Anesthesia as advanced as your MRI

FABIUS® MRI

Dräger. Technology for Life®
The MRI challenge

Flexibility is a great thing. In the proper setting, flexibility can help save both time and money, helping to improve overall efficiency. Every now and then, however, the need for a dedicated solution arises. Some applications are so demanding, so specialized, that they require a solution that was designed solely to serve that special purpose.

MRI is one of those specialized tasks. Restricted access, high throughput, limited space and strong magnetic fields can pose challenging work flow problems. In many parts of the world, hybrid diagnostic/therapeutic suites are emerging as the new gold standard for advanced treatment strategies. When one considers the high cost and complex logistics of building a modern MRI suite, it quickly becomes obvious that there is little or no margin for error. Once you build it, it's pretty much set in stone. It has to be done right the first time.
MADE WITH ERGONOMICS IN MIND
The Fabius MRI doesn’t just provide excellent ventilation. It was also designed to enhance your workflow. A large, high-visibility color screen keeps you informed on patient and ventilator status even from a distance. Integrated warning and alarm LEDs provide additional visual support. The intuitive menu structure and the familiar, 3-step Dräger operating philosophy – select, adjust, confirm – will move you almost effortlessly through its systems. Three large drawers built in to the trolley provide ample storage space for additional equipment and consumables. The external COSY breathing system features a simple design with very few parts for easy assembly and cleaning. It can be mounted on either side to precisely complement your individual needs. Equipped with our standard CLIC absorber, you can change soda lime canisters quickly and cleanly with no interruption of operation.

ANESTHESIA AND MRI
There are many reasons why anesthesia plays such a pivotal role in MRI diagnostics. A significant number of patients are critically ill and require ventilation support during both transport and imaging. Small children and neonates generally require sedation in order to eliminate motion artifacts. Neurosurgeons are now using MRI directly in the operating room to provide integrated planning and guidance for new and complex procedures. Other patients, while otherwise stable, suffer from claustrophobia and can’t tolerate the confined conditions inside a tomography unit without sedation. There’s no doubt: to get the most out of any MRI diagnostic unit, you need integrated anesthesia. But the question remains: Is your anesthesia workstation up to the challenge of the MRI environment?

ADVANCED ANESTHESIA
FOR ADVANCED APPLICATIONS: THE FABIUS MRI
The Fabius MRI features our high-precision E-Vent piston ventilator technology, renowned for both performance and safety. Its electronically controlled, electrically driven ventilator requires no drive gas, making it particularly well suited for the typical MRI environment. The Fabius MRI puts all the major ventilation modes at your fingertips, from volume and pressure controlled, pressure support and SIMV/PS. It lets you ventilate with ICU-like performance, providing enhanced safety, confidence and control and is equally suited for adult, pediatric and neonatal patients. With advanced features such as dynamic compliance compensation, fresh gas decoupling and a pop-up APL release valve, you can rest assured that ventilation is gentle, safe and precise. With its leak-tight breathing system, you can even use the Fabius MRI for low flow anesthesia. But that’s just the beginning. To make the Fabius MRI the ventilator of choice for MRI applications, it’s been engineered and built especially for use in powerful magnetic fields. In fact, the MR conditional Fabius MRI has been tested for use with MRI systems of 1.5 and 3 Tesla and can be safely operated at field strengths of 40 mtesla (400 gauss) from the tomography unit. This puts an end to extra-long breathing circuits with all the compliance and dead space issues involved. Now you can perform valuable diagnostics with enhanced confidence and safety.
COMPACT BREATHING SYSTEM “COSY 2.6”

- Clic-Adapter ready (Single use absorber)
- Short, flexible COSY mounting arm for enhanced ergonomics
- Integrated cable management
- Left- and right side mounting possible for optimal adaption and support of your MRI environment

HIGH RESOLUTION TFT COLOR DISPLAY

- Enhanced visibility thanks to optimized brightness and contrast
- A single screen controls all functions and monitors ventilation
- Oxygen monitoring
- Toggle between control and curve screen
- Standard Dräger user interface and operation

2 POWERFUL ADDITIONAL LEDS INTEGRATED IN THE TOP PLATE

- WARNING (yellow-flashing)
- ALARM (red-flashing)
- Visibility from different angles and from a distance e.g. the control room
NEW FRONTIERS
Modern advances in medical technology have brought about changes in medical philosophy. In many disciplines, the line between diagnostics and therapy is slowly disappearing. So-called "hybrid suites" or "hybrid theatres" are beginning to emerge as the method of choice to provide integrated high-resolution imaging and precision therapy in a single package. Here too, Dräger can assist you with both the technology and the know-how to create just such a solution for your hospital.

WE UNDERSTAND
Over the years, Dräger products have made such an impact on hospital design that it’s hard to imagine life without them. The name Dräger stands for quality and innovation the world over. So when you decide it’s time to add an MRI suite at your hospital, consider Dräger. We understand the special challenges involved in designing and building an MRI environment. Critical factors such as sufficient shielding, adequate access, ferro-magnetic materials and the need for specialized equipment – anesthesia workstations, monitors and even light bulbs – all have to be taken into account. Architectural considerations for the control room, patient holding area, changing rooms and of course the tomography unit itself have to be carefully thought through in order to achieve the best possible workflow for any given situation. The goal is to create an environment which lets you work smoothly and efficiently in spite of all the restrictions, helping you to get the most out of your suite.
Anesthesia as advanced

SPACE PLANNING IN THE MRI ENVIRONMENT

Today, the framework for anesthesia in the MRI environment is quite different from that found in the operating room. Anesthesia management for MRI doesn’t just involve simply duplicating comparable operating room requirements. Instead, its workflow design includes a dedicated space for patient pathways (this applies in particular to intensive care patients) which allows for proper patient care depending on the individual conditions and challenges involved. For this reason, a comparable space reserve and at least the device assembly space available in an operating room area have to be taken into account. In addition to the separate areas for patient preparation and recovery, the design of the transport path to the MRI must be barrier-free. The most direct access possible, as well as the paths between the rooms (e.g. preparation room, MRT room, recovery), which are generally separated by sliding doors, must be designed to accommodate patients on transport stretchers.

