TAGMA TIMES
NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

Volume: XXV / No. 05 (Private Circulation for Members Only) January 2019

Jigs & Fixtures: 'Holding' Tooling Together

Remembering 2018
The year gone by

Event Preview: ITS 2019
Gateway to Exuberant Opportunities

In Conversation With
Amar Kulkarni,
Vice President - Sales,
PolyWorks India Pvt Ltd

Tech Focus
Why You Should Be Using a Hot Runner System?

TAGMA INDIA TOOL AND GAUGE MANUFACTURERS ASSOCIATION OF INDIA

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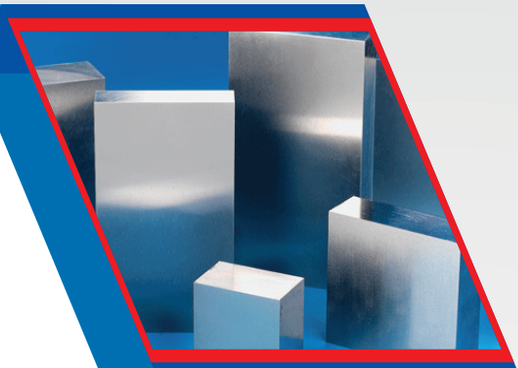

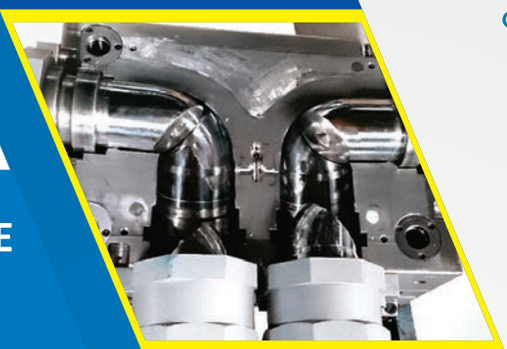

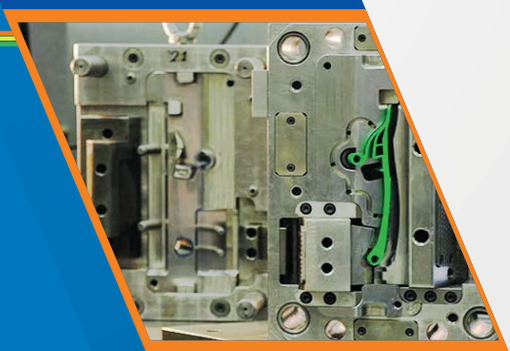

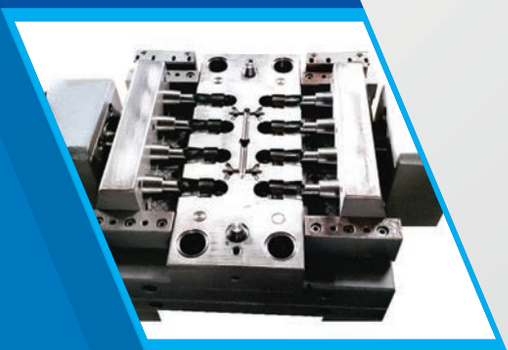

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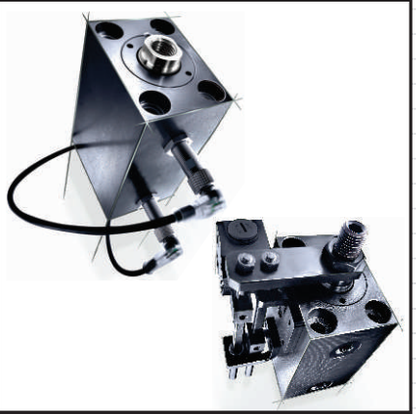

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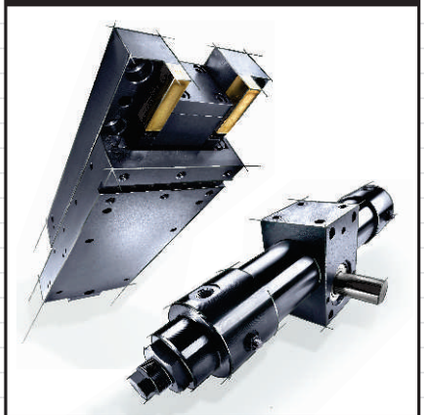

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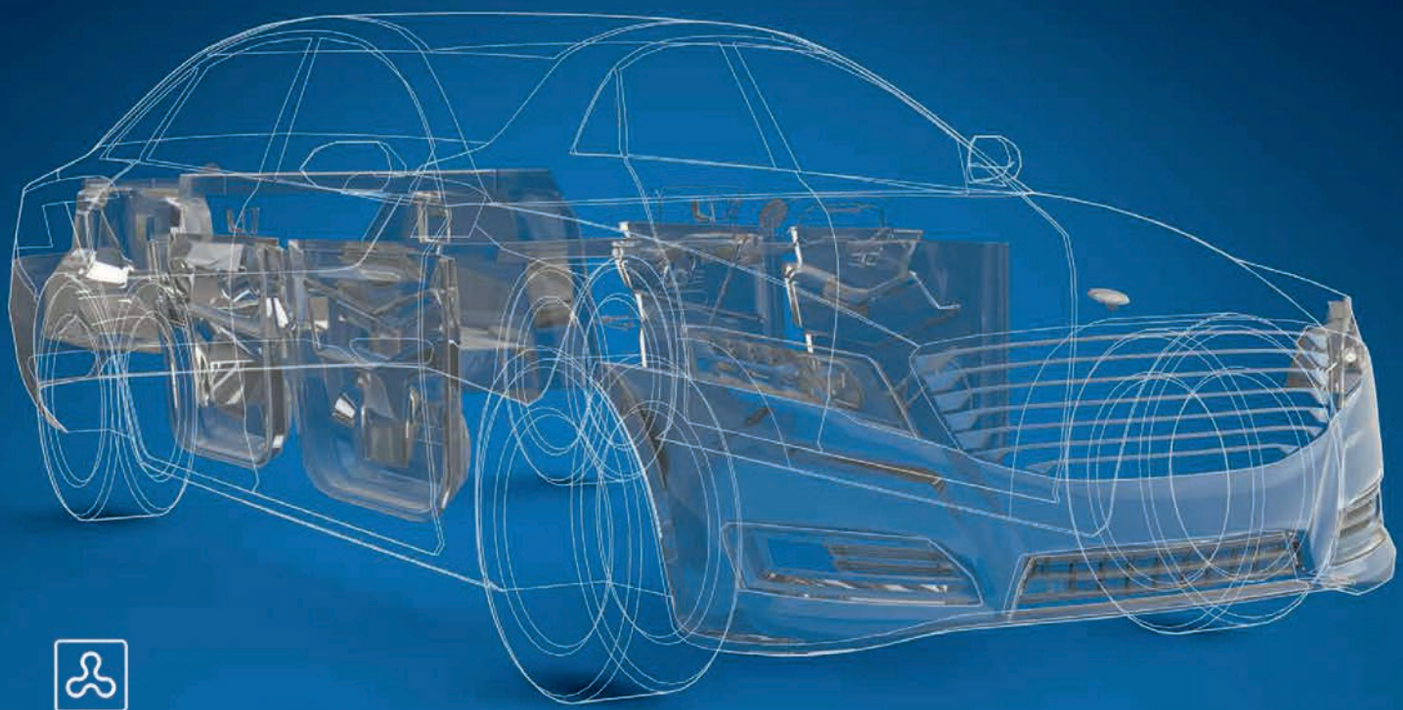

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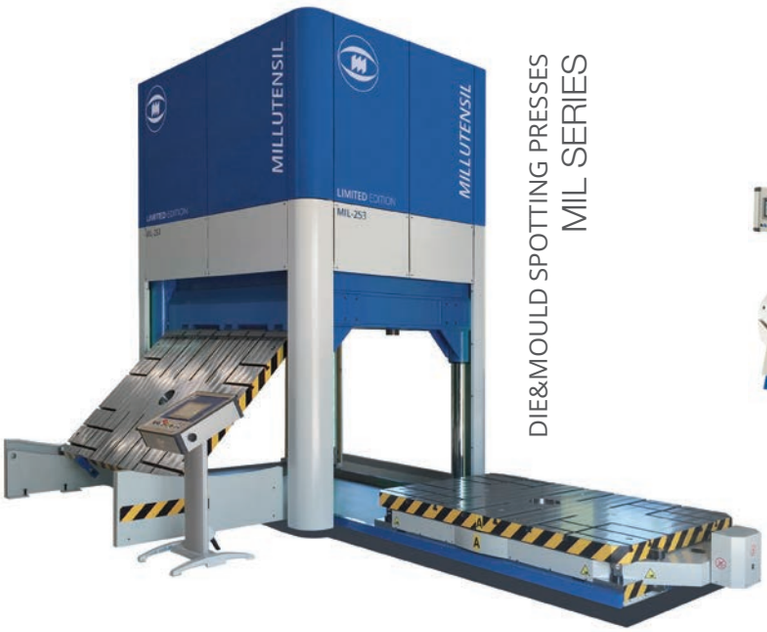

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Towards Greater Success!

I'll start by wishing you all a very Happy New Year!

It is rightly said, a new beginning always comes after the end of some other beginning. We are entering 2019 with optimism— FDI inflows are on an all-time high, the industry is witnessing a double digit growth and the mood across the Indian manufacturing industry is very positive. Amidst this excitement, let us take a look at 2018 and how it turned out to be for the Indian die mould industry and TAGMA.

We will remember 2018 as a vital stepping stone towards greater success. I would like to chart out few things that TAGMA undertook which not only helped the industry capture new opportunities, but also explore global markets. While ITS 2018 in Chennai, saw over 350 participants and 40+ speakers, the 2018 edition of DMI also turned out to be a great success with over 30,000 visitors, 300+ exhibitors and in terms of business generated. TAGMA also signed an agreement with the Canadian Mold Makers Association (CAMM) to enhance trade between the two countries. 2018 came to an end with a bang. The unique Tooling Tech Show that was jointly organised by TAGMA and Toyota was well received by the industry aficionados.

In this issue, we provide you a recap of several such important happenings of 2018.

Having highlighted all the positive aspects, I would like to draw your attention to areas that we should focus on. Technology adoption, skill development and lack of a collaborative approach continues to be some of the major cause of concern. We still need a cluster in India that houses the complete eco-system present in one geography like China, Taiwan and S Korea.

We just have to come together, dream big, and there is nothing that can stop us from becoming a global tooling power house. The tone is set and we can see serious efforts made towards development….all we need is determination and perseverance. It's not about being the best, it's about being better than what you were yesterday.

Yes, we have many challenges. Let's embrace them together and march ahead to achieve the common goal – 'Becoming the global tooling power house'.

As charity begins at home, we would want to provide you the information you want. Tell us how can TAGMA TIMES help you. Share with us your views and suggestions on becoming the global tooling power house and we will make sure it reaches the right audience.

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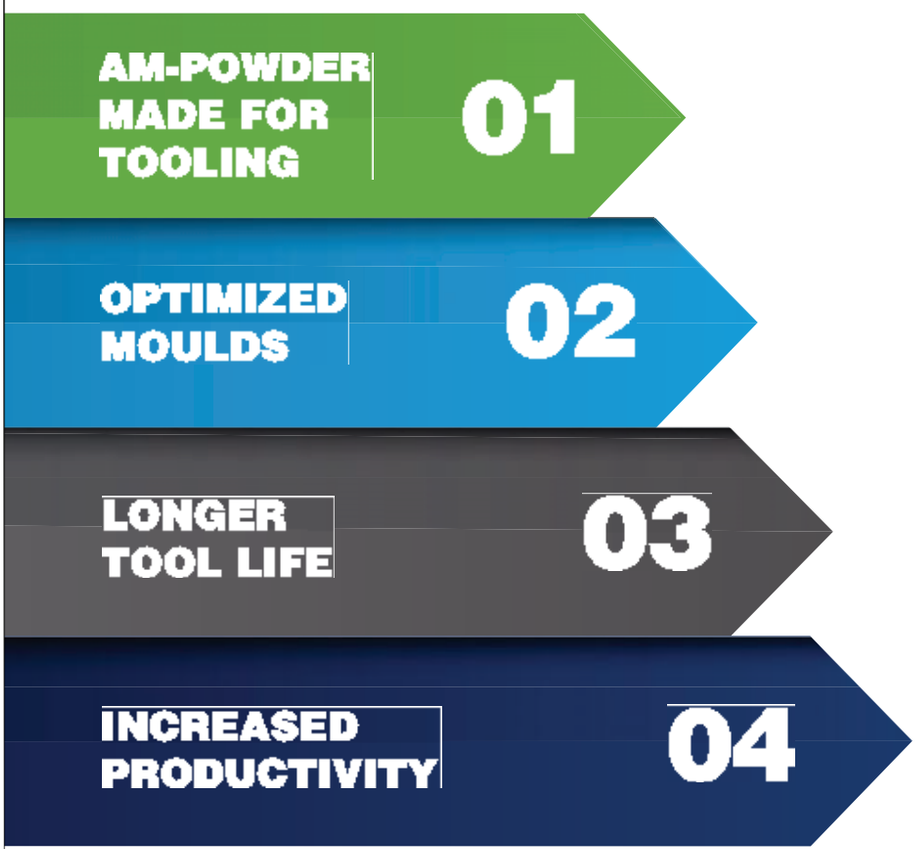

TAGMA Organises 3rd edition of ITS

The International Tooling Summit 2018 was held on February 1 and 2, 2018 at The Leela Palace, Chennai, with the theme of Driving Indian Tooling Industry – Opportunities and Challenges. The two-day event witnessed over 400 visitors, packed with four panel discussions, 16 technical sessions, with 44 speakers discussing various topics that impact the Indian tooling industry, and among them 10 speakers from overseas.

Various companies showcased their state-of-the-art technology through technical sessions at the event that targets companies and professionals associated with die mould industry. Thought provoking panel discussions were also organized keeping in mind the latest technologies, customer expectations, opportunities & challenges in the Indian tooling industry.

The Chief Guest, Mr Stefen Heim, Executive Director – Corporate Purchasing, Volkswagen India, highlighted the opportunities for Indian tooling suppliers while addressing the gathering. However, he also mentioned that financial stability and productivity is very important while sourcing a product. He urged Indian suppliers to become more efficient, productive and cost effective.

Addressing the gathering, Guest of Honor, Mr S Ganesh Mani, Senior Vice President – Production, Hyundai Motors India highlighted the current trends in Indian automotive market while talking about the futuristic technologies like 3D Printing and Electric Vehicles. He said, "Since time-to-market for car manufacturers has reduced drastically, industry expects the same efficiency and speed from tooling suppliers as well."

Second Guest of Honor, Mr Harish Laxman, Vice Chairman, Rane Group spoke about the future trends in automotive industry like connected cars, shared mobility and Electric Vehicles. He also highlighted how these trends will change the dynamics of automotive industry in the future.

Within three years since its inception, the International Tooling Summit has become one of the most important gatherings for die mould industry. The event saw notable visitors from companies like Volkswagen India, Bajaj Auto, Brakes India, Daimler, Ford Motor, Indo-German Tool Room, ISUZU Engineering Business, Mahindra & Mahindra, Renault Nissan, Misumi India, Premier Industrial Plastics, TITAN Company Ltd, TOYODA GOSEI, USBCO Steel, TVS Upasana, Hyundai Motors, Hanon Systems, Schneider Electric, Royal Enfield, BOSCH, Hitachi Metals, Maruti Suzuki India, Jain irrigation Systems, among others.

In the backdrop of India's rapid industrial growth, International Tooling Summit emerged as an ideal platform for industry professionals to understand about the latest technologies, future trends, customer expectations and make valuable acquaintance.

10-16 Remembering 2018.indd 10 1/31/2019 10:18:03 PM

Mumbai hosts largest ever Die Mould India

The 2018 edition of Die & Mould India International Exhibition was a huge success. From latest technologies and innovation to new launches, visitors witnessed it all at the four-day mega event. With a 15% increase in number of exhibitors than the previous edition and total 31,256 visitors making presence at the show, the 2018 edition was the largest in term of number of exhibitors, visitors and booth space.

The 11th Biennial Die & Mould India International Exhibition was inaugurated on April 11, 2018 at the Bombay Exhibition Centre, Mumbai. The four-day event organised by TAGMA India serves as a unique platform to showcase the latest products and solutions for the booming die & mould market. The mega event was inaugurated by Chief Guest Jamshyd N Godrej, Chairman of the Board of Godrej & Boyce Manufacturing Company Limited, in the presence of Guests of Honour Raj K Purohit, Cabinet Minister, Maharashtra Legislative Assembly, Wu Bingshu, Chairman, FADMA and N Reguraj, Founder President, TAGMA India.

"Die & mould industry has enormous opportunity to grow. With an increase in the number of domestic die & mould manufacturers, export is one such opportunity," says Jamshyd N Godrej Chairman of the Board of Godrej & Boyce Manufacturing Company Ltd during the inauguration of the event.

In his speech Raj K Purohit Cabinet Minister, Maharashtra Legislative Assembly said, "Die & mould, also known as the mother industry serves as the backbone of manufacturing. The same way TAGMA has the power to mould the future of the Indian die & mould industry. Exhibition of this stature will help the industry grow."

