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Editorial

Dear Friends,

Industrial production in India increased by 3.1 % year-on-year in April 2017, following an upwardly revised 3.8 % rise in the previous month and slightly higher than market expectations of a 3 % gain. Output rose at a slower pace for both mining (4.2 % from 10.3 % in March) and electricity (5.4% from 6.2%) while manufacturing production accelerated (2.6 % from 2.4 %). Industrial Production in India averaged 6.64 % from 1994 until 2017, reaching an all time high of 20% in November of 2006 and a record low of -7.20% in February 2009.

The core sector presented mixed trends in April 2017, with three industries contracting and two others recording subdued growth. The contraction in coal and cement output and sequential dip in growth of electricity generation weighed on the data. Steel remained the fastest-growing core sector. Indicators present a mixed picture for industrial growth for April 2017, with the decline in growth of core industries and non-oil exports contrasting with the improvement in growth of automobile production. As of May 2017, the stock of currency in public circulation had recovered to about Rs 14 lakh crore from a low of Rs 7.8 lakh crore in December 2016 immediately following demonetisation. Remonetisation has improved liquidity conditions and helped stabilise the economy.

In March 2017, German machinery exports exceeded the previous year's result by 7.6 %. Preliminary figures for the first quarter show a plus of 6 %. Export business with the two most important export markets for the German mechanical engineering sector, USA (plus 7.6 %) and China (plus 15.5 %), was above average. Positive: Deliveries to Russia, Mexico, India, South Korea and Japan were also significantly higher than in the previous year. Deliveries to EU countries increased by 2.1 %. However, deliveries to France, Italy, the Netherlands, Poland and Hungary fell short than previous year's figures.

In the last three statistically verifiable months (February – April 2017), 20 of the 28 subsectors (which are taken into account separately in the VDMA incoming order statistics) experienced an increase compared to the previous year. Four subsectors recorded growth of 30 % and more. These include metallurgical plants and rolling mills, agricultural machinery, process plant and equipment and mining. Food processing and packaging machinery, foundry machinery and Power Systems (turbines), on the other hand, suffered losses of 10 % or more. During the first three months of the year, production was 4.5 % higher. The forecast made by VDMA economists in October 2016 for 2017 predicts a one % growth in production in real terms. However, there are also several burdensome factors. Nonetheless, VDMA stands by its forecast.

In this issue we have covered news from German Mechanical Engineering, Construction Equipment and Building Material Machines, Fluid Power and Power Transmission Engineering, Food Processing and Packaging Machinery, Mining, Plastics and Rubber Machinery, Process Plant and Equipment, Robotics and Automation, Textile Machinery, Surface Treatment.

German Machinery and Plant Manufacturers Association (VDMA), has now been actively promoting knowledge on the benefits of mechanical engineering for 125 years, and with the advent of Industry 4.0, now has bigger messages to convey than perhaps at any time in its history. To mark this year's 125th anniversary, VDMA has put together a series of multimedia reports on our new website – https://humans-machines-progress.com – in which the major topics facing the world today, including work, energy, health, urbanisation and materials, are examined. We hope you would find these articles informative and useful. Do feel free to send us your valuable feedback.

With best wishes,

Rajesh Nath
Managing Director – VDMA India

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VERO-E compact quick-change pallet system
1. Sector wise news

1.1 German Mechanical Engineering industry overview

Demand from euro countries remains dynamic

Incoming orders in mechanical engineering in April fell short of the previous year’s level by 3% in real terms, while domestic orders dropped by 15%. The decline has nothing to do with an economic slump, but is largely attributable to a base effect: Thanks to several business deals involving large industrial plants, April 2016 was the strongest month of last year. Concerning orders from abroad, the April results painted a differentiated picture. While demand from non-euro countries saw growth of 1%, orders from EU partner countries increased significantly by 14%.

Production of German mechanical engineering

During the first three months of the year, production was 4.5% higher, according to preliminary calculations, than the previous year. But it must also be noted that the first quarter had three more working days than the first quarter 2016. However, a workday effect will pose a burden on the rate of change for production over the course of the year. In total, 2017 has three workdays less than 2016. The forecast made by VDMA economists in October 2016 for 2017 predicts a one% growth in production in real terms. Another plus is the good business climate that prevails almost everywhere in the world. However, there are also several burdensome factors. Nonetheless, VDMA stands by its forecast.
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Capacity utilization in German mechanical engineering

At 85.6 %, the capacity utilization in April fell slightly short of the long-term industry average. This means the utilization rate has risen slightly since October 2016 after it had stagnated at the bottom end of a still-tolerable level since the end of 2012, with an exception in the fall of 2014. This development is in line with the production curve, since it also displayed a moderate upward tendency since the fall of last year. The absolute low in the period since 2012 was recorded in July 2016 at 83.3 %, the highest result was 88.0 % in April 2012.

German machine export

In March 2017, German machinery exports exceeded the previous year’s result by 7.6 %. Preliminary figures for the first quarter show a plus of 6 %. Export business with the two most important export markets for the German mechanical engineering sector, USA (plus 7.6 %) and China (plus 15.5 %), was above average. Positive: Deliveries to Russia, Mexico, India, South Korea and Japan were also significantly higher than in the previous year. Deliveries to EU countries increased by 2.1 %. However, preliminary data indicates that deliveries to France, Italy, the Netherlands, Poland and Hungary fell short of the previous year’s figures. During the past few years, late reports amounting to 5 %age points were regularly received from EU countries, which means that growth may indeed be possible following respective corrections.
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New Automation Technology BECKHOFF
Incoming orders in Germany for selected subsectors

In most current statistically verifiable months (November 2016 – January 2017), 20 of the subsectors accounted for separately in the VDMA incoming order statistics experienced an increase compared to the previous year. Five subsectors recorded growth of 30 % and more, including metalurgical plants and rolling mills, robotics and automation, woodworking machinery, foundry machinery and thermo process technology. The measuring and testing technology, power systems (turbines) and process plant and equipment, on the other hand, suffered losses of 10 % and more.

Business situation and expectations

Manufacturing industry in Germany

In manufacturing, if business climate-index rose significantly. Assessments of the current business situation improved, reaching their highest level since July 2011. Business expectations are also far more optimistic than last month. Capital goods manufacturers in particular reported very good ongoing business and their order books are filling up.
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1.2 THE ASSEMBLY LINE GETS INTELLIGENT

For more than 100 years, production in the automobile industry has followed the pace of the assembly line. But Audi is convinced that the assembly line has had its day.

Audi is planning to replace the assembly line with the new modular assembly concept. Professor Dr. Hubert Waltl, Board of Management for Production at Audi explains: “Our aim is to react to the changing demands of our customers as quickly as possible. They expect a seamless integration of their car into the digital environment, sustainable drives, and new solutions for urban mobility - all included in a customized product tailored to their specific needs. Ultimately, these demands also set the pace in production, which is why we are developing alternatives to the traditional assembly line. After all, there is a far more intelligent approach than just working at the pace of the machines.”

The new, small, separate workstations included in this concept allow highly flexible workflows - both in terms of time and space. This principle was developed by the Audi start-up company arculus. Fabian Rusitschka is the company's CEO and one of three Managing Directors. Rusitschka studied mechanical engineering and is a former Audi employee. He worked in the technology development department of Audi production until March 2016, before venturing into self-employment. “Originally, we were looking for a supplier for our project who would be tasked with developing the systems and their central control at the same time,” Rusitschka reports. “But we couldn't find anyone who was able to do this. So we did it ourselves and founded arculus - the first spin-off from Audi in this field.”

First complete assembly line production in automotive history

But why is the assembly line now considered to be old-fashioned? Its history dates back to the Venetian Arsenal of the late 15th century. Later, Henry Ford took inspiration from the “disassembly” lines in Cincinnati’s slaughterhouses. Back then, elevated conveyor belts were used to transport slaughtered pigs from one worker to the next. Henry Ford took the idea and built a permanent assembly line, known as the first moving assembly line. This made it possible for Ford to increase production eight-fold, while reducing the price for his Tin Lizzy T-model and increase workers' wages. Based on this success, Ford built a new plant on the River Rouge in Detroit and launched the first complete assembly line production in automotive history on January 14, 1914. Since then, this principle has formed the backbone of all large-scale series production lines.

At Audi’s plant in Ingolstadt, the assembly lines are running for the models A3, A4, A5 and Q2 - finishing one car every 88 seconds. Together, the three lines produce a car about every 30 seconds. Despite the high numbers of cars produced and the well established routines, Audi is convinced that the assembly line has had its day. “The assembly line is used as a synonym for efficient production,” says Fabian Rusitschka. “It was the ideal solution for many decades.”

New assembly approach due to the growing model diversity

According to the company’s production specialists, “it is becoming ever more complicated to master the complexity in rigid sequential
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processes and to integrate more and more new working routines as the model diversity grows. The fixed tempo leads to inactivity on many sections of the line - for example for the installation of optional extras such as auxiliary heating systems, which only a small proportion of the cars are fitted with.” The experts also cite the large range of different versions on the assembly line, for example the assembly of the A3 Sportback E-tron in Ingolstadt. The plug in hybrid model, which accounts for only a relatively small percentage of the overall Audi A3 production, passes through seven separate workstations, where it receives a large proportion of its electrical equipment. While this is going on, its sister models with conventional drive move along the conveyor belt suspended below the ceiling; they are not worked on during this time, so the time until completion becomes longer for all the cars on the line.

The concept of modular assembly
To master this problem, the production experts at Audi developed the concept of modular assembly. The idea behind it is production without assembly lines, broken down into individual work stages. The new assembly stations are occupied by one or two workers. The specialists emphasize that modular production essentially eliminates rigid cycle times. The duration of the work steps are determined by what they entail, lasting between one and four minutes. Work is performed steadily at a continuous pace because the workers no longer have to adapt their activities to the speed of the assembly line. They no longer have to move with the car on the conveyor and do not need to walk back to their starting position.

According to Audi, the A3/Q2 line currently includes about 160 work steps. “In modular assembly, we turn this into approximately 200 spatially separated stations with one or two employees per station. The processes are quite different at each station, lasting between 60 and 240 seconds. And they are flexible,” says Rusitschka.

Audi expects productivity increase
The transport of the car bodies and components between the stations in modular assembly is taken over by driverless transport systems. Audi is currently developing new systems of this kind that can navigate themselves and thus move with great flexibility. Their movement is exact to the nearest centimeter and is controlled by radio; a central computer guides them as required. This makes the central computer a sort of mastermind for the new assembly principle. After all, it knows the status of production down to the smallest detail. “It knows the assembly status of each car and which stations need which parts when and how they receive them,” Rusitschka explains. When the central computer recognizes a jam at a station a driverless vehicle is heading for, it can often redirect it to another vacant station.

“The principle of modular assembly is characterized by a high spatiotemporal dynamic and the routes are subject to constant change,” explains Fabian Rusitschka. “Much like a chess player, our controller has to anticipate multiple steps in advance.”

The central computer monitors and manages all activities in the assembly hall so that they run smoothly and very efficiently. Small driverless vehicles supply the stations just in time with the components they need - from screws to sliding roofs.

Reacting quickly and effectively to new trends
When considering the entire system including logistics, Audi expects modular assembly to result in a productivity increase of about 20% plus x. The size of that “x” will increase along with the growth in version diversity.

This means that Audi can react quickly and efficiently to new trends and demands in the market, as well as to changing statutory requirements. Today, model changes lead to a standstill of the entire line. In the future, it will be possible to renew the affected stations while the others continue with normal operations.

The implementation of modular assembly in series production is not far away. Audi will first apply the new principle for test purposes in the production of engines at the plant in Győr, Hungary. Implementation with two other projects is also planned.

