Medtronic

Effective protection. Effective humidification.

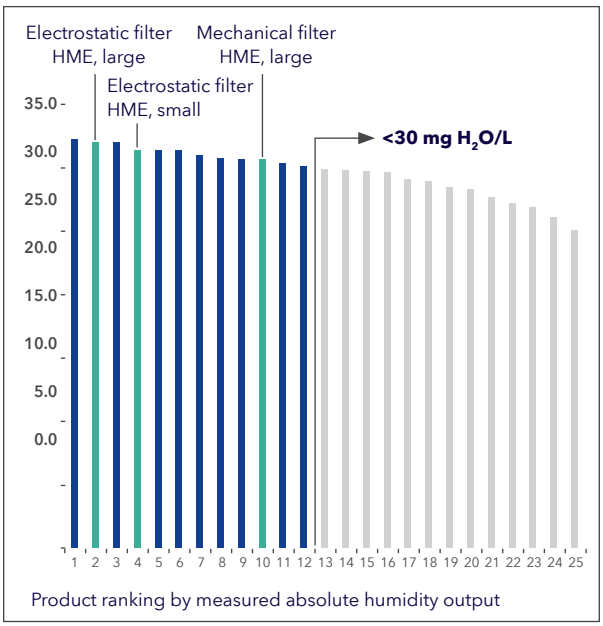
DAR™ filter HMEs reach peak performance.

The greatest defense against pathogen harm is to prevent it from happening in the first place. DAR™ filter heat and moisture exchangers (HMEs) ensure effective airway humidification in patients to lower the incidence of infections.

The DAR™ filter HME first captures heat and water vapor from a patient's exhaled air. It then adds that heat and moisture to the patient's inspired air to provide optimal humidification.

That process delivers an advanced level of humidification performance. Three DAR™ filter HMEs ranked among the top 10 for humidity output[1] in a recently published study of 48 filters and HMEs.

Measured absolute humidity in independent published testing



Product ranking by measured absolute humidity output

Source: Lellouche et al[1]

Mechanical filter HME, large

Electrostatic filter HME, large

Electrostatic filter HME, small

Electrostatic filter HME, small, angled port

Pediatric electrostatic filter HME, small

Infant-pediatric electrostatic filter, small

ELECTROSTATIC FILTER HMEs

	Large	Small	Small, Angled Port	Pediatric	Infant-Pediatric
Catalog number	352U5805	352U5877	352U5996	355U5430	355U5427
Quantity/box	50	50	50	50	50
Recommended tidal volume	300-1500 mL	150-1200 mL	150-1200 mL	75-300 mL	30-100 mL
Moisture output					
Vt 50 mL	---	---	---	---	28 mg H_2O/L[2]
Vt 250 mL	33.9 mg H_2O/L[2]	34.4 mg H_2O/L[4]	34.4 mg H_2O/L[4]	31 mg H_2O/L[2]	---
Vt 500 mL	33.3 mg H_2O/L[2]	33.6 mg H_2O/L[2]	33.6 mg H_2O/L[2]	---	---
Vt 1000 mL	32.4 mg H_2O/L[2]	32.9 mg H_2O/L[4]	32.9 mg H_2O/L[4]	---	---
Moisture loss*	6 mg H_2O/L at Vt 500 mL	6 mg H_2O/L at Vt 500 mL[4]	6 mg H_2O/L at Vt 500 mL	6 mg H_2O/L at Vt 75 mL	NA
Resistance to flow before use (ISO 9360)					
5 L/min	---	---	---	---	0.6 cm H_2O
15 L/min	---	---	---	1.4 cm H_2O	2.5 cm H_2O
30 L/min	1.0 cm H_2O	1.2 cm H_2O	1.2 cm H_2O	3.0 cm H_2O	---
60 L/min	2.1 cm H_2O	2.8 cm H_2O	2.9 cm H_2O	---	---
90 L/min	3.7 cm H_2O	4.8 cm H_2O	5.2 cm H_2O	---	---
Filtration efficiency					
Bacterial	>99.9999%	>99.9998%	>99.9998%	>99.999%	>99.999%
Viral	>99.998%	>99.999%	>99.999%	>99.99%	>99.99%
NaCl3	>99.623%	>98.352%[6]	>98.352%[6]	>96.263%	>94.186%
Internal volume	93 mL	51 mL	61 mL	29 mL	10 mL
Weight (approx.)	48 g	28 g	29 g	21 g	9 g
Type of filtration	Electrostatic	Electrostatic	Electrostatic	Electrostatic	Electrostatic

DAR™ filter HMEs have been tested against microbes as small as 0.02 µ.

MECHANICAL FILTER HMEs

	Large
Catalog number	354U5876
Quantity/box	50
Recommended tidal volume	300-1500 mL
Moisture output	
Vt 50 mL	---
Vt 250 mL	34.7 mg H_2O/L[5]
Vt 500 mL	34.1 mg H_2O/L[2]
Vt 1000 mL	33.4 mg H_2O/L[5]
Moisture loss*	5 mg H_2O/L at Vt 500 mL[5]
Resistance to flow before use (ISO 9360)	
5 L/min	---
15 L/min	---
30 L/min	1.1 cm H_2O
60 L/min	2.5 cm H_2O
90 L/min	4.2 cm H_2O
Filtration efficiency	
Bacterial	≥99.9999%
Viral	≥99.9999%
NaCl[4]	≥99.764%
Internal volume	96 mL
Weight (approx.)	49 g
Type of filtration	Mechanical

DAR™ filter HMEs have been tested against microbes as small as 0.02 µ.

*Internal testing Mirandola (various 2005-2008).

1. Lellouche F, Taillé S, Lefrançois F, et al. Humidification performance of 48 passive airway humidifiers: comparison with manufacturer data. *Chest.* 2009;135(2):276-286.
2. MHRA. Evaluation no. 04005: Breathing system filters, an assessment of 104 breathing system filters. March 2004.
3. Nelson Laboratories Inc. Sodium chloride aerosol testing of breathing system filters (BSF). Lab.No. 399951A.1 Amended. January 2008.
4. TIM, Technologie-Institut Medizin GmbH - Universitätsklinikum Göttingen, Germany. HME-Test Report 2008/22 DAR Hygrobac "S". July 2008.
5. TIM, Technologie-Institut Medizin GmbH - Universitätsklinikum Göttingen, Germany. HME-Test. Report 2009/04 DAR Hygroster. May 2009.
6. Nelson Laboratories Inc. Sodium chloride aerosol testing of breathing system filters (BSF). Lab.No. 717597. November 2013.

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