Die & Mould India International Exhibition that was first organised in 1998 has come a long way. Today it is known to be one of the most important events for businesses related to the Tooling Industry. The unique industry event showcases the developments, innovations and the latest technologies and solutions among others.

This edition of the exhibition saw more than 300 exhibitors from 19 countries presenting a large variety of products and services for die & mould and other related industries. With a 15% increase in exhibitors than the previous edition and 45% increase in this venue, DMI 2018 turned out to be another success.

A special delegation from FADMA (Federation of Asian Die and Mould Associations) also visited the exhibition.

TAGMA also organised 'TAGMA CET Partner Meet' on the sidelines of DMI 2018. Around 40 like-minded industry experts came together to discuss the growth path and further strengthen the Indian tooling industry with the help of TAGMA CET.

Highlights of DMI 2018

Total 31,256 visitors from industries like Automotive, Aerospace, Die Mould, Machine Tools, Heavy Engineering, Plastics, packaging, Consumer Goods, among others

About 48% decision makers visited the show

Exhibitor count increased by 20% from last edition and 30% increment is floor space

5847 foreign visitors from 16 different countries

Delegation from PSUs and large OEMs

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TAGMA successfully organises AGM meeting in Bengaluru

TAGMA recently organised Annual General Meeting (AGM) on September 19th at Taj Vivanta, Bengaluru. The event was attended by over 50 members companies along with TAGMA President Mr DK Sharma, and Council Members such as D M Sheregar, Gopalakrishnan T S, Parveen Satija and Paresh Panchal. The Chief Guest for the event was Mr N Reguraj, Managing Director, NTTF & One of the Founders of TAGMA.

In his welcome note DK Sharma spoke about the current trends in the Indian tooling industry and encouraged audience to collaborate with each other in order to become strong die mould nation. "We have to set our new goals for the next few decades as we see the new Industrial and Manufacturing

world developing around, throwing new opportunities in our domestic turf as well as in Global Arena. We are fortunate to be existing in an era where Indian economy is witnessing the fastest growth in the world. I urge upon the TAGMA members to provide suggestions feedback on what more could be done to address the needs of Tool making to address the needs of Tool making fraternity to make ourselves more efficient and competitive," said Sharma.

In his speech Mr Reguraj recalled his earlier days while starting TAGMA and challenges all the founding members faced during those days. "I am delighted to say that coming out of all the hurdles, TAGMA has become a truly national association and has become voice for the Indian tooling industry.

TAGMA and MAZAK organise seminar on 'Latest Trends in manufacturing

Leading CNC manufacturer Yamazaki MAZAK and Tool and Gauge Manufacturers' Association (TAGMA) jointly organised a seminar, 'Latest trends in manufacturing'. Held on August 23, 2018 at Vasai in Mumbai, the event aimed to bring together the tool and die makers in the nearby areas. The event highlighted the latest technologies available for die mould manufacturing. Technologies like complex surface finish machining solutions, Industry 4.0 and additive manufacturing solutions formed a major part of the seminar.

The event started with the national anthem followed by a welcome note by Paresh Panchal, CEO, CAM Tools India Pvt Ltd and Sunil Desai, Director, Director, Designcell CAD/CAM Solutions Pvt Ltd and Partner, SubAero Precision Machining.

Going ahead, DK Sharma, President, TAGMA, highlighted the opportunities available in India and initiatives taken by TAGMA to bring together the die mould professionals for larger good.

The event was followed by a presentation from Prashant D Ghugare, Senior Manager, Yamazaki Mazak India Pvt Ltd. He spoke about the range of products MAZAK has to off er for various operations, especially for the die mould industry. It was followed by a case study presentation.

Anil Bhardwaj, Managing Director at Yamazaki Mazak India Pvt Ltd said, "Mazak has been supplying machines to the Indian die mould industry for years. We have solutions that can help mould manufacturers achieve high precision. Mazak is happy to collaborate with TAGMA for this event to talk about the latest trends in manufacturing and also showcase our capabilities."

The event was attended by more than 75 professionals from 50 companies. Sridevi Tools, Godrej Tooling, Abhijeet Dies & Tools, Purohit Steels, Anand Mould Steels, Designcell CAD/CAM Solutions, SolidVision, Yudo Hot Runner India, Kalyani Mould, Vinayak Enterprises and ACC Moulds also made their presence felt. The event was followed by networking dinner party.

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CAMM and TAGMA signs MoU

Canadian Association of Mould Makers (CAMM) and Windsor Essex Economic Development Corporation (WEEDC) explores business and partnerships in India.

CAMM led 'Trade Mission to India' from November 26-30 to explore business opportunities. In the context, a Seminar followed by B2B Meeting was organised by Consul General of Canada in association with TAGMA and Engineering Export Promotion Council of India (EEPC) on November 28th 2018 at Hotel Lalit, Mumbai. The main objective of the meeting was to sign MOU with TAGMA and EEPC for cooperation of Trade, Technology and Investment between India and Canada.

In her welcome remarks Annie Dubé – Consul General, Consulate General of Canada in Mumbai, Global Affairs Canada said that "the MoU will spur the institutional framework between the two nations which will be beneficial to all involved"

Rakesh Naidu, CEO - Windsor Essex Economic Development Corp. said they are looking forward to realise relationship for Trade and Investment with India. He further invited India to the Windsor-Essex's Foreign Trade Zone wherein materials and goods can be stored, processed or assembled in the FTZ for re-export or for entry into the domestic market.

Jonathan Azzopardi, Chairman, CAMM presented a video on Mould Making Industry in Canada. After the visits to various Tool Rooms in Pune on 26th and 27th November and interacting with people, he felt that India would be the right country for Partnership. He thanked TAGMA for the support extended in organising the Canada Trade Mission to India. "The MoU we signed today is kind of door or bridge for both the countries to come together and learn from each-others. By coming to India and signing MoU, I want to deliver a message that we are not here to compete with you but partner with you. Together we can grow and compete with the world." Said Jonathan.

D K Sharma, President, TAGMA INDIA in his address highlighted the current business scenario of Indian Tooling Industry. He mentioned that the real challenge in the industry, currently, is the design capabilities and skill on which both the countries can work together. He invited the entire Canadian delegation to the 4th edition of International Tooling Summit on 7th and 8th Feb. 2019 at Pune and 12th edition of Die & Mould India International Exhibition from 22nd to 25th April 2020 at Mumbai.

The address Mr. Sharma was followed by signing of MOU between WEEDC, CAMM, TAGMA and EEPC for promoting trade, technology development and investment between Canada and India.

The presentations were followed by B2B meetings between Canadian Delegation and members of TAGMA and EEPC. The event was attended by dignitaries from the industry.

The Canadian Association of Moldmakers (CAMM) is Canada's leading national association representing Moldmakers, Service providers and Suppliers to the global Moldmaking Industry. The main objective of CAMM is to promote the Moldmaking industry locally, nationally and internationally as well as provide representation on behalf of our industry to Federal and Provincial governments.

The Windsor Essex Economic Development Corporation is a not-for-profit organisation. It is responsible for advancing economic development to grow and sustain prosperity in the region. The focus of the organisation is to develop and execute strategies to retain, expand, attract and help new businesses start up in the Windsor-Essex region.

EEPC India is the premier trade and investment promotion organisation in India. It is sponsored by the Ministry of Commerce & Industry, Government of India, and caters to the Indian engineering sector.

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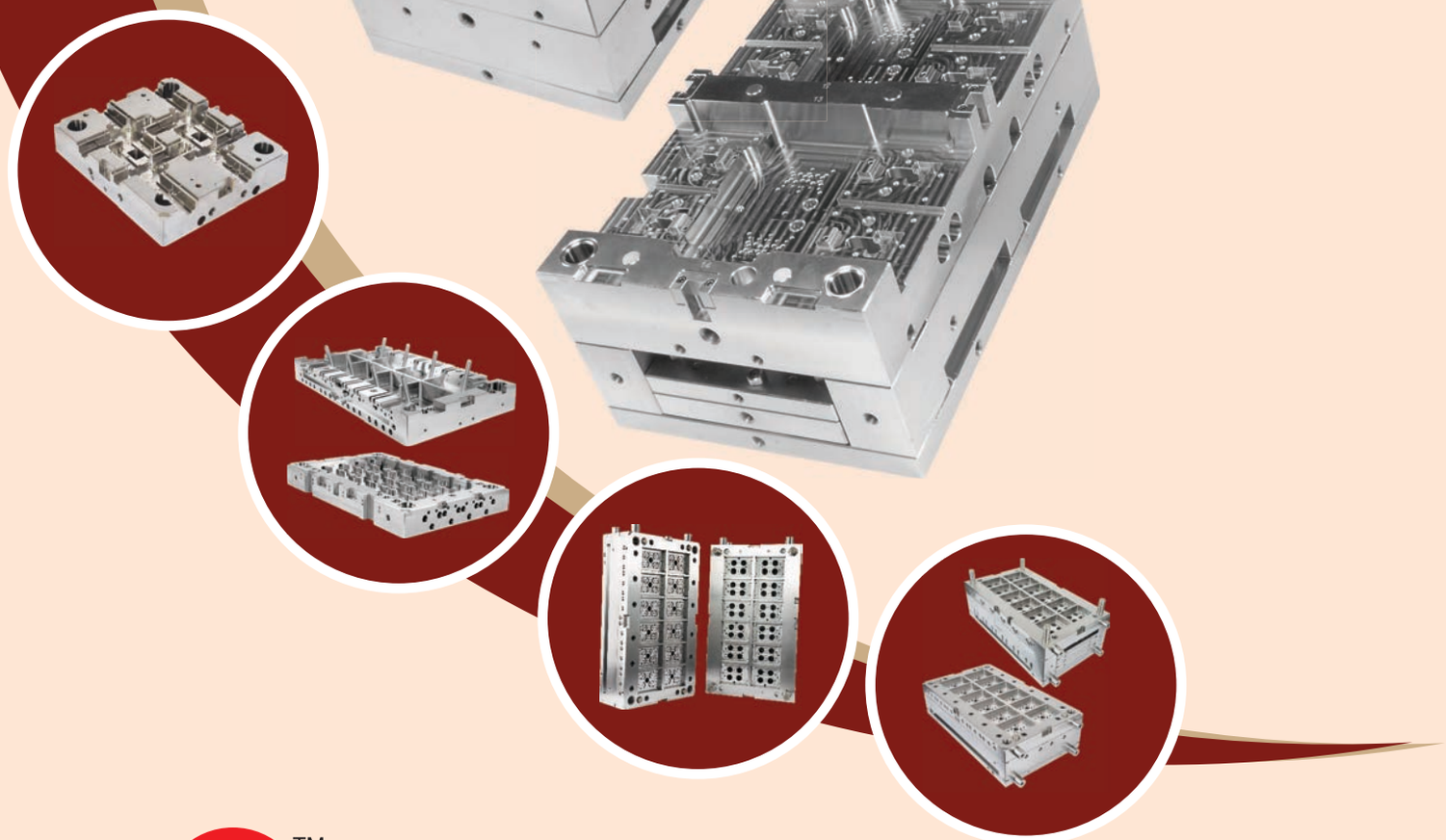

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TAGMA and Toyota jointly organise Tooling Tech Show to bring suppliers and customers together

Localisation is one of the latest trends in the automotive sector in India. To reduce cost and lead time, several automotive OEMs are looking for local vendors who can match their quality and provide timely delivery. However, automotive OEMs and tool suppliers need a platform to come together and understand each other's requirement. Keeping this in mind, TAGMA and Toyota Kirloskar Motors (TKM) came together to organise Tooling Tech Show, an event for all the stake holders of the eco-system to put across their expectations.

TAGMA along with TKM organised Tooling Tech Show 2018 on December 20, 2018 at Toyota Kirloskar Motors' Bengaluru facility.

Toyota one of the major automotive players is looking for domestic suppliers who can meet their quality standard, reduce lead time and provide them cost competitiveness. At the same time TAGMA is working hard to reach out to maximum number of OEMs to showcase the capabilities of the Indian tool rooms. TAGMA and Toyota came together to organise event that witnessed 32 tooling suppliers sharing their capabilities with Toyota group companies such as Toyota Motors, Toyota Boshoku Automotive India, Toyotetsu India, among others and its Tier-I suppliers such as BOSCH, DENSO, JTEKET, among others.

The event started with an opening speech by Venkat Krishnan R, General Manager – Purchase Division, Toyota Kirloskar Motor Pvt Ltd. He thanked TAGMA on behalf of Toyota group for helping them organise the event. "I thank TAGMA for bringing tooling suppliers from various part of the country at one place. We welcome all TAGMA members, tooling suppliers and other dignitaries for this unique Tooling Tech Show."

Toyota sources most of its tooling requirement from Taiwan, South Korea and China, however they are aggressively looking for Indian suppliers. "Over the years we have realised that the Indian tooling suppliers have grown and may be this is the right time to explore the Indian tools rooms. I am looking forward to have some interesting interactions with companies present here today," Venkat added.

The exhibitors used this platform to showcase their latest product offerings before esteemed customers and visitors present at the event. The participants, exhibitors and visitors, shared that the rapid growth of the Indian automotive industry will further propel localisation in the country, making it necessary for the tool suppliers to be abreast with the current market demand.

Besides being extremely effective, the expo provided participants a cost-effective means to promote their products on a wider platform to a serious set of buyers.

10-16 Remembering 2018.indd 16 2/1/2019 11:31:07 AM

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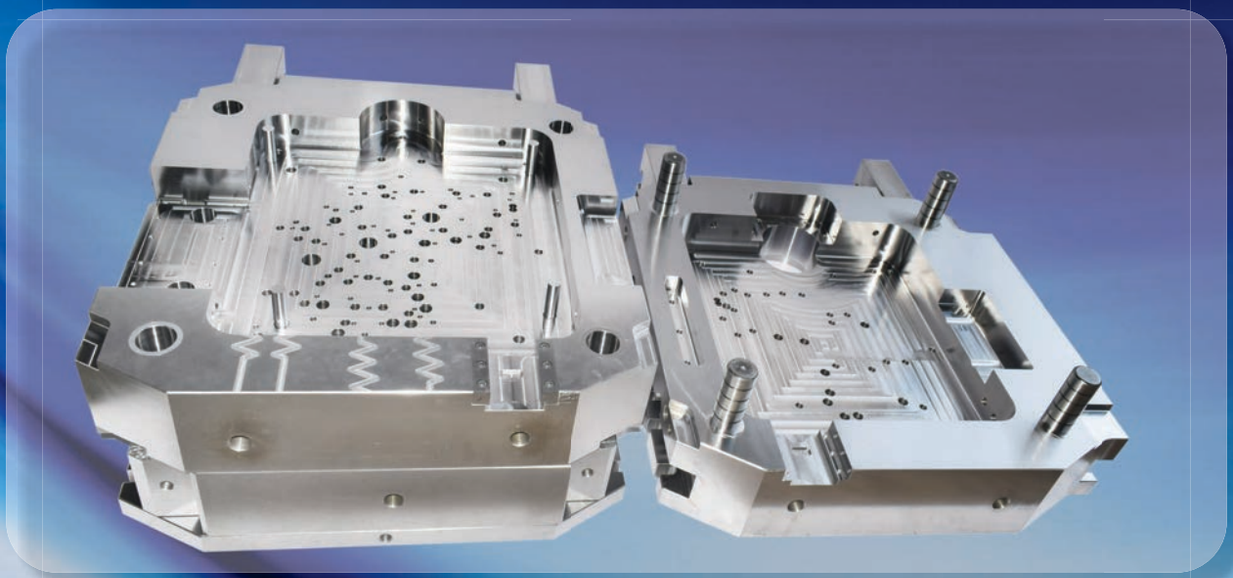

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ITS 2019:

Gateway to Exuberant Opportunities

The industrial hub of Pune is gearing up to witness the mélange of latest technologies and innovative products at the highly awaited tooling congregation, International Tooling Summit 2019, Pune. To be held from February 7-8, 2019, at Hotel Hyatt Regency; the event will reinforce itself as a leading platform for tooling suppliers and user to collaborate with each-others and find right partners and solutions.

With the passage of time, Pune has emerged as a hub for the automotive and allied industries. Amid this as well as the growth of other industries, TAGMA is all set to hold the fourth edition of ITS. This edition will provide a suitable platform to all the stake holders in the industry to spread awareness about the latest technologies, bringing together like-minded die mould professionals and foster the development of Indian die mould industry.

DK Sharma, President, TAGMA says, "ITS has come a long way today by becoming one of India's largest die mould meeting points. Over the years, it has successfully delivered its goal of a preferred destination for tooling fraternity and manufacturing & engineering companies to connect, transact, and leverage ideas to foster growth of individual organisations as well as that of the industry at large. As we look forward with further value additions for even better experience and reach to the target audience, we welcome all tooling suppliers, OEMs, Tier-I and Tier-II suppliers, large, medium & small industries in manufacturing and servicing sector to be a part of the seminar in this exciting journey."

ITS 2019

The fourth edition of the event aims at empowering the attendees with latest technology through 10+ technical sessions and five panel discussion where experts from the world will be discussing about the latest technologies, challenges, opportunities and future trends. The theme for the fourth edition is 'Indian Tooling Industry: Moulding and Forming the Future'. Companies can use this seminar to reinstall customers' confidence and loyalty in the brand & take advantage of new opportunities. The event enables tooling suppliers in getting closer to the customers and learning about their expectations.

