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Dear readers,

Satisfied customers are the most essential criterion for the success of any business. At DEUTZ, we have made it our first and foremost priority to fulfil the individual wishes and needs of our customers. In their interview on pages 6 and 7, DEUTZ CEO Dr Frank Hiller and Fred Kaminski, Director of Central Quality Management at DEUTZ, explain how we achieve long-term customer satisfaction and how our new quality management system DEEP contributes to this.

Dr Hermann Simon, founder of the management consultancy firm Simon-Kucher & Partners and a leading expert in the field of pricing, knows that quality has a considerable influence on prices. During his visit to our headquarters in Cologne-Porz, the economic expert set aside some time for an interview with DEUTZWorld, in which he explained why DEUTZ has held a special place in his heart since his early childhood (page 10).

Not least because of its name, DEUTZ has always been closely linked to the district of Cologne-Deutz. For more than 100 years, the company was headquartered in this area, and its entire company history is intimately interwoven with this part of Cologne. Following a decision made in May, the site is now scheduled to be sold to a Düsseldorf-based property real estate project developer, who will be breathing new life into the former factory premises near central Cologne. Turn to page 8 to find out what exactly we are planning for the site and how the sale will contribute to the growth of direly needed residential spaces in Cologne.

Incidentally, “growth” is also the first word that comes to our minds when we think about the Chinese market: over the course of only three decades, China had developed into a modern economic power. Over the past years, German companies have conducted very successful business there – including DEUTZ AG with its joint venture, DDE. But China, too, is fac-



ing increasingly strict emission legislation. This topic poses a great deal of new challenges to engine manufacturers, requiring both modifications to the machines and individual adaptation to local requirements. In his interview with DEUTZWorld, Dr André Philipp, Chief Technical Officer at DEUTZ (Dalian) Engine, told us how DDE and DEUTZ are tackling these challenges (pages 12/13). Another company that is doing truly remarkable work is our Spanish DEUTZ subsidiary. It recently received a high honour, as the Spanish King Felipe VI conferred an honorary medal to DEUTZ Spain (page 16). We extend our warmest congratulations!

Once again, the best DEUTZ dealers in the EMEA (Europe, Middle East and Africa) region were invited to a meeting in Cologne-Porz and honoured for their excellent work. Find out everything about the successful event (page 22) and the associated Service Day in Cologne (page 5)!

We hope you enjoy the read.

Your
DEUTZWorld editorial team

Note: Gender differentiation has not been applied in this document for reasons of improved legibility. The relevant terms apply for both genders in the sense of equal treatment.

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DEUTZ at CONEXPO 2017 in Las Vegas

In March 2017, DEUTZ presented its expanded portfolio of products with a cubic capacity from 2.2 to 18 litres at CONEXPO in Las Vegas. DEUTZ presented multiple new gas and diesel engines for the first time in the United States, including the newly developed TCD 9.0 four-cylinder diesel engine and the six-cylinder TCD 12.0, TCD 13.5 and TCD 18.0. The company further showcased its TCD 2.2 three-cylinder as a diesel and a gas version and a gas variant of the trusted TCD 2.9 four-cylinder. The new TCD 9.0 was the absolute highlight of the DEUTZ booth in Las Vegas. The four-cylinder diesel engine offers a performance of 200–300 kW and a torque of 1,700 Nm. Thanks to its extremely compact design, it is easily installed in a variety of machines – especially excavators and wheel bearings. In addition, DEUTZ presented two serial six-cylinder engines, the TCD 12.0 and 13.5, with up to 400 kW/2.500 Nm and 450 kW/2.800 Nm, respectively. Much like the TCD 9.0, they adhere to a uniform family concept with a shared customer interface and a high percentage of identical parts.



From now on, the upper end of the performance scale will be represented by the DEUTZ TCD 18.0, which is also designed as a straight-six unit and was presented for the first time during a press conference at CONEXPO. The engine reaches a performance of up to 620 kW at a torque of 3,600 Nm. All four engines TCD 9.0, 12.0, 13.5 and 18.0 are part of a cooperative project conducted together with the Liebherr Group. DEUTZ plans to distribute the engines produced by LIEBHERR under its own brand and offer them for the emission standards EU Stage V, US Tier 4 final, China IV and EU Stage IIIA from 2019 via the worldwide DEUTZ dealer and service network. This is a great benefit, as Robert T. Mann, President & CEO of DEUTZ Corporation (USA), explains: “By expanding our engine portfolio, we can develop new markets and expand our customer base. With our TCD 9.0–18.0 engine family, we will be offering strong four-cylinder and six-cylinder products for heavy-duty applications.” DEUTZ additionally presented three new engines for the lower output range. At an output of 56 kW, the three-cylinder version of the successful TCD 2.9 four-cylinder TCD 2.2 will provide a viable alternative in the area of material handling and compact construction machinery. In addition, DEUTZ introduces two liquid-gas versions (also referred to as LPG or propellant) of the TCD 2.2 and TCD 2.9. The engines bear the description G 2.2, respectively G 2.9 and are particularly suited for forklifts and industrial and stationary applications or compact construction machines. Further exhibits included the new DEUTZ Smart EAT System. This solution for exhaust gas treatment consists of a so-called Single Unit, in which the DOC, DPF and SCR (incl. dosing unit) can all be accommodated. It integrates the entire exhaust gas treatment technology extremely compactly in just one component, freeing up additional installation space in customer units. If required, the SCR system and DOC/DPF unit can also be installed separately as a so-called flexible unit, allowing the available space to be utilised more efficiently. Besides presenting its new engines, DEUTZ also showcased its comprehensive service range. This now includes a power pack for the popular TCD 3.6 engine, which is delivered ready for installation with an integrated cooling system. The DEUTZ Xchange programme is also part of the service range. It provides professionally remanufactured engines and components as a fast, economically feasible and environmentally-friendly alternative to purchasing a new vehicle.

DEUTZ and social media – a success story



DEUTZ goes social media – it has been exactly one year since DEUTZ started its marketing activities in the social media under this motto. It started with a YouTube and a Facebook account, which were soon followed by profiles on LinkedIn and Instagram. The success of these media measures quickly became apparent: after only five months, the DEUTZ Facebook page had accumulated 2000 fans, and now – one year later –, the number has risen to more than 3900. This is especially thanks to the large amount of interesting content DEUTZ shares with its followers. During the past year, the DEUTZ Social Media Team posted more than 500 product news, pictures and information in German and English. The online community gets to enjoy a wide range of posts, from historical memories on Throwback Thursday to news from engine technology and daily photos and reports from international trade fairs. And the Instagram activity of DEUTZ is similarly on point: around 50 photos are available to fans of the DEUTZ brand, and the company has acquired almost 900 followers on this platform, too. The DEUTZ YouTube channel has been successful, too. It contains many films and videos relating to the company, including some historical treasures such as the popular DEUTZ adverts from the 1950s and 1960s. If you have not yet had a look around the DEUTZ social media world, click here:

<https://www.youtube.com/user/DEUTZdigital>
www.facebook.com/deutzofficial
www.instagram.com/deutzofficial
www.linkedin.com/company/deutzofficial



Service Info Day at DEUTZ



In April 2017, DEUTZ had a very special idea: on the occasion of the EMEA meeting at the Technikum, the company transformed its foyer at the Cologne-Porz headquarters into a service centre. At the so-called Service Info Day, DEUTZ service staff organised an in-house exhibition to provide information about the versatile and extensive service range of the company. This event was not limited to participants of the EMEA meeting. Instead, all DEUTZ employees in Cologne got to catch a glimpse at the tasks of the service segment. Ten experts from the service team were available for discussion and answering the interested visitors' questions. Participants of the Service Day expanded their knowledge about the basic pillars

of the service network: the web-based e-learning system, the extensive course catalogue of the training centre, the daily updated SERPIC parts database and the service logistics department, which ensures fast availability of more than 40,000 spare parts. Another focal point of the event was the spare parts segment itself. Visitors had an opportunity to find out about service parts, virtual kits and operating materials. Another well-received part of the event revolved around the Xchange programme: an informative exhibit elaborated on the extensive product portfolio and the warranty and dispatch processes. In addition, the Service Department punctually introduced the new web shop, which offers spare parts, engine registration



Congratulations to the winners of our DEUTZ SERVICE quiz! Thank you very much for participating. (From left to right:) Sarah Küster, Ulrich Anschutz, Daniela Cattau, Jakob Schilling, Dieter Lippke, Christian Schäferdiek, Ignat Kress, Klaus Hagen, Sunday Olaolu, Michael Weyer, Kerstin Oosterbeek, Jürgen Gabriel
Further winners (not in the photo): Rafael Obstoj, Monika Lenz, Monika Luschnat, Walter Clemens, Andrea Westermann, Hubert Kreuer

services and downloadable documents via the internet-based Service Portal (see also the article on page 23). The successful event was rounded off by a quiz containing questions about the service segment. A hundred DEUTZ dealers and 400 employees participated.

