



Volume Guarantee Mode

Flight 60 advanced pressure control
ventilation



Volume Guarantee

Background

Volume Guarantee ventilation is a dual control mode of ventilation. It combines the two basic ventilation controls (Volume Control and Pressure Control). When using the Volume Guarantee mode the patient is delivered with a pre-set volume of gas even though it is pressure control ventilated. The Flight 60 will look to ventilate the patient at the lowest pressure possible while guarantying a set volume of gas to reach into the patient's lungs.

Some examples of Volume Guarantee ventilation are PRVC, Auto-Flow, Adaptive Pressure Ventilation, and VTPC.

Pressure Control – pros and cons

Pressure Control Ventilation has a preset pressure limit, and volumes delivered are variable depending on the patient's airways and lungs resistance and compliance. As the patient's compliance and/or resistance changes, the pressure is constant, but the volumes will vary. One of the main advantages of using this mode is that the airway and lungs pressure is limited regardless of the change in the patient's resistance and compliance. It prevents lung damage or over distention of the alveoli. The disadvantage is that as the lungs change so does the tidal volume. Therefore, possibly under ventilating the patient

Volume Control – pros and cons

Volume Control Ventilation uses a preset tidal volume with variant pressure. As the patient's resistance and compliance changes, the volume of gas remains constant regardless of the pressure used to maintain this volume. The advantage of using this mode is that the delivery of a preset volume on every mechanical breath is assured, but pressure is variable with the potential of increasing to a level that which may possibly damage the alveoli because of increased pressures.

Volume Guarantee – "the best of both"

Volume Guarantee is pressure control ventilation with a guaranteed volume delivered to the patient. A targeted tidal volume or minute volume is set by the operator and the Flight 60 will deliver pressure control ventilation in which pressure will increase or decrease by 1 to 2 cmH₂O at a time to maintain the preset tidal or minute volume. The Flight 60 will use the lowest possible pressure to deliver the guaranteed tidal or minute volume. If the tidal or minute volume was not reached due to changing lung compliance or resistance, then the inspiratory pressure is increased on the next breath. If the preset tidal or minute volume is exceeded, then the Flight 60 decreases the inspiratory pressure to deliver the guaranteed tidal volume. The patient is monitored breath by breath guaranteeing the gas volume delivered within the limits of a minimum and maximum pressure limits under pressure control ventilation.

Flight 60 Volume Guarantee (VG) – controls and settings

Two volume targets are available in VG ventilation:

- **VtG** – Tidal Volume Guarantee
- **MVG** – Minute Volume Guarantee

VtG (Tidal Volume Guarantee)

In VtG mode, the target volume is reached by controlling the pressure support applied to the patient based on three parameter settings:

- **Target VtG** – The target tidal volume.
- **PSV min** – The minimum pressure allowed by the operator.
- **PSV max** – The maximum pressure allowed by the operator.

MVG (Minute Volume Guarantee)

In MVG mode, when the patient fails to trigger a breath within the interval determined by the Rate control, the ventilator triggers a mandatory breath with a set Ti. The Rate, in combination with the Target VtG setting, determines the minimum delivered minute volume.

The following parameter settings are required for MVG mode:

- **Target VtG** – The target tidal volume.
- **PSV min** – The minimum pressure allowed by the operator.

- **PSV max** – The maximum pressure allowed by the operator.
- **Rate** – The minimum rate (determines the interval).

Setting the VG Sub mode:

1. On the ventilator front panel, press the Extended button.
2. Tap the VG mode control button.
The control button turns orange, and a pop-up list displays the three options: OFF, VtG and MVG.
3. To activate the VG sub mode, tap the control button to select **VtG or MVG**; to deactivate tap the control button to select **OFF**.
4. Press the OK (Enter) button to confirm your selection.
Your selection is displayed on the control button.