International Tooling Summit is an elite platform to showcase your product & solution offerings to over 350+ executives, business & functional heads from leading companies. In just 4 years the seminar has already become one of the most important gathering for the die mould professionals. Pune being manufacturing hub for automotive and allied industries, the city has attracted lots of mould suppliers. We are confident that the show will be helpful for all the suppliers and stake holder.

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4th edition TAGMA INTERNATIONAL Tooling SUMMIT 2019

7-8 FEBRUARY, 2019
Hyatt Regency, Pune

PROGRAM SCHEDULE

7th February 2019

Day - 1

09:00	09:45	**Registration & High Tea**
09:45	10:00	**National Anthem, Light Lamping, Inaugural**
10:00	10:10	Welcome Address: **D K Sharma** - President, TAGMA INDIA
10:10	10:20	Chief Guest Address: **Mr. Sunil Kakkar** - Executive Director (Supply Chain), Maruti Suzuki India Ltd
10:20	10:30	Guest of Honor: **Mr. Saurabh Kumar** - DGOF & Chairman - Ordnance Factory Board
10:30	10:40	Guest of Honor: **Mr. Peter Vetter** - Head - Quality Planning Tool Steels - Buderus Edelstahl
10:40	10:50	Overview of Tooling Industry
10:50	11:00	Vote of Thanks

Hi-Tea Break 1-1

11:15	12:00	**Panel Discussion - 1**	**OEMs and Tooling Suppliers - Collaborative Approach**
			Moderator: **Ashim Sharma** - Nomura Research Institute India Pvt. Ltd. | Partner & Group Head, Business Performance Improvement Consulting (Auto , Engineering & Logistics)
			Mr. Ramani Krishnan - Mahindra & Mahindra Ltd | Head Projects
			Mr. Marc Weinmann - VEM Tooling (India) Private Limited | Founder CEO
			Mr. Günther Prunner - Voestalpine | Regional Innovation Manager
			Mr. Kannan Venkatraman - Milacron India Pvt Ltd (Mold-Masters Division) | Managing Director
12:00	12:30	Technical Session 1	**"Overview on global toolmakers in Asia, Europe and US/Canada and how Indian toolmakers can reach to their standards."** by - **Mr. Dirk Soltau** - Head of Chemi- Kaufteilemanagement – Beschaffung - VW
12:30	13:00	Technical Session 2	**"New Trends in Die Making a) Electronic In-die Tapping and b) Wireless Pressure Monitoring Systems for Gas Springs"** by - **Mr. Jochen Schafer** - Director Business Area Standard Parts | FIBRO GmbH

Lunch Break

14:00	14:30	Technical Session 3	**"Future Of Making"** by - **Mr. Pankaj Gauba** - Head Digital Manufacturing Group - India & Middle East - Autodesk India Pvt. Ltd
14:30	15:00	Technical Session 4	**"Today's Solution for Tomorrow's Challenges"** by - **Mr. T.S. Gopalakrishnan** - Director | Multiple Special Steel Pvt Ltd
15:00	15:30	Technical Session 5	**"Futuristic Technologies related to Tooling"** by - **Mr. Abhinav Shah** - Customer Technical Support | Madhu Machines & Systems Pvt. Ltd
15:30	16:00	Technical Session 6	**"Hot Runner Systems - New Developments & Solutions for Automotive Segment."** by - **Mr. Vishal Agarwal** - President, Yudo Hot Runner India Pvt. Ltd

Hi-Tea Break 1-2

16:15	16:45	Technical Session 7	**"Application orientated development of special steel products at Deutsche Edelstahlwerke"** by - **Mr. Christoph Mueller** - Technical Customer Services Tool Steels | Deutsche Edelstahlwerke Specialty Steel GmbH & Co. KG
16:45	17:30	Panel Discussion 2	**Subtractive & Additive Technologies – How Will The Coexistence Emerge In Future?**
			Moderator: **Mr. Pankaj Gauba** - Autodesk India Pvt. Ltd. | Head Digital Manufacturing Group - India & Middle East
			Mr. Gourav Ray - GE India Private Limited | Senior Sales Director, South Asia
			Mr. Sunil Rao - DMG Mori | Deputy Managing Director
			Mr. Prakasam Anand - Electro Optical System | Country Head
			Mr. Akshay Kalyanpur - Sridevi Tool Engineers P Ltd | Director
			Mr. Dharmesh Raval - Mahindra & Mahindra Ltd | Dy. General Manager, Components Development & Materials Management

Break

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Silver: FIBRO India, HAAS, Godrej Tooling | Hi-Tea | Lucky Draw: ANTTF | Networking Dinner: Purohit Steel, Tara Tools, PPD

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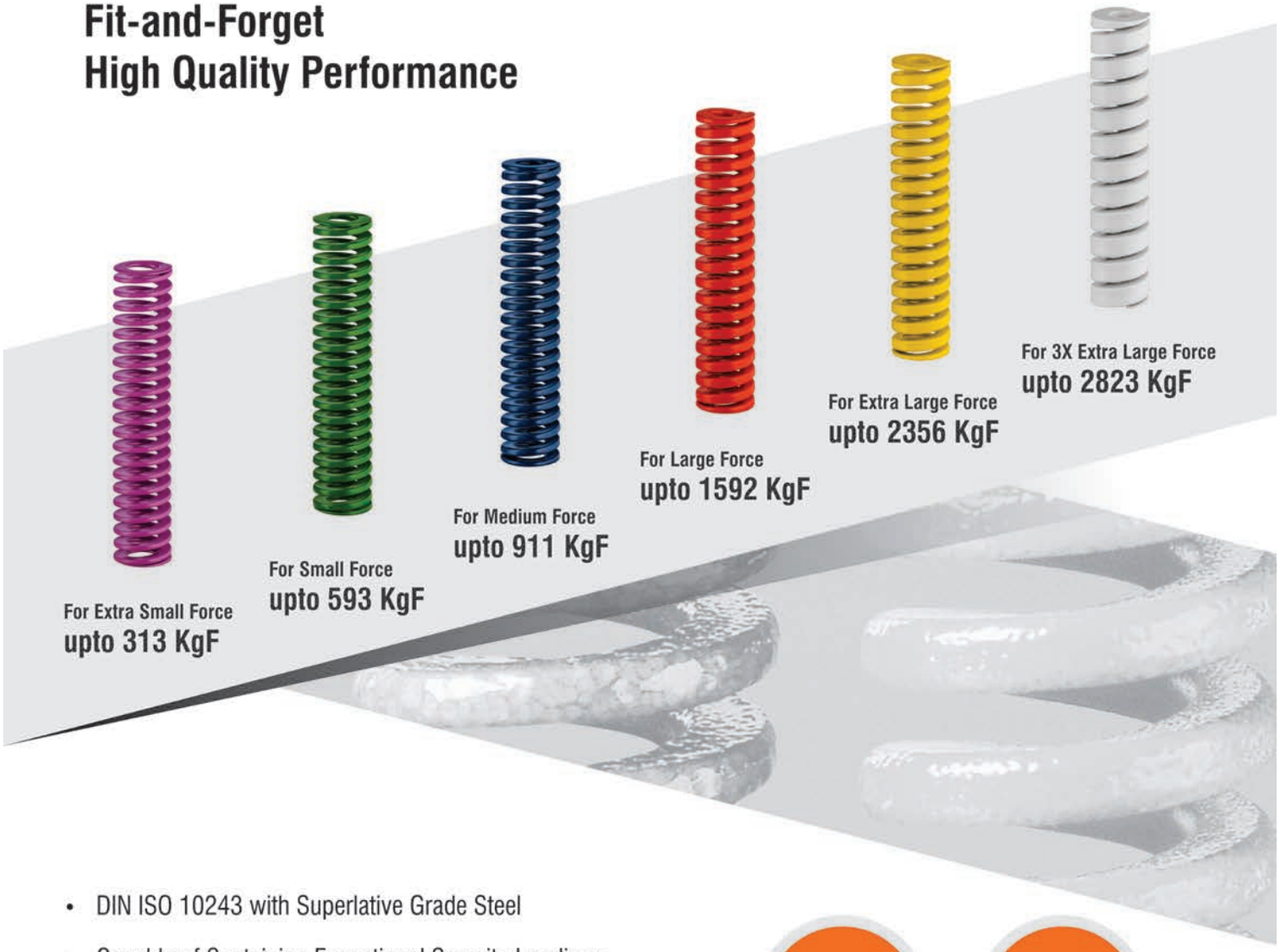

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18:00	18:30	**Felicitation of Industry Stalwarts**	
18:30	22:00	**Entertainment & Networking Dinner**	

8th February 2019

Day - 2

09:00	09:30	**Registration & High Tea**	
09:30	09:45	**Opening Remarks**	
09:45	10:10	Technical Session 8	**"A look into the 2K Mould Technology"** by - Mr. Alan Cecco - Design Director | Silver Basis Group
10:10	10:35	Technical Session 9	**"Manufacturing Excellence in Tool Room"** by - Mr. Suryakant Kisan Pawar - Joint General Manager | Larsen & Toubro
10:35	11:20	**Panel Discussion - 3**	**Emerging Sectors for Indian Tool Makers**
			Moderator: **Mr. Ramesh Krishnamurthy** - Indus Momentum Business Solutions | Director
			Mr. S. M. Vaidya - Godrej & Boyce Mfg. Co.Ltd | EVP – Business Head Aerospace Division
			Mr. Jonathon Azzopardi - Canadian Association of Mold Makers | Chairman
			Mr. Tapan Tripathy - Larsen & Toubro | General Manager, Switchgear Design & Development Centre | Electrical and Automation Independent Company
			Mr. Kapil Sethi - Whirlpool of India | Director Procurement (Global Strategic Sourcing)
Hi-Tea Break 2-1			
11:35	12:00	Technical Session 10	**"Future Needs Steel"** by - **Mr. Ashish Bhansali** - Director - Anand Mould Steels Pvt. Ltd
12:00	12:25	Technical Session 11	**"Innovative Hydraulic Solutions for injection & Die-casting moulds"** by - **Mr. Abhinav Shah** - AHP Merkle
12:25	12.50	Technical Session 12	**"Solutions for Die-casting and Plastic Injection Moulding using Integrated Additive Manufacturing"** by - **Mr. Günther Prunner** - Regional Innovation Manager, Voestalpine
12:50	13:15	Technical Session 13	**"How CADOpt can help Tool & Die Industry by providing solutions using 3D and Automation"** by - **Mr. Raghavendra M.S**, Head- Services - CADOpt Technologies Private Limited
Lunch			
14:15	15:00	Panel Discussion - 4	**Changing Dynamics in Auto Sector - Impact on Indian Tooling Industry**
			Moderator: **Mr. Sumantra Barooah** - Autocar Professional | Executive Director
			Mr. Venkat Krishnan R - Toyota Kirloskar Motors Private Limited | General Manager, Purchase Division
			Mr. Pravin Grover - Tata Motors Ltd | Head Production Engineering
15:00	15:25	Technical Session 14	**"Smart Manufacturing in Tool Rooms for Improved Productivity, Quality and Delivery"** by - **Prof. Asim Tewari** - Chair Professor in the Dept. of Mechanical Engg and Head of the National Center for Aerospace Innovation and Research (NCAIR) at | IIT, Mumbai
15:25	15:50	Technical Session 15	**"Hot Press Forming & Aluminium Stamping : Application & Challenges"** by - **Mr. Woosik Jeong** - General Manager, Stamping Tool Engg - Shin Young Co. Ltd.
15:50	16:15	Technical Session 16	**"Critical aspects in Skin Panel Dies"** by - **Mr. Martin Heckmann** - Development Engineer | LÄPPLE Automotive
Hi-Tea Break 2-2			
16:15	16:20	**Closing Session**	
16:20	16:25	**Vote of Thanks**	

Glimpses of ITS 2018

The International Tooling Summit 2018 was held on February 1 and 2, 2018 at The Leela Palace, Chennai, with the theme of Driving Indian Tooling Industry – Opportunities and Challenges. The two-day event witnessed over 350 visitors, packed with four panel discussions, 16 technical sessions, with 44 speakers discussing various topics that impact the Indian tooling industry, and among them 10 speakers from overseas.

Various companies showcased their state-of-the-art technology through technical sessions at the event that targets companies and professionals associated with die mould industry. Thought provoking panel discussions were also organized keeping in mind the latest technologies, customer expectations, opportunities & challenges in the Indian tooling industry. The event saw notable visitors from companies like Volkswagen India, Bajaj Auto, Brakes India, Daimler, Ford Motor, Indo-German Tool Room, ISUZU Engineering Business, Mahindra & Mahindra, Renault Nissan, Misumi India, Premier Industrial Plastics, TITAN Company Ltd, TOYODA GOSEI, USBCO Steel, TVS Upasana, Hyundai Motors, Hanon Systems, Schneider Electric, Royal Enfield, BOSCH,

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Event Preview

PCK-Buderus participated in ITS 2017, the panel meeting with the OEMs was outstanding. We are the distributors of Buderus tool steels in India and are catering to the requirements of the Indian industries for the last 60 years. PCK-Buderus is a market leader when it comes to die steels for forging industry and plastic mould steels. Make in India is gradually taking shape in India, as a result bigger moulds are being planned and produced in India.

ITS 2019 will be an important event. It is a platform where the tooling fraternity can get to know about the latest updates and developments in the industry. With light-weighting, new emission norms, electrification of vehicles, automotive industry is set to witness several changes in the coming years. With every change, there are new challenges and opportunities. Tooling requirements will also undergo changes, more compact tools will be required. All these requirements must be met, constant discussions with one another is need of the hour and this event is the right platform.

Peter Vetter,
Head - Quality Planning Tool Steels , Buderus Edelstahl

Hitachi Metals, Maruti Suzuki India, Jain irrigation Systems, among others.

With the Indian industry poised to maintain the high growth momentum in the coming years, expectations are high about an upbeat investment environment in Pune. This spells excellent business opportunities for the manufacturing sector to scale new heights, and ITS 2019 would act as a catalyst towards this end.

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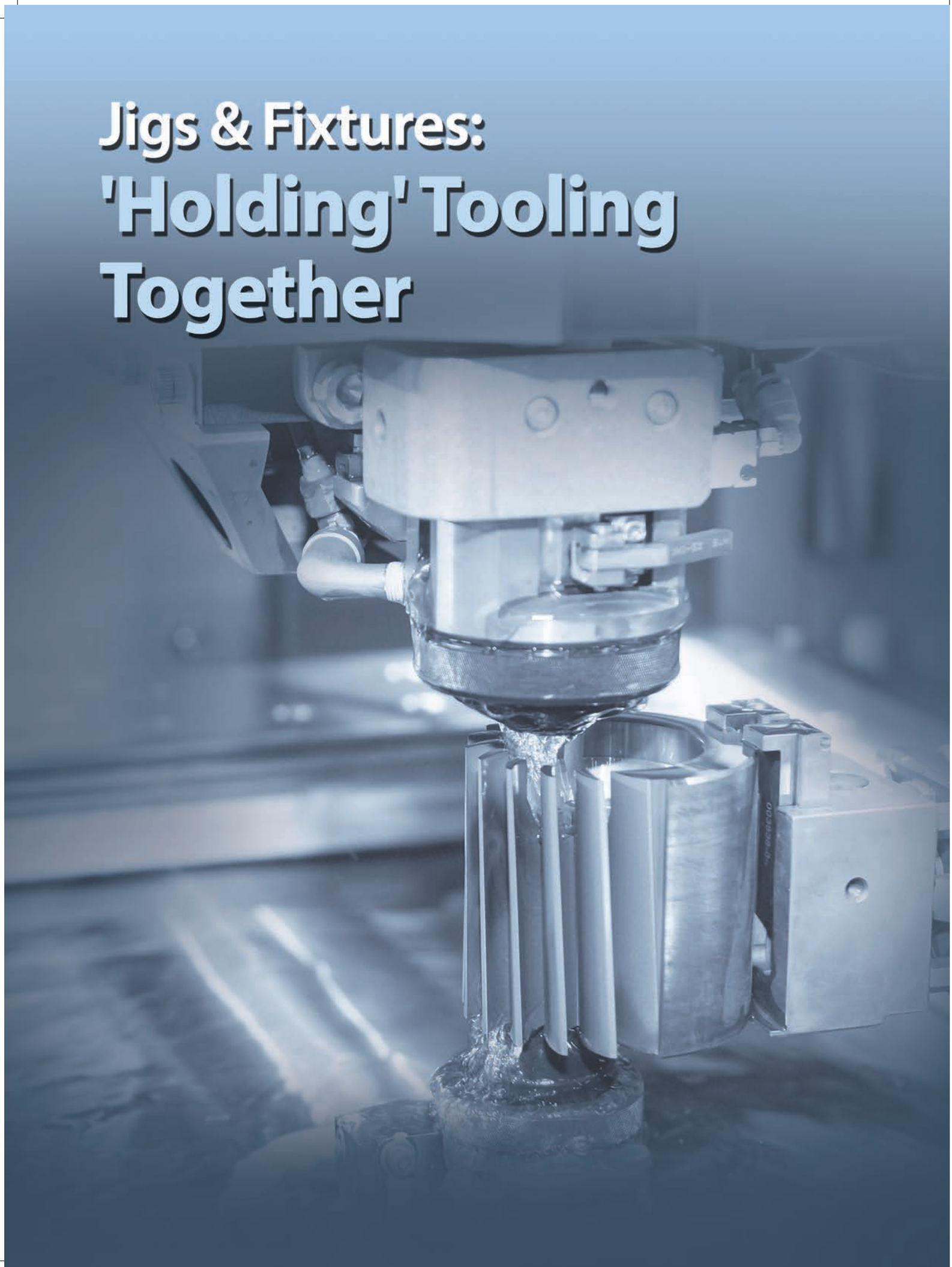
Jigs & Fixtures: 'Holding' Tooling Together



In Focus

Manufacturing relies on tools which includes jigs, fixtures, templates and gauges to maintain quality and production efficiency. They are used to position, hold, protect and organize components and subassemblies at all stages of the manufacturing process. And although these tools are virtually invisible when production is running smoothly, their importance becomes evident when problems arise. To avoid production halts or product defects, new jigs and fixtures must be rapidly designed, manufactured and deployed. Read on to know basics of jigs & fixtures and latest technology trends.

