Increase patient outcome and therapeutic benefits
Dedicated NIV accessories for Carina
Comfortable and compact

Our dedicated NIV ventilator: Carina

Designed for non-invasive ventilation

Non-invasive ventilation (NIV) can improve patient recovery times, reduce the rate of ventilator associated pneumonia and reduce the rate of reintubation in a variety of clinical settings. These strategies have demonstrated positive hospital and patient outcomes in a growing number of studies.

- Reduce the need for intubation and therapeutic intervention in patients with acute respiratory failure
- Decrease the rate of intubation
- Fewer complications during ICU stay
- Reduce the risk of ventilator associated pneumonia

Because of the different lung mechanics for COPD patients, maintaining patient-device synchrony is critical to successful non-invasive ventilation. Asynchrony can cause significant discomfort, leading to poor compliance and clinical outcomes. Research indicates that 40% of non-invasive ventilation patients experience asynchrony in 10% or more of their breaths.

Dräger has therefore developed the Carina – 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.

1 Schönhofer et al.: Non-Invasive Mechanical Ventilation as Treatment of Acute Respiratory Failure Clinical Practice Guideline, DOI: 10.3238/arztebl.2008
5 Epstein, S. How Often Does Patient-Ventilator Asynchrony Occur and What Are the Consequences? RESPIRATORY CARE · JANUARY 2011 VOL 56 NO1
Respiration Pathway

Carina supports workflow optimization in your clinical routine. Its non-invasive ventilation features and SyncPlus technology support you and your patients during the entire course of ventilation therapy.

**PREVENT**
- Reliable ventilation even with varying leakage rates
- Avoids asynchrony through automatic trigger correction
- Spontaneous breathing possible at any time, even during controlled ventilation
- High-quality, non-invasive ventilation from the emergency room on
- Simple intra-hospital transport without interruption of ventilation therapy

**STABILIZE**
- Spontaneous and mandatory ventilation modes for individual invasive or non-invasive therapy
- Safe apnea ventilation with automatic return to the previous mode without distracting alarms
- Comfortable secretion management through flow reduction on disconnect

**WEAN**
- Volume guarantee even during spontaneous breathing for safer ventilation
- Controlled ventilation with pressure support for gradual weaning of patients
- More comfort and safety through NIV-adapted alarm management

**RECOVER**
- Reduction of the work of breathing through inspiratory and expiratory synchronization
- Earlier mobilization is supported by the unit’s compact design
- More patient comfort thanks to the very quiet turbine operation
Carina® non-invasive accessories

One of the major challenges of non-invasive ventilation is to create an optimum synchronization between the ventilator and a mostly awake patient despite the fact that there are constantly changing and steady leakages. Dedicated non-invasive ventilation accessories support the selected ventilation mode and allow the caregiver to use Carina according to different applications and patient profiles.

Leakages are a common challenge in non-invasive ventilation. When using non-invasive ventilation, synchronized ventilation enhances patient comfort. SyncPlus® is a built-in function of Carina, incorporating automatic leakage compensation, automatic cycle learning technology and a multi-sense trigger.

DEDICATED BREATHING CIRCUIT
For non-invasive ventilation it is recommended to use the leakage valve breathing system. This convenient disposable single-hose breathing system allows the accurate calculation and adjustment of volumes. Due to its patented design the Dräger breathing system VentStar LeakV optimally supports the leakage compensation capabilities of the Carina.

In addition, the design of the leak valve prevents the breathing circuit from twisting which avoids occlusion and insufficient ventilation of the patient.

NON-INVASIVE MASKS
The Carina breathing system is completed by the Dräger non-invasive ventilation mask portfolio: ClassicStar, ClassicStar plus and NovaStar.

The two major challenges in terms of non-invasive patient interfaces are maximize patient comfort and minimize leakages.

The ClassicStar plus features a soft and anatomically shaped silicone lip as the sealing interface to the patient’s face. The air-filled mask cushion of the ClassicStar SE NIV mask can be adjusted to the patient's facial contours by inflating or deflating the mask cushion which increases comfort and makes a more effective seal. The NovaStar SE NIV mask provides an individual –“customized”– fit due to the embedded pliable ring in the flexible, transparent, soft mask shell combined with a silicone gel mask cushion for premium comfort and seal. Additional features, which include the individual adjustable forehead support and lightweight rapid fixation headgear, emphasize the convenience of both NIV masks.

ClassicStar and ClassicStar plus are available as nasal and oronasal masks. ClassicStar is also available as total face mask, covering mouth, nose and eyes. NovaStar is available as oronasal mask. Rotation of mask form (nasal, oronasal, total face) and interface type (silicone lip, air cushion, gel cushion) helps to select the best appropriate mask for the patient.

The ClassicStar NIV masks are designed for single use. The NovaStar NIV masks can be cleaned and re-used maximum five times.
Dräger Carina features the following technologies to support non-invasive ventilation and help address patient-device synchrony:

**SnycPlus®:** Automatic leakage compensation even for constantly varying leakage rates

**Auto wake-up:** Commences ventilation directly from standby mode with the first patient breath

**AutoAdapt:** Lets patients slowly adapt to ventilation assist pressures

**AutoFlow®:** Volume guarantee ventilation with pressure correction for changes in compliance

**Anti Air Shower:** Flow reduction during disconnect and automatic resumption of ventilation

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**Mask**

**Leak hose**

**Patients filter (HME)**

**Breathing bag**

**Trolley**
Possible accessories for different applications

Dedicated accessories for non-invasive ventilation results, increased patient comfort and superior therapeutic benefits:
- Patient comfort even in case of leaks or changing ventilation patterns
- Can reduce the work of breathing
- Can reduce needs of changes in ventilation settings for caregivers
- Complete system solution for non-invasive ventilation therapy