DEUTZ in dialogue

Hardly any topic is being debated as hotly as the future of drive technology. DEUTZ has already taken part in two renowned industry events this year and is an active contributor to this dialogue. Between 21 and 22 February, the 4th International Engine Congress was held in Baden-Baden. More than 450 experts from Germany and the rest of the world attended the event to discuss the future of combustion engines in cars and utility vehicles; the topic of new and alternative fuels was a recurring theme in the diverse programme. A panel discussion titled “Combustion engines in the era of global mobility and sustainability” constituted the highlight of the specialist segment of the congress, comparing electric drive units and combustion engines using renewable fuels in terms of their potential to reduce CO₂ emissions.

Dr Markus Schwaderlapp, Director of Research and Development at DEUTZ, and his colleagues Wilhelm Feuser and Kai Tedsen contributed by delivering a lecture titled “The new diesel and gas engine family for the lower output range”. The DEUTZ experts illustrated the particular requirements of industrial engines for functionality and sturdiness. En-

gines used in forklifts, for instance, must be able to handle a runtime of more than 4,000 hours per year and a total of 20,000 operational hours. Economic efficiency and high availability are the fundamental requirements for drive systems, making these factors the main priority in the development of special industrial engines.

On 27 and 28 April, the world's engine development specialists met once again at the 38th International Vienna Motor Symposium. Renowned researchers and industrial experts presented new engine concepts, fuel cells, fuels, hybrid technologies, emis-

sion control systems and much more at the Hofburg Conference Centre; a trade exhibition with more than 50 exhibitors completed the symposium.

Dr Frank Hiller, Chairman of the Board of Management at DEUTZ, and Dr Markus Schwaderlapp represented DEUTZ at the world's leading industry event in Austria, where they enjoyed an intensive exchange with the automotive industry and its suppliers. DEUTZ has been focusing on discussing new technologies in this field, many of whose developments can easily be transferred to the off-highway sector.



“Our customers are at the centre of our attention”

Customer satisfaction is a top priority for DEUTZ. And there's no doubt about it: quality can make or break a partnership. DEUTZ invests in the quality of its products and processes. After successfully implementing its zero-defect strategy, it is now completing its comprehensive quality assurance programme with DEEP, the DEUTZ Excellence Engineering Programme. In their interview with DEUTZWorld, DEUTZ CEO Dr Frank Hiller and Fred Kaminski, Director of Central Quality Management since 1 May 2017, explained what exactly DEEP is and whom it targets.

Dr Hiller, in our first interview earlier this year, you told us that stable, long-term partnerships with the customers are particularly important to you.

How does DEUTZ ensure lasting customer satisfaction?

Dr Hiller: Our customers' expectations and wishes are at the centre of our work. We need to understand our customers and their needs just as well as our own strengths and weaknesses, because reliable customer relationships are ultimately the key to our success. On the other hand, stable, long-term partnerships with our customers are reflective of the trust placed in us. Being able to live up to this trust is incredibly important to us. We want to be able to say: our customers can rely on us,

because we supply the right product at the right time – and, of course, at the right quality. Excellent product quality helps us convince our customers of the DEUTZ brand and secure a good, lasting relationship with them.

How, exactly, do you ensure the high quality of your products?

Kaminski: To put it briefly: we invest in quality. We know that we need excellent product quality to offer our customers secure, future-oriented technology and remain innovative and competitive in the long term. To achieve this, we must always stay abreast of the times. The advancing digitalisation has a huge impact, for instance. It leads to shorter and shorter technology cycles, which we need to take into account

in our product development. At the same time, customer requirements do not stand still. Our customers are constantly connected to their digital channels; they have access to any information at any time. In our digital age, customers want speed, constant availability and technological expertise at the state of the art. We are training our dealers, service staff and, of course, our employees to meet these requirements always and everywhere.

► **“We know that we need excellent product quality to offer our customers secure, future-oriented technology and remain innovative and competitive in the long term”.**

How are these company-internal training courses structured?

Dr Hiller: DEUTZ recently devoted a great deal of time and energy to its zero-defects strategy, which it has implemented with great success. Many processes have already been optimised as a result. As a next step, we are going to implement our new quality measure called DEEP (DEUTZ Excellence Engineering Programme) as a complement to the zero-defects strategy. It is based on a pyramid structure: while our zero-defects strategy was targeted at

our employees, DEEP is a top-down approach, which actively involved our top management to make our quality programme fully comprehensive. This pyramid structure unites two interest groups to consolidate two approaches into one overarching strategy. This gives every single DEUTZ member an opportunity to contribute to our quality management. After all, every

member of our company is responsible for the quality of our products, regardless of their function and hierarchical position.

Which measures does DEEP cover within the DEUTZ quality assurance programme?

Kaminski: Quality is an extremely complex topic, and we need a systematic approach to support our quality assurance programme – a guiding principle, so to speak. The Six Sigma method provides this systematic support, for instance. In the future, we want all department heads to undergo training to become so-called Six Sigma Black Belts and take on improvement projects from other departments in the

Six Sigma

Six Sigma (6σ) is a systematic approach to process and product improvement that delivers a measurable result by way of defined steps and the stringent use of quality management methods. Its key element is the documentation, measurement, analysis, improvement and monitoring of business processes using statistics. In addition, it frequently uses the so-called DMAIC method – Define, Measure, Analyse, Improve, Control. Its goals are based on quality problems, relevant financial parameters of the company, and customer requirements.

capacity of project managers. This active involvement with other departments will give them insights into why processes may be delayed or how problems occur and, in turn, convey a deeper understanding of the processes and synergies within the company.

Will DEUTZ restructure its quality management as part of these measures?

Kaminski: Yes, centralising quality will be an important aspect of the new measure. It will support our quality programme by raising the question: am I currently doing everything in my power to create a perfect product and achieve maximal customer satisfaction? You need to be able to answer this question with an honest and resounding “yes” to meet your own quality standards and those of the company. After all, quality starts in the mind.

Does this mean that expertise is the key to excellent quality?

Dr Hiller: Definitely. The skills of our employees are our greatest asset. Every company must always ask itself: have I accumulated enough expertise to satisfy the needs of my clients? This is why we are going to such great lengths to involve all employees in our quality assurance measures. We need to keep our expertise within the company to secure our practical knowledge for the long term. And this is only possible with a cooperative company culture: we need to share our knowledge and experiences with each other actively in order to avoid inefficiencies and create logical, sequential processes. In other words: rather than simply going up to the next recipient and assuming everything will go according to plan, you need to think in terms of a process chain. This will allow us to act proactively rather than reactively and maintain enjoyment and appreciation of our own work. This ultimately benefits our customers in the form of high-quality products.



DEUTZ CEO Dr Frank Hiller (r.) and Fred Kaminski, Director of Central Quality Management.

A new life

for a former DEUTZ site

Since the beginning of its company history, DEUTZ AG has been assembling engines and manufacturing parts on Deutz-Mülheimer-Straße in Cologne, on the right side of the river Rhine. Even though the factory is located in the district of Mülheim, DEUTZ members speak fondly of the “Deutz site”, the name-sake of the company. On 3 May 2017, DEUTZ AG announced the sale of its property in Cologne-Deutz, which measures approximately 160,000 square metres, to the property project development firm GERCHGROUP AG in Düsseldorf.

DEUTZ AG already decided to move the entirety of its premises from Cologne-Deutz to other locations – especially its headquarters in Cologne-Porz – in 2014. The new shaft centre at the main site in Porz was built to accommodate this project. Earlier this year, the relocation and clearance of the Cologne-Deutz site was finally completed. It marks the end of an era for DEUTZ.

DEUTZ World has interviewed Dr Margarete Haase, Member of the Board at DEUTZ, and Mr Christian Krupp, Director of Finances, Investor and Public Relations and responsible for the utilisation of the premises in Cologne-Deutz, why the company decided to leave its home district.

