



MT-0746-2008

## Advanced Anesthesia Solutions

DRÄGER APOLLO®  
ANESTHESIA  
WORKSTATION

# Personal support

## You're part of a complex healthcare environment ...

In an increasingly integrated healthcare environment, your job as an anesthesia provider is becoming ever more demanding. The interaction between your anesthesia workplace and the rest of the healthcare environment is increasingly complex. With a heightened emphasis on cost reduction in healthcare, our solutions help you reduce operating costs and optimize reimbursement. After listening to the needs and wishes of hundreds of users all over the US in the past decade, and after over a century of experience working closely with clinicians, we were determined to make your workflow more efficient and enhance your role in this integrated healthcare environment.

Your growing demands led to Apollo® – an anesthesia workstation designed not just to offer all-round performance, but to serve as your personal anesthesia assistant. Apollo combines a proven design concept with state-of-the-art technology to offer you a workflow-oriented anesthesia platform equipped to meet the clinical demands of today and tomorrow.



D-22412-2010

## ... Apollo helps you play a more effective role

### OPTIMIZED WORKFLOW

Apollo plays an important role in optimizing your anesthesia workflow and reducing process costs with features such as the fully automatic self-test. Since no user interaction is required, you are free to get on with other jobs. In addition to providing you with invaluable assistance through best-in-class therapy, Apollo also offers you an open-platform architecture – enabling it to be easily integrated into your overall workflow.

### IMPROVED MONITORING

Create your own custom-designed workplace by adding our Infinity patient monitoring system and peri-anesthesia information management system. Infinity's Pick and Go transport solution not only offers seamless monitoring during transport, its intelligent docking stations and clean cabling system minimize transition times while helping optimize data continuity and patient care.

Our latest monitoring solutions allow you to choose the high-efficiency data-access tools that make the most sense for your viewing needs. The new Infinity Omega Solution uses a two-screen system approach so you can see patient monitoring data and clinical

data simultaneously. It includes an Infinity Delta patient monitor with the Infinity Docking Station and a 20" touch screen smart display – all to help eliminate information access bottlenecks. This keeps you confidently on top of your entire environment and offers maximum flexibility for your long-term IT needs. With an optional Web browser, you can access Web-based applications as well.

The new Infinity Omega smart display patient monitor is perfectly suited for the OR. It offers an intuitive 20" touch screen that provides expanded monitoring arranged according to your clinical context on one section of the screen, while displaying real-time vital signs and trending on the other: There are no compromising pop-ups and no interruption of vital signs monitoring.

The amount of time needed for staff training is reduced, thanks to the common user interface of our anesthesia workstations and Infinity monitoring systems. For the ultimate in user efficiency, you can incorporate automated anesthesia record keeping with the Innovian Anesthesia data management solution.

### Why Apollo makes a difference

- Helps maximize OR utilization
- Speeds OR turnover
- Supports clinical decision making through enhanced monitoring capability
- Supports optimized workflow through best-in-class ergonomics



# To protect your investment Apollo can grow with you.



## You care about improving outcomes ...

### CONTINUITY OF CARE IN VENTILATION

As the proportion of elderly and critical-care patients in the OR rises, more is demanded of an anesthesia workstation. Apollo has the ventilation technology to care for patients of any age and acuity. The E-Vent plus servo controlled high-speed piston ventilator works with great precision to supply a maximum peak flow far in excess of any bellows ventilator, resulting in the kind of performance previously only seen in the ICU. Additionally, unlike a bellows ventilator, it requires no drive gas. The very short response time has clear physiological benefits for your patients while the digital precision helps you make the most of the latest ventilation modes. In Pressure Mode, Apollo has a number of features that are particularly beneficial for pediatric or critical-care patients.

Decelerating flow control and optimum flow in the face of inspiratory resistance add up to critical-care-quality ventilation. This eliminates the need for a separate ICU ventilator in the OR and sets a new ventilation standard. In synchronized Volume Mode, Apollo offers benefits such as an adjustable flow trigger that reduces the patient's respiratory work and adjustable PEEP. With E-Vent plus, you can switch smoothly from controlled to spontaneous respiration. In addition, Apollo is available with Pressure Support, an assisted spontaneous respiratory mode which allows the patient to breathe spontaneously for extended periods by reducing the work of breathing.

