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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

THE MACHINIST

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Rajesh Jejurikar of Mahindra FES explains how data, analytics & technologies are revolutionising farming

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Determining operating rhythm of manufacturing

Women in Manufacturing

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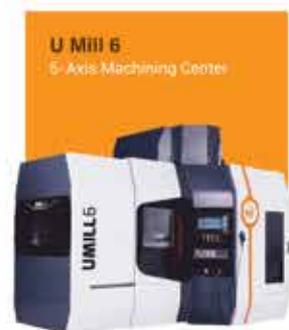
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KEEPING FAITH!

As per the Purchasing Managers' Index (PMI), India's manufacturing growth registered a 15-month low in August. The automotive sales figures – except for the new entrants – have also dwindled down. True, the industry and the Indian economy are definitely going through a difficult time. But the challenges go beyond the statistical numbers that many pundits are throwing around and linking them with the country's GDP growth. We need to look at the transition which is happening at almost every level of the socio-economic-political structure not just in India but also globally. Obviously, keeping up with the pace while also handling with the scale and complexity will call for a few casualties. And right now, growth has taken a major hit!

“INDUSTRY 4.0 IS NOT (IT NEVER WAS!) ABOUT TECHNOLOGICAL ADVANCEMENT. IT IS ABOUT CHANGING THE GAME WITH CHANGING MARKET DYNAMICS. TECHNOLOGY IS A MERE TOOL IN THIS GAME.”

Having said that, it does not mean the future is bleak. Far from it! (In fact, it is likely that things will start getting back on track this festive season.) Yes, the government is doing its bit. But the auto industry wants it to do more – particularly with regards to GST, scrappage policy and the push to EVs. I remain confident that the Government will continue to go the distance to pull the industry out of this rut. However, the industry equally needs to get ready for the jump. With rapid disruption becoming a norm, industry needs to change its gears and step into the new era of growth. Industry 4.0 is not (it never was!) about technological advancement. It is about changing the game with changing market dynamics. Technology is a mere tool in this game.

I completely agree with what Guenter Butschek, CEO & MD, Tata Motors, said at the 59th SIAM Annual Convention: “The Indian growth story is too big to be washed away basis a few quarters of low demand.” Let's keep faith in India's long-term growth story and keep working towards it.

Editor & Chief Community Officer

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Chief Executive Officer **Deepak Lamba**

Chief Financial Officer **Subramaniam S**

Publisher, Print & Production Controller **Joji Varghese**

Brand Publisher **Rishi Sutrave**
rishi.sutrave@wwm.co.in
+91 9820580009

Editor & Chief Community Officer **Niranjan Mudholkar**
niranjan.mudholkar@wwm.co.in
+91 9819531819

Associate Editor **Swati Deshpande**
swati.deshpande1@wwm.co.in
+91 99204 00833

Assistant Art Director **Sanjay Dalvi**
sanjay.dalvi@wwm.co.in

Project Coordinator **Fiona Fernandes**
fiona.fernandes@wwm.co.in

ADVERTISING

South **Mahadev B**
mahadev.b@wwm.co.in
+91 9448483475

Prabhugoud Patil
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West & North **Ranjan Haldar**
ranjan.haldar@wwm.co.in
+91 9167267474

Jangam G.
jangam.gangaram@wwm.co.in
+91 9820053063

SUBSCRIPTIONS

subscriptions.rmd@timesgroup.com
022 67427209 / 67427206

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ADB President meets PM Modi; Supports New Flagship Initiatives

ASIAN DEVELOPMENT BANK

(ADB) President Takehiko Nakao met with India's Prime Minister Narendra Modi today for the third time since Modi became Prime Minister and pledged to support the government's new flagship initiatives led by the Prime Minister.

He also met with Finance and Corporate Affairs Minister Nirmala Sitharaman, Minister of Road Transport and Highways and Micro, Small, and Medium Enterprises (MSME) Nitin Gadkari, and Minister of Railways and Commerce and Industry Piyush Goyal.

The Prime Minister and Nakao discussed how to further enhance the partnership in areas such as the promotion of new technologies and innovation, renewable



energy, solar-pump irrigation, electric vehicle and battery, fintech, sustainable tourism, and the recycling of plastics.

At his meeting with the Prime Minister, Nakao commended the government's vision to make India a \$5 trillion economy during PM Modi's second term, and

reaffirmed ADB's commitment to helping bolster the country's inclusive growth and rapid economic transformation to achieve this vision.

"India is one of the fastest growing economies in Asia and the Pacific, maintaining a growth rate of about 7.5% on average in the last 5 years. ADB expects the country's growth in 2019 at 7.0% and in 2020 at 7.2%, despite downside risks in the global economy," said Takehiko Nakao at his meetings with the Indian leadership.

"The government needs to maintain prudent macroeconomic management, sustain its reform efforts, enhance industrial competitiveness and job creation, and rejuvenate the rural economy," he adds.

Indian companies in China to ramp up investments

ACCORDING TO A NEW SURVEY by Confederation of Indian Industry (CII) and Evalueserve, most Indian companies present in China are planning to continue to invest in China in 2019. This is the second such survey of Indian companies undertaken.

"The survey of Indian companies working in China shows cautious optimism and confidence as compared to the previous survey last year.

Most companies do not see significant impact of the current trade situation between the US and China on their business," said Chandrajit Banerjee, Director General, CII.

The survey, "Business Climate for Indian Companies in China", drew responses from 57 Indian companies in China. As per the survey, 98% of the respondents plan to make some investments in China in 2019 with two-fifths considering ramping up their investments over 2018. More IT and BPO companies plan to make additional investments in 2019 compared to 2018.

Two thirds of the companies said that their business was very profitable or profitable in 2018, with higher EBIT than in 2017. Of the surveyed companies, 30% generated revenues higher than CNY 100 million from China in 2018 and four of five respondents stated that their revenues in 2018 were higher than in the previous year.



Induction of AH-64E Apache Attack Helicopter

RECENTLY, THE IAF FORMALLY inducted the AH-64E Apache Attack Helicopter into its inventory at Air Force Station Pathankot. Air Chief Marshal BS Dhanoa PVSM AVSM YSM VM ADC, Chairman Chiefs of Staff Committee and Chief of the Air Staff was the Chief guest at the event.

Air Chief Marshal BS Dhanoa during the induction ceremony said "Apache attack helicopters are being purchased to replace the Mi-35 fleet. Alongside the capability to shoot fire and forget anti tank guided missiles, air to air missiles, rockets and other ammunitions, it also has modern EW capabilities to provide versatility to helicopter in a network centric aerial warfare. Apaches have been an integral part of numerous historic campaigns worldwide. These aircraft have been modified specifically to suit the exacting standards demanded by IAF. I am happy to note that the delivery schedule is on time with eight helicopters already being delivered."

IAF has signed a contract with 'The Boeing Company' and US Government for 22 Apache Attack Helicopters. The first eight helicopters have been delivered on schedule and the last batch of helicopters is to be delivered by March 2020. These helicopters will be deployed in the Western regions of India.

The helicopter is capable of delivering variety of weapons which include air to ground Hellfire missiles, 70 mm Hydra rockets and air to air Stinger missiles. Apache also carries one 30 mm chain gun with 1200 rounds as part of area weapon sub system. To add to the lethality of the helicopter, it carries fire control radar, which has a 360° coverage and nose mounted sensor suite for target acquisition and night vision systems.

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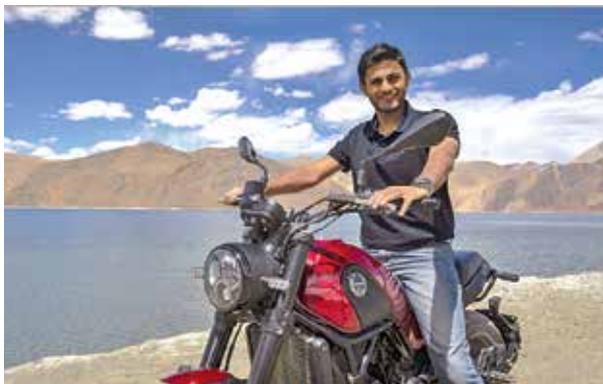
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Benelli India increases production capacity

BENELLI INDIA

has announced that it has increased its production capacity at its assembly facility in Hyderabad from 7,000 units to 20,000 units. The company also added that it has further opportunity to double production capacity to 40,000 units annually based on market demand.



Moreover, the company is actively exploring the EV opportunity in the Indian market. This is based on the clear indication from the government about a shift in focus from combustion engines under 150 cc category to electric mobility.

In this regard, Vikas Jhabakh, Managing Director, Benelli India said, "If we find

that the market for electric products is developed and that consumers are willing to spend that much then we can bring it here. The R&D is already there. We just need to tune the products to suit Indian requirements."

Benelli India has already set up an R&D based on which, the future of Benelli Electric Bike variants in India will be decided.

Sona Group, Blackstone & Comstar form Sona Comstar

SONA BLW PRECISION FORGING LTD., Blackstone, and Comstar Automotive Technologies Ltd., have completed a transaction that forges a partnership between the firms. This newly forged partnership will create an India centric, EV focused automotive technology plat-

form and will be called Sona Comstar.

Sunjay Kapur will be the Chairman of the newly combined entity Sona Comstar and any other businesses that will be acquired or developed under this platform.

CBDT eases process of assessment in respect of Start ups

THE FINANCE MINISTRY has simplified the process of assessment in the case of Startup entities. Here it was decided that - In case of Start up Companies recognized by DPIIT which have filed Form No. 2 and whose cases are under "limited scrutiny" on the single issue of applicability of section 56(2)(viib), the contention of the assessee will be summarily accepted.

In case of Start up Companies recognized by DPIIT which have filed Form No. 2 and whose cases have been selected under scrutiny to examine multiple issues including the issue of section 56(2)(viib), this issue will not be pursued during the assessment proceedings and inquiry on other issues will be carried out by the Assessing Officer only after

obtaining approval of the supervisory authority.

In case of Start up Companies recognized by the DPIIT, which have not filed Form No. 2, but have been selected for scrutiny, the inquiry in such cases also will be carried out by the Assessing Officer only after obtaining approval of the supervisory authorities.

In addition to the above, the Central Government has further decided to relax Para-6 of the DPIIT notification No.127 (E) dated 19.02.2019 and make it clear that this notification will also be applicable to Start up Companies where addition under section 56(2)(viib) has been made and the assessee has been recognized by DPIIT and subsequently filed Form No. 2.

NISE, UNIDO sign an agreement

RECENTLY, AN AGREEMENT was signed between the National Institute of Solar Energy (NISE) and the United Nations Industrial Development Organization (UNIDO) to initiate a skill development programme for different levels of beneficiaries in the solar thermal energy sector.

NISE and UNIDO will engage national and international experts to bring the best practices by developing specialized training material.

The agreement is part of the ongoing MNRE-GEF-UNIDO project implemented jointly by UNIDO and to support capacity building and skill development of technical manpower in the Concentrated Solar Thermal Energy Technologies (CST) which are being used to replace conventional fossil fuels e.g. coal, diesel, furnace oil etc. and save costs and emissions in the industrial process heat applications.

100% FDI will make coal market competitive

THE DECISION OF 100% FDI under automatic route for coal mining activities including associated processing, infrastructure in the coal sector is one of the biggest reform by Modi Government which will help provide power to all 24x7.

In a statement, Pralhad Joshi, Union Minister of Parliamentary Affairs, Coal and Mines said, "100% FDI is the biggest reform of our times and the influx of international players will create an efficient and competitive coal market in India. It is expected to bring state-of-the-art coal mining technology to the country which will help in environmentally sustainable mining. This decision will also create direct and indirect employment in coal bearing areas and will have a positive impact in the economic development of these regions." He said the reform is likely to help the coal bearing states get more revenue and bring in more players to create an efficient and competitive coal market.

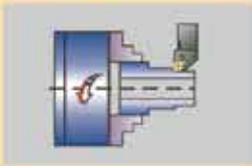
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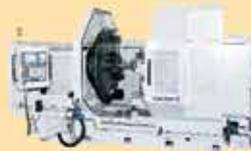


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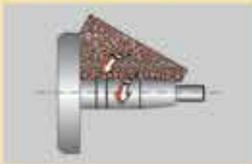


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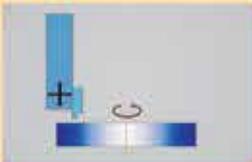


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A list of key events happening between September 2019 to September 2020, both nationally and internationally.

**SEPTEMBER
16–21, 2019**

EMO Hannover 2019
Hannover, Germany
www.emo-hannover.de

**SEPTEMBER
20–22, 2019**

TechIndia
Mumbai, India
www.techindiaexpo.com

**SEPTEMBER
25–28, 2019**

**Automation Expo
2019**
Mumbai, India
www.automationindiaexpo.com

**OCTOBER
7–10, 2019**

Motek
Stuttgart, Germany
www.motek-messe.de/en/

**OCTOBER
17–19, 2019**

**Laser World of
Photonics India**
Mumbai, India
<https://www.world-of-photonics-india.com/>

**NOVEMBER
15–18, 2019**

99iema
Ludhiana, India
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**DECEMBER
10–14, 2019**

Excon
Bengaluru, India
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**JANUARY
23–28, 2020**

IMTEX Forming 2020
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**FEBRUARY
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Subir Chowdhury is JCB India's new MD & CEO



Subir Chowdhury, who is currently JCB India's Chief Operating Officer, will take up the position by the end of the year, replacing Vipin Sondhi, who is leaving after 13 years' service as MD & CEO to take up a position outside the industry.

Chowdhury joined JCB India in 2005 as Executive Vice President – Operations and was promoted to the role of Chief Operating Officer in 2017, having successfully spearheaded the expansion of JCB India from a single factory operation in New Delhi in 2006 to a network of five factories today in Pune, Jaipur and New Delhi. A sixth factory is currently under construction in Gujarat, which is due to open in 2020.

JCB Group CEO Graeme Macdonald said: "I would like to thank Vipin Sondhi for his exceptional contribution to the JCB Group. Under his leadership, JCB India has cemented its position as a major player in the Indian construction equipment industry, and I wish him well for the future.

Before joining JCB India, Chowdhury was Director – Manufacturing for Whirlpool based in New Delhi (2001-2005). Sondhi is leaving JCB to take up a senior position with Ashok Leyland.

TAFE appoints Sandeep Sinha as CEO

TAFE has announced the appointment of Sandeep Sinha as CEO. Sandeep Sinha joins TAFE with a successful track record spanning over two decades of global and domestic industry experience.

In his previous role as Managing Director, Cummins India, he successfully led all the businesses and operation functions in the Asia region, and has been instrumental in increasing customer engagement and leading transformational quality initiatives across the organization. He has held several roles in supply chain as well as corporate strategy functions including a tenure with Cummins Inc. in the USA.

Mallika Srinivasan, Chairman, TAFE, said: "I am confident that as we pursue our vision of "Cultivating the World" and transforming the lives of farmers globally, Sandeep Sinha's rich and relevant experience, in addition to the alignment of values, will bring strong and insightful leadership to our team's journey. I welcome Sandeep to our team."

Sandeep Sinha will report to Mallika Srinivasan, Chairman, TAFE.

In a parallel move, S. Chandramohan has been elevated as Group President (Finance & Investment Strategy) and T.R. Kesavan has been elevated as Group President (Corporate Relations & Alliances). S. Chandramohan and T.R. Kesavan will report to Mallika Srinivasan, Chairman, TAFE.

Grundfos India appoints Saravanan Selvam as GM



Grundfos announced the appointment of Saravanan Panneer Selvam as the General Manager of Grundfos India, with effect from September 1st, 2019. Saravanan will report to Ranganath N. K., Area Managing Director, INDO Region, Grundfos and will be responsible for the company's business and operations in India, Bangladesh, Bhutan, Maldives and Nepal.

Saravanan has more than 20 years of experience in the pump industry. He joined Grundfos India in April 1998 and has held various positions in the company through the years. In late 2012, Saravanan took on a role oversees as Segment Manager - Industry segment in Grundfos South Africa, before taking up the role of Deputy General Manager for Grundfos Ghana in May 2013 with the responsibility for the West Africa area. After establishing Grundfos Ghana, Saravanan returned to Grundfos India in July 2015, to strengthen the organization as Sales Director with the full responsibility of the whole sales organization in the company.

Commenting on Saravanan's appointment, Ranganath N.K., said, "Saravanan has been an integral part of Grundfos' journey in the country over the last two decades. Given his experience and sales acumen, we are happy to have him take on the role of General Manager to ensure Grundfos India's future growth in this region."



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INNOVATIONS

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ADDITIVE
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By Niranjana Mudholkar

TIME FOR TRANSFORMATION!

All manufacturing organizations need to focus on building female role models to inspire and encourage young women, says **R. Jayakanthan**, Director – People, Systems & Strategy, Elgi Equipments.



Based on your experience would you say that the acceptance for women is increasing in the manufacturing industry in India?

Well, to begin with, industrywide reports tell us that India has among the lowest women workforce participation rates in the world. Again, if we drill down to the manufacturing industry alone, women are definitely underrepresented with participation ranging from only three to 12 percent.

But today, modern manufacturing is undergoing a transformation with the fourth industrial revolution. With technological advances and the convergence of physical and digital manufacturing, manufacturers are changing their operating methodology and raising the bar for required employee skillsets. Talent, apart from being key, is a critical differentiator across the spectrum.

Studies reveal that women make up at least 40 percent of the workforce in more than 80 countries and contrastingly, studies have also revealed that manufacturers' top concerns have been the inability to attract and retain a quality workforce. In fact, there are about half a million jobs open in manufacturing right now, across the world.

