

RT020 – End Expiratory Filter

The RT020 filter is designed for use on the expiratory port of the ventilator

The filtration and performance characteristics of the RT020 End Expiratory Filter are identical to the RT019 Inspiratory and Expiratory Filter.

Integral to the performance of the filter is a ‘double-walled shell’. The purpose of the outer shell is to create an insulating air gap with the intent of reducing condensation of exhaled humid gas inside the filter. Less condensation means the RT020 Filter remains drier, maintaining filtration performance characteristics.

The RT020 End Expiratory Filter from Fisher & Paykel Healthcare is a single-patient-use filter compatible with 22 mm connecting circuits (ISO 53564).

RT020 expiratory application

When used as an expiratory filter the RT020 is designed to prevent contamination of the ventilator and surrounding environment.

Aerosols from nebulisers, as well as airborne bacteria and viruses from the patient in the exhaled gas, are retained by the electrostatic filter media. The RT020 aims to keep the ventilator clear of contamination from pathogens, and increase protection of ventilator flow sensors from debris to preserve flow sensor accuracy.

Features

- Insulated housing, intended to reduce condensate
- Electrostatic depth media with a low-pressure drop
- Hydrophobic (water-repelling) media
- Available in boxes of 20 units
- Complies with BS EN ISO 23328-1:2008 (Breathing system filters for anesthetic and respiratory use)



The RT020 End Expiratory Filter has a dual-wall intended to insulate the gas and reduce condensate accumulation when using heated wire circuits

RT020 filter specifications	
Connections:	ISO 5356-1, conical connectors
Compliance:	0.13 mL /cmH ₂ O
Compressible volume:	38 mL
Resistance to flow @ 45 L/min:	1.08 cmH ₂ O
Filtration efficiency:	
Viral:	Greater than 99.99% ¹
Bacterial:	Greater than 99.9997% ¹
NaCl:	98.05% ²

1. Filter challenge tests were conducted independently by Nelson Laboratories (USA). Challenge organisms used were:

- Bacterial challenge: *Bacillus subtilis* (size: 5-8 microns by 1.0-1.5 microns).
- Viral challenge: *ΦX174 bacteriophage* (size 0.025-0.027 microns).

Challenge tests involved comparing the number of pathogens upstream of the filter to downstream. The pathogen was aerosolised, the aerosol sizes were 3.1 microns for bacterial and 2.9 microns for viral.

2. NaCl test is the BS EN ISO 23328-1:2008 salt challenge test. The filter was conditioned with heated and humidified gas for 25 hours, placed in the end-expiratory position and used in conjunction with a F&P Evaqua™ 2 circuit.

