

Revised and
2nd
Extended Edition



Understanding and comparing modes of ventilation

12.02.2016

Volume-Controlled Ventilation Modes

- VCV
- PLV
- VC-SIMV
- Optional VCV
- Flexible VCV

Pressure-Controlled Ventilation Modes

- PCV
- BiLevel
- BiLevel ST
- Mandatory BiLevel
- PC-SIMV
- PC-APRV
- Optional BiLevel

Spontaneous Ventilation Modes

- CPAP
- PSV
- Dynamic PSV
- Proportional PSV
- HFOT

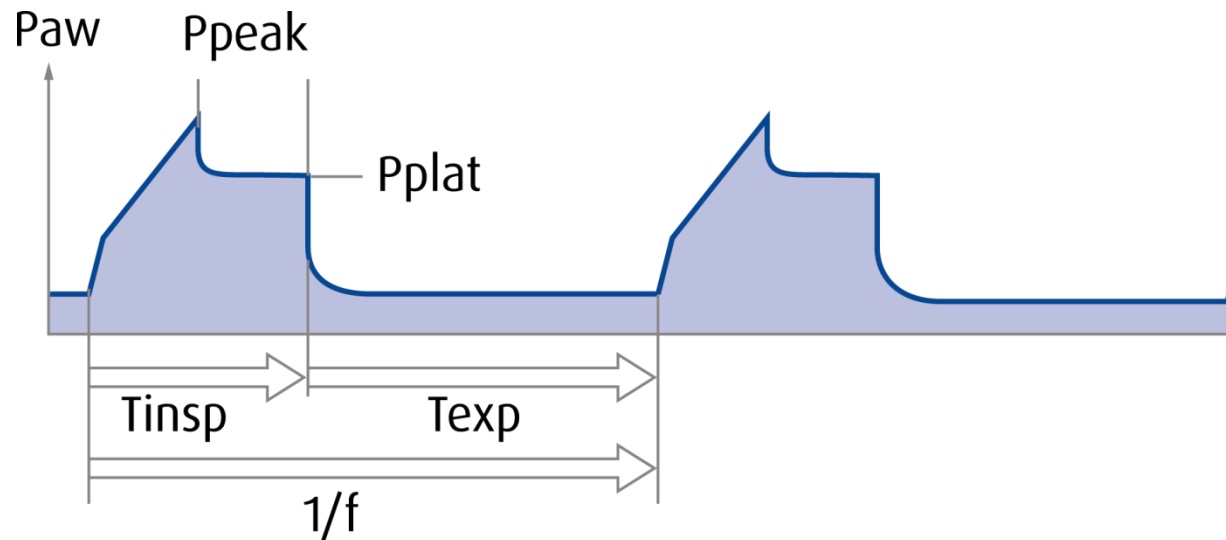
Hybrid Ventilation Modes

- Dynamic BiLevel
- Dual BiLevel
- Flexible BiLevel
- Volume adaptive BiLevel
- Dynamic BiLevel ST
- Dual BiLevel ST

Closed-Loop Ventilation Modes

- (IntelliVent) ASV
- SmartCare
- Automode

VCV: Volume-Controlled Ventilation



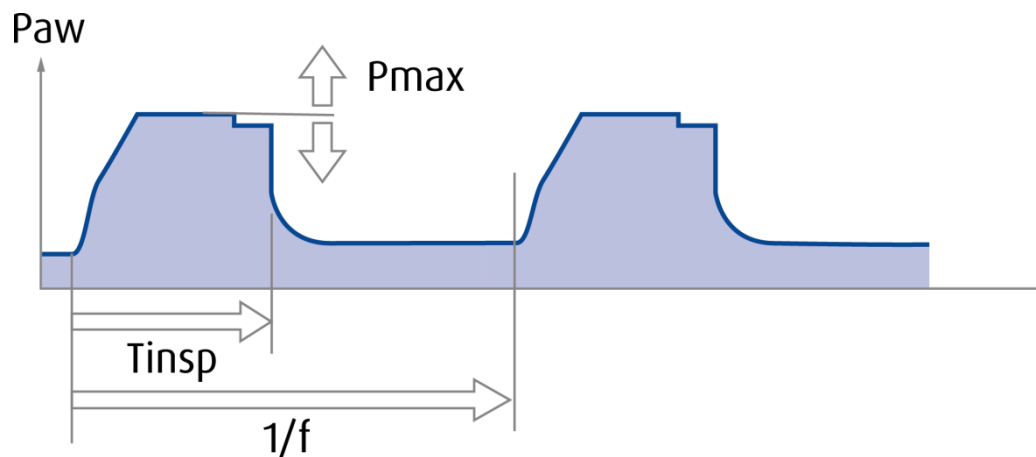
Conventional time-cycled and volume-controlled ventilation.

Each breath delivers a pre-set tidal volume (volume control). The desired CO₂ removal is achieved via a fixed minute volume (tidal volume x respiratory rate).

VCV: Volume-Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|---|----------------|
| Air Liquide | Volume-controlled ventilation | VCV |
| Bennett | Assisted/Controlled; Volume Control | A/C : VC |
| Dräger: Evita 4 Dräger: XL | Intermittent Positive Pressure Ventilation | IPPV, IPPV ass |
| Dräger: Evita V500 Dräger: Evita V300 | Volume Control - Continuous Mandatory Ventilation | VC-CMV |
| GE | Volume-Controlled Ventilation | VCV |
| Hamilton: G5 / S1 | Continuous Mandatory Ventilation Continuous Mechanical Ventilation | CMV |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Volume Control | VC |
| Mindray | Volume-assist/control ventilation mode | V-A/C |
| Phillips | Assist/Control, Volume-Controlled Ventilation; assisted/controlled volume-controlled ventilation | A/C-VCV |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Volume Controlled Ventilation | VCV |

PLV: Pressure-Limited Ventilation

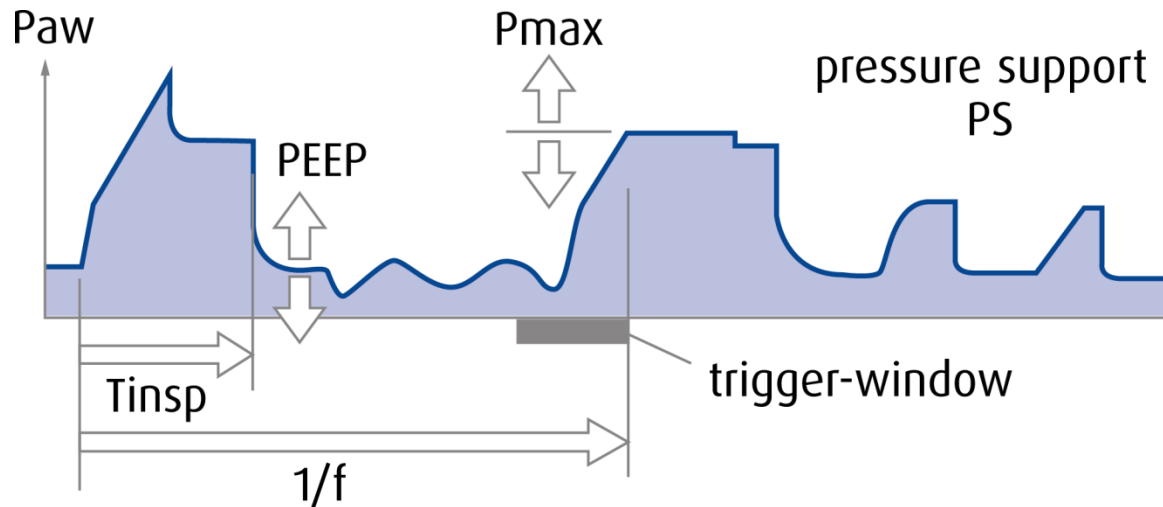


PLV is a specific variant of the conventional, volume-controlled ventilation mode VCV that uses a pressure limit P_{max} .