So, yes, there is tremendous opportunity for women to not just build meaningful careers in manufactur-

ing but also drive the future.

What should be done more to encourage the participation of women in manufacturing? Tell us about the strategies implemented by ELGi.

At ELGi, we have women working across almost all the functions both white and blue collar. Human resources, supply chain management, IT, technology, finance, marketing, sales and other support functions. If we look at our current distribution, we are at approximately 30 percent in sales, marketing and support; 18 percent in finance and HR and 14 percent in technology.

Also, at ELGi, career progression is purely based on performance and potential and one's gender really doesn't play a role. Employees move to the next level based on their skill development and the opportunities at the organization.

In my view, all manufacturing organizations need to focus on building female role models to inspire and encourage young women. We need to adopt and develop more inclusive workplaces and we need to find creative ways to build good work-life balance for all our employees.

"There are about half a million jobs open in manufacturing right now, across the world. So, yes, there is tremendous opportunity for women to not just build meaningful careers in manufacturing but also drive the future."



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We are attempting to recruit women in ELGi Vocational Training School, where we educate and train. We conduct women exclusive sports event once in a year in line with the Annual Sports Day. It is a two-day event with outdoor activities; right from throw ball as team sport to running as individual sport.

Do you think women can play a bigger and better role in improving the work environment for the manufacturing industry?

Let me address this a little differently - the manufacturing industry is reinventing itself and exciting, educating and empowering women will be critical to the future of the industry. Women represent one of the

//

Though we have women working in technology and manufacturing, the percentage is not very significant. Overall, women constitute four percent of ELGi's workforce in India and globally seven percent.

largest pools of untapped talent, and by tapping into this pool, manufacturers can close out on the skill gap that has traditionally caused challenges with evolution and expansion. Furthermore, gender diversity benefits manufacturing firms by creating a culture that improves their ability to innovate and grow. This aspect is well supported by lot of data and research. It's not just the bottom line, women in manufacturing are building meaningful careers—and quite literally the future.

How easy or difficult is it for male staff members to accept women supervisors or women leaders? What can be done to change their approach to this issue?

At ELGi, we work towards helping our managers equip themselves with the appropriate skillsets to be successful managers, irrespective of their genders. The boss-subordinate relationship is one of the most profound

and it might be a paradox because it must be genuinely human and caring—even close, since you and your people strive toward a common, worthwhile purpose. But it must remain a relationship that never loses sight of one fact: it exists to accomplish work. It is a means to an end. A manager and his reportees, irrespective of their gender need to connect as humans but always, in the end, to focus on the work.

What are the various opportunities available for women in the manufacturing industry today?

At ELGi, we have women working in across almost all the functions. Function is with respect to the white-collar workers. We have women working in HR, supply chain management, IT, technology, finance, sales and other backend support functions.

It is also good to know that we have more women in the front-end roles and also in the core jobs like technology. In terms of the distribution of women workforce, close to 30 percent are in sales and support; 18 percent are in finance & HR and 14 percent are in technology.

If we look around there are some great organisation such as HAL, Tata, L&T and Mondelez, just to name a few have women playing variety of roles in manufacturing from shop-floor to mines.

What is the ratio of women to men employees on ELGi's shopfloor? Do you think this is a good ratio to have or are you working towards changing it?

Currently, there are no women working directly on the line. We are working on it and are hoping we get some female candidates for our upcoming vocational training program. Also, we are looking at creating additional facilities for women to attract more women workforce. When we go for campus hire in various reputed engineering colleges and management institutes, we don't follow any gender bias or discriminate in terms of the functions they can choose. Though we have women working in technology and manufacturing, the percentage is not very significant. Overall, in India women constitute four percent of ELGi's workforce and globally seven percent. Globally women constitute seven percent of the total headcount and at it is about five percent in India.

Do you see more women now opting for jobs in the manufacturing industry as compared to the IT industry?

There is always an excitement in being part of manufacturing where design and value add happens. Besides, jobs in manufacturing are more stable and this moti-

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vates the women to continue to work in the manufacturing industry. As already mentioned, because of technological advancement there is an equipment to lift every part and no one lifts a weight of more than seven kg in the plant. The advancement in the material handling system has enabled the employees to come into the direct manufacturing. Also, for over three years vocational training is being provided for fresh workmen at ELGi. We are looking at including female employees in future training as well.

What are the common misconceptions that women have about working in manufacturing?

The biggest misconception is that it's not a women's job; it's tough and very hard to work on the shopfloor.

Also, when women enter the supervisory level, they always look at ratio of male and female. If the number of women is less, they think the workplace is not women friendly. Secondly, many women fear that they might not be able to survive in a male dominated sector. Unless they read success stories of other women in the manufacturing industry, they don't feel confident joining the industry; rather they will choose to work in fields like finance, IT which are the comfortable segments. These are some of the pain points that doesn't allow women to enter into the core manufacturing industry. Moreover, there is lack of awareness among the women about the job opportunities that exist in the manufacturing sector. This is an insight that we have gathered during the past hiring processes. 

AICHI STEEL CORP INVESTS IN VARDHMAN SPECIAL STEELS



Vardhman Special Steels Limited has announced a new partnership with Aichi Steel Corp Japan, an affiliate of Japan's Toyota Motor Corporation. Aichi Steel Corp will buy approximately 11.4 percent stake in Vardhman Special Steels Ltd and provide technical assistance aiming to establish a world class, socially and environmentally responsible special steel company in India. This company will be capable of supplying steel for critical and special applications for today and tomorrow's automotive industry. Aichi Steel will be posting three personnel in India while additional critical support from the Headquarters will be provided constantly.

Suchita Oswal Jain, Vice Chairman and Managing Director of Vardhman group along with Sachit Jain, Vice Chairman and Managing Director of Vardhman Special Steels sign the deal with their Aichi Steel counterparts.

Both companies aim to achieve sustainable growth through use of advanced technology leading to enhanced excellence in steel making here in India. The complimentary portfolio of management, product,

technology and services offered by Aichi Steel provides the end users with the special steel backed up by years of expertise and recognized technology. This will help Vardhman Special Steels to expand its size and markets in years to come.

"One of our key objectives of this partnership is to develop special steel grades for automotive companies in India so as to help fill the gap of providing substitution of steel, that is currently being imported. We plan to later export this special grade of Steel to South Asia and Europe as well," said Sachit Jain, Vice-chairman & MD Vardhman Special Steels Limited.



Aichi Steel Corp will buy approximately 11.4 percent stake in Vardhman Special Steels Ltd and provide technical assistance aiming to establish a world class, socially and environmentally responsible special steel company in India.

The two companies signed an agreement on the deal worth USD \$7 million in a ceremony in Aichi Prefecture, where the Japanese firm is located. "This partnership will help Aichi Steel strengthen the foundation of its special steel business by improving quality and cost competitiveness on a global basis. A friend in need is a friend indeed and Vardhman Special Steels team is a friend who we will be supporting to develop technology based solutions in coming years," added President Takahiro Fujioka from Aichi Company in his statement. 

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By Niranjana Mudholkar

EVOLVING STRATEGICALLY

It is the choices that we made at every juncture that have helped shape what we are today, says **Vamsi Krishna Gaddam**, Joint Managing Director of Visaka Industries.



“We have crossed the Rs.1100 crore mark, and we are anticipating growth of 20 per cent in the fibre cement boards division with double-digit margins.”

Visaka Industries was founded by Dr. G Vivekanand in 1983. How would you briefly describe the evolution of the organisation since then?

Dr G. Vivekanand has laid the foundation based on the core values. He has led the business from a single unit manufacturing roofing sheets to a business house that has 12 manufacturing units representing four different business verticals. The evolution has been strategically planned, and timely decisions have been taken to expand the portfolio, enabling us to be a market leader in the segments we operate in. The journey has not been simple. I am speaking from my own experience in the last one decade of association with the organisation. There

have been many ups and downs, and it is the choices that we made at every juncture that have helped shape what we are today. Our professional teams are imbued with an entrepreneurial spirit.

How’s been your personal journey with the Group as a second-generation entrepreneur?

The journey is continuing as I transition from a trainee to a chief business strategist. I venture into new businesses & improve operational efficiencies & margins as a joint managing director. I develop solutions to address industry challenges. I convinced the board & leadership team to look at sustainable products and transformed our portfolio under Vnext by Visaka. The product portfolio has been well received in the market, making us the largest manufacturer & supplier of the products to meet domestic and international market demands. The introduction of Atum coupled with sustainable housing solutions, has been trending in the renewable energy space with a sold-over capacity of one MW within a short period.

What are the various business verticals?

We are into cement roofing sheets, fibre cement boards, textile yarn and sustainable housing solutions powered by Atum. Our business verticals have also been contributing to the cause and have helped in a direct saving of over 4,00,000 trees. These have been a replacement to plywood, and a total of almost 43 million pet bottles have been saved straight from dumping.



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What kind of market position and market share do you have in these verticals?

We are the largest market leader in India for fibre cement boards with a market share of over 35%. Then, we are the second largest in cement roofing sheets with a market share of close to 20%. Our textile yarn is unique in positioning, and it is supplied to all major textile/garment manufacturers across the globe for various applications. Our sustainable housing solutions

//

“The roofing sheets business is expected to grow at four per cent, and our textile yarn might add four per cent for the coming year.”

powered by Atum are paving the way and recently have been featured at the United Nations Habitat.

What is the disruption that you are bringing in for your customers?

Our innovative products range is getting extended from time to time, offering customised solutions in the building materials space. Apart from delivering quality products and services, we have been enabling our dealers, distributors and applicators to connect and move forward digitally. It is helping us raise awareness levels among all the stakeholders involved in the process to have a unique opportunity in achieving the sustainability goals by adopting eco-friendly products.

How strong is the Company’s manufacturing prowess in terms of its capacities and capabilities?

Our manufacturing facilities are located strategically to meet the consistent demands both from urban & rural customers. The capacity utilisation is always above 90%, and the capabilities are well aligned to adjust to

seasonal fluctuations if any. With our existing portfolio of integrated systems, the productivity levels are monitored. Measures to improve the energy efficiency help us set various benchmarks in the industry segment.

We have also been continuously investing in innovation, and most of our in-house simulations have been successfully setting benchmarks. They are tested at reputed international and national testing agencies.

How are you managing costs at the manufacturing level to ensure good quality at competitive prices?

Executive committees manage all the functions of the company. Hence, products are made timely at optimal costs and manufacturing parameters are monitored to take corrective action at regular intervals. It is helping us ensure productivity with good quality at a minimal cost. We also regularly review the market-driven supply-chain dynamics and ensure the volumes are placed to meet the consistent demands of both raw materials and finished goods. It has been the reason for Visaka’s highest EBIDTA margins in the industry.

Tell us about the company’s exports.

We have footprints in over 25 countries & seen 60% growth over the last couple of years in exports. Renowned international testing agencies certify our quality products. They have been the unique selling proposition, and we are the only company from India approved by Dubai Civil Defence.

Recently, our innovative sustainable housing solutions powered by Atum have been featured at the United Nations Habitat, Kenya, as a model to address sustainable housing for masses.

What was your turnover in the last FY, and what is the projection for the current FY?

We have crossed the Rs.1100 crore mark, and we are anticipating growth of 20% in the fibre cement boards division with double-digit margins. The roofing sheets business is expected to grow at 4% and our textile yarn might add 4% for the coming year.

What is your vision for the organisation?

Visaka Industries had a single product 35 years ago. Over the years, we have been able to add a wide range of products from clothing & shelter to now eco-friendly products like Vnext and Atum. The goal is to create a sustainable environment for the future. We aim to identify & develop products that would add value to our society, country and the planet at large. Five years down the line, we envision the company to be a leader in sustainable development. We plan to offer solutions in the market that would have a positive impact on the way infrastructure is designed, developed and built. 

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<p>COUPLING SS304</p>  <p>KEY TECHNICAL POINTS Profile milling using ball nose end mill by interpolation</p> <p>CYCLE TIME / ACCURACY 150 Secs / Od Tolerance 0.02 Mm, Surface Finish : Ra 0.8</p> <p>MACHINE : UNITURN 300 HD TM</p>	<p>CONNECTORS BRASS</p>  <p>KEY TECHNICAL POINTS Combination drilling / tapping on both sides with special work holding</p> <p>CYCLE TIME : 35 SECS.</p> <p>MACHINE : LEANTURN</p>	<p>TEST PIECE EN8</p>  <p>KEY TECHNICAL POINTS Angular drilling, angular milling, engraving, slot milling, flat milling, id key way milling, outer dia profile finishing</p> <p>CYCLE TIME / ACCURACY 4 MINS / OD TOLERANCED.011 MM</p> <p>MACHINE : UNITURN 400 HD TM</p>	
<p>ROTOR STEEL / COPPER</p>  <p>KEY TECHNICAL POINTS Intermittent machining on steel & od turning on copper using special work holding</p> <p>CYCLE TIME / ACCURACY 40 SECS / R/D <0.03MM</p> <p>MACHINE : VTL</p>	<p>TEST PIECE SS-304</p>  <p>KEY TECHNICAL POINTS Single Point Burnishing</p> <p>CYCLE TIME / ACCURACY 55 SECS / SURFACE FINISH : Ra 0.2</p> <p>MACHINE : UNITURN 300 HD</p>	<p>SHACKLE PIN 45 C8</p>  <p>KEY TECHNICAL POINTS Facing, turning, drilling, tapping, radial slot milling, radial drilling, axial across flat milling in single set up on turnmill</p> <p>CYCLE TIME 8 MINS</p> <p>MACHINE : UNITURN 400 HD TM</p>	<p>KICK STARTER CARBON STEEL 20 C8</p>  <p>KEY TECHNICAL POINTS Intermittent machining of face, axial drilling & boring with special work holding on turnmill</p> <p>CYCLE TIME 160 SECS</p> <p>MACHINE : UNITURN 300 HD TM</p>
<p>SHAFT GEAR SAE 8620</p>  <p>KEY TECHNICAL POINTS Slot milling using y-axis, drilling / tapping using special combination holder</p> <p>CYCLE TIME - 180 SECS</p> <p>MACHINE : TRIAX 300 - MILLTURN</p>	<p>HYD. VALVE 16MNCR5 / SAE 8620</p>  <p>KEY TECHNICAL POINTS Radial drilling</p> <p>CYCLE TIME 90 SECS</p> <p>MACHINE : UNITURN 300 HD TM</p>	<p>WATCH CASE SS-314</p>  <p>KEY TECHNICAL POINTS Front and rear machining with special work holding (single setup)</p> <p>CYCLE TIME 90 SECS.</p> <p>MACHINE : FLEXTURN</p>	<p>RING GOLD</p>  <p>KEY TECHNICAL POINTS Scooping, angular drilling, profile milling</p> <p>ACCURACY SURFACE FINISH : Ra 0.4</p> <p>MACHINE : UNITURN400 HD TM</p>



By Swati Deshpande

SCM DETERMINES OPERATING RHYTHM OF MANUFACTURING

It is imperative to align the supply chain footprint with business strategies says **M. S. Ravikumar**, Vice President- Integrated Supply Chain, WABCO India Limited.



In an extremely volatile environment, managing a supply chain spanning continents with numerous linkages becomes a critical and challenging task. Efficacy of information is vital to manage such situations.

An efficient supply chain is the foundation of a manufacturing entity. What are your views on the same?

In today's world, it is not organizations that compete with each other but supply chains. The robustness of the supply chain determines the efficiency of the manufacturing entity. In a volatile, uncertain, complex and ambiguous (VUCA) environment, responsiveness and cost competitiveness are critical, and the supply chain plays a major role in ensuring the success of the manufacturing entity. More so, the supply chain determines the operating rhythm of manufacturing as they bridge the supply and demand in the market. Hence it is intrinsic that an efficient supply chain is indeed the foundation on which the success of any manufacturing organization is anchored on.

Currently what challenges are you facing the supply chain management?

In a volatile environment, managing a supply chain spanning continents with numerous linkages becomes a critical and challenging task. Efficacy of information

is vital to manage such situations. Supply chain enterprises have different enterprise suites & policies/processes, which act as a barrier for real-time integration. This limits the flexibility & agility in the supply chain, limiting the real supply chain integration to remain a myth; not a reality.

Is the digital disruption affecting SCM? How are you tackling this issue?

Yes, digital disruption plays a major role in SCM these days. They revolutionize and redefine business models and strategies. Also, the expectations of customers have grown exponentially compared to a decade before and data has become the epicenter of business today. In view of the changing landscape, we have initiated actions to mine data in the supply chain through cyber-physical systems and IoT devices. These, in turn, feed the digital data lake to support data analytics which is further leveraged to draw meaning insights so as to be enabling supply chain optimization and also improving manufacturing efficiency. We envision deploying these technologies with our supply chain partners (components suppliers) to manage their capacities and yield better asset utilization in the supply chain. This shall support real supply chain integration striving for cost optimization and delivery excellence through cognitive manufacturing. We have also implemented our telematics system and mandated its necessity with our freight forwarders to grow transparency in the supply chain. We have also initiated IT transformation to break barriers in the supply chain and leverage better reach/access of information across the entire supply chain.

How do you ensure that your SCM strategy is in alignment with your overall business goals?

As an organization, we pursue a long-term strategic plan with a five-year horizon. During this exercise, one

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of the key elements that is taken into consideration is the supply chain strategy. It is imperative to align the supply chain footprint with business strategies. We also operate based on the annual operating plan and Hoshin kanri where supply chain strategies are one of the key building blocks of the integrated business planning.