## ... we help you provide the best therapy

### INNOVATIVE USER INTERFACE

Another valuable feature is the large, configurable high resolution TFT color screen. This intuitive operating concept optimizes your workflow by ensuring that you can easily keep your eye on what's going on. The virtual flow tubes on the screen allow an exact dosing of the distinct gases, combined with the safety and reliability of mechanical flow controls and a backup total flow tube. Due to electronic gas-flow measurement, the export of fresh gas data to an information system allows monitoring of gas consumption. This supports cost reduction as the use of low-flow anesthesia is promoted.

Since Apollo takes up very little space, your workplace is also optimized without losing attractive features like a freely adjustable writing surface, great lighting and large, functional drawers.

### EASE OF OPERATION

Although its technical features are sophisticated, you'll be surprised by how simple Apollo is to use. Once staff know how to operate one device from the Dräger family, they can use them all – thanks to the wide range of operating features common to all Dräger Medical equipment and geared to worldwide industry standards.

### HOW APOLLO STANDS OUT

- Advanced ventilation capability provides ICU quality ventilation in the OR
- Spontaneous breathing support
- Electrically powered piston ventilator requires no drive gas
- Enhanced monitoring capability provides user with the information they need to make clinical decisions
- Easy to use, easy to move, easy to lock in place with a central foot brake
- You decide: Reusable or consumable accessories, sterilizable or non-sterilizable sensors, 2 or 3 mounted vaporizers



# Personal performance

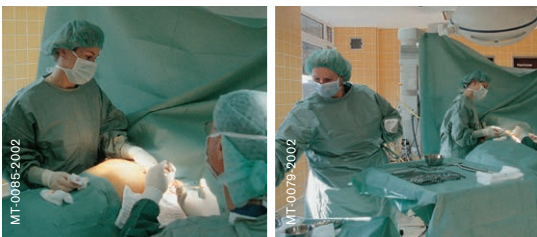
## You care about patient health ...

### INTELLIGENT NETWORKABILITY

Apollo enables all ventilation and gas-flow data to be collected and exported to an information management system, facilitating on-going documentation of the anesthesia process.

The data link to the Infinity patient monitoring system provides significant benefits. Infinity has a different approach to patient monitoring, giving you continuous patient information from the ER or ICU prior to surgery and a continuous record for post-surgery follow up.

Infinity has a different approach to bedside ergonomics and workflow with quick, convenient pod-based cable management. With the use of Infinity Explorer, you have the added benefit that all clinical information is available at the acute point of care. Infinity has a different approach to patient transport with the Pick and Go concept, saving time and money in transporting a patient to and from the OR. As a further advantage of this new information management approach, Infinity enables all caregivers to securely access information on any patient at any place and time. The intelligent difference can provide measurable and sustainable cost and quality benefits.



D-7648-2010



## ... we care about your needs

### ADVANCED ERGONOMICS

We at Dräger are just as concerned about your needs as you are about caring for your patients. That is why Apollo, the perfect “personal anesthesia assistant,” has so many practical and ergonomically sound features. The efficient, ergonomic design saves time and helps optimize your anesthesia workflow. The support we provide you through DrägerService and Education and Training also brings clear benefits.

### DRÄGERSERVICE

Downtime is the last thing you can afford in today's high-pressure clinical environment. Medical equipment needs to be operational 24 hours a day, seven days a week. Our answer to this challenge is to provide you with technical service programs for everything from individual devices to complete CareAreas™ – so you can maintain your performance.

### DRÄGER EDUCATION & TRAINING

Today, healthcare providers like you have to meet increasing quality standards. One step toward achieving this involves the safe and effective use of medical devices. Our education and training tools help empower your staff by developing knowledge and skills through learning.