PLV: Pressure-Limited Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|---|------------------------------|
| Air Liquide | Volume-controlled ventilation | VCV (flow-pattern) |
| Bennett | Assisted/Controlled Volume control (descending ramp) | A/C : VC |
| Dräger: Evita 4 Dräger: XL | Intermittent Positive Pressure Ventilation | IPPV, IPPV ass (Pmax) |
| Dräger: Evita V500 Dräger: Evita V300 | Volume Control - Continuous Mandatory Ventilation | VC-CMV (Pmax) |
| GE | Volume-Controlled Ventilation | VCV (Plimit) |
| Hamilton: G5 / S1 | Continuous Mandatory Ventilation Continuous Mechanical Ventilation | CMV (Flow Pattern) |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | Volume-assist/control ventilation mode | V-A/C (Plimit) |
| Phillips | Assist/Control, Volume-Controlled Ventilation; assisted/controlled volume-controlled ventilation | A/C-VCV (descending ramp) |
| Salvia / elisa | Volume Controlled Ventilation | VCV |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Pressure-Limited Ventilation | PLV |

VC-SIMV: Synchronized Volume-Controlled Ventilation

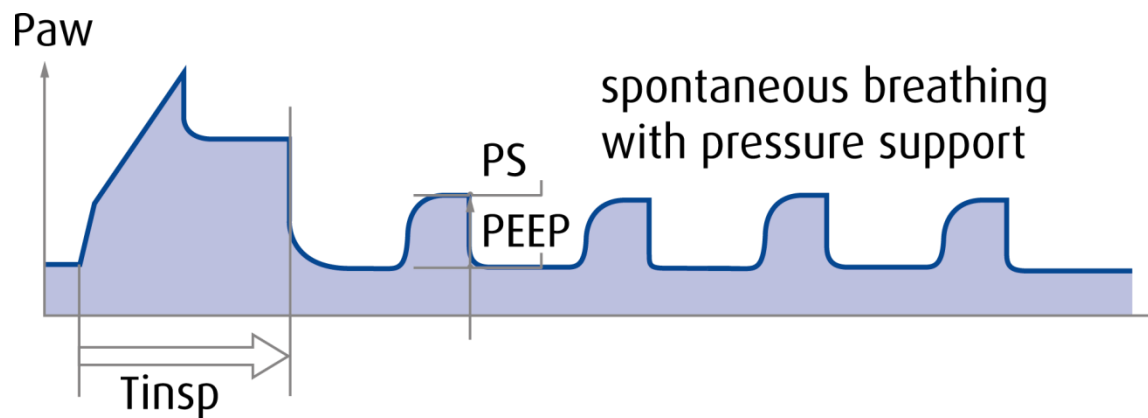


Combination of time-cycled, volume-controlled ventilation that allows spontaneous breathing. Mandatory breaths are delivered to stabilize oxygenation and reduce the work of breathing.

VC-SIMV: Synchronized Volume-Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | Synchronized Intermittent Mandatory Ventilation | SIMV |
| Bennett | Synchronized Intermittent Mandatory Ventilation | SIMV: VC |
| Dräger: Evita 4 Dräger: XL | Synchronized Intermittent Mandatory Ventilation | SIMV |
| Dräger: Evita V500 Dräger: Evita V300 | Volume Controlled - Synchronized Intermittent Mandatory Ventilation | VC-SIMV |
| GE | Synchronized Intermittent Mandatory Ventilation – volume controlled | SIMV-VC |
| Hamilton: G5 / S1 | Synchronized Intermittent Mandatory Ventilation | SIMV |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Synchronized Intermittent Mandatory Ventilation – volume controlled | SIMV-VC |
| Mindray | Volume-controlled SIMV ventilation | V-SIMV |
| Phillips | Synchronized Intermittent Mandatory Ventilation, Volume-Controlled Ventilation | SIMV-VCV |
| Salvia / elisa | Synchronized Intermittent Mandatory Ventilation - Volume-Controlled | SIMV-VC |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Volume-Controlled: Synchronized Intermittent Mandatory Ventilation | VC-SIMV |

Opt. VCV: Optional VCV / Optional Volume-Controlled Ventilation

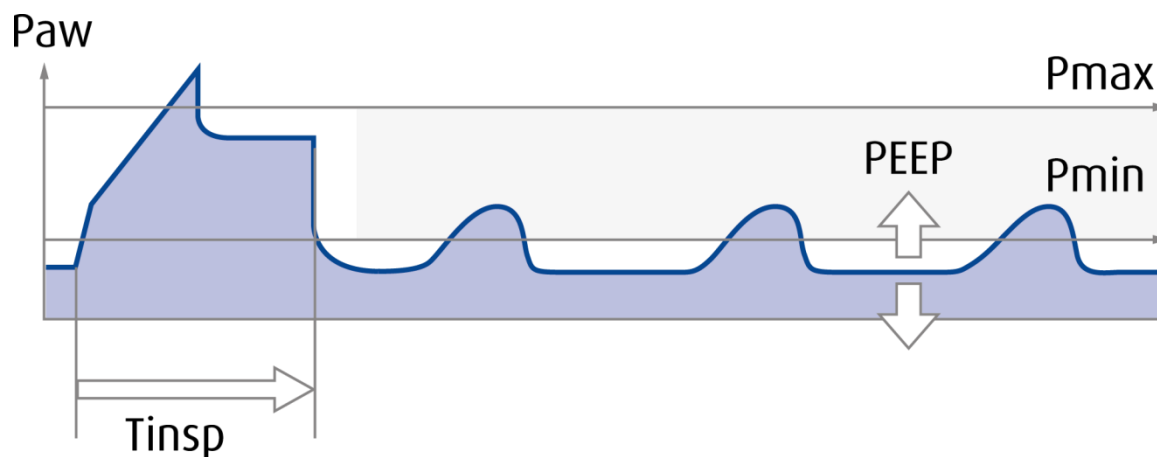


Optional volume-controlled ventilation with the mandatory minute volume ($f \times V_t$) as the control variable.

Opt. VCV: Optional VCV / Optional Volume-Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | Mandatory Minute Volume Ventilation | MMV |
| Dräger: Evita V500 Dräger: Evita V300 | Mandatory Minute Volume Ventilation (Volume control) | VC-MMV |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Optional Volume Controlled Ventilation | Opt. VCV |

Flex. VCV: Flexible VCV / Flexible Volume Controlled Ventilation

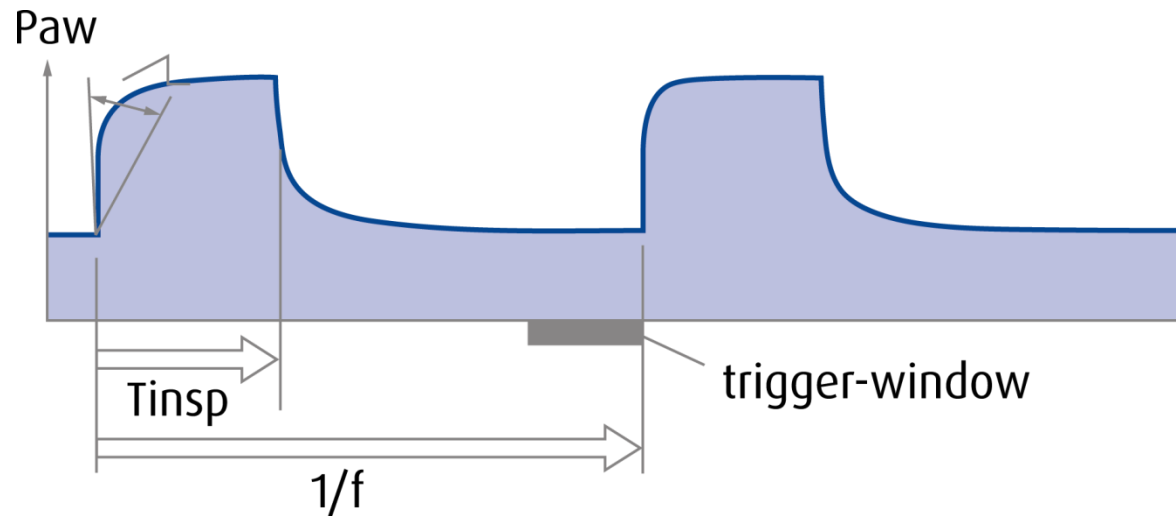


Flexible volume-controlled ventilation represents a technological advancement over optional VCV. Rather than using the set respiratory rate, this mode uses the set minimum minute volume ($f \times V_t$).

