Efficient TEAM-Work
Energy- and pollutant-saving potential through new technologies
Page 18

Electronic control
The digital revolution is now a reality for the combustion engine
Page 20
Dear readers,

Laying the foundation for a construction project is always a special event. In our case, with the laying of the new DEUTZ shaft centre foundation a few weeks ago, we have taken an important step toward the future. The workplaces of a total of 140 employees will be relocated from Deutz to Porz in the coming year and with the production surface of about 13,500 square metres, Cologne will become the integrated location for high-volume series (p.5).

However, since, for us, a business relationship does not end with the sale of an engine, we have bundled a number of service offers under the “Engine Plus” programme, which has the purpose of supporting our customers in the best possible manner, both prior to as well as after the purchase of their engines. From individual application engineering right up to the retrofitting of useful additional components, our customers receive a versatile service offer that allows them to get the maximum benefit from their engine. (p.8).

The application field for our engines is also highly versatile. Be it at dizzying heights in the remotest mountainous regions of Peru, deep underground in the mining sector, in tropical temperatures or the freezing cold – you can always rely on DEUTZ engines. In this issue, among others, you can discover how a DEUTZ 2.9 litre engine offers a high-performance propulsion in a compact tracked paver that is used for road construction (p.16) and how our engines in the high-performance snow blowers ensure safe passage for the planes through the mountains of white snowy splendour (p.12).

To ensure that our engines also reliably perform as they should, they are prepared for this very purpose in our cold chamber (p.22). That a DEUTZ engine can do more than one sees at first glance, is not least thanks to its digital heart. Because, where sophisticated mechanics regulated the fuel injection and combustion process in the past, this is achieved by electronic control units today, with the help of highly complex algorithms. This increases performance and efficiency, reduces exhaust gas emissions and simplifies the vehicle service. We tell you how digital our engines actually are on p.20.

Best regards,

Dr Helmut Leube
Dr Margarete Haase
Michael Wellenzohn

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.
Girls visiting DEUTZ

What was standing in front of the DEUTZ Technikum on 23 April 2015 could almost be described as futuristic: an impressively two-storey truck with a retractable balcony and equipped with state-of-the-art technology on a surface of about 100 square metres. This conspicuous vehicle is one of ten M+E InfoTrucks that the employers’ association of the M+E industry deploy throughout Germany within the context of their career information campaigns. For the first time ever, on the occasion of “Girls’ Day”, this truck was now presented in Cologne. The female pupils who decided to spend “Girls’ Day” at DEUTZ AG were thus the first to take the multimedia applications and demonstrative experimental stations of the InfoTruck into operation, where they could get to know technical relationships at M+E-typical workplaces for themselves in a hands-on manner. Yet there was still much more to come: following a personal welcome of the girls by the DEUTZ board member Dr Margarete Haase, the pupils could experience the history of the engine construction live in the DEUTZ Technikum and, thanks to the presentation held by female DEUTZ apprentices, they found out something about DEUTZ AG itself and what the technical vocational training looks like for girls at an engine maker.

With DEUTZ through the Night of Technology

The 12th of June saw the fifth Night of Technology in Cologne. 56 participants from the industry, the German medium-sized companies, research, handcraft and teaching once again offered a direct insight into their operating procedures. In the spotlight: Technology and the people behind it. Amazement, participation and experiencing things first hand were once again on the agenda and the success concept of the event idea which was born in 2009 and developed by the local Cologne associations companies of the VDI (German Association of Engineers) and VDE (Association for Electrical and Electronics Engineers).

DEUTZ was also there once again and, from 18:00 to 22:00, opened its gates for engineering enthusiasts. The visitors could view the Technikum engine museum and the assembly hall at the location in Cologne Porz within the context of a guided tour. Among others, the original models of the DEUTZ company founder, N. A. Otto, are exhibited in the Technikum, on a surface of 600 square metres. Attracting a particularly great amount of attention were the two original gas-operated engines from 1867 and 1876, which are still fully functional. At the visitor gallery of the production area, the guests could subsequently compare these impressions with the current-day diesel engine state-of-the-art technology in the different assembly steps of engine production – from the delivery of the materials, right up to the collection of the completed engine.

Experience engine construction live at DEUTZ

Also in this year, DEUTZ AG once again participated in the special “Erlebnis Maschinenbau” (Experience Engine Construction) campaign day. On the 18th of June 2015, young adults who are interested in technology had the opportunity of gaining an on-site insight into the vocational trainings, qualifications and future chances offered in mechanical engineering at the participating companies, and also to find the suited profession for themselves.

While visiting the historical collection of engines in DEUTZ Technikum, the pupils had the opportunity to experience the history of combustion engines live and, thanks to a company presentation, could gain more knowledge on DEUTZ AG and its product range. “Actively supporting young people with their career choice is of great importance for us. Campaign days such as the “Erlebnis Maschinenbau” not only give the young adults the possibility of finding the right profession for themselves, but also allows us as a company to show how exciting a technical education can be,” says Dr Margarete Haase, member of the DEUTZ board of directors.

DEUTZ offers school-leavers a high-quality education in six different industrial-technical professions. The results of the DEUTZ exam candidates are regularly better than the IHK average. Since 2011, the IHK has honoured the high quality of the DEUTZ vocational training by repeatedly awarding it the “De Besten” (The Best) prize. Other companies also benefit from this, as they have their complete vocational training or individual specialist courses conducted at DEUTZ.

Interview

Mr Roos, as an employee in the system coordination of after-treatment of exhaust gases turbochargers and exhaust gas recirculation, you are an example for the group of women in technical professions which, unfortunately, is still too small somehow. What brought you to this occupational profession?

While I was still at school, I had a holiday job in the field of machine maintenance to finance my driver’s licence. This is where my interest in technical professions was kindled and for this reason, following my high school graduation, I started a vocational training as an industrial mechanic and subsequently went on to study at a university.

Technical professions are still considered a male domain. Do you notice this in your daily work?

Of course, time and again, there are “critical” colleagues and, especially during my apprenticeship, I had the impression that I had to prove myself more often than my male colleagues. Also during my studies, I attracted attention among my male fellow students, yet at DEUTZ I have only gained positive experiences.

