

DRAGONFLY

the only Servo Oscillator in the world

*I, that am curtail'd of this fair proportion,
Cheated of feature by dissembling nature,
Deform'd, unfinished, sent before my time
In to this breathing world, scarce half made up,
And that so lamely & unfashionable
That dogs bark at me as I halt by them*

William Shakespeare

This passage from the opening soliloquy of Shakespeare's famous play depicts the type of patients that Neonatologist deal every day.

an Intensivist Soliloquy

Do No Harm...

Technology Matters, not the Country of Origin

Being an intensivist, I am aware that these critical patients can be saved only using HFOV (apart from iNO & ECMO) hence I will ensure that following modalities are available in my equipment.

- I want a High Frequency Oscillatory Ventilator (HFOV) & not a High Frequency Flow Interrupter (HFFI).
- The Expiratory phase should be active & not passive. This is possible only in a HFOV.
- A combined system that offers a Conventional Ventilator with a inbuilt HFV is not my option. It is not a true Oscillator. Most of the studies regarding High Frequency Ventilation is done by using an Oscillator. So I will not risk my patient and my reputation.
- I should know the delivered Tidal Volume, so it's easy for me to adjust the Amplitude.
- The indication of DCO₂ values reduces my frequent Blood Gases & CXR, so the cost is curtailed and my patient is benefitted.
- Servo controlled Bias Flow. I need not worry adjusting flow even when MAP & or amplitude is changed.
- Servo Controlled MAP. I just set the MAP by soft touch key, rest is automatic.
- Auto correction of MAP even if I change the Frequency or Inspiration Time.
- The Pmax & Pmin values help me know what is maximum & minimum pressures that are generated by the Oscillator.
- I can adjust the Inspiration time to 50 or 33%, so I have I:E ratio's of 1:1 or 1:2.
- I can adjust the frequency from 5 to 18 Hertz by means of soft touch keys.

- The amplitude is easily adjustable by soft touch keys & the large TFT screen helps me know various information in regards to Pressure, Flow, Actual and set MAP, Differential Pressure, DCO₂ etc.

Gas Transport Coefficient (DCO₂) :
(CO₂ Diffusion coefficient)

DCO₂ is a measured value which helps the clinician to non invasively monitor the ventilation.

The Amplitude can be adjusted looking at the chest wiggle & the DCO₂ .

In all the commercially available HFOV, non invasive monitoring of pulmonary mechanics is not possible. This leads to frequent monitoring of blood gases & chest X ray's. To circumvent this problem, concept of DCO₂ is introduced by Shreeyash in the Dragonfly. This is supposed to reflect the alveolar ventilation & hence the PaCO₂ values. However it is reasonable to confirm the relation between DCO₂ & PaCO₂ by doing serial blood gases.

An increase in Tidal volume will increase the DCO₂ & vice versa. In other words higher the DCO₂ values lower are the PCO₂ values.

Mean Airway Pressure :

This is a Servo Controlled Valve. The user can set the MAP by using the soft touch keys . Once the MAP is set, the Bias Flow & the MAP Servo valves will "Shake Hands" & will maintain the exact MAP set by the user.

As this is Servo Controlled, even changes in the Amplitude, % IT, or frequency will not alter the MAP because the Servo Mechanism re-adjusts the valve and maintain the set values. The range for MAP setting is from 4 cm to 40 cm H₂O.

Bias Flow :

The Bias Flow provided in the patient circuit is warmed, humidified & is Servo Controlled. A flow transducer that is incorporated in the circuit accurately calculate the Bias Flow & indicates the same on the TFT screen. As per the MAP settings the micro controller adjusts the Bias Flow automatically to ensure that the selected MAP is achieved.

QUESTIONS

- 1) What are the exclusive features of Dragonfly as compared to contemporary once ?
- 2) Is this "Dragonfly" reliable?
- 3) If I need any extra support at odd time?
- 4) If I wish to know more on HFOV?
- 5) What are the recurring costs?
- 6) What about Oxygen Consumption?
- 7) Can my staff use it in my absence?
- 8) Where is my local service station?

ANSWERS

- 1) "Dragonfly" is packed with unique features like Servo controlled MAP & Bias flow Tidal volume display, DCO₂ display, Pressure v/s Time & Flow v/s Time graph, Noiseless operation, Help line facility, Clinical data is at your finger tips etc.
- 2) World has started to realize now that huge talent still remains untapped in India. Over 45 months of studies, research of more than 30 months, followed by more than 1 year of animal & clinical trials has made this machine absolutely reliable.
- 3) You can contact our hot line numbers 24 hours a day, Also in case of emergency you can contact our experts panel.
- 4) You can attend the workshops arranged by us on regular basis & get trained through expert faculties from all over India & abroad.
- 5) Absolutely Nil. You need not change any tubing's or valves unless physically damaged
- 6) The Dragonfly works On very low pressure. Only on 1.5 PSI as compared to 30 PSI used by contemporary.
- 7) Yes, definitely. The staff can use the Help key to know about the settings for a disease or can learn about the unit.

The high powered software in the "Dragonfly" enables the user to access various information in regards to

- Setting guidelines in various diseases.
- Mechanism of gas exchange in HFOV.
- Clinical strategies .
- HFOV manual, HFOV at a glance.
- Weaning, Trouble Shooting etc.

The Technical details that I wish to have in my Oscillator are :

- It should be servo controlled.
- It should provide Active Inspiratory and Active Expiratory phase.
- I should have a choice to select I:E ratio to 1:1, & 1:2, allowing inspiration times of 50% & 33%
- It should have a Servo Controlled Bias Flow (4 to 60 LPM) along with digital display of flow.

- The MAP should be Servo Controlled (4 to 40 cm H₂O).
- I should be able to set the Amplitude by means of feather touch keys (Range 0 to 100)
- I should have the flexibility to set the Frequency from 5 to 18 Hz. by feather touch keys.
- Numerical value of DCO₂ should be provided that shall help me to non-invasively monitor the pulmonary mechanics.
- Digital display of tidal volume should be provided.
- Large TFT screen that will indicate various settings, messages, alarms & graphs is a must.
- Graph should be provided for
 - Pressure v/s Time
 - Flow v/s Time
- Entire system should be controlled by intelligent Micro Controllers.
- Additional features like Pmax. & Pmin. range should be displayed.
- Indication should be provided for differential pressure (D.P.)
- It should have an inbuilt humidifier and an Air Oxygen Blender.
- Help key to indicate various Oscillatory settings required in specific diseases.
- Facility provided to freeze the pressure & flow wave forms would be of great use.
- A special oil free dry compressor should be a standard accessory.
- I should get a less compliant reusable patient tubing as a standard accessory.
- Tube holding arm assembly should be a standard accessory.
- Unit should be mounted on castor wheels for easy mobility.