Further information regarding space planning and planning support can be found in the separate product information brochure for space planning in MRI environments.
DRAWING ON A WORLD OF KNOWLEDGE

To do this, we not only rely on our own extensive experience. We also draw on the expertise of strong partners who specialize in patient monitoring and infusion technology for MRI environments. We work together closely with architects and contractors to develop a highly efficient and ergonomic design that is best suited to your individual needs.

By taking advantage of a dedicated MRI solution, you can increase your overall efficiency by reducing transfer and setup times in the MR room. The time you save here can be put to better use – performing diagnostics.

PUTTING IT ALL TOGETHER

Let Dräger help you plan, build and run the MRI solution that’s right for you. It’s an investment in the future you won’t regret. Our representatives will be happy to show you the most efficient and effective answer to your MRI challenge.
Now Make the Right Choice for Service: DrägerService®

DrägerService offers a wide range of flexible service options which you can select and combine to meet your individual needs – from technical support to complete, fixed-budget service contracts. Remote Service solutions offer additional potential to improve the uptime of devices.

Accessories & Consumables

A wide array of MRI conditional accessories and consumables are available to choose from, giving you the possibility to tailor the Fabius® MRI to create exactly the anesthesia solution you need:

**VentStar® MRI 300**
- Disposable breathing circuit, consisting of 2 smoothbore hoses, Y-piece and LuerLock elbow.
- Suitable for use in MRI environment.
- Length: 300 cm (118 inch).
- Latex free.

**VentStar® MRI (N) 300**
- Disposable neonatal breathing circuit, consisting of 2 smoothbore hoses (Ø 10 mm), angled Y-piece with LuerLock.
- Suitable for use in MRI environment.
- Length: 300 cm (118 inch).
- Latex free.

**Spirolog® Flowsensor**
- Spirolog Flowsensor is a hot-wire sensor for measuring volumetric gas flow delivered by Dräger anesthesia devices and ventilators.

**CLIC Absorber 800+**
- Disposable CLIC Absorber 800+ is filled with Drägersorb 800+, 1.2 l (42.2 fl oz.).
## BASE UNIT

**Trolley Version (Cart) with COSY**
- **Fabius MRI Trolley (with COSY)**

### POWER AND BATTERY BACKUP
- **Power Input**: 100 to 240 VAC, 50 / 60 Hz, 70 VA, including additional power outlets
- **Operation time with fully charged batteries**: > 45 min

### ANESTHESIA GAS SUPPLY MODULE
- **Range of fresh gas flow indicators**: 0.0 to 12.0 L/min
- **Total fresh gas flowmeter**: 0 to 10 L/min
- **O₂ flush**: at 87 psi (6 bar); max 75 L/min; at 41 psi (2.8 bar); min. 25 L/min

### VENTILATOR OPERATING SPECIFICATIONS

**Ventilator E-vent®**
- **Electronically controlled, electrically driven**
- **Operating modes**: Volume Controlled Ventilation, Pressure Controlled Ventilation, Pressure Support, SIMV/PS, Manual Ventilation, Spontaneous Breathing

### CONTROL INPUT RANGES

- **Breathing Frequency (rate)**: 4 to 60 bpm
- **Positive End Expiratory Pressure (PEEP)**: 0 to 20 cmH₂O (hPa)
- **Inspiratory/expiration ratio (Ti:Te)**: 4:1 to 1:4
- **Pressure limiting (Pmax)**: 15 to 70 cmH₂O (hPa)
- **Tidal Volume (VT)**: 20 to 1400 mL in Volume Control, 20 to 1100 mL in SIMV/PS
- **Inspiration pause (Tip:Ti)**: 0 to 60 %
- **SIMV Inspiratory time**: 0.3 - 4.0 sec
- **Inspiratory pressure (Pinsp)**: PEEP + 5 to 65 cmH₂O (hPa)
- **Inspiratory Flow (InspFlow)**: 10 to 75 L/min in Volume and Pressure Control modes, 10 to 85 L/min in Pressure Support and SIMV/PS modes
- **Pressure Support Level (PPS)**: PEEP + 3 to 20 cmH₂O (hPa)
- **Min. frequency for apnoe-ventilation (Freq. Min.)**: 3 to 20 bpm and “OFF”
- **Trigger level**: 2 to 15 L/min

### VENTILATOR MONITORING
- **Monitoring**: Continuous monitoring of inspiratory O₂ concentration, breathing frequency, tidal volume (expiratory), minute volume (expiratory), peak airway pressure, PEEP, and selection of mean or plateau pressure. In addition, all fresh gas flow information is displayed as virtual flow tubes.

### BREATHING SYSTEM AND GAS SUPPLY

- **Volume of entire compact breathing system**: 1.7 L + bag
- **Volume of CO₂ absorber**: 1.5 L (standard) [option: Prefilled Dräger Sorb CLIC absorber with 1.2 Liter]
- **Gas Supply**: O₂, N₂O and Air
- **Cylinder Yokes**: Pin Index

### OTHER

- **Writing surfaces**: Pull-out tray (standard)
- **Additional accessories**: Secretion suction, anesthetic gas scavenging system