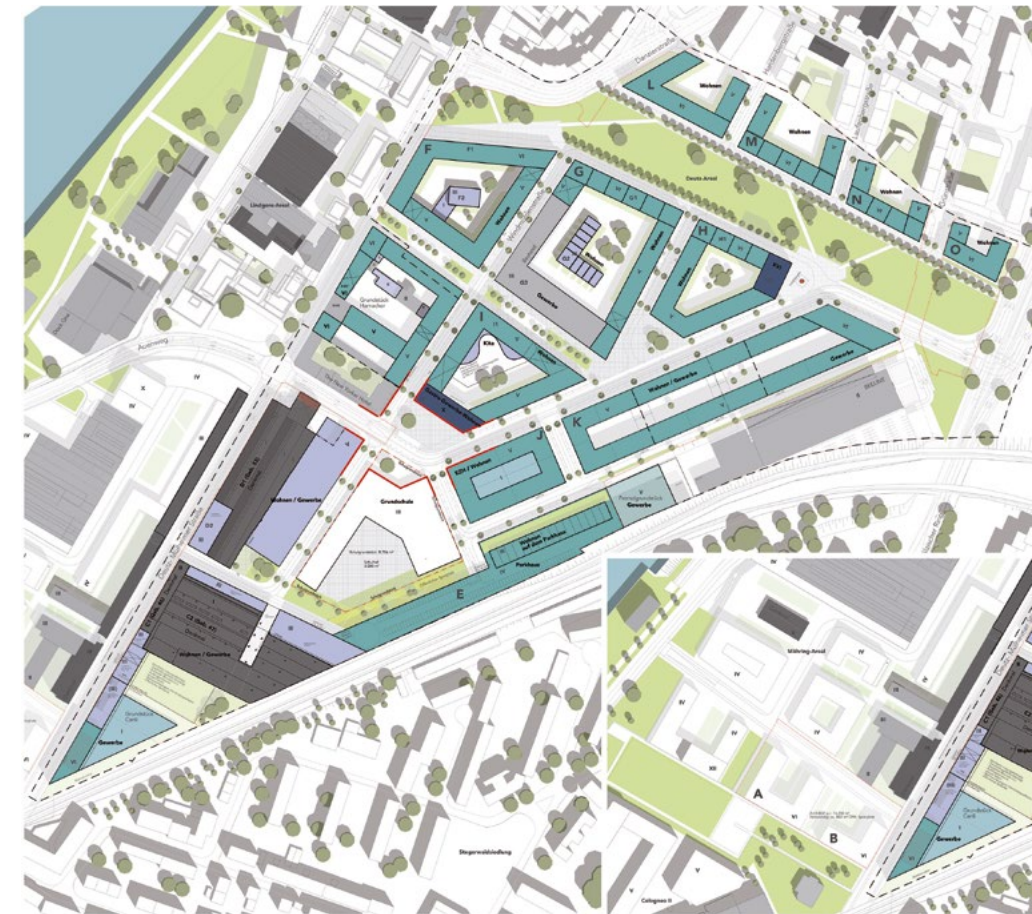
DEUTZWorld: Dr Haase, DEUTZ and Cologne-Deutz are inseparable to many people. Why has DEUTZ AG decided to leave the nest?

Dr Haase: Cologne has grown over the years. Today, our former premises in

Deutz are located in a central location surrounded by residential buildings and brownfields. The problems are obvious: consider heavy-duty traffic in densely populated residential areas, especially at night. On top of that, our infrastructure in Deutz was outdated and our productivity per square metre was poor. The existing buildings had high maintenance costs, which increased constantly. Our relocation allowed us to sell the former factory premises in Cologne-Deutz at attractive conditions. By making former industrial premises available for other purposes, we are contributing to the development of the City of Cologne, especially in terms of new housing in the metropolitan area – which is direly needed.

DEUTZWorld: What is going to happen to the premises, and what has been done since the company decided to relocate?

Krupp: The City of Cologne has been growing steadily over the course of the past years, and it will continue to grow. Last year, Cologne had approximately



DEUTZWorld: Why have you already sold the premises in Cologne-Deutz at this point in time – and why to GERCHGROUP?

Dr Haase: We originally planned to conclude the development planning procedure first and then sell the property. But it turned out that we can already take advantage of the full value potential of the property, which it will achieve after conclusion of the planning procedure. This is possible thanks to a favourable contract with the buyers. GERCHGROUP was awarded the contract because it made the highest offer out of all bidding parties whom we considered adequately competent to manage a property development process of the scale involved here, and with whom we are keen to work together in the further process.

DEUTZWorld: What do you have to say to those who claim that we essentially sold our roots by leaving the Deutz location?

Krupp: As I have already mentioned, unused industrial areas and brownfields are being returned to the general public and transformed into attractive residential spaces. In the near future, the citizens of Cologne will be living and taking walks in the area; their children will be playing there. The urban planning concept is very convincing: the identity of the area will be preserved, e.g. by maintaining some of the old buildings and halls. A memorial to the roots of engine manufacturing could be erected on the site, too. During our discussions with the City of Cologne, we have agreed that the site of the old casting plant – a historically even more significant area owned by a local company – will be named “Otto-Langen-Quartier” and that a hall in this area, which will be particularly prominent thanks to its free-standing structure and location directly adjacent to the Rhine, will no longer be named after Möhring, an architect from Berlin. Instead, it will be the “Otto-Halle”. It has also been suggested that the park on our site will be named “Erfinderpark” (Inventors Park) and decorated with memorial stones to celebrate the personalities who worked in this area during the foundation of Deutz and who essentially initiated the field of engine construction. The support of Mr Helmut Müller and his colleagues in the company history department has been extremely helpful.

1,082,000 inhabitants; another sixty thousand are expected by 2025. Converting our previous industrial premises into an urban district with a lot of residential space is an obvious step. We sought dialogue with the city administration early on. The interests of the city – i.e. the creation of residential spaces and, in particular, affordable residential spaces – and our own interest in the most efficient utilisation of the property are extremely compatible. In 2013/14, the City of Cologne carried out an exploratory workshop for the south of Mülheim, involving the general public in the planning discussion. The ideas and considerations from this workshop constituted the basis for a formal development planning process, which we initiated in 2015. While the process is quite advanced at this stage, it is not yet completed. A team of JLL consultants and evaluators has been providing us with professional support.

DEUTZWorld: What are the concrete plans for the plot of land?

Krupp: According to current plans, 60–70% of our former factory site in Deutz will be converted to apartments. The remaining space will be distributed among non-disruptive commercial establishments, a primary school, a day-care centre and other purposes. Green paths to the Rhine will be provided for pedestrians and cyclists. There will also be a sizable park.

The identity of the area, characterised by its brick buildings and large halls, will be maintained. This effort will include the preservation of certain larger halls, which are listed buildings. Plans for the site involve dense residential areas with quiet courtyards, similar to those in Berlin. The concept has been met with general approval thus far; it is scheduled to be implemented within a few years.

DEUTZWorld: DEUTZ AG will receive a considerable cash injection in the three-digit million Euro range from the sale of the site. How do you intend to use this money?

Dr Haase: That is correct – we anticipate an inflow of approximately 125 million Euro for the sale in the present year and, depending on the conclusion of the current development planning procedure, an additional, final purchase price instalment, which will involve a variable sum that may reach the medium two-digit million Euro range in the best case. This income from the property sale will give us new opportunities to invest in our growth and the strengthening of our core business. We have already announced that we will increase our investment in our dealer and service network and acquire individual dealers, for instance. Over the course of the year, we will provide more concrete statements about our use of the funds.





Prof Hermann Simon trusts his DEUTZ

► “The greatest strength of the hidden champions is doubtlessly their customer-oriented business approach.”

The face of pricing

He is one of the most high-profile German economists: Professor doctor doctor honoris causa multiplex Hermann Simon. The founder of the strategy consultancy firm Simon-Kucher & Partners has also made a name for himself as a best-selling author and renowned expert of international economics. In May, the pricing expert visited DEUTZ AG in Cologne to talk about his personal relation to the engine manufacturer.

Soon after we start talking to Professor Hermann Simon, we notice that the renowned economist is a multi-faceted person. He grew up in a tiny village of 600 in the Eifel region, where he still inhabits the 8.5 hectares of farm space that his parents used to run in the past. Having coined the term of “price management”, he is considered a leading figure in the field of pricing. Of course, the German media paid due tribute to this celebrated economist on the occasion of his 70th birthday in February. An article in the Handelsblatt newspaper showed the likable Eifel native in a very particular vehicle: a DEUTZ tractor.

Why did he choose this picture? “To me, this tractor is hugely symbolic for my youth. I was only 15 when my father bought his

D15. The DEUTZ tractor, built in 1962, was the first tractor on my parents’ farm. Until that point in time, these innovative technologies had not yet arrived in our region and we still used horses to work the fields. Our tractor seemed to us like a harbinger of the technological innovation that was about to sweep the nation.”

At the time, he was unaware that this technical innovation would ultimately reunite him with DEUTZ many years later. But the company has been by his side all his life: “From my first teenage encounters with the new technology up to my current job as a management consultant, I have always had a close connection with DEUTZ,” Simon recounts. Not only has he worked with DEUTZ – the company that has always symbolised technological process to him – in his capacity as a consultant,

he is also a passionate fan of this engine manufacturer and its 150-year history, as he revealed during his conversation with Dr Margarete Haase, Member of the Board at DEUTZ. His fascination for the rapid development of engine technology is quite tangible: “When the first tractors arrived in our corner of the world, we already spoke of a huge leap of technology. But look where we are today! Self-driving vehicles have become a common topic of conversation. Autonomous driving is no longer science fiction; it has become reality.” Simon also pointed out that German car manufacturers and suppliers have been granted the largest number of patents in the field of autonomous driving since 2010. This proves that the notion of the “hidden champion”, also coined by Simon, applies to many German manufacturers nowadays: relatively low-profile companies that are market leaders in niche markets and characterised by a high degree of specialisation and customer proximity.

“Consumer behaviour is a subconscious process.”

Does he consider DEUTZ as one of the “hidden champions”? He hesitates briefly.