How would you convince young women to decide to pursue a technical career?

I find that a technical vocational training opens up a great variety of stimulating career opportunities. Unfortunately, despite numerous campaigns, such as Girls’ Day, it is still only a small share of women who decide to embark on this path. Possibly, this is also due to the fact that the competence of women is frequently questioned when it comes to technical professions and, because of this, one needs to have a healthy portion of self-confidence. However, companies must also become more attractive for women, especially with regard to the worldwide balance – in a working environment that is often dominated by men, this issue is frequently not addressed.

A technical education offers numerous possibilities

DEUTZ lays the foundation for the future

On 6 July 2015 and in the presence of the employees of the early shift of the shaft production, the members of the DEUTZ executive board, Dr Helmut Leube, Dr Margarete Haase and Michael Wellenzohn, as well as the head mayor of the City of Cologne, Jürgen Roters, and the Cologne Commissioner for Economic Development, Ute Berg, lay the traditional foundation stone for the new DEUTZ shaft centre. Werner Scherer, chairman of the general works council of DEUTZ AG, as well as Sefa Cagan, member of the DEUTZ works council, also symbolically laid the first stone for the new building in Ottostraße in Porz.

In his welcome speech, DEUTZ CEO, Dr-Helmut Leube, underlined the significance of the DEUTZ shaft centre. “With the decision to build the new shaft centre, we are investing in our future, since, by means of this, we continue to secure our innovative ability and our world market presence. With our shaft centre, Cologne-Porz becomes an integrated location for high-volume series,” the CEO emphasises. Cologne’s head mayor, Jürgen Roters, also praised the large-scale project. “This is a good day for DEUTZ AG, but also for the city of Cologne and the Porz region,” Roters said. “We are and remain an industrial location that continues to develop when it comes to innovations,” the head mayor stated.

As is the tradition when laying the foundation stone, a time capsule was also embedded in the foundation stone wall for the DEUTZ shaft centre. The contains: the most recent issue of a Cologne daily newspaper, an issue of the DEUTZ employee magazine, an aerial photograph of the current plant in Cologne-Deutz, a piece of the original rooftop from the current shaft production building, two miniature customer devices, a miniature model of the Cologne cathedral and an engine model of a 2.9 ltr engine.

The total costs for the construction project amount to 26 million euros. About 15 million euros are needed for the building, inclusive of state-of-the-art power engineering, and about eleven million is invested in the procurement of new machinery and installation equipment. The workplaces of a total of 140 employees will be relocated from Deutz to Porz in the coming year. In addition to this, step-by-step, about 130 machines and installations will be relocated to Porz. The building, with a total surface of 13,000 square metres will then be located in direct proximity to all DEUTZ technical crews and, thanks to the shorter routes to the assembly areas, will ensure substantial logistic benefits.
Intemat is one of the largest trade fairs for the construction industry worldwide. Every three years, manufacturers and suppliers present their latest developments in Paris. This year, DEUTZ used the exhibition to launch its “Stage V ready” campaign.

Construction vehicles with man-high tyres, house-high streetpavers and excavator arms that reach high up to the ceiling of the trade fair walls – there definitely are a lot of impressive devices on show at Intemat. In comparison, the high-performance construction machine engines appear rather small. Small, or to be more precise, compact, because this is how the equipment manufacturers would like to have their engines; and this is exactly how DEUTZ also delivers them.

To draw attention to oneself as a supplier within the context of the trade fair hustle and bustle, the companies always have to come up with something special. At this year’s Intemat in April and already from a purely optical consideration, DEUTZ decided to introduce clear accents, with an entirely new trade fair booth design. Instead of an open surface, modern semicircular design elements guide the visitors through the DEUTZ engine pallet in a targeted manner. All five TCD engines, ranging from 2.9 to 7.8 litres of cubic capacity already satisfy the targeted threshold values today. This confirmation of fuel is of particular importance. When compared with other trade fairs in the branch, what is special about Intemat in Paris?

Andreas Reiter: Of course Intemat cannot be compared with Bauma in Munich and, especially as regards its size, it cannot compete. However, due to its political and economic proximity to North Africa and other African countries, Intemat in France does have a certain locational advantage for these export regions. A considerable number of operators and decision-makers from a great variety of different functional areas in Africa always visit the trade fair in Paris.

Andreas Reiter has been the managing director of the DEUTZ subsidiary DEUTZ FRANCE SAS since January 2015. He was already employed in this position from 2004 to 2012. In addition to this, with his organisation in Paris and the breadth of representation in Africa, Algeria is responsible for the important DEUTZ market in Algeria. Apart from this, there is MAGDEUTZ, which is located in Luxembourg. Andreas Reiter is also responsible for the French-speaking areas of Africa and, in the near future, Luxembourg. Andreas has been employed in this position since 2014 and, in the near future, Luxembourg. Andreas has been employed in this position since 2014.

As in numerous industrial areas, the construction machinery industry is also demonstrating an increasing interest in alternative energies. Thus, among others, we noticed an increase in the number of enquiries regarding gas engines. Equally, time and again, the question regarding the topic of “Downsizing”. With our new development, DEUTZ is also demonstrating an increasing interest in alternative energies. Thus, among others, we noticed an increase in the number of enquiries regarding gas engines. Equally, time and again, the question regarding the topic of “Downsizing” has been discussed. With our new development, DEUTZ is also demonstrating an increasing interest in alternative energies. Thus, among others, we noticed an increase in the number of enquiries regarding gas engines. Equally, time and again, the question regarding the topic of “Downsizing” has been discussed.

As this is already the tenth edition, DEUTZ placed particular focus on its highly-developed exhaust aftertreatment technology. This plays a central role, especially within Europe, since it is here that the most stringent emission guidelines worldwide, presently the EU Stage V, currently apply. Based on the suggestion of the EU Commission regarding the new Euro Stage V which is anticipated as of 2019, DEUTZ engines with diesel particulate filters in the area of 2.9 to 7.8 litres of cubic capacity already satisfy the targeted threshold values today. This confirmation of fuel is of particular importance. When compared with other trade fairs in the branch, what is special about Intemat in Paris?