Jigs & fixtures are manufacturing tools that are employed to produce interchangeable and identical components. They are unique tool-guiding and work-holding devices designed specifically for machining and assembling large number of parts. They eliminate the need for a special set-up for every work-piece thereby facilitating production and also ensuring that every work piece is manufactured within a predetermined tolerance. The design of jigs & fixtures depends on the operation type as well as the machine tool to be used for the operation. They are fabricated with heat-treated steel that are corrosion and wear resistant.

Basics of jigs & fixtures

SSome machining operation like turning are simple. The job is held in position in the chuck and turning operation is done easily. No other device is required to hold the job or to guide the tool on the machine in such an operation. But there are certain operations where it is necessary to guide the tool by means of another device. Also, there are jobs that are required to be held in position on the machine by means of another device. Here, the device which guides the tool is the jig and the device which holds the job in position is the fixture.

Jigs & fixtures are special purpose tool which are used to facilitate production (machining, assembling and inspection operations), when work piece is based on the concept of interchangeability, according to which every part will be produced within an established tolerance. Jigs & fixtures provide means of manufacturing interchangeable parts as they establish a relation with predetermined tolerance between the work and the cutting tool. They eliminate the necessity of a special set-up for each individual park. So, a jig is defined as a device which holds and positions the work; locates/guides the outing tool relative to the work piece and usually not fixed to the machine table. It is usually light in construction.

A fixture is a work holding device which positions the work; but doesn't guide, locate or position the cutting tool. The setting of the tool is done by machine adjustment and a setting blocker using slip gauges. A fixture is clamped to the machine table and is usually heavy in construction. Jigs are used on drilling, reaming, tapping and boring operations, while fixtures are used in for turning, milling, grinding, shaping, planning, and boring operations.

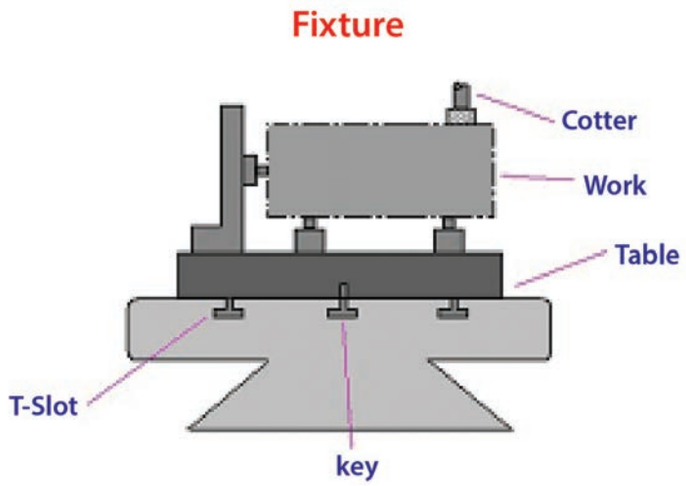
The use of jigs & fixtures makes more rapid and accurate manufacturing possible with cost reduction.

Uses of Jigs and Fixtures:

- Reduce the cost of production as hey reduce the time for setting up of tools.
- Increasing production.
- Assuring high accuracy of the parts.
- Providing for interchangeability.
- Enabling heavy and complex shaped parts to be machined by holding rigidly to a machine.
- Saving manual labour.
- Using them partially automates the machine tool.
- Improving work safety, thereby lowering the rate of accidents.

Selection of Materials

There is a wide range of materials that can be used to make jigs &fixtures. To resist wear and tear, the materials are often tempered and hardened. Also,



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The various difference between jigs and fixtures in the tabular form are given below:

S.no	Jigs	Fixtures
1.	It is a work holding device that holds, supports and locates the workpiece and guides the cutting tool for a specific operation.	It is a work holding device that holds, supports and locates the workpiece for a specific operation but does not guide the cutting tool
2.	jigs are used in unidimensional machining i.e. drilling,reaming, tapping, etc	fixtures are used in multidimensional machining i.e. milling,turning,grinding,etc .
3.	Jigs are light in weight.	Fixtures are rigid and bulky.
4.	Gauge blocks are not necessary.	Gauge blocks may be provided for effective handling.
5.	The jigs are special tools particularly used in drilling, reaming, tapping and boring operation.	Fixtures are specific tools used particularly in milling machine, shapers and slotting machine
6.	Usually it is not fixed to the machine table.	It is fixed to the machine table.
7.	Its cost is more.	Its cost is less as compared with the jig.
8.	Their designing is complex.	Their designing is less complex.

phosphor bronze and other non-ferrous metals, composites, and nylons for wear reduction of the mating parts and damage prevention to the manufacturing part is used. Some of the materials are discussed below:

Phosphor Bronze: Phosphor bronze is used in the production of jigs & fixtures for processes that involve making of interchangeable nuts in clamping systems like vices, and also in operated feedings that require screws. Manufacturing of screws is very expensive and also wastes a lot of time, the reduction of their tear and wear is often achieved by using replaceable bronze mating nuts made with phosphor bronze.

Die Steels: The three variants of die steel - high chromium (12 %), high carbon (1.5 to 2.3%), and cold working steels are used in the production of jigs & fixtures for the making of thread forming rolls, as well as cutting of press tools. When alloyed with vanadium and molybdenum, for it to retain toughness at very high temperature, die steels are applied during the fabrication of jigs & fixtures that are used in high temperature work processes. It includes extrusion, forging, and casting processes.

High Speed Steels: High speed steels which contain more quantity of tungsten and less quantity of chromium and vanadium are high in toughness, hardenability, with hardness retention capacity at high temperature, and is wear and tear and impact resistant. When tempered, they are applied in the production of jigs & fixtures for reaming, drilling, boring, and cutting operations.

Carbon Steels: When tempered with oil, carbon steels are applied in the making parts of jigs & fixtures which are exposed to wear and tear like the locators and jig bushes.

Mild steels: Mild steel which contains about 0.29% of carbon are very economical. Because of their easy availability they are often the choicest material for the making of jigs & fixtures.

Other materials used in the making of jigs & fixtures include, nylon and fiber, steel castings, stainless steel, cast iron, high tensile steels, case hardening steels, and spring steels.

Design of Jigs & Fixtures

The design of jigs & fixtures depends on numerous factors which are analyzed to achieve an optimum output. Jigs should be made of rigid light materials to facilitate easy handling, as it has to be rotated continousely to enable holes to be drilled from different angles. It is recommended that four feet should be provided for jigs that are not bolted on the machine tool, to enable the jig to wobble if not

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well positioned on the table and thereby alert the operator. Drill jigs provide procedures for proper location of the work-piece with respect to the cutting tool, tightly clamp and rigidly support the work-piece during machining. It also guides the tool position and/or fastens the jig on the machine tool. Jigs & fixtures consist of many elements:

- Frame or body and base which has features for clamping.
- Accuracy and availability of indexing systems or plates.
- The extent of automation, capacity and type of the machine tool where jigs and fixtures will be employed.
- Bushes and tool guiding frames for jigs.
- Availability of locating devices in the machine for blank orientation, and suitable positioning.
- Auxiliary elements.

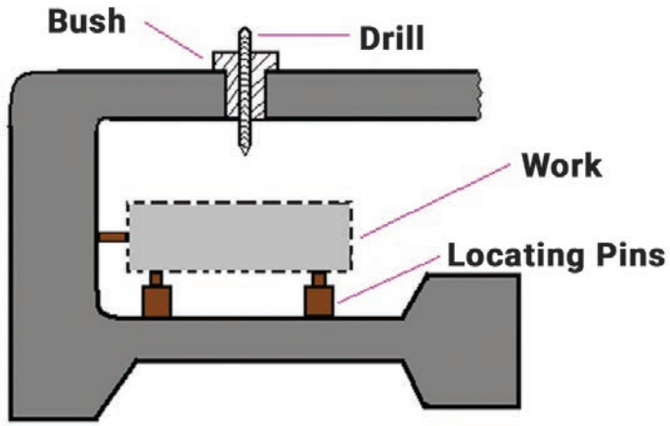
Technology Trends

Jigs & fixtures are some of the oldest form of manufacturing technologies that have evolved over the years with the fast growing need for precision and speed.

3D Printing: 3D printed jigs & fixtures open up new possibilities on manufacturing-floor productivity. 3D printing processes are easy to implement and offer a wide variety of materials to support a part's requirements, while eliminating cost, lead time and design barriers to adopting manufacturing aids on the shop floor. With fast and nearly labour-free production that doesn't require a highly skilled CAM programmer and machinist, 3D printing provides a simple yet powerful solution.

Ankit Sahoo, Managing Director, Objectify Technologies Pvt Ltd says, "Additive manufacturing is a great technology for jigs & fixtures manufacturing because of its ability to produce complex geometries, speed and efficiency. However, not many tool rooms are adopting this technology because of the cost involved. But OEMs are very much looking for suppliers who could print jigs & fixtures. However, I believe, as the technology matures and there are more developments, the cost will also see a decline."

Measurement & Inspection: High-technology inspection tools enable users in the die mould industry to increase efficiency of the production process and maintain quality standards. This will improve the reliability of measurement results — eradicating the reliance on a technician's skill and reducing variations in results caused due to change



Jig

in operators. "In the tooling industry, verification, alignment, and adjustment of jigs and tools play a vital role in overall productivity. Both contact and non-contact 3D measurement technology can be useful for the industry. Contact measurements (touch probes) allow for targeted inspection that provides greater accuracy. It can achieve single point accuracy of around 12 microns, so it is useful for verifying tight tolerance features, such as when a hole center location needs high accuracy input," says QUAH Beng Chieh, Head of Marketing (Asia Pacific), FARO Technologies.

Future Outlook

The Indian die mould industry is witnessing healthy double digit growth since the last few years and it is expected to continue in the coming decade. As a result, the business outlook for jigs & fixture suppliers seems to be on a positive side. Having said this, we would like to highlight that jigs & fixture technologies have come a long way, but they still need to work towards technology adoption. According to experts, they need to upgrade themselves in terms of technology to match the requirement of higher productivity and efficiency.

Going ahead, we see good business opportunities for Indian jigs & fixture solution providers in the country. With increasing requirement from automotive sector, Indian tooling suppliers should make the most of it and invest in automated solutions and use high-end inspection technologies to ensure speed and productivity.

Reference: www.engineeringhut.blogspot.com
www.article.sciencepublishinggroup.com

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"Indian tool rooms have to be smart in adapting technologies"

"Make in India' is not enough, we need an actively conscious, 'Make quality parts in India' buzz. Manufacturing companies understand this today. Apart from this, most manufacturing companies invest heavily in machines to produce parts – they now understand that they need any equally impressive inspection process to complete the cycle," says Amar Kulkarni, VP - Sales, PolyWorks India Pvt Ltd.

Q Your views on the Indian die mould industry…

The Indian die mould industry is going strong. Considering the wide scope for FMCG and auto industry, the die mould industry in India will have lots to cater to even in the domestic market place. Having said that, there is tremendous scope for exports as well and it will become part of the focus in the coming decade for die mould in India. This is an old industry with strong roots and is now undergoing a makeover with newer tool rooms and faster adoption of technology.

Q Factors driving the demand for die mould in India...

Earlier, working with the Indian die mould industry was mostly about cost benefits. We are now witnessing a change. Today, global players have understood that the Indian tool rooms are capable of delivering challenging projects, backed by strong technology.

Even in the domestic sector, FMCG and retail have pushed demands for newer packaging. Handheld gadgets and digital toys that have a shelf life/use of maximum 18-24 months, are now leading to more demands for tooling.

Q Please tell us about PolyWorks metrology and inspection solutions in the fields of die mould, especially around Industry 4.0. How are your solutions such as PolyWorks® Collaborative Suite impact die mould suppliers?

Over the past 15 years, industrial manufacturing organizations have discovered that 3D measurement devices are particularly useful during the product-development phase, because the design of the parts and the associated fabrication tools are constantly evolving. Today, with the rapidly increasing use of 3D measurement technologies at all stages of the product-engineering, tooling and fabrication processes, these organizations are struggling with the management and sharing of a panoply of large data files resulting from acquired 3D measurements, metrology analysis, and reporting results. Most users store inspection projects on their local hard drives and manually exchange files over a network or using USB sticks, with the inefficiencies and potential for mistakes that are inherent with such methods.

To solve these data-management issues and digitally interconnect all users of 3D measurement data, InnovMetric now offers the PolyWorks|DataLoop digital data storage solution that stores, manages, and shares PolyWorks inspection and reverse-engineering projects using a customer's existing PLM solution. It also offers a universal Web interface to monitor, visualise, and analyse the 3D metrology contents stored on the PLM from any PC or mobile device. InnovMetric has chosen to connect to existing customer

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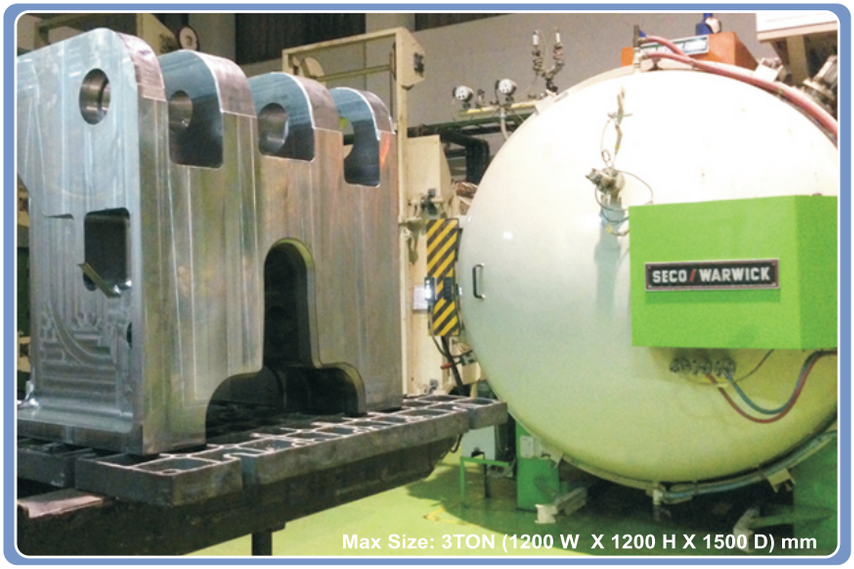
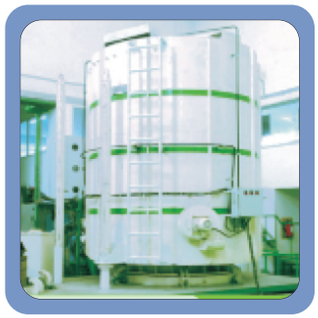


PLASMA NITRIDING PULSPLASMA® PLATEG GERMANY

PROCESSES

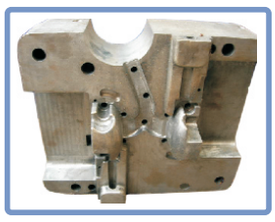
- Plasma Nitriding (PulsPlasma®)
- Plasma Nitrocarburising
- Pre & Post Oxidation
- Oxynitrocarburising
- Plasma Assisted Carbonitriding

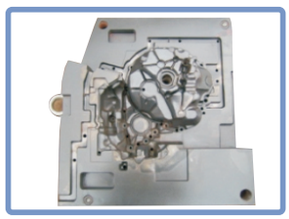
VACUUM GAS NITRIDING STANGE GERMANY

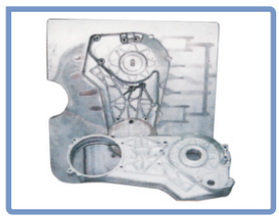


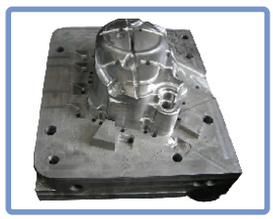
PROCESSES

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









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PLM systems because they offer all the required technical characteristics and they are already used by a significant number of PolyWorks customers.

Q How has the inspection technology evolved over the years with the growing demand for higher speed and productivity?