VDMA expert Sascha Schmel says: “Further automation and improved flexibility is the motto of the day in production logistics. Sooner or later, automation will turn into autonomization. But this is a challenge the intralogistics sector will gladly take on. The association supports this trend on several levels, including through dialog platforms with customer sectors and its own assessments of the future.” planned.
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1.3 INNOVATIVE MATERIALS PAVE THE WAY TO THE FUTURE

Which materials will shape the future of our industry? Experts at Fraunhofer ISI and VDMA have developed scenarios together with scientists and company specialists.

Science fiction or reality? Sometimes it’s hard to believe what has already been achieved. Take the hoverboard, a skateboard without wheels, first seen in the movie “Back to the Future”, for example. Or the Star Trek replicator, capable of creating any type of object, even food. Or the see-through monitors and animated picture packages in “Minority Report”. All science fiction once, all reality now, thanks to superconductivity, 3D printing and organic electronics.

“Product development often goes hand in hand with innovations in materials”, explains Professor Dr. Ralf B. Wehrspohn, Deputy Chairman of the Fraunhofer Group for Materials and Components. “Materials are often underestimated when it comes to their potential for innovations”, he explains. “But the fact is that about 70 % of all German innovations relate to materials. Especially with the improved use of big data, the development of new materials, which takes at least 15 years at the moment, could be shortened dramatically. Furthermore, the production of materials and products would be greatly enhanced with Industrie 4.0-ready materials.” After the “Industrial Data Space” for Industrie 4.0, Fraunhofer set up the “Materials Data Space” to accelerate big data in materials.

VDMA report “Future Materials 2030”

For the VDMA Competence Center Future Business, these obvious opportunities were reason enough to dig deeper into the matter - or rather - to look further ahead towards the future of materials and the corresponding process engineering. How will the world of mechanical engineering look in 2030 with respect to what are today still considered being “future materials”? Which different scenarios can be foreseen and what would be their consequences for the industry? Answers are given in the new VDMA report “Future Materials 2030”, published in collaboration with the Fraunhofer Institute for Systems and Innovation Research ISI. “The biggest challenge for the machine makers is not materials technology itself - this is a major part of any mechanical engineering curriculum. Rather it’s the sheer number of new materials and materials combinations that have to be assessed for their specific businesses”, explains Dr. Eric Maiser, Head of the Competence Center. “Machines are affected in two ways, for they are essential for processing new materials and they can also directly profit from materials development, for example for a lightweight robot arm. We have extracted those materials with the biggest market potential and ability for change. The most important aim was to demonstrate strategies on how to adapt to these changes and thus spur growth and competitiveness within our industry.” What’s clear to him: No single company will be able to do this alone. Collaboration in value networks, especially with materials makers and researchers, is key.

Collective intelligence

Another aspect: Materials will play a decisive role in a digitized world hungry for individualized products. That calls for creative solutions: Next to open source software, the industrial world will also sooner or later embrace the concept of open source hardware - young companies experimenting with new materials and processes,
sharing their knowledge in market spaces and fab labs. “It’s the opposite of optimized, straight planning, computer-aided engineering and volume production: Solutions found through collective intelligence, trial and error on small lots, with a fast time-to-market. There is already a community out there doing this. Thus, cooperating with those start-ups offers great new perspectives for established mechanical engineering companies. Think outside the box, be creative, welcome new talent this way”, Maiser says.

Four scenarios

The experts at Fraunhofer ISI and VDMA have developed four thought-provoking, specific scenarios together with scientists and company specialists. Three scenarios demonstrate many different opportunities for the industry, only one looks rather bleak. The latter claims that the world has gone back to national egoisms and protectionism with few efforts towards fighting global climate change. Here, the development of new materials would be very slow and would only be attractive for mass production. Asian mechanical engineering companies could stage price wars that would be hard to win for their European counterparts. The only way out for them would be enhanced offers for service, recycling and maintenance, or to address totally new markets for production technology and factories - Africa, for example.

The other three scenarios, in contrast, look promising, even if they are not without challenges. Number one is “sustainability counts”: a world in which the reduction and control of greenhouse gas emissions are general targets and the usage of materials based on renewable sources has been greatly improved. For example, natural-fiber-reinforced composites - fully recyclable. Biotech knowledge suddenly becomes interesting for machine makers. By 2030, the mechanical engineering companies in Germany and Europe have developed machines which can adapt to the various quality levels of these new materials and have thus gained a big competitive advantage in their respective markets.

Plastics or metals?

The second scenario is “plastic fantastic”: the usage of various new synthetic materials has spurred a wide range of new industrial applications. Materials with embedded, even changing functionality, are possible. Wherever the case may be, metal is replaced by lightweight composites. The complexity of these materials is much higher than today. Agile, temporary consortia produce customized components together. Business models emerge with more materials competence for machine makers. The mechanical engineering companies thus have to broaden their know-how especially in the field of chemistry. These new synthetic materials can only be processed by machines of the highest quality. Again, companies from Europe have a clear competitive edge here.

The third scenario is called “mighty metals”: this is a scenario based on technology evolution, rather than revolution, in contrast to “plastic fantastic”. Rules and regulations for recyclability have hindered the development of fancy new plastics. Here, additive manufacturing with metal powders plays a central role. Although the possibilities for diversification in a global market are less pronounced, the European mechanical engineering industry gains a competitive advantage with its know-how. “All these scenarios offer the opportunity for innovative solutions that mechanical engineering companies, together with partners from other industries, can develop”, says Maiser.

And unlike many other cases where regulations are an unnecessary burden, policy frameworks can actually be a driving force for new materials. A tight and strictly enforced CO2 emissions system increased recycling standards or the promotion of ecologically-sound materials, for example, will increase the need for alternatives and substitutes. “It’s important though that each future material gets a chance to prove itself on the market, there shouldn’t be any discrimination by national rules or trade barriers. International harmonization would be the best solution,” claims VDMA expert Maiser.

1.4 THE INVULNERABLE MACHINE

A company suffering from a cyber attack: This is a scenario the new VDMA Competence Center Industrial Security will be dealing with. It is working on making machines invulnerable.

“A cyber-attack recently halted a company’s production,” outlines Steffen Zimmermann, security expert at VDMA. “The interesting part is that the putative attack came from the IT administrator who was doing his job scanning for vulnerabilities,” he continues. One can only imagine what would happen if such an attack was really meant to do harm. These are the
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scenarios and issues Zimmermann and the new Competence Center Industrial Security will be dealing with. Zimmermann was made Head of the Competence Center.

"Industrie 4.0 and the digitalization of value-added processes lead to a dependence of industrial systems on software, data structure and communication networks," says Zimmermann. "Manufacturers of components, mechanical engineering companies, integrators of production systems and services as well as the system operators need to consider how they can secure a network that includes several companies. We address the resulting and growing need for competency in the industry by establishing the VDMA Competence Center Industrial Security," explains Zimmermann. He sees one of the central challenges for the industrial future being the reliable and secure operation of digitally linked production systems and services.

The purpose of industrial security is to protect industrial communication and production systems. "After all, the industry should be able to produce securely and reliably," Zimmermann explains, adding that mechanical and plant engineering takes on a dual role in this regard. On the one hand, it is an operator of machines and systems, aiming to digitalize its own production processes. On the other, it develops new machines, systems, services and business models for its customers as integrator of Industrie 4.0. "Mechanical and plant engineers have great responsibility when defining security requirements and developing, implementing and updating measures," Zimmermann emphasizes.

Why security is so important
In the VDMA security survey from 2013, 29 % of the surveyed members reported a loss of production due to security problems such as viruses. Many companies in mechanical and plant engineering have since developed new services. One worthy of mentioning here is predictive maintenance. Predictive maintenance relies on operating data which must always be correct and available at the right time and place. If these requirements are not met, mechanical and plant engineers cannot offer predictive maintenance as a reliable and high-quality service. Two of the most important goals of industrial security are therefore integrity and availability.

VDMA member Siemens, for example, combined its expertise with Intel Security in order to protect industrial systems from cyber threats. Siemens experts use Intel Security solutions such as antivirus software, whitelisting or security information and event management (SIEM). This way, experts can identify security related incidents more quickly, inform plant operators faster and support countermeasures. The goal of this combination is to support industrial companies in minimizing risks and increasing the availability of systems with products and services.

In addition, mechanical and plant engineers must ensure confidentiality so that other competitors cannot carry out the service. This means that companies face the challenge of having to ensure integrity, availability and confidentiality over the entire duration of the service - starting out with the planning of the service on to the provision of the machine and finally the permanent operation. At the same time companies need to embed their existing, often self-sufficient and statistical systems into agile communication structures. The machines and systems are not made for that purpose and often upgraded or converted under time pressure, but the legally and technically necessary requirements of standards and data security are often not adapted accordingly.
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Compiling knowledge instead of actionism
Compilation of knowledge is more important in the context of industrial security than actionism. The earlier that companies integrate knowledge about potential threats, necessary measures and useful sources of information into the product lifecycle, the more sustainable and reliable the implementation measures will be.

Promoting the transfer of knowledge
“We have realized that industrial security is a core competence for the association and its members,” emphasizes Zimmermann. “We launched the Competence Center Industrial Security in order to pool the resources and skills needed here. Our goal is to establish a sustainable transfer of association-related and external topics such as the standardization or political representation of interests.” According to Zimmermann, the main task for the young committee will be to unite existing structures within VDMA and its trade associations. In the medium term, the Competence Center Industrial Security will be supported by a committee of mechanical engineers in regard to strategic issues. “This will make the Competence Center Industrial Security the first point of contact for members, authorities and policymakers,” explains Zimmermann.

Hygiene factor for future products
Industrial security is a strategic issue that affects all members and thus all trade associations of VDMA. Furthermore, knowledge deficits in politics and standardization confronts a host of knowledge, for example from experts in member companies. Last but not least, industrial security will become a hygiene factor for future products and services and will be included in the mechanical engineers’ operating instructions or the General Purchasing Conditions of the system operators.

Additional Information
VDMA has launched various committees on the topic of industrial security and information security. The VDMA Competence Center Industrial Security was founded in early 2017 and serves as a central contact for politics, science, standardization and member companies.

In addition, the VDMA task force Industrial Security forms the central network of manufacturers, integrators, operators, researchers and authorities. It serves the transfer of knowledge on security in production and automation.

Not least, the VDMA task force Information Security brings together information security officers from mechanical and plant engineering. In this committee, they exchange their expertise on traditional office IT and corporate security.

In 2016, VDMA published the Guideline Industrie 4.0 Security and created a digital learning course together with the start-up University4Industry from Munich. VDMA members can register on the company’s website and participate in the security learning course free of charge.

1.5 USING ROBOTS FOR TRANSPORTING CAR PARTS
Car bodies move fully automatically through the hall to the next station, where they are fitted with door seals. Audi is working on driverless transport systems for modular assembly, and BMW also uses transport robots to make work easier.

Modular assembly means using a great number of small, separate workstations to enable highly flexible workflows. To this end, the routes between these stations must be flexible and well thought out. Driverless transport systems not only transport car bodies, but also move the parts required for production.

The driverless transport systems required for modular assembly are developed in Audi’s “Technical Center for Production Assistance Systems” department. The principle of driverless transport systems is nothing new in automotive production - these systems have in fact been in use for many decades. The electrically powered transport robots convey components, containers and in some cases even entire car bodies. They follow guidance wires or RFID chips in the factory floor. The Technical Center for Production Assistance Systems has developed and set up two innovative concepts called “Audi Laser Tracking System” and “Audi AGV” (Automated Guided Vehicle). Fabian Rusitschka, CEO of arculus and mastermind behind modular assembly, explains that the new developments can be divided into two fleets. “One fleet transports the car bodies from one station to another, while the other delivers the parts - from screws to sliding roofs.”

Paula takes care of transporting the parts
The AGVs in the first fleet of driverless transport systems are characterized by high autonomy. AGV stands for automated guided vehicle and is
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known internally as “Paula”. Paula takes care of transporting the parts required for modular assembly.