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Interview with Andreas Reiter, Directeur Général, DEUTZ FRANCE SAS

myDEUTZ: As a special highlight, DEUTZ first presented its “Stage V ready” campaign in Paris. How was this topic received by the visitors?

Andreas Reiter: The consistent “Stage V ready” product presentation at our trade fair booth showed our customers that DEUTZ already has a clear concept today, which it will launch on the market at the required time. The “Stage V ready” message has reached all customers as a trend-setting future alignment. The consistently positive feedback, both during and after the DEUTZ press conference, also confirmed this. With “Stage V ready” we can give our customers planning security, in that they can mount our engines in the Stage V without this requiring any new developments regarding the equipment or adjustments to our engines.

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The DEUTZ business is not only limited to selling engines. With the „Engine Plus“ programme, DEUTZ has bundled a series of service offers that provide the customers with the best possible support, both prior to the purchase of an engine as well as thereafter. From individual application engineering right up to the retrofitting of useful additional components, our customers thus get the maximum benefit from their product.

In dialogue
Dr Markus Müller, Head of System Integration, DEUTZ AG.

**myDEUTZ:** Modern diesel engines are becoming increasingly more complex. As a result, is the need for development services on the part of the customer increasing?

**Dr Markus Müller:** To a significant extent, the engine development of the past years was characterised by the requirements stipulated by the exhaust gas legislation. As a matter of fact, the complexity has increased enormously with the launch of the exhaust gas treatment for EU Stage IIB and/or US Tier 4 interim in 2011. This is also observed in the entire system in the huge variety of different applications, and results in great challenges for both our customers as well as DEUTZ. Simultaneously, however, this is an opportunity for us to distinguish ourselves on the market with first-class service. Since, the better the integration and alignment of the whole system of engine and machine, the greater the reliability, service life and overall performance of the customer machine.

Because of this, the need for service performances has definitely increased.

**myDEUTZ:** The “Engineering Services” and/or system integration field is a particularly important field for your company. In this regard, which benefits does DEUTZ offer its customers?

**Dr Markus Müller:** The system integration is a key component in marketing and sales. Already in the planning phase of a new device, we offer the possibility of optimally aligning the engine and the exhaust gas treatment system to the different requirements and mission profiles. Here we make use of our modular “Technology Construction Kit” DVERT™, so as to be in a position to offer a cost-efficient solution. In this regard, we pursue a holistic approach and support our customers with technical project management and system design – thus referring to the exhaust gas treatment, customer package and NHV (Noise, Vibration, Harshness) – right up to the segment-specific application engineering and the field trial. Thanks to this, the customer receives a “turn-key” solution and, as such, has the possibility of reducing internal development capacities. What is more, the customer benefits from the DEUTZ expertise, which continues to grow in diverse applications, and the tailor-made components that optimally satisfy the requirements as regards reliability and functionality.

**myDEUTZ:** Which components and/or development services can this be, quite concretely?

**Dr Markus Müller:** On the one hand, this can refer to standard components, such as a device specific SCR tank or also modern technologies, such as a hydraulic start-stop system. The latter is becoming increasingly more important, especially in the current working environment, where operating costs are an important cornerstone. Here DEUTZ offers a number of different start-stop solutions – from the simple possibility to stop an engine in certain operating conditions, right up to hydraulic start-stop solution with an optimised engine and increased protection for the heart of the customer machine. Thereby, a warranty extension of up to 5 years for DEUTZ engines is possible. Coverage (EPC)” extends the component protection for the heart of the customer machine. Thereby, a warranty extension of up to 5 years for DEUTZ engines is possible. Coverage (EPC)” extends the component

**myDEUTZ:** Which importance will the field of “Engineering Services” have for DEUTZ in future?

**Dr Markus Müller:** First and foremost of course, DEUTZ is an engine manufacturer. One of our key USPs on the market is the systems that have been customised to suit our customers’ needs. With us as a partner, especially manufacturers of smaller and medium-sized machines can comfortably integrate engines with the latest emission stages in their engines and what is more, they receive an aligned overall system with regard to performance and efficiency. However, also larger customers are increasingly integrating us in interface functions with in their own development division so as to be in a position to fall back on our experience and support. For this reason we are expanding our value chain in a targeted manner, taking the load off our partners’ shoulders with complex challenges and, in so doing, generating valuable benefits for the customers. “Engineering Services” reinforces our central aim of linking customised solutions and a maximum of customer proximity and is therefore of very great importance.

With Engine Plus DEUTZ therefore offers a real “Plus” as regards everything concerning the engine. In so doing, the customers benefit from the many years of DEUTZ experience, which becomes important in particular with the system integration within the context of the “Engineering Services”. In this regard, please also read our interview with Dr Markus Müller, Head of System Integration at DEUTZ AG.
“Sales is also about communication”

myDEUTZ: Which experience gained in the field of communication do you bring to sales?

Georg Diderich: Good communication is not a one-way street: Listening is just as important as speaking, if not even more so. If we want to be successful when compared with our competitors, we have to listen to our customers, take note of their demands and wishes and take these seriously, and then we have to convert these into the right products and service offers. In my new function, I am the mouthpiece of the customer within the company – also the mouthpiece of the company at the customers.

myDEUTZ: You are responsible for the regions of Europe, the Middle East and Africa. Which challenges do DEUTZ encounter in these markets? What are the special requirements of the customers there?

Georg Diderich: The ‘EMEA’ sales region comprises 126 different countries with numerous different languages and cultures, various industrial development as well as varying legal framework conditions and national currencies. There are regions that have a strong population density and a strong export orientation, so too there are regions in which we sell virtually only service business. Our products, services and net working structures are just as various as the markets and their respective demands: Our offer ranges from the emission level 0 right up to level IV, from our legendary air-cooled engines up to the liquid-cooled high-performance engines; Power Packs, Xchange engines and the original spare parts; highly qualified repair services as well as training and schooling measurements. We operate three own subsidiaries and numerous local service providers. Independent national agencies, dealers and service workshops, joint-venture companies and local service providers. However, DEUTZ’s main remains the same with all customers: The desire to cooperate with a reliable partner who is able to react to the different requirements rapidly and flexibly.

myDEUTZ: The first 100 days in the new function must certainly be very useful.

