

Measures implemented to reduce costs With regard to the material groups, we primarily focused on exhaust after-treatment, exhaust gas recirculation and filtration last year and were able to reduce costs in the overall system. We see potential for achieving further savings by increasing the proportion of procurement from emerging markets. This applies, above all, to China because of the competitive environment, particularly as quality standards in the supplier industry are continuing to improve there. We have concluded a purchasing agreement with our joint venture DEUTZ (Dalian) Engine Co., Ltd., China, in order to coordinate procurement potential in the Chinese market.

Supply chain and supplier performance We have been able to further optimise supplier performance in the supply chain, with the overall trend continuing to improve.

PRODUCTION

In production and logistics, the areas of focus in 2016 were workplace safety and ergonomics, product and process quality, and efficiency. We also implemented a number of measures as planned as part of efforts to optimise our network of sites.

The Cologne plants, Germany Last year, we initiated various steps aimed at improving quality and safeguarding the assembly processes in Cologne-Porz, our largest assembly site for production engines. This included optimising and renewing the cleaning and drying sections of the painting area and the automated adjustment of valve clearance. We also held kaizen workshops to further refine processes and procedures. Numerous tasks were consolidated in connection with vacating the Cologne-Deutz site, such as the management of empties. We also expanded shop floor management.

Component manufacture The process of vacating the Cologne-Deutz site began at the start of 2016. In May, the two transfer lines for the processing of crankcase housing for the 2011 and 91x engine series were moved to our plants in Zafra, Spain and Ulm, Germany. The relocation of shaft production from Cologne-Deutz to the newly built shaft centre in Cologne-Porz got under way in April without production being disrupted and was completed in February 2017. A total of 130 pieces of machinery and equipment were removed and then brought back on stream.

The plants in Ulm and Übersee on Lake Chiemsee, Germany We continued with our expansion of the Ulm plant in 2016. This site is evolving into the plant for small production runs, focusing on DCS products, project business, exchange engines and models that are soon to be discontinued. The Xchange assembly activities, which had been relocated in 2015, were optimised, costs were lowered and throughput times were shortened. In addition, the necessary preparations for integrating all of the other functions from the Übersee plant were carried

out. The relocation of the remaining functions in connection with the closure of the Übersee site will take place in 2017. In mechanical fabrication, all transfer lines were replaced with production machines; mechanical component production has thus been attuned to the flexibility that is required in small production runs.

The Zafra plant, Spain Our plant in Zafra, Spain produces the crankcases for engines of up to 4 litres in addition to the other major engine components already manufactured there, namely cylinder heads, conrods and gearwheels. Relocation of the production of crankcases for the 2011 engine series, which were previously built inhouse in Cologne-Deutz, was completed in 2016. Manufacturing of crankcases for the 2.9 engine series was also ramped up in 2016.

The Pendergrass plant, USA In the year under review, we extended our plant in Pendergrass, Georgia/USA, to cover the additional volume resulting from the growth of the exchange engine business. This included expanding capacity for removal and final assembly activities and increasing the number of production employees. There is now capacity for roughly 2,400 engines in one-shift operation.

QUALITY

Quality is part of our corporate culture The DEUTZ name has always been synonymous with high-quality engines. We intend to continue to live up to this reputation.

For this reason, we introduced our zero-error strategy. Our main aim in pursuing this quality assurance programme is to ensure that we always meet our customers' expectations. The idea is to detect errors before they actually occur. And where errors do occur, we have to learn from them quickly in order not to make the same mistakes again.

In 2016, we developed a concept to implement our quality assurance programme and provided multipliers with the necessary training to run workshops. A large number of employees, from both production and administrative areas, took part in these workshops. Managers and employees were given intensive training on topics such as customer satisfaction, quality of work and the constructive handling of errors during two half-day sessions.

In addition, we conducted a study on quality focus in collaboration with the Laboratory for Machine Tools and Production Engineering (WZL). The objective was to assess the quality focus of employees in middle management. The study showed that the quality culture at DEUTZ was very strong on average in terms of external customer focus. In departments with a well-developed culture of quality, there is greater satisfaction among the employees and they value the quality performance of their team more highly.