started off by selling pickles and then went on to become a pharmaceuticals salesperson. "From health, I moved to selling wealth [tool steels] to all my patrons," he says. As of today, Mr. Gopalakrishnan has been working with the tooling industry for 32 years.

As a re-elected Executive Council member, his first priority is going to be supporting his team to double the existing number of active members. He will also encourage TAGMA members to follow the path of 'Aatmanirbhar Bharat'. He believes that if the government's clarion call for 'Vocal for Local' is followed appropriately, it could make each and every TAGMA member a success story. He also feels that toolmakers in India need to help the government reduce dependency on imports, especially from China, by improving their skill set. This move, he says, will also benefit sick and struggling tool rooms, which are in desperate need of work orders.

## Executive Council 2023-26

## EC MEMBER



**Raj Singh**  
 Founder Director,  
 EQIC Group of Companies

Raj Singh is the Founder Director of EQIC Group, a prominent player in the automotive sector with seven Strategic Business Units (SBUs) operating from eight manufacturing locations over three decades. With a degree from the College of Engineering Hyderabad (JNTU) and specialized training in Yokohama, Japan, Mr. Singh excels in manufacturing customized mould bases for plastic injection moulds and die casting dies.

As a business head, he enhances profits and goodwill for the die-making industry in India and overseas by providing Customised mould bases. Additionally, he serves as an expert Adviser and Consultant to OEMs, offering his expertise for mould bases up to 3500 tonnage machines.

## EC MEMBER



**Sachin Netrabyle**  
 Business Head,  
 Magna Plastic Corporation

Sachin Netrabyle is a seasoned toolmaker with over 24 years of experience in the realm of plastic injection moulds & moulding. He completed his education at CIPET, Mysore, between 1995 and 1999 and has a rich professional history, having contributed his expertise to renowned companies such as Timex Watches, Milton Plastic, Minda Stoneridge, and Shapers, prior to embarking on his entrepreneurial journey in 2009, when he established his own company Magna Plastic Corporation, a plastic mould maker specializing in precision moulds.

In his current role as Business Head at Magna Plastic Corporation since 2009, Sachin Netrabyle leads a dedicated team of 40+ professionals who possess extensive experience in the production of precision moulds for various applications, including automotive fuel delivery module, moulds, fluid transfer parts, sensors & connectors and other precision moulds. Under his leadership, the company maintains a world-class tooling facility equipped with state-of-the-art quality control and production machinery to ensure the seamless supply of plastic injection moulds & moulded parts to their esteemed clients.

EC MEMBER



**Shijesh Kokkidan**  
 Director – Operations,  
 MacPro Technologies Pvt. Ltd.

Shijesh Kokkidan holds the position of Director – Operations at MacPro Technologies Pvt. Ltd. He is a graduate of NTTF and a seasoned tool & die making professional with 23 years of expertise in the tooling industry. His career path includes a decade of valuable experience working with multinational giants like TE Connectivity, Schneider Electric, and Citadel Hardsoft Solutions.

In 2010, Shijesh embarked on his entrepreneurial journey and took the helm in co-founding MacPro Technologies Pvt. Ltd. The company specializes in manufacturing plastic injection moulds, stamping dies, components, and sub-assemblies, serving both Indian and overseas customers with high-quality products.

If you deal with some sophisticated software, high-end CNC machines, the latest injection moulding machines, tool steel, or any technology that makes a toolmaker's life easy, send us your product writeup along with images and we will feature the same in TAGMA Times Newsletter.

**Writeup Format  
 (300 words max):**

- Product Description
- Application & features
- Product image
- Contact details

**Got Awesome Products?**



*For more details write us mail at  
 tt.edit@tagmaindia.org  
 tagma.mumbai@tagmaindia.org*



### Infinite motion of tool top

Within a cone of  $\pm 30$  degrees



Machining example: Center console  
Workpiece size (width  $\times$  depth  $\times$  height)  
1240  $\times$  350  $\times$  350 mm

## 5-Axis

For Medium & Large Size Mould

V SERIES:

V80S

V90S

V100S



Door Trim  
1800  $\times$  1000  $\times$  420mm

## 5-Axis

For Premium Moulds

Simultaneous 5-Axis machining for  
the shortest and Best Machined Surface



D SERIES:

D200Z

D800Z

DA300

D300

D500



### Makino India Private Limited

No.11, EPIP, Whitefield Road, Opp. Satya Sai Baba Super Speciality Hospital, Bangalore-560 066, Karnataka State, India  
Tel: +91-80-6741 9500, [www.makinoindia.co.in](http://www.makinoindia.co.in)

# The role of cutting tools in the die & mould industry

In the die and mould industry, where precision and quality are non-negotiable, cutting tools stand as the unsung heroes to achieve them. Encompassing a variety of types such as end mills, drills, inserts, and reamers, these tools play a pivotal role in shaping the manufacturing process. Their significance lies in their ability to not only carve intricate designs but also ensure efficiency and productivity. This article delves into the world of cutting tools, explores their types, materials, coatings, and the important role they play in elevating the standards of die and mould manufacturing.

*Sudhanshu Nayak*

In the die and mould industry, a diverse array of cutting tools is harnessed to carry out specific tasks with precision and efficiency. These tools are tailored to meet the intricate demands of shaping, carving, and refining the dies and moulds. Among the primary types of cutting tools used in this sector are:

► **End mills:** These versatile cutting tools come in various shapes and sizes, with a range of cutting edges and flute configurations. End mills are employed to create slots, contours, and complex 3D shapes in die and mould components. They excel in producing fine finishes and achieving precise tolerances.

► **Drills:** Drilling tools are essential for creating holes of different diameters in dies and moulds. They come in various designs, including twist drills, center drills, and spot drills, each serving a specific purpose in the manufacturing process.

► **Inserts:** Inserts are replaceable cutting edges that are integrated into various cutting tools. They offer cost-effective solutions by enabling the replacement of worn-out or damaged cutting edges without discarding the entire tool. Inserts are commonly used in milling, turning, and drilling operations within the die and mould industry.

► **Reamers:** Reamers are designed for the post-machining of holes to



achieve precise dimensions and a superior surface finish. They ensure that the holes in the die and mould components meet tight tolerances and exact specifications.

► **Taps and dies:** These cutting tools are used for threading operations, creating internal and external threads in die and mould components. Taps are utilised for creating internal threads, while dies are employed for external threading, ensuring proper fits and thread quality.

► **Ball nose cutters:** Ball nose cutters are indispensable for creating contoured surfaces and intricate 3D shapes on dies and moulds. They are known for their rounded cutting edges, which enable smoother

transitions and superior finishing.

► **Boring bars:** Boring bars are employed for enlarging and fine-tuning holes within die and mould components. They are instrumental in achieving precise internal diameters and surface finishes.

► **Counterbores and countersinks:** These cutting tools are used to create recesses in dies and moulds, often to accommodate screw heads, providing flush and well-fitted assemblies.

Each type of cutting tool has its unique characteristics and applications within the die and mould industry, catering to a wide range of tasks that collectively contribute to the creation of intricate and high-precision die and mould components.

## How to select the right cutting tool?

Choosing the appropriate cutting tool for die and mould manufacturing is not a matter of chance; it is a process that requires a deep understanding of the materials, design intricacies, and operational demands of the industry. A lot of considerations go into selecting the right cutting tool for the die and mould industry.

The first consideration is material compatibility. Dies and moulds are crafted from a variety of materials, including metals, composites, and hardened steels. The cutting tool's material should be compatible with the workpiece material. For instance, hardened steels may require cutting tools with carbide inserts designed to withstand the rigours of machining tough materials.

The other important aspect is the geometry of the cutting tool, which includes the number and shape of flutes, the helix angle, and the cutting edge design. These must align with the specific machining operation. This ensures that the tool can effectively remove material while maintaining precision.

Next comes enhancement of tool durability and performance. This is done via coatings and treatments. Tools are often coated with materials like titanium nitride (TiN) or titanium aluminium nitride (TiAlN) to reduce friction, improve wear resistance, and extend tool life. The right choice of coating depends on the materials being machined and the application. Precision machining also hinges on calculating and correctly setting optimal cutting parameters, such as cutting speed, feed rate, and depth of cut, which must be calculated and set correctly. These parameters are influenced by the cutting tool's design and material, as well as the specific workpiece's requirements. Proper adjustment ensures efficient and precise machining. Ensuring tool rigidity and stability is crucial in die and mould manufacturing. The

## Advancements in cutting tool technology



The die and mould industry, characterised by its demand for precision and efficiency, has witnessed significant technological advancements in cutting tools, revolutionising the landscape of manufacturing. Several breakthroughs have emerged, each contributing to the industry's ability to produce intricate and high-quality die and mould components. The notable advancements include:

► **High-Speed Steel (HSS):** High-speed steel tools have seen remarkable improvements, offering exceptional wear resistance and the ability to withstand high cutting speeds. This advancement has allowed for more efficient machining processes, resulting in reduced production times and enhanced

productivity in die and mould manufacturing.

► **Carbide tools:** Renowned for their hardness and durability, carbide cutting tools have undergone innovations to achieve even higher levels of performance. Advanced carbide formulations have improved tool life and resistance to wear, making them ideal for the demanding requirements of die and mould production.

► **Cubic Boron Nitride (CBN):** CBN cutting tools have gained prominence in the industry, particularly when dealing with hard and challenging materials. Recent advancements in CBN technology have led to tools that can endure extreme cutting conditions, offering precise results and extending tool life.

► **Coatings and surface treatments:** Cutting tools now feature cutting-edge coatings and surface treatments, such as TiN (titanium nitride) and TiAlN (titanium aluminium nitride). These enhancements reduce friction, enhance wear resistance, and improve overall tool performance. They have become instrumental in achieving precision and quality in die and mould manufacturing.

► **Advanced geometry and design:** Cutting tool designs have become more sophisticated, featuring improved geometries that enhance chip control, reduce cutting forces, and produce superior surface finishes. This innovation translates into higher-quality die and mould components and optimized production processes.