Georg Diderich: From a strategic and technical viewpoint, we are ideally positioned. Our ‘Road Map’ points us in the right direction in two steps. First of all, we are positioning with the launch of two new products with a large number of newly acquired customer orders, we can already see first successes. Our engine programme is ready for the next emission level V, which is to be launched in Europe in 2019. In addition to this, key product developments which are aimed at additional optimisation and extension of our portfolio have already been launched. In the coming years, we will expand our product portfolio with smaller engines and even expand our engine in the cylinder capacity range of larger than 4 litres. However, we must become even better and more flexible, we must continue to improve our delivery performance and our quality to retain our customers in a highly cyclical, volatile and fiercely competitive market and seize every opportunity. For this reason we must rethink our internal processes, design them in a more efficient manner and act in concert across the different departments not least because the satisfaction and motivation of our employees also increases and, when the entire company is committed to our growth strategy and supports it, this helps us outside on the market. We must expand our technical competence in sales to better elucidate the increasingly more complex products and our USPs. In order to do this, we must further expand and qualify our sales and service network to secure comprehensive support for our customers and use the internet to a greater extent, so as to develop new distribution channels in the service area. Not least, we must further increase the planning and forecasting quality in sales – by means of this we help the production areas improve their performance.

myDEUTZ: Which goals do you personally wish to achieve with the assumption of your new function?

Georg Diderich: In my new function I would like to further expand our sales and service activities so as to implement our growth strategy in the development of sales, togetherness with others, have worked on intensively in the course of the past years. In this regard, my many years of experience in the different corporate divisions as well as my extensive internal and external network will certainly be very useful.

myDEUTZ: Mr Mann, after having worked for DEUTZ Corporation in the U.S. for 11 years, you have been engaged as Senior Vice President of Sales Service & Marketing at DEUTZ AG in Cologne. Last year, you decided to return to the U.S. and to assume the post of CEO at DEUTZ Corporation. What impressions and experiences are you taking with you from your tenure at the head office in Cologne?

Bob Mann: The thing that has left the greatest impression on me during my time in Cologne is the tremendous depth of knowledge and expertise that is held by the men and women who make up the team in Cologne. While we are one of the smaller companies in our peer group, to quote a boxing expression “we punch way above our weight”. The only way we can do this is with an incredible team. I must also say a large “thank you” to the team in Cologne for not only taking me during my time at headquarters, but also for accepting me into their workplace. The greatest experience was not to work with a very varied customer group. Some of these customers demand extremely complex technical solutions, while others ask quite simple solutions, but with highly complex cultural demands. I was also lucky to work in Cologne during the time that the new 2.9 and 3.6 were launched. These two products have been very well accepted by the international markets and prove that we, as a company, can develop world class engines and compete against the very best.

myDEUTZ: The DEUTZ subsidiary DEUTZ Corporation in Atlanta is the core subsidiary for the region spanning North, Central and Latin America. Why are the challenges, which are posed by these regions with which DEUTZ products have to contend?

Bob Mann: In the Americas, we have very varied markets. North America is high regulated from an exhaust emission perspective but is a rapidly growing market with strong growth from a tariff point of view. This means both domestically produced engines and imported products can compete. The barrier to enter this market is one of development spending. That is, without the latest technology it is very difficult to gain market share. The major South American markets, Brazil and Argentina are completely opposite. They have extremely high import duties to enter a market but a low technology demand. This combination protects the local manufacturers, and makes importation almost impossible. Our products, engines below 4 litres in displacement we have difficulty in selling the larger engines, or engines over 10 litres. To compete, our customers are and either vertically integrated engine and machinery manufacturers or driven by the scale of the North American on-highway market. In both cases this gives a cost and service base that is extremely difficult to compete against. Because of the geographic size of our market, we have to work hard to maintain a service network that can keep up with the speed and quality of service they demand. This is currently our greatest challenge.

myDEUTZ: What do you consider to be the strengths of DEUTZ engines in terms of performance and customer needs?

Bob Mann: As in all markets the correct cultural approach and awareness is vital when dealing with these two customer groups.

State-of-the-art technologies for diverse cultural requirements

myDEUTZ: In Europe, the new stage V emission legislation is expected as of January 2019. What is your assessment of the development of emission legislation in the U.S. in the future? In which direction is this likely to develop?

Bob Mann: I believe that the US will also adopt a Tier V emission stage. It is important to have harmonisation in international emission legislation not only to provide environmental protection but also to allow manufacturers to produce engines diverse enough for large markets. Another consideration is that if the EPA does not adopt a Tier V there is a real possibility that US customers will go to other countries. This would add an additional layer of complexity to an already complex issue.

myDEUTZ: Which are the opportunities that the American market offers for DEUTZ?

Bob Mann: I believe our next opportunities lie in the local production of below 4 litre engines, according to the DEUTZ strategy of globalisation. This will allow us to serve our customers in a more efficient way and ultimately at a lower cost to DEUTZ. We are also well positioned to compete in the large fleet markets and their respective dealerships. This is an exciting project, giving us the chance to solve some problems in the engine and technology field at the same time expanding our margins.

myDEUTZ: In what way do American and German customers differ?

Bob Mann: This is actually a very interesting and complex question. DEUTZ is a house hold name in the German speaking markets, so our acceptance in that customer base is already resonating. Although we were not well known in the US for some 60 years we are still not widely known as an engine manufacturer but as a tractor company, from the DEUTZ ‘Fahr’ days. Similarly in Argentina the name ‘DEUTZ’ is extremely well known in the agriculture markets and the farmers view our brand with extremely high quality German engineering. Speaking specifically about German and US OEM customers. German customers are very direct in what they want and press hard to achieve their goals, generally speaking a deal struck is a deal that is kept. US customers are much less direct and they will try to keep all deals as flexible as possible and sometimes we have to work hard to keep customers under contract. As in all markets the correct cultural approach and awareness is vital when dealing with these two customer groups.
Because

**Every Second Counts**

The Schmidt snow blower Supra 4002 and Supra 5002 are two superlative power packs. Plenty of snow and large surfaces - ideal conditions for the high-performance machines! Thereby, in principle, it plays no role what the condition of the white splendour is. Be it wet, powdery, hard or frozen snow. The snow blowers work through the masses of snow in a targeted and reliable manner, with a particularly high-performance, rotating snow clearing technology.