Flex. VCV: Flexible VCV / Flexible Volume Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|------------------|--------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Flexible VCV | Flex. VCV |

PCV: Pressure Controlled Ventilation

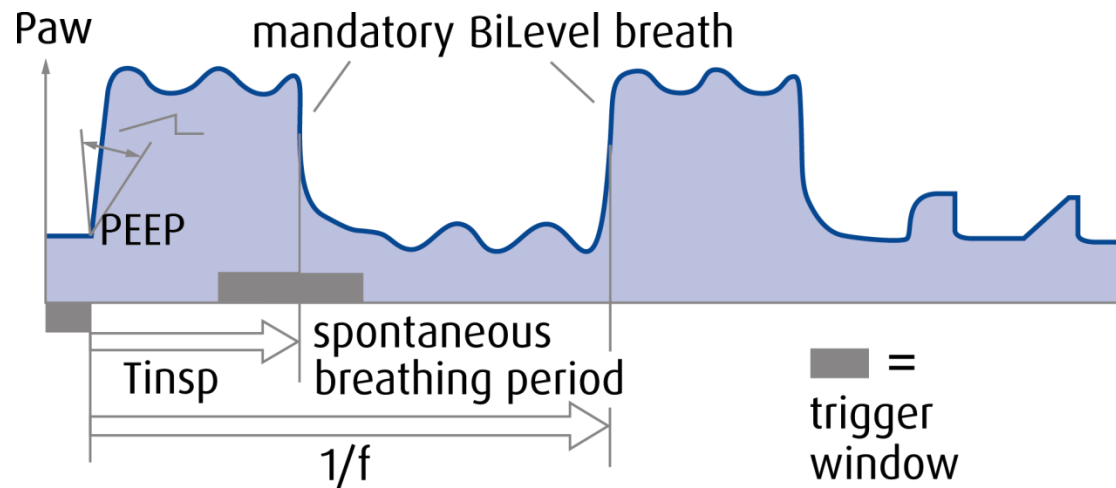


Conventional pressure-controlled ventilation. The patient's tidal volume is determined by setting upper and lower pressure levels, and is dependent upon overall pulmonary compliance.

PCV: Pressure Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|---|--------------|
| Air Liquide | Pressure-controlled ventilation | PCV |
| Bennett | Assisted/Controlled: Volume Control | A/C : PC |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Control - Continuous Mandatory Ventilation | PC-CMV |
| GE | Pressure Control Ventilation | PCV |
| Hamilton: G5 / S1 | Pressure Control Ventilation | PCV |
| Hamilton: T1 / C1-C3 | Pressure Control Ventilation | PCV |
| Maquet | Pressure Control | PC |
| Mindray | Pressure-assisted/controlled ventilation mode | P-A/C |
| Phillips | Assist/Control, Pressure-Controlled Ventilation | A/C-PCV |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Pressure Controlled Ventilation | PCV |

BiLevel: Pressure-controlled ventilation that allows spontaneous breathing at any time

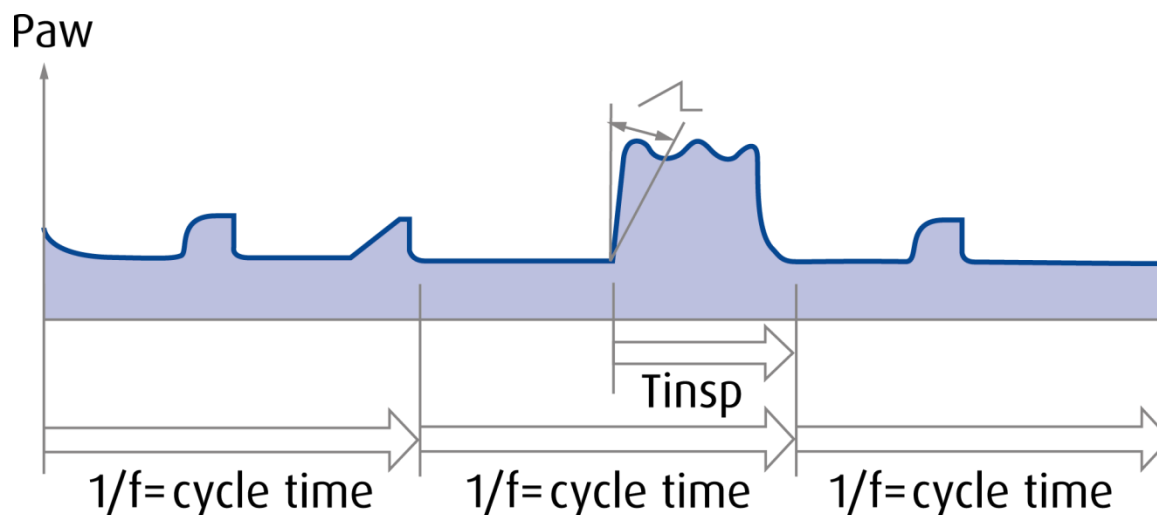


A combination of time-cycled and pressure-controlled ventilation that allows spontaneous breathing at both pressure levels. Usually delivered with pressure support for spontaneous breaths (PSV).

BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | Pressure-controlled ventilation | DUO-LEVELS |
| Bennett | BiLevel | BiLevel |
| Dräger: Evita 4 Dräger: XL | Biphasic Positive Airway Pressure | BIPAP |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Control - Biphasic Positive Airway Pressure | PC-BIPAP |
| GE | BiLevel | BiLevel |
| Hamilton: G5 / S1 | Duo Positive Airway Pressure | DuoPAP |
| Hamilton: T1 / C1-C3 | Duo Positive Airway Pressure | DuoPAP |
| Maquet | Pressure control mode that allows unrestricted spontaneous breathing | Bi Vent |
| Mindray | Ventilation with positive airway pressure at two levels | DuoLevel |
| Phillips | - | - |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | BiLevel | BiLevel |

BiLevel ST

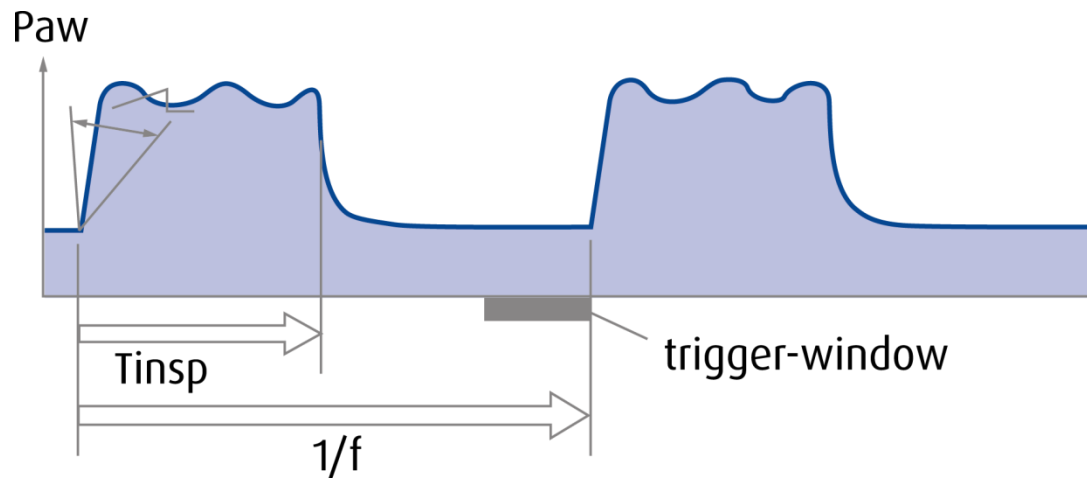


A technological advancement over conventional BiLevel ventilation. If the patient fails to breathe spontaneously during the cycle, the machine will initiate a conventional BiLevel breath at the end of the calculated cycle time.

BiLevel ST

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | spontaneous/timed non-invasive ventilation | NIV-ST |
| Hamilton: T1 / C1-C3 | spontaneous/timed non-invasive ventilation | NIV-ST |
| Maquet | Automode: PC <-> PS | Automode |
| Mindray | - | - |
| Phillips | Spontaneous/timed | S/T |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | BiLevel ST | BiLevel ST |

Mand. BiLevel: Mandatory BiLevel

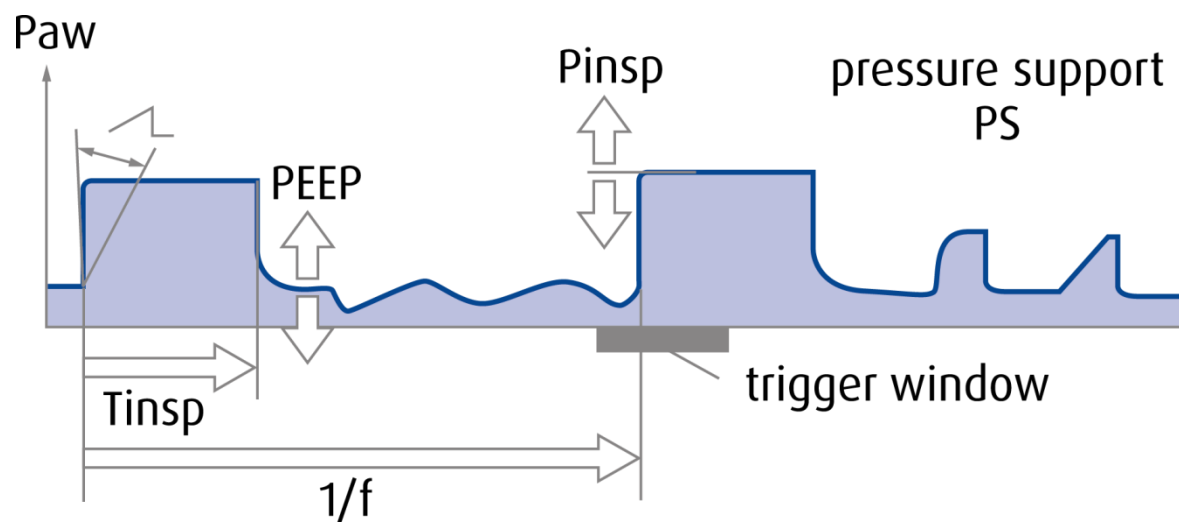


A technological advancement over conventional BiLevel ventilation. BiLevel breaths are time-cycled via the set respiratory rate, but can also be initiated via a trigger function.