► **Cutting parameter optimization:** Technological advancements in software and machining technology have enabled precise control over cutting parameters. This includes real-time monitoring and adjustment of speed, feed, and depth of cut, leading to more efficient and precise machining operations.

These advancements collectively contribute to the die and mould industry's ability to meet strict demands for quality, efficiency, and productivity. By harnessing cutting tools at the forefront of technology, manufacturers can achieve intricate designs, superior surface finishes, and high-precision components, ensuring the industry remains at the pinnacle of precision manufacturing. These innovations not only drive the industry forward but also underscore its commitment to delivering excellence in die and mould production.

# 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 Floor No. 18,  
Prince Anwar Shah Road,  
Kolkatta - 700 033  
Tel : + 91 33 2417 1078  
Email : info@pck-buderus.com

[www.pck-buderus.com](http://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

tools must be robust and stable to withstand the high cutting forces and maintain accuracy. This is particularly important for deep cavities and complex geometries. Furthermore, effective chip evacuation is essential to prevent tool wear and maintain quality. The choice of coolant and chip control methods can impact the tool's performance and longevity.

Balancing tool life with cost is another critical consideration. While longer-lasting tools may come at a higher price, their efficiency and reduced need for replacements can lead to cost savings in the long run. Additionally, specialised cutting tools, such as ball nose end mills or high-feed cutters, may be required to achieve specific features or surface finishes in die and mould components. Lastly, with the growing emphasis on sustainability, the die and mould industry is also considering selecting cutting tools that are manufactured using eco-friendly processes and materials that can align with the industry's evolving environmental standards.

In a nutshell, the right selection of cutting tools in the die and mould industry is a balance between precision, efficiency, and cost-effectiveness. It requires in-depth knowledge of the materials, machining processes, and the specific requirements of each application. When done thoughtfully, the choice of cutting tools contributes to the production of high-quality die and mould components and the overall success of the industry.

### Future of cutting tools in the die and mould industry

The die and mould industry is on the transition of an exciting era with the future of cutting tools poised to bring about transformative changes. As precision manufacturing continues to evolve, several key trends and developments are shaping the path forward. Let's take a look at some such trends:

► **Advanced materials:** The die and



mould industry is witnessing a surge in advanced materials, from high-strength alloys to composites. Cutting tools are adapting to tackle these materials effectively. Future cutting tools are likely to be engineered with specialised coatings and substrates tailored for specific materials, ensuring extended tool life and high-precision machining.

► **Nanotechnology:** The integration of nanotechnology in cutting tool design holds the promise of enhanced performance. Nanocoatings and nanocomposite tool materials can provide unprecedented levels of wear resistance, reduced friction, and improved heat dissipation, ultimately leading to superior precision in die and mould manufacturing.

► **Smart and adaptive tools:** The future of cutting tools will be marked by intelligence and adaptability. Smart tools equipped with sensors and real-time data analysis will optimise cutting parameters, monitor tool wear, and provide predictive maintenance. This technology will ensure efficient, cost-effective operations and minimise downtime.

► **Sustainability and eco-friendly practices:** As environmental concerns grow, the die and mould industry is embracing sustainable practices, including in the choice of cutting tools. Eco-friendly tool materials, recycling initiatives, and

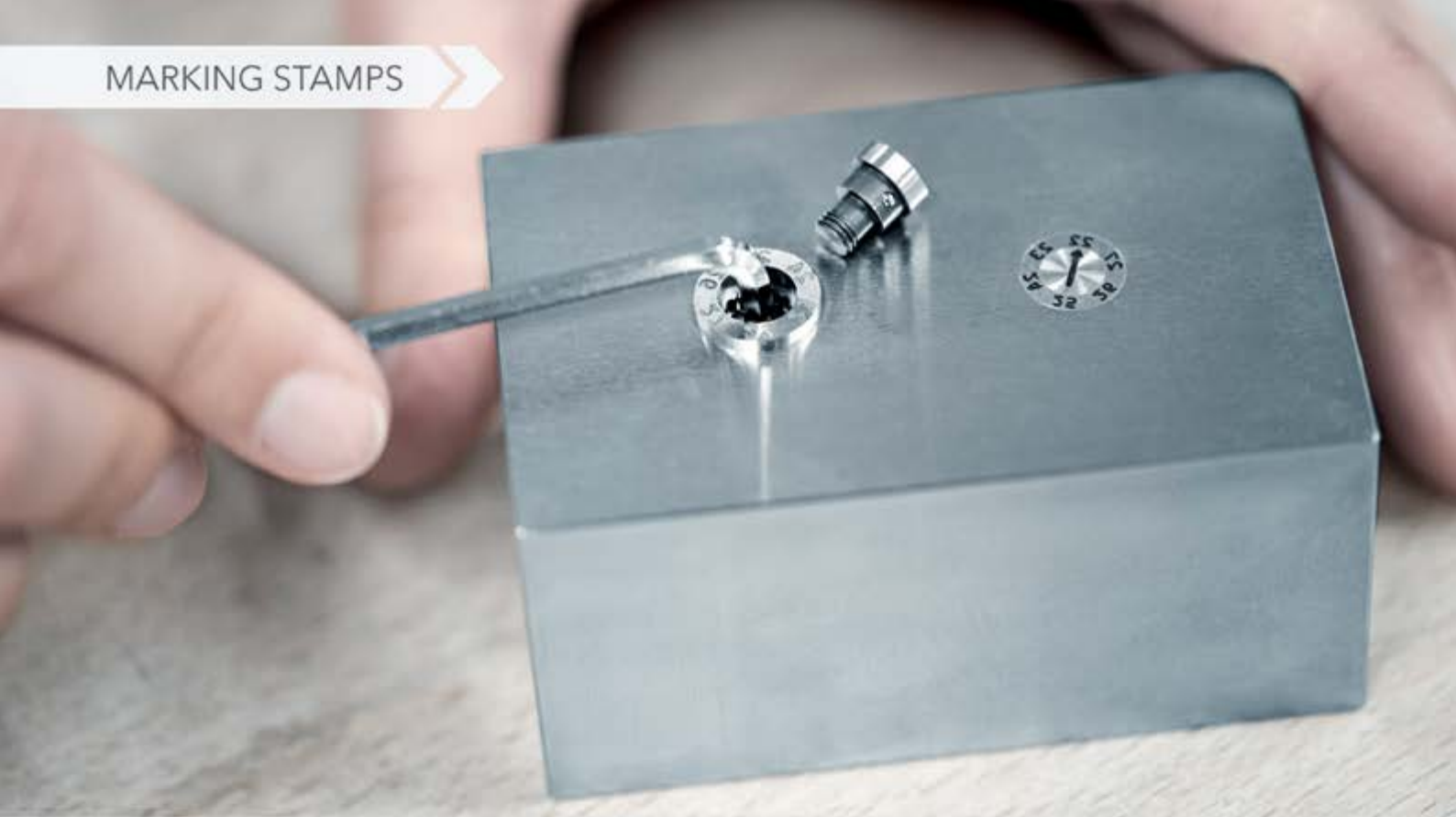
efficient manufacturing processes are expected to become standard, aligning the industry with global sustainability goals.

► **Additive manufacturing:** The rise of additive manufacturing techniques is influencing cutting tool design. 3D printing and other additive methods enable the creation of highly customised, complex tool geometries. This allows for tailored solutions that meet the specific demands of die and mould machining.

► **Integration of Artificial Intelligence (AI):** AI-powered algorithms are being employed to optimise tool paths, predict tool wear, and enhance cutting strategies. AI-driven solutions, in collaboration with machine learning, will enable manufacturers to achieve unprecedented levels of efficiency and precision.

As the industry continues to push the boundaries of precision and efficiency, these trends will play a pivotal role in shaping the future of die and mould manufacturing, ensuring high-quality components that meet the industry's exacting standards.

The die and mould industry is on the brink of a transformative era. It is set to harness advanced materials, nanotechnology, smart and adaptive tools, eco-friendly practices, additive manufacturing, and artificial intelligence to further enhance precision and efficiency. With a growing emphasis on sustainability, the industry is aligning with global environmental goals. In the ever-evolving landscape of precision manufacturing, the die and mould industry, with cutting tools as its stalwart companions, is poised to continue pushing the boundaries of what is achievable. As these tools evolve, they will ensure that the industry not only meets but consistently exceeds its own exacting standards, delivering intricate and high-quality die and mould components that serve as the cornerstones of excellence in manufacturing. ♦



# MARKING STAMPS WITH LATCHING FUNCTION

FOR OPTIMUM PARTS IDENTIFICATION

## HOW YOU BENEFIT:

- » **Highest process reliability** through the latching of the arrow insert
- » **Installation and removal** from the split line face
- » **With fixed height** of the arrow insert



Find out more about the **marking stamps**.

# Mercedes-Benz pioneers 'Digital First' production for next-generation MMA platform



**M**ercedes-Benz is using in the production the digital twin to plan, retool and ramp-up production of its new MMA platform at its factories in Rastatt (Germany), Kecskemét (Hungary) and Beijing (China). This "Digital First" approach enhances efficiency, avoids defects and saves time, marking a step-change in the flexibility, resilience and intelligence of the Mercedes-Benz MO360 production system.

The introduction of the Mercedes Modular Architecture (MMA), which was showcased at the Munich IAA MOBILITY in September in the Concept CLA Class, marks the next step in making the MO360 digital production ecosystem more intelligent. The company uses this flexible production system to network around 30 Mercedes-Benz plants worldwide using real-time data. With MO360, Mercedes-Benz is able to produce electric, hybrid and combustion models on one factory

line in order to scale the production of electric vehicles in accordance with market demand.