Today, there is considerable awareness of the green supply chain. Can you tell us about some of the

//

We educate our suppliers and advocate them to adopt the ISO14001 standards thereby driving eco-friendly systems and processes across the supply chain.

ways that you have adopted in this direction?

Conference and engagement workshops are being conducted frequently to promote green initiatives in the supply chain. We educate our suppliers and advocate them to adopt the ISO14001 standards thereby driving eco-friendly systems and processes across the supply chain. Firstly, we have switched over to recyclable packaging and this is currently being extensively used in our operations to reduce solid waste generation. Secondly, logistics operations are optimized with route pooling techniques and improved vehicle utilization to reduce carbon footprint. We have a clear roadmap ahead of us on our journey of greening the supply chain which will be implemented in a time-bound manner. 

HYUNDAI UPCYCLES LEATHER MATERIAL WITH THE FASHION INDUSTRY

Hyundai Motor Company is partnering with ready-to-wear fashion brand Zero + Maria Cornejo to host Re:Style, an exclusive cultural event showcasing a creative upcycling collaboration between the automotive and fashion industries. The event is to take place in September 2019, the opening night of the 2020 S/S New York Fashion Week.

Re:Style focuses on upcycling, an emerging cultural trend that encourages the transformation of car seat materials into new products. The event will present a vision for the creative reuse of automotive materials for fashion and connect with people who care deeply about the environment and seek more ethical consumption.

The event's theme, "saving the planet in style," will bring to life a collaboration between Hyundai Motor Company, Hyundai Transys (a Hyundai parts company and one of the premier car seat manufacturers in the world) and New York based-fashion brand Zero + Maria Cornejo.

For the project, Hyundai and Zero + Maria Cornejo have produced a 15 piece capsule collection reusing the leftover leather produced after the seat development by Hyundai Transys and upcycled Zero + Maria Cornejo fabrics, including a 100% organic cotton Cradle to Cradle Certified Gold Dylan denim, reimagined in entirely new shapes and silhouettes. The original collection will be presented at the event.



"The whole idea is to do something creative with things that have had a life before," said Maria Cornejo. "It's about making something new and re-imagining things. Re-create, re-imagine, re-cycle. How do we get creative with less?"

Zero + Maria Cornejo is recognized as an eco-friendly designer brand known for using natural dyes, natural silk, and materials that require minimal oil, and is also renowned for taking the conservation of natural ecosystems and environmental issues into consideration. Zero + Maria Cornejo is famous for being worn by numerous celebrities and luminaries.

"Hyundai Motor designed Re:Style to further our mission of becoming a more sustainable company and to create dialogue around eco-conscious lifestyles," said Wonhong Cho, Global CMO, Hyundai Motor Company. 

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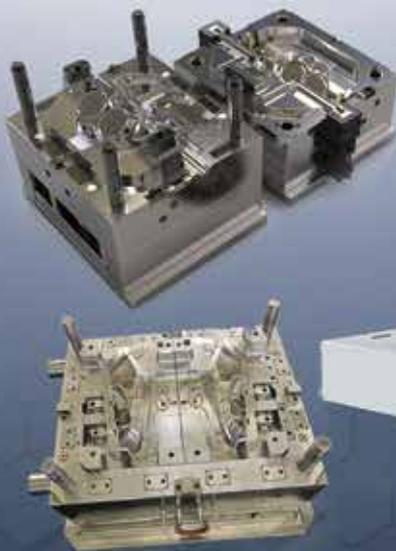
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GLOBAL CONFERENCE ON PLASTICS IN AUTOMOTIVE

Knowledge sharing forum on Smart, Sustainable and Sophisticated vehicles

The automotive industry is in the transitional phase.

On one hand BS VI and e-vehicles are already here. On the manufacturing front, new age materials and processes are coming up. In short, auto manufacturing processes are changing. Demands for sustainable and sophisticated vehicles are increasing. This includes light, fuel efficient vehicles with recyclable or recycled components. Additionally, sophisticated interiors and smart technology is taking mobility to new heights. It wouldn't be wrong if we say that plastics is at the helm of these affairs. It is with this background, that The ET Polymers Global Conference on Plastics in Automotive (GCPA 2019) will delve upon the role of plastics in automotive with the theme of Smart, Sustainable and Sophisticated.

This one-day conference will touch upon various trends in the automotive industry. In the keynote panel discussion, industry leaders will give the audience a sneak peek in to the future of the automotive industry while discussing on the theme.

To give a market overview, a presentation is scheduled on the topic of 'Industry Disruption and Automotive Megatrends'. This will give an insight on current and upcoming trends that are likely to cause disruption.



**Theme: Smart, Sustainable,
Sophisticated**
Date: September 24, 2019
Venue: Novotel, Pune

The other topic to be looked forward to is an expert panel discussion on 'Materials: Making a right choice'. This panel discussion will throw light on choosing the right material considering various aspects such as functionality, features, safety, cost, sustainability, etc. Moreover, a case study on 'Zero Start up Rejection - Way Forward' will present a fresh outlook towards manufacturing of injection moulded plastics parts.

DISCUSSION ON EVs

There has been confusion in the automotive world with regards to EVs. But, no doubt, it is the future of the automotive industry. If that's the case, how can one embrace it as an auto professional? Would it open the doors of opportunities? Will it turn out to be a boon or a bane for the existing automotive eco-system? Get answers to all these questions in an open forum – 'An interactive session on Electric Vehicles'.

In all, it is going to be an exciting day for the automotive industry! 🚗

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By Karthik Shankaran

EMISSION CONTROL THROUGH IN-CYLINDER SENSING

Most important part of controlling emission is to have an effective way to measure emissions.



“Transportation-attributable health impacts declined in the US, European Union, and Japan as vehicle emission standards have been implemented, but these reductions have been offset by growing impacts in China, India, and other parts of the world.”

Susan Anenberg, Associate Professor, George Washington University.

Research estimates that vehicle tailpipe emissions were linked to about 361,000 premature deaths from ambient PM2.5 and ozone worldwide in 2010 and about 385,000 in 2015.

An estimated 70 per cent of these impacts occurred in the four largest vehicle markets in 2015: China, India, the European Union, and the US.

Emissions from motor vehicles have been at cross hairs of global regulatory agencies for quite many years. CNG and LNG, which are relatively cleaner than diesel, are being deployed by vehicle manufacturers. With Euro 6, after treatment systems are already in place reducing significantly Nox and PM. Hybrids and BEVs

have also been part of the product mix thus helping CAFÉ norms and GHG Caps. Going forward PEMS and RDE requirements are opening up new areas where measurement of emissions needs lot of attention.

Emissions from motor vehicles are a cause of concern for air quality and also adversely affect human health. Most important part of controlling emission is to have an effective way to measure emissions. If we can do emission prediction real-time cycle to cycle with almost no modification required for engines, then we have something that can help us put together PEMS for RDE. “Transportation-attributable health impacts declined in the US, European Union, and Japan as vehicle emission standards have been implemented, but these reductions have been offset by growing impacts in China, India, and other parts of the world,” said Susan Anenberg, Associate Professor, George Washington University.

According to a leading Indian daily, dated June 2019, 43 percent of all air pollution in Bangalore is by motor vehicles. According to a study it is 385,000 deaths in 2015 alone. Exhaust from vehicles is a major source of outdoor air pollution worldwide. The health impacts are immense but unevenly distributed, both geographically and among various segments of the transportation sector, such as light-duty and heavy-duty vehicles, shipping, and off-road machinery.

The technology and development of a new product: A few technology companies have been focusing on in-cylinder sensing based on sound fundamentals for predicting emissions even in multi-fuel scenarios. These efforts have resulted in an in-cylinder sensor that works for both gasoline and diesel engines. An innovative, cost-effective, plug and play in-cylinder sensor was developed which integrates with existing Powertrain with almost no change to engine structure. The prediction of emission from the sensor has been compared with test data recorded using pressure sensor, oxygen

WASH & CLEAN:

MAXIMISE SYSTEM UPTIME, EFFICIENCY AND PERFORMANCE



REDUCE
DOWNTIME



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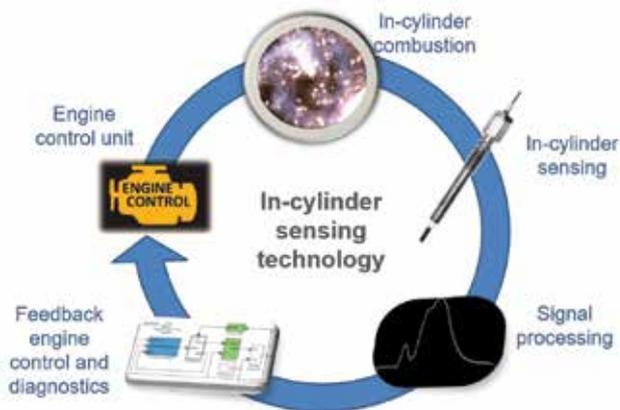
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sensor and others. The results are well correlated. These in-cylinder sensors can play a role in emission control as being PEMS for RDE. This technology is relevant for stationary engines as well as in motion powertrains, which makes it useful for passenger and commercial cars, farm equipment's, excavators, mining equipment, among others. Fuels and lubricants are an important "partner" in the combined engine and aftertreatment system. Low emissions over the life of the engine would not be possible unless fuel contaminants such as sulfur and some inorganic minerals are controlled to very low levels.

Regulation: RDE is already being implemented in certain geographies and it is in pipeline in other geographies. The in-cylinder sensor developed in India plays a critical role in predicting emissions cycle to cycle from each engine cycle. This is expected to help not only as

PEMS for RDE but can work in closed-loop with ECU to control combustion parameters as well. This helps to keep emissions under check, which is the undeniable need of the hour.

The in-cylinder combustion sensor can be used in real-time applications, functioning as a timing sensor, combustion sensor, performance sensor, emissions sensor and pressure sensor, delivering accurate and reliable results on a cylinder-to-cylinder, and a cycle-by-cycle basis.

These sensors are most suitable for onboard engine diagnostics, can predict combustion, performance and engine-out emissions, and are superior to pressure transducers. They can easily be retrofitted in existing electronically controlled gasoline and diesel engines, by adapting the fuel injector or spark plug or glow plug as the sensor, without the need to drill another hole in the cylinder head. The in-cylinder combustion sensor enables performing multiple sensing tasks and real-time engine management by providing feedback to the electronic control of the engine. The volume production system results in low initial and maintenance cost compared to pressure transducers. Remote monitoring and diagnostics are also possible which help reduce the cost of inspection and repair over the lifetime of the engine. 

The author is Chief Innovation Officer, Detroit Engineered Products.

SOLAR-BASED EV CHARGERS INSTALLED ON DELHI-CHANDIGARH HIGHWAY

Bharat Heavy Electricals Ltd (BHEL) is setting up a network of solar-based Electric Vehicle Chargers (SEVC) on the Delhi-Chandigarh Highway. Five charging stations in the series were inaugurated by Arvind Ganpat Sawant, Union Minister of Heavy Industries and Public Enterprises, in the presence of Dr. Nalin Shinghal, CMD, BHEL. The chargers are located at the resorts of Haryana Tourism Corporation Ltd. at Ambala, Kurukshetra, Karnal, Panipat and Samalkha (Sonapat).

The project is covered under the FAME scheme [Faster Adoption and Manufacturing of (Hybrid) & Electric Vehicles in India] of the Department of Heavy



Industry (DHI), Govt. of India. The establishment of EV chargers at regular intervals over the entire 250 kms. stretch between Delhi & Chandigarh would allay range-anxiety among EV users & bolster their confidence for inter-city travel. As part of the project, BHEL has also developed a

Central Monitoring System (CMS) for EV Chargers with a Mobile App. BHEL's scope of work in the project includes design, engineering, manufacturing, supply & installation of the EV charging stations along with a Central Monitoring System. Each SEVC station will be equipped with a rooftop solar power plant to supply green energy and EV chargers. 



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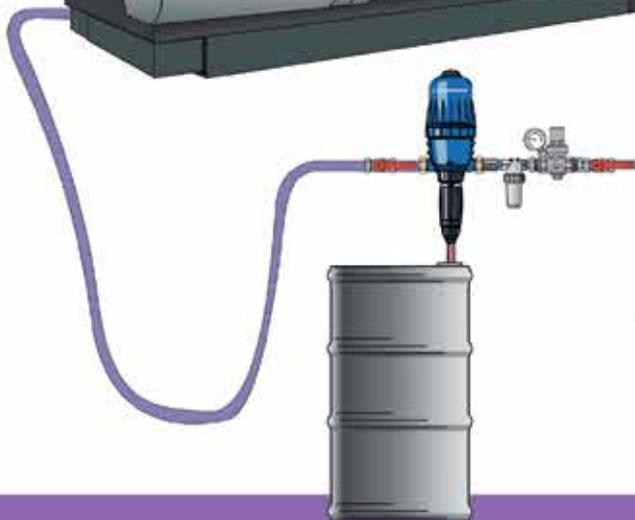
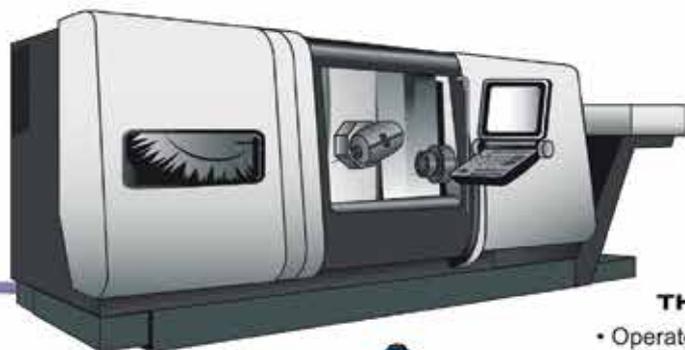
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By Niranjana Mudholkar

DEMOCRATISING TECHNOLOGY FOR FARMERS

The new wave of productivity will come out of data, analytics and new age technologies around digitization, says **Rajesh Jejurikar** - President, Farm Equipment Sectors, Mahindra & Mahindra Ltd.

Where does the Farm Equipment Sector (FES) stand within the Mahindra Group in terms of revenues and strategic importance?

The Farm Equipment Sector (FES) forms an integral part of the Mahindra Group. At FES, we aim to deliver Farm Tech prosperity through pioneering technologies for farmers across the world to enable them to Rise.

With a presence in over 40 countries, Mahindra is the world's largest farm tractor manufacturer by volumes and is India's leading tractor manufacturer for over three decades. The company achieved a manufacturing milestone of over 3 million tractors (since inception) in FY19. During the year, FES sold 3,30,436 tractor units

in both the domestic and export markets, with a revenue contribution of approximately US\$3.2 billion or about Rs.22,000 crore to M&M Group's overall revenues.



Farming 3.0 is about traversing our business from being a manufacturing company, to one that will help the customer achieve outcomes, through improvement in yield and productivity.





We have embarked on a Digital Transformation Journey for manufacturing around two years ago. The Manufacturing Value Chain (Supply Chain & Manufacturing Processes) is Digitised and created for all processes, for Data Driven Decision Making through Self Service Analytics.

FES has a strong tractor portfolio and is building technology skillsets beyond it. The company is working on introducing a range of farm machinery, with the idea of taking technologies used in large land holding farms around the world and making them affordable and accessible to small land holding farmers. A step in this direction are alliances and acquisitions in Agri start-ups in the last few years.

It's been about two years since M&M unveiled Farming 3.0. How has it evolved since then and how has it helped you better serve the farmers?

When we consider the global demand for food 20-30 years from now, we realise that food production needs to go up by around 70 percent. With most of the arable land already under cultivation there is limited land to work with. Hence productivity will need to drive the food needs of people, and we believe that we have a significant role to play in enabling that productivity. That new wave of productivity will come out of data, analytics and new age technologies around digitisation.

When we started thinking about Farming 3.0, we were building a strategy to not just sell tractors and farm machinery, but to sell a solution, which helps our customers achieve an outcome. It is about traversing our business from being a manufacturing company, to one that will help the customer achieve outcomes, through improvement in yield and productivity.

Farming 3.0 has multiple legs of how we will use technology. It comes from the vision of democratising

technology for farmers with small land-holdings.

There are many new technologies that are deployed on large farms around the world, and our idea is to make those new technologies affordable for and accessible to small landholding farmers, to help them achieve a better output.

In line with our Farming 3.0 strategy, we have recently invested in start-ups like Resson Aerospace Corporation of Canada and more recently in a Switzerland-based agricultural-technology company Gamaya SA. Both start-ups will enable us to support the company's business by developing technology solutions, with the idea of making a difference in the way farming is done.

How are things doing on the exports front?

Global Farm Machinery makes up about 30 percent of the total revenue for Mahindra FES. We have an on-ground presence in North America, Brazil, Mexico, Finland, Turkey and Japan through our subsidiaries. Going forward we will continue to explore newer markets for our products and consolidate our presence in existing ones, introducing newer products including upgrades, while building our sales and service network.

Which tractors are selling more in the recent times for Mahindra and the overall industry in India – lower or higher horsepower? Do you see the trend to continue?

While demand for tractors in the 30-50HP makes up

Three Global Centers of Excellence for Mahindra FES

Location	Name	Stake	Products
Finland	Sampo Rosenlew	49 percent stake	For Combine Harvesters
Japan	Mitsubishi Agri Machinery	33 percent stake	Rice value chain machinery
Turkey	Hisarlar	75.1 percent	Global range of soil / farm preparation implements



over 80 percent of tractor sales, over the last few years we have witnessed demand in the sub-30HP segment due to factors like niche applications like horticulture-based farming, which is becoming popular.