### HOW PRACTITIONERS BENEFIT

- Efficient, ergonomic design saves time and optimizes workflow
- Service solutions maintain peak performance
- Support through device training and know-how transfer

## TECHNICAL DATA

Weight (without vaporizers and gas cylinders)	365 lbs. (165 kg)
Dimensions (H × W × D)	59 × 33.5 × 31.5 inches (150 × 85 × 80 cm)
Power	200 W, typically
Operating voltage	100 to 127 VAC (- 15 % + 10 %) 45 – 65 Hz
Integrated power backup	At least 30 min, typically 90 min; Depending on ventilation parameters
Ventilator E-Vent® plus	Electrically driven and electronically controlled, fresh gas decoupled
Ventilation modes	Manual, spontaneous, Volume Mode, Pressure Mode Optional/Synchronization: Pressure Support (PS), Volume Mode AutoFlow
Pressure limitation P <sub>MAX</sub> (in Volume Mode)	(PEEP + 10) up to 70 cmH <sub>2</sub> O
Pressure limitation P <sub>INSP</sub> (in Pressure Mode)	(PEEP + 5) up to 70 cmH <sub>2</sub> O
Trigger	0.3 – 15 L/min
Tidal volume V <sub>T</sub> (compliance compensated) (in Volume Mode)	20 – 1400 mL 5 – 1400 mL (with advanced ventilation option)
Breathing frequency (freq.)	3 – 100 bpm
Inspiration time (T <sub>INSP</sub> )	0.2 – 6.7 s
Inspiration/Expiration time ratio (I:E)	max. 5:1
Plateau time (T <sub>IP</sub> :T <sub>INSP</sub> )	0 – 60 %
Inspiratory flow (in Pressure Mode)	max. 150 L/min
PEEP in Volume Mode	0 – 20 cmH <sub>2</sub> O (max. P <sub>MAX</sub> – 10 cmH <sub>2</sub> O)
PEEP in Pressure Mode	0 – 20 cmH <sub>2</sub> O (max. P <sub>INSP</sub> – 5 cmH <sub>2</sub> O)
Fresh-gas flow	0 – 10 L/min for each gas (oxygen, air, nitrous oxide)
T <sub>SLOPE</sub> (in Pressure Mode and Pressure Support)	0 – 2 s
Total system leakage	< 150 mL/min at 30 cmH <sub>2</sub> O (automatic leak test)
O <sub>2</sub> flow control	Sensitive ORC function: at least 21 Vol.-% with N <sub>2</sub> O as carrier gas
O <sub>2</sub> flush	> 35 L/min

### Monitoring

Inspiratory and expiratory concentration of O<sub>2</sub>, N<sub>2</sub>O, CO<sub>2</sub> as well as anesthetic agents (Halothane, Enflurane, Isoflurane, Sevoflurane, Desflurane); Minute volume (MV) and Tidal volume (V<sub>T</sub>); Breathing frequency; Peak pressure, plateau pressure, mean pressure, PEEP; Patient compliance CPAT; Option: Functional oxygen saturation (SpO<sub>2</sub>); The following parameters may be displayed as waveforms:

Concentration of CO<sub>2</sub>, O<sub>2</sub>, as well as anesthetic agents, airway pressure, inspiratory and expiratory flow; Option: Plethysmogram; Bar graph display of volumeter and tidal volume; Virtual flow tubes for O<sub>2</sub>, AIR, N<sub>2</sub>O; Display of graphical trends and numerical lists of measured values; AutoSet for alarm limits

Serial interface	2 × RS 232
Protocol	Medibus, Medibus X
Absorber volume (reusable canister)	1.5 L

The colors of Apollo® may differ from the color of the Apollo® pictures in this brochure

Apollo, Infinity, Pick and Go, Innovian, E-Vent, DrägerService are trademarks of Dräger.

### CORPORATE HEADQUARTERS

Drägerwerk AG & Co. KGaA  
Moislinger Allee 53–55  
23558 Lübeck, Germany

[www.draeger.com](http://www.draeger.com)

### Manufacturer:

Drägerwerk AG & Co. KGaA  
Moislinger Allee 53–55  
23558 Lübeck, Germany

Locate your Regional Sales  
Representative at:  
[www.draeger.com/contact](http://www.draeger.com/contact)



### USA

Draeger Medical, Inc.  
3135 Quarry Road  
Telford, PA 18969-1042, USA  
Tel +1 215 721 5400  
Toll-free +1 800 437 2437  
Fax +1 215 723 5935  
[info.usa@draeger.com](mailto:info.usa@draeger.com)