## **Virtual ramp-up of an assembly hall: Mercedes-Benz plant in Rastatt reduces construction time and costs**

The Mercedes-Benz plant in Rastatt,

Germany, showcases digital twin technology for introducing next-generation vehicles in a way which results in only minimal interruption of assembly in existing halls. With the 'Digital First' approach, Mercedes-Benz ensures that the new production line for new models on the MMA platform in the existing Rastatt



**BEST - IN - CLASS  
DIE MOULD  
MACHINING CENTERS**

- High Precision
- Fine Surface Finish
- Higher Spindle Speeds
- Rigid Machine Construction



**APPLICATIONS :**

- Die Mould
- Aerospace
- Medical
- Energy



plant can be modified, configured and optimized using high-precision digital simulation techniques. The exact position of machines, supply routes and production lines can be determined and simulated in advance without interrupting the production of the current compact cars A- and B-Class, GLA and EQA. Furthermore, production can be ramped up significantly faster when compared to a conventional planning process. Mercedes-Benz is investing a low triple-digit million euros amount to prepare the Rastatt plant for the new models of the next-generation. The virtual ramp up in Rastatt will serve as a blueprint for the global production network which includes the cooperation plant in Beijing.

### Digital twin in production: Mercedes-Benz builds virtual factories with NVIDIA Omniverse

Mercedes-Benz is developing new production techniques with NVIDIA. The company is harnessing its competence in the fields of software platforms, data and artificial intelligence (AI). For the plant expansion at the Hungarian site in Kecskemét, Mercedes-Benz has created a completely digital depiction of the entire hall for the first time. For this, the company relies on NVIDIA Omniverse, a platform for developing Universal Scene Description (OpenUSD) applications for industrial digitalization, such as digital twins. The digital twin includes the entire building and the infrastructure in it as well as break areas and changing rooms for the employees. With the digital twin for production, assembly areas can be planned, retooled and inspected virtually while taking into account the need for short distances, sufficiently wide aisles, and even fire protection. The virtual ramp-up guarantees the increased speed, transparency and flexibility of production processes without the obligation to use cost-intensive



hardware. In simulation runs, savings can be conducted. By leveraging Omniverse, Mercedes-Benz can interact directly with its suppliers, reduce coordination processes by 50%. Using a digital twin doubles the speed for converting or constructing an assembly hall - while improving the quality of the processes. With the data collected in the virtual world, assembly processes can be optimized even faster and potential errors can be

Mercedes-Benz is initiating a new era of automotive manufacturing thanks to the integration of Artificial Intelligence, MB.OS and the digital twin based on NVIDIA Omniverse into the M0360 ecosystem. With our new 'Digital First' approach, we unlock efficiency potential even before the launch of our MMA models in our global production network and can accelerate the ramp-up significantly.

**- Jörg Burzer,**  
*Member of the Board of the Mercedes-Benz Group AG, Production, Quality and Supply Chain Management*



# HASCO



**Clamping  
cylinder,  
double-acting**

**Z23500/... -  
Z23502/...**

The double-acting HASCO clamping cylinders Z23500/..., Z23501/... and Z23502/... allow great flexibility in their positioning and attachment to the injection mould.

A wide range of matching cylinders ensures the reliable movement of core pullers and slides.

- Double-acting through force generation on both sides
- Reliable movement of core pullers and slides
- Suitable for use up to 150°C
- Pressures of 60 - 500 bar possible
- Broad range of dimensions
- Mechanical stroke limitation

**Easy - Online - Ordering**

**[www.hasco.com](http://www.hasco.com)**

detected at an early stage – without “real world” interference.

### Efficiency through AI

In addition, the introduction of AI opens up new areas of energy and cost-savings. The Rastatt plant is being used to pioneer digital production in the paint shop. AI helped to create efficiency gains in topcoat booths, where vehicle chassis get their paint and protection layers. Instead of a conventional programmable logic controller (PLC), AI took over the monitoring of the relevant sub-processes in the pilot testing, which led to energy savings of 20 % when compared to conventional PLC control. In addition, AI has enormously reduced the time required to boot the process. The successful application of AI-controlled process engineering is an important step in the digitalization of production and is now being rolled out to other Mercedes-Benz plants.

Last May, Mercedes-Benz launched a ChatGPT project within the production digital ecosystem MO360 to optimize production processes and accelerate the identification of defects. With the “democratization of data”, important production data can be retrieved by many employees. This allows them to evaluate processes and data in real time.

### Use of MB.OS centralizes the software operations of Mercedes-Benz vehicle production

The Mercedes-Benz Operating System (MB.OS) – developed on a chip-to-cloud architecture – will be used in series production for the first time. Necessary software will no longer be controlled by individual measures, but will be used in software packages in production that will be cyclically timed. MB.OS in the vehicle and the technologies in production derived from it enable ten times faster software updates



What if reality becomes a representation of the digital, rather than the digital being a representation of reality? Our vision in the future is getting trust in digital twins as same as we do in physical reality.

**- Jan Brecht,**  
*Chief Information Officer (CIO) of Mercedes-Benz Group AG*

Digitalization will enable a whole new era of efficiency for the automotive industry. Using NVIDIA Omniverse and AI, Mercedes-Benz is building a connected, digital-first approach to optimize its manufacturing processes, ultimately reducing construction time and production costs.

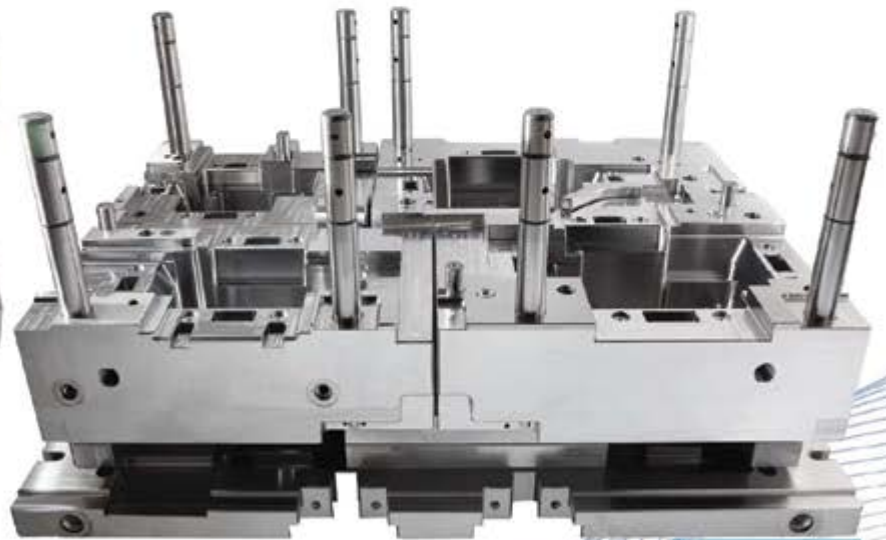
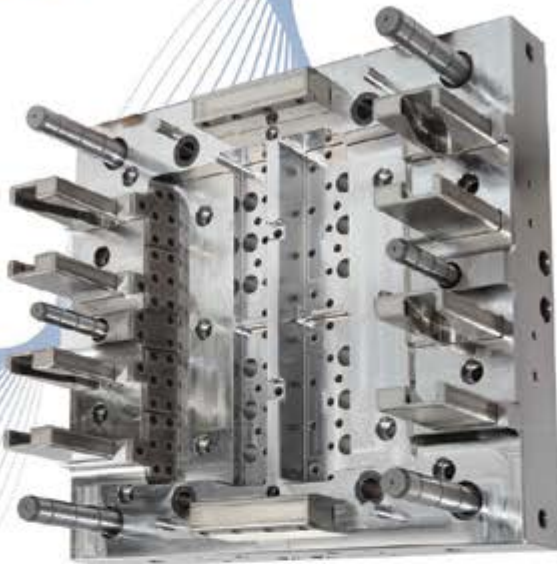
**- Rev Lebedian,**  
*Vice President of Omniverse and simulation technology at NVIDIA*

than before, while simultaneously increasing the amount of data. Due to the direct link of production to the Mercedes Intelligent Cloud (MIC), all vehicles leave the production “always up-to-date”. In doing so, Mercedes-Benz complements its over-the-air software strategy for vehicles that have already been delivered. Software optimizations can be rolled out globally within just a few hours, which significantly increases the safety and quality of the vehicles and ensures compliance with increased certification requirements. The MIC is directly connected to the MO360 Data Platform within the development-, production and fleet operations network. The MIC is responsible for software update packages and installation processes. Both are linked via an intelligent analysis interface so that every employee can read and analyze the current software status of any vehicle in the network using the MO360 Data Platform. This is supported by an app for intelligent defect diagnosis (predictive failure prevention). The app detects potential errors at an early stage and uses an intelligent algorithm during the production process to provide instructions for quality assurance. ♦

*Article and Images Courtesy:  
Mercedes-Benz Group*



World Class Precision Standard & Custom-made Mould Bases and 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

## EMO Hannover 2023: Back with a Bang!



After a four-year hiatus, the international trade fair once again scored with high internationality and innovative solutions for the industry's present challenges. EMO Hannover 2023, which attracted a highly international audience from a wide range of industries, offered a glimpse into the promising possibilities for machine toolmakers. A report...

*Nishant Kashyap*

**A**spectacular display of innovations, high levels of visitor interest from all over the world, and a great atmosphere in the halls... In the wake of a world transformed by the COVID-19 pandemic, these aspects were proof of why EMO Hannover 2023 was a resounding success. "After the four-year break, the relaunch has been a huge success for EMO Hannover," affirmed EMO Commissioner General Carl Martin Welcker. The international trade fair was held at Hannover Fairground in Germany from September 18 to 23, 2023.

### **Exhibitors and visitors**

The trade fair's strengths included the internationality of the exhibitors and visitors. Around 1,850

exhibitors attended, with roughly 70% coming from 45 different countries, including China, Italy, Taiwan, Switzerland and Japan. Of the approximately 92,000 trade visitors, 54% came from 130 countries. Here, the five largest visitor countries were Turkey, China, the Netherlands, Italy and Poland. Around one-third of the trade visitors came from Asia.

More than half of the visitors at EMO were attending for the first time, the exhibition company claimed. This dovetailed nicely with the exhibitors' goal of attracting new customer business. Dr. Karsten Röttger, CEO at Ecoroll AG of Germany, said: "Many visitors became aware of us for the first time. They hadn't even considered the possibilities of mechanical

surface finishing. Our tools allow them to meet the increasing product quality requirements, but above all the higher demand for sustainable products."