Horticulture production now exceeds food grain production in India. This has created exciting mechanisation opportunities. Our new tractor Jivo, is a tractor in the less than 30HP segment which is enabling growth in this segment.

In the last few years, Mahindra has also made some important acquisitions in Japan (Mitsubishi Agricultural Machinery), Finland (Sampo Rosenlew) and Turkey (Hisarlar). Tell us about Mahindra FES's Farm Machinery play and how have these acquisitions helped the FES so far?

The total global Agri equipment market is roughly about US\$160 billion, of which Farm Machinery makes up US\$100 billion and tractors US\$60 billion. We have a big opportunity in the Farm Machinery space and India is still a small market with a huge upside potential.

At Mahindra, we have a complete range of products and solutions as part of our Farm Machinery portfolio. This is based on having established three global technology Centers of Excellence, through acquisitions we made over the last couple of years. These centres will allow us to bring back and adapt technologies relevant for the Indian market.

Mahindra & Mahindra acquired a 11.25 per cent stake in a Swiss company called Gamaya. How do you plan to leverage on this acquisition?

With agriculture increasingly becoming technology intensive, we at Mahindra are investing in future ready technologies to provide complete solutions to the global farming community.

Our latest acquisition of Gamaya, will enable us to

//

The company is working on introducing a range of farm machinery, with the idea of taking technologies used in large land holding farms around the world and making them affordable and accessible to small land holding farmers.

develop and deploy next-generation farming capabilities, such as precision agriculture and digital farming technologies, giving us access to hyperspectral imagery analytics, artificial intelligence and machine learning, which captures and interprets useful information on the state of crops for the farmers. With this partnership, we expect to set new benchmarks in farming and its related services.

How happy are you with the overall product portfolio of FES at present and how do you see it evolving in the next three years?

At FES, we have one of the most comprehensive tractor portfolios in the industry. We have introduced products on Mahindra's next-generation tractor platforms – the Novo, Yuvo and Jivo. We have also introduced new product offerings from Swaraj.

In addition to a strong tractor portfolio, we now have a full range of Farm Machinery solutions. As the Indian consumer is evolving and as we grow our tractor business, there is a greater need for implements and differentiated farm machinery. Horticulture is a big area of growth. We believe that this is an opportunity for us to leverage in the domestic market.

Tell us about the overall production footprint of FES.

FES has Manufacturing and CKD assembly in 8 countries – India, USA, Brazil, Finland, Turkey, Algeria, Australia and Japan. In India, we have a manufacturing presence in Kandivali (Mumbai), Nagpur, Rudrapur, Jaipur, Zaheerabad and Mohali (Swaraj).

At Mahindra, we have embarked on a Digital Transformation Journey for manufacturing around two years ago. The Manufacturing Value Chain (Supply Chain & Manufacturing Processes) is Digitised and created for all processes, for Data Driven Decision Making through Self Service Analytics. 

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By Niranjana Mudholkar

FOCUSSING ON GROWTH

From being a product manufacturing company, we have started the journey towards becoming an engineering and innovation company, says **Neeraj Bisaria**, MD & CEO, Premium Transmission Pvt Ltd.



The Machinist recently visited the Pune manufacturing facility of Premium Transmission Pvt Ltd, where it also caught up with Neeraj Bisaria, the Company's MD & CEO. In view of the recently launched seven new products, Bisaria said that Premium Transmission – a leading manufacturer of gearboxes – is now adopting the strategy of focussing on special segments. “For example, these new products will cater to industries varying from oil & gas, steel, cement, F&B, power, material handling, elevators, etc. From being a product manufacturing company, we have started the journey towards becoming an engineering & innovation company. This is exactly why we opened a new Product Development Centre in Kolkata earlier this year. And having launched seven new products recently, we are now looking to launch six more new products by Q1 of 2020. Premium's R&D spend is also quite healthy at about eight percent.”

Speaking about the Company's manufacturing footprint, Bisaria informed that Premium has three manufacturing units in India & one in Germany. Pre-

mium's growth strategy is three-pronged with focus on market, product as well as application. “This gives us a larger scope to grow,” says Bisaria. The gearbox industry is growing quite well in India and Premium commands a good market share of about 25%. In terms of industry sectors, Bisaria believes that booming infrastructure and urbanisation in the country offers a great scope in segments like power, steel and cement. “The industrial gearbox segment is also evolving, and we are ensuring that we remain at the forefront,” he says. Going ahead, Premium will also be looking at the renewable energy sector. “Currently, no Indian companies is doing gearboxes for the wind energy segment and we are looking



“Currently, no Indian companies is doing gearboxes for the wind energy segment and we are looking to be the first mover in that sector.”

to be the first mover in that sector.” Premium plans to start doing wind energy boxes with two years.

While strengthening its focus on manufacturing, innovation & quality, Premium is also looking at building a robust service division. “In fact, we are currently developing service as a separate business vertical. By doing this, we will also be catering to customers not using our products,” he says. Rather than having just conventional distributors, Premium Transmission is now looking to build long-term partnership with its dealers.

With the aim of being sync with the changing times, Premium Transmission has already initiated Industry 4.0 across the organisation. “We will be making significant progress on that front by 2023. In fact, we have ERP implementation in place for the last ten years,” he shares. 

Premium's growth chart over the years

Period	Growth
2012-2017	Flat
2017-2018	8%
2018-2019	17%
2019-2020	10% (Projected)

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LVD acquires Italy-based Compac S.r.l.



LVD Company nv has announced it has acquired Compac S.r.l. of Urbino, Italy, an industrial automation solutions provider. LVD has partnered with Compac since 2016 to produce automatic warehouse systems for numerous LVD laser cutting equipment installations in Italy. The acquisition expands LVD's portfolio of automation systems for flat sheet and tube laser cutting machinery at a time when sheet metal fabricators are increasingly automating their production processes to improve overall efficiency.

A 30-year-old, family-owned business, Compac S.r.l.

specializes in the design, manufacture and integration of high-tech automatic warehouse systems, input and output handling systems, load and unload devices, and custom automation systems for industry. Compac has steadily grown its business and automation products. Its automation solutions are diverse, including handling systems for magazine and cardboard industries and conveyor lines for metal cleaning machines.

With the acquisition, Compac becomes part of the LVD Group. LVD will add Compac systems for metal fabrication to its automation offerings, broadening the choice of solutions for its punch press, fiber laser and tube laser cutting machines for customers worldwide. The metal fabrication systems will be branded as LVD. Compac will retain its brand for automation solutions supplied to other markets. All Compac products will continue to be manufactured at its leading-edge 7000 sq m2 production site in Italy.

"Compac is an innovative manufacturer with a strong engineering mindset and a proven history of advanced automation solutions," explained LVD President & MD, Carl Dewulf. "Our acquisition of Compac was driven by our interest in securing a strong future for our automation product line, to offer our customers the most advanced and reliable automation technology to keep pace with the advances of fiber laser cutting. With Compac as part of the LVD Group, we gain additional automation know-how and systems experience."

Sigma Electric acquires Avalon Precision Casting

Sigma Electric Manufacturing Corporation (Sigma) a leading global manufacturer of ferrous and non-ferrous castings, precision machined components and sub-assemblies, today announced the acquisition of US-based Avalon Precision Casting (Avalon).

"The combination of both companies will add value for our combined customer base"

Viren Joshi, CEO & President, Sigma Electric

Headquartered in Cleveland, OH, with additional plants in Wisconsin, Avalon manufactures investment castings products for blue-chip customers in the aerospace, defense, HVAC, power, agriculture, and oil & gas end markets.

The combination of Avalon's investment castings capabilities and Sigma's global, market-leading casting and precision machining capabilities brings significant product sourcing, supply chain management, and scale opportunities to each company's customer base. The combined business is well placed to be a valuable

strategic partner as customers increasingly look to manage and streamline complex global supply chains and work with world-class casting suppliers with comprehensive product offerings across metal types and process capabilities.

Viren Joshi, Chief Executive Officer and President, Sigma Electric, said, "We are excited about the addition of the Avalon facilities, and warmly welcome Avalon as a part of the Sigma team. This acquisition combines the excellent investment casting capabilities of Avalon with the global presence and strengths of Sigma. The combination of both companies will add value for our combined customer base, as together we create a more comprehensive product and service offering leveraging the strengths of both companies."

David Palivec, President & CEO, Avalon, said, "We are proud of Avalon's long history as a valued supply partner for our investment casting customers. Our new partnership with Sigma will enhance our capabilities to help us better serve our markets and expand our product offering. We look forward to our next phase of growth as a part of Sigma's global platform."



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By Niranjan Mudholkar

PARADIGM SHIFT!

Manufacturers in India are still at Industry 2.5 and by leveraging digital technologies, they can leapfrog to Industry 4.0 practices, says **Vijay Shah**, Vice Chairman, Piramal Glass Ltd.



What are the key technological trends that you see impacting the way manufacturing industry works?

With sensors and cloud becoming ubiquitous, the Connected Factory or Industry 4.0 is the single-biggest trend impacting the manufacturing industry.

Traditionally, manufacturing has been a laggard in adopting technology. Specifically, in India, manufacturers are still at Industry 2.5 and by leveraging digital technologies, they can leapfrog to Industry 4.0 practices. Leveraging IoT to integrate equipment and process data into the cloud which can then be processed through AI models to provide recommendations to the shopfloor decision makers is a game-changer.

The use of AR & VR is imperative to not only provide interactive training to the employees but also to collaborate with customers is a big trend that we see.

How is digital transformation changing the manufacturing industry in terms of operations, strategy and overall business?

We can already see disruption in banking, retail, hospitality industries where start-ups are biting into the market share of large legacy companies. In manufacturing industry, the product-as-a-service model has disrupted the industry where the new model is cannibalizing the traditional model. For a process industry like

ours, countries like India and China had an advantage over developed countries in terms of labour arbitrage. With Industry 4.0, where robots and AI are running the show, many of the manufacturing activities have started moving back to these developing countries. If Indian manufacturers do not adopt a digital-first approach, they will get disrupted.

With the dynamics of technology changing rapidly and regularly, how would you describe the importance of digital skills and digital training?

There is an immediate need to upskill the talent within the factories to augment the skills rather than replace them. Today, the most important action is to invest in capability building and cultural change. Upskilling in areas of analytics and digital technologies will prepare the workforce for the changing environment and make them ready for future learning – thus keeping



“Upskilling in areas of analytics and digital technologies will prepare the workforce for the changing environment and make them ready for future learning – thus keeping them relevant.”

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Leveraging IoT to integrate equipment and process data into the cloud which can then be processed through AI models to provide recommendations to the shopfloor decision makers is a game-changer.

them relevant.

Also, working alongside technologies such as AI & robots will enable workers to focus on more value-added activities such as analysing the data, collaboration and innovation. They need to understand the changing dynamics of their role and embrace continuous learning and change.

What is Piramal Glass doing in this context?

While we have built an entire ecosystem of partners that can provide us the skills in Analytics, IoT, Cloud & Security, we firmly believe that our employees need to be upskilled to become future-ready.

We have undertaken a massive eLearning program where we are training employees using multi-channel technologies and interactive learning modules. We have also rolled out a unique innovation management program which enables crowd-sourcing of ideas from employees using gamification, mobile and analytics to manage innovation from concept to implementation. We are also piloting the use of Augmented Reality and Virtual Reality to train our workers.

Study tours for leadership to start-ups and technology experience centres, road shows across all the plants to spread digital awareness and organizing start-up booths at our offices are some of the initiatives undertaken.

How can the industry work with the academia to make students future-ready in this context?

With India slated to become the single largest provider of global talent with one in four graduates in the world being a product of the Indian education system by 2030, there is a strong need to upgrade the capabilities of the Indian universities in areas of digital technologies.

Incubation of start-ups is one of the major areas where industry-academia collaboration will benefit both greatly. Another area we are working with leading engineering institutes is for training our employees in analytics, innovation and design.

Thus, the industry stands to gain much more by collaborating with academia. 

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By Swati Deshpande

SMART LIGHTING TO BRIGHTEN THE FUTURE

Smart LED lighting is playing a major role in making the smart cities revolution a success says **Rakesh Zutshi**, Managing Director, Halonix Technologies Pvt. Ltd.



When we analyze the most important current trends, we find a significant increase in Smart Lighting, Human Centric Lighting (HCL) and Internet of Things (IoT).

How is the lighting solution market faring in India? What are the current trends in the market?

The lighting solution market in India is currently passing through a phase of transition from conventional lighting to energy efficient LEDs. The lighting solution market is evolving very dynamically and it is embracing trends related to various technological developments, including LED technology and intelligent lighting management systems. Serving the fast growing needs of residential lighting to industrial lighting and office space lighting to street lighting— LEDs have become most popular due to a wide range of benefits they offer. As they consume 80–90 per cent less power than the usual incandescent bulbs, LED lights have been widely accepted among the consumers. When we analyze the most important current trends, we find a significant increase in Smart Lighting, Human Centric Lighting (HCL) and Internet of Things (IoT).

In recent years, Indian government has emphasis

on adaption of LED lights. How is this initiative helping companies such as yours?

The government is doing commendable job to promote LED market segment in India by introducing many schemes like LED bulb distribution under domestic efficient lighting programme in Delhi, National Programme for LED-based Home and Street Lighting apart from distributing free LED lights in rural area. All these efforts are jointly promoting the growth of lighting sector with while providing level playing field to all the lighting manufactures including us in India. Adding wings to the government's ambitious 'Make in India' program, Halonix Technologies has already embarked on its mission to create a robust ecosystem in LED lighting manufacturing sector in India. We are instrumental in contributing in the growth of the manufacturing of energy efficient LED lights in India.

What role does IoT play in lighting solutions? How do you foresee future of smart lighting solutions?

The IoT-based LED Lighting is the future of lighting particularly in the development of Smart Cities. With the help of IoT, smart street lighting platform is being created to help the upcoming smart cities manage traffic & pedestrian movement patterns efficiently. Smart LED lights allow the operators to control & monitor lights using light management systems & lighting controls enabled by IoT. Smart LED lighting solutions are playing a major role in making the on-going smart cities revolution a success in the country; hence I foresee stupendous growth in their demand. Apart from cutting energy costs, smart LED lights also help in making smart cities more efficient, cost-effective and safer.

Please tell us about your manufacturing facility & NABL laboratory.

Halonix is pushing the credo of 'Make in India' through its state-of-the-art manufacturing facility based at Haridwar. It is one of the few companies to have its own NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited test lab within our manufacturing premises. The R&D team tests and develops products tailor-made for India at this laboratory. 

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MAC

By Swati Deshpande

WELL BALANCED SUCCESS

Ravi Saxena, Managing Director & Co-founder, Wonderchef shares success story of the brand with The Machinist.



“The focus on technology and innovation ensured that a new brand was able to cut through the clutter in a rather traditional industry, and became the company that took the shortest time to grow from zero to 400 Cr.”

Please tell us about journey of Wonderchef.

Wonderchef was an idea that emanated from my interactions with Indians traveling abroad, whom I interacted with in over 65 countries when I travelled for work. They would always be found looking for quality non-stick pans and blenders. These insights helped me identify certain latent needs that became the cornerstone of the business model of the company. The credibility I had earned during my years of work helped me raise investment from across the globe from fellow professionals who trusted my skill sets and commitment.

The focus on technology and innovation ensured that a new brand was able to cut through the clutter in a rather traditional industry, and became the company

that took the shortest time to grow from zero to 400 Cr. level retail sales in the industry. Today, Wonderchef has a truly omni-channel distribution strategy with a 360 degree approach to target consumers. It has enjoyed three rounds of funding and has become a brand that is loved and advocated by its customers.

All this did not come easy though in hindsight everything looks rosy even to myself! The company did everything to survive in the initial period which coincided with the global financial meltdown of 2008-09. We offered consulting services, strategy solutions, culinary classes, employee engagement services and a few other solutions to be able to pay the bills. Working capital was always in short supply as growth continued year after year. Building a team was a long, arduous process. However, I believe that all these things are the steel framework around which a tall building rises to the sky.

How is the kitchen appliances & cookware markets faring in India?

The kitchenware industry is ever evolving industry and is at a fast clip. With major changes in the policies especially related to the regulatory and business environment are driving the industry towards growth. The growth seems to be in upward trajectory due to continuous technological advancement and evolving lifestyles. The Make in India initiative of the government has also attracted the investors.

The size of kitchen appliances industry in India INR 22,000 crore per annum, and is expected to grow at 13.9 per cent. The user penetration is expected to increase to 21.8 per cent in next five years as compared to 13.4 per cent in 2019.

Tell us about one of Wonderchef's innovations that you are personally proud of.

Health, Taste and Convenience are the three pillars of our brand. Wonderchef has always leveraged innovation & technology to surprise & delight its customers.

We are proud of our products which completely embody this philosophy. Our Royal Velvet non-stick

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Some of our Brand Ambassadors



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CEO and Chairman
Aequus



Bertrand Figueras
MD, Faurecia Clean Mobility,
India & ASEAN



Hemant Watve
MD,
Wilo Mather & Platt Pumps



Kamal Bali
President & MD
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CEO
DOW India

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Niranjan Mudholkar | +91 9819531819

For partnership opportunities:

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I always give an IAS and HHH mantra to all the entrepreneurs. IAS spells out as Integrity Ability and Stability. Be honest in what you do, develop the ability and keep honing your skills. Also, learn to be stable during the tough times.

pans, Nutri-blend (which has become the most loved mixer grinder, thanks to its compact form, design and function), food prep innovations like Turbo Chopper, Cold-pressed juicers, energy efficient Ultima Cooktops, safe and durable Nigella Cookers, and affordable but efficient Revo Stand Mixer. With Nutri-Pot and its integration with Alexa, we have raised the bar for the industry.

