PROFESSIONAL ARTICLE

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Cleaning with state-of-the-art technology

A lot has happened since the first floor cleaning machines were developed more than 100 years ago. From the simple floor polisher, the development led to complex scrubber-dryer for wet/dry cleaning and maintenance of a wide variety of hard floors. Depending on the application and the size of the area to be cleaned, the cleaning machines are available as walk-behind and ride-on units or as autonomously driving machines. Today, efficiency, recyclability of materials and digital solutions are a must for any development. The blower motors used for the suction function, as well as drive and brush motors, have a significant impact on the performance and efficiency of the machine.

Dunkermotoren and MAE, sister companies in the Advanced Motion Solutions Division under the AMETEK umbrella, offer a wide range of options for the diverse models and application areas - and thanks to the broad product portfolio, all from a single source.

Suction function

The required air flow rate, the vacuum at the operating point, the electrical supply voltage and the available installation space are relevant criteria when selecting a blower motor.

Single-stage blower motors are suitable for high air flows, while multi-stage blower motors are used for higher vacuum.

Cost-effective universal blower motors are the perfect drive solution for the suction function in cleaning machines and other airflow management applications due to their compact and lightweight design and simple control.

In cases where longer service life is required, brushless blower motors with high-quality magnets are offered. The electronic commutation extends the service life up to twenty times compared to brushed motors. The brushless blower motors operate almost wear-free and are therefore more sustainable. Another advantage of the brushless technology is the onboard control. MAE supports this with customer-specific software adaptations.

The noise emission of the motors used is also important for blower applications. But it is not only the measurable sound pressure level, but also the pitch and the sound that play an essential role. These can be influenced by the size of the impeller diameter and the speed of rotation. However, noise generation does not depend solely on the blower motor itself. Different factors, such as the installation method in the machine, have also an impact. MAE precisely balances both, component and assembly level to avoid disturbing vibrations.

MAE blower motors feature excellent air performance, low-noise operation, high speeds and a good power, size and weight ratio. They are available with different housing diameters, single or multiple blower stages, in throughflow or bypass design, making them suitable for dry and for wet-dry applications. The blowers can be rated for either line voltage AC or low voltage DC and feature superior durability and best-in-class energy efficiency system in compliance with the new Ecodesign Directive.

Travel and brush motors

For the travel drive and the movement of the brushes, it can be made a choice between brushed or brushless technology. As with the blower motors, the advantages of the brushless motors are the increased efficiency in a small installation space due to the use of neodymium magnets. A special characteristic is the enormous overload capacity of brushless motors. Two and a half to three times the rated torque for a duration of up to one minute is possible during acceleration and deceleration. This is advantageous especially for traction drives, as it allows the motor configuration to be made to the rated torque rather than the required peak values. Thus, it can be selected a "smaller" motor in many cases. Higher torques can be achieved by combining a motor with a suitable gearbox from our modular system. On request, the drives can be modified to comply with protection class IP 65. Dunkermotoren's drive solutions operate quietly, reliably and maintenance-free. The motors have a high power density, cover a wide voltage range and are therefore ideally suited for battery-powered applications. To meet all safety requirements, external controls and, for brushless motors, integrated motor electronics are optionally offered with the safety function Safe Torque Off. All common bus and industrial

Ethernet interfaces are also supported. The Motor Control Platform and the interfaces provided form the perfect basis for connection to Industrial Internet of Things (IIoT) processes. This makes it easy to control the motors. The status of the motors in the cleaning machines can thus be recorded and centrally monitored.

In parallel with the addition of the modular product range and the motor portfolio, Dunkermotoren has supplemented the existing gearbox variants with the hub gearbox. The hub gears of the NG 250 and NG 500 series are used in the travel drive. The gearbox is designed to achieve a maximum load of up to 500 kg per drive without additional bearings.

The modular system of Dunkermotoren and MAE offers a variety of possibilities for the configuration of economical and customized drive solutions that meet the high requirements for mobile applications. All products are developed in-house and are manufactured in Europe.

Equipped with the latest technology and further necessary developments, the cleaning machines will be well prepared for the next 100 years. Convince yourself and contact us directly. We are exhibitor at Interclean Amsterdam from May 10-13, 2022 and will be happy to answer your questions there personally.

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