Around one-fifth of the exhibitors were also at the event for the first time. Representing this group, Jörg Rommelfanger, Head of ABB's Robotics Division, Germany, said: "This year's EMO provided the ideal platform for showcasing our latest technologies and solutions for the industry for the first time. These included a machine loading cell specially designed for the fast and automated removal of randomly arranged workpieces. There was tremendous interest, and the numerous conversations and demonstrations we conducted were fruitful and inspiring."

## Innovations on display

According to the visitor survey, 30% of visitors gave “obtaining information about innovations and trends” as their top priority. A further goal was finding concrete solutions for their specific problems. And, EMO Hannover 2023 provided a perfect platform for top-class technical innovations. “We saw everything here for the future of production: new solutions for automation, for networking within the factory and for sustainable production. When digitalization finds its way into the factory, there is no end to the potential for new solutions and increased efficiency. This was impressively demonstrated by the exhibitors. And there was a positive mood at the event, despite the tense economic situation,” said Welcker.

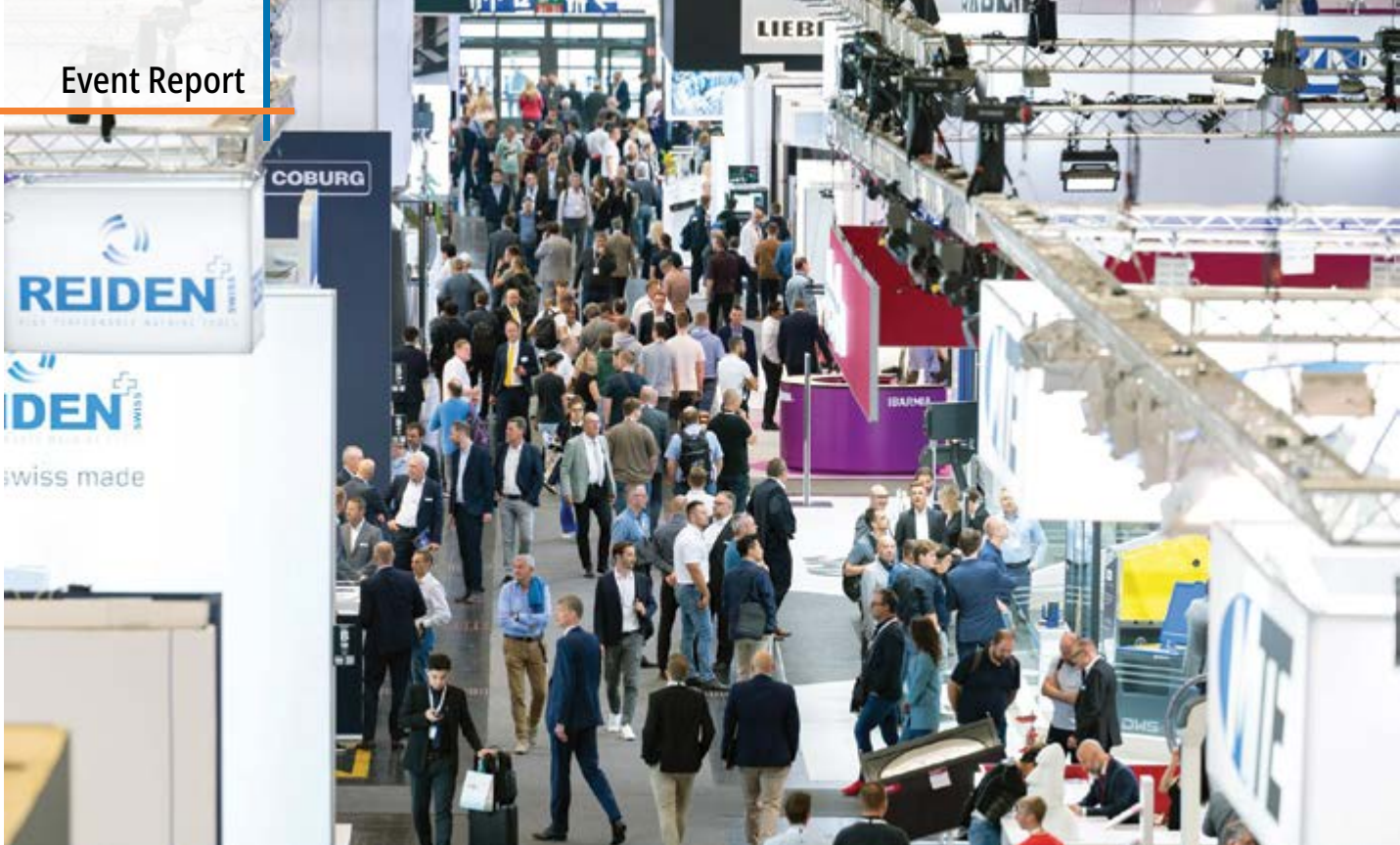
Dr. Matthias Klein, CSO of the Emag Group, added: “We have seen an overwhelming level of interest in the innovative solutions and machines of the Emag Group. In particular, our solutions presented for machining electric vehicle powertrain components met with great interest. Overall, we are more than satisfied with the response from the market.”

The exhibition showcased a diverse array of technologies, ranging from imposing double-column CNC machines to intricate miniature cutting tools, from IoT-based cutting tool fluids to intelligent design and manufacturing software. The exhibits also featured tool holders sporting innovative geometries and tool pre-setters equipped with advanced tool management systems. Among the plethora of cutting-edge technologies displayed were grinding machines, Coordinate Measuring Machines (CMMs), and collaborative robots (cobots). “Cobots are continuing to enjoy rising popularity in manufacturing, especially in smaller companies that are now struggling to find staff,” explained Nils Tersteegen, Marketing Manager at Japanese vendor Fanuc.

## THE HIGHLIGHTS



- ▶ **Opportunities in India:** At the trade fair, the excitement surrounding India was palpable, as companies from around the globe looked to this emerging powerhouse with newfound optimism. The Indian presence had significantly increased, with twice the number of exhibitors compared to the previous edition, and they occupied double the exhibition space. For instance, ACE Micromatic Group, India’s largest machine tool conglomerate, had an impressive presence with four booths at the show. It was a testament to India’s growing influence in the industry.
- ▶ **Industry 4.0:** There seemed to be an interesting shift towards Industry 4.0 concepts, with companies proudly showcasing innovative solutions and machines integrated with cutting-edge technology. Conversations buzzed about the potential for Industry 5.0, hinting at the ongoing evolution and transformation within the industry itself.
- ▶ **Integration of AR and VR:** The integration of Augmented Reality (AR) and Virtual Reality (VR) was another intriguing aspect. Many CAD/CAM companies incorporated these technologies into their offerings, providing a glimpse into the future of design, prototyping, and production.
- ▶ **Sustainability:** A striking trend that pervaded the event was a heightened focus on sustainability and carbon neutrality. Numerous companies unveiled innovative green solutions designed to reduce their carbon footprint, underscoring the industry’s commitment to environmental responsibility. The Future of Sustainability in Production was high on the agenda for 68% of visitors.
- ▶ **Connectivity:** Another focus was on connectivity. The main emphasis here was on the open exchange of data – based on OPC UA, for example. This is the basis for the Companion Specification OPC UA for Machine Tools under the UMATI umbrella. Retrieving large amounts of data from digital controls without affecting the process was a key factor here.
- ▶ **UMATI (Universal Machine Technology Interface):** Introduced in 2019, this initiative has come a long way, with numerous world-leading companies embracing the concept. It showcased the collaborative spirit of the industry, as organisations worked together to pave the way for a more interconnected and efficient future.
- ▶ **Start-up pavilion:** The start-up pavilion highlighted a plethora of innovative solutions and concepts that held the promise of reshaping the industry. It was a testament to the entrepreneurial spirit and forward-thinking mindset that thrives within the machine tool community. Many young engineers from the machine tool industry showcased their innovative products and concepts. It is interesting to note that there were special subsidies for start-ups at EMO.



### The trade fair for decision-makers

It is important for exhibitors to be seen at EMO Hannover, to showcase their offerings and to demonstrate competence. EMO is therefore a trade fair for executives and decision-makers from the mechanical engineering, automotive and supplier industries, metal processing, precision mechanics, optics, and the aerospace industry, among others. Almost 60% of the visitors comprised executives or those from the top management. Just under half have decision-

making authority for purchasing and procurement. Indeed, half of the trade visitors actually stated that they came to EMO with concrete investment plans. On average, these visitors planned to invest just under 3 million euros. More than a quarter said they had placed orders at the fair.

Stephan Nell, CEO of the United Grinding Group from Switzerland, said: "The number of leads is currently at the same level as in 2019. Some machine contracts were also signed directly at the trade show booth." Another quarter of visitors

said that they intended to place orders after the trade show, according to the survey.

"EMO Hannover has once again confirmed and consolidated its position as the world's leading trade fair for production technology," Welcker concluded. He is looking forward to the next event, which will doubtless attract even more exhibitors in two years' time once the economy has improved. In 2025, it will be held from September 22 to 27.

