

Discover ebm-papst in medical technology.

Innovative ventilation and drive solutions for increased efficiency.

ebmpapst

The engineer's choice



About ebm-papst.

As a responsible leader in ventilation and drive technology, our thoughts and actions have always been guided by considerations of environmental compatibility and sustainability. For decades, we have worked according to the simple but strict conviction of our co-founder Gerhard Sturm: "Every new product we develop has to be economically and ecologically superior to its predecessor." GreenTech is the ultimate expression of this corporate philosophy – to the benefit of the environment and our customers.



Top ventilation and drive technology.

The ebm-papst product portfolio includes over 14,500 products, so we can offer the right solution for almost any ventilation and drive engineering task. In consultation with you, we can also work out custom solutions that go beyond our regular product portfolio thanks to our diversified team of more than 600 engineers and technicians at our three locations in Germany.

Global presence.

Being a specialist for customised solutions around the world calls for strong partners. Being globally local, i.e. present all over the world while acting as a local company in each country, is how we have established ourselves with successful subsidiaries in all of the world's important markets. And it's why you can always get advice and information from local partners. In addition, our worldwide production alliance serves as a basis for competitive pricing. Our global services and logistics offerings ensure quick responses and just-in-time delivery.

Core competencies: motor technology, aerodynamics and electronics.

Our innovative technologies regularly become industry standards. Our advantage: We take a comprehensive approach to aerodynamic processes, combining standard-setting motor technology with sophisticated electronics and aerodynamically optimised designs. The system solutions that result from these core competencies generate unique synergy effects worldwide.

Passion, quality, responsibility: three factors for success.

Our passion for fans and motors is the key to top performance. With our clear organisational structure, flat hierarchies and high degree of individual responsibility, we establish a basis not only for technological innovations but also for outstanding service and active cooperation with our customers.

And of course our products are manufactured according to the highest quality standards – at 18 production facilities around the world. Our quality management is uncompromising, everywhere and in every process step, as confirmed by our certification according to the international standards DIN EN ISO 9001, ISO/TS 16949-2 and DIN EN ISO 14001.



Powerful, reliable and application-specific.



100% quality inspection

Despite the fact that all products and production processes are optimized to ensure top quality, every drive and fan is subjected to 100 per cent final inspection on the production line in accordance with the applicable medical test requirements. All the necessary equipment is available in in-house test laboratories. This enables both simulation and practical testing to be performed on the components developed using state-of-the-art computer programs. The findings obtained are then incorporated into the further development of the components to ensure perfectly matched and highly reliable products. The medical components are real winners in terms of environmental protection as well: In line with the company's GreenTech philosophy they are produced using as little material and energy as possible and are of course soldered without the use of lead. The highly efficient operation and low energy consumption of the drives are the perfect complement to the resource-preserving design of the fans and drives.

Customized air flow

All axial, centrifugal and diagonal fans are designed for years of reliable, maintenance-free operation. Heavy-duty fans are available for demanding applications involving extremely high mechanical stress, for instance to provide cooling in the rotor of a CT scanner with acceleration rates up to more than 50 times the acceleration of gravity or for use in analyzers requiring particular protection against corrosion. In addition to versions with stainless steel ball bearings other options include vacuum-cast windings and electronics or protective varnishing for circuit boards, to name but a few. External or integrated sensors, with the Variofan models for example, automatically regulate the air flow depending on the temperature or humidity and there is no need for external control. Particularly inner rotor motor fans permit the operation of CPAP machines in bedrooms, ensuring a rapid pressure build-up matching the breathing frequency to fill the lungs – and the units are quiet enough to ensure undisturbed sleep.

Our many years of experience with successful BLDC and DC drive systems in the field of dialysis systems, incubators, electromechanically adjustable high-end operating tables and many other applications qualify us as a preferred supplier. As such we are ideal partners not just for the big players in the medical technology sector, but also for innovative small and medium-sized companies.

In many cases use can be made of a modern electronically commutated drive such as the VDC-3-49.15-K4, offering maximum efficiency alongside great functionality and a compact design, making it an ideal drive system in combination with low-noise gearboxes.

Customized drive engineering

Drive engineering has to satisfy a wide range of different requirements in medical equipment, but custom designed drive units are usually expensive. Which is why the specialists at ebm-papst decided on a system with modular design. This offers the advantage of economical mass production whilst allowing users to combine the modules to form a drive system perfectly matched to their applications. The system concept not only encompasses motors, sensors, gearboxes and brakes, but also the control system and, where required, the complete assembly of all mechanical components to form a drive system.

ebm-papst technology in medical technology:

One of the challenges encountered in medical technology is to design complex devices requiring a minimum of space. The demand for a small size arises from a desire to make the devices as compact and user-friendly as possible. As new products are packed with even more functions, there is a need for them to be both compact and efficient.

This calls for specialist expertise to create an optimum ventilation and drive engineering system concept: Even the most efficient compact technology generates waste heat which has to be dissipated. High-performance, and highly efficient low-noise fans with a long service life can be a real help. Just as important are small, powerful, efficient drives offering extremely precise control. Nowadays, a modern operating theater without such equipment is virtually unimaginable.

The advantages at a glance:

1 Incubator for newborn babies.

- Long service life and low operating noise
- Protection against humidity
- Integrated operation and control electronics
- Wide range of speeds
- Very smooth running



2 Wheelchair.

- Efficient drive for longer ranges
- Multiple drive overload possible
- Very compact, light design
- Distinctive dynamic



3 Walker.

- Efficient drive for long battery life
- Low cogging torque
- With external operating electronics
- High efficient motor and gearbox
- Compact design



4 CPAP-breathing devices.

- EC-technology with slotless stator design
- Extremely silent running, no cogging torque
- Determination of rotor via 3 Hall sensor
Option: motor without sensors for sensorless operation
- Precision ball bearings for long service life and silent running
- NTC can be fitted on request
- Very suitable for high speed applications





Examples of applications for ebm-papst products.

- | | |
|---------------------------------------|---------------------------------------|
| 1 Incubator for newborn babies | 6 Leg splint |
| 2 Wheelchair | 7 Patient lift |
| 3 Walker | 8 Operating table |
| 4 CPAP-breathing devices | 9 CT scanners and MRI machines |
| 5 Dialysis-Blood pump drive | 10 Fermenter |



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The advantages at a glance:

5 Dialysis-Blood pump drive.

- Low operating noise
- Long service life and high reliability
- Optimized braking characteristics for high-efficiency dialysis
- Drive with IP54 protection
- Wide range of speeds

6 Leg splint.

- Compact design
- Low operating noise
- Drive system with good control characteristics
- Long service life and high reliability

7 Patient lift.

- High efficiency due to high overall efficiency
- Compact design
- Load-dependent friction lining brake for patient safety
- Low operating noise
- Application optimized gearbox version

8 Operating table.

- Long service life and high reliability
- Low operating noise
- Brief overload possible
- Very compact design
- Fulfills EMC requirements
- Integrated operation and K4 control electronics

9 CT scanners and MRI machines.

- Reinforced bearing system to withstand high g-forces
- Customized control input options
- Long service life and high reliability
- Wide product portfolio
- Low operating noise

10 Fermenter.

- Wide control range
- Soft start
- Field-oriented control for very low speeds
- Integrated operation and K4 control electronics



ebm-papst
St. Georgen GmbH & Co. KG

Hermann-Papst-Str.1
78112 St. Georgen
Germany
Phone +49 7724 81-0
Fax +49 7724 81-110
info2@de.ebmpapst.com

ebmpapst

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