Mand. BiLevel: Mandatory BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|--|-----------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | Biphasic Positive Airway Pressure Assisted | BIPAPassist |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Controlled - Continuous Mandatory Ventilation | PC-CMV PC-AC |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Mandatory BiLevel | Mand. BiLevel |

PC-SIMV: Synchronized Pressure-Controlled Ventilation

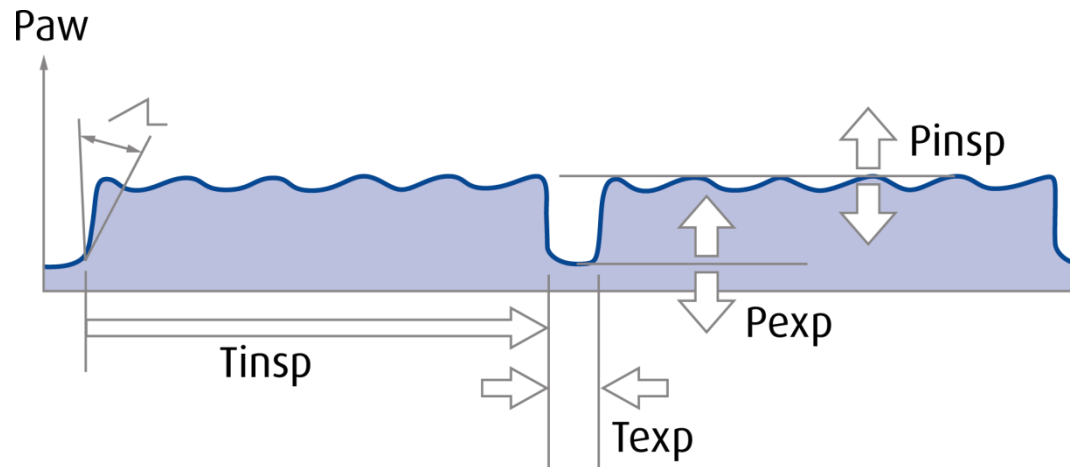


Combination of time-cycled, pressure-controlled ventilation that allows spontaneous breathing.

PC-SIMV: Synchronized Pressure-Controlled Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | Synchronized Intermittent Mandatory Pressure Monitored Ventilation | PSIMV |
| Bennett | Synchronized Intermittent Mandatory Ventilation | SIMV: PC |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Control - Synchronized Intermittent Mandatory Ventilation | PC-SIMV |
| GE | Synchronized Intermittent Mandatory Ventilation – Pressure Control | SIMV-PC |
| Hamilton: G5 / S1 | Pressure - Synchronized Intermittent Mandatory Ventilation | P-SIMV |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Synchronized Intermittent Mandatory Ventilation – Pressure Control | SIMV-PC |
| Mindray | Pressure-controlled SIMV ventilation | P-SIMV |
| Phillips | Synchronized Intermittent Mandatory Ventilation, Pressure-Controlled Ventilation | SIMV-PCV |
| Salvia / elisa | Pressure Controlled: Synchronized Intermittent Mandatory Ventilation | P-SIMV |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Pressure Control - Synchronized Intermittent Mandatory Ventilation | PC-SIMV |

PC-APRV: Pressure Control - Airway Pressure Release Ventilation

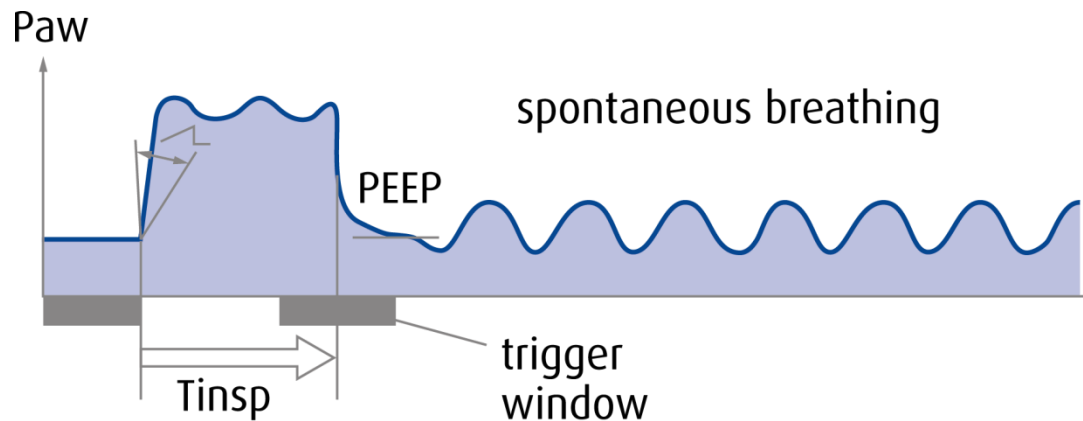


A modified BiLevel mode that allows spontaneous breathing to occur at the upper pressure level (IRV), which is usually maintained throughout a long inspiratory phase.

PC-APRV: Pressure Control - Airway Pressure Release Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|---|--------------|
| Air Liquide | - | - |
| Bennett | BiLevel with short release time | APRV |
| Dräger: Evita 4 Dräger: XL | Airway Pressure Release Ventilation | APRV |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Control - Airway Pressure Release Ventilation | PC-APRV |
| GE | Airway Pressure Release Ventilation | APRV |
| Hamilton: G5 / S1 | Airway Pressure Release Ventilation | APRV |
| Hamilton: T1 / C1-C3 | Airway Pressure Release Ventilation | APRV |
| Maquet | BiVent with short expiration time | BiVent-APRV |
| Mindray | Ventilation with regular, brief, intermittent releases in airway pressure | APRV |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Airway Pressure Release Ventilation | PC-APRV |

Opt. BiLevel: Optional BiLevel

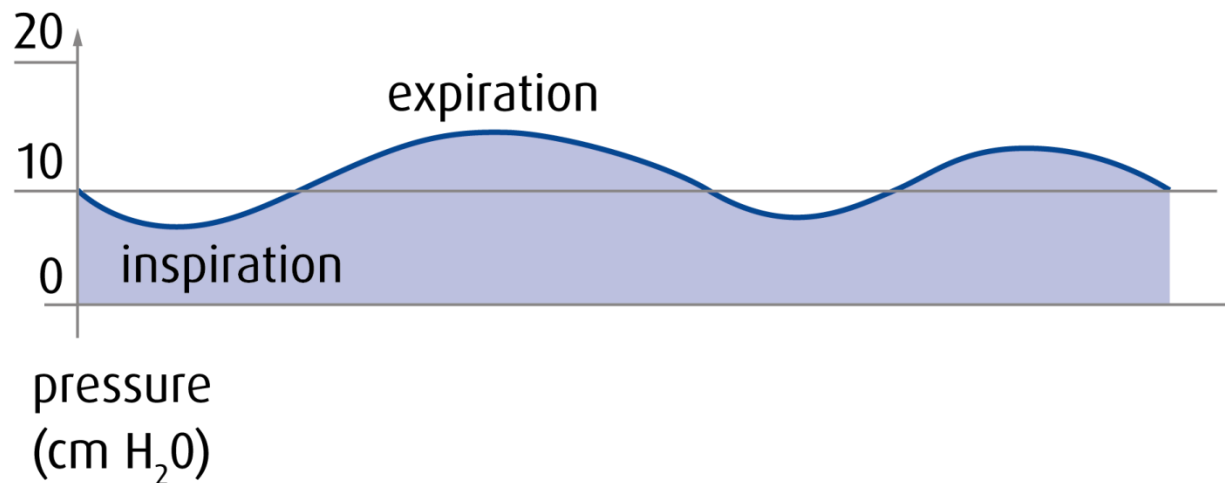


A technological advancement over conventional BiLevel ventilation. Rather than using the set respiratory rate, this mode uses the mandatory minute volume ($f \times V_t$) as the control variable.

