References


The superiority of the Cardia Innovation CO₂ diffuser technology

The CarbonAid® and CarbonMini® can deliver a high CO₂ gas flow without any turbulence2,3,6,7 and as a result of this create a 100% CO₂ atmosphere inside the thoracic wound area. This prevents air embolism from occurring.

- When CO₂ is insufflated without turbulence a protective cushion is built up1,5.
- The continuous overflow of CO₂ will repel and transport away small particles, this decreases the rate of airborne contamination1,5.
- Bacteriostatic effect of CO₂1.

Two sizes of CO₂ diffusers – cover all wound sizes

During open-heart surgery through a full sternotomy, a CO₂ flow of 10 L/min from the CarbonAid® is needed to generate continuous effective de-airing despite hand movements and use of suctioning devices. For smaller sized wounds a CO₂ flow of 3–8 L/min is, with the smaller CarbonMini®, sufficient for efficient de-airing. Both products delivers CO₂ without turbulence, which is essential to avoid admixture of ambient air. This is valid also when the foam tip is wet3,8.

The distal part of the products consists of malleable tubing so that the diffuser tip can easily be positioned inside the wound cavity. Each product also contains a highly efficient bacterial filter and a long tubing for connection to a CO₂ flow meter.

Avoid turbulence!

Less effective de-airing devices create turbulence even at low CO₂ flows. This results in a continuous mix with the surrounding atmosphere and a high percentage of air will still be present in the thoracic cavity. Turbulence makes de-airing impossible.

As long as air is present there is a risk for air embolism! Even air bubbles as small as 25 µl obstructing cerebral arterioles for less than 30 seconds cause an impaired cerebral function9.

Complete de-airing is therefore essential which is achieved with CarbonAid® or CarbonMini®!