### Conclusion

EMO Hannover 2023 was an exceptionally well-organised event that not only showcased the latest developments in the machine tool industry but also highlighted the shifting dynamics of global markets. India's rise as a major player in the industry was a recurring theme, generating hope and enthusiasm among exhibitors and visitors alike. The organisers put together a truly remarkable show that left an indelible mark on the industry's future. EMO Hannover 2023 was not just an exhibition, it was a glimpse into the exciting possibilities that lie ahead for the world of machine tools. ♦



**CAD MACRO**

Be Part of Smart and Digital Tool Room

# SHOP PLAN

PROCESS PLANNING / SCHEDULING / ERP SOLUTIONS



## Other Products



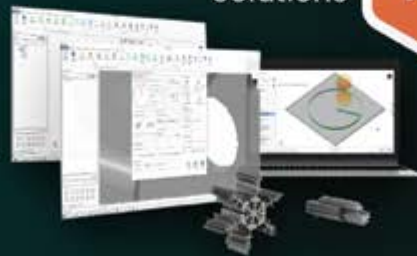
EDM Detailing  
And Cam



Mold  
Maintenance  
Software



Wire EDM  
Solutions



## Cad Macro Design and Solutions Pvt Ltd

#33, CREW Building, Sapthagiri Colony, KR Layout, Jafferkhanpet, Chennai-83

Phone : +91 9600013015 | +91 44 443589050

E-Mail : info@cadmacro.com | www.cadmacro.com



# DMG MORI offers the first end-to-end digital twin of a machine tool on Siemens Xcelerator Marketplace

Technology company Siemens, an innovation leader in automation and digitalization, and DMG MORI, a leading global supplier of cutting-edge machine tools for turning, milling, and grinding as well as for additive manufacturing, are presenting the first end-to-end digital twin for machine tool machining on Siemens Xcelerator. Based on the Digital Native CNC Sinumerik One, the offering includes the digital twin of the controller, the customer-specific DMG MORI machine tool, and the workpiece and is available now on Siemens Xcelerator Marketplace.

A digital twin for machines enables groundbreaking improvements for meeting the challenges of sustainability, flexibility, and time-to-market. The digital twin helps prevent programming errors that cause scrap and damage to the real machine. It enables up to 40 percent faster production ramp-up, significantly reducing the energy consumption of the real machine.

The offer also helps minimise unproductive machine times by up to 75 percent. This is because the testing and running-in of programs is moved from the real machine to the virtual world.

"Digital twins will change the relationship and interaction between suppliers and customers across the entire lifecycle of a machine tool. With our DMG MORI Digital Twin, we're enabling our customers to achieve higher productivity by shifting unproductive tasks from the machine to the virtual world. As an open, digital business platform, Siemens Xcelerator will accelerate our digital transformation," says



Alfred Geißler, CEO of DMG MORI AG.

With Siemens Xcelerator, Siemens is underscoring its technology leadership in combining the real world with the digital world. Sinumerik One is the most advanced CNC system for highly productive machine tools based on the seamless interaction of the virtual and real worlds. Through its digital twin, Sinumerik One is the key element for digital transformation and helps simulate and test machining processes entirely virtually. This allows NC programs to be completely programmed, simulated, and optimised in a virtual environment before workpieces are actually manufactured.

"With this partnership, Siemens and DMG MORI are demonstrating on Siemens Xcelerator the opportunities that the joint and end-to-end use of digitalization offers for productivity, speed, flexibility and

thus, future viability. This applies to the machine users as well as in the core to the machine tool manufacturers. Siemens Xcelerator's approach of bringing different partners together in an ecosystem for the benefit of all is impressively demonstrated by the partnership between Siemens and DMG MORI," says Achim Peltz, CEO of Siemens Motion Control, who is responsible for Siemens' Motion Control business.

The open digital business platform Siemens Xcelerator creates a powerful ecosystem of partners to jointly accelerate the digital transformation, each tailored to customers' specific business goals. Siemens Xcelerator consists of a selected portfolio of products, services, and solutions as well as a marketplace. ♦

*Article and Image Courtesy: Siemens*



# READY STANDARD MOULD BASE

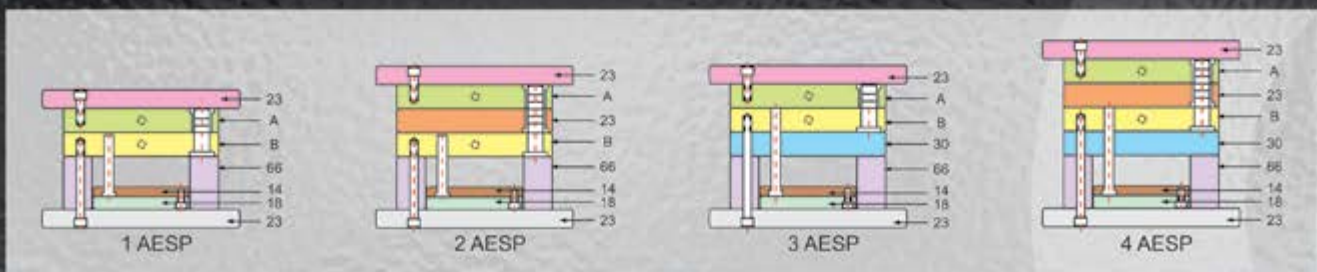
## BEST IN QUALITY. FAST IN DELIVERY.

Ashna Enterprise is acknowledged as one of the pioneers in Manufacturing high quality Standard Mould Base solutions. We have **ready stock available for Standard Mould Base\*** and all our facilities are in house which enables us to deliver in -time. We also manufacture mould base as per customer requirements.

Our manufacturing facility spreads over 35,000 sq. ft. area and we have a team of 70+ skilled and experienced professionals.

Abided by our values, today, we have evolved as a reliable mould base partner extending unmatched quality and value for money.

**\* subject to availability**



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

### ASHNA ENTERPRISE

P: 0250 - 2450407 / 08 | M: +91 9322 519511 / 9028 002982

E: ashnaent@rediffmail.com / info@ashnaent.com | W: www.ashnaent.com



# Enhancing the additive manufacturing process chain



The design freedom provided by Additive Manufacturing (AM) or '3D printing' technology is an important enabler in cutting-edge product innovation. As part of the revolution in digital manufacturing, AM can radically simplify the production of complex parts, while simultaneously improving functional performance, reducing part weight and minimising component counts.

To take full advantage of AM's unique capabilities, however, complementary software tools need to be optimised to satisfy the new requirements of 'Design for Additive Manufacturing' (DfAM) rules and guidelines. Dassault Systèmes, a world-leading provider of 3D design software, 3D Digital Mock Up and Product Lifecycle Management (PLM) solutions, collaborated with Renishaw to streamline its 3DEXPERIENCE® platform to deliver a no-compromise end-to-end AM design experience.

## Background

The 3DEXPERIENCE platform comprises a whole suite of 3D software applications supporting the complete product lifecycle – from design and development to simulation and reliability analysis.

Available to users on premise

or on-cloud, and accessible via a single user interface, it enables the creation of 'social enterprises' where collaboration in the product innovation process becomes simpler and more efficient.

Topological optimisation is a key step process in the manufacture of 3D parts, ensuring material usage within a defined space is fully optimised. Dassault Systèmes' CATIA applications for generative design provide product modelling powered by the 3DEXPERIENCE platform.

Dassault Systèmes' companion DELMIA software application then enables users to design and test a product in a simulated production environment. Importantly, the software manages product build set-up and the generation of laser (scan) toolpaths required by the AM systems.

Simulation of the complete

AM build process, including full product stress analysis and distortion prediction, is carried out using the 3DEXPERIENCE platform's simulation application.

In its close collaboration with Dassault Systèmes, Renishaw employed a broad range of its state-of-the-art precision manufacturing and metrology products. These included the flagship RenAM 500M metal additive manufacturing systems with laser powder bed fusion technology, QuantAM build preparation software, machine tool probing systems, Equator™ gauging systems and CMM with REVO 5-axis measurement system.

Renishaw applied its technologies for the characterisation of the build process, design validation and automated process control of a final subtractive machining

Like Renishaw, Dassault Systèmes is committed to providing solutions which simplify the integration of 3D design and printing technology into all manner of production environments. This common thinking was instrumental in the project's success. Dassault Systèmes provides the functional generative design and physics-backed manufacturing simulations which are a key part of the metal 3D printing process chain.

- **Subham Sett**, *Director of Additive Manufacturing and Materials, SIMULIA, Dassault Systèmes*



Now available In India!!

## WPM: NEXGEN Technology

STEP INTO A SMART PRESS SHOP



Reduce Downtime



Optimize your  
Production Facility



Around the clock  
monitoring &  
Documentation



Reduction of  
Maintenance  
and Repair Cost



Scan QR Code for  
More Details

operation. These, combined with the 3DEXPERIENCE platform's applications, delivered a seamless AM process and the end-to-end manufacturing solution required.

## Challenge

The key challenge faced by Dassault Systèmes and Renishaw engineers was to achieve alignment of their respective virtual and real worlds – of 3D design, test and analysis software and metal 3D printing. Software needed to follow real AM build rules.

The collaboration aimed to rationalise the AM design and manufacturing process so manufacturers can move away from an expensive 'design-build-test' approach to a 'right-first-time' approach.

More specifically, the project ultimately aimed to remove any need for the export of native CAD source files in a universal .STL triangulated file format – an export long proven to introduce manufacturing errors and a prime cause of loss of quality control in successive product versioning.

## Solution

Using 3D design innovations in the automotive industry as a demonstration and test mechanism, this software enhancement project was based around the design and manufacture of a futuristic door hinge

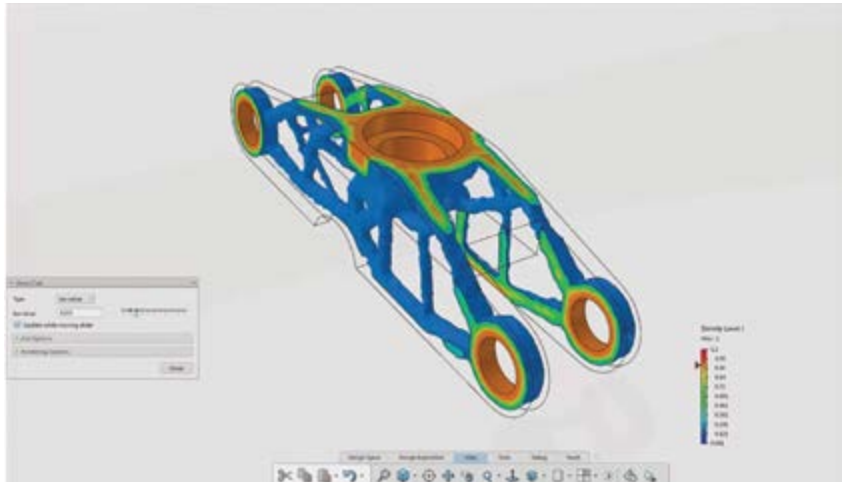


Figure 1: Bleu car hinge component in CATIA.

for Dassault Systèmes concept car, Bleu.