Opt. BiLevel: Optional BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|---|--------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | Minimum Mandatory Ventilation | MMV |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Control: Minimum Mandatory Ventilation | PC-MMV |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Optional BiLevel | Opt. BiLevel |

CPAP: Continuous Positive Airway Pressure

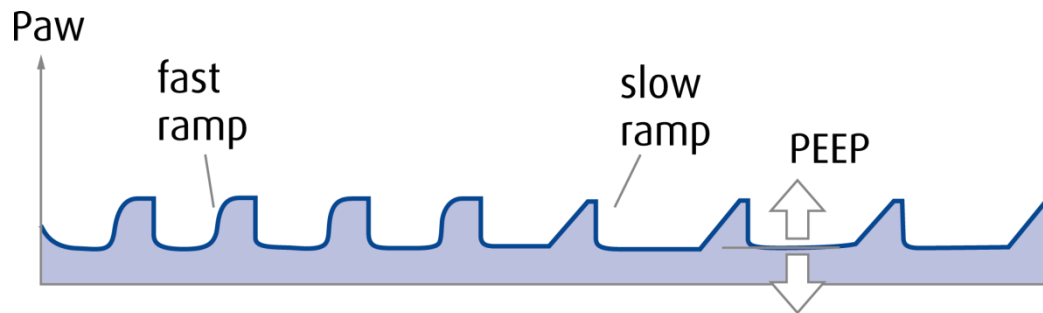


In spontaneous breathing modes, positive airway pressure is maintained throughout the ventilation cycle, but particularly during the expiratory phase (= PEEP).

CPAP: Continuous Positive Airway Pressure

| Manufacturer | Comparable modes | Nomenclature |
|---|---|--------------|
| Air Liquide | Continuous positive airway pressure | CPAP |
| Bennett | Spontaneous Breathing | Spont. |
| Dräger: Evita 4 Dräger: XL | Continuous Positive Airway Pressure | CPAP |
| Dräger: Evita V500 Dräger: Evita V300 | Spontaneous - Continuous Positive Airway Pressure | SPN-CPAP |
| GE | Konstant positiver Atemwegsdruck | CPAP |
| Hamilton: G5 / S1 | Spontaneous Breathing | Spont. |
| Hamilton: T1 / C1-C3 | Spontaneous Breathing | Spont. |
| Maquet | Continuous Positive Airway Pressure | Spont./ CPAP |
| Mindray | (indirect) | - |
| Phillips | Continuous Positive Airway Pressure | CPAP |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Continuous Positive Airway Pressure | CPAP |

PSV: Spontaneous Breathing with Pressure Support Ventilation

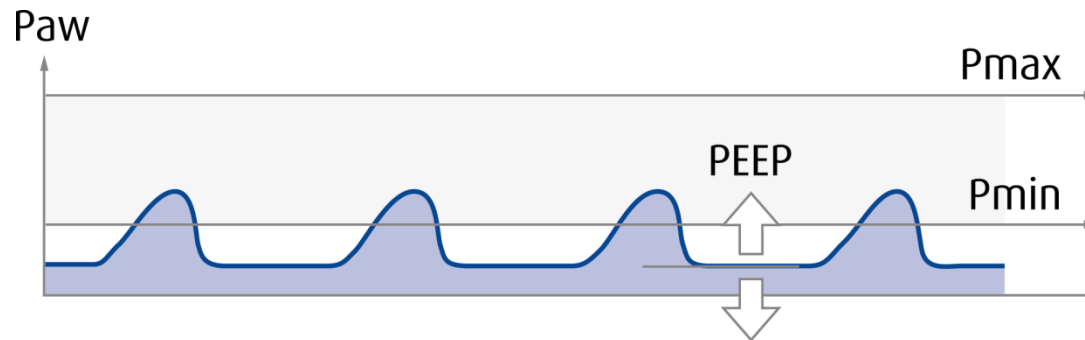


In spontaneously breathing patients, pressure support (PS) is delivered at a fixed pressure value. This partially replaces the patient's work of breathing and allows deeper breaths.

PSV: Spontaneous Breathing with Pressure Support Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | Pressure Support Ventilation | PSV |
| Bennett | Pressure support | PS |
| Dräger: Evita 4 Dräger: XL | Assisted Spontaneous Breathing | ASB |
| Dräger: Evita V500 Dräger: Evita V300 | Pressure Controlled - Pressure Support Ventilation | SPN-CPAP/PS |
| GE | Pressure Support Ventilation | CPAP/PSV |
| Hamilton: G5 / S1 | Pressure support ventilation for spontaneous breathing | Spont |
| Hamilton: T1 / C1-C3 | Pressure support ventilation for spontaneous breathing | Spont |
| Maquet | Pressure Support | PS |
| Mindray | Pressure Support Ventilation | CPAP/PSV |
| Phillips | Pressure Support Ventilation | PSV |
| Salvia / elisa | Assisted Spontaneous Breathing | ASB |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Pressure Support Ventilation | PSV |

Dyn. PSV: Dynamic Pressure Support Ventilation

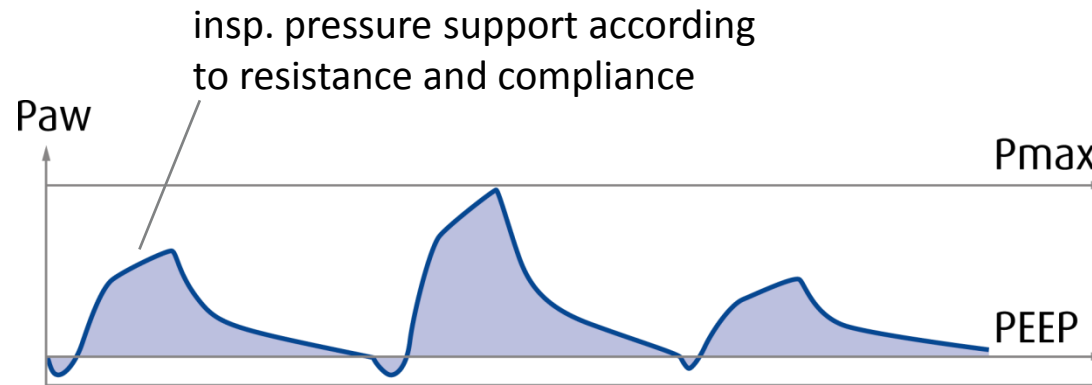


A technological advancement over conventional PSV. In spontaneously breathing patients, pressure support is delivered in a dynamic manner (for each breath, the level of pressure support delivered is adjusted to meet a set target volume).

Dyn. PSV: Dynamic Pressure Support Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|--|--------------|
| Air Liquide | - | - |
| Bennett | Volume Support | VS |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | Spontaneous - Continuous Positive Airway Pressure (Volume Support) | SPN-CPAP/VS |
| GE | Volume Support | VS |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Volume Support | VS |
| Mindray | - | - |
| Phillips | Average Volume Assured Pressure Support | AVAPS |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dynamic Pressure Support Ventilation | Dyn. PSV |

Prop. PSV: Proportional Pressure Support Ventilation

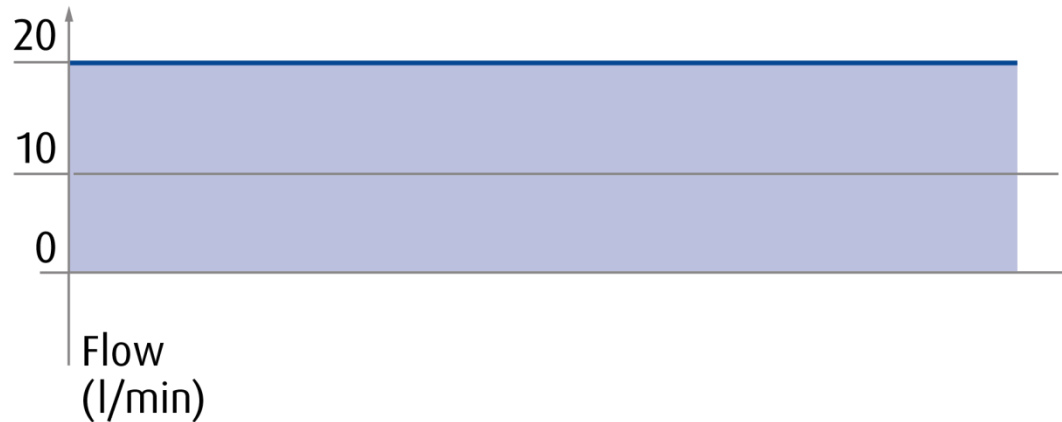


A technological advancement over conventional PSV. In spontaneously breathing patients, pressure support is delivered at a level that is proportional to the set degree of compensation required in relation to resistance to flow (Flow Support) and airway resistance (Volume Support).

