

# PS-A mode: a new help at induction



## The principle of this Pressure Support mode:

When the frequency of inspiratory efforts of the patient is lower than the preset minimum frequency, the anesthesia station takes over the breathing work until it reaches progressively the apnea ventilation frequency.

## When to use this mode:

At induction, in perioperative phase and at recovery.

## Why to use this mode:

At induction, as soon as an apnea appears, the station will ensure a respiratory frequency which is always well adapted.



## Parameters :

$F_{\text{perioperative}}$  : apnea ventilation frequency. It is the same as the one used in VC, PC and PC-VTC mode.

$F_{\text{mini}}$  : minimum frequency over which the device takes over the work.



## How to use this mode:

- At induction and in perioperative phase, the user sets the value of  $F_{\text{perioperative}}$  at the frequency at which the patient should be ventilated when he does not have any autonomous respiratory activity anymore, while keeping a low value of  $F_{\text{mini}}$  (5 bpm by default).

- At recovery, the user sets the value of  $F_{\text{perioperative}}$  at a low frequency ( $F_{\text{mini}}$  for example) in order to stimulate the respiratory reflex of the patient.

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# FELIX

## New ventilation functionalities

**Alveolar recruitment:**  
- in manual mode  
- in controlled modes

**Pressure ventilation with target  $V_T$**

**PS-A Mode: a new support at induction**



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# Pressure ventilation with VT target control

# Alveolar recruitment in manual and controlled modes

## PC-VTC MODE

**PC-VTC mode (PC with VT Target Control)** is a pressure controlled mode when the insufflation pressure is adjusted cycle by cycle by the device so as to maintain the expired volume at the preset  $V_T$  level.

### When to use it:

This mode is indicated each time the user wants to ventilate his patient in PC while warranting a tidal volume, particularly in ventilation with laryngeal mask or during coelioscopy.

### Why to use it:

This mode combines the advantages of ventilation in pressure (decelerating flow, leakage compensation, longer alveolar exchange times) to the ones of Volume Controlled mode (stable minute volume, prevention of hypo- and hyper-ventilation).

### Parameters to set:

- **Target  $V_T$**
- **Max Pins:** maximum insufflation pressure which must not be crossed.

## PS MODE WITH $V_T$ TARGET CONTROL

**The  $V_T$  Target Control function in PS mode** enables to adjust the level or Pressure Support cycle by cycle so as to maintain the expired volume at the level chosen by the user.

### When to use it:

In PS mode, this function is indicated at induction to compensate the drop in inspiratory efforts of the patient and in peri-operative phase to maintain a stable minute ventilation.

### How to use it:

- 1- Adjust **PS** so as to reach the desired expired volume
- 2- Activate and confirm **Target VT** to maintain the reached expired volume
- 3- Check and if necessary set the **Max Pins** value (maximum insufflation pressure which must not be crossed)

Available in PC and PS-A as well

### Why to recruit:

The clinical interest of alveolar recruitment is to clear the atelectasia which may have formed.

### When to recruit:

The recruitment is indicated after pre-oxygenation, for obese patients, in peri-operative phase when facing an unexplained drop in  $SpO_2$  and at the end of the intervention.

**The recruitment efficiency** is assessed by considering the drop in peak pressures in VC and the rise in expired VT in PC and PS modes:



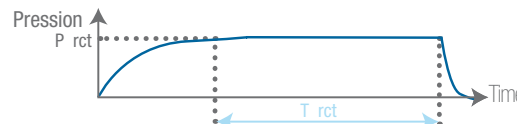
After an alveolar recruitment, it can be recommended to ventilate with a PEEP to prevent atelectasia re-appearance and to keep the benefits of the manoeuvre.

## IN MANUAL MODE

**The alveolar recruitment function in manual mode** consists in a sequence of automatised airways pressurization at the recruitment pressure (Prct) during a given time (Trct).

### Parameters to set:

- **Prct:** recruitment pressure
- **Trct:** duration of the maintenance of the airways pressure to the Prct pressure.
- **Flow:** fresh gas flow during the pressure rise phase



### Standard settings:

- For an adult: Prct = 40cmH2O during 20s
- For a child: Prct = 30cmH2O during 15s

## IN CONTROLLED MODES

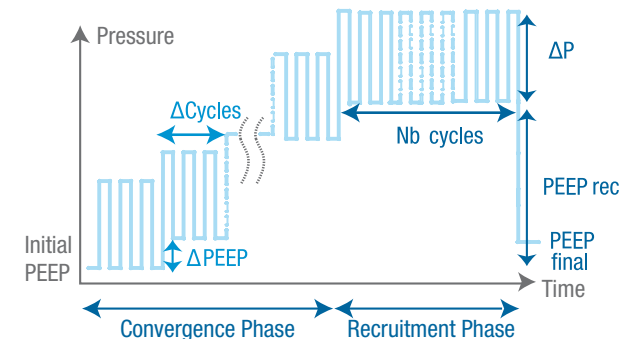
Available in VC, PC, PS, PS-A et PC-VTC modes

**Alveolar recruitment in controlled modes** consists in an automatised sequence of pressure cycles (at 15 bpm and an I:E ratio set to 1:1) which includes two phases:

- One convergence phase during which the PEEP is progressively increased by stages until it reaches the target recruitment PEEP set by the user.
- One strictly speaking recruitment phase performed at the recruitment PEEP value during the number of recruitment cycles set by the user.

### Main parameters to set:

- **$\Delta P$ :** pressure delta applied at each cycle ( $P_{ins} = \Delta P + PEEP$ )
- **PEEP** of recruitment
- **Nb cycles:** number of recruitment cycles to perform at the recruitment PEEP value



### Standard settings:

- For an adult:  $\Delta P = 20\text{cmH}_2\text{O}$ , **PEEP rec** = 20cmH<sub>2</sub>O, **Nbcycles** = 10,  $\Delta PEEP = 5\text{ cmH}_2\text{O}$ ,  $\Delta\text{Cycles} = 3$
- For a child:  $\Delta P = 15\text{cmH}_2\text{O}$ , **PEEP rec** = 15cmH<sub>2</sub>O, **Nbcycles** = 10,  $\Delta PEEP = 3\text{ cmH}_2\text{O}$ ,  $\Delta\text{Cycles} = 3$