The high-performance snow-clearing machines Supra 4002 and Supra 5002 were developed especially for the removal of large amounts of snowfall. For airports, Supra 5002, with a clearing capacity of up to 5000 t/h, is recommendable. A casting distance of up to 40 metres is no problem in this regard. As is the case with the 4002 series, (clearing capacity 3500 t/h), the machine can take along fuel for at least eight hours of work – absolutely indispensable, when every second counts.

What is more, both devices are impressive when it comes to their innovative articulated steering, which always provides the machine with a consistently strong forward feed and guarantees an exact track following of the vehicle within the clearing track of the clearing head. Especially for deployment at airports, the Supra can be equipped with additional movable hydraulic front valves. Thus the clearance width is expanded and can be adjusted flexibly to the respective snow pile width. This guarantees a particularly clean removal of snow.

Regardless, most importantly, a powerful snow blower requires one thing: a powerful propulsion. Both the DEUTZ engines of the TCD 12.0 V6 variety in the Supra 4002 as well as the engines in the TCD 16.0 V8 variety, in the heart of the Supra 5002, are not only compact and high-performance power packs, but also low-emission and environmentally friendly. With a performance of 240 to 520 kW at 1800 to 2100 R/min respectively, the V-engines impress with best cold starting abilities, also under extreme conditions. So as to guarantee the unrestricted capacity of its engines, also with ice-cold temperatures, DEUTZ subjects the engines to special tests in its house cold chamber (also see the report on page 22). Thus, machine operators can rely on their DEUTZ, also under the most challenging climatic conditions. Equipped for the exhaust emission EU Tier 4, it goes without saying that they satisfy the latest exhaust emission level standards. The high-performance Common Rail Injection System and the electronic engine control (EMR 4) with intelligent connection to the drive management system ensure optimal engine performance combined with low fuel consumption. What is more, the Supra has an Eco mode, which allows an additional fuel-saving of approx. 20%, both in clearing and in driving mode.

Apart from the low noise level in the driver cab of merely 75 dBA, the Supra 5002 also convinces with the ergonomic layout of all control elements. The clearing head is operated with a joystick that has a simple key function and additional comfort elements ensure maximal occupational safety and performance – also applicable here: Efficiency and safety are inexorably linked to one another.

**The ASH Group** is the leading system provider of innovative technical products for the cleaning and clearance of traffic areas as well as the mowing of green spaces in particularly challenging terrains. The comprehensive offer comprises a number of vehicles as well as innovative accessory and mounted devices for the individual vehicle equipping. Aebi Schmidt consists of two product divisions, each of which produce high-quality agricultural or municipal and special appliances, in addition to having a central distribution and sales division. Highly versatile and decade-long experience makes Aebi Schmidt an equally reliable and competent partner for customers from across the globe. A service and performance programme that is perfectly aligned to the different customer needs offers the matching solution for virtually every challenge.

With its location in Burgdorf in Switzerland, Aebi is one of the worldwide leading manufacturers of vehicles by means of which safe, mechanical, working and upkeep of extreme sloped terrains, as well as particularly daunting terrain is made possible.

**Schmidt** has production locations in Germany, Holland and Poland. In numerous divisions, the company offers some of the world’s most comprehensive product programmes. The comprehensive portfolio consists of a variety of versatile solutions for the areas of vinder service, summer service, airport, vehicle and railway engineering.
Pedro Sánchez visiting DEUTZ SPAIN

representatives of both trade union sections. Pedro Sánchez seized the opportunity for a short conversation with them about the current work situation of the company and the most important future challenges for the employees.

During his visit, he appeared greatly interested in trying to understand the different manufacturing processes in detail and was very surprised about the high degree of technology deployed in the DEUTZ SPAIN plant. He also made use of the opportunity to talk with a number of employees directly at their workstations about the general aspects of their work and the challenges faced by the employees on a daily basis so as to guarantee products with high quality standards for increasingly more discerning markets.

In a very cordial atmosphere, Pedro Sánchez thanked the employees for their elucidations and here directly addressed some of the most senior employees in the cylinder-head installation, whom he thanked for their great commitment in adapting to the new technologies. In his opinion, they are a “good example for the future generations.”

Following this, the technical director, Fernando Angulo, thanked Pedro Sánchez for the visit and his interest in visiting the DEUTZ plant, despite his busy agenda. Fernando Angulo made use of the opportunity to invite Messrs Fernández Vara and Contreras to visit the company once again to discuss in more detail those topics that refer to the future of the company and its employees.

Pedro Sánchez visiting DEUTZ SPAIN

During the brief meeting with the Management Board of DEUTZ SPAIN, the General Secretary appeared interested in the “Dual Vocational Training” system that had been introduced into the company as well as the implementation of the “Industry 4.0” project, where his great degree of expertise was impressive.

In a brief summary, the Management Board explained the most important aspects of the new “crankcase” project, that is currently being commissioned in the plant. Pedro Sánchez congratulated DEUTZ SPAIN on the outstanding perspectives which are opening up for the company thanks to this project, and he wished all involved parties continued success for the future.

DEUTZ Corporation Announces 2014 Distributor Award Recipients

DEUTZ Corporation is pleased to announce the recipients of its 2014 Distributor Awards. Each award was presented last week, at DEUTZ Corporation’s annual Distributor Meeting. The meeting was held this year in Montego Bay, Jamaica. Dave Combs, Vice President of Distribution noted, “It was appropriate for us to present the awards at this particular Distributor Meeting, since the theme was “Powered by Partnerships” and each recipient serves as an outstanding example of a strong partner.”