Prop. PSV: Proportional Pressure Support Ventilation

| Manufacturer | Comparable modes | Nomenclature |
|---|---|--------------|
| Air Liquide | - | - |
| Bennett | Proportional Assist (proprietary algorithm) | PAV+ |
| Dräger: Evita 4 Dräger: XL | Proportional Pressure Support | PPS |
| Dräger: Evita V500 Dräger: Evita V300 | Spontaneous Breathing - Proportional Pressure Support | SPN-PPS |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | Proportional Pressure Ventilation | PPV |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Proportional Pressure Support Ventilation | Prop. PSV |

HFOT: High Flow Oxygen Therapy

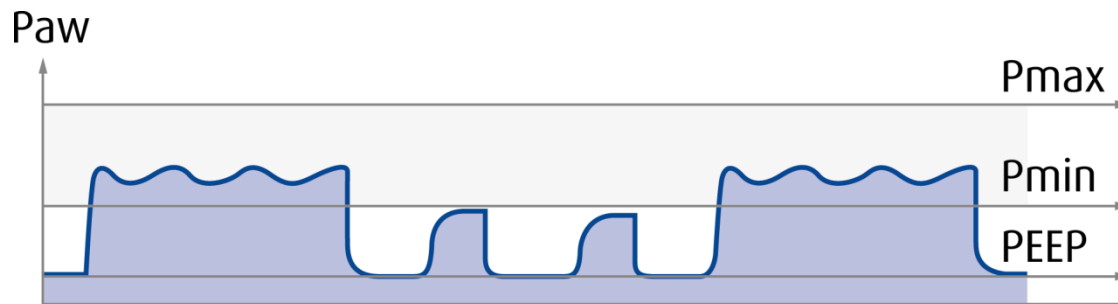


High-flow oxygen therapy (HFOT) can be used to administer functional CPAP therapy with adequate oxygen supply via special nasal prongs or non-sealing masks.

HFOT: High Flow Oxygen Therapy

| Manufacturer | Comparable modes | Nomenclature |
|---|-----------------------------------|-------------------------|
| Air Liquide | HighFlow Therapy | HighFlow Therapy |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | O ₂ Therapy | O ₂ -Therapy |
| GE | - | - |
| Hamilton: G5 / S1 | Highflow O ₂ | Highflow O ₂ |
| Hamilton: T1 / C1-C3 | Highflow O ₂ (C3 only) | Highflow O ₂ |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Highflow Oxygen Therapy | HFOT |

Dynamic BiLevel

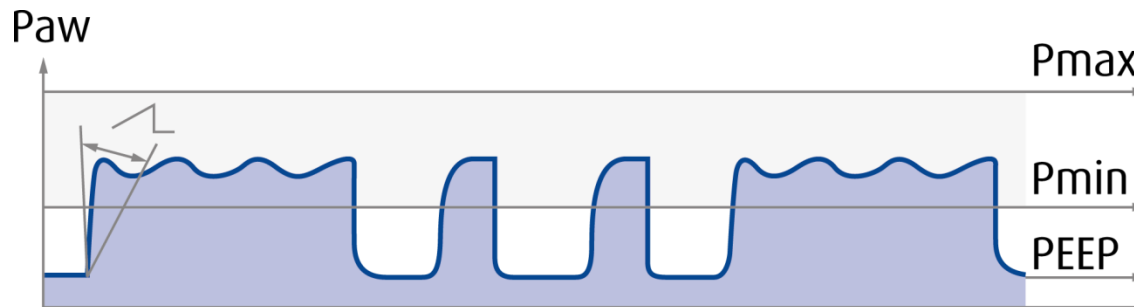


A technological advancement over the well-known BiLevel mode with added volume control. Instead of using the upper pressure level (P_{insp}), the machine is programmed using a desired target volume.

Dynamic BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|--|------------------|
| Air Liquide | Pressure-Regulated Volume Controlled | PRVC |
| Bennett | Adaptation of the target pressure in order to deliver the set volume | VC+ |
| Dräger: Evita 4 Dräger: XL | Synchronized Intermittent Mandatory Ventilation with Autoflow option | SIMV-Autoflow |
| Dräger: Evita V500 Dräger: Evita V300 | Volume Controlled - Synchronized Intermittent Mandatory Ventilation with Autoflow option, PC-SIMV with Volume Guarantee | VC-SIMV-Autoflow |
| GE | BiLevel with Volume Guarantee, Synchronized Intermittent Mandatory Ventilation, Pressure Controlled, with Volume Guarantee | PC-SIMV VG |
| Hamilton: G5 / S1 | Adaptiv Pressure ventilation | APVsimv |
| Hamilton: T1 / C1-C3 | Volume-controlled, adaptive pressure: SIMV | SIMV + |
| Maquet | Pressure Regulated Volume Controlled | PRVC |
| Mindray | Pressure-regulated volume control ventilation | PRVC |
| Phillips | Pressure-Regulated, Volume-Controlled | PRVC |
| Salvia / elisa Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dynamic BiLevel | Dyn. BiLevel |

Dual BiLevel

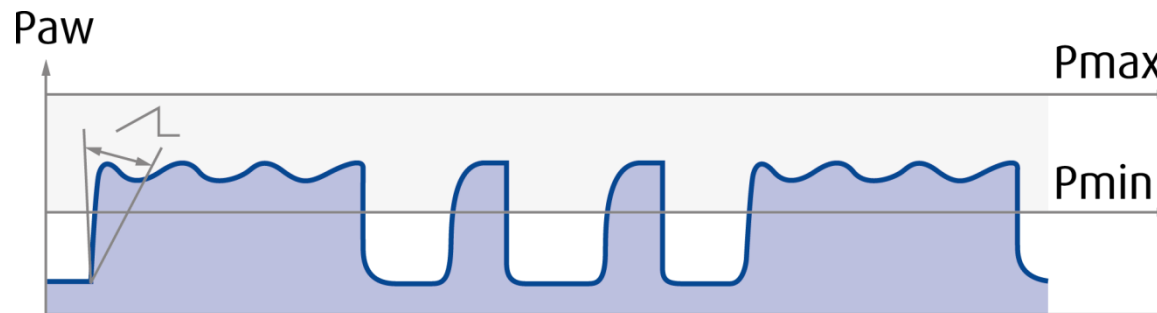


In Dual BiLevel the target volume determines the change from the lower pressure level (PEEP) to the upper pressure level (P_{insp}), and controls the extent of the pressure support delivered.

Dual BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|------------------|--------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dual BiLevel | Dual BiLevel |

Flexible BiLevel

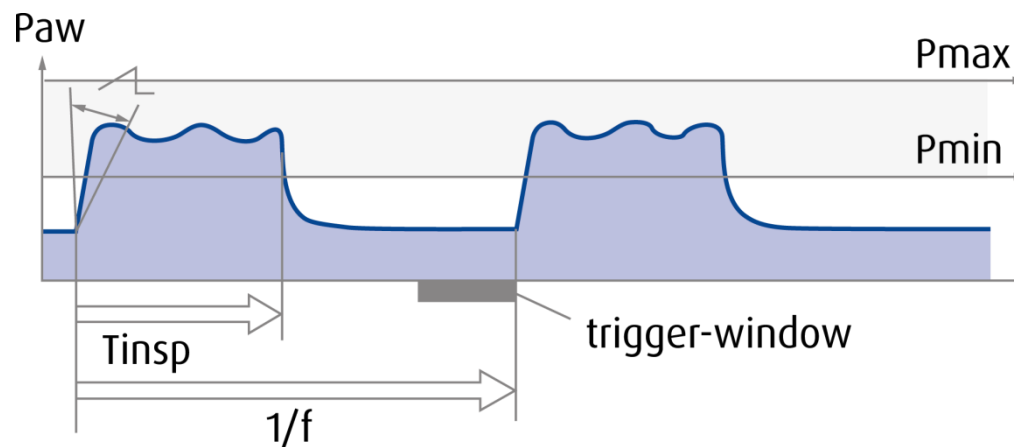


Rather than using the set respiratory rate, this mode uses the mandatory minute volume ($f \times V_t$) as the control variable. The patient's spontaneous breathing effort is constantly monitored and compared to the set minute volume.