We constantly strive to achieve a balance between the form and function – be it choice of design, material, and technology or production process. This helps us curate products which impeccably transition from kitchen to the table.

Introduction of colors in the kitchen cookware is something we are incredibly proud of. We are the pioneers of making colourful kitchen cookware which has reduced the monotony of the kitchen and has helped the brand in creating unique value proposition.

What are Wonderchef's expansion plans?

The company plans to clock in 1200 Cr. in retail sales within the next five years with profitable growth. We do not believe in the cash burn model of growth. Most

of the profit is reinvested however in marketing, service infrastructure and hiring the best talent. We have presence throughout India and are also creating the brand internationally across Australia, Middle East, Americas and Europe.

What is your vision for Wonderchef?

My vision for the company is to be the kitchen expert for our customers wherein we provide them with elegant yet simple solutions. We are inspired by global trends to create beautiful kitchen stories that bring out the culinary artist in you! The core belief of the brand is to enable everyone to cook tasty meals without any compromise on health. Along with this, we have always believed in empowering women by enabling them to create their own business and cook healthy for their families, with pride. We are focussing on integrating technology in the product development to develop products as per the evolving lifestyles and needs.

What advice would you give to today's young entrepreneurs?

I always give an IAS and HHH mantra to all the entrepreneurs. IAS spells out as Integrity Ability and Stability. Be honest in what you do, develop the ability and keep honing your skills. Also, learn to be stable during the tough times.

There is HHH mantra which is within you that you need to develop. Be Humble, Keep your Hunger Alive and have a sense of Humour. 

L&T LAUNCHES OPV FOR MINISTRY OF DEFENCE

Recently L&T launched the fifth Offshore Patrol Vessel (OPV) for the Indian Coast Guard at its Kattupalli Defence Shipyard. This is the 60th Defence Vessel built and launched by L&T for Ministry of Defence, till date. The vessel was launched at the hands of Gargi Kaul, IA & AS, Secretary (Defence Finance), Ministry of Defence in the august presence of Additional Director General KR Nautiyal, PTM, TM, Coast Guard Commander Eastern Seaboard of Indian Coast Guard and other dignitaries.

Larsen & Toubro is executing a Ministry of Defence contract for design and construction of seven OPVs with deliveries mandated between 2018 and 2021. The shipyard delivered three OPVs ICGS Vikram, ICGS Vijaya and ICGS Veera and have been commissioned in the Indian Coast Guard during the financial year 2018-19, all ahead of schedule. Fourth OPV ICGS Varaha is currently undergoing sea trials and will be delivered in coming weeks. L&T's modern Greenfield shipyard at Kattupalli is capable of undertaking simultaneous

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L&T's shipyard at Kattupalli is capable of undertaking simultaneous construction and refits of multiple ships and submarines.

construction and refits of multiple ships and submarines. With in-house design & engineering, L&T has delivered Floating Dock (FDN2) to the Indian Navy and 03 OPVs & 46 Interceptor Boats to the Indian Coast Guard.

Commenting on the launch, S.N. Subrahmanyam, CEO & Managing Director, Larsen & Toubro, said: "It gives me immense satisfaction to witness L&T's growing contribution to strengthen the nation's fleet of defence ships. The launch of L&T's 60th defence vessel today and commissioning of 50th ship into the Nation's service within a short span of 9 years of defence shipbuilding operations bear testimony to our commitment towards 'Make in India'." 



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West & North

Ranjan Haldar | +91 9167267474 | ranjan.haldar@wmm.co.in
Jangam G. | +91 9820053063 | jangam.gangaram@wmm.co.in

South

Mahadev. B | +91 9448483475 | mahadev.b@wmm.co.in
Prabhugoud Patil | +91 9980432663 | prabhugoud.patil@wmm.co.in

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By Sanjay Gupta

STEELING THE SHOW

Due to the rise in the infrastructure projects including the modern day styling essentials and the cost-effectiveness, the global market of ERW steel pipes and tubes is emerging bigger.



“Electric resistance welded pipe is manufactured by rolling metal to become a pipe and is welded longitudinally using electric resistance welding process at a cost-effective price. The ERW pipe has a welded joint in its cross section.”

The word ‘steel’ may not sound as glamorous as words like ‘lifestyle’ and ‘fashion’ but has undeniably become an integral part of our life’s journey and lifestyle. And, the sole reason is the multi-functionality and adaptability of steel.

Without steel, one can’t imagine safe use in electricity-power-line, natural-gas pipelines, and even the nation can’t imagine defending itself from its enemies without steel, for it being primarily used in military weapons. Well, the list is endless!

Truly, sans steel, the development of humankind would not have been possible. And, that’s why the metal is called as the backbone of developed economies. In India, the steel sector has been a major contributor to India’s manufacturing output and contributes substantially to the economy. World Steel Association has

projected Indian steel demand to grow by 7.5 percent in 2018 and by 7.3 percent in 2019 while globally; steel demand has been projected to grow by 3.9 percent in 2018 and by 1.4 percent in 2019.

BIRTH OF MODERN STEEL

It’s very fascinating to see how steel has strengthened our lives, ever since it started getting developed, which can be traced back to 4000 years. Taking a leap to 1800s, steel was used to make swords, watches and armour. Producing steel was very costly at that time and was mainly used for high-end products.

In the 20th century, the usage of steel evolved and was known for its use in architectural expression. Its entire revolutionary process to form building can be marked out at the beginning of 20th century. Steel superior structure properties along with an increasing manufacturing process based on innovations helped steel to get an edge over earlier forms of iron and respective structures.

Steel was first stimulated in railway industries and later its usage increased due to its efficacy in large scale building projects. Today, steel isn’t just a material par excellence but has become a potent symbol of economic power. Today, steel is used in almost everything and is becoming more & more versatile. Construction, automobiles, and increasing rate of a middle-class family & the requirement of new infrastructures in developing countries have led to increased consumption for the product.

NEW VARIATIONS

The Steel industry has progressed significantly, the ongoing innovation and technological changes in the field have made our life easier, better and stronger. Electric resistance welded (ERW) pipes or tubes are the newest in innovation and in trend in the field of steel.

Electric resistance welded pipe is manufactured by rolling metal to become a pipe and is welded longitudinally using electric resistance welding process at a cost-effective price. The ERW pipe has a welded joint in its cross section.

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Jangam G. | +91 9820053063 | jangam.gangaram@wmm.co.in

South

Mahadev. B | +91 9448483475 | mahadev.b@wmm.co.in
Prabhugoud Patil | +91 9980432663 | prabhugoud.patil@wmm.co.in



Why ERW intervention? The features are superior. ERW Tubes' and pipes' are high strength corrosion resistant, highly malleable, and superior in strength and durability. They are the need of the hour and thus, creating a new space in the domain. The pipes and tubes can easily transport water; they ensure stable supply to a remote area and eliminate the risk of wastage, pilferage and spilling. The pipeline projects are anytime cheaper than the expansion of road transport infrastructure. As a means of using it in the infrastructure segment, ERW pipes are the most reliable and cost-effective products.

ERW'S MARKET POTENTIAL; BRANDING IS ESSENTIAL

ERW steel in varied forms is 'style' today, whether within homes and beyond homes and will continue to be so. Malls, atriums, staircase, partition frames, space frames, sports stadiums, frames bridges, everywhere, we find its usage. Also, factors like the recovery in oil prices from the prolonged slump and a subsequent improvement in spending on exploration and production activities, are enlarging the landscape for pipeline infrastructure projects, and thus, for ERW pipes too.

Besides, they are undoubtedly the most suited for smart cities projects in the country as they can be used in underground carriage systems for transporting sewage from buildings and homes, and distribution of resources such as electricity, and water.

So clearly, due to the rise in the infrastructure projects including the modern day styling essentials and the cost-effectiveness, the global market of ERW steel pipes and tubes is emerging bigger. The Domestic ERW Steel tubes market size at ~Rs. 30,000 crore and the industry is expected to grow at ~10-12 percent CAGR every year. The steel demand in India is further expected to grow at ~6-8 percent through FY21, of which, steel pipe will form ~10-12 percent of the total steel demand, thereby providing a huge opportunity for steel pipe consumption in the years to come.

Major steel manufacturers like Tata Steel, Jindal Steel are always in the race but are yet to take the lead in the ERW steel tubes and pipes category when it comes to advertising. The category is an emerging trend in the

field of steel and, thus, branding exercise for existing and upcoming products is important to meet the challenge of gaining a competitive edge.

To compete, every sub category needs branding whether we talk about applications like fencing, line pipe, scaffolding or usage in pipelines or agriculture. Thus, the players in the field must keep up with the demands of the time to lead the space and emerge as one-stop-shop for the spectrum of steel tubes while working on cutting edge technology and bolstering every new product with a brand name.

THE MANUFACTURING PROCESS OF ERW STEEL PIPES

Electric Resistance Welded (ERW) pipe is manufactured by cold-forming steel sheet into a cylindrical shape. Current is then passed in the middle of the two edges of the steel to heat the steel to an extent at which the edges are forced to form a bond without the use of welding filler material. Initially, this process of manufacturing used low-frequency A.C. current to heat the edges and the process was used from the 1920s until 1970. In 1970, the low-frequency process was superseded by a high-frequency ERW process which started producing a higher quality weld. Over time, the welds of low-frequency ERW pipe was observed to be receptive to selective seam corrosion, hook cracks, & inadequate bonding of the seams, therefore, low-frequency ERW is no longer used for pipe manufacturing. The high-frequency process is still used to manufacture pipe for the construction of a new pipeline.

DIFFERENCE BETWEEN SEAMLESS AND ERW STAINLESS STEEL PIPE

Seamless steel pipe is made from solid round steel which is heated and pushed or pulled over a form to shape the steel into a hollow tube. While Electric Resistance Welding (ERW) pipe is manufactured by undulating metal in circular form and then welding it longitudinally across its length. Seamless pipe is manufactured by stretching the metal to the desired length. Therefore, ERW pipe has a welded joint at its cross-section, while seamless pipe does not have any joint in its cross-section through-out its length.

Talking about the usage, the seamless pipe is finished to dimensional and wall thickness specifications for high-pressure applications such as Hydrocarbon industries and refineries, oil and gas exploration and drilling, oil and gas transportation and air and hydraulic cylinders, automobiles, bearings, boilers, etc. However, ERW pipes are mainly used for low/ medium pressure applications such as transportation of water/oil. 

The author is Chief Managing Director, APL Apollo Tubes Ltd.

By Dr. Pranjal Kumar Phukan

ENERGETIC TRANSFORMATION!

Digital technologies could offer solutions to the challenges of integrating renewable energy sources into small and large power grids which require new approaches to grid management.



“Smart factories can operate within the four walls of the Industry, but they can also connect to a global network of similar production systems and even to the digital supply network more broadly.”

The transformation of the energy sector through the deployment of more sustainable energy systems and digital transformation of the industry will substantially alter the way people live, consume, produce and trade. These two major transformations are concurrent and interconnected but are pursued in different political arenas and with different paces and priorities across the globe.

The sustainable energy transition and Industry 4.0 share important characteristics: both are highly influenced by technological innovations and are also dependent on the development of new suitable infrastructures and regulations as well as are potential enablers for new business models.

BACKGROUND

Automation has always been a part of the Industry to

some degree, and even high levels of automation are nothing new. Through the application of artificial intelligence (AI) and increasing sophistication of cyber physical systems that can combine physical machines and business processes, automation increasingly includes complex optimization decisions that humans typically make.

The smart industry is a flexible system that can self-optimize performance across a broader network, self-adapt to and learn from new conditions in real or near-real time, and autonomously run entire production processes. Smart factories can operate within the four walls of the Industry, but they can also connect to a global network of similar production systems and even to the digital supply network more broadly.

It is important to note, that on-going evolution, a continuous journey toward building and maintaining a flexible learning system rather than the “one and done” industry modernization approach of the past.

The true power of the smart industry lies in its ability to evolve and grow along with the changing needs of the organization whether they be shifting customer demand, expansion into new markets, development of new products or services, more predictive and responsive approaches to operations and maintenance, incorporation of new processes or technologies, or near-real-time changes to production. Because of more powerful computing and analytical capabilities along with broader ecosystems of smart, connected assets smart factories can enable organizations to adapt to changes in ways that would have been difficult, if not impossible, to do so before.

FEATURES OF THE SMART INDUSTRY

As many manufacturers grapple with the myriad organizational and ecosystem-wide changes exerting pressure on their operations, the smart industry offers ways that can successfully address some of those issues.

- i. The ability to adjust to and learn from data in real time can make the smart industry more responsive, proactive, and predictive, and enables the organization to avoid operational downtime and other

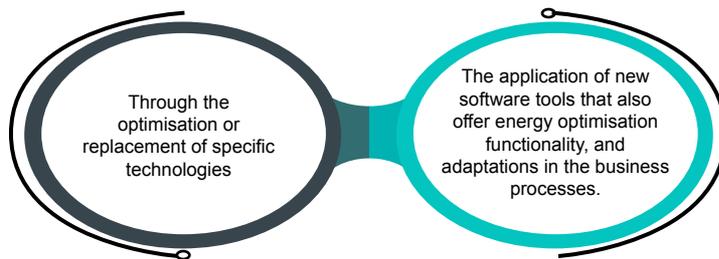


Fig 1: Energy saving opportunities

- productivity challenges.
- ii. The benefits of this automation included lower lead times for customers and lower overall costs, along with production capacity improvement of 25 percent and 50 percent fewer defective products.
 - iii. Some of its major features: connectivity, optimization, transparency, proactivity, and agility. Each of these features can play a role in enabling more informed decisions and can help organizations improve the production process.

It is important to note that no two smart factories will likely look the same, and manufacturers can prioritize the various areas and features most relevant to their specific needs. Perhaps the most important feature of the smart Industry, its connected nature, is also one of its most crucial sources of value. Smart factories require the underlying processes and materials to be connected to generate the data necessary to make

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“The sustainable energy transition and Industry 4.0 share important characteristics: both are highly influenced by technological innovations and are also dependent on the development of new suitable infrastructures and regulations.”

real-time decisions. In a truly smart industry, assets are fitted with smart sensors, so systems can continuously pull data sets from both new and traditional sources, ensuring data are constantly updated and reflect current conditions.

- i. Integration of data from operations and business systems, as well as from suppliers and customers, enables a holistic view of upstream and downstream supply chain processes, driving greater overall supply network efficiency.
- ii. An optimized smart Industry allows operations to be executed with minimal manual intervention and high reliability. The automated workflows, synchronization of assets, improved tracking and scheduling, and optimized energy consumption inherent in the smart Industry can increase yield, uptime, and quality, as well as reduce costs and waste.
- iii. Data captured are transparent: Real-time data visu-

alizations can transform data captured from processes and fielded or still-in-production products and convert them into actionable insights, either for humans or autonomous decision making. A transparent network can enable greater visibility across the facility and ensure that the organization can make more accurate decisions by providing tools such as role-based views, real-time alerts and notifications, and real-time tracking and monitoring.

THE SMART INDUSTRY

While automation and controls have existed for decades, the fully smart Industry has only recently gained traction as a viable pursuit for manufacturers. Five overarching trends seem to be accelerating the drive toward smart factories:

- i. Rapidly evolving technological capabilities
- ii. Increased supply chain complexity and global fragmentation of production and demand
- iii. Growing competitive pressures from unexpected sources
- iv. Organizational realignments resulting from the marriage of IT and OT
- v. On-going talent challenges

Until recently, the realization of the smart industry remained elusive due to limitations in digital technology capabilities, as well as prohibitive computing, storage, and bandwidth costs. Such obstacles, however, have diminished dramatically in recent years, making it possible to do more with less cost across a broader network. Further, the capabilities of technologies themselves have grown more sophisticated: AI, cognitive computing, and machine learning have enabled systems to interpret, adjust to, and learn from the data gathered from connected machines.

“Smart Industries” will leverage industrial equipment that communicate with users and with other machines, automated processes, and mechanisms to facilitate real-time communication between the factory and the market to support dynamic adaptation and maximize efficiency.

DIGITIZATION OF THE ENERGY SECTOR

Over the past few years, the digitization of energy systems has received wide attention. Developments in information and communication technologies, the spread of internet access and mobile devices such as smartphones, and the development of the block chain technology open opportunities for new approaches and business models that could significantly impact the energy sector.

Digital technologies could offer solutions to the challenges of integrating renewable energy sources into



“The digitization of the entire value creation network also opens the way to directly connect to the customer and integrate their user experience e. g. in the development of future products or additional services.”

small and large power grids which require new approaches to grid management. The term refers to grids that draw on the potentials of information and communication technologies in order to monitor and efficiently manage the generation, delivery, and consumption of electricity from different potentially decentralized sources of electricity to meet the varying electricity demands of end-users (OECD/IEA 2011). Such grids could provide the flexibility necessary to integrate renewable energies such as wind and solar into electricity networks on a large scale. However, there are still many technical and regulatory barriers to smart grids and the complexity of electrical systems makes it rather unlikely that the implementation of smart grids will be provided by the market alone (OECD/IEA 2011).

Another digital approach related to distributed energy generation is Virtual Power Plants (VPP). VPP are heterogeneous coalitions of distributed energy resources, generally composed of intermittent renewable sources, storage systems, flexible loads, and small conventional power plants that need to negotiate some bilateral contracts in advance prior to participating in the market (Shabanzadeh et al. 2015). VPP usually have a cloud-based central or distributed control centre and make use of the Internet of Things devices and other digital technologies.

