



Respiration therapy with maxon motors.

There are a multitude of sleep diseases and sleep disorders - therefore there is also a large range of available therapy options. Respiration devices for use in clinics and those for home use have one thing in common: maxon motors are the driving force at the core of the device.

In medical applications, respiration therapy is increasingly gaining importance. It has been proven that correct breathing improves the blood circulation and thus optimizes the oxygen supply to the entire organism. Respiration therapy in principle concerns itself with disorders and diseases of the lungs and vocal tract. The so-called home respiration is a subarea of intensive care in which patients are mechanically ventilated to treat temporary or permanent failure of the nervous system or respiratory muscles, even after they have been discharged from the clinic. A differentiation is made between invasive and non-invasive ventilation. Pressure-controlled or volume-controlled ventilation methods are mostly used, or in some cases only assisted ventilation treatment is given.

Respiration therapy devices are also used for patients with sleep-related respiratory disorders. These devices generate a positive airway pressure that keeps the airways open while the patient is sleeping. The treatment pressure is applied through a ventilation mask (nasal, nasal cushion or full-face mask). This ventilation mask must be equipped with an exhalation valve in order to ensure that the exhaled air is discharged. Today, the wide range of sleep diseases and sleep disorders are met with a wide range of available therapies. The basis for these are formed by mono-level therapies (CPAP) and self-regulating modes (auto CPAP), in which the pressure fluctuates within previously defined pressure limits depending on the occurring events. These respiratory devices adapt to the patient and are largely used for treating sleep apnea.

Brushless EC motors safeguard the correct airway pressure

Additionally, combined treatment methods are available for patient groups that have more specific needs. For more than 20 years, HOFFRICHTER GmbH from Schwerin (Germany) has been manufacturing various respiration therapy devices. These devices are very quiet and offer high pressure stability. To allow accurate control over the airway pressure, a brushless EC 22 motor by maxon is used. This motor drives the core component of the respiration device: the turbine engineered by HOFFRICHTER. Together with the turbine, the motor (mounted in a special box) provides the respectively treatment pressure required.

The requirements on the motors for the sensitive respiration devices were high. As the respiration devices are life-sustaining systems, motors with high quality and a long service life are mandatory. Furthermore the brushless maxon motors also have to fulfill other important criteria. The motors optimized for this application have to provide top performance. Simultaneously the motor has to have very high dynamic properties. Depending on the breathing of the patient, the speed has to be adapted constantly, to provide the optimal and comfortable treatment. Of course the size of the motor plays an important role; the space within the device is limited, therefore the device has to be small yet powerful. Maxon also realized that the noise level was a factor that could not be neglected because these therapy devices are mainly used at night. With these prerequisites covered, a positive respiration therapy is achieved for the patient.

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Figure 1: Respiration therapy devices by Hoffrichter ensure ease of breathing and thus help the patients to get healthy, restorative sleep. © 2012 Hoffrichter GmbH



Figure 2: The brushless EC 22 motor by maxon motor is used in the respiration therapy devices.
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