Flexible BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|------------------|---------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Flexible BiLevel | Flex. BiLevel |

VA BiLevel: Volume Adaptive BiLevel

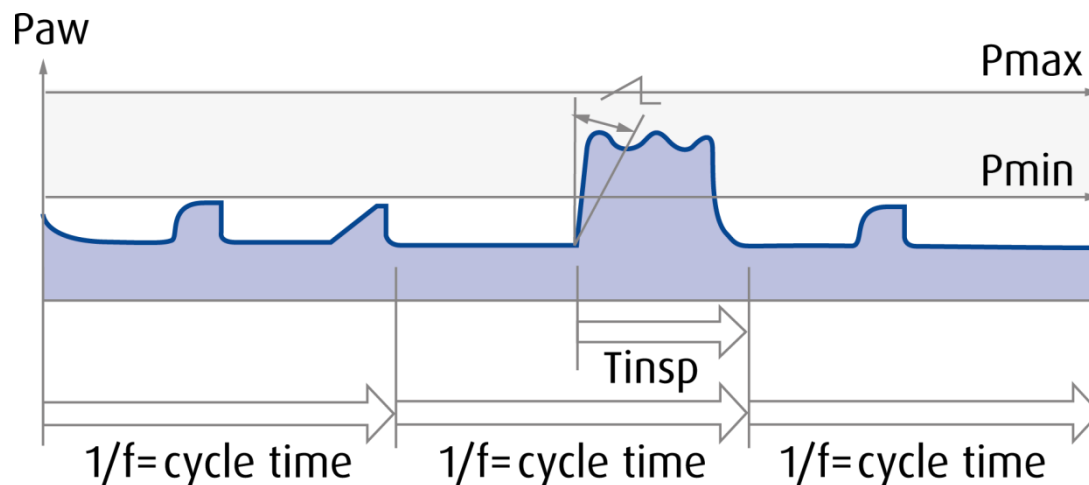


A technological advancement over conventional dynamic BiLevel ventilation. Dynamic BiLevel breaths are time-cycled via the set respiratory rate, but can also be initiated via a trigger function.

VA BiLevel: Volume adaptive BiLevel

| Manufacturer | Comparable modes | Nomenclature |
|---|--|-----------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | Intermittent Positive Pressure Ventilation with Autoflow option | IPPV-Auto-flow |
| Dräger: Evita V500 Dräger: Evita V300 | Volume Controlled - Continuous Mandatory Ventilation with Autoflow option | VC-CMV-Autoflow |
| GE | - | - |
| Hamilton: G5 / S1 | Adaptiv Pressure ventilation: Controlled Mandatory Ventilation | APVcmv |
| Hamilton: T1 / C1-C3 | Volume-Controlled, Adaptive Pressure | CMV+ |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Volume Adaptive BiLevel | VA BiLevel |

Dynamic BiLevel ST

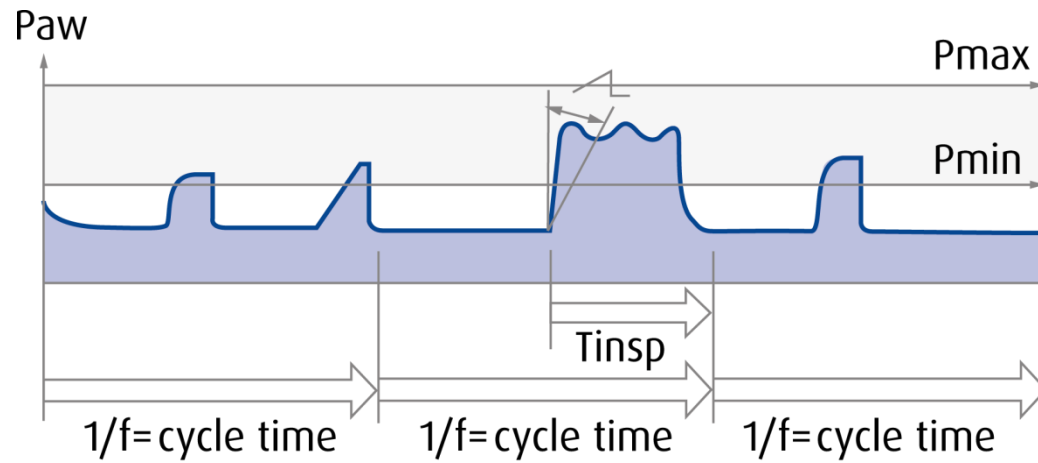


A technological advancement over conventional dynamic BiLevel ventilation. Breath cycles are defined by setting a fixed respiratory rate ($60/f$). If spontaneous breathing results in the machine's trigger threshold being reached, the machine will usually start to provide pressure support.

Dynamic BiLevel ST

| Manufacturer | Comparable modes | Nomenclature |
|---|--------------------|----------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | - | - |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dynamic BiLevel ST | Dyn BiLevel ST |

Dual BiLevel ST

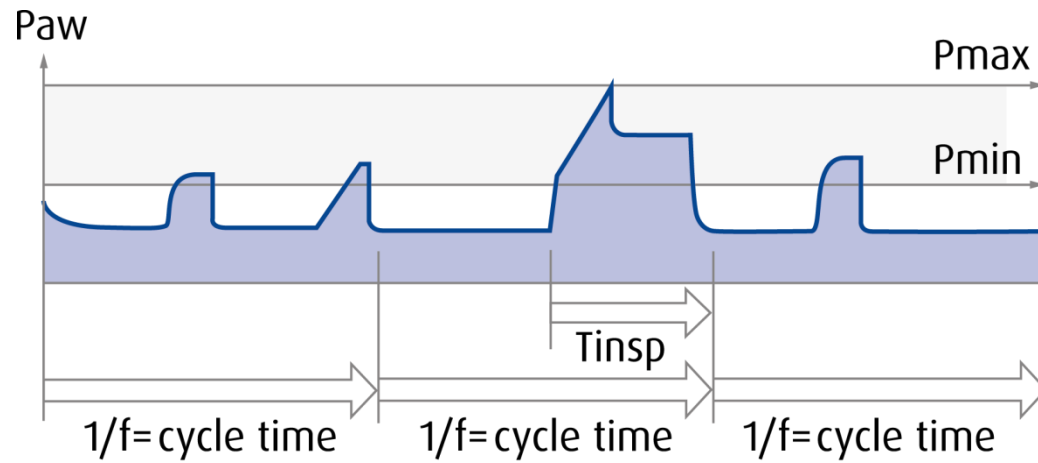


A technological advancement over the well-known BiLevel mode with a guaranteed volume for the machine-driven and the spontaneous component of ventilation. Depending on the patient's spontaneous breathing activity during the set cycle time, either mandatory breaths are initiated or the patient is allowed to breathe spontaneously.

Dual BiLevel ST

| Manufacturer | Comparable modes | Nomenclature |
|---|-----------------------|-----------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Automode: PRVC <-> VS | Automode |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dual BiLevel ST | Dual BiLevel ST |

Dual VC-SIMV ST

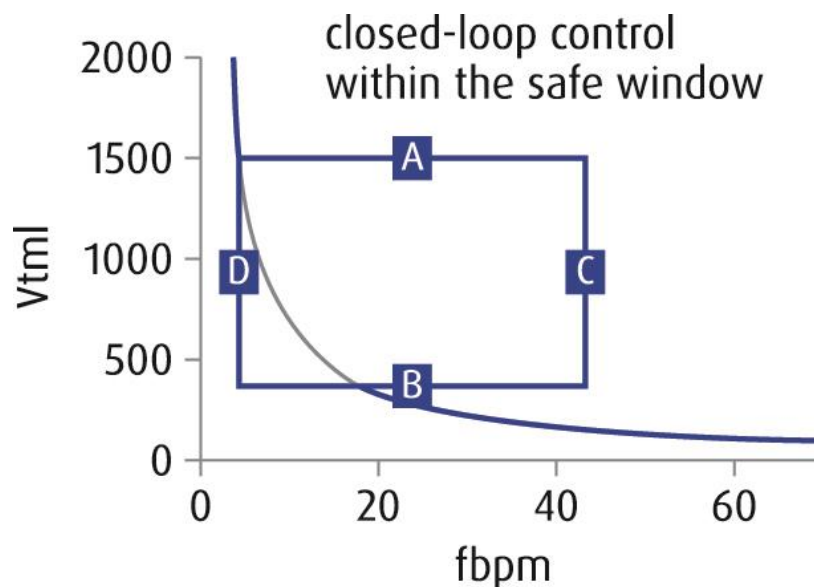


A technological advancement over the classical SIMV. Depending on the patient's spontaneous breathing activity during the set cycle time, either mandatory breaths are initiated or the patient is allowed to breathe spontaneously.