Extensive research has been done in optics and laser. As a result many laser scanners and 3D measurement devices have been available to use within a tool room in the last few years. These devices are easy to use and most importantly, function on CAD and not on manual or 2D drawing based systems. This automatically leads to speed, flexibility and increase in productivity.

Q How important is high-end inspection technology for the die-mould industry?

Very soon, it will be mandatory that tools are measured and compared against 3D CAD models. The requirements will be to output measured results on dynamic cloud based reporting tools. Whether you mould parts, stamp them, cast them or forge them, dies have to be inspected, validated and corrected. This is an integral part of the process. Tool engineering is a technology intensive area. What is high-end today, will be vastly used tomorrow.

Q Lately, there has been business growth in metrology and inspection industry in India. What are the reasons behind the same?

The need to globally compete, to survive and thrive. 'Make in India' is not enough, we need an actively conscious, 'Make quality parts in India' buzz. Manufacturing companies understand this today. Apart from this, most manufacturing companies invest heavily in machines to produce parts – they now understand that they need any equally impressive inspection process to complete the cycle.

Q What are the benefits of 3D measurement technologies over the conventional ones?

I would be repeating what many people already know. CAD modeling and CAM-based machining has been there for three decades or more. PolyWorks Software Suite helps its customers to maximise investments in CAD/CAM by offering a completely universal CAD-based measurement workflow. Eliminating 2D drawings and 2D reporting brings in huge productivity benefits. Our PolyWorks users are already sharing reports on handheld TABS using PolyWorks' dynamic reporting tool – PolyWorks Reviewer. The way technology is evolving, investments need to be done on systems that evolve equally fast. PolyWorks has helped customers achieve that by always staying ahead of technology and delivering pioneering functionalities.

Q In the tooling industry, verification, alignment, and adjustment of jigs and tools play a vital role in overall productivity. What are the latest technologies to ensure the same and have zero mistakes? What are the best suited inspection technologies for the die Mould industry?

Most of our Die Mould customers use a varied set of functions in PolyWorks. If you specifically ask me, regards the Jigs and fixtures area, we have a large set of customers. They share their appreciation of our automated Fixture Build/Inspect functionality. This helps them build fixtures and re-calibrate older fixtures in a matter of a few minutes. PolyWorks Users share their excitement about being able to quickly connect to a manual CMM or Portable arm or a laser tracker and simply follow guidance from PolyWorks Multiple DROs to setup the fixture. Managers share their views about something more exciting – Users can use the PolyWorks TALISMAN App on any Android Phone or an IPhone and do the complete exercise single handily.

Q Challenges in Indian die mould industry…

The biggest challenge is adapting to newer technological changes. The manufacturing industry in general is going through a paradigm shift from traditional production processes. This is impacting die mould industries across the globe. Indian tool rooms have to be smart in adapting to technologies that will help them move closer to the ecosystems of the OEM/buyers.

Q There is a lot of buzz around IIoT (Industrial Internet of Things) and smart factory. What is your take on smart inspection technologies and how much time do you think it will take to actually see them on India shop floors?

We already have a couple of customers testing our solutions for IIoT and digital data management as part of their smart factory initiative. It's already here. India is not too far behind, especially when it comes to technology.

Q Your suggestion to Indian mould makers…

Firstly, go after quality. Whatever you invest in, do not invest looking at the cost factor, especially when it comes to equipment, software and support. Companies tend to lose a lot in the 'mid-to-long-term' by investing in short term gains.

OEMs are spending a lot to integrate various functions into their ecosystem. Investing in advanced inspection systems means your tool-room stays a step closer to the OEM ecosystem.

As this year PolyWorks India is celebrating 10 years of business in India, we are very optimistic. We will continue to invest and grow so we are better equipped to support our growing list of customers. We are here to address the Indian manufacturing industry's need to Standardise a single High End software for their Inspection processes.

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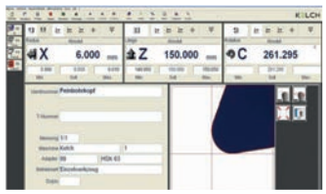

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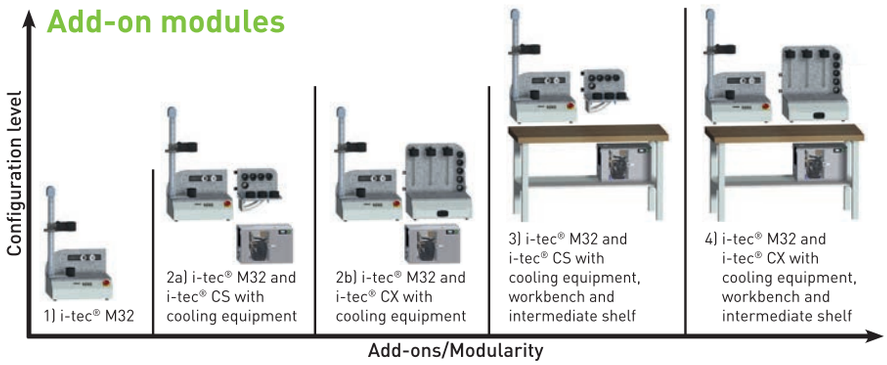
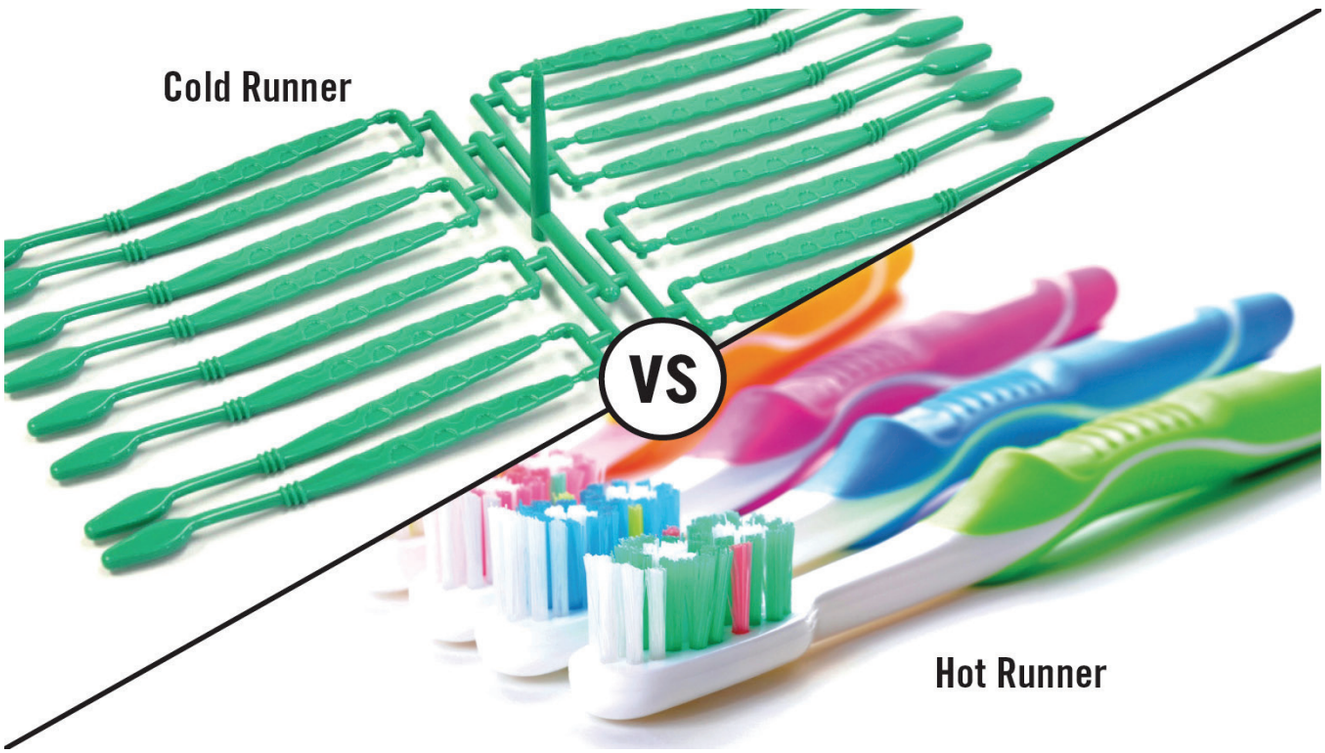


Hot Runners vs Cold Runners:

Why You Should Be Using a Hot Runner System



Plastic components are in use by every industry and manufacturing these components through injection molding has come a long way. A wide range of equipment options exist depending on your application and capabilities. Generally speaking you have a choice between traditional cold runners or the more advanced hot runners. Each option comes with its own unique sets of pros and cons and so understanding the differences and how they relate to your application could have a big impact on your productivity and overall profitability.

Cold Runners

In a cold runner mold, the molten thermoplastic is injected into the mold which fills the runners that distribute the molten plastic to the individual mold cavities. The cold runner mold then cools the sprue, runner, and gate along with the molded part.

Cold runner molds are certainly more economical to manufacture and can be easier to maintain, however they have several major limitations compared to molds with hot runner systems:

- Longer cycle time
- Creates waste (sub-runners)
- Require additional auxiliary processing equipment (robotics, re-grinding machines/ employee labor to remove runners, etc.)
- Secondary operations (degating, removal of cold runners, re-grinding etc.)

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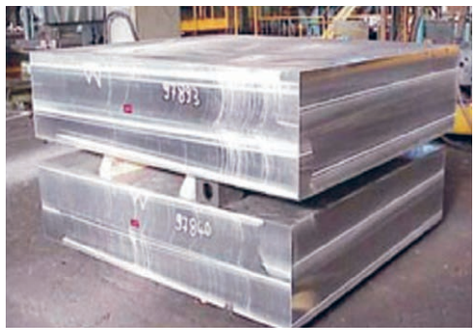
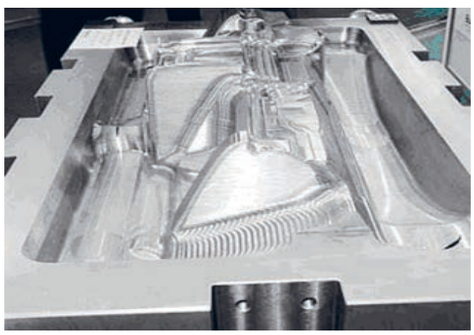
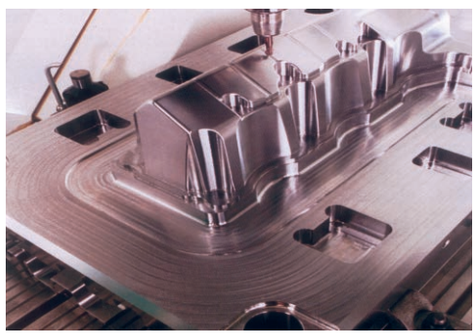


6 Sides milled with Lifting hole



3D pre-Milled Dash board Mold



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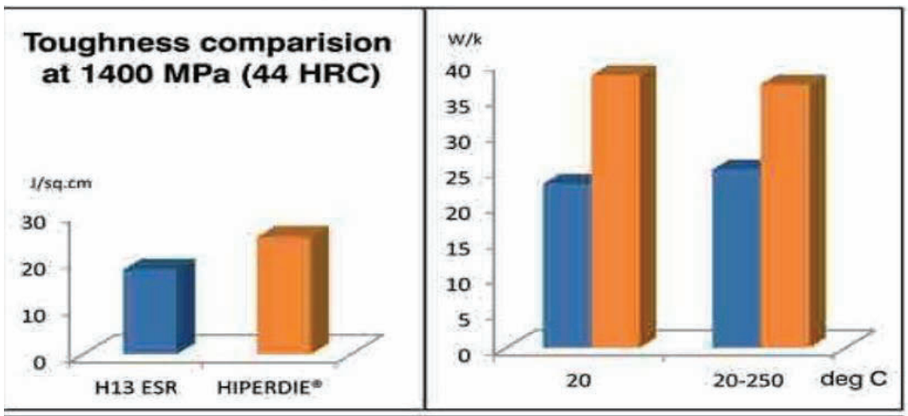

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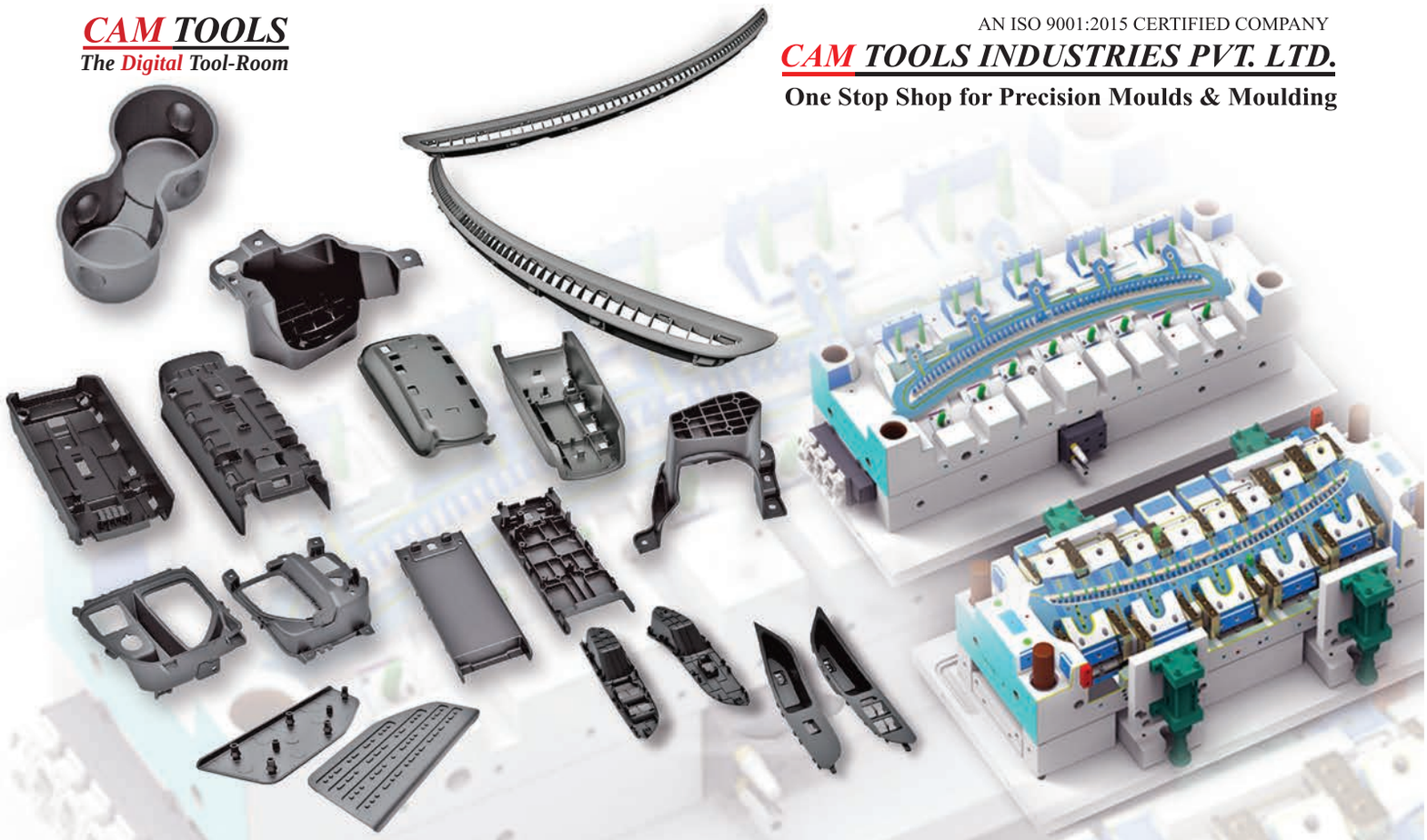

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Why Choose Hot Runners

While hot runners often come with a higher upfront cost and require some additional maintenance, their more efficient design can often easily provide a valuable return on this investment. Hot runners significantly overcome the inefficiencies of its cold runner counterpart.

Hot runner systems produce less wasted plastic, have shorter cycle times, use less energy, improve gate quality, use fewer auxiliaries and require less manual labor for runner handling, trimming and regrinding.

Wasted Plastic & Energy

Depending on the part design, the cold runner can equal 50% to 250% of the mold part weight with regrind typically limited to 15% at most, so the remaining 85% is waste or has minimal salvage value. Re-grinding also adds a step in the manufacturing process and could decrease the plastic's mechanical properties

For some markets, this waste could be much higher. The medical market requires 100% virgin resin, so all of the runner would be scrap. The energy consumption of a cold runner can double due to extra heat, cool and regrind wasted.

For many applications, the wasted runner can double the part cost.

Cycle Time

Cycle time is typically dominated by part cooling, with cooling time being dictated by part wall thickness or cold runner thickness. Even optimized cold runners cause typically 50% to 100% longer cycle times than hot runners.

Hot runners offer higher productivity yields due to significantly reduced process cycle times.

