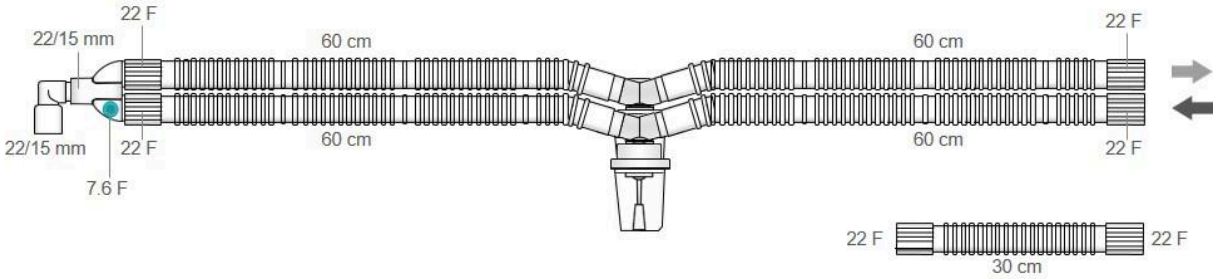
VENTOFLUSS (™)

Generic name: Ventilator circuit / Breathing circuit - gas sampling/ monitoring set
Brand name: VENTOFLUSS (™)
Product code: SCMVEC
Product Mfg Ref code: SM-VC



A VENTOFLUSS (™) is the system of tubing and specialized components that connects a mechanical ventilator to a patient's artificial airway (endotracheal or tracheostomy tube). It functions as a closed pneumatic loop to deliver controlled oxygen/air mixtures and remove exhaled carbon dioxide.

Available Configurations

Model Name / No	Technical specifications
VENTOFLUSS (™) (Double-tube, Plain)	Standard non-expandable corrugated tubing; no water trap included.
VENTOFLUSS (™) (Double-tube, Double water trap)	Integrated dual water traps with non-expandable corrugated tubing.
VENTOFLUSS (™) (Double-tube expandable)	Expandable corrugated tubing design; no water trap included.
VENTOFLUSS (™) (Single-tube double lumen 1.8)	single-tube "double lumen" breathing circuiti- 1.8 mts
VENTOFLUSS (™) (Single-tube double lumen 2.7)	single-tube "double lumen" breathing circuit - 2.7 mts

VENTOFLUSS (™) is indicated for providing mechanical ventilation to patients with compromised respiratory function. It is used in cases of acute respiratory failure, such as ARDS or severe pneumonia, and for chronic conditions like COPD and neuromuscular disorders. VENTOFLUSS (™) is essential in preoperative / intraoperative / postoperative care, ensuring adequate ventilation, particularly those involving general anesthesia or the thoracic/abdominal regions. It is also vital in emergency situations, including respiratory arrest or severe asthma exacerbations. Additionally,VENTOFLUSS (™) aids in the weaning process, helping patients transition off mechanical ventilation as their condition improves. Its design allows for precise control and monitoring of ventilation, making it suitable for both adult and pediatric patients.

Dual Tube Circuit

- Standard Dimensions

Components follow international standards (ISO 5356-1) to ensure universal compatibility

Tubing Internal Diameter (ID):

- Adults: 22 mm (standard for minimizing resistance).
- Pediatric: 15 mm (reduced volume for smaller tidal breaths).

Universal Connectors:

- Ventilator/Circuit ports: 22 mm male/female conical fittings.
- Patient Interface: 15 mm female connector (standard for all ET tubes).

Circuit Length: 170 cm

- Core Components

  A typical dual-limb circuit consists of:
  - Circuit Tubing: Corrugated plastic (22mm for adults) designed for flexibility and to prevent kinking.
  - Inspiratory Limb: Delivers gas from the ventilator
  - Expiratory Limb: Returns exhaled gas to the ventilator's exhalation valve.
  - Y-Piece: The junction where both limbs meet to connect to the patient.
  - Filters: Bacterial/viral filters placed at the expiratory port to protect the environment and equipment.
  - Water trap (or condensate trap) is a specialized reservoir designed to collect and isolate excess moisture within a breathing circuit.
    - Benefits - prevents
      - Aspiration into the lungs, causing infection or injury.
      - Avoid Block- airflow, which can lead to breathing difficulty or high-pressure alarms.
      - Avoid - Damage of the ventilator, by corroding internal sensors and valves.