The AGVs use navigation software developed by Audi on the basis of automotive software and automotive software development processes. This means that they can supply goods from the warehouse to the assembly line freely and autonomously. They recognize complicated traffic situations and react to them flexibly.

The navigation system allows an AGV to drive autonomously on a defined route, which is designed and simulated on the computer in advance. Alternatively, the AGV can learn a route on a manually controlled drive and store it. On the basis of this map, it moves freely within its radius – according to the principle of machine learning, it always searches for the optimal route.

Three on-board laser scanners
Paula is equipped with three on-board laser scanners - two at the front and one at the rear. Two of the scanners are specifically approved for personal protection, as the developers explain. They scan the hall and recognize solid objects such as shelves or moving objects such as people or forklifts. The third scanner points upwards and checks the space up to the hall ceiling in order to recognize objects hanging from the ceiling.

The sensors also serve to record measuring data - the computer of the AGV then compares that data with its own map data. At the same time, the navigation software compares the data measured by the laser scanners with the wheel revolutions, allowing exact localization.

Contours as characteristics
The driving strategy of the AGV is defensive. It recognizes an employee or an electric vehicle crossing its path and always gives them priority. Its speed is limited to 4.2 kilometers per hour. All braking is gradual and energy efficient. In calculating the braking, the engineers used similar algorithms to those used for controlling the adaptive cruise control (ACC) in cars.

With its laser scanners, the AGV recognizes the workpiece trailer from its contours. It drives up to it to the nearest millimeter, even if it is not standing in its predefined position. Parking over the charging plate takes place with the same precision.

The second fleet is the Audi Laser Tracking System, which can recognize and guide a group of driverless transport vehicles. Using a high resolution laser scanner, a powerful computer locates them by means of their reflectors and gives them manoeuvring commands by radio, the developers explain. Each of the four wheels is individually driven by a step motor. This allows precise steering, which is important when driving around obstacles and when docking onto the large transport containers. The transport robots operate at walking pace, just less than six kilometres per hour.

At today’s level of development, the central computer can control the transport robots in a radius of twelve meters - individually or in trains. To cover a large hall, it would be necessary to have either several laser scanners or a computer with a laser scanner as a mobile unit that drives through the hall, guiding a group of driverless vehicles.
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Self-driving robots at BMW

BMW also uses autonomous robots to transport car parts. In the hall of Supply Logistics, a self-driving robot manoeuvres itself underneath a roller container with parts. Silently and with flashing lights, it picks up the container and begins to move. As BMW describes it, the logistics hall is complicated and extensive - and nobody can find their way around without a good sense of direction. But this is no problem for the transport robot. Flanked by radio transmitters and equipped with a digital map, it drives independently to the destination of the goods, as the BMW experts explain. When a tugger train crosses its path, a fitted sensor identifies the obstacle and stops the self-driving robot loaded with car parts weighing up to half a ton.

By measuring its distance to three radio transmitters, the robot is able to calculate its exact position and route. With the help of sensors, it identifies critical situations and can respond accordingly, sharing the route with people and other vehicles. For later series operation, the system is to be equipped with a 3D camera system to make navigation even more accurate.

VDMA expert Sascha Schmel says: “Further automation and improved flexibility is the motto of the day in production logistics. Sooner or later, automation will turn into autonomization. But this is a challenge the intralogistics sector will gladly take on. The association supports this trend on several levels, including through dialog platforms with customer sectors and its own assessments of the future.”

1.6 Construction Equipment and Building Material Machines

Manufacturers of building material plants are optimistic

- Growth thanks to certain major contracts
- Sales increase expected for 2017

Frankfurt, 4 May 2017 – Despite all heterogeneity, German manufacturers of building material plants are expecting a broadly based boost this year. Even at the end of 2016 the orders received in most subsectors had risen considerably compared with the previous year. “This should translate into sales growth over the next few months,” says Sebastian Popp, economic expert on construction equipment and building material machinery on the occasion of the Building Material Plants Day, held by the German Engineering Federation (VDMA) in Frankfurt as an exclusive event for its member companies on 26 and 27 April.

In 2016, after several years of decline without any real impetus, German manufacturers of building material plants recorded an 8% rise in sector sales compared with the previous year, totalling EUR 4.7 billion. The increase came above all from international business. At the same time, there was a rise in new orders of about 20%. These, too, largely came from international customers. The United States continues to be the biggest sales market for building material machines from Germany, followed by China and Russia. This good situation, however, does not indicate any substantial boom. It is mainly due to several large-scale orders that have mathematically boosted the industry as a whole.

Nevertheless, the industry is optimistic about 2017. Europe’s construction industry should develop robustly, growing by an estimated 2%, with Germany and the UK as the greatest stimulants. Good market opportunities are also discernible in the United States and in some emerging economies, such as India and Indonesia. According to IA Cement, global demand for cement will go up 2% this year, and Citi Research reports that, after a long spell of barrenness, mining companies are interested in making purchases again throughout the world.

Views from the subsectors:

Concrete Technology

In 2016 companies making concrete technology recorded a good development of the German market coupled with a sharp decline in orders from other countries. Many companies suffer particularly from the sudden slump in their Russian business, which continues to be difficult to compensate for. “In 2016 we more or less lived on the money we’d earned in 2015,” says Hermann Weckenmann, Chairman of the Concrete Technology Section of the VDMA. This will continue to be a concern for companies in 2017. During the first 4 months of the year, however, the order situation apparently improved, giving rise to hope for the rest of the year. Business is picking up again, especially in Europe, but particularly in Germany, and also in the United States. Moreover, things seem to be getting off the ground again in Russia. Further positive signals, are coming above all from
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Southeast Asia. In all, however, the industry has no confidence in any medium or long-term stable, positive development. The general global framework is not what it should be. Developments and business are apparently far less predictable or planable than they were a few years ago. Manufacturers are also rather concerned about the current trend for nation states to withdraw to their own spheres, raising the spectre of new trade barriers and sealed-off markets. It is felt that the market potential for concrete technology is considerable, although not many are willing to invest. In Germany, in particular, there is no reward for investments. The general impression in the group is that “the mood here doesn’t exactly inspire much joy”.

Mineral processing and cement, lime, gypsum and dry mortar plants
After fairly weak sales in 2016 manufacturers of mineral processing systems and of cement, lime, gypsum and dry mortar plants believe that business in 2017 will be better than in the year before. By 2018 there should be a vigorous revival again which will impact both subsectors. The delegates emphasised the heterogeneous nature of the markets, as there is no longer a boom region or even a boom country, which there used to be in the past. Europe, excluding Russia, continues to be seen as a robust region, particularly for gypsum and cement. The companies are mostly pleased with market developments in Southeast Asia and India, countries where they believe growth is likely for coal and cement, in particular. The same applies to Brazil and for cement – also Northern Africa and the Arabian Peninsula.

The Building Material Plants Day, held once a year, is aimed at companies supplying building material systems to the cement, lime, gypsum, dry mortar, glass and ceramics industries. It also functions as a meeting point for the industry, an information event and an opportunity to exchange experiences. Topics range from marketing through research to technical areas and are as diverse as the industry itself. The next event will be held on 7 and 8 March 2018.
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1.7 Fluid Power and Power Transmission Engineering

Power Transmission Engineering and Fluid Power – Successful Enabler for the Future

Leading the World with Innovations
The German power transmission engineering and fluid power industries impress customers throughout the world with their quality products, innovations and services. This is underlined by the industries’ leading position in world trade, with a high proportion of output going for export and total industry turnover at a high level. The two industries have been able to maintain their position of export champion in the world market for years – despite increasing competition from outside Germany and the current difficult market environment. In 2016, too, power transmission engineering and fluid power were once again able to demonstrate that technological leadership.

With total sales of almost €23 billion, these two innovative supplier industries form the largest segment within the German mechanical engineering industry and provide employment for almost 130,000 people.

The prospects for the German power transmission engineering and fluid power industries are currently subject to pronounced economic and geopolitical uncertainties. Future opportunities can, however, be described fundamentally as promising. The forecast growth for 2017 of 1% for mechanical engineering industry, the most important customer group, is a positive signal for power transmission engineering and fluid power, for which the forecast for 2017 is also modest growth.

The two industries are looking to the future with confidence: the investment backlog of recent years will be resolved, the fundamental interests of the companies concerned in innovation and the fact that both industries have a key function and a leading international role to play within the context of Industrie 4.0 will open up new potential for growth for German manufacturers.

A Reliable and Innovative Partner for Customers
Cutting-edge technology and a capacity for innovation are crucial requirements if these German industries are to continue in future to play a leading role in global competition and win customers world-wide with attractive products and services. The companies concerned therefore place their faith squarely in research and development, continuously improve their already well-proven products and play an active part in shaping the change to new technologies such as digitisation and networking.

The supplier industries of power transmission engineering and fluid power are technological pioneers in all kinds of applications and requirements relating to markets and customers. They supply solutions for automation technology, the automotive industry, construction machinery, printing and paper technology, energy and environment technology – no matter whether in the form of wind farms or solar energy

Sales Development
Mechanical Engineering / Fluid Power / Power Transmission Engineering

![Sales Development Graph]

Source: VDMA  
** estimated  
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**Power Transmission Engineering and Fluid Power – Reliable Partner**

The German power transmission engineering and fluid power industries have been world export champions for years, exporting a high proportion of their output, over 50% in the case of fluid power and 80% or more with power transmission engineering – clear proof of the high level of competence of customer’s worldwide in German cutting-edge technology.

Many German companies in the mechanical engineering industry produce directly in their most important sales areas, key locations being China, India, Eastern Europe and the USA. The companies within the German power transmission engineering and fluid power industries provide local support for their customers with the necessary technology, innovative solutions and customer-friendly service. All around the world, customers place their faith in technology, products and services “Made in Germany”.

**1.8 Food Processing Machinery and Packaging Machinery**

**smart4i - The individualization of product and packaging**

*Industry 4.0 as a first-hand experience*

The individualization of product and packaging

Everyone is talking about Industry 4.0 (I4.0) and the Internet of Things (IoT), but when it comes to implementing it many still hesitate. However, already with today’s state of the art machinery and components it is possible to realize the vision of Industry 4.0 and the individualization of products up to lot size 1. This is exactly what VDMA as the client plus ITQ GmbH as the idea generating and project-oriented company have implemented with the smart4i demonstrator.

The smart4i demonstrator shows how the customer can individualize a Powerbank on the Internet via smartphone or tablet PC. The configuration options include colour selection of the Powerbank, its accessories (with or without USB cable) as well as a personalized text for labelling both the Powerbank and the packaging. The customer sends the order to the central order management system of the demonstrator and from there to be passed on to its sequence control. With this direct route from the customer to the shop floor the order can be processed much faster.

**The demonstrator at a glance**

The demonstrator consists of several modules or stations. The central element is an intelligent transport system operating according to the principle of the linear drive. Its shuttles are individually controllable. Carriers for different blisters as well as for the Powerbanks are mounted on these. Depending on the order, the transport system carries the shuttles to different modules. The blister module separates the appropriate blisters depending on the order (with or without a cable) and places them in the corresponding carrier of the shuttle. The transport system then carries them either to the cable module for inserting a USB cable or directly to the laser module. At the same time, the Powerbank module uses an articulated robot with its vacuum gripper to select a Powerbank in the chosen colour and place it on a shuttle which then takes it to the laser module. Here, a worker
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takes the Powerbank as a "Cyber-Physical-System" and places it in the laser station for engraving the personalized text as well as a data matrix code. The operator then places the printed Powerbank in the blister pack, which is also present at the station. Once the blister is completely filled, the shuttle moves to the lid module which places a cardboard cover on the blister. From there it is transported to the sealing station. The sealed and finished packaging travels on to the output module.