An analysis and simulation conducted by German scientists show that combining virtual power plants with renewable energy will allow for the exclusive use of renewable energy sources in the future (Knorr et al. 2014). Big industry players have already taken up the

development of solutions for virtual power plants, such as the cloud-based energy management system DEMS of Siemens' Smart Grid division.

CAN DIGITIZATION SAVE ENERGY IN THE MANUFACTURING SECTOR?

One of the key characteristics of Industry 4.0 is the digitization of manufacturing processes. This transformation can offer opportunities for energy saving as shown below:

An example for the optimization of a specific technology can be found in the control of the behaviour of a large number of interconnected robots by an algorithm that reduces their energy consumption. Several innovative digital technologies also offer the chance for the replacement of conventional, often more energy-intensive manufacturing procedures. For the production of prototypes or products with low lot sizes, Rapid Prototyping technologies can be a much cheaper, quicker and more energy-efficient alternative compared to the sequence of conventional ablative procedures which would conventionally be used to manufacture them.

A more disruptive approach is to transform a range of business processes. The digitization of the entire value creation network also opens the way to directly connect to the customer and integrate their user experience e. g. in the development of future products or additional services. On-demand customized products become technologically feasible, providing the opportunity for eliminating unnecessary functionality (e. g. omit a gearshift for people who only want to cycle through flat terrain). The physical realization of every function requires resources (material for physical or energy for digital solutions), the reduction to customer-requested functionalities will help save resources compared to “all-inclusive” default solutions. 

The author is an energy sector expert based in Assam.

LIGHT UTILITY HELICOPTER CLEARS HIGH WEATHER TESTS AT HIMALAYAS

HAL designed and developed Light Utility Helicopter (LUH) successfully demonstrated high altitude capability in hot and high weather conditions in the Himalayas. The trials were carried out by the test pilots from HAL, IAF and the Army recently.

“The LUH has complied with all the requirements of the users and with the completion of hot and high altitude testing, it is close to operational clearance certification,” says R Madhavan, CMD, HAL.

All planned tests were successfully demonstrated. A comprehensive test plan was executed at Leh

(3300m) in temperatures upto International Standard Atmosphere (ISA) +32 degree C which included envelope expansion, performance and flying qualities. The LUH then lifted off from Leh and demonstrated its hot and high hover performance at Daulat Beg Oldie (DBO) Advanced Landing Ground (ALG) at 5000m followed by another forward helipad (5500m at ISA +27degree C). While these extreme weather conditions imposed flight restrictions on all other civil and military aircraft, LUH flights were unhindered as it is designed for such operations. 

By Niranjana Mudholkar

INVESTING IN GROWTH!

The regulatory discussions have been active with the current government and several policy initiatives have enabled a boost to the PE-VC-Start-up ecosystem, says **Rajat Tandon**, President, Indian Private Equity and Venture Capital Association (IVCA).



“Investments in the first half of 2019 have increased by 27 percent in terms of value compared to the first half of 2018 and 30 percent compared to the second half of the previous year.”

Can you provide a brief overview of the private equity & venture capital industry in India? How was the last financial year and how have things turned out in the first quarter of this FY?

As per a report published by EY in partnership with IVCA, the year 2019 has been the best half-yearly performance ever for the PE-VC industry. The report states that the investments in the first half have increased by 27 percent in terms of value compared to the first half of 2018 and 30 percent compared to the second half of the previous year. It amounts to US\$23.4 billion in 2019 vs. US\$18.5 billion and US\$18 billion respectively in the first and second halves of 2018.

How does it compare with the more developed

markets like the US, Europe or China?

Limited Partners (LPs - that invest in PE-VC funds) with a diversified outlook are focusing on the Asia Pacific region. In the first three months of 2019, India's fintech outpaced China start-ups fundraising. There have been several exits in China whereas India is also catching up in the exit deals as well as the race for more Unicorns (start-ups valued at more than US\$1 billion), almost 50 percent of world's unicorns are coming from the United States, 25 percent Chinese and the Indian share is five percent.

What are the key challenges faced by the industry and how is IVCA helping the industry to address these challenges?

The regulatory discussions have been active with the current government and several policy initiatives have enabled a boost to the PE-VC-Start-up ecosystem. There are certain issues that we are discussing with policymakers, few are:

- Higher surcharge on FPI, specifically, SEBI registered Category III Alternative Investment Funds (AIFs),
- Offering safe harbour to India based fund managers of India-focused offshore funds
- Tax parity for sale of unlisted shares with listed to boost Start-up India
- A lower GST rate on services provided to AIFs subject to the condition of non-availing of the input tax credit

What are the various activities undertaken by IVCA to promote and enable the industry?

IVCA has four primary charters: Advocacy, Networking & Education, IIC i.e. the IVCA Industry Centre and Building a domestic (LP) Limited Partner (investors that fund PE-VC investors) base;

- At IVCA, we have strategized a whole framework around these pillars and constantly engage with our members that are investors and knowledge partners on one side, government, regulators and policymakers on the other side.



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“Few pointers that any investor would look is the stage that the company is in vis-a-vis its peers, the absolute market size and industry growth expectation that the company operates in, experience, ability and vision of the management, entry barriers, revenue visibility among other factors.”

- We have hosted several roundtable discussions with the government and also events focusing on these activities. We have been able to build great engagement with LPs through our engagements and roundtables.

What are the key parameters the industry looks at while considering investments in a new company or an idea?

Few pointers that any investor would look in a company is the stage that the company is in vis-a-vis its peers,

the absolute market size and industry growth expectation that the company operates in, experience, ability and vision of the management, entry barriers, revenue visibility among other factors.

Every fund has its own investment philosophy and operates within the ambit, which may be focused on early-stage, mid-market, growth, late-stage, buyout etc. with a defined investment range depending on the fund size and the expected number of investments. At the same time, the fund may be sector-specific or sector agnostic.

Today, innovation has become costlier as entrepreneurs and start-ups are more inclined towards disrupting industries rather than enabling them. Is this a good scenario for your industry?

Technology-driven innovation or even deep tech start-ups usually bring down the costs, on the contrary, a lot of businesses are very new and dependent on data, where certainly money is being spent to collate that and lure users/customers, but they are also on the path to find better solutions, build user-friendly products. India works in a very different way and we need more businesses tapping the India 1, 2 & 3 mindset, more importantly, entrepreneurs are building solutions targeting every segment and it has its own challenges.

Is it true that the private equity & venture capital industry is heavily skewed towards tech and service start-ups? Which are the other attractive segments?

As per the EY & IVCA, PE-VC tracker, H1 2019 has seen investment by deal value in the following order: infrastructure, financial services, real estate, e-commerce, technology, which is different than H1 2018, where financial services topped infrastructure and technology topped e-commerce. 🇮🇳

MOTHERSON SUMI TO OPEN A PLANT IN UAE

Motherson Sumi Systems Ltd (MSSL) has recently held a ground breaking ceremony at Ras Al Khaimah Economic Zone (RAKEZ) Al Hamra Industrial Zone, UAE to mark the beginning of the construction of its factory which is presently being built on a land that stretches to over 21,000 m². The company's operations are expected to officially commence on the second quarter of 2020.

Vivek Chaand Sehgal, Chairman of MSSL, said: “We are very glad to have taken this important step of setting up our manufacturing facility in the fast-growing emirate of Ras Al Khaimah. This provides us great opportunities for larger exposure to the

global markets. We are truly proud to be working in conjunction with RAKEZ, which is among the leading economic zones in the region.”

Welcoming MSSL to the RAKEZ family, Ramy Jallad, Group CEO of RAKEZ, said: “We consider the coming of Motherson to our thriving industrial ecosystem as another significant milestone in our commitment to underpinning the industrial growth in the emirate. This very industry is among the leading contributors to the emirate's stability and strength in tackling economic headwinds. I'm sure that Motherson is one of the great additions we are going to have this year.” 🇮🇳

Webasto expands production capacities in Mexico

Webasto recently celebrated the opening of its new plant in Irapuato on August 20. Since 2008, the company has produced roofs in Irapuato for various automobile manufacturers with locations in Mexico and Brazil. Here, Webasto also produces components for its own plants in the USA. Due to increased demand in recent years, the company has invested 28 million USD in building a new, considerably larger location. At the opening ceremony, Webasto US CEO and President André Schoenekaes stated, "Webasto is proud of our continued growth and history in Mexico. The opening of our new Irapuato facility is an investment into our company's future, an investment in the people of Irapuato and the state of Guanajuato. Not only will this expansion

strengthen our relationship with Mexico, but it will help us to better collaborate with customers. Their goals become our goals and together we achieve success."

Construction work on the new site in Irapuato began in March 2018 and was completed almost 15 months later in July 2019. At 35,000 square meters, the new location is approximately three times larger than the previous one. The number of employees is expected to rise from around 460, by about a quarter to 580 within the next months. In addition to the expanded production capacities for sunroofs and panoramic roofs, the new building also offers space to drive forward region-specific developments for customers.

Altair and CoEP sign MoU

U.S.-based Altair has signed a MoU with College of Engineering, Pune (CoEP). The MoU establishes cooperation between the entities to establish a "CoEP – Altair Centre of Excellence on Electric-Mobility" on the CoEP campus, which will enable more than 60 engineers to work simultaneously on electric mobility applications. The CoEP will conduct formal PG-diploma courses as part of the student curriculum while Altair will act as the technology partner, providing students with simulation tools and course programming focused on electric mobility.

The one-year full-time PG-diploma will include courses in energy storage systems for battery management, a bridge course in electric and mechanical disciplines, vehicle dynamics and traction, sensors and controls in electric vehicles, IoT and vehicle communication followed by hands-on exposure to industrial in-plant training.



"Electric mobility has always been the first choice wherever electricity has been available for long distances in trains, for short distances in trams or subways, and even within buildings in elevators and escalators. Electric mobility is therefore a focus area in environmental, economic and social terms. We are happy to have Altair as our industry partner to drive the need of trained technical manpower for the country in this domain," said Dr. Bhartkumar Bhagatraj Ahuja, Director, CoEP.

Mahindra & Mahindra inaugurates assembly plant in Sri Lanka



Recently, Mahindra & Mahindra Ltd. expanded its global footprint with the inauguration of its local automotive assembly plant at Welipenna, near Colombo, Sri Lanka. Christened Mahindra Ideal Lanka Pvt. Ltd. this assembly plant is in collaboration with Ideal Motors of Sri Lanka.

The assembly plant recently rolled out its first product, the compact SUV, KUV100 and will roll out a slew of products over the next 3 years.

The CKD assembly plant was inaugurated in the presence of Honorable Prime Minister of the Democratic Socialist Republic of Sri Lanka, Ranil Wickremesinghe, his Cabinet of Ministers, Malik Samarawickrama, Indian High Commissioner to Sri Lanka, Dr. Pawan Goenka, Managing Director, M&M Ltd, Arvind Mathew, Chief of International Operations, M&M Ltd and other dignitaries.

Speaking on the occasion, Dr. Pawan Goenka, Managing Director, Mahindra & Mahindra Ltd. said, "Inauguration of this automotive assembly plant is a significant milestone for Mahindra's foray into the Sri Lanka market. Sri Lanka is a key strategic market for us and we are now fully equipped to deliver products customised to local needs, on time,"

He further continued, "I would like to thank the Government of Sri Lanka for their unstinted support and I am very optimistic that this new assembly plant will not only add to industrial growth in the country but will also generate significant employment opportunities at our plant and at supplier's end."

Hino opens new manufacturing facility in the USA



Hino opened a new 1,000,000 sq. ft. manufacturing facility in Mineral Wells, WV, US. Hino Motors Ltd. President and CEO, Yoshio Shimo, attended the event and commented, “Hino is committed to building its trucks and products in the market it operates in. We have committed \$100 million in capital investment into our new state-of-the-art manufacturing facility, generating 250 new jobs. Today, I am excited to announce an addi-

tional commitment of \$40M in investment to meet increased demand and product configurations, creating an additional 250 new jobs, totalling 800 team members.

“Hino has been a tremendous partner to the State of West Virginia since 2007,” stated Governor Justice. “With 800 West Virginians planned to be employed by Hino, they continue to be one of West Virginia’s biggest employers. We thank Hino for their continued investment in the great state of West Virginia.”

Hino’s first truck rolled off the assembly line at the new plant in June where it will continue to assemble all class 6, 7 and 8 conventional trucks, including its newly released class 7 and 8 XL Series. The new facility can produce 15,000 trucks a year on one shift, providing Hino the capacity it needs to continue to grow in the U.S. Hino continues to be the fastest growing commercial truck brand in the U.S. in its competitive class.

Continental plans to expand its Manesar Plant

Continental continues to expand its localization efforts in India. Continental’s plant in Manesar reached a milestone of producing one million speed sensor units a month. The speed sensor product portfolio of Continental includes wheel, engine and transmission speed sensors for passenger vehicles, while for 2-Wheelers it is wheel and engine speed sensors. Continental is significantly increasing its capacity to produce speed sensors at its plant to meet the growing demand caused by recent safety and emission legislations in India.

“Continental has been an ardent advocate and promoter of integrated road safety technologies across different markets. On-road fatalities in India are significantly higher, as compared to other markets. For this reason, it becomes critical for us to have a strong focus on road safety technologies for the region. With our wide portfolio of safety technologies, we are supporting OEMs in India and in global market to achieve optimal level of vehicle safety”, says Prashanth Doreswamy, Market Head of Continental India and Managing Director, Continental Automotive, India.

Explaining further, “Our localizing approach has worked well for us. In the last few years we have been steadily increasing our capacity to meet the growing demand for integrated safety technologies in India. Safety legislation and increased awareness among the consumers have been the key drivers for the uptake of the safety technologies in India”.

Schaeffler India establishes new corporate HQ in Pune



Schaeffler India Limited has announced the opening of new corporate office in Pune, India. The new office that consolidates all corporate and sales functions will now serve as India headquarters. Following the completion of merger of three legal entities in India, the new office is a key milestone towards integrating and establishing one strong entity.

Located in Pune city, the new office space is designed as per Schaeffler’s new work philosophy and offers employees a modern work environment - connected, open and productive. With concepts such as open office layout, virtual meeting rooms, seamless breakout and huddle zones, the new office promotes culture of collaboration and creativity.

Speaking at the inauguration, Dharmesh Arora – CEO Schaeffler India said, “This is a significant milestone as we continue our One Schaeffler India journey of leveraging the synergies and opportunities of our three strong brands – LuK, INA and FAG present. The consolidation of our offices means that corporate and sales functions will operate together as one organization, as one team under one roof, enabling faster and efficient collaboration to serve our customers better. New office is another important milestone towards positioning ourselves as an Employer of choice”

By Lalit Mishra

HOW IOT IS ENSURING SAFETY OF EMPLOYEES AT WORKPLACES?

EHS in manufacturing is increasingly relying on IoT-based functioning. Here is how.



With increasing awareness, technological advances that can avert risks and potential dangers and a higher share of youth dominating the blue-collar workforce worldwide, demand for employee safety is gaining steady momentum

Today, blue collar jobs in the manufacturing industry are constantly under the threat of accidents, often leading to fatal outcomes. With dated safety measures, enterprises face challenges such as unexpected on-field incidents, delayed incident response and lack of information on how the employees are moving through the industrial work environment. The International Labour Organization (ILO) estimates, occupational accidents and diseases cause 2.78 million deaths every year while non-fatal occupational accidents and diseases make 374 million workers miss at least four working days annually. This is certainly not a good statistic from a business standpoint. To add, unsafe working conditions not only lead to workers' sufferings, but also business losses resulting

from their absenteeism. Here, the adoption of Internet of Things (IoT) is a viable solution that can not only remotely monitor the working conditions and workers' wellbeing, but also analyse the data accumulated to effectively alert future hazards, thereby reducing the risk of accidents and employee sufferings.

With IoT gradually smoothening the process of manufacturing through connected devices, sensors and wearables, it's likely that every sub-sector in the manufacturing industry would be keen to reap its technological benefits in full. Having a high rate and probability of potential hazards, Employee Health and Safety (EHS) in manufacturing is thus increasingly relying on IoT-based functioning.

Earlier, EHS was a low-priority area in manufacturing and the limited awareness resulted in less budgets here. With increasing awareness, technological advances that can avert risks and potential dangers and a higher share of youth dominating the blue-collar workforce worldwide, demand for employee safety is gaining steady momentum and enterprises too are realising its worth. On one hand, IoT is ensuring employee safety and on the other hand, its leading to higher productivity and a better brand image for the enterprise.

ENSURE AND UPLIFT EMPLOYEE SAFETY AT MANUFACTURING SITES

The manufacturing industry, especially the organisations in heavy manufacturing, are usually spread across a wider geographical area, sometimes with sites at remote locations too. Thus, in the absence of real-time monitoring of workers or the site, supervision of the process and ensuring worker safety comes with bigger challenges, especially in India. According to LNS research, almost 53 per cent of the total manufacturing and industrial operations lack in EHS due to this.