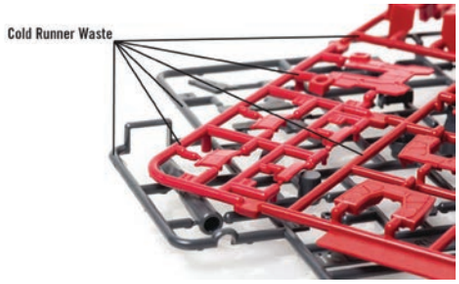
Capital Equipment

Cold runners mold with 3 plate design, trimming equipment, regrinding equipment, added chilling/ cooling capacity and metering blender. Hot runners only require a manifold, nozzles and plates as well as a temperature controller, which is reusable.

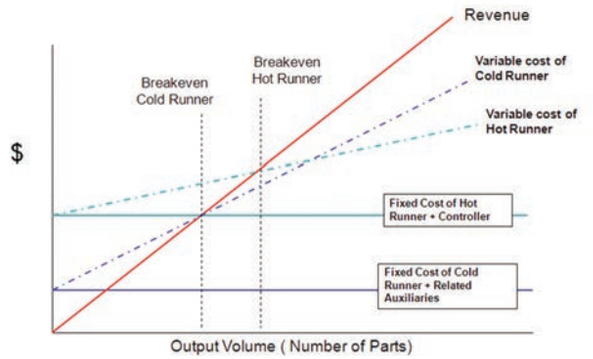
Managing additional overhead and operational factors such as added chilling capacity and the noise and dust related to grinding scrap runners.

Labor Costs

Cold runner costs include runner handling, trimming,



The Economics: Hot Runner vs Cold Runner



re-blending and scrap. They are prone to occasional stick in molds interrupting overall operation. Maintenance is also required on numerous auxiliaries.

Hot runners are highly automated and are ideally suited to scheduled preventative maintenance. Interruptions are possible with failed heaters or thermocouples but depending on the hot runner manufacturer, these interruptions can be minimal.

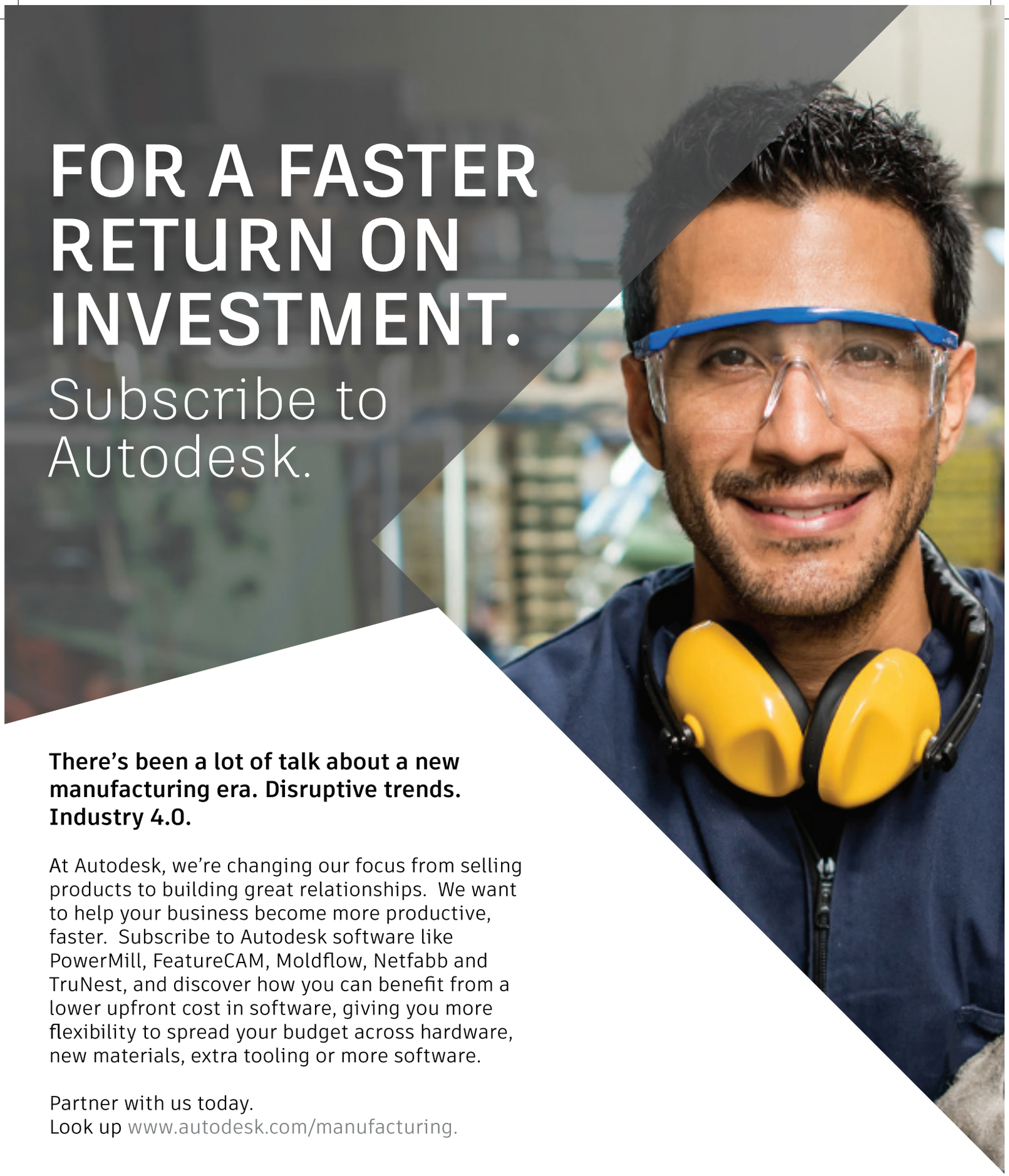
Eliminating the cold runner saves the added labor from runner handling, gate trimming and regrinding.

Hot Runner Justification Tool

If you are thinking of making the switch from cold runners to hot runners, compare the economics of switching using Milacron's Hot Runner Justification Tool. This tool highlights the economic benefits of hot runner technology compared to cold runners with a simple user interface that has three basic inputs (resin, part weight and maximum wall thickness) with numerous default settings. It provides an easy to understand break even analysis to justify the use of hot runners over cold runners for various scenarios from 2-48 cavities. For more insight and customization, the advanced tool allows for additional inputs and changes to suit a specific application, or call one of our Hot Runner specialists today.

Article Courtesy: www.milacron.com

32-38 Tech focus-Hot Runners vs Cold Runners.indd 38 1/31/2019 10:26:00 PM



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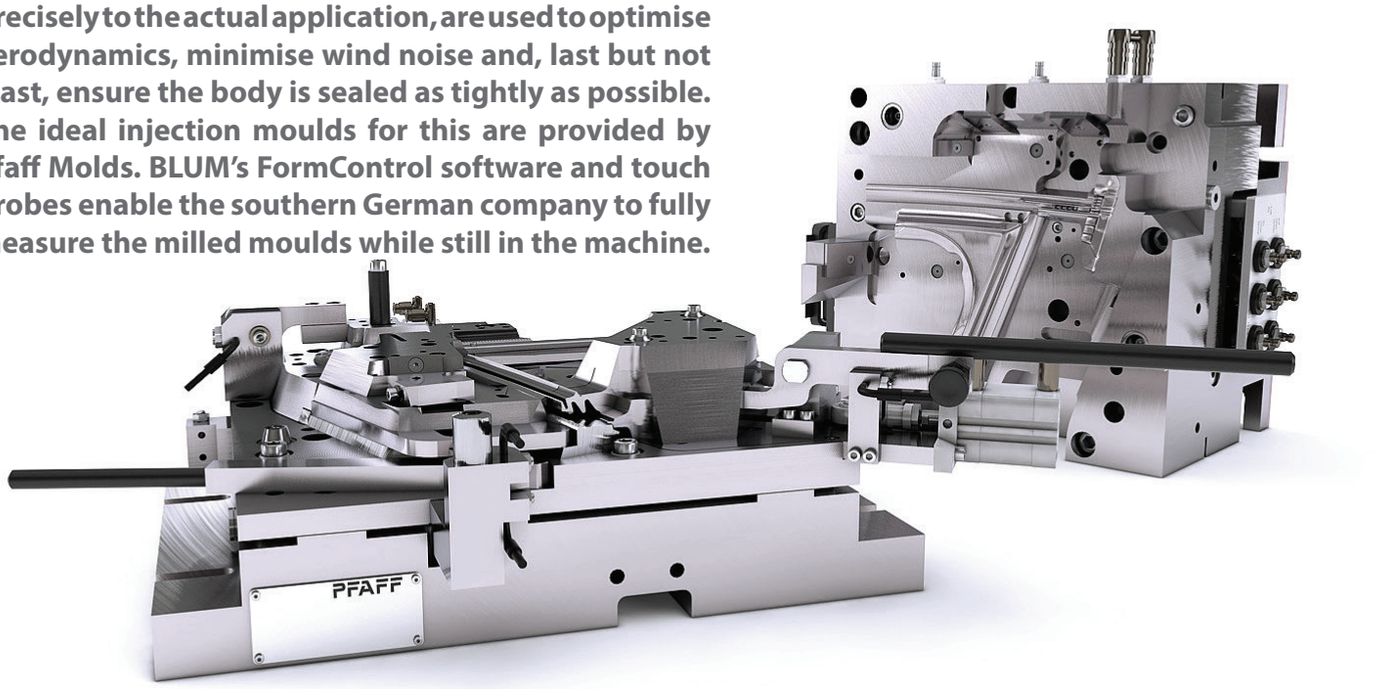
Measurement of free-form surfaces made easy

Measurement software FormControl, CNC touch probes and laser measuring systems from BLUM at Pfaff Molds.
Today, highly complex sealing systems, adapted precisely to the actual application, are used to optimise aerodynamics, minimise wind noise and, last but not least, ensure the body is sealed as tightly as possible. The ideal injection moulds for this are provided by Pfaff Molds. BLUM's FormControl software and touch probes enable the southern German company to fully measure the milled moulds while still in the machine.



Automotive sealing systems consist either, as in the past, of extruded profiles or of highly complex connecting parts that, for example, not only seal the glass in the front lower corner of the side window but also cover the transition from the outside mirror to the door. Cut-to-length pieces of the extruded profile are inserted into the moulds at Pfaff Molds and then injection moulded into the mould cavity with the corner geometry using rubber material or TPE. After opening the mould, a rubber or TPE part seamlessly connects the various profiles. "Precision is crucial when it comes to moulds. The extruded profiles must be positioned very precisely in the mould insertion areas and the mould must also close exactly to prevent injection material escaping between the two halves of the mould and forming burr," explains Stephan Baldauf, milling department manager. "In addition, customers place very high demands on the accuracy of the parts and their surface quality. We manufacture the moulds to tolerances of one hundredth of a millimetre."

Pfaff offers its customers a complete package that ranges from mould design and manufacture, to production of sampling and first parts, and finally development of an injection moulding process that is precisely adapted to the customer's materials. For this purpose, the German company operates an array of injection moulding machines to be able to develop the injection moulding process on a machine that is identical to the customer's. Actual series production of the sealing systems takes place at the vehicle manufacturer's factory.

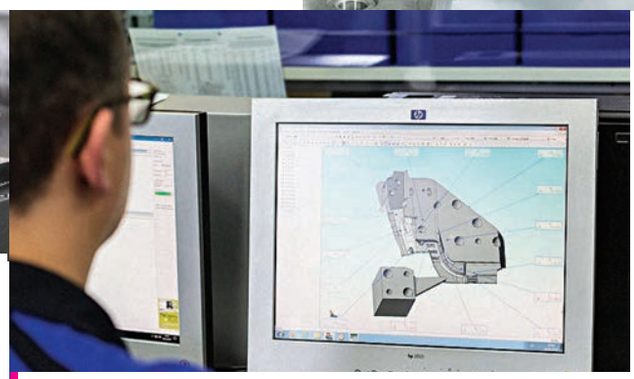
The required accuracy and the high surface quality that the moulds must display demand very long machining times, even for small moulds. Machining times of up to 100 hours on a single mould plate

40-41 Case Study -Measurement software.indd 40 1/31/2019 10:26:38 PM

Pfaff relies on measuring technology from Blum-Novotest when manufacturing injection moulds for body sealing systems.

Touch Probe TC52 from BLUM at Pfaff

Using FormControl measuring software and the touch probes from BLUM, complex moulds can be measured in a flash while still inside the machining centre.



After downloading the measurement results, FormControl displays deviations from the ideal form on screen by recording various individual points using the target/actual method.

are not uncommon. That is why the ability to work reliably and unmanned, both on weekends and during the night, is very important for economical production. The thirteen machining centres are, therefore, equipped with Blum-Novotest's FormControl software, which enables automatic 100% quality control. In addition, laser measuring systems, mainly used for tool breakage detection, as well as touch probes for workpiece measurement are installed in every machining centre.

FormControl represents a simple solution: The measuring software allows the operator to define the points to be measured on the CAD model, thereby enabling the definition of measuring points on a PC. With free-form surfaces, the actual contour should match the CAD model as much as possible. After automatic feedback of the measurement results, FormControl displays deviations from the ideal form by detecting various individual points using the target vs. actual method. If desired, the deviations can also be displayed on the screen via arrows or coloured dots. Needless to say, the data can also be output in table form as part of a measuring report. Measuring in the original set-up offers a major advantage: If excessive deviations are detected when measuring with FormControl, the workpiece can be machined again immediately until it is within the desired tolerance limits. Free-form surfaces, like the ones frequently found on Pfaff moulds, are particularly challenging to measure. The use of conventional measuring machines for this task can be costly in terms of both time and money.

It often becomes apparent during the process development phase that the mould needs changing. The machine operator can then use FormControl to record the current geometry and set the zero point of the milling program accordingly: This allows for an area of the mould to be reworked precisely without creating errors to the existing geometry. In addition, material can, if necessary, be welded on, the new geometry measured and used as a blank for NC-programming.

FormControl helps Pfaff deliver the high precision that its customers expect in numerous areas of application. In summary, Stephan Baldauf says: "BLUM supplies extremely practical and high-quality products, both in terms of their hardware and software, which simplify our everyday work and save a great deal of time and effort. This is of enormous importance, especially in our sector, where delivery times are increasingly shorter and customer demands are constantly growing. For us, the simple operation of FormControl is essential, as a lot of programs and protocols have to be created quickly – for 'batch size one' products.

40-41 Case Study -Measurement software.indd 41 1/31/2019 10:26:54 PM

"Z" offset of your machine is in Negative?

Importance Of Tool Measurements

In last article, we emphasized on how tool presetting in manufacturing will save time and make more money.

Generally, in manufacturing environment, major emphasis is given for Z offset on controller which is negative Digit - this means the operation need an attention. Measurement of tools is open loop and involves human skill. Tool measurement has its own importance and it contributes lot in achieving final stringent accuracies on part.

Tool measurement has two known methods followed on shop floor. One is Online measurement method having laser system inside machine and other one is using Tool Presetting outside machine.

These two methods are always point of debate and deliberate discussion. Both have some merits and evaluation of which one makes more appropriate choice is not straight forward.

Online measurement is generally used for tool wear and tool breakage identification. Offline method such as Tool Pre-setter are used for measuring diameter, length. Tool Pre-setter technology has advanced so much that just measuring diameter & length is underutilization when tool pre-setter can certainly do much more than measuring diameter and length. Very often, tool pre- setter capabilities are not exploited and then we start making our views , opinions that tool pre-setters are more expensive , we don't need them etc. etc. hence most of the Tool presetter restricted them self to Dia meter setting only.

If checked on "Z" offset page of CNC controller , negative "Z" directly demands process need attention . "Z" offset in negative means the Tool offset are done on machine by taking manual reference on JOB. Many companies I seen though they use a tool presetter but "Z" value is negative which shows Tool presetter is not used completely. For this some of the presetter need these features.

All over the world, manufacturing industry is going through era of digitization, automation, smart manufacturing, smart factories all put together widely described as Industry 4.0 . This is going to completely change manufacturing landscape.

42,44 Expert article-B P Poddar.indd 42 1/31/2019 10:27:28 PM

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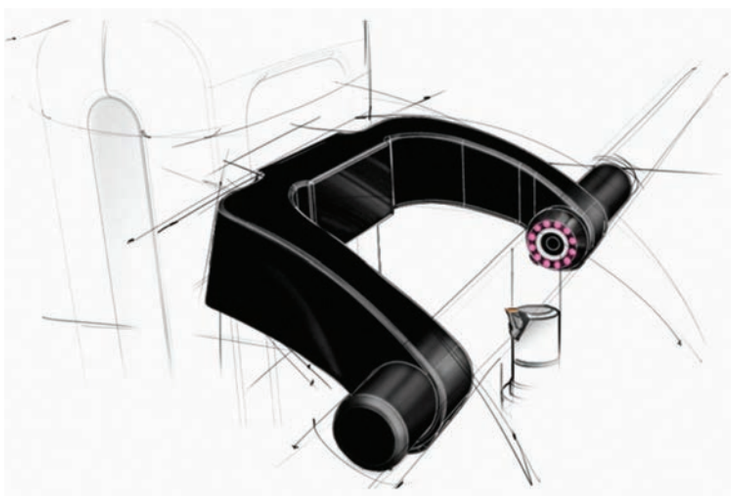
Tool Pre setter is not simply tool pre-setting device but it is critical link of tool management system.