Dual VC-SIMV ST

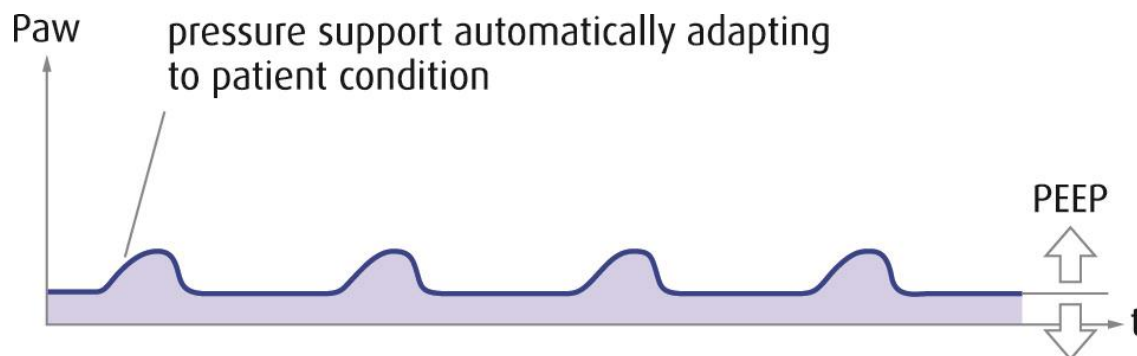
| Manufacturer | Comparable modes | Nomenclature |
|---|-----------------------|-----------------|
| Air Liquide | - | - |
| Bennett | - | - |
| Dräger: Evita 4 Dräger: XL | - | - |
| Dräger: Evita V500 Dräger: Evita V300 | - | - |
| GE | - | - |
| Hamilton: G5 / S1 | - | - |
| Hamilton: T1 / C1-C3 | - | - |
| Maquet | Automode: PRVC <-> VS | Automode |
| Mindray | - | - |
| Phillips | - | - |
| Salvia / elisa | - | - |
| Salvia / elisa 600 Salvia / elisa 800 Salvia / elisa 800VIT | Dual VC-SIMV ST | Dual VC-SIMV ST |

IntelliVent ASV / ASV: Adaptive Support Ventilation



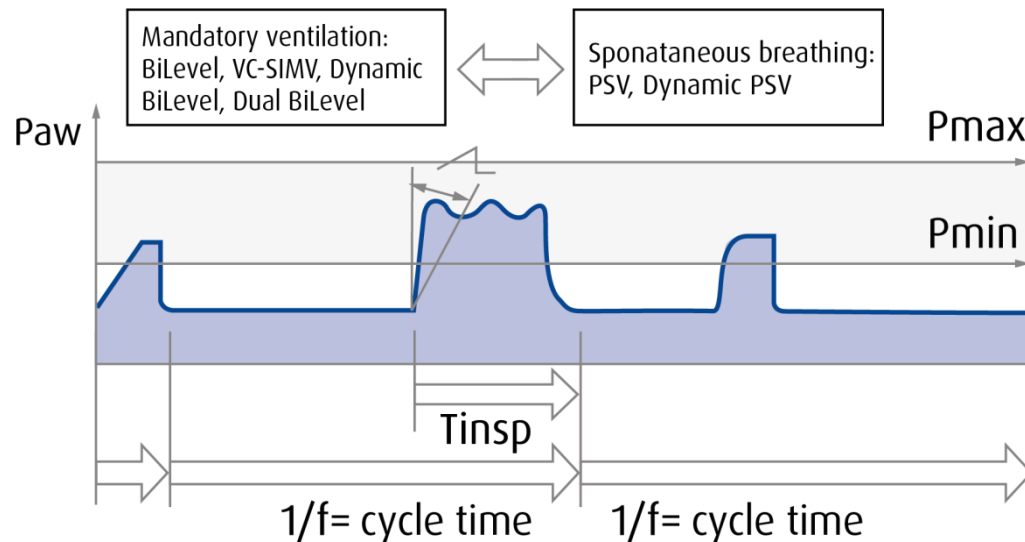
ASV is a closed-loop mode of ventilation, and can be used as part of a lung protective strategy or as part of patient weaning. IntelliVent ASV uses closed-loop ventilation that is additionally controlled using end-tidal CO₂ and pulse oximetry.

SmartCare

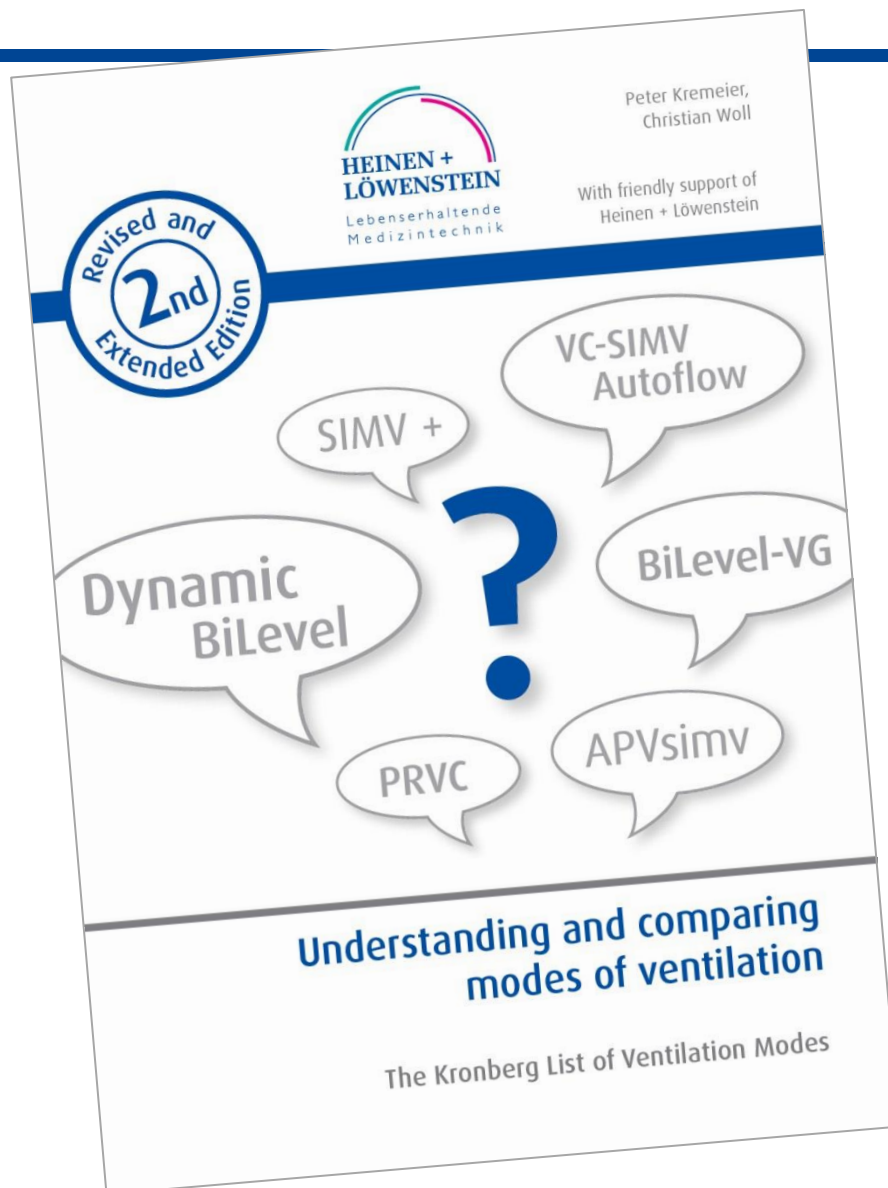


SmartCare is an automated weaning system. It automatically adapts the pressure support to a target range, and follows an automated weaning protocol.

Automode



Als Closed-Loop-Modus soll Automode die Interaktion zwischen Intensivventilator und Patient verbessern, sowie den Bedienungsaufwand reduzieren. Dabei werden mandatorische Modi mit Spontanatemmodi kombiniert.



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Any questions?