The traditional monitoring of EHS relied on data metrics of 'lagging' key indicators such as Lost-Time Claim (LTC), Disabling Injury (DI) rates, number of

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The mandatory usage of IoT-enabled wearables by workers and sensors, on the other hand, feeds information regarding their well-being, tracking critical health indicators such as heartbeat, body temperature, pulse rate, breathing and movement, helping to trace emergencies and/or predict health hazards.

accidents and illness cases reported. However, these indicators fail to evaluate the health and management system and are unable to predict hazards. They simply analyse the situation after an accident or hazard has occurred. Here, IoT and Big Data analysis can help organisations understand potential risks and take preventive steps accordingly. Adopting IoT will enable organisations to monitor the working environment and gather data for ready analysis. This data includes temperature, pollution levels created by chemical content, dust and smoke in the air, breathability, weather conditions, vibrations, malfunctioning or maintenance of machines amongst others and the analysis enables teams to raise an alert on potential risk factors. The mandatory usage of IoT-enabled wearables by workers and sensors, on the other hand, feeds information regarding their

well-being, tracking critical health indicators such as heartbeat, body temperature, pulse rate, breathing and movement, helping to trace emergencies and/or predict health hazards. The data of working environment and workers' condition, taken together, can be analysed via cloud technology to gauge the on-site situations, battle the emergency or upgrade the infrastructure and safety policies as per requirements. Powered by improved safety measures, workers too can continue working safely thereby reducing absenteeism and ensuring higher productivity. Moreover, rescue operations in case of disasters can also be better managed through the adoption of IoT.

Not just enhancing employees safety, IoT solutions are a huge benefit for enterprises too. Preventing hazards beforehand, ensuring wellbeing of the workers, upgrading infrastructure and taking corrective measures at the right time not just create a bigger and better brand image for the enterprise, but definitely translate to higher growth too, achieving bigger business goals! 

The author is the Associate Vice President, Strategic Initiatives, Internet of Things (Business Unit) at Tata Communications

AIRBUS OPENS IT FACILITY IN BENGALURU

Airbus India has inaugurated a 500-person, state-of-the-art office in Bengaluru to help advance the group's fast-expanding information technology and digital capabilities across its global operations. The new Information Management Centre underscores Airbus' efforts to maximise value from its global footprint, including from India where a remarkable Information Technology (IT) engineering talent pool is complementing Airbus' European partner ecosystems.

Airbus began expanding its information management capabilities in India in 2017 and is rapidly ramping up over the course of 2019 and 2020. The areas that it is expanding in include ERP operations, engineering and product life-cycle management as well as digital capabilities that include big data, advanced analytics, Internet of Things, Cloud and DevOps, API development as well as cyber security.

"Airbus is leveraging the strength of India that includes talent, the ability to scale volume and the



extremely strong presence of an ecosystem which perhaps is the largest IT partner base in the world," said Anand E Stanley, President & MD, Airbus India & South Asia. "Our latest facility is about value play. It is about insourcing rather than outsourcing. It is about core and not non-core."

The new facility is inspired by nature, using a large amount of green & natural light.

The centre will use virtual computing to reduce carbon footprint and is built to cater to the needs of differently abled employees, providing wheelchair access & braille coding wherever possible.

"Digital transformation is driving changes to our workforce evolution and make/buy approach that includes a greater degree of internal competences and capabilities as well as access to new partner ecosystems," said Carlo Nizam, Chief Information Officer, Airbus India & South Asia. "These evolutions cannot be addressed from our European footprint alone and require an integrated global approach." 

By Swati Deshpande

HUGE OPPORTUNITIES FOR GROWTH

KK Shetty, MD, Citadel Intelligent Systems Ltd (CIS) speaks to The Machinist about the growth of optical fiber market and company's future plans.



The increasing demand for newer technologies and applications like IoT and a greater number of connected devices, data transmission has become vital for the users. Hence, the fiber optic cable market is witnessing a huge opportunity of growth during the forecast period.

How is the optical fiber market faring in India?

With the paradigm shift in the technology and increasing internet penetration for better connectivity which has led to enormous data creation and data transition, today, India has transformed itself as one of the promising markets for optical fiber, globally. The digital phenomenon across the sectors has fuelled the demand for optical fiber and the sector is poised to grow by 15–20 per cent year-on-year.

Which industries are driving this growth?

As mentioned earlier, the increasing demand for newer technologies and applications like IoT and a greater number of connected devices, data transmission has become vital for the users. Hence, the fiber optic cable market is witnessing a huge opportunity of growth during the forecast period. Industries like telecom, datacenters and hyperscale datacenters, infrastructure like smart cities, government projects, Airports and metros are making huge impact and creating huge demand for Optical fiber in India.

Can you please tell us about the company's new plant?

Currently, we are in the process of setting up our new plant in Vasai, near Mumbai, Maharashtra. After our

first and largest plant in Bangalore, the Vasai plant will act as support system for CIS in terms of both manufacturing and engineering. With this expansion, we will be largely catering to telecom and infrastructure industries, especially the fiber-to-the-home products, smart cities products and solutions for govt projects, focusing on the infrastructural developments.

What kind of growth you are looking at with the expansion?

Since our inception in 2017, we have been witnessing an extraordinary growth. Considering the ongoing developments at CIS, we are expecting our business to grow more than 50 per cent year-on-year in the next three years.

The company is aiming at achieving revenue of 400 cr in the coming five years. What is the roadmap for the same?

At CIS, we mainly focus on four verticals of business-

- Enterprise (Data center and hyperscale data centers through a strategic alliance with America Fujikura Limited)- we expect this market to grow exponentially, as there is a huge demand in data center industries.
- Infrastructure which includes, smart cities, universities, special economic zones, elevated corridors, airports, etc.
- Aerospace and defence sector- we provide ruggedize tactical connectivity solutions for Air, Sea and Land defence.
- lastly, telecom where we manufacture telecom connectivity and fiber to the home products.

Given the growing demand and digital developments in all these sectors, our strong experience and expertise will strengthen us to leverage the opportunities witnessed in the above areas. This will perhaps eventually help us to grow to be 400 cr by 2024.

Please tell us about your exports.

With regard to our exports, we are focusing on Africa for our telecom products and Israel and South East Asia for aerospace and defence. 

By Swati Deshpande

BRINGING MORE EFFICIENCY

There is a huge opportunity for deploying robots in the Indian manufacturing industry says **Satyanarayana P**, Director of Robots, Epson India.



How do you look see the demand for robots growing in the Indian manufacturing industry?

As per the global standards around 74 robots are used for every 10,000 workers to automate and streamline the production. In advance countries such as Korea, nearly 600 robots are used for every 10,000 workers. When it comes to India, we currently use around three robots for every 10,000 workers. As you can sense, there is a huge scope here.

If you compare the Indian industry with the global market, the adoption of automation is very less. So, we feel there is vast scope for the robotics in the country. We need to create awareness on efficiency of the robots in terms of quality and time. Currently we are trying to do the same.

In a country like India, where labour is easily available, how far is it feasible to adapt robots over labour?

Today's youth's aspirations are different than that of earlier youth. Millennials are not only looking at secured jobs but also better jobs in terms of environment. As a result, they do not prefer to work in a greasy, dirty conditions. Job opportunities at shopping mall, food joints, etc. attract them. In such a case, robots can eas-

ily be deployed in environments where people are unwilling to work. Also, it helps create safer environment for workers. Additionally, there are some kinds of jobs are monotonous in nature. Manufacturers can allocate such jobs to robots and deploy skilled labour on more meaningful jobs.

Where can Epson robots be deployed?

Recently, we launched 6 axis robots which are ultra-low cost. Relatively, robots is a new business for Epson in India. Our robots are not big industrial robots. We offer robots which can manage a payload of 20 kg. and less than that. Therefore, we are looking at the industries which have such kind of needs such as electronics, food & beverages, packaging, etc. These robots will be



“We feel that there is a vast scope for the robotics. We need to create awareness on efficiency of the robots in terms of quality and time. So, currently we are trying to create awareness amongst the market”

good choice for small auto components manufacturers as well. In other words, these robots are made to handle small workpieces.

What role would AI play in the robotics in coming future?

Definitely, it will play a significant role. With the help of internet, exchanging data & information has become extremely easy. Technologies such as Industry 4.0 are already taking it one step ahead. Robots are already helping manufacturers achieve more efficiency and quality. Adding technologies like machine learning and artificial intelligence, would help generate more data and can help us make operations more efficient. 

By Swati Deshpande

OPTIMISTIC ABOUT FUTURE

Ravi Kumar, Product Manager – Chainflex, igus India shares intelligent modules can move from preventive maintenance to predictive maintenance



Industry 4.0, IoT & Smart Factory - these concepts are no longer a vague promise. Companies are already able to benefit from the use of intelligent systems and products.

As the manufacturing industry embraces technologies like IoT, how does it impact demand for cables?

Industry 4.0, Internet of Things and Smart Factory - these concepts are no longer a vague promise of what is to come. Companies are already able to benefit from the use of intelligent systems and products. We have developed sophisticated smart plastics, by using diverse sensors and monitoring modules for energy chains, plain bearings, linear bearings and slewing ring bearings. These intelligent isense modules can predict the service life which will be helpful in planning for replacement and any course of action.

The Financial year 2019-20 started steadily, however the couple of months have been disappointing and order intake has been dropping significantly. Major pie of the growth is shared by machine tool and automotive segments which is not withstanding the current state of automotive. We believe that intelligent isense modules will be improving productivity in automotive by being able to move from preventive maintenance to predictive maintenance.

Which industries are driving growth for you?

With the mantra of 'igus for all', we offer lubrication free, maintenance free and cost-effective solutions to many industry segments like automation industries, packaging, textile, material handling, machine tools industries and many more to count on. Our cables are

catering to all the industries which are together helping us grow.

What challenges cables manufacturers are facing India? How are you dealing with those challenges?

We have our manufacturing only in European Countries. igus India is a sale driven company. One of the most serious challenges that we face are on the standards of the cables. In India, these standards are not well established as compared to other countries standards such as CE and UL standards from Europe, US and Canada. Also, there is a high competition in the country. This coupled with challenges in regards to standards, cable manufacturers have to be agile enough to respond quickly to changing levels of demand standards.

How has been market for cables faring in India?

After facing a major decline in the demand for cables, the industry has begun to see increase in demand in the recent years. We have done quite well in special cables for the machine tools industry and parking systems. Further, we are hopeful that we will keep growing and expand our business with our products line-up.

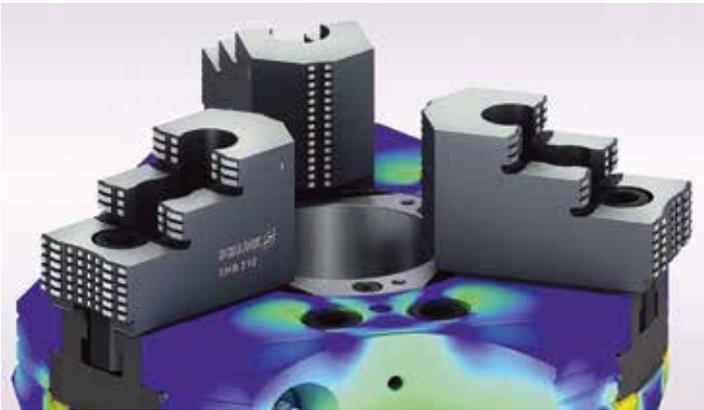
So far, how has been this financial year for you?

Our company had a very strong show in FY 2018-19. The current FY started on the same note. However, the order intake has dropped significantly from end of Q1. We consider the automotive industry as our bellwether segment as we have many products going on board automotive as well as into machines and production systems supporting the production of automotive.

As inventory has piled up and demand is not picking we see a clear downturn in automotive and sectors associated to automotive industry. This coupled with the lack of funding avenues and concerns of BSVI norms being implemented from April is continuing to slow down demand. We believe and hope that the Government would take crisp measures to spur demand and support dissipating inventory and create fresh demand. 

LIGHT CONSTRUCTION OF POWER LATHE CHUCKS

Here is how the requirements of customers for quick and energy efficient component production are met while aiming at lighter chucks for lathes.



“The topology optimization significantly reduced the weight of the lathe chuck, which also has a positive effect regarding the load on the spindle bearings.”

Philipp Schröder, Head of Development Clamping Technology.

Schuck's wedge hook power chuck ROTA NCE combines lightweight construction, maximum load capacity and innovative design. The lathe chuck was geometrically adapted to the power flow for providing maximum stiffness as well as lightweight requirements. Compared to conventional lathe chucks and depending on the size, the mass inertia could be reduced by up to 40 per cent.

HIGH STIFFNESS AT LOW MASS

The aim of the specialists at Schunk competence center for turning technology and stationary workholding in Mengen was the improvement of the energy management in accordance with DIN EN ISO 50001. They wanted to develop a clamping device with low mass or mass inertia in order to minimize the energy and duration required for acceleration. However, the basic clamping function of the chuck – measured in terms of

stiffness and variability - should be fully maintained, if possible even increased. Also the desired radial and axial run-out accuracy had to be guaranteed.

In this case, the rough structure of the clamping device components was determined with topology optimization on the basis of the respective force flow. Using the resulting parameter optimization, dimensions were then varied to identify an optimal geometrical structure. For final optimization, e.g. of the jaw guidance, a suitable geometric parameterization is important, since the topology optimization does not allow a detailed depiction of the contact areas. In parameter optimization, lift-off and non-linear contacts of the entire chuck assembly can also be modelled and simulated. The properties of the optimized clamping device could be subsequently evaluated by FE analyses and compared with the previously manufactured designs.

ARCHED STRUCTURES BELOW THE JAWS

“In ANSYS, we defined an initial model for topology optimization including the necessary constraints such as forces and bearings,” explains Mathias Siber, who used the project for his master's thesis. “The objective function of the optimization was the maximization of the stiffness, with mass restriction at 70, 50, and 30 percent of the initial mass.” In addition, the existing functional areas were marked to exclude them from optimization (non-design areas) because they should remain in their original shape. The optimization algorithm then determined the basic geometrical shape according to the mechanical loads and specified mass restrictions. In the chuck body, arched structures below the jaw guide, circular recesses between the guideways and an overall conical chuck contour were created.

“The topology optimization significantly reduced the weight of the lathe chuck, which also has a positive effect regarding the load on the spindle bearings”, stated Philipp Schröder, Head of Development Clamping Technology. “In addition, we registered the vault structure resulting from the topology optimization as



Result of the optimisation process - ROTA NCE

a design patent at the German Patent and Trademark Office in order to protect it as far as possible from unauthorized copying.”

SENSITIVITY STUDIES SHOW INFLUENCE OF PARAMETERS

After topology optimization, parameter optimization was performed on the reconstructed parametric geometry model using sensitivity studies conducted with



Topology and parameter optimization made a lightweight chuck possible where the mass was reduced by 30 per cent and the mass inertia by 40 percent. A 20 percent lower jaw centrifugal mass caused advantages such as shorter acceleration phases and a lower loss in clamping force under rotational speed.

optiSLang from Dynardo. Thus, the influence of input parameters on the desired output data could be investigated, visualized and evaluated. The subsequently used optimization algorithm searched for the minimum of the correspondingly defined target function, including the reduction of lifting even at high clamping forces. In addition to the chuck body, base and top jaws were also included in the procedure.

“Using optiSLang we could figure out how the jaw guidance should look like”, Mathias Siber explains. “We analysed which parameter changes would lead to the desired result of little deformation at low weight.” Regarding the base jaw, mass and axial lifting were critical. Here, the parameters “depth of the guidance in the chuck body” and “width of the guidance groove” dominated. The depth of the guidance showed opposite effects, because the deeper the guidance in the chuck body, the lower the lifting effect. On the other hand, the mass of the base jaw increases proportionally.

MULTI-OBJECTIVE OPTIMIZATION FACILITATES THE DESIGN PROCESS

In this case, parameters are optimized towards the objective of less lifting at the lowest base jaw mass. The result of this multi-objective optimization is an optimal depth width ratio of 2:3 for the base jaw guidance. This allows a very precise examination of the product behavior with different geometries in order to create a “robust” design. The robustness of the final design was ensured by means of suitable constraints.

While the topology optimization identified the lightest chuck design from the force flow, the parameter optimization ensured maximum stiffness and reduced notch stresses for the longest possible chuck life. In addition, a numerical stress analysis was conducted according to FKM guidelines.

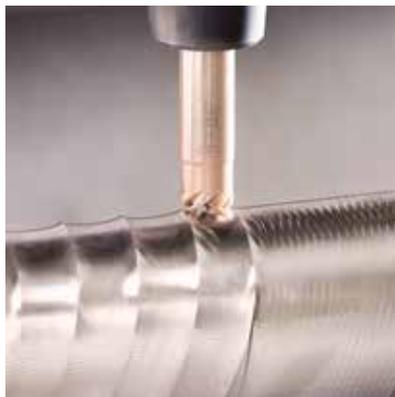
The Prototype Meets All Requirements after optimization, prototypes of each chuck size were produced. Afterwards, they were examined and verified on a test bench with up to 500,000 cycles, which took several months. “Similar to other projects and due to the profound simulation during development, only one prototype per size was required to fully meet the specified requirements”, emphasizes Philipp Schröder. “Since a prototype test can take several months, for a new development the time saved by the simulation is approximately half a year.”

Topology and parameter optimization made a lightweight chuck possible where the mass was reduced by 30 per cent and the mass inertia by 40 percent. A 20 percent lower jaw centrifugal mass caused advantages such as shorter acceleration phases and a lower loss in clamping force under rotational speed. By optimizing the parameters in the jaw guidance area, the chuck stiffness was increased while the stress level was reduced at the same time. The result was a 20 percent increase of the maximum bearable clamping force. In combination with the reduced jaw centrifugal mass, a possible speed increase of 10 percent could be achieved. By reducing the time for testing combined with a stress calculation according to the FKM guideline and depending on the sizes, a cost reduction of approx. 30% could be reached in the development. As a result, the Schunk ROTA NCE lathe chuck provides the user with ideal conditions for high process dynamics and productivity while using a minimum of energy. Particularly in large-scale production, the energy- and cycle-time efficiency of the chuck leads to significant savings and fulfills the DIN EN ISO 50001 energy management certification. 