“DEUTZ is a major player in the international market environment. But the ‘hidden’ aspect applies nonetheless: as a supplier, DEUTZ does tend to hide its product competence “under the hood” instead of occupying a cognitively prominent brand position. Its position as one of the world’s largest independent manufacturers of diesel and gas engines is an important characteristic. This independence is no longer commonplace, and it constitutes a decisive success factor. The DEUTZ service segment is an additional strong point: regardless of the industry, service is crucial nowadays, and good service can have a huge influence on consumer behaviour.” When it comes to consumer behaviour, Simon knows what he is talking about: he is the unparalleled expert in the field of pricing. His consultancy firm, Simon-Kucher & Partners, is the global market leader in the field of price consultancy, and Simon has personally conducted intense research into consumer behaviour. In this capacity, his company has also provided consulting services for DEUTZ in the past. “Consumer behaviour is a subconscious process,” Simon explains. “In my field, we use the term ‘magic middle’ to describe an interesting phenomenon. Imagine you are in a hardware store, trying to buy an item for your garden. There is a cheap product, a medium-priced product and an expensive product. Your subconscious will tell you this: the cheap product may be of poor quality, and the most expensive product is probably overpriced. So you choose the middle product, expecting to get good value for money.”

Price plays an important role as a quality indicator: Customers want high-quality products at an appropriate price. In this case, “appropriate” means that the value of the product is determined according to the benefit perceived by the customer, the so-called “value to customer”. Interestingly, the so-called “hidden champions”

tend to price their products approximately 10–15% higher than the industry average. Which factors, then, convince customers to pay more than the average price? Of course, Simon – an expert in behavioural economics – knows the answer. “Quality is the primary criterion, of course. As a customer, I am prepared to pay an appropriate price for an excellent product.” DEUTZ also attaches great importance to this factor: ultimately, what really matters is the outstanding quality of the product that the customer receives.

Industry 4.0 – risk or opportunity?

To Simon, customer proximity also plays an important role. “The greatest strength of the hidden champions is doubtlessly their customer-oriented business approach. This includes local availability of maintenance services, on the one hand, and mental availability, on the other – the ability to understand and adapt to the needs of the customers. Another key word is “quality”. The ever-expanding

About our partner in conversation

Hermann Simon studied economics and business administration and qualified as a professor at the University of Bonn. He is the Founder and Chairman of the management consultancy firm Simon-Kucher & Partners Strategy & Marketing Consultants. The firm, which is the global market leader in the field of price consultancy, employs more than 1,000 members of staff in 34 branches worldwide. Simon is an expert for strategy, marketing, globalisation and pricing and an internationally sought-after consultant and speaker. He gained recognition for his best-selling book “Hidden Champions”, which analyses the success strategies of medium-sized global market leaders. He has published more than 35 books, which have been translated into 26 languages.

digitalisation, accelerated by increasingly tight emission legislation, continuously raises new challenges for engine manufacturers. Technology cycles shorten and the digital engine is the new concept of the future. Industry 4.0 is on everyone’s lips. Does our economic expert consider this an opportunity or a risk? “It is a combination of both. Of course, not everything can be digitalised. But whatever can be digitalised will be digitalised. This will doubtlessly bring new qualifications into focus, which will differ from those valued in the traditional industry,” Simon explains. Nonetheless, he is looking towards the future of the German industry with optimism: its specialisation and complexity can be a clear advantage. “The industry in Germany primarily benefits from the niche markets, which are less interesting to the major world players. While the Americans are the unparalleled leaders in the world of digital B2C business, German small and medium-sized enterprises focus largely on B2B. Processes are more in-depth and more complex here; the field requires more extensive knowledge and expertise.” To Simon, expertise does not equal a vast portfolio of diverse competences. Instead, it requires a succinct focus on the core business. “I have known DEUTZ for many decades, and the company used to be much more diversified in the past, e.g. in the 1970s. By focussing on its core business – the production of diesel engines –, DEUTZ has successfully honed in on a decisive segment and expanded it considerably. This is the strength of the hidden champions.”

Regardless of individual success, the expert emphatically recommends one strategy: continuous improvement. “It is important to aim for more at all times. Stagnation in economics and development is never advisable. If you keep these goals in mind, you are on track to becoming a champion.”



A land between success and emissions

China is a land of extremes. The home of countless modern megacities is characterised by giant infrastructural programmes and investments. Within only 30 years, China – which looks back on a proud history of 5 millennia of civilisation – has developed into a modern economic power. Over the past years, German companies have conducted very successful business in China. One of these companies is DEUTZ AG, for whom China remains the largest growth market in Asia.



DEUTZ has been represented in the Chinese market for many years. In 2000, the company established its first joint venture in the Middle Kingdom; in 2007, this was followed by the joint venture DEUTZ (Dalian) Engine Co., Ltd., which the company maintains in cooperation with the First Automotive Works Group (FAW), one of China's leading car manufacturers, in Dalian (China). It

produces 3 to 8-litre DEUTZ diesel engines mainly for the Chinese market.

Expanded product range for DDE

As of the 2019 fiscal year, and with the introduction of the China IV emission legislation, the DEUTZ Dalian product range will be expanded to include new, more advanced DEUTZ licence engines. DEUTZ recently presented its technological inno-

ventions at Bauma China, one of the largest trade fairs for construction machines in Asia. At the event, DEUTZ also showcased its small, four-cylinder TCD 2.9 to represent its compact engines. From 2019, this model will also be manufactured locally by the Chinese joint venture DDE.

This local production facilitates the necessary customer proximity and allows DEUTZ to take advantage of market op-



portunities in various applications. The automotive industry, for instance, is gradually being transferred to Asia already, and DEUTZ enjoys an excellent market position thanks to its joint venture in Dalian.

portunities in various applications. The automotive industry, for instance, is gradually being transferred to Asia

Currently, the country is preparing for the China IV emission legislation. The high concentration of pollutants in the air has become a major problem in China, prompting the government to take increased action. Simultaneously, however, the legislation is a great opportunity for DDE and DEUTZ: the increasingly strict emission standards jointly issued by the MEP (Ministry of Environmental Protection) and SAC (Standardization

Administration of the People's Republic of China) pose more and more challenges for engine manufacturers, requiring the adaptation of the machines to local requirements in China, on the one hand, and to the individual demands of their end users, on the other. In his interview with DEUTZWorld, Dr André Philipp, Chief Technical Officer at DEUTZ (Dalian) Engine, told us how DDE and DEUTZ are tackling these challenges.



DEUTZWorld: Dr Philipp, the licence agreements for the new TCD 2.9 have just been signed. What does this mean for the DEUTZ Dalian (DDE) joint venture?

Dr André Philipp: For DDE, this is – quite literally – a historic occasion. With the TCD 2.9, the joint venture has a <4-litre engine as a licence product for the first time since its foundation. Previously, the DDE product portfolio was limited to 4–8 litre engines. The TCD 2.9 is an excellent addition that effectively completes our portfolio in this capacity range and allows us to cover the requirements of our local customers in this performance class. We have already acquired the first deals with major clients thanks to the licence for the 2.9, which is improving the utilisation rate at DDE considerably.

DEUTZWorld: How do you intend to ensure high quality standards when the new engine is introduced?

Dr André Philipp: For the current emission stages, we want DDE to rely primarily on lessons learned at DEUTZ, which involves an exchange of past experiences that will enable DDE achieve a successful series launch with the help of DEUTZ expertise. This will allow us to start at a whole new level of quality. In order to guarantee the smoothest possible production start for the TCD 2.9, we have implemented a new mode of operation, for instance. Since last year, we are organising a regular steering committee meeting to discuss the latest relevant topics. Our so-called task force

teams consist of representatives from DEUTZ and DDE who regularly discuss the latest issues and problems in periodic team meetings and develop solutions together. This new workflow enables us to find these solutions in an extremely short time.

DEUTZWorld: The new China IV emission legislation, which will come into force in 2019, is eagerly anticipated in the country. How is DDE preparing for the introduction of the new emissions standard?

Dr André Philipp: DDE will rely on extremely close cooperation with DEUTZ in its preparation for the new emission stage: besides the TCD 2.9 licencing and the further advancement of the TCD 2012 and TCD 2013, the company has also commissioned DEUTZ software. The new China IV products are especially using this DEUTZ software to control EAT structures. Rather than choosing an external solution, DDE continues to follow DEUTZ by using its software.

DEUTZWorld: Which challenges does the new emission legislation entail for customers?

Dr André Philipp: It is quite apparent that the Chinese government is serious about compliance with the emission legislation, but consumers seem to be completely lost in the jungle of technological innovation at the moment. Especially the Stage IV engines are technologically extremely sophisticated, and it is imperative to teach customers to deal with more complex systems. They struggle to understand many aspects of the SCR systems, for instance. Frequently, customers fail to refill the SCR tank when it is empty. What seems incomprehensible at first is easily explained in terms of financial considerations and problems of understanding. Some customers do not consider the SCR system to be a necessary element of exhaust gas after-treatment systems, as the reduction of emissions is only a secondary concern to end users. We are currently working on striking a balance between such end users who want to use an uncomplicated vehicle and suppliers who deliver in accordance

with specifications. To this end, we maintain close contact with our customers and provide them with all necessary technical information and personal support.

DEUTZWorld: Altered consumer behaviour also increases the demand for higher engine performance. How are you responding to this problem from a technological point of view?