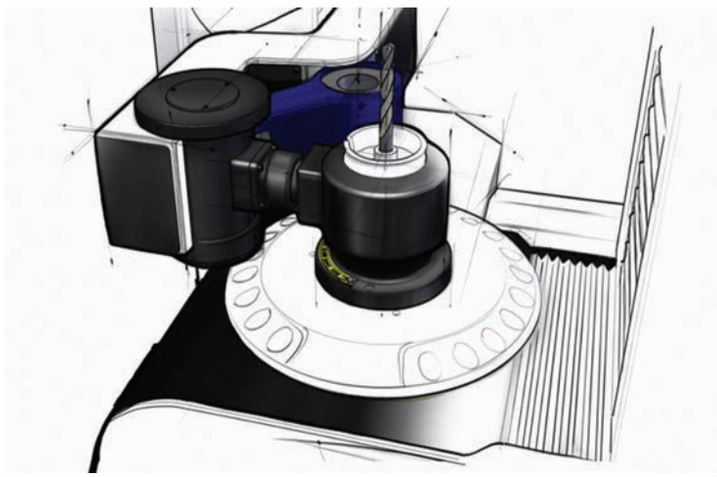
Manufacturing is trying all the time to reduce cycle time, reduce down time, increase uptime , make most reliable & robust manufacturing processes.

When tool pre-setters are used offline to set tools , to measure diameter , length and other important & crucial geometries , machine is still running and producing parts . More the time spindle is running , more parts are manufactured . It means more money is generated. Let's treat spindle RPM as Rupees Per Minute. More spindle is running, more money is generated.

There are few more distinct advantages of integrating Tool Pre Setter in manufacturing

1. More precise tool setting
2. Reliable processes





3. Better quality
4. Less down time, more Spindle running time
5. More generation of money

Today manufacturing is becoming more focused on mass customization. Means less batch size and more & more verities. This needs disciplined and proper tool planning and management. Tools can be measured and made available quickly for any shift in demand of parts. Tool Pre-setter can keep all the tools all the time measured and ready for processes. This will reduce down time, costly setting time substantially.

Tool pre-setters are becoming increasingly important part of manufacturing processes. Tool pre-setters are worthwhile investments which can offer many tangible and non-tangible benefits.

For most of the die and mould industry, this Z negative leads to manual intervention and inaccuracies in machine. For next epposide I would like to discuss more in details of Zero Stock machining.

About Author:
B P Poddar
Sr. Vice President, FEMCO, Fatty Tuna India Pvt. Ltd.

42,44 Expert article-B P Poddar.indd 44 1/31/2019 10:27:42 PM

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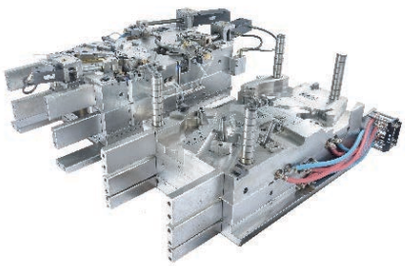
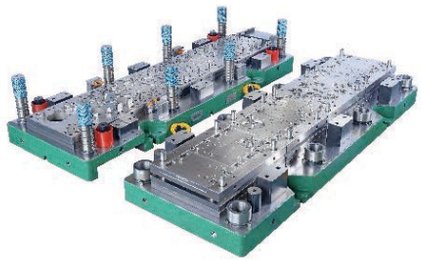
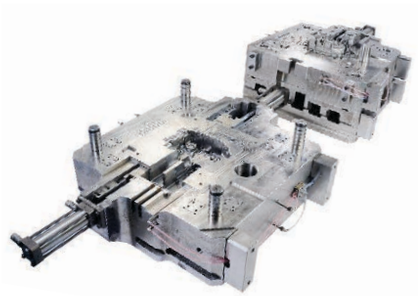
Tool Room, a Division of Craftsman Automation Limited. has traditionally been a growth driver for all development across various segments of the Industry from Automotive to Consumer products apart from others. As the manufactures focus on product development, world class tool rooms have a huge role to play in quick turnaround of high quality thermoplastic and thermoset injection moulds, Pressure die casting dies & Progressive press tools







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Sameer Gandhi,
Managing Director,
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IIoT implementation will likely require skilled workers and operators

"There is a step-by-step approach that should be followed while climbing the ladder of automation. It is not required to make a big one-time investment. However, it is important to have a vision and a proper design in place before embarking on this step by step approach," says Sameer Gandhi, Managing Director, Omron Automation, India.

Q How can IoT help Indian companies achieve higher productivity and efficiency?

An IoT enabled shop floor is much more intelligent than a conventional shop floor and hence it is more productive and efficient. The machines in such shop floor communicate not only with each other but also with the people working with them in their environment via a well-knitted and intricate network of products, systems, platforms, and applications. This results in smart optimisation of the industrial processes so as to enable the manufacturers to make the most of this industrial internet revolution. At the core of the technology are varied smart sensors and PLCs that can connect to the MES/ERP layer facilitating access to real-time information exchange and allow for higher productivity through greater OEE.

Imagine an automotive assembly line, which would typically have a few thousand sensors. Now, if any sensor fails, the entire line could stop working, which will require manual identification and repair/ replacement, leading to non-productive time. With IoT, a manufacturer is enabled to connect the sensors in a way wherein we are not only getting information from the sensor but also about the sensor. So, it is possible to look into ambient conditions affecting the sensors and other deeper aspects like predictive maintenance. It allows the makers to predict the failure before it actually happens thus reducing disruptions due to unscheduled downtime.

Not only this, the rapidly evolving end-customer landscape demands a strong push to the Indian manufacturing capabilities in the form of design & energy optimization, finest asset utilization, big data & analytics, worker and machine safety and not to forget zero-defect production. For all this, a connected shop-floor with connected supply chains and connected customers is the need of the hour.

Q How feasible is it for SMEs to adopt smart solutions when most of them are still struggling to enhance their capacity?

There is a step-by-step approach that should be followed while climbing the ladder of automation. It is not required to make a big one-time investment. However, it is important to have a vision and a proper design in place before embarking on this step by step approach. Tying up with a reliable automation partner who has the capability to provide complete solutions would be helpful in this.

Also, this technology is evolving and hence also turning out to be a great leveler that can actually help the SMEs leap frog and take on the larger and more established manufacturing setups with minimal investments.

For example, quality control by experienced operators (difficult for an SME to retain) may be replaced more effectively by an investment

46-47 Opinion & More.indd 46 1/31/2019 10:28:14 PM

in a vision system. Automation can also allow the SMEs to produce in small batches but with high productivity allowing them to develop local niches for themselves. Possibilities are immense.

Q The role of connected technologies and IoT in India's industrial development.

India is striving to make its manufacturing sector contribute 25% of the GDP by 2020 and reach USD 1 trillion by 2025. It is like the next big leap of faith for the sector as this ambitious target will require it to achieve unprecedented levels of productivity, efficiency, reliability, perfection, uniformity, flexibility, customized solutions and above all a perfect match with global regulations and quality standards. And we'll have to achieve all this not in a protected environment like some other nations (China, Japan), but while facing stiff global competition. So, we must produce world class products. All this is not feasible without keeping up with the latest Industry 4.0 technology trends and the most optimum level of industrial automation.

Also, I would like to talk about the nationwide and important initiative Make in India here. Emerging as the calling card for investors to become a part of India's manufacturing led growth story, this sector-based initiative along with the newly introduced reforms in policies and the positivity in the economic atmosphere may lose steam if the manufacturing capabilities are not developed in the right manner.

Q What can the government do to propel the adoption of IIoT in India?

IIoT implementation will likely require skilled workers and operators as well as may displace some of the low-skill jobs and hence require re-training. The government must play a significant role in setting up institutes to provide these skill-ups. Additionally, the government can encourage the implementation of IIoT either by lowering taxes or by providing some subsidies as is being done by some of the SEA countries.

Q Please tell us about the current scenario of Indian manufacturing sector regarding adoption of IIoT.

It is picking up rapidly. Obviously, some sectors like automotive are leading, but others like FMCG are also picking up by investing in robots and other technologies. I think the key drivers would be the desire for productivity gains and as more and more organizations realize these gains, we'll see the uptake increasing.

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Ramesh Mistry,
Product Manager –
India and Middle East, ACOEM India.

Accuracy is Key

"Inspection is one of the very significant parts in the die mould industry which requires very high precision production output. Any deviation in the finished product quality may incur huge loss," says Ramesh Mistry, Product Manager – India and Middle East, ACOEM India.

Q How have the inspection and measurement technologies evolved over the years with the growing demand for higher speed and productivity?

There have been a few changes across the industry segments over the years. Few of them are directly linked to the high demand for faster and accurate precision measurement. Advance measurement techniques are in demand over the traditional measurement systems because of their advantages. Modern machine tools must retain high level of flexibility, a high degree of utilization and a minimum downtime which calls for the correct geometry in all the machine's movements. As ever-increasing demands are being placed on machine tools, we have arrived at the conclusion that an optimally functional machine forms the basis for better business.

Q How important it is for the die mould industry to have high end inspection technology?

Inspection is one of the very significant parts in the die mould industry which requires very high precision production output. Any deviation in the finished product quality may incur huge loss. No surprises are expected during continuous production for such high precision products. By performing fast measurements, possessing a logical user interface, smart applications and fewer complicated functions, we can now build a future for machine tool measurement.

Q Benefits of machine tool calibration…

It provides very accurate information for machine geometry in very short measurement period. This helps users to take appropriate corrective actions for any deviations observed to the specified ISO limits.

Q What are the challenges that you face in the India market?

Market in India is mixed in terms of the usage of traditional measurement system and basic measurement systems which may not be directly traceable to ISO standard. It shall be very important that the industry get better advanced measurement techniques traceable to international standards. Indian market is slowly warming up to the idea of employing high end monitoring and inspection technology to improve plant reliability.

Q In tooling industry, verification, alignment and adjustment of jigs and tools play a vital role in productivity. What are the latest technologies to ensure the same and have zero mistakes?

Advance technologies such as MEAX ensure precision measurements are made faster, easier and safe with the wireless measurement sensor and portable units. MEAX products are designed for ease of use ensuring zero mistakes during operation in the field. By performing fast measurements, possessing a logical user interface, smart applications and fewer complicated functions, we can now build a future for machine tool measurement.

Q A lot has been said about IIoT and smart factory. What is your take on smart inspection technologies and how much

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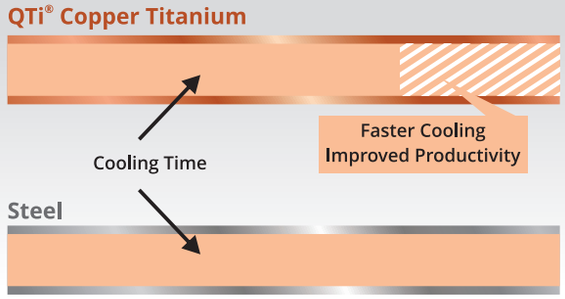

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time will it take to actually see them on the Indian shop floors?

The smart inspection technologies uses very less time and are designed very smartly to use minimum user inputs for inspection at the shop floor level. The smart UI facilitates end customers to use these products in much better way to enhance productivity at the plant. These are largely the need of the day over the traditional methods in place at many industries now.

Q Future plans for the Indian market and where do you expect maximum business from?

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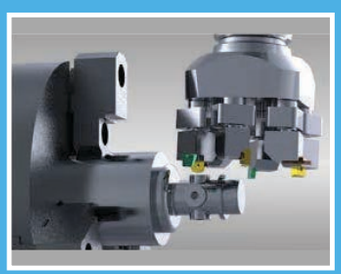

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"Women can be more productive in manufacturing provided there in more awareness about the sector. It should be widely introduced in the education system thereby valued by the society," says Rajalakshmi P.V, Technical Head, MANTRA LEISTUNG. Regarded as the first lady of tool & die engineers in Asia, Rajalakshmi, shares her experience with us.

Q Please tell us about your beginning in manufacturing (tooling) and your journey so far.

MMy life took a turn when I joined a 4-year training program in Tool & Die Engineering at Nettur Technical Training Foundation (NTTF), after completing my higher secondary education.

I was the lone female tool & die student at the institute in the country. I knew things were entirely different from what I had seen and practiced. The program included 75% practical training where we were exposed to everything from precision machining to smithy and I was not given any consideration as a woman. I would thank my classmates and instructors who never considered me part of the weaker section.

After successfully completing the training, I joined NTTF tool room & machine shop Bangalore. Five years later I left NTTF to start my own tool room in Bangalore. Backed by precision and sophisticated machines and, equipment's, it supplied precision tools and parts to major companies like MICO (BOSCH), MOLEX, and IFB, among others.

Exposure to both Indian and global companies, helped me achieve a perfect balance in terms of manufacturing and training.

In my more than 30 years of professional journey, I have been an entrepreneur, tooling professional, training and manufacturing expert. Presently, I am running Engineering Services in Bangalore, 'MANTRA LEISTUNG' along with my husband. One of the main activities here is training related to design and manufacturing. We also conduct various skill development programs for individuals and industries.

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Q According to studies women are underrepresented in India's manufacturing sector with participation ranging from only 3 - 12%. Your views…

Yes. Because the manufacturing sector calls for a different kind of environment which is not very sophisticated like other sectors. It requires a different skillset altogether. Women can be more productive in manufacturing provided there in more awareness about the sector. It should be widely introduced in the education system thereby valued by the society.

In 2012, Yamaha Motor India experimented with 'Pink Assembly Line' initiative in collaboration with Uttar Pradesh government to run an assembly line for scooters managed entirely by women workers. Such initiatives should be encouraged. We need everyone's involvement without gender differentiation and each one's capability should be utilised as required as a team.

Q What else can encourage women to actively be a part of this industry?

Skill development programs, seminars, workshops conducted at different levels of the society will encourage and open wide possibilities for women.

Q Is the government doing enough for women entrepreneurs in this industry?

Government has various policies favourable for women entrepreneurs. For manufacturing/ tooling industry, what also matters is individual skill and knowledge development to initiate and take it forward.

Q What encouraged, you to be a part of this industry and how has your experience been till date?

Right from my schooldays I was eager to do things in a different way. Though it was tough, technical education was like a dream come true for me. I do agree that this is a man's world, but I never felt so because when we implement the requirements, we are only individuals.

I am comfortable and proud of what I am doing and extremely happy and thankful that I am trying to give back what I gained by training people.

Q Have you faced any unique challenges as a woman in manufacturing?

My challenges started as a student of Tool & Die Engineering, where lot of physical tasks were to be completed without taking help. Many a times I had to work double to prove that I am reasonably good. Each interesting task made me stronger every time.

One of the things I am sure you must be hearing a lot is that being a woman in leadership in manufacturing is rare. What are some of the factors at the core of this gender gap?

In our society, common understanding about women is to do safe activities. In manufacturing, working in shifts, handling heavy items and factory environments are some of the factors that pull women back.

Challenges like solving problems, discussions, customer commitments, quality, reworks are time bound activities which extend working hours. When considering the family requirements, things are difficult for a woman who is part of the manufacturing sector, it requires strong support from the family.

Q Your advice to women who want to enter the manufacturing landscape…

It is a great area to work. Be ready to accept the challenges. Be up to date in Technology. Challenge and compete with yourself.

Q Your role model…

I believe in continuous learning and try to learn and adopt positive things from anybody who I come across. My role model is my father who lead a simple life and taught me to be brave. He supported and believed in me to enter in to this distinctive industry.

54-56 Woman in Manufacturing Rajalakshmi dec18.indd 56 1/31/2019 10:31:20 PM

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Government working on domestic manufacturing of aircraft: Suresh Prabhu

THE government is working on a blueprint for the domestic manufacturing of aircraft and also looking at aircraft financing from within the country, Civil Aviation Minister Suresh Prabhu said recently.

Speaking to the media at the Global Aviation Summit 2019, organised jointly by the civil aviation ministry, the Airports Authority of India and FICCI, the minister also emphasised on carrying out of maintenance, repair and overhaul (MRO) work domestically. "We will soon roll out a road map for manufacturing of aircraft in India," Prabhu said.

Stating that the country needs 2,300 new aircraft to meet the future air travel demand, he said, "We would like to join hands with top players from across the globe." The minister said the government wants aircraft financing to be done by domestic players. "We are already working on financing of aircraft and how that should happen from India. We are losing out lot of resources to outsiders," Prabhu said. He further said the government wants aircraft MRO to happen in the country.

"There are so many planes and the maintenance and repairs can be done in India," he said. Prabhu warned that if MRO work is not carried out in the country then the government will be losing out lot of money, besides job opportunities.

He said the domestic passenger traffic has been growing at 17-18 per cent, adding the government is also now focusing on cargo and has for the first time unveiled a policy to boost the growth in the segment. Prabhu said the government has recently launched a drone policy and would like to make sure that drone becomes one of the preferred uses for many sectors such as agriculture and disaster management, among others. "We will make sure that drones are manufactured in the country," he said.

Source: PTI

Kia Motors India expects trial production of first model to begin on January

KIA Motors India expects trial production of its first model—SUV SP Concept—to begin at its Andhra Pradesh-based plant this month as it gears to launch the vehicle by mid-2019, a company official said. The company, a subsidiary of South Korean auto major Kia Motors, is in the final stages of commissioning the manufacturing facility with an annual installed production capacity of over 3 lakh vehicles.