A look behind the scenes
It should be emphasized that it took ITQ only a few weeks to introduce a nearly 40-member student team of five universities to the latest engineering methods and tools. From different locations in Germany and Gran Canary these teams conceived and realized the smart4i demonstrator using nothing but standard components. All modules were completely simulated during the development phase and tested with a virtual control run. The subsequent implementation and commissioning was therefore extremely short. The students also proved how efficiently complex tasks in virtual teams can be solved across national borders, and what modern training or the new way of working in the virtual world can look like where Industry 4.0 is concerned.

1.9 Mining
India remains an interesting destination

Despite a weak start into the year the mining industry in India is to be rated as interesting by mining equipment manufacturers in Germany. The decline of exports from Germany unfortunately is exactly opposite to the increase of the other countries like the #1 USA or China as #2 or Finland which are the most important suppliers of mining equipment.

Never the less - as recently discussed during a meeting of the Steering Committee Asia a revival of German exports to India after a period of
PELLET TO PARTS

With the wide range of Plastics Converting Machines comprising of Injection Molding, Blow Molding and Extrusion Systems, Milacron is serving the entire gamut of Plastics Application to its customers.
disappointment is expected by the participants. To review the expectations VDMA is going to organize a delegation visit to Mine Developers cum Operation – MOD. The MDO concept is the future of the mining industry in India and will bring more efficiency in mining operations. The MDO approach is well known and popular in many mineral rich countries and even established companies participate under this mechanism. These contract mining companies are specialised in mining operations. They provide ample scope for maintaining heavy and expensive machineries and provide time for training the staff as the coal sector is cyclical and vulnerable to changes in demands. In the future the Coal Ministry is looking to offer more coal blocks with large reserves to MDOs.

Last year the most important destinations for mining equipment Made in Germany was the USA followed by China. The ranking of Egypt and Norway is caused by infrastructure projects like road tunnels.

In general the German mining equipment manufacturers are looking forward optimistic. In Q1 2017 incoming orders and turnover increased by 40% respectively 22%. Until now the economic revival is caused by projects within the European Union and Europe. Input from abroad has not yet arrived.

1.10 Plastics and Rubber Machinery

VDMA: 2016 ends better than expected for German plastics and rubber machinery manufacturers

German plastics and rubber machinery manufacturers can look back over the past year with great satisfaction. 2016 as a whole saw substantial growth in sales, continuing the positive trend of the past few years.

» Exports to US and Mexico continue to perform well
» Visible signs of improvement in Russia
» Outlook also positive for 2017

German plastics and rubber machinery manufacturers can look back over the past year with great satisfaction. 2016 as a whole saw substantial growth in sales, continuing the positive trend of the past few years. “At 4 %, growth is actually higher than the 2 % originally anticipated,” says Ulrich Reifenhäuser, Chairman of the VDMA Plastics and Rubber Machinery Association. This positive result rounds off a year marked in particular by the excellent sentiment at the K trade fair in October, giving German plastics and rubber machinery manufacturers grounds for continued optimism for the future.

US remains most important sales market

German plastics and rubber machinery manufacturers’ exports to the US, already at a very high level, strengthened further. In the period from January to December 2016, sales of plastics and rubber machinery to America amounted to 774 million euro, an increase of 7.6 %. The US therefore not only maintained its leading position among export markets, but also increased its lead over second-placed China.
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At 629 million euro, German exports to China continued the trend of recent years, being down 3.6% in 2016. However, the sharp increase in VDMA members’ output produced in the country itself shows that China is still an important sales market. The marked rise in VDMA members’ exports from China also contributes to the drop in direct exports from Germany to that country.

Mexico ranked third among the most important countries buying German plastics and rubber machinery. In 2016, exports to Mexico were up by an impressive 51.9% to 255 million euro.

Russia bottoms out
The year 2016 saw German deliveries of plastics and rubber machinery to Russia shrink for the third year in succession. In the period from January to December 2016 they amounted to 86 million euro, down 36.3% on the previous year. However, the appreciable recovery in the Russian packaging sector as a direct consequence of Russian food sanctions suggests that exports of plastics and rubber machinery will pick up in 2017, since foodstuffs produced in Russia will need film or plastics packaging to preserve them. German exports to the Russian food products and packaging machinery sector were already up as 2016 drew to a close, indicating that sales to Russia have bottomed out.

Outlook for 2017 remains optimistic
The positive trend in German plastics and rubber machinery manufacturing will continue in the current year too. Thorsten Kühmann, Managing Director of the VDMA Plastics and Rubber Machinery Association, expects German manufacturers’ sales to rise by 2%, with global growth set to reach 3%. “With their products and new developments, German plastics and rubber machinery manufacturers positioned themselves very favourably in 2016, the year of the K trade fair, providing the basis for the current year to end on a positive note as well,” concludes Thorsten Kühmann.

1.11 Process Plant and Equipment

Intelligent control of membrane plants

Water treatment plants with membrane technology are generally designed and planned to reliably meet the plant operator’s requirements in terms of water quality and quantity. In practice, however, operators will have further objectives. They are looking for new ways to keep resources and to save operating costs to ensure high plant availability. In this case, rinsing and cleaning intervals as well as the quantities of dosage and cleaning chemicals are significant parameters. In most cases, these parameters are based on empirical values. Operators adjust them manually, if necessary. A proper adjustment requires a regular monitoring of these data as well as an extensive experience in evaluating and interpreting such parameters.

Optimizing the plant operation
This is where a superior control system provides support in addition to the standard PLC of a water treatment plant. The most significant difference to regular control systems (PLC) for membrane plants is not only the monitoring of the parameters but also the integration of the measured data into the plant control loops.

Important raw water parameters or the transmembrane pressure of the membrane modules are decisive monitoring aspects.

A specially developed control algorithm continuously determines all necessary settings for
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optimum plant operation. Afterwards the control system autonomously adapts, for example, the dosing concentration of flocculants or antiscalants as well as rinsing intervals, rinsing times and quantities, rinsing velocity or the release and the concentration of cleaning chemicals (caustic, acid).

Assuming that the quality of feed remains unchanged, the rinsing and cleaning processes are adjusted automatically according to the requirements of the filtrate to determine the optimum of chemicals consumption, water consumption and membrane service life. This method saves costs while increasing plant availability and reducing staff requirements for plant operation. In long-term use, the superior control leads to self-optimizing plant operations of reverse osmosis, ultrafiltration and nanofiltration plants even where requirements vary – provided the water treatment plant is equipped with remote measuring feeders and analysis devices.

1.12 Robotics and Automation

VDMA: Embedded vision creates new fields of application for machine vision

Embedded Vision: the shooting-star in machine vision - Enormous variety of applications

Frankfurt, 21 March 2017 – Small, integrated machine vision systems that assist directly from within a machine or device in an intelligent way – embedded vision is among the shooting-stars of machine vision technologies. It has crossed the border from theory to practice, already offering a variety of interesting application options in almost every industrial sector and in everyday life. That was the shared opinion of the panellists of a panel discussion which was jointly organised by VDMA and embedded world on the second day of the leading trade fair on embedded technologies. Six experts talked about application options and future prospects of embedded vision.

"Embedded vision enables image processing on compact, high-performance, and at the same time low-energy computing platforms.”, said Dr. Olaf Munkelt, Chairman of the Board of VDMA Machine Vision, during the discussion. This technology thus opens up many new fields of application which so far could be covered neither by PC-based nor by intelligent machine vision systems.”

Currently, the limited know-how among users is still regarded as a bottleneck for even a higher number of applications. However, experts agree: this must and will change quickly. The progress of embedded vision will not be stopped.

Statements of panellists

Computer vision (CV) has long been pioneered by the research community and brought to market in industrial and factor automation applications. Initially those systems were built with specialised cameras and industrial PCs, fine for selective deployment but problematic for very wide use. Over time, as both the industrial market grew its use of CV and more importantly new, powerful embedded processing technologies have emerged, the use has rapidly expanded. But even more important has been the external influences bringing new technologies from markets such as automotive, mobile and data centre processing. That process is accelerating!

This is the most exciting time in the world of CV since the early systems were deployed and ARM is proud to be at the heart of more and more of these systems. And we want to take every opportunity of events like this to hear directly for users and designers of industrial CV systems so we can better address one of the fastest growing markets in the embedded world.

Richard York, VP Embedded Marketing, ARM Ltd.

Embedded Vision Technology significantly reduces the hardware cost of Vision Systems. Due to this cost reduction Vision Technology can now be applied to many new application area, where the technology was previously far too expensive. Vision Technology will now migrate from a niche technology to become a mainstream technology. Embedded Vision will also have a disruptive effect on the existing Machine Vision market.
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“Embedded Vision allows for evaluating images on compact, high-performance, energy-saving computing platforms. Thus, IMV is advancing into fields of application which so far have been covered neither by Smart Cameras nor by PC-based systems. Consequently, the added value is further shifting from hardware to software. Standard software products for industrial application are gaining in importance, because they provide users with functions they know from their PC-based systems.”

Dr. Olaf Munkelt, Managing Director, MVTec Software GmbH

What are the reasons for using Embedded Vision?

For humans, vision is extremely valuable, enabling a diverse set of capabilities – from reading facial expressions, to navigating complex three-dimensional spaces, to performing intricate tasks like threading a needle. Embedded vision is bringing a similar range of valuable capabilities to many types of devices and systems. In the past, computer vision required too much computation to be deployed widely. But today, sufficient processing power is available at cost and power consumption levels suitable for high-volume products. As a result, embedded vision is proliferating into thousands of products.

Jeff Bier, Founder, Embedded Vision Alliance, and President, BDTI

How does embedded vision compete with and complement other types of sensing technologies?

Embedded Vision does not compete with other sensing technologies but complements it. Just like human senses, embedded vision systems need not only image sensors but also variety of low-to-mid speed sensors such as Lidar, radar, ultrasonic, infrared, night vision, to fill the “blind spots”. The trend is for “vision guided autonomous systems” to fuse many sensors, machine learning and computer vision techniques to be smarter and smarter.

Nick Ni, Senior Product Manager, Embedded Vision and SDFSoC, XILINX

For some kind of applications, for example in the automotive world, there’s another level of complexity for Embedded Vision on top of the integration and on top of making the technology efficient: It needs to be safe because lives depend on it. This takes about double the amount of resources for a system.
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Markus Tremmel, Driver Assistance Systems Chief Expert, Robert Bosch GmbH

1.13 Textile Machinery

Top Young Talents for High-Tech Industry

Frankfurt, 31 May 2017 – The Walter Reiners-Stiftung (Foundation) of the VDMA Textile Machinery honoured five junior engineers at the trade fair Techtextil, which took place at the beginning of May in Frankfurt. Two promotion prizes for the best dissertation and master thesis as well as three creativity awards for clever bachelor and seminar papers were awarded. Peter D. Dornier, chairman of the Foundation and chairman of the Lindauer DORNIER Board of Management, honoured the young engineers.

With regard to the Techtextil special event „Living in Space“, Mr Dornier stated: “If you look at how technical textiles make space colonisation within reach or how fibre composite materials significantly reduce weight and fuel consumption of cars and aircrafts, it can be rightly claimed that textile machinery is a part of a real high-tech industry. Thus, it is the industry which is attractive for young people who are enthusiastic about new technology.”

The award-winning papers of the young engineers make it also clear that textile machinery means high tech:

Chairman of the Walter Reiners-Stiftung (Foundation) and the award-winners (f.l.t.r.): Sennewald, Fischer, Dornier, Völkel, Neuwerk, Kempert.

The promotion prize in the dissertation category, endowed with 5,000 euros, was awarded to Dr. Cornelia Sennewald, TU Dresden. In her doctoral thesis, she developed new technology concepts for production of 3D structures in lightweight design based on a weaving process.

Dirk Fischer, TU Chemnitz, was honoured with a promotion prize worth 3,500 euros for the best master thesis. In his work, a classic component, namely a bicycle spoke, was replaced with a flexible wire to achieve benefits in weight and dynamics.