Dr André Philipp: We are trying to adapt requirements to the local needs, e.g. in terms of the sturdiness of individual parts, which we had to alter on account of the heightened air pollution in China. Perfectly functional systems in the American and European markets are modified to meet the Chinese requirements and achieve a higher degree of sturdiness.

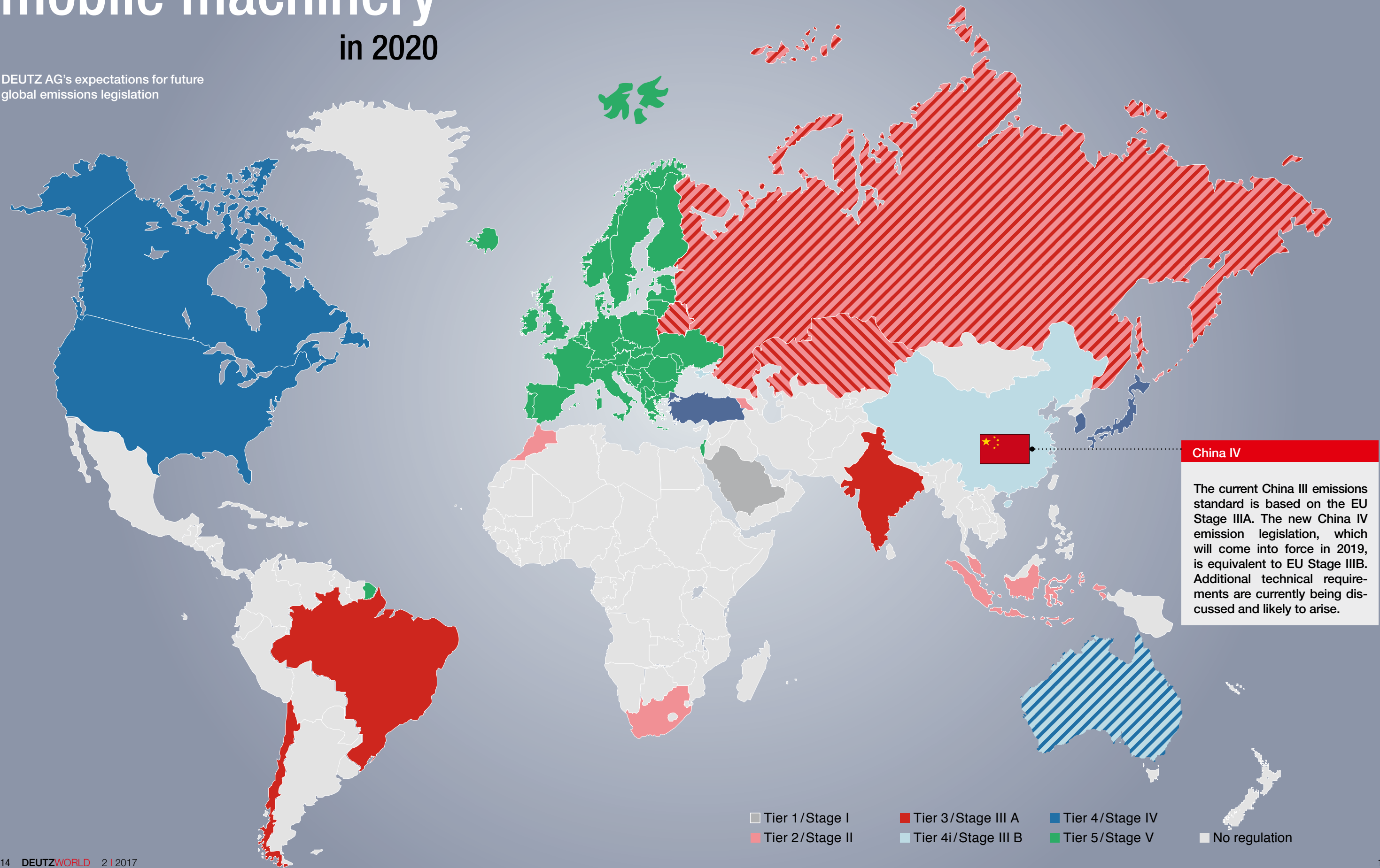
DEUTZWorld: And what can you do to influence customer awareness?

Dr André Philipp: Of course, we try to convince our customers with data, facts and meaningful analyses. During our dealer training courses and our direct contact with the customers, we explicitly point out that this understanding needs to be conveyed to the end users, too. But I want to emphasise that this is not the rule. Many consumers are very aware of the need to reduce emissions, and they are happy to accept our dealers' recommendations.



Emissions legislation for mobile machinery in 2020

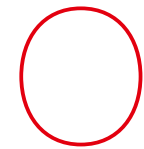
DEUTZ AG's expectations for future global emissions legislation





Royal award for DEUTZ Spain

DEUTZ Spain received a high honour in May: the Spanish King Felipe VI conferred an honorary medal to the DEUTZ subsidiary.



On the occasion of the 100th anniversary of the German Chamber of Commerce (AHK) on 25 May, the Spanish King Felipe VI awarded

honorary medals to companies that have been active in Spain for more than a century. During the award ceremony in Madrid, Felipe VI also presented this medal to the Technical Director and Representative of

the Managing Board of DEUTZ Spain, Fernando Angulo. The subsidiary of DEUTZ AG has been incorporated in Spain since the late 19th century, and it has become an important example of the significance of the German industry to the country. More than 700,000 people are currently directly or indirectly employed in more than 1,110 branches of German companies in Spain.

The award ceremony in the Spanish capital was attended by nearly 400 representatives from the Spanish-German industries and institutions, including the Spanish Minister for Energy, Tourism and Digital Agenda, Álvaro Nadal, the Parliamentary State Secretary of the Federal Ministry for Economics and Energy, Iris Gleicke, the German Ambassador to Spain, Peter Tempel, the President of the German Chambers of Industry and Commerce, Eric Schweitzer, the President of the Spanish Chamber of Commerce, José Luis Bonet, and the President of the German Chamber of Foreign Trade for Spain, Rosa García.

DEUTZ Spain, S.A.U. is a fully owned subsidiary of DEUTZ AG that manufactures key components for diesel engines (cylinder heads, piston rods, gears, bearing caps) at its factory in Zafra. The DEUTZ Spain sales branch in San Fernando de Henares (Madrid) is responsible for the engines, spare parts and customer service of DEUTZ AG on the Iberian peninsula.



New DEUTZ service centre in Barcelona

DEUTZ AG has acquired the business activities of the Spanish DEUTZ dealer Tallers Soler with effect from 1 July 2017. It will continue the operations of the acquired company as a service centre serving the surrounding region of Barcelona.

Founded by Juli Soler in 1973, Tallers Soler has been a close contractual partner of DEUTZ for more than 40 years. It is one of the main suppliers of DEUTZ original spare parts and DEUTZ Xchange engines in Spain. As a renowned dealer of DEUTZ engines in Catalonia, Tallers Soler soon became the benchmark for careful, value-preserving repairs of DEUTZ engines used, for instance, in mines or agricultural machinery. The company additionally specialised in machines fitted with DEUTZ engines. Most recently, the extensive and diverse customer portfolio of Tallers Soler achieved an annual turnover of approximately EUR 1 million. "I

was only 15 when I repaired my first DEUTZ tractor. Since then, 67 years have passed – 67 years during which I worked intensively with DEUTZ. I am very proud of that. I am delighted to know that our work is being continued by DEUTZ themselves," Juli Soler explains.

The new Service Centre in Barcelona will strengthen the DEUTZ sales and service network in Spain, where the company is already represented with a sales and service centre in Madrid and 21 contractual dealers. "We are pleased to expand our presence in Spain with our new DEUTZ Service Centre in Barcelona, which allows us to work in even



closer proximity to our customers," Georg Diderich, Senior Vice President, Sales & Service EMEA, DEUTZ AG, explains. The DEUTZ service segment provides its customers with comprehensive support for all DEUTZ products throughout their entire life cycle. 800 DEUTZ service partners are available to help customers in 130 countries around the world. 12 logistics centres in Germany, the USA, Africa and Asia guarantee the worldwide supply of more than 40,000 original spare parts from stock.



Open day at the DEUTZ Service Centre in St Louis

On 23 June 2017, the DEUTZ Service Centre in St Louis organised an open day for DEUTZ customers, dealers and OEM partners.

"The event was a great success," Ben Sanders, Branch Manager of the DEUTZ Service Centre in St Louis, affirmed. "The open day gave our customers and partners an opportunity to experience our Service Centre live and meet our staff in

person." The DEUTZ Service Centre in St Louis is the second of its kind in the United States. It opened in January 2017 in order to provide comprehensive customer service for all DEUTZ product series. The St Louis Service Centre currently caters to customers in the entire Midwest, including eastern Missouri, Illinois and northern Indiana.

"Our local DEUTZ Service Centre has been met with an excellent reception since

its opening, and we have received very positive customer feedback," Sanders explains. "As more and more customers become aware of our existence and the availability of our perfectly trained staff, our service and spare parts business is growing steadily."

