

Option Variable Pressure Support (PS)

Infinity® Acute Care System™ – Evita Infinity® V500:

By generating random changes in inspiratory pressure, the new Variable PS option mimics the subtle variability of normal breathing. Initial studies have shown that this gentle variation can help improve pulmonary function and reduce the risk of ventilator-associated lung injury (VALI)¹.



THE CONCEPT OF STOCHASTIC RESONANCE

Biological systems such as the human respiratory system are characterized by subtle variation. During spontaneous breathing, no two breaths result in the same tidal volume. Scientific evidence suggests that this variation serves to improve the function of biological systems in a number of ways¹. This phenomenon is known as stochastic. In conventional volume controlled mechanical ventilation, delivered tidal volumes typically remain essentially unchanged between breaths. Depending on the particular ventilation mode, this type of ventilation leaves little or no room for the kind of natural variation inherent in living systems. There are many situations during pressure support ventilation where tidal volumes do not vary significantly. While ventilation modes such as PC-SIMV represent initial efforts to

address this issue, a ventilation concept is needed which can further increase the amount of possible variation and provide the clinician with more control over its use. By adding “noise” to the system in a controlled fashion, clinicians can put the phenomenon of stochastic resonance to use for their patients¹.

INTRODUCING VARIABLE PRESSURE SUPPORT VENTILATION

The Variable PS option generates random variation values in pressure support levels and then applies those values to the pressure support delivered to the patient. Regardless of the patient’s spontaneous breathing effort, Variable PS increases tidal volume variation. The option can be used in conjunction with Automatic Tube Compensation™ (ATC) and apnea ventilation.



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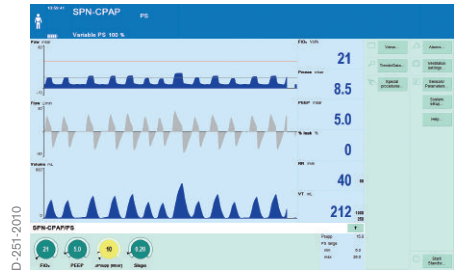
Dräger Evita Infinity® V500

ENCOURAGING INITIAL RESULTS

Initial models have demonstrated that a variable pressure support regime can lead to improved oxygenation and ventilation/perfusion matching¹⁾. Variable PS does this without increasing mean airway pressure, and is therefore in line with modern protective ventilation strategies.

ADJUSTABLE VARIATION FROM 0-100%

The amount of variation desired can be adjusted from 0 to 100%. The maximum possible variation is limited by the set Paw high alarm threshold. If the variation level is set 100%, the maximum possible pressure is the PS-level + 100%. The minimum possible pressure is limited to the set CPAP level. Variable PS does not lead to increased mean airway pressure. Resultant mean values for inspiratory and expiratory tidal volumes are displayed.



¹⁾ Effects of Different Levels of Pressure Support Variability in Experimental Lung Injury; Spiet P M, et al; Anesthesiology 2009; 110:342–50

TECHNICAL DATA

Supplement for	SPN-CPAP/PS (in invasive mode only)
Adjustable	0-100%
Patient range	Adults and pediatrics

ORDER INFORMATION

Option Variable PS (factory installed)	8416400
Option Variable PS (retrofit kit)	8416200

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 according to ISO 13485, ISO 9001
 and Annex II.3 of Directive 93/42/EEC
 (Medical devices).