



**Flexible and compact NIV ventilator –  
The road to recovery**

DRÄGER CARINA®

# The road to recovery



Non Invasive Ventilation (NIV) can generally help patients recover faster, reduce the rate of ventilator-associated pneumonia and avoid the setback of reintubation in a variety of clinical settings. Patient benefit has been clearly demonstrated in a growing number of studies <sup>[1]</sup>:

- Reduce the need for intubation and therapeutic intervention in patients with acute respiratory failure <sup>[2]</sup>
- Decrease the rate of intubation <sup>[3]</sup>
- Fewer complications during ICU stay <sup>[3]</sup>
- Promote early extubation <sup>[3]</sup>
- Reduce the risk of ventilator associated pneumonia <sup>[4]</sup>

Dräger has developed an innovative type of high-performance NIV ventilator. One that is comfortable for both the patient and the caregiver, compact and mobile enough to optimize workflow and workspace usage and clever enough to recognize changes in flow parameters and patient status, providing just the right amount of support while giving the patient room to breathe.

Carina® features a range of ventilation modes for spontaneous and mandatory ventilation and an integrated blender which can supply oxygen concentrations from 21 - 100%. Should the need arise, Carina® can even be used for invasive ventilation.

## **Spontaneous ventilation:**

- SPN-PS (+ Volume Guarantee)
- SPN -CPAP

## **Mandatory ventilation:**

- VC-AC
- VC-SIMV Autoflow
- PC-AC
- PC-SIMV

- 1 Burns KEA, Adhikari NKJ, Meade MO: Noninvasive positive pressure ventilation as a weaning strategy for intubated adults with respiratory failure. Cochrane Database of Systematic Reviews 2003
- 2 Honrubia T, López FJG, Franco N, et al.: Noninvasive vs. conventional mechanical ventilation in acute respiratory failure: A multicenter randomized controlled trial. Chest 2005; 128:3916-3924
- 3 Masip J, Roque M, Sánchez B, et al. Noninvasive ventilation in acute cardiogenic pulmonary edema: systematic review and meta-analysis. JAMA. 2005;294:3124-3130
- 4 Girou E, Schortgen F, Delclaux C, et al. Association of noninvasive ventilation with nosocomial infections and survival in critically ill patients. JAMA 2000; 284: 2361-2367



## CONVENIENT

Leaks are a common issue in NIV. Rapid recognition of leaks can mean the difference between success and setback. The unique Dräger SyncPlus® functionality addresses this challenge by offering:

1. Automatic leakage compensation.
2. Cycle learning technology: the trigger sensitivity is constantly adapted to the patient's breathing patterns
3. Multi-sense triggering by closely analyzing flow, pressures and flow gradient

This powerful combination of leak evaluation and ventilation regulation supports a more consistent flow, increased patient comfort and therapeutic benefit.

Carina's AutoRamp® feature simulates a natural breathing pattern which helps to optimize inflation flow delivery to the patient. While the innovative Auto-Flow® function brings the benefits of the **Room to breathe™** concept to all volume controlled modes. Therefore, Carina constantly promotes the weaning process by adapting itself to patients' responses.

## COMFORTABLE

Carina was designed with the comfort of both patients and caregivers in mind. To help promote a restful and healing environment for your patients, Carina features an extremely quiet blower that enables practically silent operation (max. 40 dBA).

A 5.4 inch, high-visibility TFT color screen displays your choice of value or curve information which can be further customized to suit your particular needs, giving you just the information you need. Comfort means also a variety of safety features as: Apnea-, rescue- and continuous ventilation fail-safe systems, visible and acoustic alarms and a nurse call function.

# Carina<sup>®</sup>

convenient, comfortable, compact



## COMPACT

Weighing in at just 5.5 kg, Carina's compact design lets you take it nearly anywhere, with or without its detachable trolley. An internal battery can provide power for up to one hour while an optional external battery unit can extend this operation for up to 9 hours in case of power failure or transfer. The single hose system underscores Carina's elegant simplicity and ease of operation.



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## CARINA<sup>®</sup> – A GOOD CHOICE

The convenient-compact Carina, with its advanced SyncPlus functionality, ease of operation and portability will help you put your patients on the road to recovery - quickly and comfortably.

# Over 100 years of innovation in ventilation



With more than a century of experience in the field of mechanical ventilation, Dräger has taken on the challenge of creating a new ventilator.

Dräger has been a pioneering force throughout the history of respiratory medicine, and this pioneering spirit has gone into the development of an innovative ventilation unit - Carina®.

1907 – Pulmotor emergency resuscitator  
1952 – “E 52 Iron Lung” long-term breathing system  
1978 – Oxylog transportable emergency ventilator  
1989 – BIPAP<sup>1</sup> /PCV+ and APRV free breathing in PCV  
1995 – AutoFlow® free breathing in VCV

1995 – Operating concept with touch screen and rotary knob  
1997 – ATC™ automatic tube compensation  
2000 – NIV for ICU ventilators  
2003 – SmartCare®/PS automated knowledge-based weaning tool  
2007 – Carina®

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Dräger Medical GmbH is certified  
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and Annex II.3 of Directive 93/42/EEC  
(Medical devices).