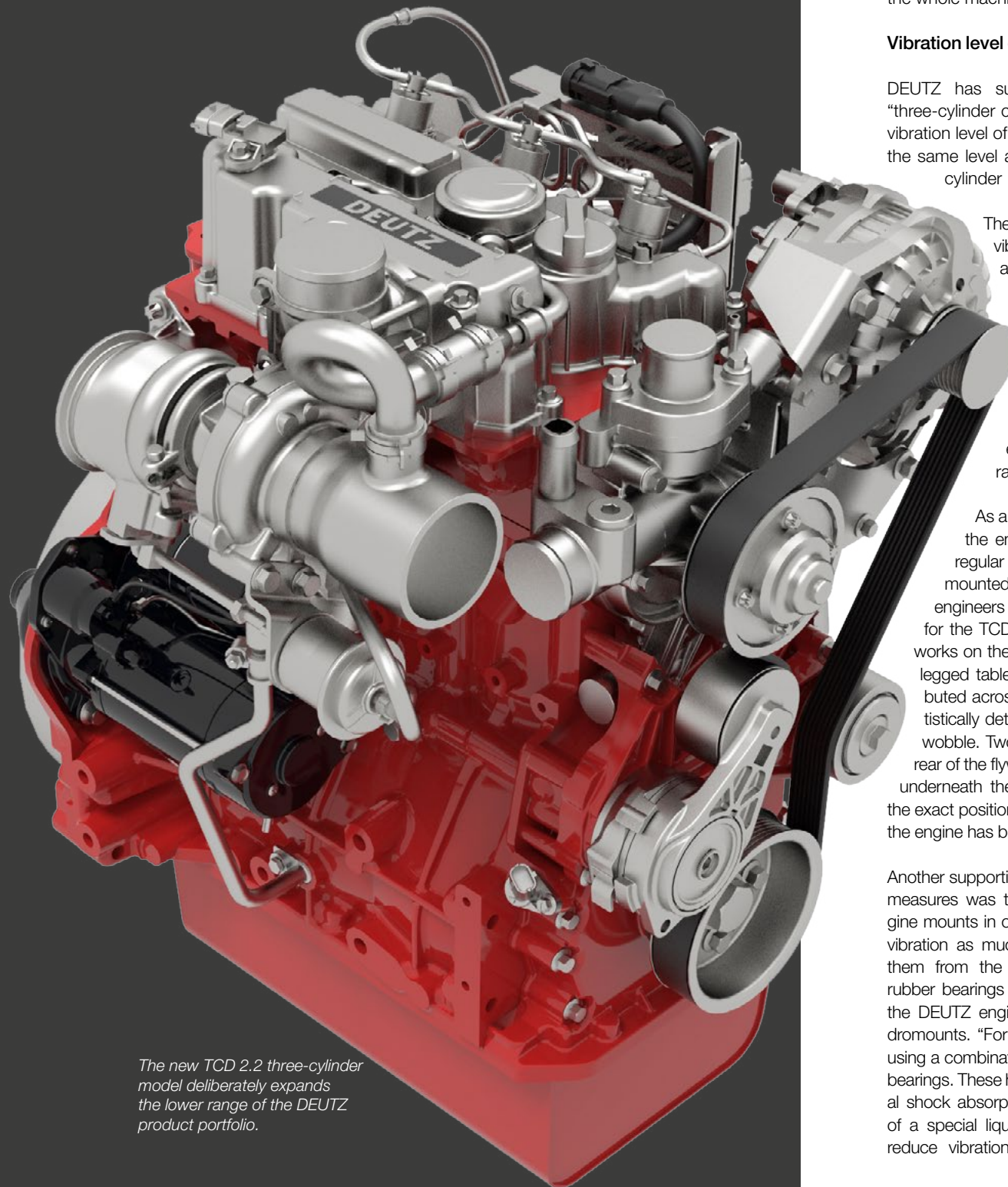
The DEUTZ Service Centres provide regular maintenance and emergency services for DEUTZ engines at their own facilities or directly at the customers' locations, using mobile technicians and trucks. In addition, the DEUTZ Service Centres also sell original DEUTZ spare parts and liquids to customers, retailers and trained OEM traders working with DEUTZ equipment. The service technicians provide a wide range of maintenance services, ranging from simple oil and filter changes to complex diagnostics and full engine replacements.

"We are convinced that branches in central locations give DEUTZ customers direct, regional support," Sanders comments. "Our Service Centre in St Louis helps us guarantee excellent service and support for the region and support the development of important customer relationships."

More information on the DEUTZ Power Centres, Service Centres and the complete product range is available from www.deutzsupport.com.

Smooth operations – the DEUTZ TCD 2.2 three-cylinder engine

DEUTZ is expanding its product portfolio to meet customer demands for powerful, compact engines. The new TCD 2.2 three-cylinder engine will be released in 2019. Its unfavourable vibration level, which is inherent to the concept, has been reduced. The engine achieves the same running smoothness as comparable four-cylinder models.



The new TCD 2.2 three-cylinder model deliberately expands the lower range of the DEUTZ product portfolio.

DEUTZ already introduced the TCD 2.2 at Bauma 2016. The new three-cylinder variety of the successful TCD 2.9 four-cylinder engine deliberately expands the lower range of the performance scale. At 18 to 56 kW, it is especially suitable for the lower load range in the field of material handling and compact construction machinery. Thanks to the engine platform shared by the two models, customers can take advantage of extensive synergies for the integration of the machines, e.g. in terms of their connectors and the availability of spare parts. As of 2019, the new engines will be launched on the market for EU Stage V. In addition, DEUTZ will launch two liquid-gas versions (also referred to as LPG or propellant) of the TCD 2.2 and TCD 2.9. Named G 2.2 and G 2.9, respectively, the engines are also based on the same platform.

But four-stroke three-cylinder engines are controversial among engine specialists: especially for a self-igniting diesel, the machine is largely considered to be rather rough. Compared to four-cylinder engines, three-cylinder concepts certainly raise a few challenges for developers. Dr Klaus Reitz-Full, a developer of basic engines in the field of vibrations and noise at DEUTZ AG, explains: "Due to the physical conditions, three-cylinder models have a relatively complex motion profile during operation. The engine leans, swerves or rotates in almost any direction and on any axis, and this movement can be transferred to the whole machine in the form of vibration."

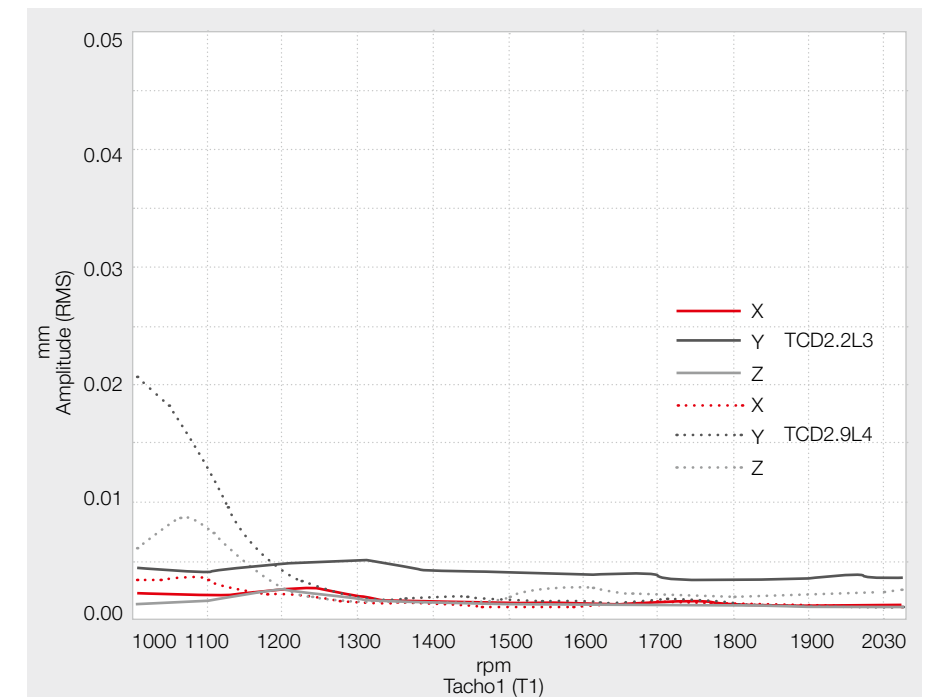
Vibration level of a four-cylinder engine

DEUTZ has successfully mastered the "three-cylinder challenge" and brought the vibration level of the new TCD 2.2 down to the same level as that of a TCD 2.9 four-cylinder engine.

The first step was to prevent vibration from the outset. In addition, DEUTZ has adapted the crankshaft of the TCD 2.2. A gap in the flywheel and an additional counterweight on the frontal crankshaft provide precisely calculated balancing forces that ensure the right balancing rate for any application.