A complex, lightweight, double-wishbone type component, the hinge presented Dassault Systèmes and Renishaw engineers with an authentic production scenario demanding close attention to structural optimisation, multi-material design and part consolidation.

Working within the 3DEXPERIENCE platform, a radical 3D hinge design was produced using the CATIA generative design capabilities. Associated toolpaths generated by DELMIA applications were imported into QuantAM for additional processing prior to output to the RenAM 500M system.

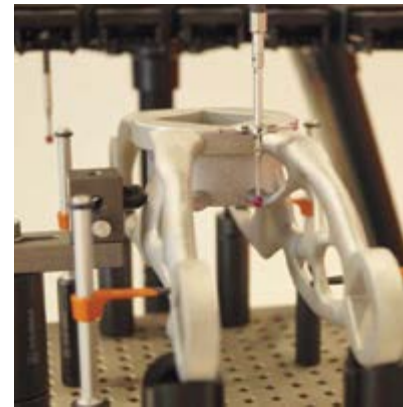


Figure 3: Bleu car hinge component being measured on a Renishaw Equator™ gauging system.

Following an iterative, closed-loop sequence of hinge design adjustment, simulation, printing and precision inspection, the specific AM build rules that needed to be integrated within the 3DEXPERIENCE platform's software to achieve optimal 3D design and printing were determined.

Renishaw made an application programming interface (API) for its QuantAM software available to Dassault Systèmes for integration within the DELMIA application for the generation of right-first-time 3D printing toolpaths.

## Results

As a direct result of the collaboration between Dassault Systèmes and Renishaw, 3DEXPERIENCE platform users can now print directly to the complete range of Renishaw

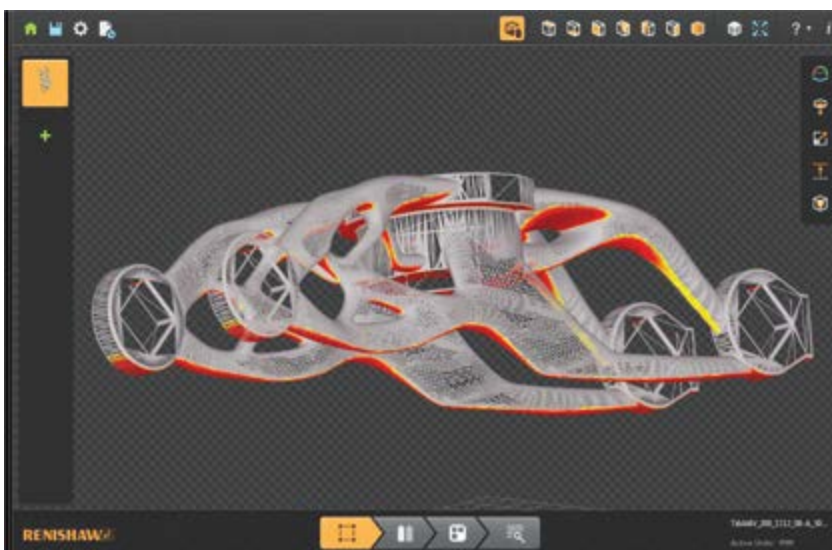
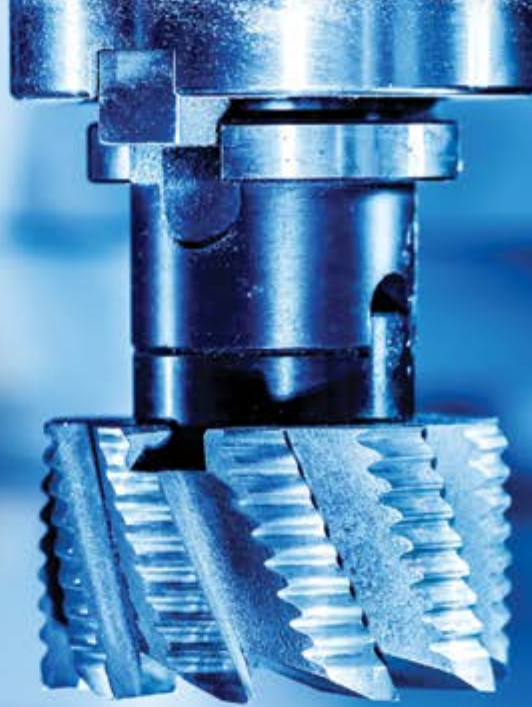


Figure 2: Bleu car hinge component in QuantAM build preparation software.

# SIEMENS



Scan to  
know more



## SIEMENS FINANCIAL SERVICES

# Financing what matters for the **Machine Tools industry**

Access customized financing solutions from Siemens Financial Services (SFS) for your equipment, technology, and software. Our term loans, leases and deferred payment solutions offer key competitive advantage for manufacturers, corporates and MSMEs. SFS' financial expertise and in-depth knowledge of the industry make us the trusted financier for our partners.

### Advantages of Financing with us:



No additional collateral needed



Customized Repayment options



Lower Cash flows



Superior Tax management



Additional Line of credit



Powered by Digitalization

Reach us on: [www.siemens.co.in/finance](http://www.siemens.co.in/finance) or toll-free number: **1800 209 1800**

AM systems from within the existing native CAD environment. There is no need to export data files to an external system for additional post-processing.

The enhanced CATIA, SIMULIA and DELMIA applications mean that innovative 3D product designs are now automatically optimised for both manufacture on Renishaw AM systems, and end functional performance. As a result, parts are produced more accurately from the outset, bringing lead time and material cost savings.

The focus of attention for the 3D design software developments and the ultimate by-product of the project, the conceptual hinge for the 'Bleu' concept car, also provided further real-world evidence of the benefits to be achieved by 3D



Figure 4: Bleu car hinge component in RenAM 500M build chamber.

design and printing.

The evolution of the component design is shown most dramatically in Figure 1 and Figure 2, where the original CATIA product design can be compared with the final product toolpath generated in QuantAM. The finished aluminium printed part is itself shown in Figures 3 and 4.

While in this case the original and optimised part volumes

were virtually identical, all of the support structures were removed from the hinge design, creating a more elegant, more reliable and yet far simpler automotive product.

Subham Sett, Director of Additive Manufacturing and Materials, SIMULIA, Dassault Systèmes, commented, "Like Renishaw, Dassault Systèmes is committed to providing solutions which simplify the integration of 3D design and printing technology into all manner of production environments. This common thinking was instrumental in the project's success. Dassault Systèmes provides the functional generative design and physics-backed manufacturing simulations which are a key part of the metal 3D printing process chain." ♦

*Article and Images Courtesy:  
© 2001-2023 Renishaw plc.*

## WELCOME

### New members

#### **DIE N MOULD SOLUTION**

M 107/2, MIDC, Waluj  
Aurangabad – 431136, Maharashtra

**Tel:** +91-8805848049

**Contact Person:** Mr. Rohit Uttam Wakade

**Mobile:** +91 9890131707 / 7304440008

**Email Id:** dienmoulds@gmail.com

toolsmanagement.dms@dienmouldsols.com

**Website:** www.dienmouldsols.com

**Activities:** Design and Manufacturing of Plastic Injection moulds and Pressure die casting dies

#### **MARK-UP PROCUREMENT SERVICES PVT LTD**

PLOT NO. 25, KUNADAN NAGAR  
LAXMI NAGAR, NEAR R S GROVER HOSPITAL  
DELHI – 110092

**Tel:** +91 011-41403183

**Contact Person:** Mr. JITENDER KUMAR -DIRECTOR

Ms. SUDHA DHAWAN- MANAGING DIRECTOR

**Mobile:** +91 9810536450

**Email:** markupdelhi@gmail.com

**Website:** www.mps-india.com

**Activities:** Sale and Service of Machine Tool -Spindle Oil Chiller, Coolant Chiller, Water Chiller Brand Name Coolmatic. Manufacturing of Chillers and repair of spindle Oil Chiller of all Foreign Make Machines - Oilmatic, Nanocon, Daikin, Habor, Kwangrim, Ltec, Kouwa, Show, Kaukon, Orion, Mac Oil Chillers.

#### **SOURCE TECH SOLUTIONS**

E-402, Atishay Shivalay,  
Tapovan Circle,  
Nr. Gokul Swa, Chandkheda  
Ahmedabad – 382424, Gujrat

**Tel:** +91 9712926463

**Contact Person:** Mr Jayesh Shah - Founder

**Mobile:** +91 7016839288

**Email:** info@sourcetechsolutions.in

**Website:** www.sourcetechsolutions.in

**Activities:** Marketing Partner for Manufacturers from Taiwan. Molds, Hot Runner, Mold Standard Components, TPE compunds, Machine

CREATIVE COMPONENTS PVT LTD, Pune has been  
TAGMA Member since April 2009.



# ENGINEERED FOR ACCURACY

Ideal for Large Component Manufacturing

## NDC 4018B-AHC

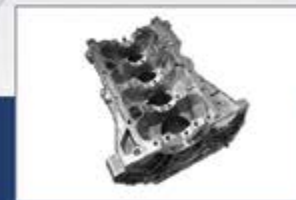
Double Column 5-Face Machining Center with Automatic Head Changer



**Rigidity | High Performance**  
**Reliability | Vibration-free Cutting**

The highly efficient 5-Face Machining Center YCM NDC 4018B-AHC is intelligently engineered to offer the best accuracy with minimal manual intervention.

**Applications :-** Die Mould | Defence | Textile Machinery  
Printing Machinery | Aerospace | Oil & Gas  
Machine Tools | Heavy Machinery



Corporate Office

### S&T ENGINEERS (P) LTD.

22, Vasanth Nagar, Singanallur, Coimbatore - 641 005,  
Tamil Nadu, India. ☎ +91-422-2590810, 2591470, 2593487

☎ +91 73970 37333 ✉ info@stengineers.com

🌐 www.stengineers.com



**MAKING TECHNOLOGY AFFORDABLE**



**Swiss  
Steel**  
Group

**Discover tool steels for  
Plastic moulding application  
North American**

**Together. For a**

Our Service Center locations In India.