It is also in the process of establishing a pan-India sales network for its upcoming models. "We are confident that the plant will be fully operational soon with an annual installed production capacity of over 3 lakh vehicles. We expect the trial production of SP2i cars, our first offering for the Indian market to start by end of January," Kia Motors India Head of Marketing and Sales Manohar Bhat told PTI.

The company plans to start selling the SUV, that was first showcased at the Auto

Expo last year, from the middle of this year. The model is currently being tested for Indian conditions.

The company has plans to launch one model every six months and is investing over USD 1 billion to set up the plant at Anantapur in Andhra Pradesh, which will be Kia Motors' 15th facility across the globe. Commenting on sales network, Bhat said the company aims to have a pan-India network covering major cities and even smaller towns.

"We are of course, looking at a pan-India network presence including tier 1,2 and 3 cities so that we are close to the customer. We plan to open Kia exclusive facilities that symbolise our best in class service experience," he said.

Kia Motors intends to have the largest ever network for any new entrant in the Indian market, he added. "Our presence across the country will ensure coverage of 85-90 per cent of the leading car buying cities right at the onset of our sales journey," Bhat said. In order to cater to needs of customers across the country, the company is looking to have four regional offices.

He added that the company will look at localisation in a big way to manage cost efficiency. "While our vendor parks around the plant are ready to support our production, we will be sourcing products from other vendors around the country too," Bhat said.

Source: PTI

58, 60,62 Industry Update Jan19.indd 58 1/31/2019 10:31:51 PM

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PM Modi inaugurates India's first private Howitzer-manufacturing facility in Gujarat

PRIME Minister Narendra Modi recently inaugurated the Armoured Systems Complex of Larsen and Toubro in Gujarat, the first private facility in the country where the K9 Vajra self-propelled Howitzer guns will be manufactured.

L&T had in 2017 won the Rs 4,500-crore contract from the Ministry of Defence to supply 100 units of K9 Vajra-T 155 mm/52 calibre tracked self-propelled gun systems to the Indian Army under the Centre's 'Make in India' initiative.

"I congratulate the entire team of Larsen & Toubro for building the state-of-the-art K-9 Vajra Self Propelled Howitzer. This is a significant contribution towards India's defence sector and protecting the country," Modi tweeted. "Boosting 'Make in India' in the defence sector is our endeavour. I am glad that the private sector too is supporting this pursuit and making a valuable contribution," he said in another tweet.

The prime minister shared a short video on his Twitter handle of himself standing in a tank. "Checking out the tanks at L&T's Armoured Systems Complex in Hazira," he said in the tweet.

The company has set up the facility in Hazira, around 30km from Surat, to manufacture and integrate advanced armoured platforms, such as self-propelled artillery Howitzers, future infantry combat vehicles, future-ready combat vehicles and future main battle tanks. Spread over 40 acres within L&T's 755-acre Hazira Manufacturing Complex, the ASC is executing the K9 Vajra guns programme. The K9 Vajra contract involves delivery of 100 such systems in 42 months, which is the largest contract awarded to a private company by the Ministry of Defence.

L&T had signed a transfer of technology contract for guns with South Korean company Hanwha Corporation. The facility has been developed to make full-fledged battle tank manufacturing possible in India, a senior L&T Defence official told PTI.

"By involving 400 SMEs and developing 13,000 parts indigenously, the company is moving in the direction of manufacturing a totally indigenous battle tank without having to depend on external help," said J D Patil, senior executive vice president, L&T Defence. L&T's ASC in Hazira is the first manufacturing facility in the private sector to produce advanced armoured platforms for the defence sector. This is the 10th manufacturing unit of the technology, engineering, construction, defence and services conglomerate.

Source: PTI

Mastercam India forges strategic partnership with TDM Systems

CUSTOMERS of tool data specialist TDM Systems have been proving for 25 years that: The use of tool information at all decision-making and functional levels increases the agility and efficiency of a company. As a leading provider of solutions for digital manufacturing in the metal cutting industry, the wholly-owned subsidiary of the SANDVIK Group attaches particular importance to manufacturer independence and partnerships. Since December of last year, Mastercam India has also been part of the TDM Systems partner network. The CAD/CAM expert

supports distribution of the TDM software in India.

The demand and need for Tool Data Management, in mature Industry 4.0 applications is currently very large in one of the most important growth markets of the world – India. Commenting on the strategic partnership, "We have been working very closely with the Sandvik Coromant group – both at the HQ level and regionally in India. We are pleased to partner with another subsidiary of Sandvik – TDM Systems, and through our collective offering, provide customers with a well-rounded solution that involves the tooling system," said Vineet Seth, Managing Director – South Asia & Middle East, for Mastercam APAC.

58, 60,62 Industry Update Jan19.indd 60 1/31/2019 10:32:05 PM

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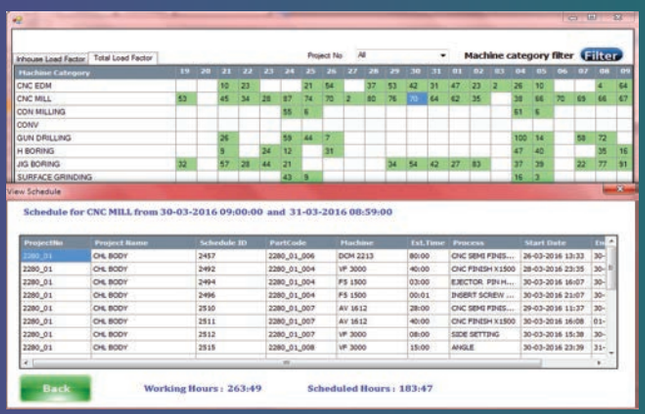
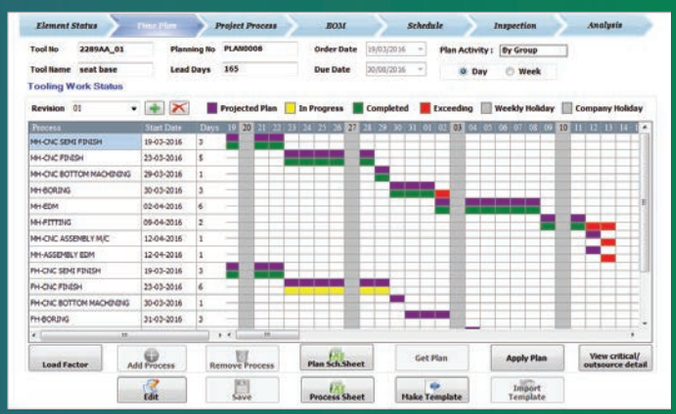


As an Integrated Platform, Shop Plan effectively explores the concurrent load of the machines in the floor to take decision whether to go for In-house utility or to move outsourcing as and when required.



The core module of any Project Management (PM) will be based on its capacity planning. In shop plan too, the user can do forward planning and backward planning to manage the capacity towards the end delivery.

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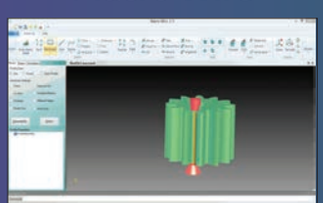

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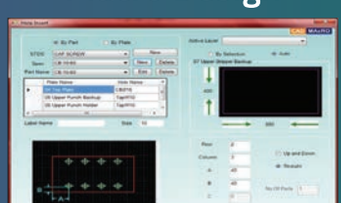

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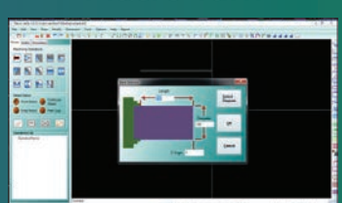

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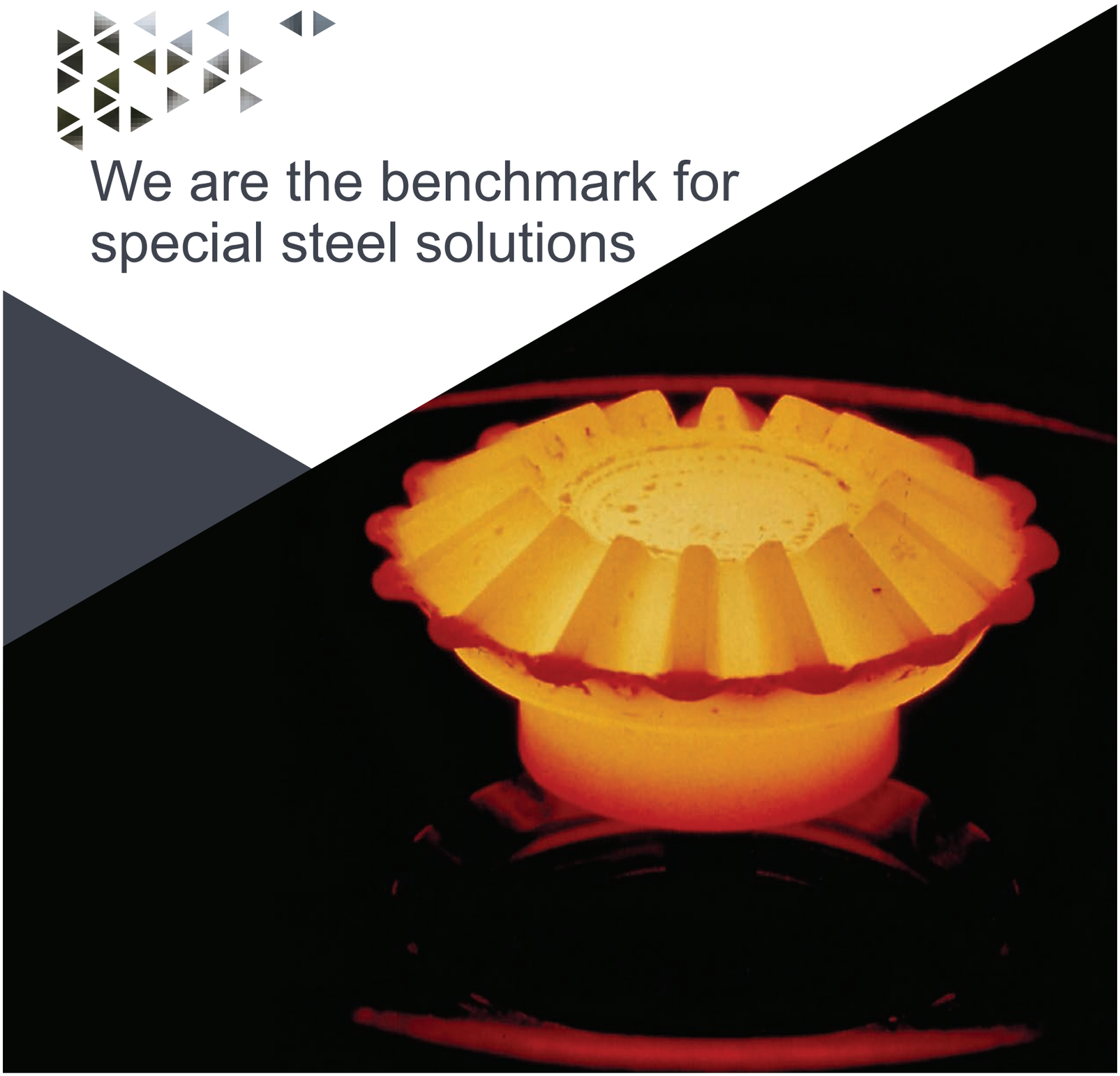

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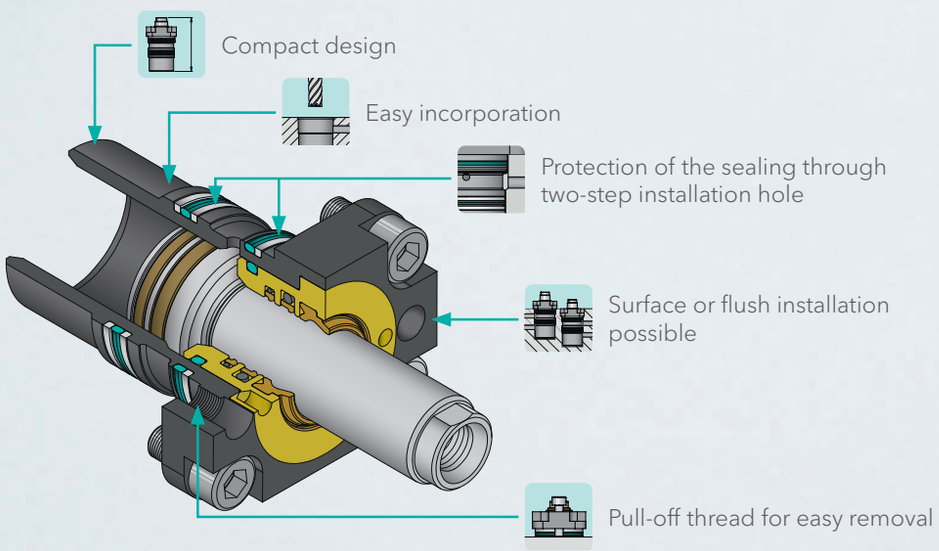

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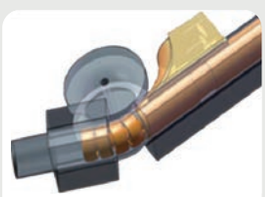

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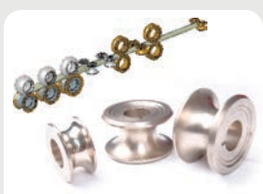

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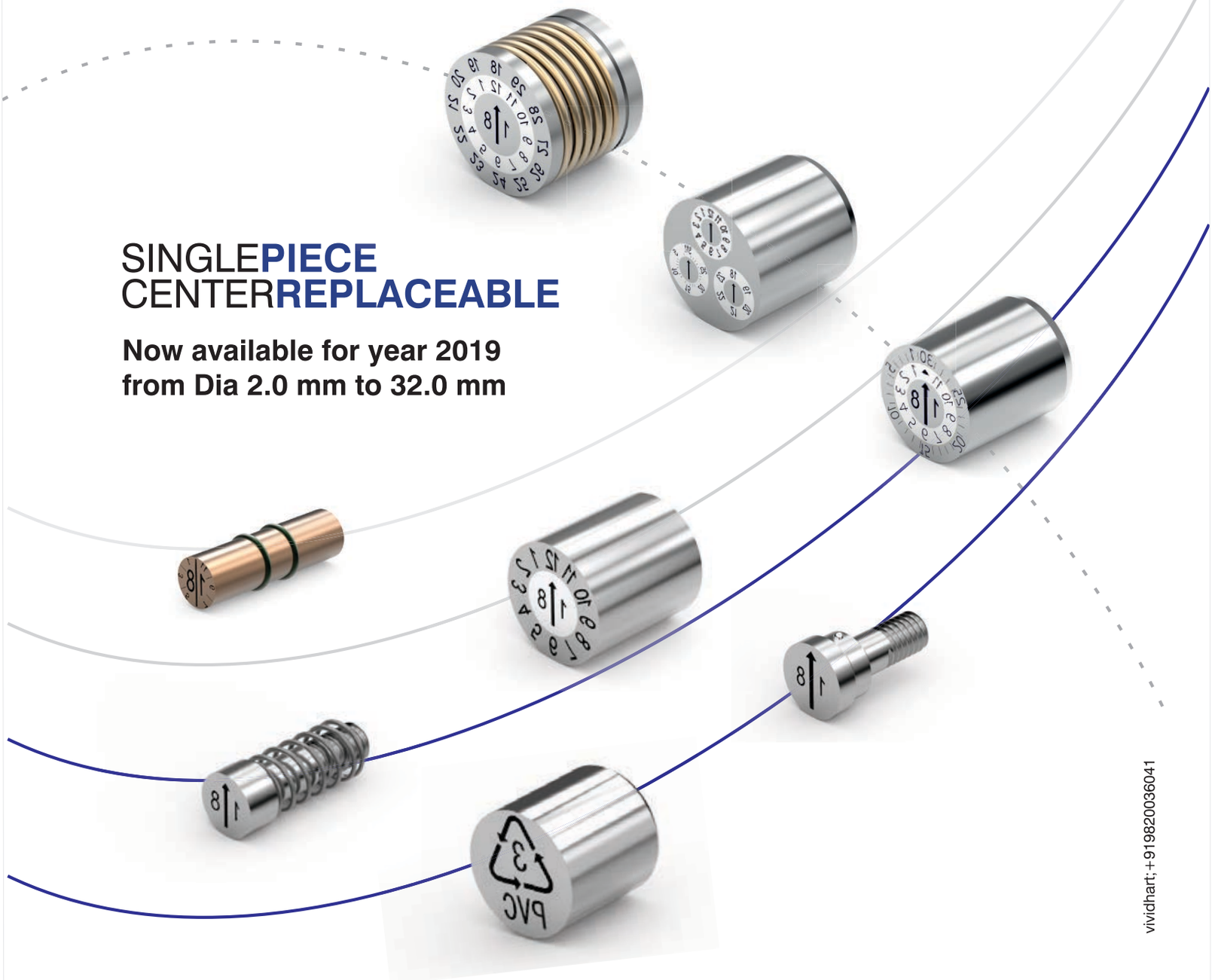

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