The DEUTZ Distributor Award recipients for 2014 are as follows:

DEUTZ Distributor of the Year: Diesel Industrial de Chihuahua

With multiple locations across Mexico, Diesel Industrial de Chihuahua provides sales and service of DEUTZ engines all across Mexico.

http://deutzmx.com/

DEUTZ Outstanding Service Award: Stauffer Diesel

Customers across a vast majority of Pennsylvania remain confident that their DEUTZ service needs will be met, since Stauffer Diesel is on the job. In fact, Stauffer Diesel has been on the job for more than fifty years!

http://www.staufferdiesel.com/

DEUTZ Outstanding Sales Award: Interstate Power

Customers in Minnesota, and the Dakotas rely on Interstate Power, due to their knowledgeable staff, and parts on the shelf to meet their DEUTZ engine needs.

http://www.isstate.com/

Most Improved DEUTZ Distributor Award: Marindustrial

Located in Montreal, Quebec, Marindustrial has a solid reputation for providing customers with DEUTZ engines, parts and service, all across the province.

http://www.marind.ca/

Steve Corley, Chief Sales Officer for DEUTZ Corporation noted, “We were very pleased to recognize these four outstanding distributor partners during our Distributor Meeting.”

Special recognition for DEUTZ Corporation itself also received special recognition at its annual Distributor Meeting. The international trade association Associated Equipment Distributors (AED) awarded the DEUTZ Corporation for being a member of the organization for the past fifty years. Associated Equipment Distributors (AED) is an international trade association representing companies involved in the distribution, rental and support of equipment used in construction, mining, forestry, power generation, agriculture and industrial applications.

“AED is a great organization, and we are pleased to be involved”

President & CEO of DEUTZ Corporation

Brian McGuire, President & CEO, and Bob Henderson, Executive Vice President & COO were both on-hand from AED to make the presentation to DEUTZ Corporation. “It is really a big deal for us to make this presentation, since DEUTZ Corporation has been a member of AED for literally half of the time our organization has been in existence.” Robert Mann, President & CEO of DEUTZ Corporation accepted the recognition on behalf of the organization.

Mann noted, “AED membership has always been important to us. AED is a great organization, and we are pleased to be involved. We’ve made so many good friends through AED over the years, and have spent time during many annual meetings catching up with them. We’re proud to be a part of AED, and to accept this recognition.”

Bob Henderson also presented to DEUTZ distributors during the second day of the annual meeting, in a General Session entitled, “Distribution: Today’s Challenges”.

Dave Combs, Vice President of Distribution for DEUTZ Corporation remarked, “It was really great to have Bob Henderson present during our Distributor Meeting. Bob always has plenty of insight to share regarding legislative issues, as well as distributor best practices.” Combs added, “It was especially timely for Bob to present in our General Session, since the theme of our meeting this year was, “Powered by Partnerships”.

Headquartered in Norcross Georgia, a suburb of Atlanta, the organization employs over 175 people. In addition, DEUTZ Corporation operates a remanufacturing production facility (Exchange program), in Pendergrass, Georgia.

More information about DEUTZ Corporation may be found by visiting www.deutzamericas.com
At the international Intermat construction fair 2015 in April, Vögele presented its new, particularly compact "Mini Class" road paver 800-3i, the Vögele producer – a global market leader for road pavers – has launched a particularly compact model on the market.

Its concept allows a broad range of possible applications on a great variety of different construction sites, such as the filling of cable trenches or the manufacturing of foot and bicycle paths. Equally, it can also be deployed in gardening and landscaping or for the mechanised installation of coverings in halls or underground car parks. These place highest demands on the agility and compactness of the machine. In a word: The SUPER 800-3i can always demonstrate its strength when the construction site is particularly restricted, narrow or low. With an outside track gauge of only 1.14 metres, the track paver is even suitable for the paving between rail tracks. The so-called range of paving applications – thus referring to the width of the paved layer – ranges from 0.50 to 3.20 metres. Due to the small clearance width of 1.40 metres and the total height of under 2.00 metres, it can also fit through narrow entrances or gateways without any problems. Thus, even the paving of traffic surfaces in buildings is not a problem. The well-wo...
Efficient TEAM-WORK

The TEAM cooperative project is dedicated to the development of technologies for energy-saving drive systems of mobile work machines. This is a promising field of research, because analyses have shown that with new technologies, an energy- and pollutant-saving potential of more than 20 per cent can be anticipated. In “Green Wheel Loader” – a partial project of TEAM – DEUTZ TCD 7.8 was deployed in conjunction with a hybrid system.

The TEAM cooperative project is dedicated to the development of technologies for energy-saving drive systems of mobile work machines. This is a promising field of research, because analyses have shown that with new technologies, an energy- and pollutant-saving potential of more than 20 per cent can be anticipated. In “Green Wheel Loader” – a partial project of TEAM – DEUTZ TCD 7.8 was deployed in conjunction with a hybrid system.

The “Green Wheel Loader” – a partial project of TEAM – based on a serial vehicle by the manufacturer Liebherr. For the motoreisation, an optimised DEUTZ TCD 7.8 was deployed in conjunction with a hybrid system. According to Wolfgang Beberdick, optimal level of fuel consumption can even turn out to be significantly higher: “Needless to say, DEUTZ, being an engine producer, can only realise this in very close cooperation with its customers, the machine producers. The configuration of the entire system and its integration into the machine are decisive with regard to how energy efficient a mobile work machine will be.”

Efficient TEAM-WORK

The development of efficient drive systems requires an integrated look at machines. Here, the interdependencies among the individual propulsion and the processing relevant loads have to be taken into account. Quite often, this is difficult to realise in practice, because the expertise is typically distributed between manufacturers and suppliers. As a general principle, the sub-systems such as propulsion, diesel engine, working hydraulics or tools are purchased externally.

For a comprehensive consideration, modern simulation tools provide a good foundation. And to go on step further, the cooperative project TEAM (Development of technologies for energy-saving drive systems of mobile work machines) was started in February 2012. In this regard, with the purpose of bundling their competences, a total of 18 OEMs and supplier companies, 5 universities and one association have joined forces. This project had a duration of 3 years and, with the official closing ceremony at the Technical University of Dresden, ended in April 2015.

Perceptible and Measurable

The objective of the collaborative project was the perceptible improvement of the efficiency of all propulsion components and the machine application, a significant fuel saving in comparison to the current standard machines as well as the corresponding evidence for this that was to be provided under real conditions. For the latter, a demonstrator was assembled exclusively for this very purpose – the “Green Wheel Loader” partial project. The project budget had a total value of approx. 8.5 million euros, of which approx. 4.3 million euros was provided by the Federal Ministry of Education and Research as well as by the project sponsor Karlsruhe (PTKA).