Source: Schunk GmbH & Co. KG

HIGH SPEED ACCURATE MACHINING

Why is high speed machining penetrating more and more into rough processing? Here is an answer



| Fig 1: Solid carbide endmill with chip splitting grooves | Fig 2: Ceramic endmill

High cutting speed is a natural attribute of high speed machining. Understandably, a tool should be also precise; it is required not only by machining accuracy but also by the mechanics of a fast-rotating body. However, in last few years the issue of tool accuracy has become an additional point to consider.

The metalworking industry adopted high speed machining (HSM) in 1990s. This method was engrained in varied industrial branches & caused changes in technology & machine tool engineering. Accurate machining means maintaining repeatable strict tolerances during cutting operations. The level of such 'strictness' depends on the machining method, E.g.: milling, turning, or drilling, & the type of operation: rough, semi-finish or finish. Technological advances, especially in producing workpieces that are preformed half-finished products, place special emphasis on accurate high speed machining. Precise casting, metal injection molding & 3D printing ensure that the production of workpieces is very close to the final shape of a part. As a result, the need to remove a high volume of material by means of rough cutting decreases. As for manufacturing aluminum components, HSM has simply become a daily reality.

Machining operations with low stocks per pass have distinct advantages like lower power consumption, less heat generation, & better surface finish. Accurate HSM, which features low stock removal, is a logical extension of producing workpieces by precise modern methods. Usually, HSM relates to cutting by rotating tools - mainly milling cutters. In many cases, when a part featuring complex profiles & slots is produced from a solid material, HSM provides productive low-loaded roughing by trochoidal milling. As per this technique, a rapidly rotating milling cutter moves along a complicated trajectory & slices thin but wide layers of the material. This results in pre-shaping the part very close to a final

form. The remaining small allowance is removed in the next stage: high speed finish milling. Producing blisks (bladed discs) & impellers is a typical example of the mentioned process that may be defined by the rather oxymoronic term: 'accurate roughing'.

Successful HSM relies on a key element chain comprising a machine tool, a machining strategy, proper toolholding, & a cutting tool. The low-power multi-axis machine tools designed especially for HSM feature high-torque characteristics, high-velocity drives, effective controllers & intelligent software. Today, metalworking has in its arsenal highly reliable tool holders designed for secure tool mounting in an expanded range of rotational speeds. Under such conditions the cutting tool - the element that directly contacts a machined part during a cutting operation - can be a limiting factor in maximizing the potential of advanced machine tools. Time has not radically changed principal tool requirements: it is expected to be more durable & more efficient when cutting at considerably increased cutting speeds and

feed rates. Lowering machining allowances leads to additional tightening tool accuracy parameters. An ideal product is a precise & high-balanced tool that ensures high performance in combination with excellent tool life when cutting at high rotational speeds. ISCAR, staying true to its motto 'Where innovation never stops!', has developed a range of solutions that give new momentum to HSM concepts, & many proposed designs relate to the field of solid carbide tools.

More flutes, less vibrations

Multi-flute solid carbide endmills from ISCAR's "CHATTERFREE" line were developed especially for vibration-free high speed machining operations. Their design features a varying helix angle, variable tooth pitch & a specially shaped chip gullet, intended for applications like semi-finish & finish high speed milling, as well as roughing by trochoidal technique. The CHATTERFREE range comprises several endmill families for different applications. 7 flute endmills, produced from an ultra-fine carbide grade, are designed for machining hard materials & finish operations. General-purpose multi-flute endmills incorporate an interesting concept, according to which the number of teeth is equal to a nominal diameter in mm. 7- and 9 flute endmills were designed originally for trochoidal milling complex parts from titanium & today they form the Ti-TURBO family - this name reflects a real 'turbo' metal removal rate when milling titanium. The latest step of the line development integrates chip-splitting grooves



| Fig 3: MM HBR head

(Fig.1) in the endmill design. The new geometry has an unusual appearance because HSM forms thin chips that do not appear to need an additional chip-splitting action. However, the grooves increase vibration resistance & reduce cutting forces, significantly improving trochoidal milling & machining performance at high overhangs. In trochoidal milling, the produced chips are thin but wide. Splitting the chips into narrower segments contributes to better chip evacuation & surface finish, which increases accuracy & effectiveness in rough high speed machining.

Ceramics that cut fast

Milling difficult-to-cut high temperature superalloys (HTSA) by carbide tools necessitates low cutting speeds, normally 20-40 m/min (65-130 sfm). High speed machining with a small radial engagement, when the width of cut is up to 10% of a mill diameter, usually features cutting speeds of 70-80 m/min (230-265 sfm). The metalworking industry is always seeking ways to increase productivity when manufacturing parts from HTSA; & low cutting speed is one of the existing barriers to this goal. A solution may be found in applying cutting ceramics as a tool material for high speed machining. ISCAR has developed solid ceramic endmills that enable a dramatic increase in cutting speeds of up to 1000 m/min (3280 sfm) when compared to tools made from cemented carbide. The new endmills have a diameter range of 6-20 mm (0.236-0.787 in) & are designed with 3 or 7 flutes. (Fig. 2). Introducing the ceramic endmills in rough milling operations has proved to decrease machining time drastically & to enable fast pre-shaping of a part for further finish operations.

High speed master

Long-reach high speed milling operations require tools with long overall length. A solid tool concept is not an economically attractive option. An assembled cutter comprising a body carrying a carbide cutting head is a solution that makes economic sense. Such an approach is at the core of ISCAR MULTI-MASTER – a family of tools with exchangeable heads. A rich variety of tool bodies, heads, extensions

& reducers ensures various tool configurations & fundamentally reduces a need for special tools. An important advantage of the MULTI-MASTER line is it's no setup time principle, whereby replacing a worn head does not require additional tool measuring or appropriate CNC program adjustment - the insert can be replaced without withdrawing the tool from a machine spindle. High assembly rigidity, a balanced structure & high geometrical accuracy make MULTI-MASTER suitable for HSM. A typical example of this application is finish milling 3D surfaces of parts produced from hard materials. ISCAR's "MM HBR" bulb-shape head (Fig. 3), featuring a 240°-spherical cutting edge, center cutting ability and strict ISO h7 grade tolerance limits for the head diameter, was developed for this type of operation.

Reliable toolholding

High speed machining is impossible to perform without the use of reliable, high-grade balanced and accurate tool holders. Thermal shrink chucks are one of the most popular types of tool holder. ISCAR's line of SHRINKIN chucks includes the X-STREAM

family of thermal chucks, featuring coolant jet channels along the shank bore. The new design provides coolant flow directed to the tool's cutting edges. In the high speed milling of aerospace components (E.g. the aforementioned blisks), a well-directed coolant significantly enhances performance. For deep pockets and cavities, the new chucks with pin-pointed coolant flow have resulted in preventing re-cutting, thereby improving chip evacuation and increasing tool life.



| Fig 4: SPINJET high speed spindle

A wet coolant may be a means for upgrading machine tools from low-velocity to high-speed. SPINJET, a family of compact coolant-driven high-speed spindles (Fig. 4), is capable of maintaining rotational velocity up to 55000 rpm & facilitate high speed machining even on the low-speed machines that are still so common in the shopfloor.

Changing technologies require new machining concepts: more productive, more economical, more sustainable. High speed machining has already proved itself as a method that meets today's industrial needs. The progress in producing workpieces by non-machining processes brings in focus low-power high speed roughing. Accordingly, cutting tool manufacturers already feel the growing demands for appropriate products. It is a definite trend, which, no doubt, should be considered.

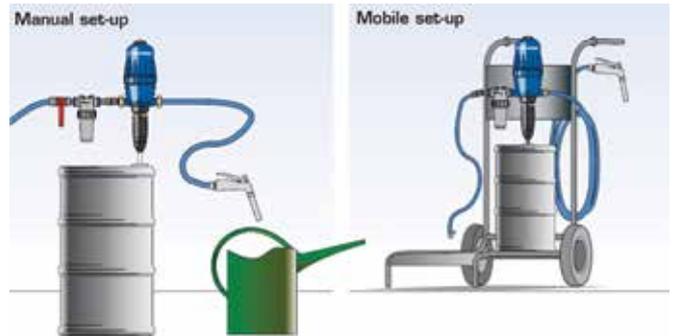
Source: ISCAR

OBVIATING NEED OF ELECTRICITY TO RUN PUMPS

Highlights of the pump are its accuracy and homogeneity

Dosatron International, a French company, has designed a pump to mix water and chemicals that run without electricity. It works by using the water flow and pressure for the purpose of mixing the liquids. The pump has only one inlet valve and one outlet valve. This pump has been designed 40 years ago in France and we have installations with quite a few prestigious clients in India. The highlights of the pump are its accuracy and homogeneity. Some of its models allow a very high volume of water flow rates. The chemical to be mixed can vary from 5–25 percent of the water volume. The icing on the cake is that the price of this pump is one-fourth to that of the electrical pump. Dosatron is driven by its motive to render sustainable, dependable, clear and simple solutions that can make its customers

THE CHEMICAL TO BE MIXED CAN VARY FROM 5–25 PERCENT OF THE WATER VOLUME.



future-ready. The company has excelled in providing excellent quality equipment that is pertinent to the usage of fluids. Along with the high standards of expertise, the company provides proximity to its customers in the global arena. It believes in providing a solution rather than

a technology for customers who want to create an aqueous solution or a mixture of any liquids.

*For more info, contact:
Kaushik Shetty
India, Middle east-Area Manager
Kaushik.shetty@dosatron.com*

OPTIMIZING THE EFFICIENCY OF AIR TOOL INSTALLATIONS



Optimizing overall equipment effectiveness (OEE) is a key to maintain productivity, ensuring work place safety and delivering the best return on investment. For air tool users in industrial applications, a correctly installed and maintained air supply system is a major contributing factor to OEE but one that can be easily overlooked and misunderstood.

Most of the pressure drop occurs between the pipe-end and the tool. The choice of right airline accessories is critical to ensure the proper functioning of the tool. At Chicago Pneumatic, we educate customers the

importance of right airline accessories through Airline Audits.

“Choosing the right tool for the job is only the first step in optimizing efficiency. However a proper air installation will ensure that tool achieves its desired performance. When it

reducing pressure drop,” says Priya Rajesh, Product Marketing Manager, Atlas Copco.

“Chicago Pneumatic offers Airline Accessories Audit to measure energy loss in the airline. Through this audit we advise customer’s correct design, installation and maintenance of

CHOOSING THE RIGHT TOOL FOR THE JOB IS ONLY THE FIRST STEP IN OPTIMIZING EFFICIENCY. HOWEVER A PROPER AIR INSTALLATION WILL ENSURE THAT TOOL ACHIEVES ITS DESIRED PERFORMANCE. WHEN IT COMES TO AIR PRESSURE, HIGHER IS NOT ALWAYS BETTER.

comes to air pressure, higher is not always better. It is important to maintain the right pressure and keep the pressure drops to a minimum to ensure high productivity. Right choice of accessories plays a major role in

airline accessories for optimum performance of the tool, higher energy savings and to reduce downtime of the tool,” she adds.

Source: Atlas Copco

ON-MACHINE SCANNING

Solutions improve productivity and increase process capability



Renishaw plans to showcase its latest scanning solutions for machine tools at EMO Hannover 2019. On-machine scanning will be one of many smart factory process control solutions demonstrated by Renishaw, which are proven to help

MACHINE TOOL BUILDERS AND END USERS ALIKE ARE INCREASINGLY ADOPTING ON-MACHINE SCANNING ACROSS NUMEROUS INDUSTRIES TO BENEFIT FROM THE ENHANCED CAPABILITY IT PROVIDES, STRENGTHENING THEIR MANUFACTURING PROCESSES AND GAINING OPERATIONAL ADVANTAGES.

machine shops across many industries transform their production capabilities.

Reducing cycle time, improving productivity and eliminating scrap are consistent driving forces for manufacturers across numerous industrial applications. Whilst on-machine touch-trigger probing is a widely accepted solution to address these challenges, its use can often be restricted in applications where minimising cycle time and maximising data density are key requirements.

On-machine scanning solutions such as Renishaw's OSP60 probe with SPRINT™ technology can address these limitations, making probing viable in applications that were previously impractical. Unlike other on-machine scanning systems which only output data in 1D, the patented 3D sensor technology in the OSP60 probe can output 1000, true 3D (X, Y, Z position) data points per second, enabling true form analysis and defect detection at unprecedented feedrates.

The OSP60 probe,

combined with a host of powerful software tools from Renishaw, provides 'real surface modelling' which can be used in a variety of different applications and downstream operations to dramatically improve production processes. Benefitting from the high density data captured by the 3D scanning system, applications include on-machine health checks prior to machining, part set-up and feature measurement, surface condition monitoring of flat sealing faces, 3D surface measurement for the manufacture of complex parts such as blades, and the adaptive machining of parts, such as castings which have variable form.

Machine tool builders and end users alike are increasingly adopting on-machine scanning across numerous industries to benefit from the enhanced capability it provides, strengthening their manufacturing processes and gaining operational advantages.

Source: Renishaw

APAC TO BE THE LARGEST MARKET FOR TOOL HOLDERS

Global demand for tool holders, specifically arising from the automotive and defence and aerospace industries, will witness a relatively steady growth between 2018 and 2028, as predicted by a research intelligence report by Future Market Insights. While the demand for tool holders will be largely driven by emerging economies, in particular the manufacturing sector, China is likely to make substantial investments in high performance cutting tools, considering the robust manufacturing and industrial output in the region. In other developing countries such as Philippines and Bangladesh, the positive scenario and policies, infrastructure, and steps, which are being taken to promote business, especially the manufacturing sector, will have a positive impact on the tool holders market

CHINA IS LIKELY TO MAKE SUBSTANTIAL INVESTMENTS IN HIGH PERFORMANCE CUTTING TOOLS, CONSIDERING THE ROBUST MANUFACTURING AND INDUSTRIAL OUTPUT IN THE REGION.

offering huge opportunities for investors.

As per the report, the global tool holders market will top US\$ 1 Billion by 2019. Moreover, growing demand for high precision products with increased output capacity is propelling the demand for advance tool holders in the global market, opines the Study.

NATIONAL PRODUCTIVITY SUMMIT 2019 SHOWCASED COMPETITIVENESS IN MANUFACTURING INDUSTRY

The program featured plant visits, keynote addresses, case study presentations and productivity championship awards.



The 13th edition of National Productivity Summit (NPS 2019) organized by Indian Machine Tool Manufacturers' Association (IMTMA) got underway today. The summit was inaugurated by Bhaskar Bhat, Managing Director, Titan Company Limited. Also present were P. Ramadas, President, IMTMA, Indradev Babu, Vice President, IMTMA and V. Anbu, Director General & CEO, IMTMA.

The two-day summit held at Bangalore International Exhibition Centre, Bengaluru from enabled delegates to learn more about best shopfloor practices from prominent industry experts on productivity gains through a series of case studies. The National Productivity Summit has been organized to serve as a learning and knowledge-sharing platform with interactive sessions and networking opportunities to usher in a fresh perspective on manufacturing as technologies surrounding Industry 4.0 gain wider acceptance across Indian manufacturing units.

In his opening address 'Impact of Productivity on India's Manufacturing Competitiveness' Bhaskar Bhat stressed on the challenges faced by India's manufacturing sector. He said that primarily the challenges centered on additional cess levied on the manufacturing fraternity, high logistics cost, the skill mismatch, and the spending on R&D. As the manufacturing sector navigates through these challenges and emerges stronger companies will be able to get their return on time incurred.

Giving his welcome address, P. Ramadas said, "Indian machine tool industry has done well in the

last financial year. It moved up by a notch and is now placed 7th in consumption and 9th in production globally as per Gardner's latest report. The country has the potential to move further up the ladder in the global list of machine tool producing and consuming countries. Although the automotive industry will continue to be the mainstay for machine tool industry business in the near future, the industry is also opening up to other sunrise sectors in manufacturing."

The summit featured live case study presentations from Bosch, BHEL, Carborundum Universal, Gala Precision, Godrej & Boyce, Khutale Engineering, Mahindra & Mahindra, Rane TRW Steering Systems, SAAB Engineering, TVS Motor Company, and UCAM, all of which will contest for IMTMA-ACE Micromatic Productivity Championship Awards 2019.

The IMTMA-Ace Micromatic Productivity Championship Awards 2019 has been organized to



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P. Ramadas, President, IMTMA

recognize and reward outstanding efforts from the shortlisted case studies of companies who have excelled in achieving superior performance.

WINNERS OF THE IMTMA-ACE MICROMATIC PRODUCTIVITY CHAMPIONSHIP AWARDS 2019

- First Prize went to Mahindra & Mahindra for 'Reduction of specific Carbon footprint by using Waste to Wealth, TPM and Industry 4.0 concept in the utility management area.'
- Second Prize went to Bosch Limited for 'Innovative approach using Mould flow analysis for productivity improvement in Common Rail Pump Housing'.
- Third Prize went to Godrej & Boyce Manufacturing for 'Use of Industry 4.0 in manufacturing for resource utilisation and reducing conversion cost'.

SME PRODUCTIVITY AWARD 2019

- Won by Khutale Engineering for 'Learn and Green approach to layout planning' 



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South: 9845126498 | Central: 9096141116 | West: 9503029832

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