## MUMBAI

SWISS STEEL INDIA PRIVATE LIMITED  
Plot No. B-102, MIDC ADDL., Ambarnath,  
Thane- 421506, Maharashtra, India

Email: [salesindia@swisssteelgroup.com](mailto:salesindia@swisssteelgroup.com)  
Contact: +91 9320299101

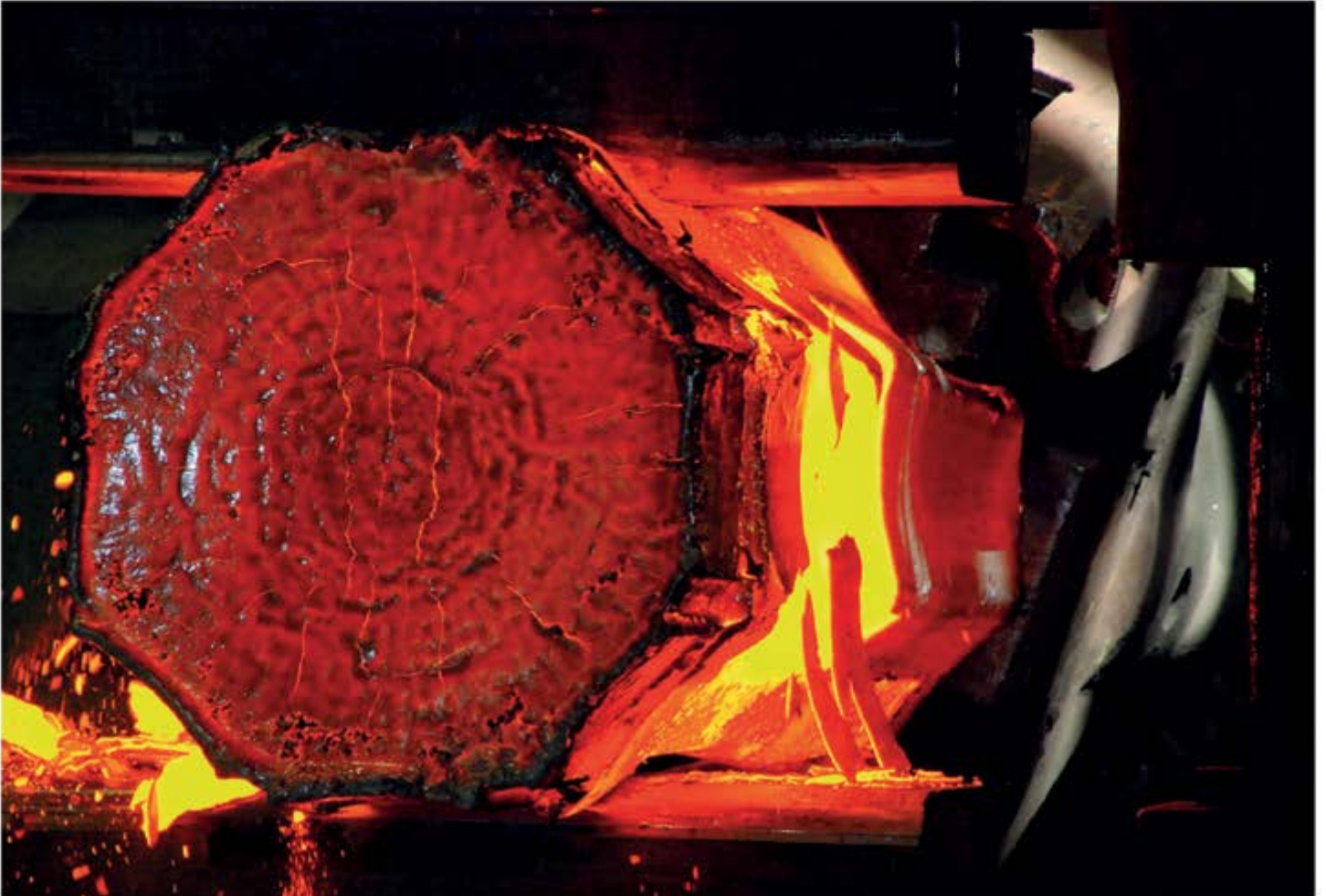
## CHENNAI

SWISS STEEL INDIA PRIVATE LIMITED  
Shed No. 3, Kamaraj Main Road, TASS Industrial Estate,  
Ambattur, Chennai - 600 098, Tamil Nadu, India

Email: [salesindia@swisssteelgroup.com](mailto:salesindia@swisssteelgroup.com)  
Contact: +91 7358678250

**Hot work, Cold work and  
from our German and  
Group mills.**

**future that matters**



## National

### GDCTech Forum

The three-day event will feature exhibitors from OEMs, suppliers, and service providers, occupying over 3000 sq.mtr of exhibition space to showcase the latest advancements in die casting and forging technology.

**Date:** December 1-3, 2023

**Venue:** Chennai Trade Centre, Chennai

**Organiser:** GDCTech

**Contact:** gdctech@arkeycell.com / 09764711315

### Plastvision India 2023

The exhibition is a great platform for companies in the plastics industry to launch new products, grow their network, learn new technologies and exchange ideas on a global level.

**Date:** December 07-11, 2023

**Venue:** Bombay Exhibition Centre, Mumbai

**Organiser:** The All India Plastic Manufacturer's Association

**Contact:** +91 99303 55494

sanjeevani@plastivision.org

### Die Mould India

DMI is India's largest and most prestigious exhibition dedicated to the die mould fraternity. This biannual event has garnered tremendous acclaim and success over the years, with 12 successful editions already conducted, solidifying its position as the go-to platform for industry professionals, exhibitors, and enthusiasts alike.

**Date:** Feb 14-17, 2024

**Venue:** Bombay Exhibition Centre, Goregaon, Mumbai

**Organiser:** TAGMA India

**Contact:** +91-9769407809

tagma.diemould@tagmaindia.org

## International

### Formnext 2023

Formnext is the international meeting point for industrial 3D printing experts and production professionals from a wide range of application industries.

**Date:** November 07-10, 2023

**Venue:** Messe Frankfurt exhibition center, Frankfurt

**Organiser:** Mesago Messe Frankfurt GmbH

**Contact:** +49 711 61946-0 / info@mesago.com

### Blechexpo

International tradefair for sheetmetal working. Blechexpo represents the world's range of products and solutions for the industrial processing of sheet metal, tubes and profiles.

**Date:** November, 7-10

**Venue:** Messe Stuttgart, Germany

**Contact:** knauer@schall-messen.de

**Contact:** +49 (0)7025 9206-668

### ArabPlast

One stop destination to promote new products, innovations, latest technologies, and services to a global defined audience

**Date:** December, 13-15

**Venue:** Dubai International Convention & Exhibition Centre Dubai, United Arab Emirates

**Organiser:** Al Fajer Information and Services

**Contact:** rasheed@alfajer.net / +971 50 900 6466





Made In Japan

# Tools for Every Application in Die & Mould, Aerospace Machining

Save die mould machining  
and polishing hours!

## Patron Members of TAGMA

No.	Existing Patron Members	CITY	No.	Existing Patron Members	CITY
1.	AAKAR DIES & MOULDS	Pune	24.	MAHINDRA UGINE STEEL CO. LTD.	Raigad
2.	ABHIJEET DIES & TOOLS PVT. LTD.	Vasai	25.	MANGAL INDUSTRIES LIMITED	Chittoor
3.	ANAND MOULD STEELS PVT. LTD.	Navi Mumbai	26.	METALS INDIA	Faridabad
4.	BHARAT TECHNOPLAST PRIVATE LTD.	Mumbai	27.	MISUMI INDIA PVT. LTD.	Gurgaon
5.	BRAKES INDIA PRIVATE LIMITED	Chennai	28.	MULTIPLE SPECIAL STEEL PVT. LTD.	Bangalore
6.	CONNECTWELL INDUSTRIES PVT. LTD.	Thane	29.	MUTUAL ENGINEERING PRIVATE LIMITED	Vasai East
7.	CRAFTSMAN AUTOMATION LIMITED	Coimbatore	30.	NTTF	Bangalore
8.	DAXTER TOOLS	Vasai East	31.	PCK BUDERUS (INDIA) SPECIAL STEELS PVT. LTD.	Chennai
9.	DEVU TOOLS PVT. LTD.	Mumbai	32.	PUROHIT STEEL INDIA PVT. LTD	Vasai East
10.	DMG MORI INDIA PVT. LTD.	Bangalore	33.	S&T ENGINEERS (P) LTD	Coimbatore
11.	ELECTRONICA HITECH MACHINE TOOLS PVT. LTD.	Pune	34.	SANDVIK COROMANT INDIA AT SANDVIK ASIA PVT. LTD.	Pune
12.	EXCELLENCE ENGINEERING SERVICES	Navi Mumbai	35.	SCHUNK INTEC INDIA PRIVATE LIMITED	Bengaluru
13.	GF MACHINING SOLUTIONS PTE LTD	Bangalore	36.	SECO TOOLS INDIA (P) LTD.	Pune
14.	GODREJ & BOYCE MFG. CO. LTD - TOOLING DIVISION	Mumbai	37.	SRIDEVI TOOL ENGINEERS PVT. LTD.	Vasai
15.	HASCO INDIA PVT. LTD.	Bangalore	38.	STITCH OVERSEAS PVT LTD	Gurugram
16.	HTS HOT RUNNER SYSTEMS INDIA PVT. LTD.	Pune	39.	SUBROS TOOL ENGINEERING CENTER (STEC)	Noida
17.	HUSKY INJECTION MOLDING SYSTEMS PVT. LTD.	Tamil Nadu	40.	SUNDARAM CLAYTON LTD.	Chennai
18.	JAIN IRRIGATION SYSTEMS LTD.	Jalgaon	41.	UE PRESS TOOLS PVT. LTD.	Chennai
19.	JOBTECH MOULD LLP	Gujarat	42.	USBCO STEELS PVT. LTD.	West Bengal
20.	KAPSUN RESOURCES CORPORATION	Gujarat	43.	VASA SPECIALITY STEELS PVT. LTD.	Mumbai
21.	KINETIC TECHNOLOGIES (A DIVN. OF JAYAHIND SCIACY LTD.)	Pune	44.	XCEED TOOLINGS PVT. LTD.	Mumbai
22.	LMT TOOLS INDIA PRIVATE LIMITED	Pune	45.	YUDO HOT RUNNER INDIA PVT. LTD.	Vasai East
23.	LUCAS TVS LTD.	Chennai	46.	ZAHORANSKY MOULDS AND MACHINES (P) LTD.	Coimbatore