Apart from a number of different other key topics, the “Green Wheel Loader” partial project appeared to offer a particularly large efficiency potential. Simultaneously, it had the purpose of enabling the test under real conditions. The project was initiated by the VDMA (German Engineering Association). As partners, the Institute for Fluid Technology of the TU Dresden, the Institute for Machine Elements and Machine Design of RWTH Aachen as well as the industry companies Liebherr, Hydral, Fluidtechnik, Bosch Rexroth, Danfoss Power Solutions, Hydrive Engineering and DEUTZ were involved.

The Ideal Operating Point

DEUTZ contributes its expertise in the field of efficient diesel engines, gained in the course of many years. The DEUTZ engine provides the propulsion for the demonstration wheel loader of the Liebherr manufacturer, as well as its working hydraulics. The wheel loader is an experimental unit, whose drive train, when compared to that of serial vehicles, has been virtually completely replaced and replaced by innovative component providers by the project partners. The TCD 7.8 deployed by DEUTZ was optimised first and foremost with the purpose of obtaining the ideal operating point and integrated into an intelligent hybrid system. Here, the fundamental conceptual idea is to leave the dynamics to the hybrid system to the greatest possible extent and to operate the combustion engine in a restricted, consumption-optimal map range.

The industry diesel engine, with 7.8 litres of cylinder capacity has a top performance of 250 kW at 2,200 revolutions per minute. Its maximal torque is at 1,450 revolutions per minute. The engine complies with the current exhaust emission level EU Tier IV and, thanks to a diesel particle filter (DPF) already satisfied the EU Tier V, which is anticipated for 2019, today. Thus, innately, it is among the lowest-emission diesel engines on the market and as such provides the ideal foundation for additional optimisations.

More Efficiency thanks to Hybridisation

Today already, thanks to the highly-developed exhaust gas treatment, modern DEUTZ diesel engines generate hardly any additional exhaust gas. Today already, thanks to the highly-developed exhaust gas treatment, modern DEUTZ diesel engines generate hardly any additional exhaust gas.

DEUTZ, being an engine producer, can only realise this in very close cooperation with its customers, the machine producers. The configuration of the entire system and its integration into the machine are decisive with regard to how energy efficient a mobile work machine will be.”

TEAMWORK

The TEAM project was initiated by the VDMA (German Engineering Association) and was managed by the Project Management Agency Karlsruhe (PTKA). The author is responsible for the contents of this publication. This research and development project was funded by the Federal Ministry of Education and Research (BMBF) within the Framework Concept “Research for Tomorrow’s Production” and managed by the Project Management Agency Karlsruhe (PTKA). The author is responsible for the contents of this publication.

TEAMWORK

The “Green Wheel Loader” – a partial project of TEAM – based on a serial vehicle by the manufacturer Liebherr. For the motoreisation, an optimised DEUTZ TCD 7.8 was deployed in conjunction with a hybrid system.
Electronic Control

Already since the 1990s, DEUTZ has been equipping its engines with electronic control units, also referred to as ECU or ECM (electronic control module). Such a unit consists of high-performance hardware with a micro-controller and software that has been aligned specifically to the type of engine and target application. This processes a myriad of sensor data, ranging from the rotational speed to the exhaust gas temperature, right up to the charge air pressure, and controls the engine via the corresponding actuators on the basis of an optimised control strategy.

The drivers behind this development are, first and foremost, the constantly increasing emission requirements that are to be satisfied. Simultaneously, the performance and efficiency of all engines are significantly improved. The electro-mechanically regulated fuel injection prepared the way for a fully electronically-controlled engine. On the basis of common rail technology, the potential was subsequently further exploited and all injection times, quantities and pressures were steered in their entirety by the ECU. In the next step, the exhaust gas treatment such as, for instance, the regulation of the DPF and SCR systems, was integrated. All DEUTZ engines of the current exhaust gas emission stage US EPA Tier 4f / EU Tier IV have a completely electronically controlled engine. Due to the continuous expansion of functions, there has been an extreme increase of the complexity of the control unit software. While the scope of a Tier 3 engine control unit consisted of about 10,000 parameters, in Tier 4f this has increased to about 40,000.

For quite some time already, the digital revolution has been a reality when it comes to the combustion engine. Where sophisticated mechanics regulated the fuel injection and combustion process in the past, this is achieved by electronic control units today, with the help of highly complex algorithms. This increases performance and efficiency, reduces exhaust gas emissions and simplifies the vehicle service.

Taghi Akbarian, Head of Electronics at DEUTZ AG, explains: “The requirements to be fulfilled by the software features will increase in future. The steering and regulation of additional components and functions of the engines and machines will be added. In addition to this, thanks to a system-spanning and application-specific control strategy, the software offers the possibility of aligning the steering and regulation of an engine and drive train in such a manner that the best possible overall benefits are attained for our customers with regard to fuel consumption, performance and efficiency.”

So as to further optimise the software quality and the development times with the increasing complexity, DEUTZ utilises state-of-the-art methods and development tools. These consist of a professional requirement management, mostly automated toolchains for software creation and testing as well as the agile development method SCRUM is a special development methodology in project management for entire software projects.

Software as Core Competence

Thus the well-known basic components, such as the so-called 5c parts (crankshaft, cylinder block, cylinder head, camshaft, connecting rod) definitely no longer represent the only part of an engine manufacturer’s competences. Equally, the electronics, inclusive of the control unit software represent a key technology, by means of which DEUTZ differentiates itself on the market. Therefore DEUTZ has built-up an own software development and, in so doing, has increased the real net output in this sector. It is in particular the customers who benefit from this. Apart from the steering and regulation functions, the diagnostics functionality is an essential component of the software development for the future, by means of which the statutory requirements with regard to the monitoring of all exhaust gas relevant components fitted to the engine and the exhaust gas system can be ensured. An additional benefit of the diagnostics function is the engine protection, so as to attain the maximum availability of the engine and avoid defects. “The machine operator is constantly informed regarding the condition of the engine, via the HMI interface of the engine control unit. What is more, DEUTZ offers an efficient software solution on the control unit, which allows targeted troubleshooting in interaction with the DEUTZ Sarda diagnostics tool. Here the target is to be able to quickly analyse and remedy the fault in the field,” Akbarian explains.