Philipp Kempert (TU Dresden), Karsten Neuwerk und Lukas Völkel (both from RWTH Aachen) received creativity awards including a scholarship of 250 euros a month for two semesters.

Mr Kempert developed a shuttle changer for a shuttle loom. Mr Neuwerk’s work deals with light transmitting filaments. Mr Völkel’s bachelor thesis focuses on fabrication of woven-fabrics of multifilament yarns for use as electrode materials in super capacitors.
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1.14 Surface Treatment

**Surfaces make products more successful**

The surface properties of a product are important factors of quality and applicability. Surface technology can control these and may allow improving them independently from the bulk material. Significant benefit may be achieved for a surface treated product, compared to an untreated one.

Favourable raw materials may be equipped with surfaces designed to meet the qualitative and/or functional requirements. Coating of metal surfaces prevents corrosion; surface technology enhances the durability of wood, plastics become scratchproof and UV-resistant, glass is made break-proof or opaque for heat radiation while simultaneously remaining transparent for visible light.

These examples show the significant benefits of surface technology for a wide range of applications being the key to a successful product.

**Innovation for products and environment**

The economic importance of surface technology is setting trends of modern material science. Meanwhile, Industrial Plasma-Surface Technology is well-established alongside of traditional galvanising processes. This technology delivers solutions for storage- and display-technology, bio-compatible surfaces for medical implants, finishing of optical components and above all, wear- and corrosion-protection for tools and engineered parts.

The user of wear-improved tools draws economical benefit out of the enhanced lifetime of his tools or the higher process rates. Another economical benefit is realised for cases in which plasma techniques can substitute galvanising processes for which the requirements set by environmental legislation have significant cost-impact. The combination of painting and Plasma-Surface Technology allows replacing decorative chrome plating in some fields of application. This hybrid technology provides a cost-reduced environmental friendly alternative without using any heavy metals.

**Process variety for product specific requirements**

Paint application technology is the most traditional surface technology and according to its wide distribution, leader of the sector. Its historical development is characterised by continuous development and a few innovative steps like the introduction of electrostatic or powder coating. The continuous development has led to numerous different application techniques and paint systems. Today's processes are optimised on geometrical aspects, raw material and the required surface properties of a product.

**Process integrated measures for environmental protection**

In addition to technological and economical aspects, process development is driven by the increasing requirements of environmental legislation. With the Industry Emission Directive (2010/75/EC) requirements for environmental protection for the solvent using industry are harmonised at a high level. As the directive also applies to small installations, integrated concepts, such as the use of low solvent or solvent-free coating materials as well as systems with high transfer efficiency, overspray recycling and other closed cycle processes are promoted.

Thermal incineration or abatement systems operate economically at a sufficiently high solvent mass-flow realised only for large installations.

Innovation in surface technology is often ahead of requirements for environmental protection. The European Commission utilises this for a further increase of these requirements in Europe. In context with the target of integrated pollution prevention “Best Available Technologies” are defined for installations with high solvent usage. Focus is put on emissions to air, water and waste of the relevant processes. It supports the stronger incorporation of European technical innovation into environmental policy.
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There is a very high focus on energy and resource efficiency of coating processes. More than 50% of the energy used in automotive serial production is spent in context of the painting process. Even higher economic leverage effects can be achieved by energy efficient painting machinery for small and medium-sized industry workshops. The energy consumption of the tens of thousands paint spray booths being installed in Europe exceed the energy costs of an automotive serial production plant by a factor of 1000.

Processes for cleaning and conditioning of surfaces integrated with modern industrial production are indispensable. Surfaces are cleaned and structured by blasting processes. Whenever needed, also the material properties can be modified systematically. The variety of processes and applications of blasting is documented in the specification VDMA 24379, which fills the gap left by the withdrawal of DIN 8200. In Blasting Technology, engineering competence for efficient machinery- and process technology is essential success factor for the user. The cost of use outweighs the cost of investment typically by one order of scale. Competent manufacturers of blasting machinery optimize the machinery design also to minimize the cost of use. The user obtains support by the blasting technology specific matrix for the assessment of Life Cycle Cost according to VDMA 34160.

1.15 Engineering for a Better Future: The VDMA marks 125 years of progress

The Verein Deutscher Maschinenbau-Anstalten (VDMA) was founded in Cologne in 1892 with the objective of protecting the economic interests of all German mechanical engineering companies. It has its origin in the Verein Rheinisch-Westfälischer Maschinenbauanstalten, which was founded two years earlier and aimed to improve delivery and price conditions for mining and plant machinery in particular. Its first office was in Düsseldorf.

The (Verband Deutscher Maschinen- und Anlagenbau – VDMA) has its headquarters in Frankfurt am Main, Germany, and represents around 3,200 members, making it the largest industry association in Europe. The Association represents the interests of the predominantly medium-sized companies in the mechanical engineering industry towards policymakers and society, as well as towards business, the scientific community, public authorities and the media. In addition, VDMA sees itself as a platform that provides its member companies with various networks where they can discuss technological challenges, interdisciplinary issues and many other topics.


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1.16 Presentation on “MACHINING PROCESS VALUE CHAIN”

The German Engineering Federation (VDMA) in association with CERATIZIT India Round Tooling Solutions Pvt. Ltd., DMG MORI India Pvt. Ltd, and ROHM India Pvt. Ltd., organised a Presentation on “MACHINING PROCESS VALUE CHAIN” on Friday, 23rd June 2017 at The Park Hotel, Bangalore.

The Machine tools industry is a critical subsector of mechanical engineering industry. Machine tools have a strategic place within the industry as they enable the production of all industrial equipments and machinery which are in the area of mechanical engineering. Machine tools are the origin of almost every manufacturing process which includes metal. Most of the objects that we see in our daily life from cars to planes and from wind turbines to satellite are made by machine tools. The cutting tool, the work/job holding device, power transmission systems, cutting fluids etc are few of the critical key components involved in the machining activity.

This event focussed on the German Technology in the Critical Elements forming part of the Machining Process.

The Address by Chief Guest was given by Mrs. Margit Hellwig-Boette, Consul General, Bangalore. The Presentation on Indo - German trade in Engineering Sector was given by Mr. Rajesh Nath, Managing Director, VDMA India Services Pvt. Ltd. The Presentation on CERATIZIT – Tooling for the Future was given by Mr. Anil Kumar, Director & COO, CERATIZIT India Round Tool Solutions Pvt. Ltd. The Presentation on Value Addition of Fixtures in Machine Tools was given by Mr. Varughese Kurien, GM Design, ROHM India Pvt. Ltd. The Presentation on Advanced technologies in Machine Tools was given by Mr. Ravindra Krishnamurthy, Product Sales Manager – Turning & Advanced Technologies, DMG MORI India Pvt. Ltd

There were 65 participants at the event.

1.17 Visit to Adani Ports and Special Economic Zone Limited

In pursuit of strengthening closer relation of the German Engineering Industry in India with the Indian industry, VDMA India organized a delegation visit to Adani Ports and Special Economic Zone Limited on Thursday, 15th June, 2017.

Adani Group is the largest coal importer in the country, their operations will account for 20% of India’s projected coal requirements by 2021. They are the largest private power producer in India and their capacity will be more than 5% of India’s projected capacity by 2021. The largest port operator, their port infrastructure will handle 20% of the total cargo handled at Indian Ports by 2021. Mundra Special Economic Zone is India’s only and Largest Port based Multi Product SEZ offering India’s largest Port based Free Trade Warehousing Zone. The park also offers NON SEZ (DTA) land options making it the largest integrated Industrial park in India. The SEZ has an integrated offering with a Multi Cargo Port, Industrial Park, and Free Trade Zone supported by uninterrupted power, quality water and other industrial utilities.
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Ms Gabriele Boner, Deputy Consul General of Germany in Mumbai
Mr Ruediger Schroeder, Managing Director, Karcher Cleaning Systems
Mr Ravi Modi, Regional Manager, Karcher Cleaning Systems
Mr Dietmar Bruckhoff, Business Director, Claudius Peters India Pvt.Ltd.
Mr Sagar Bhosal, CEO, Schmersal India Pvt. Ltd.
Mr P.L. Muthusekkar, Managing Director, NORD DRIVESYSTEM Pvt Ltd
Mr Rajesh Nath, Managing Director, VDMA India

For the VDMA Delegation Adani organised their private Jet Plane from Ahmedabad to Mundra for a full day round of their facility. The delegation had the opportunity to meet the following senior management at Adani:-

Mr. Rakshit Shah, Executive Director, Adani Ports and SEZ Ltd.
Mr. Ennarasu, CEO, Adani Mundra Port
Mr. Mukesh Saxena, COO, Adani Mundra Port
Mr. Amit Uplenchwar, President, Adani Ports and SEZ Ltd.
Mr. Nitin Sharma, Sr. Manager-BD, Adani Ports and SEZ Ltd.

VDMA India organised an Interactive Workshop on “Intercultural Business in Germany” on Friday, 26th May, 2017 at The Saturday Club, Kolkata.

The workshop provided an insight to German business culture as well as types of companies in Germany. Through an interactive approach, the workshop prepared the participants for successful handling of German business partners, knowing their characteristics and peculiarities as well as helping in effective negotiation and discussion skills. The workshop was guided by ‘authentic’ Germans to offer a ‘first hand’ feel.

The Welcome Address was given by Mr Rajesh Nath. The Presentation on How to Do Business in Germany was given by Ms Lara Fregin and Mr Nicola Oliva. This was followed by a Video on Indian and German Cultural Differences and a Brainstorming Session on Differences in Intercultural relations and Presentation on Iceberg Model. Next was a Group Discussion on Indian and German characteristics and Role Plays and Videos on International Business. The Presentation on 6 German Characteristics of Professionalism was given by Laran and Nicola. The Presentation on Senior Experten Service (SES) was given by Mr Sandip Roy, Senior Manager, VDMA India. There were 20 participants from the industry at the workshop.
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1.19 Presentation on KUKA Machine Tool Tech Day

The German Engineering Federation (VDMA) in association with KUKA Robotics India Pvt. Ltd and Siemens Ltd as partners organized a Presentation on KUKA Machine Tool Tech Day on Friday, 12th May, at SIEMENS Technology Application Centre in Bangalore.

The event deliberated on Enhanced productivity and Robotic Solutions for the Machine Tool industry with focus on Machine Tool OEM’s.

The Introduction about KUKA India and Key Highlights and focus industries was given by Mr. Pradeep Shoran, AGM-Marketing, KUKA Robotics India Pvt Ltd. The Presentation on Indo-German Trade in Engineering Sector with focus on Machine Tool Industry was given by Mr S Manohar, Regional Head South, VDMA India. The Presentation on “KUKA a perfect Robotic partner for Machine Tools”, KUKA product portfolio for Machine Tool (Hardware & Software's), Key applications in Machine Tool Industry, Robotic Surface – Mould & Die milling package Digitalization for machine tools on the way to Industry 4.0 was given by Mr. Shankar Narayanan, Senior Manager – Business Development, Siemens Ltd. The Presentation on KUKA System Partner one stop turnkey solution provider, Integration of Robot, OEM Machine's and peripheral equipment's was given by Mr. Ganesh B.H, Director, Actemium.

There were 90 participants from the industry at the event.

1.20 Presentation on "Implementing Industry 4.0 in the Manufacturing Industry in India"

The German Engineering Federation (VDMA) in association with ifm electronic India Private Limited and Pilz India Private Limited as partners organized a Presentation on "Implementing Industry 4.0 in the Manufacturing Industry in India" on Friday, 5th May, 2017 in New Delhi.