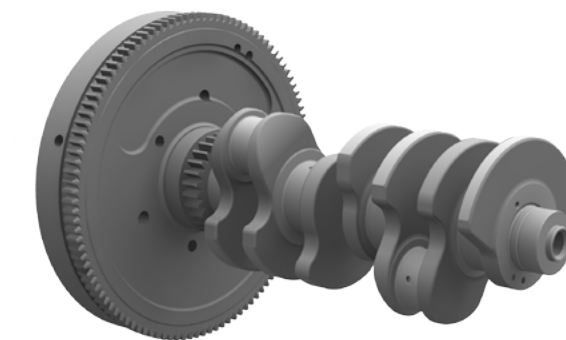
As a next step, the installation of the engine was reworked. While regular engines are installed or mounted on four points, the DEUTZ engineers chose a three-point setup for the TCD 2.2. In simplified terms, it works on the same principle as a three-legged table. Its mass is always distributed across the three points in a statistically determinate manner; it cannot wobble. Two points are located on the rear of the flywheel, the third on the front, underneath the belt drive. By calculating the exact position, the vibration behaviour of the engine has been improved considerably.

Another supporting factor of these proactive measures was the optimisation of the engine mounts in order to mute the remaining vibration as much as possible and isolate them from the application. While regular rubber bearings are used in most engines, the DEUTZ engineers chose so-called hydromounts. "For the engine mount, we are using a combination of rubber and hydraulic bearings. These hydromounts have additional shock absorption capacities on account of a special liquid used. They significantly reduce vibration introduced by mounting



the machine in the frame of the customer's machine. We have proven the isolating effect with various measurements. The vibrations were measured along the longitudinal, lateral and vertical axis of the engine; the measured values of the TCD 2.2 are at the same level as those of the TCD 2.9 four-cylinder model," Dr Reitz-Full explains.

An additional adjustment of the flywheel and counterweight can reduce vibration in a specific direction even further. If the customer requests, swerving around the vertical axis can be increased in exchange for a lowered pitch motion. An opposite setup or a balanced 50-50 configuration are also possible. The vibrations running into the machine can be adjusted individually to achieve the best possible result, depending on the mounting situation of the engine.



► A gap in the flywheel and an additional counterweight on the frontal crankshaft provide precisely calculated balancing forces.

"First practical trials in a mounted state have shown that the TCD 2.2 three-cylinder can subjectively reach the same vibration level as its big, four-cylinder brother, the TCD 2.9. Thanks to precise optimisations, we can offer a highly compact, high-performance three-cylinder engine that will delight our customers with its smoothness," Dr Reitz-Full summarises.

The new DEUTZ Service Portal

Limitless access to information and services on the internet has long become something between a matter of course and a basic requirement for most people. DEUTZ caters to this need: the new DEUTZ Service Portal offers dealers, garages and users of DEUTZ engines a wide range of online services in one convenient platform.

Globally present, locally available

The DEUTZ Service Portal takes the DEUTZ service network online: customers from all over the world have the option of contacting their local service partner online. The platform system combines the advantages of the worldwide web – unlimited access around the clock – with the strengths of competent on-site service: support, service and delivery remain the responsibility of the customer's local DEUTZ partner. This minimises delivery times and guarantees the best possible support.

One portal for everything

The new Service Portal is more than just a web shop: it offers customers a wide range of functions and contents related to DEUTZ engines. With one central login, customers receive access to spare parts, engine documents, product information and more.



The global launch will take place in stages: starting in Europe, the regional DEUTZ Service partners will be connected to the

system successively and become available to their customers online.

► Experience the new DEUTZ Service at www.deutz-serviceportal.com!



Parts shop

The online shop is the core component of the DEUTZ Service Portal: it allows customers to purchase spare parts and accessories for DEUTZ engines fast and easily online. Its immense advantage over regular web shops: the system has direct access to all documentation of more than 1.5 million DEUTZ engines in the field, which enables it to display the right parts list for each individual engine. Its use of individual engine numbers ensures that the user always receives the right part that is certain to fit their DEUTZ engine. Additional search and filter functions help identify the right part easily. Indispensable for corporate customers: individual pricing conditions are stored in the shop, and delivery times are determined in real time in the DEUTZ Service Net based on actual availability.



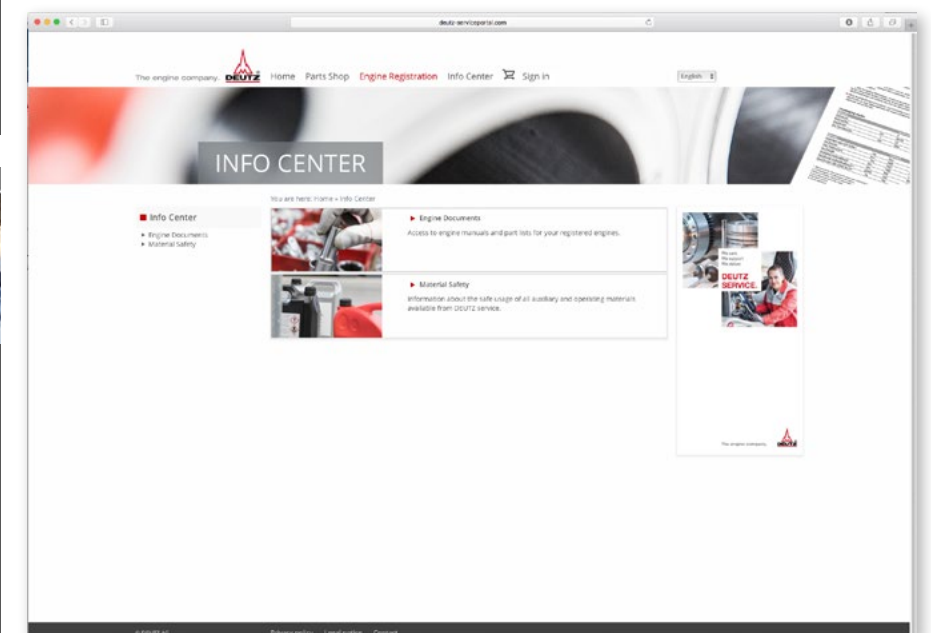
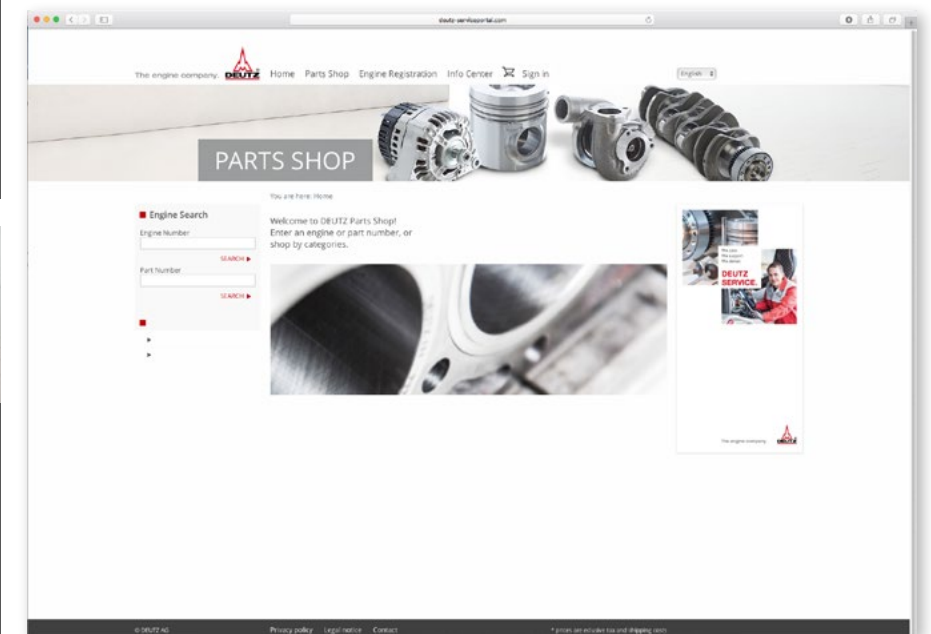
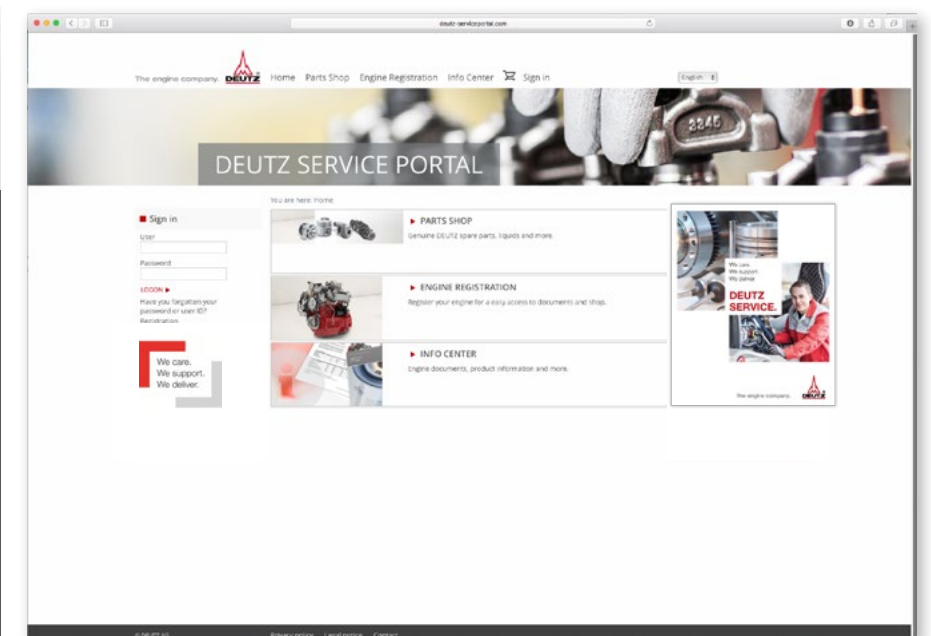
Engine registration

The Service Portal allows customers to register their DEUTZ engines to gain access to additional content and functions. Digital engine documents for download, simplified navigation through the shop, and the submission of motor-specific service requests directly to the service partner – the optional registration of engines enables the user to take full advantage of the Service Portal.



