



**ELECTROMAG**

## Motor solutions for medical ventilators

Sleep Apnea  
Ventilation therapy  
Patient transport  
Intensive care



# Motor solutions for medical ventilators

Since 2003, Electromag has been developing ultra-quiet brushless DC motors for healthcare applications. In the field of medical ventilators, device manufacturers need to rely on qualified partners who can offer them cutting-edge solutions and technology to develop competitive advantage, while making no compromise on product quality and patient safety. For this reason, Electromag has been increasingly selected as preferred supplier by leading blower and ventilator manufacturers for home-care, hospital and transport applications.



## Benefits

- Ultra-quiet motors and lowest vibration level.
- Typical efficiency over 90% limiting temperature increase and offering higher operation autonomy in battery mode.
- Resistance to specific environmental conditions like oxygen enriched flow, sterilization, etc.
- Lifetime over 20'000 hours.
- Low rotor inertia offering high dynamic properties for immediate adaptation of pressure level.
- Thermal resistor (NTC) optionally available for continuous monitoring of the motor's internal temperature, in order to detect any abnormalities.

## Expertise and service

- Customized motor design for optimal performance in regards of a given working point or operating range.
- Tailor-made motor interface allowing to perfectly fit available space or connected components.
- Vibratory analysis of the complete mechatronic system using modern simulation tools in order to minimize noise emissions or extend device lifetime.
- Rapid prototyping capabilities.
- Product development following ISO 13485 quality management system for medical device.
- Industrialization process and automated assembly for cost-effective series production.
- First-class support throughout the entire product life-cycle.

# Solutions overview

STANDARD PRODUCTS		CHARACTERISTICS	INTENSIVE CARE	PATIENT TRANSPORT	NEONATAL	VENTILATION THERAPY	BI-LEVEL	CPAP
<b>Ø 49MM BI-LEVEL MOTOR</b> 	<ul style="list-style-type: none"> <li>• Cost effective low-inertia motor with high dynamic properties ideal for bi-level homecare applications.</li> <li>• Outer diameter 49 mm.</li> <li>• Electrical interfacing with integrated connector.</li> <li>• Speed range between 15'000 and 35'000 rpm.</li> <li>• Load torque up to 10 mNm.</li> </ul>					•	•	
<b>Ø 34MM CPAP MOTOR</b> 	<ul style="list-style-type: none"> <li>• Cost-effective and compact motor for CPAP home-care applications.</li> <li>• Sensorless.</li> <li>• Outer diameter 34 mm</li> <li>• Electrical interfacing with integrated connector.</li> <li>• Speed range between 30'000 and 70'000 rpm.</li> <li>• Load torque up to 3 mNm.</li> </ul>							•
CUSTOMIZATION PLATFORMS		CHARACTERISTICS						
<b>→ 22 mm</b> 	<ul style="list-style-type: none"> <li>• Robust mechanical construction with 3- or 4-mm shafts.</li> <li>• Patented slotless winding allowing 90% efficiency at speeds up to 80'000 rpm.</li> <li>• Power range between 50 and 120 W allowing the blower to reach pressures of up to 110 mbar.</li> <li>• Low rotor inertia for high motor dynamics.</li> </ul>	•	•	•	•			
<b>→ 44 mm</b> 	<ul style="list-style-type: none"> <li>• Low rotor inertia for high motor dynamics.</li> <li>• Speed range between 15'000 and 35'000 rpm.</li> <li>• Load torque up to 10 mNm.</li> </ul>					•	•	
<b>→ 32 mm</b> 	<ul style="list-style-type: none"> <li>• Compact motor for low-power applications.</li> <li>• Speed range between 30'000 and 70'000 rpm.</li> <li>• Load torque up to 3 mNm.</li> </ul>						•	•

Please contact us for detailed technical data or for further solutions.

Electromag is a Swiss company based near Geneva. The company was founded in 2003 and is specialized in the development and production of ultra-quiet high-speed brushless DC motors. Renowned for their outstanding efficiency, reliability and low vibration level, Electromag motors have been selected globally by leading medical equipment manufacturers, namely in the field of ventilation, dentistry and podiatry, as well as for industrial applications.

Electromag offers comprehensive OEM services from support in selecting the appropriate motor parameters, design customization and responsive prototyping to fully industrialized series production.

The company is ISO 9001 and 13485 certified.



**Innovation**



**Design**



**Customization**



**Production**



*ultra-quiet high-speed motors*

**Electromag SA**

Chemin du Dévent 7  
Z.I. Larges Pièces A  
CH-1024 Ecublens  
Switzerland  
T. +41 (0)21 694 16 00  
E. [info@electromag.ch](mailto:info@electromag.ch)  
[www.electromag.ch](http://www.electromag.ch)

