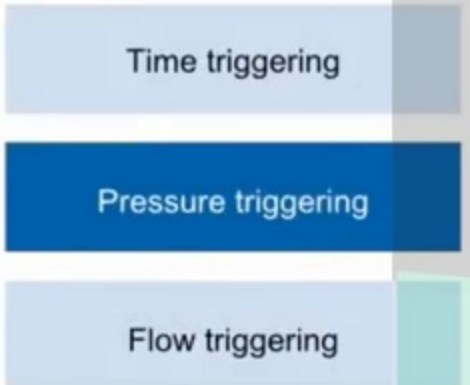

Vizle
Vizle
MEDICAL
Intelligent Ventilation since 1983



Depending on pressure monitoring

Pressure triggering

Pressure triggering is a form of patient triggering. It relies on circuit or airway pressure monitoring.

Cure of auto-triggering

- Remove the root cause (preferred)
- Lower the trigger sensitivity

pressure and flow, can fail in two forms.

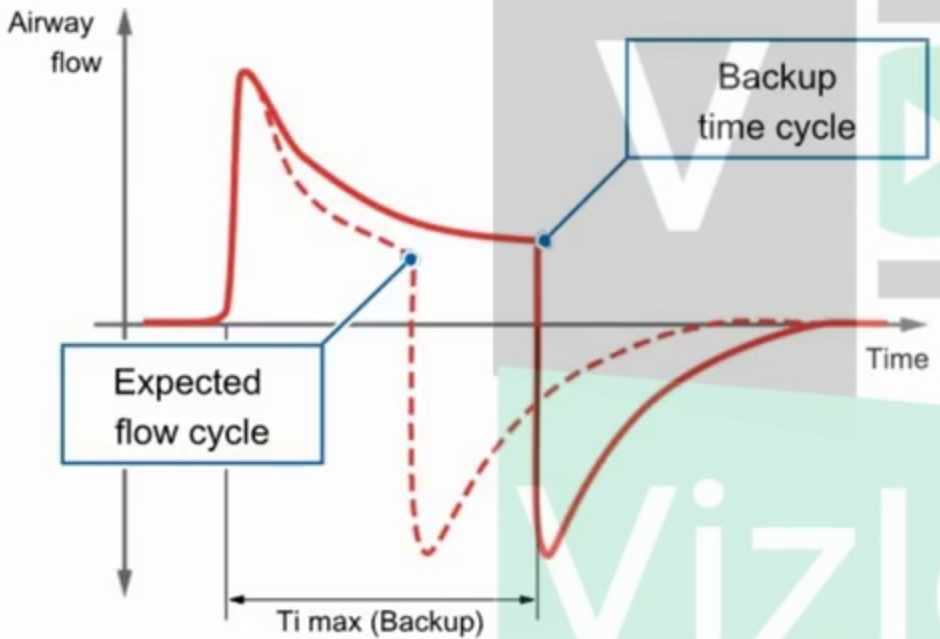
The first form is that a ventilated patient has inspiratory effort, but the ventilator does not respond. The common causes are either the patient's effort is too weak, or the patient triggering setting is not enough sensitive, or both.

The second form is auto-triggering, which means that the ventilator is triggered when the patient does not inhale. Typically, auto-triggering appears as a series of quick and rhythmic mechanical breaths.

Auto-triggering occurs when the ventilator is triggered by pneumatic artifacts, but not by the expected patient's inspiratory effort. The artifacts often result from gas leak, condensed water in the circuit, or even cardiac oscillation.

Another possible cause of auto-triggering is that pressure or flow trigger is set to an overly sensitive level.

The best remedy for auto-triggering is to remove the root cause. If this is not possible, you may carefully decrease the patient trigger sensitivity until auto-triggering disappears. Bear in mind that this makes triggering harder for the patient.



percent.

If the flow cycling is adjustable on your ventilator, you can find the control of flow cycling.

In all Hamilton Medical ventilators, this control is labeled as **expiratory trigger sensitivity (ETS)**. You can set it to any value between 5% and 80%.

This control is unavailable if flow cycling is fixed at the factory.

Flow cycling enables you to influence the Ti of support breaths. The lower the set percent, the longer the Ti is, and vice versa. Flow cycling is very useful for improving patient-ventilator synchrony.

Flow cycling can fail if the system has a massive leak and the ETS is set very low, because the inspiratory flow can not fall to the set cycling level. The consequence is endless inspiration. This is clinically unacceptable.

To avoid the possibility, a ventilator has a **backup time cycling**, which may be user-adjustable. If so, you can find a control for that. In Hamilton Medical ventilators, this control is called **maximal inspiratory** time or **Ti max**.

- Superior patient ventilator synchrony
- Leak compensation

Or as **Pressure support** for supported breath.

Pressure controlling may have a secondary control:

Pressure ramp (Pramp) or **Rise time**.

It is defined as the time required for airway pressure to rise to a target pressure at the beginning of inspiration.

A short Pramp means a fast pressurization, and vice versa.

If volume controlling is compared to a dictator, pressure controlling is somewhat a liberal because Vt and inspiratory flow can vary per the patient's demand.

Because of this important property, patient-ventilator asynchrony occurs much less frequently.

When the system has a leak, causing circuit pressure to drop, the ventilator responds with an increases inspiratory flow.

This is how **leak compensation** works. With pressure controlling, a ventilator can effectively compensate a moderate leak.

- A moderate PEEP for all
- A high PEEP may be necessary for a patient with restrictive lung disease
- Zero PEEP is not recommended

PEEP - baseline pressure

PEEP is generated by interaction between the expiratory gas flow and the resistance imposed by the expiratory valve of the ventilator.

PEEP alone is therapeutic as it can increase functional residual capacity (FRC), improve alveolar gas exchange, keep the lung units open, and even improve lung compliance.

A moderate level of PEEP, 3 to 5 cmH2O, is generally recommended for all intubated and ventilated patients.

A high PEEP may be clinically necessary for patients with restrictive lung diseases, such as ARDS.

Avoid using zero PEEP although it is possible.