The event focused on implementing Industry 4.0 in lean and smart Manufacturing focusing Automotive, Auto components, Construction & Material Handling sectors.
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The Special Address on "Scope of Automation in Automobile Industry" by Chief Guest was given by Mr. M.M. Singh, Executive Advisor, Maruti Suzuki India Limited. The Presentation on Indo-German Trade in Engineering Sector was given by Mr Sandip Roy, Senior Manager, VDMA India. The Presentation on Industry 4.0 – A Case Study was given by Mr. Bipin Jirge, Managing Director, ifm electronic India Private Limited. The Presentation on Industrie 4.0: Safety and Security was given by Mr Amol Bari, CMSE® (Manager- Product Management and Engineering Services), Pilz India Private Limited. The concluding remarks were given by Mr Rijoy Sengupta, Regional Manager North, VDMA India.

There were 53 participants at the event.

1.21 MDA Forum - India Day Session at Hannover Fair 2017

Hannover Fair 2017, the biggest engineering show on earth was held from 24 - 28 April, 2017 in Hannover, Germany.

VDMA India organized a MDA Forum - India Day Session on Thursday, 27th April, 2017 at the exhibition. The program comprised of presentations and panel discussion comprising of leading Indian companies and VDMA members on different topics in the field of Fluid power and Power Transmission Engineering.

The Overview of Indian Economy & Indo - German Trade in Engineering sector was given by Mr Rajesh Nath, Managing Director, VDMA India. The Presentation on Good & Service Tax (GST) Law – Impact on Manufacturing in India was given by Mr. Rajan Gupta, Partner, MBC Legal & Advocates.

This was followed by a Panel discussion on the topic "Manufacturing – Driver for Growth in India" which was moderated by Mr Nath. The Panellists were Mr Christian H. Kienzle, CEO, ARGO-HYTOS Group, Mr Amit Uplenchwar, President, Adani Ports & SEZ Ltd., Mr Sandip Gandhi, Managing Director, Emco Dynatork Private Limited, Mr R. Ramesh, Executive Director, Janatics India Private Limited, Mr Frank Maier, CTO, Lenze SE, Mr PL. Muthusekkar, Managing Director, NORD DRIVESYSTEMS India Private Ltd.

1.22 Panel Discussion on Digitisation – Tomorrow Together at Hannover Messe 2017

EEPC India organized a Panel Discussion on Digitisation – Tomorrow Together on Tuesday, 25 April at Hannover Messe 2017. The discussion deliberated on creating significant synergies between Indian and German industries for collaboration in innovation through Industry 4.0. and facilitating Trade, Investment & Technology transfer in these areas.

The Welcome remarks was given by Mr. T. S. Bhasin, Chairman, EEPC India. The Introductory Remarks was given by Mr Girish Shankar, Secretary, Department of Heavy Industry (DHI), Govt of India

The Panel Discussion was moderated by Dr. Wilfried Aulbur, Member Global Supervisory
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Board, Senior Partner & Chairman India - Roland Berger. The Panellists were as follows:-

Mr Girish Shankar, Secretary, DHI, Govt of India
Mr T S Bhasin, Chairman, EEPC India
Mr. Dietmar Goericke, MD, VDMA Forum Industrie 4.0
Mr. Dattatreya Gaur, Vice President, Robert Bosch Engineering and Business Solutions Pvt Ltd
Mr. Hirren Turakhia – Global Head of Engineering, IT & Digital Manufacturing – HCL
Mr. Klaus Trescher – MD & CEO, Siemens Technology and Services Pvt Ltd
Mr. Probodh Chiplunkar – Global Head, Digital Transformation Business Unit – KPI
Mr Madan Lal Raigar, CGI, Hamburg

The Closing Remarks & Vote of Thanks was given by Mr. Vikram Vardhan, Second Secretary, EOI Berlin

1.23 Presentation on “OPTIMIZED CUTTING SOLUTIONS” for the Aviation/Aerospace sector

The German Engineering Federation (VDMA) in association with GUHRING India Pvt. Ltd organized a Presentation on “OPTIMIZED CUTTING SOLUTIONS” for the Aviation/Aerospace sector on Friday, 21st April 2017 at VIVANTA by Taj – Begumpet, Hyderabad.

The Indian aerospace industry is one of the fastest-growing aerospace markets in the world due to an increase in defence spending, growing commercial aviation market, rising technological expertise and high levels of technical expertise and knowledge. With the several laboratories of Defence, Hindustan Aeronautics Limited and other key Aviation sector focussed private organizations in the capital city of Hyderabad, Telangana. Hyderabad has been a hub, for the recent developments for the Indian defence and domestic civilian use.

This event focussed on the German technology in the machining of aerospace components. It served as a networking platform for prominent Indian companies in the aerospace/aviation fraternity in the twin cities of Hyderabad and Secunderabad.

The Address by the Chief Guest on “New Development in Aerospace Industry” was given by Mr Muralidhar Reddy, General Manager, Bharat Dynamics Ltd. The Presentation on Indo - German trade in Engineering Sector was given by Mr. Rajesh Nath, Managing Director, VDMA India. The Introduction to GUHRING and its latest products was given by Mr. S.K.L.N. Prasanna, Gühring India Private Limited. The Presentation on Advanced machining concepts for Aerospace materials was given by Mr. Sandeep Kumar, Gühring India Private Limited. The concluding remarks were made by Mr S. Manohar, Regional Head South, VDMA India.

There were around 90 participants at the event.
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1.24 Forum on Doing Business in India

The German Engineering Federation (VDMA) in association with The Hongkong and Shanghai Banking Corporation Limited (HSBC) and Deloitte Touche Tohmatsu India LLP organized a Forum on ‘Doing Business in India’ on Friday, 21st April, 2017 at The Leela Mumbai, Mumbai.

The interactive presentations spoke about the current challenges and opportunities for foreign companies doing business in India. Ranging from macro-economic update to GST, special attention was given to trade financing options available while taking financial regulation and taxation aspects under consideration.

1.25 Presentation on Smart and Lean Manufacturing through Industry 4.0

The German Engineering Federation (VDMA) in association with Contrinex Automation Private Limited and LEONI CABLE SOLUTIONS India Private Limited as partners organized a Presentation on Smart and Lean Manufacturing through Industry 4.0 on Friday, 7th April, 2017 at CROWNE PLAZA PUNE CITY CENTRE in Pune.

The event focused on latest Automation, Sensor Technologies and Cabling solutions focusing Automobile, Auto components, Construction, Material Handling, Machine Tools, Food, Packaging and Beverage sectors.

The Presentation on Indo - German trade in Engineering sector was given by Ms Jamly John, Regional Manager West, VDMA India. The Presentation on Cable requirements in Robotics, Machine Tool and Automation Technology was given by Mr. Pushpendra Singh, Managing Director, LEONI CABLE SOLUTIONS India Private Limited. The Presentation on IO-Link - CONTRINEX Sensors Learn To Talk was given by Mr. Deepak Aran, Managing Director, Contrinex Automation Private Limited.

There were 62 participants at the event.
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2. Activities of VDMA India Office

International Preview of Agritechnica 2017

International Preview of Agritechnica 2017 was organized on 27th June 2017 at Dean Committee Room of College of Agriculture Engineering & Technology, PAU Ludhiana by The Punjab State Agriculture Implements Manufacturing Association.

Dr. G.S. Buttar, Additional Director of Extension Education PAU was the Guest of Honour for the day gave a short introduction of PAU to the audience and also welcomed Mrs. Angelina Laas of DLG e.V (German Agriculture Society). First a presentation on the current state of affairs in Indian agriculture Machinery was given by Dr. Baldev Singh Amar who is the Chairman of AMMA (Agriculture Machine Manufacturer Association). It was followed by a presentation about VDMA & its role in the Agriculture sector in India which was given by Rijoy Sengupta (Regional Manager - VDMA North). Then it was the presentation of Agritechnica 2017 given by Mrs. Angelina Laas DLG e.V (German Agriculture Society). It was followed by a brief feedback by Mr. Gunig Grewal Singh of BJ Farms Sarabhai (Ludhiana) who shared his experience of visiting Agritechnica 2015 and also explained that the objective of visit was for productivity and sustainable development of an agribusiness enterprise. Mr. Rajdeep Singh - Secretary (AMMA) gave the vote of thanks to all the participants and the guest who attended this program.

There were 60 agriculture machine manufacturers who had attended the program.

Farewell of Mr Olaf Iversen, Consul General of Germany in Kolkata

Mr. Olaf Iversen, Consul General of the Federal Republic of Germany in Kolkata concluded his tenure at the German Consulate in June 2017.

We are grateful for the immense support he has extended to the business community of the Eastern Region during his tenure.

In this regard, the German Engineering Federation (VDMA) jointly with Indo-German Chamber of Commerce (IGCC) organized a farewell dinner in honour of Mr. Iversen on Wednesday, 21st June, 2017 in Kolkata.

The new German Consul General – Dr Michael Feiner, who would be the successor to Mr Iversen, was also greeted on this occasion.

13th India Management Meeting of Construction Equipment & Building Material Machinery division under VDMA

The 13th India Management Meeting of Construction Equipment & Building Material Machinery division under VDMA was held on Wednesday, 21st June 2017 at the premises of WABCO India Limited, Chennai.
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Mr Anand Khetan, Roedl & Partner India attended the meeting and made a Presentation on “Goods & Services Tax – GST”.

Mr Sebastian Popp, VDMA Frankfurt and Mr Ajmal Fawad, Deputy Manager, VDMA India presided over the meeting.

There were 10 participants at the meeting.

**Celebration of 10 Years of presence of Roedl and Partner in India**

Roedl and Partner India celebrated 10 years of their presence in India on 28th of March 2017 at Trident Hotel, Gurgaon.

In this regard a Panel Discussion was held on "India as Success Location for German Companies – Lessons Learned and Outlook".

The Panellists were as follows:-

- Mr. A K Datta, General Manager, Kurz India Pvt Ltd, New Delhi
- Dr. Corinna Fricke, Head of Commercial Section, Embassy of Federal Republic of Germany, New Delhi
- Mr. Stefan Mauer, Chief of Bureau, South Asia Office, dpa German Press Agency, New Delhi
- Mr. Rajesh Nath, Managing Director, VDMA India
- Prof. Dr. Christian Rödl, Chairman of Global Management Board, Rödl & Partner Germany

The Panel Discussion was moderated by Mr. Martin Wörlein, Partner, Head of India Advisory, Rödl & Partner, Germany & India.

**Schmersal celebrates its 10th anniversary in India**

Schmersal India Private Limited, a subsidiary of the Schmersal Group, celebrated ten years of existence this year. Some 200 guests joined the celebrations on 2nd June 2017 in Ranjangaon, including the German Consul General in Mumbai, Dr. Jürgen Morhard.

The company was initially founded in 2007 as a sales organisation in order to participate in the growing Indian market for machine safety. In 2012, the cornerstone for a production factory was laid in Ranjangaon near Pune in the state of Maharashtra.

Mr Rajesh Nath, Managing Director, VDMA India attended the event and made a Presentation on Overview of Indian Material Handling Industry.
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**Visit to Damodar Valley Corporation (DVC)**

In pursuit of strengthening closer relation with the mining and power industry in the eastern region, VDMA India organized an interaction with Mr. Andrew W. K. Langstieh, Chairman, Damodar Valley Corporation (DVC) on Wednesday, 31st May 2017. Mr. Juergen Thomas Schrod, Deputy Consul General of the Federal Republic of Germany also joined the meeting.

With more than 69 years of experience Damodar Valley Corporation (DVC) is a leader in power generation in India and responsible for the development of the DVC command area spread across the states of West Bengal and Jharkhand. DVC also performs multifarious activities of flood control, irrigation and transmission and distribution of electricity.

The following participants joined the meeting:

Mr. Uday Dave, Asst Manager, Maco Corporation
Mr. R. Karthikeyan, Principal Consultant, DMT Group
Mr. Vimal Prakash, Managing Director, Jiwanram Sheoduttrai Group
Mr. Samir Ghosh, AGM, MBE Coal & Mineral Technology

Mr. Bikram Bhattacharjee, General Manager, Synergy Industrial Services

Mr. Rajesh Nath, Managing Director and Mr Ajmal Fawad, Deputy Manager, VDMA India presided over the meeting.