Info Center

The Info Centre offers fast access to a wide range of information and documents for DEUTZ engines and service products – from operating manuals to safety data sheets for DEUTZ operating materials.





EMEA Regional Meeting 2017

Every year, DEUTZ invites its sales and service partners to two days of strategic discussion within the scope of the EMEA Regional Meeting. On 30 and 31 March, more than 120 representatives of international dealers from the EMEA (Europe, Middle East and Africa) travelled to the DEUTZ headquarters in Cologne-Porz. The event consisted of a multi-faceted programme of presentations, workshops and the DES Service Award ceremony. DES stands for Dealer Evaluation System, according to which the best DEUTZ dealers have been distinguished in different categories since 2011. In addition, a prize was awarded for “the strongest improvement in comparison with the previous year” for the first time (winners are listed in the box).

Dr Frank Hiller, the new CEO of DEUTZ, took advantage of this opportunity to introduce himself to the sales and service partners in person; his board colleagues, Dr Margarete Haase and Mr Michael Wellenzohn, shared insights into the fig-

ures and market outlook of the company. During many other presentations, DEUTZ members further discussed the reorientation of the service segment, the new web shop, the current product portfolio including new engines from the planned cooperation with Liebherr, and a strategic perspective on the future of diesel engines.

Winner of the Service Award

North /West /Southern Europe region:

1st place BTH FAST, Poland

Eastern Europe region:

1st place MOTOR & TRANSMISSION, Belarus

African region:

1st place C. Woermann, Nigeria

Middle East region:

1st place S.A.T.A., Oman

“Strongest improvement” category:

JASMIN M D.O.O. ZEPCE, Bosnia-Herzegovina

Final category “Overall winner”:

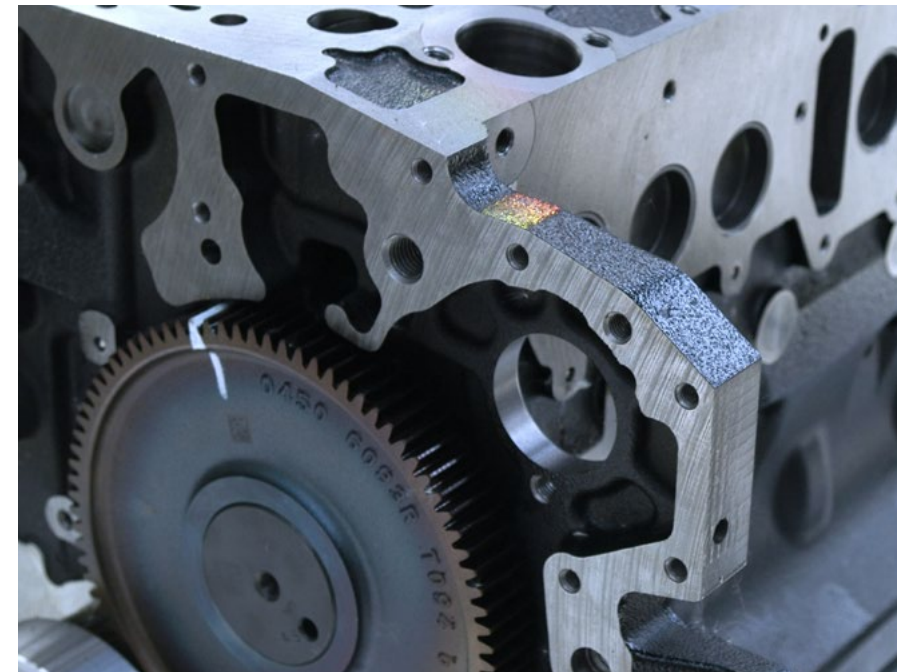
BTH FAST, Poland

In the afternoon, the programme continued with workshops conveying in-depth information about the current DEUTZ engine and service programme. During subsequent discussions, visitors and their host, DEUTZ, had the opportunity to exchange opinions and experiences. The event culminated in a successful evening function on the excursion boat “Jan van Werth” along the Rhine riverbank in Cologne.

Georg Diderich, Senior Vice President Sales & Service EMEA, DEUTZ AG, concludes: “Once again, the EMEA Regional Meeting was a huge success. It allowed us to share our current product programme and the strategy behind it in direct contact with our partners and receive up-to-date information straight from the markets. We get to discuss this information together and shape our future work accordingly. The meeting further strengthens our community and motivation – and the entire DEUTZ sales organisation benefits.”



Breathing new life into old machines



Professionally refurbished engines and components are a speedy, economically viable and environmentally-friendly alternative to purchasing a new product. DEUTZ Xchange engines and parts guarantee optimal functionality.

Xchange parts, short blocks and engines by DEUTZ are the best solution for any repair case. Xchange products are an equal, yet considerably cheaper, alternative to new parts. They adhere to the same quality standards as are required in the serial production of new parts. All engines and parts are diligently inspected to verify quality, function and precision fit. The result: technical products that are as good as new and live up to the standard set by the original in every regard – including for series that have been discontinued for years.

Did you know? DEUTZ also offers short blocks for agricultural vehicles with full manufacturer's warranty. Shipments include: crankcase (cooling nozzles, tappet rollers), crankshaft, connecting rod, main and conrod bearings, piston assies, camshaft, rear cover, cylinder head gasket and Gasket set.

Short blocks are available for some models from the following (and other) manufacturers*: AGCO/Fendt, Artec, Belarus/MTZ, Boulet, Claas, CMC, DEUTZ-Fahr, DeWulf, Evrard, EXEL, Gregoire, Laupetre, Matrot, Merlo, Preciculture, Same, Terrion und Zetor.

* = for EU Stage II (US EPA COM2), EU Stage IIIa (US EPA Tier3), EU Stage IIIb (US EPA Tier4i)

The following short-block engine types are available: BF4M1013, BF6M1013, BF4M2012, BF6M2012, BF4M2013, BF6M2013, TCD2012L04, TCD2012L06, TCD2013L04, TCD2013L06, TCD4.1, TCD6.1 and TCD7.8.



6 reasons for using DEUTZ Xchange products for your repair tasks:

- Highest quality
- Same warranty as new
- Low prices
- High availability
- Quick and simple processing
- Professional consulting

Reliable filtration for your engine

Optimal filtration of substances such as lubricant, fuel and combustion air is essential for sustaining the performance and functionality of an engine for the long term. DEUTZ now offers air filter elements for new filter types as part of its equipment service.

Combustion engines require clean air to deliver optimal performance. Modern diesel engines draw in approximately 15,000 litres of air for every litre of fuel consumed. DEUTZ air filters are highly effective and reliable at filtering this combustion air, thus preventing dust from entering the engine compartment and increasing wear, fuel consumption and exhaust emissions. DEUTZ original parts offer the highest possible grade of filtration and reliably filter even minuscule dirt particles in the micrometre range; they are equipped with high-grade filter paper that is waterproof and highly tear-resistant. Their especially long service life prevents tears that could otherwise allow unfiltered air to enter the engine. Thanks to optimum pleat geometry of the filters, they have an extraordinarily large filter area. With such a large amount of paper in a small space, the filters absorb great amounts of dirt and achieve an optimal filtration effect throughout the entire change interval. The special embossing and scoring of the paper ensures that the pleats are at an optimal distance to each other, allowing the filter surface to absorb dirt for the duration of the entire operating life of the filter.

DEUTZ air filters are made especially for DEUTZ engines. Their optimised design facilitates constant engine performance at low fuel consumption. More information about the extensive service programme for a wide range of engines and equipment types is available from your DEUTZ service partner and from www.deutz.com/service.





We care.
We support.
We deliver.

**DEUTZ
SERVICE.**



SPARE PARTS First choice – technically and economically.

MAINTENANCE Optimum performance and protection for your engine.

XCHANGE The fast and economical alternative.

SERVICE NETWORK Worldwide at your side.

EMISSION MANAGEMENT Efficient and flexible.

ENGINE PLUS Service around your engine.

SERVICE PORTAL Service online – day and night.

**DEUTZ Original Spare Parts
FIRST CHOICE. FAIR PRICE.**

The engine company.