## Advertisers Index

Advertiser .....	Pg. Nos.	Advertiser .....	Pg. Nos.
ACE MANUFACTURING SYSTEMS .....	33	MADHU MACHINES & SYSTEMS.....	01
AMPCO METAL INDIA PVT. LTD. ....	55	MAKINO .....	25
ASHNA .....	43	MEUSBURGER.....	31
CAD MACRO DESIGN & SOLUTIONS.....	41	MILLUTENSIL SRL.....	05
DEVU TOOLS PVT. LTD. ....	BACK COVER	MULTIPLE SPECIAL STEEL PVT. LTD. ....	21
DIJET INDUSTRIAL CO. LTD. ....	53	PCK BUDERUS .....	03, 28, 29
DMI .....	17	PRECISION MOULD TECH.....	15
FIBRO INDIA .....	45	PUROHIT STEEL INDIA PVT. LTD. ....	FIC
HASCO INDIA PVT. LTD. ....	35	S & T ENGINEERS PVT. LTD. ....	7, 49
KALYANI MOULD BASE PVT. LTD. ....	37	SIEMENS.....	47
LAXMI ELECTRONICS MOULDS AND PRECISION ENGINEERING PVT LTD.....	FRONT GATE FOLD	SWISS STEEL INDIA PRIVATE LIMITED .....	50, 51
LAXMI MACHINE WORKS .....	13	VIJAYDEEP MOULD ACCESSORIES.....	BACK INSIDE COVER
LUCCHINI RS.....	11	VOESTALPINE HIGH PERFORMANCE METALS INDIA .....	9
		YUDO HOT RUNNER INDIA PVT. LTD.....	56



## Expert materials for plastic injection and mould applications



### AMPCOLOY® advantages

- ▶ Excellent corrosion resistance
- ▶ High strength and thermal conductivity
- ▶ Good machinability
- ▶ Easy to polish and weld repairable
- ▶ Reduce risk of jamming and largely facilitate the heat dissipation

Mechanical and Physical Properties	Unit	Beryllium-Free Copper Alloys		2% Beryllium Copper Alloy
		AMPCOLOY® 940	AMPCOLOY® 944	AMPCOLOY® 83
Rockwell Hardness	HRB / HRC	95 HRB	30 HRC	40 HRC
Thermal Conductivity $\lambda$ 20°C	W / m ·K	208	156	106
Electrical Conductivity	% I.A.C.S.	48	30	22

Reduce cycle time in plastic injection by up to 25% with AMPCOLOY® alloys

Food Approval of AMPCO®, AMPCOLOY® Materials  
AMPCO® 18, AMPCO® M4, AMPCOLOY® 1410, 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



3PLATE MOLD WITH COLD RUNNER

ELIMINATE WASTAGE

REDUCED CYCLE TIME



FASTER COOLING



LIPISTICK CAP WITH YUDO MICRO BORE NOZZLE

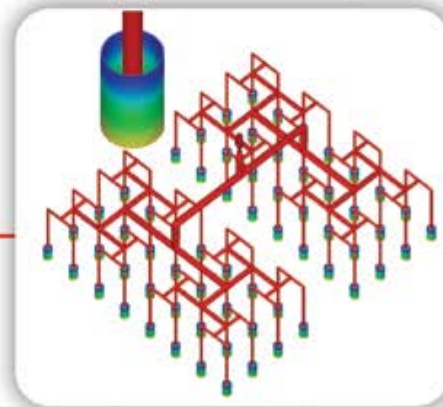
ACHIEVE MAXIMUM PRODUCTIVITY WITH YUDO ADVANTAGE IN

# DEEP CORE SOLUTIONS

Deep core gate is a patented system with advanced nozzle design and ISO technology. It improves gate quality and reduces cycle time resulting in remarkable productivity gains



MICRO NOZZLE WITH COOLING



ANALYSE & VALIDATE CYCLE TIME



**YUDO Hot Runner India Pvt. Ltd.**

📍 Mumbai(HO), Pune, Chennai, Delhi, Ahmadabad, Bangaluru, Coimbatore, Ananthapuram

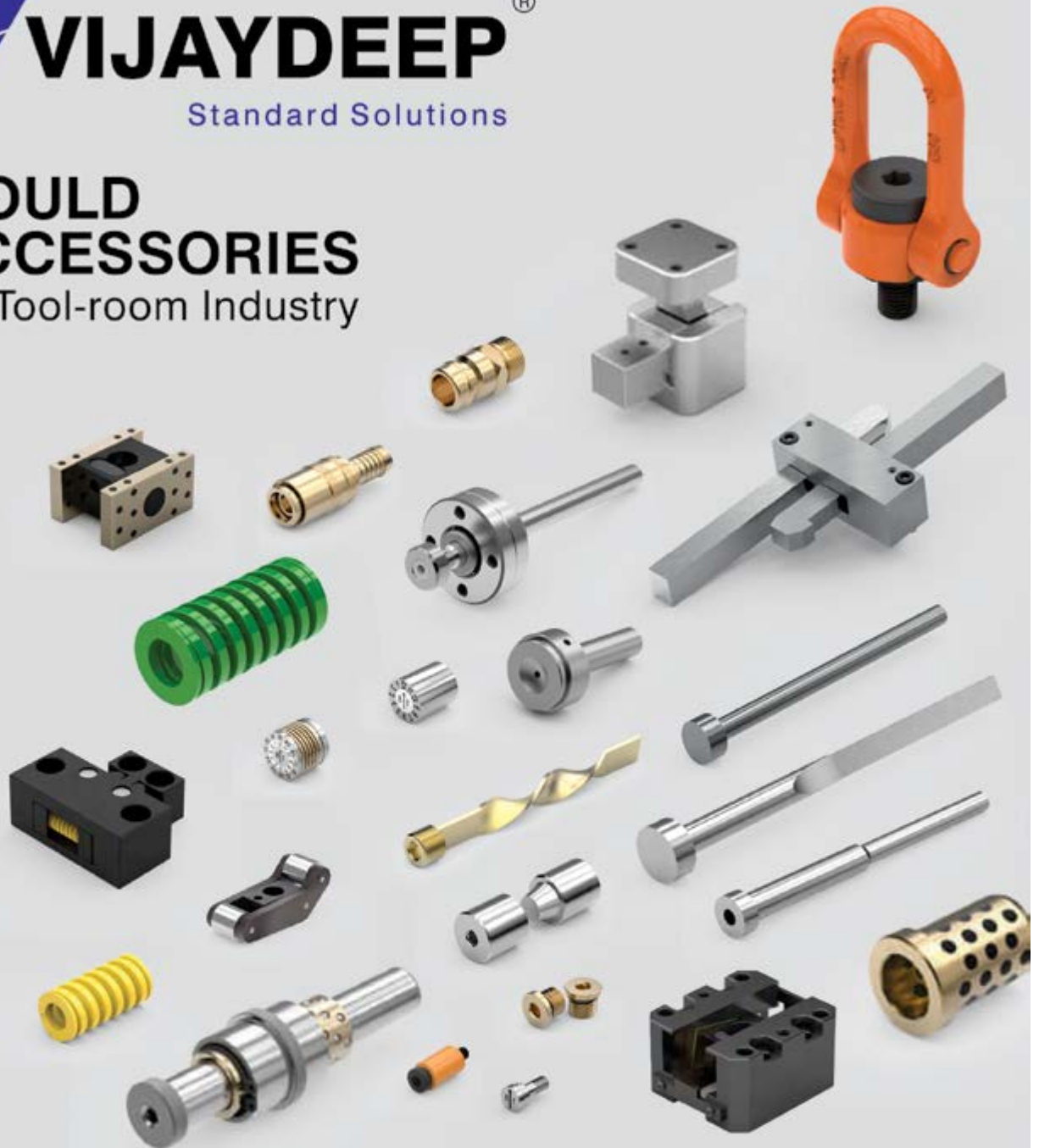
✉ sales@yudo.co.in | 📞 +91 7666390458 | www.yudo.com



Standard Solutions

# MOULD ACCESSORIES

for Tool-room Industry



vividhart; +91-9820036041

- Injection Accessories
- Mould Alignment
- Three Plate Mould Accessories
- Slides & Accessories
- Ejection Accessories
- Undercut Release Systems
- Die Springs
- Mould Cooling Accessories
- Part & Mould Identification
- General Mould Accessories

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

# MOULDING SUCCESS FOR HIGH- PERFORMANCE VEHICLES

When it comes to the automotive industry, precision and quality are non-negotiable. That's why you need Devu Tools - the trusted name in automotive moulds. With our state-of-the-art technology and years of expertise, we're well-equipped to handle any automotive mould requirement you have.

We take pride in our ability to create moulds for a wide range of components, including Front bumper louver, Wheel liners, Fenders, Front bumper grilles, Rear quarter trims, Door cladinigs, B pillars, Cluster panels & 2-wheeler parts. That's why we offer efficient and timely services, without compromising on quality. Our precision craftsmanship and attention to detail mean you can rely on us for consistently high-quality products, every time.



On Time  
Delivery



First Time  
Right



Zero  
Accidents



Sustainable  
Procurement



Est. 1993  
**DEVU TOOLS PVT. LTD.**  
**MOULD MAKERS**  
**MANUFACTURER & EXPORTER**

- Mobile: +91-9820030764
- Email: [marketing@devutools.com](mailto:marketing@devutools.com)
- Web: [www.devutools.com](http://www.devutools.com)