**Mines & Minerals Forum 2017**

The Mines and Minerals forum 2017 (MMF 2017) was organized by EPC World Media Group on 26th May'17 in Kolkata jointly with industry associations, Ministry and PSUs. The forum was focussed on the theme of “Innovation, Ideas and Knowledge sharing”.

It addressed all aspects of mines and minerals from exploration to investment, strategy, regulatory, policy and governance, mergers and acquisitions, technology and equipment, as well as explore the collaborative approach between industry and policy makers to achieve the best environmental outcomes and processes. This strategic forum brought together key industry stakeholders, mining companies, policy makers, investors, technology leaders and service providers.

Mr. Rajesh Nath, Managing Director, VDMA India was invited as a guest and made a Presentation on “German Mining Machinery Industry” at the Forum.
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Visit to LIGNA 2017

LIGNA – the world’s leading trade fair for machinery, plant and tools for the woodworking and timber processing industries was held from 22 to 26 May, 2017.

1,500 exhibitors from 49 nations used the show to present a wealth of amazing innovations.

Mr Rijoy Sengupta, Regional Manager North, VDMA India attended the exhibition.

The Machinist Super Shopfloor Awards 2017

The Machinist Super Shopfloor Awards was organized by Worldwide Media (WWM) on 18th May, 2017 at Feathers - A Radha Hotel in Chennai.

The Machinist Super Shopfloor Awards platform has created a benchmark through credibility, fairness and acceptance in India’s discrete manufacturing sector. Some of the best manufacturing brands in the country have participated in this platform over the years.

Mr Rajesh Nath, Managing Director, VDMA attended the event as a guest and presented one of the awards to the winners.

SES (Senior Experten Service) Workshop in Bonn, Germany

A Workshop for SES (Senior Experten Service) Representatives was held in Bonn, Germany from 8 – 12 May 2017.

A total of 11 representatives of SES worldwide participated in the workshop.

Mr Sandip Roy, Senior Manager, VDMA India attended the workshop on behalf of VDMA India and made a country presentation on India.
interpack 2017

The international flagship trade fair of the packaging sector and related processing industries took place at Düsseldorf’s exhibition grounds from 4 to 10 May 2017.

Interpack is the essential event for the food, beverage, confectionery, bakery, pharmaceutical, cosmetics, non-food and industrial goods sectors. No other trade fair in the world represents the entire supply chain encompassing processes and machines for the packaging and processing of packaged products as well as packaging materials, packaging means and their production, and finally services to the packaging industry. Interpack 2017 has recorded the biggest exhibitor demand in its over 55-year history. There is more to see in the 19 exhibition halls than you can pack into a week and you can’t get such a comprehensive, up-to-date overview of the competition anywhere else in the world. What makes interpack special is its unique array of exhibits and the peerless internationality of its exhibitors and visitors.

At interpack 2017, the spotlight was on Industry 4.0, which was staged in cooperation with the German Engineering Federation (VDMA). In the technology lounge at the VDMA stand examples of applications were presented.

Mr Rajesh Nath, Managing Director, VDMA India was also present at the exhibition and met Mrs Kaul, Secretary, Ministry of Food Processing, Government of India.

An 8 member delegation from PHD Chamber led by their President Mr Gopal Jiwarajka also visited the VDMA Stand at Interpack exhibition in Dusseldorf.

VDMA Business Climate Survey India 2017

VDMA India conducted the 1st Business Climate Survey in May 2017 for the VDMA Members in India.

The purpose was to see and get to know what the members feel about their business in terms of growth, opportunities and trends. It will be an additional compass for future decision making.

The VDMA Members responded positively with 128 participants from all sectors of the mechanical engineering industry taking the survey. They shared their evaluations regarding their company’s business and the situation of their most important customer industries.

Their current business situation was seen as good by 47% of the participants, whereas 48% considered it normal and 5% bad. The balance of positive and negative evaluations was therefore plus 42 percentage points.

The current utilization of the affiliates’ production or service capacities was evaluated more cautiously; the corresponding balance value is plus 19 percentage points.
3. Members Speak

An Interview with Mr Puneet Kapoor, Managing Director, Guhring India

Kindly tell us about your activities in India
Guhring is celebrating its 20th year of operations in India this year. Guhring India is involved in the trading and manufacturing of rotary cutting tools. It also provides value added services like tool reconditioning, Hydrogrip holder reconditioning, Carbide sales, Tool vending machine sales, Tool management services and inspection equipment sales. With its strong local presence consisting of manufacturing in Bangalore and service centres at Bangalore, Delhi, Pune and Chennai Guhring India offers global competence at the doorstep of its customers across India.

How do you foresee the business development in 2017 for your products?
Customers involved in machining are becoming more aware of the advantages of using high performance methods and cutting tool materials and this in turn has resulted and in future also result in increased demand for our high performance products which deliver consistent quality at competitive prices.

What are the challenges you are facing in your business today?
Few challenges being faced are more related to increasing the user awareness about implementation of quality machining concepts and planning.

What are your views on the "Make in India" program?
The "Make in India" program has raised hope in the Indian industrial fraternity. The outlook is positive and with the Government machinery being pro-active in implementing the program, results are bearing fruit at all levels with increased activity being visible from big establishments to the SME level.

GST will a reality on 01-07-2017, how prepared is your businesses towards GST?
Steps have been taken to align our customers and vendors towards implementation of GST. Getting our systems and transactions GST RIGHT is quite a challenge, we are working with our ERP & legal partners for a smooth transition and implementation of GST.

What would you like to suggest to German companies who are looking to enter the Indian market?
Indian market is a market with lot of promise and challenges. Multinational Companies here must be conversant with the local market conditions and base their decisions on the existing local market conditions. Companies need time as well as strong backing of their parent companies to sustain in the highly competitive and demanding Indian Market.

What are your thoughts on the Smart cities initiatives undertaken by the government? Do you foresee this as an opportunity for the German companies based in India?
The Smart cities initiatives is a long-awaited step towards planned development. It will help companies to plan their logistics better. This provides opportunity for new setups and expansions to provide better localized support to customers.

Skill Development is an important requirement for an organization, how is GUHRING addressing Skill Development on a continuous basis?
Guhring is closely associated with training institutes and colleges to impart practical industrial knowledge to students in addition to their academics. Guhring ensures the skill levels of its employees at all subsidiaries in the world are updated on constant basis through Exchange of experience programs, knowledge transfer sessions by experts and by organizing study visits across its plants.
Your feedback/response on the seminar conducted by VDMA in April 2017 in Hyderabad for GUHRING focused on the Aerospace vertical?
The seminar helped us in expanding our local presence and resulted in increased brand awareness. The customers became more aware of the specialized solutions which Guhring can provide to the machining of composites, Super alloys, Aluminium in Aerospace industry. Guhring with its strong presence at major aerospace setups across the globe can easily transfer technology to the Indian set-ups.

An Interview with Mr Brajesh Kumar, Managing Director, Walter Tools India

Walter India has ambitious growth plans through market share gain and distribution base expansion during coming years. We rely on a solid growth strategy, which enables us to provide our customers a competitive advantage through innovative technologies, premium product quality and expert engineering services. We have a very strong Engineering team in India and possibly Walter has got the highest turnover by providing the Complete Solutions.

Walter has a strong presence across India through the Sales Engineers, Application Engineers and well networked Channel Partners placed at all the major industrial zones and manufacturing setup, thus always nearby the customer.

At the Walter India office located at Hinjewadi, Pune has the state-of-the-art Technology Center, which offers Prototype development, product demo to specific requirement and Process Optimization solutions along with Technology exchange & specialized training for Customers and Engineers. This new facility provides us with a competitive edge and differentiates Walter from others. The mission of the company is to deliver Engineering Kompetenz and quality technical solutions to customer. Also as far as people are concerned Walter believes in working and succeeding as a team.

How do you foresee the business development in 2017 for your products?
Walter India’s 1st quarter results have shown an upward trend as the Indian economy and the market conditions are revived and look favorable from business point of view. We expect a good growth in the coming months as well. With a well laid strategy, Customer Focus approach, wide range of innovative products and machining solution offerings driven by a competent team, we are all set to make a mark in 2017 and register a remarkable business growth.
What are the challenges you are facing in your business?

Today’s End users are demanding the latest in technology at the most economical cost. The industry has a continuously evolving appetite for improvement which calls for challenging applications, surfaces & materials to be machined. On top of that greater precision are needed to be achieved at an ever increasing productivity rate with rock solid process security. Walter continually strives to offer solutions to customer like cost per component reduction, Tool machining cost, cycle time reduction, increase productivity, quality and performance ratio etc., that make them competitive in their end users.

At Walter, we act as partners and not only cutting tool suppliers, thus we concentrate with a holistic approach on the entire range of our client’s applications and on what they can achieve using our Specialized Optimization Solutions.

The perpetually growing competition in the manufacturing sector, both from local and global players, has led to an increased end-user expectation towards cost and technological competitiveness. Today, manufacturing companies need to act as cutting tool experts offering optimized machining solutions for increasing productivity and quality.

In this context, Walter is setting benchmarks with highly innovative products and services. Walter Xpress for example is an incredibly fast ordering and delivery service for high-quality special tools from Walter, Walter Titex and Walter Prototyp. With this automated software, quotations for all enquiries are calculated and provided with special tools to meet the customer needs. Further, quick manufacturing and delivery are clear advantages of the special tool service Walter Xpress.

What are your views on the "Make in India" program?

India’s “Make In India” campaign has given a confidence boost to the manufacturing industry. The positive developments in areas of infrastructure, policies and steps that are being taken to simplify doing business in India will boost the India manufacturing industry to great extent.

India is a growing economy with a strong manufacturing sector and a vivid home market demand. Walter Tools which is a tooling solution company is all set to make manufacturing industry more competitive and thereby increasing their business.

What would you like to suggest to German companies who are looking to enter the Indian market?

German companies hold the reputation in the market for their innovation driven by technology and their expertise in the field of Engineering. “German Engineering” is considered as a synonym for quality driven by performance. Thus, I suggest, the German companies who wish to enter the Indian market should thrive on delivering these attributes. As the customers are always in need of engineering technology, solution oriented to meet the end user requirements. The Indian economy is on its growth trajectory, with globalization and digitalization the world is now an open market. This spurs the opportunity for companies which aim to exceed customer expectation in terms of innovation, solution driven and sets a benchmark in customer service. It is the right time to get started and do business in these apt conditions.

What are your thoughts on the Smart cities initiatives undertaken by the government? Do you foresee this as an opportunity for the German companies based in India?

The Smart Cities Mission is an innovative and new initiative by the Government of India to drive economic growth and improve the quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens.

This will definitely help to build and offer a better infrastructure and a harmonious atmosphere for companies and manufacturing segment to work in. This also provides an opportunity for the industry experts to contribute in the mission. India is a huge market for internal consumption. It is the right time for the solution providers to extend the support needed to make it a reality, thus a platform for the companies to invest and deliver competence in the required fields.

What are your expectations from GST and how it would impact the manufacturing sector?

There have been many expectations with the introduction of the GST. It would simplify the complex tax structure and eliminate the hindrances in abiding the taxation obligations. It would surely ease the way companies do business.
4. Feedback from VDMA Members about VDMA India events

We did join VDMA with some objectives. Like from any other industrial associations, to get to know the best practices in the industry, collective voice of industry in regards to policies, industry news and so on. We receive all that we want; Industry reports, Updates on industrial news on regular intervals and more about trade relations with Germany. Their roadshows give us a platform for a catwalk and make us showstoppers. Amazing experience. “Are they our extended marketing team?”, we stood aghast many times. Like any other association, they provide networking opportunity by various events. But you smell an aroma of family reunion during such events, every time, unlike events by many other associations. Anytime we can rub the shoulder with any team member of VDMA, have a coffee and discuss what more we need. It’s been a completely positive experience, and that we feel all companies should experience.

