

Anesthesia breathing circuits

The science of anesthesia breathing circuits

The evidence based guidelines shows that anesthesia breathing circuit components can help reduce infection, prevent cross contamination between patients and maintain normothermia.¹⁻⁹



Why use - Gas Sampling Lines?

 ASA Standards For Basic Anesthetic Monitoring states "continual monitoring for the presence of expired carbon dioxide should be performed" and "quantitative monitoring of the volume of expired gas is strongly encouraged."¹



- HMEF is passive humidification with bacterial/viral filtration efficiency
 - Gases emerging from anesthesia machine are dry and room temperature (cold)
 - Tracheal intubation or use of laryngeal mask airway bypasses upper airway modifying pattern of heat and moisture exchange, lungs need 37° & 100% relative humidity²
 - Cilia can stop beating with impaired mucocilliary function³ includes sputum retention & increased risk of infection
 - o Warmed humidified air is better than cold, dry gases even in short cases⁴



Why use Bacterial Viral Filters (B/V)?

- If used on both the inspiratory and expiratory limb,
 eliminates risk of switching the filtration limb at machine
- Expert committees recommend the use of filters for control/prevention of infection^{5,6,7}



- 95% of patient circuits are contaminated8
- 47% of internal gas benches are contaminated9



Our anesthesia breathing circuits formulary supports the stated evidence based best practices.

AFNX2044	Anesthesia Circuit, Adult, 72 in Limbo Tubing, 3L Bag, Gas with Luer Cap elbow, 5708 HEPA/HCH Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
AFNX20XZP	Anesthesia Circuit, Adult, 72 in Limbo Tubing, 3L Bag, Gas with Luer Cap elbow, HMEF 750/S Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
AMN520X4	Anesthesia Circuit, Adult, 72 in Limbo Tubing, 3L Bag, Gas with Luer Cap elbow, B/V Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
AFNX8X04	Anesthesia Circuit, Adult, 72 in Limbo Tubing, 2L Bag, Gas with Luer Cap elbow, 5708 HCH Filter, 10 feet M/M gas sampling line, disposable
AFN58XX4	Anesthesia Circuit, Adult, 72 in Limbo Tubing, 2L Bag, Gas with Luer Cap elbow, B/V Filter, 10 feet M/M gas sampling line, disposable
Adult Dual Lir	nb
A4UX2044	Anesthesia Circuit, Adult, 108 in Expandable Tubing, 3L Bag, Parallel plain Wye, Gas with Luer Cap elbow, 5708 HEPA/HCH Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
A4UX20XZD	Anesthesia Circuit, Adult, 108 in Expandable Tubing, 3L Bag, Parallel plain Wye, Gas with Luer Cap elbow, HMEF 750 Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
A5U510X4	Anesthesia Circuit, Adult, 108 in Expandable Tubing, 3L Bag, Parallel gas Wye, Gas with Luer Cap elbow B/V Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
A8U529X4	Anesthesia Circuit, Adult, 108 in Expandable Tubing, 3L Bag, Swivel Gas Wye, gas with Luer Cap elbow, B/V Filter, Flexible 5-Adult Mask, 10 feet M/M gas sampling line, disposable
A4UXXXXX	Anesthesia Circuit, Adult, 108 in Expandable Tubing, Parallel plain Wye, Gas with Luer Cap elbow, disposable
Pediatric Sing	le Limb
AFN5QXX4	Anesthesia Circuit, Pediatric, 72 in Limbo Tubing, 1L Bag, Gas with Luer Cap elbow, B/V Filter, 10 feet M/M gas sampling line, disposable
Pediatric Dua	l Limb
B17X7XV4	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, 2L Bag, Plain Wye, Gas with Luer Cap elbow, HMEF Mini Filter, 10 feet M/M gas sampling line, disposable
B1557XX4	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, 2L Bag, Plain Wye, Gas with Luer Cap elbow, B/V Filter, 10 feet M/M gas sampling line, disposable
B17X4X1Z	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, 1L Bag, Plain Wye, Gas with Luer Cap elbow, 5701 HCH Filter, 10 feet M/M gas sampling line, disposable
B1554XX4	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, 1L Bag, Plain Wye, Gas with Luer Cap elbow, B/Filter, 10 feet M/M gas sampling line, disposable
B17XXX84	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, Plain Wye, Gas with Luer Cap elbow, HMEF Mini Filter, 10 feet M/M gas sampling line, disposable
B175XXX4	Anesthesia Circuit, Pediatric, 108 in Expandable Tubing, Plain Wye, Gas with Luer Cap elbow, B/V Filter, 10 feet M/M gas sampling line, disposable



REFERENCES

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- 8 Malecka-Griggs & Reinardt: "Direct dilution sampling, quantitation, and microbial assessment of open-system ventilation circuits in intensive care units." J Clin Microbiol. 1983 May; 17(5): 870-877
- 9 GMS Krankenhaushygiene Interdisziplinar: "Bacterial contamination of anaesthesia machines internal circuits." Verina Spertini, Livia Borsoi, Ojan Assadian. 2011 Dec 15th; PMC3252669

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