**INVASIVE VENTILATION**
In case of changes in the patient constitution the Carina can be used for invasive ventilation. For this kind of application the VentStar Carina ExpV breathing system should be used. It is also recommended for the use in situations where oxygen consumption could be critical. Providing a maximum pressure of 50 mbar the VentStar Carina ExpV should be used in patient profiles in which a higher pressure is essential.
**Comfortable for both the patient and the caregiver**

### ORDER INFORMATION

| Item                                      | Description                                                                 | Code  
|-------------------------------------------|------------------------------------------------------------------------------|-------
| Carina                                    | With country specific gas connector and main cable                           | 8419350 
| NovaStar SE, size S                       | NIV oronasal mask with standard elbow, reusable                             | MP01579 
| NovaStar SE, size M                       | NIV oronasal mask with standard elbow, reusable                             | MP01580 
| NovaStar SE, size L                       | NIV oronasal mask with standard elbow, reusable                             | MP01581 
| ClassicStar SE, size S                    | NIV oronasal mask with standard elbow, disposable                            | MP01573 
| ClassicStar SE, size M                    | NIV oronasal mask with standard elbow, disposable                            | MP01574 
| ClassicStar SE, size L                    | NIV oronasal mask with standard elbow, disposable                            | MP01575 
| ClassicStar®, size S                      | NIV nasal mask, non-vented, disposable                                       | MP01623 
| ClassicStar®, size M                      | NIV nasal mask, non-vented, disposable                                       | MP01624 
| ClassicStar® plus SE, size S              | NIV oronasal mask, with standard elbow, disposable                          | MP04710 
| ClassicStar® plus SE, size M              | NIV oronasal mask, with standard elbow, disposable                          | MP04711 
| ClassicStar® plus SE, size L              | NIV oronasal mask, with standard elbow, disposable                          | MP04712 
| ClassicStar® plus SE, size XL             | NIV oronasal mask, with standard elbow, disposable                          | MP04713 
| ClassicStar plus, size S                  | NIV nasal mask non vented, disposable                                        | MP04740 
| ClassicStar plus, size M                  | NIV nasal mask non vented, disposable                                        | MP04741 
| ClassicStar plus, size L                  | NIV nasal mask non vented, disposable                                        | MP04742 
| ClassicStar plus, size XL                 | NIV nasal mask non vented, disposable                                        | MP04743 
| ClassicStar SE, size S                    | NIV total-face mask, disposable                                              | MP02910 
| ClassicStar SE, size M                    | NIV total-face mask, disposable                                              | MP02911 
| ClassicStar SE, size L                    | NIV total-face mask, disposable                                              | MP02912 
| Pack2Go® Carina NIV                       | Ventilation pack with oronasal mask ClassicStar® SE, size S                 | MP01663 
| Pack2Go® Carina NIV                       | Ventilation pack with oronasal mask ClassicStar® SE, size M                 | MP01664 
| Pack2Go® Carina NIV                       | Ventilation pack with oronasal mask ClassicStar® SE, size L                 | MP01665 
| Two-sided pump ball                       | For air management                                                           | MP01590 
| VentStar Carina LeakV                     | Breathing circuit VentStar Carina LeakV, latex-free, disp., 1.5 m, 25 pcs.   | MP00312 
| VentStar Carina ExpV                      | Breathing circuit VentStar Carina ExpV, latex-free, disp., 1.5 m, 29 pcs.    | MP00313 
| VentStar Carina ExpV                      | Breathing circuit, latex-free, disposable, 2 m, (25 pcs.)                   | 5704862 
| SyncVent Carina                          | Leak valve single item; without hose (set of 5 pcs.)                        | MP00224 
| Expiratory valve                          | Expiratory valve single item; without hose (1 pc.)                          | MP00220 
| Filter CareStar 30                        | Breathing system filter                                                      | MP01770 
| Trolley 1 – 78 cm                         | Height of screen 105 cm, 78 cm height of backbone, total height 88 cm        | G93038 
| Trolley 1 – 63 cm                         | Height of screen 90 cm, 63 cm height of backbone, total height 73 cm         | G93037 
| Quick stop hinged arm                     | 3 hose clamps (single), 3 hose clamps (double)                              | 2MB5705 
| Connecting hose holder                    | Cable winder                                                                 | 2MB5446 
| Universal holder with standard rail       | Rail for humidifier                                                          | G93140 
| F&P Humidifiers and accessories           | Humidifier and reusable and disposable accessories                          | 8414144 
| HEPA filter                               | Inlet filter for Carina                                                      | 5703105 
| Ext. battery pack EU                      | European standard                                                            | 5704668 
| Ext. battery pack UK                      | British - BS 1363 Standard                                                   | 5704669 
| Ext. battery pack US                      | USA - NEMA 5-15P standard                                                    | 5704670 
| Ext. battery pack AUS                     | Australian - AS3112 standard                                                 | 5704671 
| Ext. battery pack CN                      | Chinese - GB1002 standard                                                   | 5704672 
| Battery Holder                            | Metal box on trolley                                                         | G93150 
| Test lung, blue                           |                                                                          | 8403301 
| Test lung, white                          |                                                                          | 8401892 
| O₂ monitor MiniOx                         |                                                                          | 2M22464 
| O₂ MiniOx Sensor                          |                                                                          | 2M22461 
| MiniOx rail holder                        |                                                                          | 2M22460 
| Aeroneb Pro nebuliser set                  |                                                                          | MP01010 |
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