- Pre-Use Setup
    - Inspect: Check the circuit for cracks, missing gaskets, or debris.
    - Ensure the water trap is tightly screwed onto the collection port.
    - Regarding water trap
    - Placement: Position the water trap at the lowest vertical point of the circuit (between the ventilator and the patient).
    - Orientation: Ensure the trap is hanging upright.
- Connection & Testing
    - Standard Fittings: Connect the 22mm limb ports to the ventilator and the 15mm Y-piece to the patient interface.
    - Leak Test: Always perform a "Circuit Test" or "Short Test" confirming the water trap seals are airtight and measures circuit compliance.
- Water trap Maintenance During Ventilation
    - Monitor Levels: Check the trap every 2–4 hours. Do not allow it to fill more than half-full.
    - Emptying (Manual):
        - Briefly disconnect the trap chamber from the circuit.
        - Discard the fluid according to hospital biohazard protocols.
        - Crucial: Reattach the chamber immediately.
            - If the circuit is "open" during this time, the patient will lose PEEP (Positive End-Expiratory Pressure).
- Safety Precautions
    - Never Drain Back: Never tilt a water trap to pour condensation back into the humidifier or toward the patient.
    - Alarms: If you hear a "gurgling" sound, check for water in the tubing or a full trap.
    - Replacement: Change the entire circuit if it becomes visibly soiled or according to your facility's infection control policy (often every 7–30 days, or only "as needed").
- Cleaning & Disinfection

  Adhere to the following standardized protocols for cleaning and disinfection:
    - Disassembly: Take apart all components, including the water trap base and connectors.
    - Washing: Soak parts in hot, soapy water (using unscented, non-antibacterial dish soap) for 10–15 minutes.
    - Rinsing: Thoroughly rinse both the inside and outside of the tubes to remove all soap residue.
    - Drying: Hang the tubing or lay it on a clean towel to air dry completely before reassembly.

- Inspection: Visually check for any cracks, holes, or signs of wear; replace any damaged parts immediately.
- Replacement Schedule Filters:
  - Expiratory and inspiratory filters should be replaced every 48 hours or if resistance increases significantly.
  - HME/HMEF: Change every 1–3 days or sooner if it becomes clogged with secretions

Single Tube Double Lumen Anesthesia Breathing Circuit

Single-tube "double lumen" breathing circuit used to administer medical gases during anesthesia. It is designed to be more efficient than traditional two-limb systems.

- Benefits:
  - Thermal Efficiency: It transfers heat from exhaled air to inhaled air, helping maintain the patient's body temperature during surgery.
  - Reduced Weight: It weighs up to 34% less than traditional circuits, reducing the pull (torque) on the patient's breathing tube.
  - Versatility: It can be used for both pediatric and adult patients
- Technical Specifications
  - Design: A "double lumen" single tube divided by a flexible smooth septum.
  - Weight: Approximately 34% lighter than coaxial circle circuits and 25% lighter than traditional circle circuits.
  - Compliance: Low compliance , which improves the accuracy of delivered tidal volumes.
  - Thermal Efficiency: Increases inspired gas temperature by at least
  - within the first 15 minutes at a 4 L/min flow rate by transferring heat from exhaled air.
  - Compatibility: Designed for use with standard anesthesia machines for both adult and pediatric patients.
- Setup & Instructions for Use

Before use, healthcare providers should verify the circuit is approved by relevant authorities.

- Inspection: Check that the unit packaging is intact and the device is within its expiry date (though many are listed as having no specific "use-by" date if non-sterile).
- Connection:
  - Attach the machine-end connectors to the inspiratory and expiratory ports of the anesthesia workstation using a twisting motion to ensure a leak-free fit.

    - Connect the patient-end (often a T-handle or Y-piece) to the face mask,SICHAIR, or endotracheal tube.
- Pre-use Testing:
    - Perform a standard leak test as specified by the anesthesia workstation manufacturer.
    - Ensure all ports (gas sampling, pressure, temperature) are closed if not in use.
- Disposal: These are single-patient-use items and must be disposed of as biohazardous waste according to local regulations after the procedure.

Safety Considerations

- Integrity Check: Always confirm the integrity of the internal septum to prevent rebreathing.
- Occlusion Risk: Ensure the sampling line or filters do not cause accidental airway occlusion.
- Monitoring: Use integrated gas sampling lines (IGS) where available to monitor low respiratory output patients more accurately.