Dheepan Ramalingam
Managing Director
RINGFEDER POWER TRANSMISSION India

Since March 2012 I’m the managing director of Putzmeister India. Every year I participate at the VDMA meetings allowing me to exchange valuable information with peers from other industries, to discover production plants, to share best practices and market information. I would like to thank VDMA India to make this possible.

Wilfried Theissen
Managing Director
Putzmeister Concrete Machines Private Ltd

We generally attend most of the events organized by VDMA, especially in Pune region. We found that the events organized are very useful & informative and it covers vide range of topics relevant to industry. The events are well structured and interactive in nature, which allows participants to bring their insights to various discussions. We hope VDMA continues to organize many such events on current issues in Pune considering presence of good number of German member companies in and around Pune.

Rajesh Mishra
Managing Director
Vulkan Technologies Pvt Ltd
MBE Coal & Mineral Technology India (formerly known as Humboldt Wedag Coal Mineral Division) has been participating in most of the events organized by VDMA. During the recent couple of years I observed these events covered a wider spectrum in different fields of applications from its technical to commercial aspects besides other important topics viz. Budget analysis, taxation etc. to name a few. These events & the interactions which followed with experts in the respective fields have been of great help to us. Noteworthy to mention is about your Annual Event which has been a useful forum for us as members to learn & exchange notes. I wish VDMA all the best in their endeavors and a continual success in the years to come.

Gurudas Mustafi  
Wholetime Director & C.E.O  
MBE Coal & Mineral Technology India

We highly appreciate the events organised by VDMA India. The events are always based on technical, economic and commercial topics which are relevant globally. They provide us a very good platform to enable us share our innovations and views with our target audiences who matter us the most. We look forward to more such events by them and assure our participation. We wish them success in future for such events.

Sanjay Kulkarni  
Managing Director  
Pilz India Pvt Ltd

We have been associated with VDMA India since many years, almost since ifm electronic India started Indian operations some 20 years back. VDMA has been one of the important institutions for us to get valuable help in market developments in India as well as for excellent networking opportunities. The special speakers, who are invited at VDMA annual event also give us lot of knowledge and in-sites in the related fields.

Bipin Jirge  
Managing Director  
IFM electronic India
Jungheinrich India has been connected to VDMA almost from inception. Over the last couple of years, we have interacted very closely and participated in various events. The events and the discussions are always very updated to the current topics and trends in the Indian industry. The events also provide a great platform to network with the leaders from German organizations as well as other companies.

Manojit Acharya
Managing Director
Jungheinrich Lift Truck India Pvt. Ltd

The News Letters and weekly report published benefits VDMA members of providing: Very informative, sector wise reviews of the entire industries. It gives a chance to glance through the entire spectrum of industries with minimum time and efforts. It keeps us well informed about the trends and new developments, happening in the Indian industry. The efforts of VDMA to keep all its members well informed of the current events affecting the economy are well appreciated. For instances, events organized on GST the new tax regime, that will affect the way of doing business in India in future and review on Union budget 2017 is a welcome step. Holding Annual review meetings of the German Plastics Machine producers makes us aware of the difficulties and challenges faced by various Indian offices of German companies working in India which could be taken up by the federation on official level to address the solution.

Ghanshyam Shilamkar
Vice President - Sales Indian sub continent
Brueckner Machinery Service India Pvt. Ltd.

The “Rollforming the Future®” seminars in Coimbatore and Faridabad which we hosted together with the VDMA India in July 2016 provided the ideal platform to connect with our future and current customers, to promote our COPRA® products and discuss trends in rollforming with experts from various industries.

Maximilian Sedlmaier
Director
data M Software India Pvt Ltd.
5. Members Corner

Germany’s Chancellor visits SCHUNK, the winner of the Hermes Award 2017. Angela Merkel visited the SCHUNK pavilion at Hannover Messe and learned about the future of smart production

SCHUNK, the competence leader for gripping systems and clamping technology of Lauffen, Germany started off the Hannover Messe with a brilliant success: At the opening of the world’s leading trade show by Germany’s Chancellor Dr. Angela Merkel, Prof. Dr. Johanna Wanka presented the innovative family-owned company with the Hermes Award 2017, one of the world’s most prestigious technology prizes. On her tour of the exhibition on Monday, Chancellor Merkel visited the SCHUNK booth, and looked on while the Managing Partner/CEO of the family-owned company, Henrik A. Schunk, presented smart gripping modules that enable direct human/robot collaboration (HRC). With its HRC grippers of the SCHUNK Co-act series the Swabian technology forge has made an important contribution to production systems of the future. The company received the Hermes Award for the SCHUNK JL1 Co-act Gripper, the world’s first intelligent gripping module for human/robot collaboration that directly interacts and communicates with humans. Henrik A. Schunk sees the award as a milestone in the history of the group of companies: “My team and I are proud of the success of the SCHUNK JL1 Co-act Gripper, which is a decisive step on the way to highly flexible handling scenarios for Industry 4.0 and therefore for smart production.” For the first time in the history of the Hermes Award, the prestigious trophy was awarded for a gripping module. The award was given at the recommendation of an independent jury headed by Prof. Dr. Dr. h. c. mult. Wolfgang Wahlster, Chairman of the Management Board of the German Research Center for Artificial Intelligence (DFKI). In 2015, SCHUNK had made it among the top five for the Hermes Award, and therefore was at the leading edge of technological innovation, back then with SCHUNK eGRIP, a web-based 3D design tool for additively manufactured gripper fingers.

Schwing Stetter India partners with GOMACO USA to foray into the Concrete Paving industry in India

Schwing Stetter India, one of the country’s leading concrete equipment manufacturers, has partnered with GOMACO Corporation. The Government has recently announced a drive to build 30 kilometers of roads per day; 10,950 km road projects and 100 new concrete road projects to be set up in India. In addition to this, the Government has set an ambitious target of increasing the contribution of manufacturing output to 25% of Gross Domestic Product GDP by 2025, from its 16% currently.

Mr. Kent Godbersen, Vice President of Worldwide Sales and Marketing, GOMACO Corporation said, “Schwing Stetter has been serving the concrete construction market in India for nearly 20 years and they will be an excellent partner of GOMACO Corporation and our concrete paving products. We have chosen Schwing Stetter to help lead our efforts in India because of their commitment to the customer, their attention to quality products, and excellence in service.”

On this partnership announcement, Mr. Anand Sundaresan, Chairman, Schwing Stetter Sales and Services Pvt. Ltd. said, “We are proud to be associating with GOMACO to offer their concrete paving products in India. This is a great opportunity for concreting all the roads in the country. We are pleased to join the world leader in this space to empower India with well-laid, concreted roads across India.”

Mr. V.G. Sakthikumar, Managing Director, Schwing Stetter Sales & Services Pvt. Ltd, said “Concrete pavers have multiple applications like building roads for the national and state highways, airport runways, canal lining, high speed rails, etc. We at Schwing Stetter have always been eager to partner with a player that has great expertise in this line of products. Additionally, our country can greatly benefit from a product like this owing to the fact that building concrete roads are cheaper, faster to build, long lasting and require minimum post construction maintenance costs.”
The VDMA Member - Festool GmbH contribution to Skill India

It is an honour to share that in a recent event at Kanpur, at the launch of the Indian Institute of Skills, Caple Industrial Solutions (Representative of the VDMA Member - Festool GmbH) had the honour to present the latest German technology from Festool GmbH equipped in a Skill Van to the Hon'ble Prime Minister Shri Narendra Modi, the Hon'ble Skill Minister Shri Rajiv Pratap Rudy, NSDC and the CEO of Furniture Fittings Skill Council.

We are pleased to announce that Caple Industrial Solutions has launched Maharashtra's first Skill Van, dedicated to the Carpenters of Maharashtra, equipped with Festool GmbH.

This will help the Furniture Industry grow to the next level in India. This van will go to all the cities and towns of Maharashtra, to promote the Hon'ble Prime Minister's Skill India initiative.

6. Exhibitions and Seminars

Trade shows being supported by VDMA

Drinktec
11-15 Sept 2017, Munich, Germany
World's Leading Trade Fair for the Beverage and Liquid Food Industry

Techtextil India
13 – 15 Sept 2017 Mumbai, India
International Trade Fair for Technical Textiles and Nonwovens
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8. Subscriptions
In case you wish to subscribe or refer a friend to our free quarterly e-newsletter, kindly send in your requests to: subscriptions.vdmanewsletter@gmail.com (or) write in to us at:

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9. Careers
If you are looking for a change from your current job, send us your resume at: http://vdmaindia.org/career.aspx

10. SES (Senior Experten Service)
SES – the Foundation of German Industry for International Cooperation – is the largest German volunteer placement Organization for retired skilled and management professionals. The services of SES are mainly aimed at small and medium-sized enterprises, public authorities in manpower training, improving productivity and quality assurance, business organization and management. VDMA India is the official representative of SES in India. For more information kindly contact:
Mr. Sandip Roy (sandip.roy@vdmaindia.org)

11. Additional Services against Charges (members & non-members)
- Market analysis / study
- Coordination of appointments in India
- Translations/ Interpretations (German/ English)
- Mailing Activity in various industrial sectors
- Recruitment

About us
The VDMA (Verband Deutscher Maschinen- und Anlagenbau - German Engineering Federation) is a network of around 3,100 engineering industry companies in Germany making it one of the largest and most important industrial associations in Europe with over 400 industry experts. VDMA was founded in 1892 and since then successful engineering companies have been working with us to create a powerful force to represent their interests both at national and international level. VDMA covers the entire process chain – in the field of mechanical engineering including associated tools and components, of process, production, manufacturing, drive-train and automation engineering, office and information technology, software, and product-related services, i.e. from components to plants, from system suppliers and system integrators through to service providers.

VDMA is divided into 15 cross-sector departments, branch offices in Berlin and Brussels, offices in Brazil, China, India, Japan and Russia, 39 trade associations and labour groups, international committees and forums, six state associations and several service organisations.

VDMA India
The office in India acts a ‘bridge-head’ between the German and Indian Industry and serves the Indo-German economic relations in the different engineering sectors. This office promotes the activities of the VDMA member companies in India with a nodal office in Kolkata and regional offices in Bengaluru, Mumbai and New Delhi/ Noida. VDMA India office maintains close relations with the Indian Industry, Indo-German companies, Embassy and Consulates and various Indian Industry Associations, particularly with CII, FICCI, EEPC, ASSOCHAM, FIEO, CAPEXIL, ICC, IGCC to name a few.

If you wish to advertise in our newsletter, kindly contact:
Mr. S Manohar (s.manohar@vdmaindia.org)
EVERYTHING IN PERFECT ORDER
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What began 30 years ago as a simple shelf, is now a well thought-out organizing and sorting system. ORSY® stands for Organization and System and has established itself as an extremely flexible, effective solution for the extremely broad range of requirements of our customers. ORSY® reduces the strain on you for stockkeeping, provision and the procurement process for small and consumable parts. More than 3,000,000 customers worldwide and over 8,000 customers in Germany use and trust in ORSY® to optimize their company processes and primarily also save time and money. Countless customer meetings and analyses on the workplace situation in workshops and at construction sites have contributed to Würth developing specially effective, intelligent solutions with the ORSY® product line today, which benefit both our domestic and foreign customers. From the optimum setup of a workshop to simple ordering via scanner solutions - we offer you a professional, well-rounded product range.
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There will be another 600 million cars on the roads by 2035, taking the world total to 1.8 billion. The expectations placed on vehicles are rising as rapidly as their number – car manufacturers and automotive suppliers are having to overhaul their designs with increasing speed. What remains constant, however, is the need for superlative machining solutions. Having a partner that provides cost-effective tool solutions and a dependable service is therefore crucial. After all, high productivity and components of a consistently high quality are quite literally what drive the automotive industry.

Pick up the pace: with Engineering Kompetenz from Walter.