The Next Generation

Presently, DEUTZ is working intensively on the development of the next generation of control units. The goal is to develop an ECU standard platform that is based on state-of-the-art electronic components for the coming DEUTZ engines. In this regard, the engineers fall back on larger storage resources and faster micro-controllers, so as to be in a position to depict even higher-performance control functions such as model-based regulations or diagnostic functions. Thus DEUTZ is equipped for future statutory and market requirements. Solution variants for different markets, engines and exhaust gas emission stages are derived from this standard platform and, by means of this, a significantly more efficient development is made possible. This is essential when considering future engine generations, so as to ensure that the increasing complexity will be mastered.

Furthermore, the electronics offer the possibility of depicting an electronic or hydraulic hybridisation in appropriate applications. Within the context of a so-called GfP project (Green Industrial Diesel), DEUTZ successfully equipped a wheeled excavator with such a system in 2014. Here, the interaction and/or energy flows between the two drive systems and the electrical accumulator are steered by the specially developed electronics, to satisfy the specific requirements. With this, DEUTZ has attained a significant fuel saving of approx. 40 % and provides an outlook regarding the future system solutions.

What is more, with the new ECU generation, DEUTZ will also be able to equip its engines as a so-called “cyber-physical unit” with high-performance communication and intelligent software, so that they will be prepared for the megatrend of “Industry 4.0”. Essentially, this trend is based on the “Internet of Things”. This refers to the communication of intelligent objects, which provide own status information for further processing within the network, by means of which their usability is increased.

*Ultimately, software development is an important core competence for DEUTZ. We are optimally positioned for this challenge and can also offer our customers innovative and tailor-made solutions in future," Akbarian summarises.
The robust and resilient engines of DEUTZ AG are used in all regions of the world. Be it at dizzying heights in the remotest mountainous regions of Peru, deep underground in the mining sector, in tropical temperatures or the freezing cold – you can rely on DEUTZ engines. In this regard, the deployment in cold regions represents a particular challenge, because, also in the bone-chilling cold of the Arctic regions, it is essential to be able to rely on one’s engine. In the research and development division in Cologne, DEUTZ tests how resilient its engines are when deployed under ice-cold conditions.

DEUTZ engines are used worldwide. Hereby, climatic challenges are a matter of course for both man and machine. However, not only does this refer to the sub-tropical temperatures of the southern-based regions, but also, in part, the deployment during icy conditions.

So as to be in a position to test the engines under these exceptional conditions, there is a special cold chamber in the development division of DEUTZ AG at the Cologne-Porz location. In this research and development division, in which temperatures of -40°C can be attained, tests can be performed not only with the engines, but also with complete vehicles. On a surface spanning 8 metres in length, with a width of 2.80 metres and a height of 3.50 metres, the possibility thus exists to test a tractor or a construction vehicle under ice-cold conditions.

First and foremost, the DEUTZ engineers are interested in the ignition behaviour of the engine, because this is the critical phase for operation. For the test, the engines are frozen, which is what happens overnight in the majority of cases. The tests then ensue the following morning with the completely cold engine. Then the combustion chamber, diesel, engine oil, refrigerant and the aspirated air, quite literally, are icy. To assist an engine in attaining a clean start under these conditions, one needs a great deal of experience and engineering prowess. For this, the thermodynamics specialists elaborate the right alignment of all engine parameters. Preheating behaviour, the fuel injection quantities and times are aligned in exacting detail, and the data that has been determined is stored in the engine electronics. The alignment determined in the cold chamber is then applied to the engine under real conditions and, as such, ensures a smooth start for the user.

These procedures also place an extreme toll on the starter batteries. So that reproducible results can be delivered, the starter batteries are charged in such a manner that they have a defined charge level. This allows reliable statements regarding whether the engine can be started under extreme conditions when the battery of the engine is not completely charged. In addition to this, DEUTZ installed a new battery simulator in the past year. In the simulator, the characteristics curves of different types of batteries are stored, so that the test bench operator, in coordination with the engineer, can simulate different battery conditions and, by means of this, can accelerate the tests.

So as to simulate a base load for the engines as well, a hydraulic load unit is also deployed. This break simulates, e.g. the load a engine would experience that is built into an excavator when the hydraulic auxiliary units generate a resistance. The tests in the cold chamber represent a fundamental element of the development and confirms what DEUTZ promises: Reliability under all conditions.

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"DEUTZ Willi" at the North Cape

Eight weeks after its start in Lauenförde, located in Lower Saxony (Germany), the 79-year-old Winfried Langer retrieved the North Cape together with "Robert", his tractor. The pensioner, who has made a name for himself as "Deutz Willi" covered a distance of about 3800 kilometres before reaching his destination, where he then could unveil the flag of his home community. Robert was his loyal companion once again, as had been the case during numerous prior long-distance trips, and proved that, even though slowly, one always reaches one’s destination. The DEUTZ D15 tractor, which operates with a reliable air-cooled DEUTZ F1 L 712 engine, has a maximum speed of 18 kilometres per hour. Willi and Robert will be heading back home again with a good feeling.

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DEUTZWORLD

Look forward to edition 3 | 2015!

AGRI TECHNICA, the world’s leading trade fair for agricultural engineering, is again being held, from 5 to 14 November 2015, in Hanover. In the next issue of DEUTZWORLD, find out why DEUTZ engines are so successful in the agricultural machinery segment.

The customer magazine of DEUTZ AG

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Each machine is only as good as its engine. Therefore, leading machine manufacturers have chosen the latest cutting-edge technology from DEUTZ, be it in mobile machines, agricultural equipment, ships propulsion or commercial vehicles applications.

For example this means that DEUTZ engines are installed into more than 100,000 new mobile machines worldwide per year and one out of two pieces of airport equipment are installed with DEUTZ engines and one out of three hectares of farm land in Germany is cultivated with DEUTZ powered machines.

DEUTZ is one of the world's largest independent engine producers, with an integrated power range from 25 to 520 kW. From the first installation consultancy to the life-long service support of the engine, we are completely dedicated to our customers. So that you receive products and services to your satisfaction.

The engine company.