

Fabius Tiro M

The Fabius Tiro M is a compact anesthesia system that offers the full spectrum of anesthesia ventilation to military anesthesiologists/CRNAs in the field of operations. This unit can be used in a variety of mobile and stationary military applications where general anesthesia is required.



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The modular design allows all standard system components to be stored in a single container so that assembly and disassembly of the unit is easily accomplished. Functionality and user interface are identical with currently marketed Dräger Fabius family anesthesia machines used in high-acuity civilian operating rooms.

The Fabius Tiro M was designed to provide a full-featured anesthesia machine in a compact, easy to assemble package for use in military medical installations in the field.

VENTILATION

Electronically controlled, piston-driven ventilator uses no drive gas, decreasing fresh gas usage overall.

- Air entrainment capability allows the ventilator to continue to function in the absence of fresh gas flow, important in areas where central supply is non-existent and cylinder availability is sporadic.

- As an alternative in areas where central gas supply is not available, a defined oxygen generator is usable with Fabius Tiro M.
- Same technology, performance and user interface as the commercial Dräger anesthesia machines including critical care quality ventilation modes.
- Optional: Complementary products like Sevoflurane vaporizer, gas monitoring for CO₂ and agent as well as disposable soda lime absorber complete the Fabius Tiro M anesthesia workplace.

OVERALL SYSTEM

- Robust system that can withstand transport and continue to provide high-level functionality in the field of operations.
- Simple, modular design allows for full set-up within 15 minutes, without the use of tools.
- Entire system packs and ships in one container, assuring delivery of a complete anesthesia machine to the field.
- Easy-to-use interface reduces time required for clinicians to become familiar with the Fabius Tiro M.



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TECHNICAL DATA

Weight

Container basic empty	75.4 lbs. /34.2 kg
Container loaded or setup	198 lbs. /91 kg

Dimensions W x H x D

Container	(W) 30.11 in. x (H) 30.16 in. x (D) 30.11 in.
Fabius Tiro M setup on Container	(W) 49.8 in. x (H) 47.2 in. x (D) 31.9 in.

Ambient Conditions

Operation temperature	50 to 95 °F (10 to 35 °C)
Storage temperature	14 to 140 °F (-10 to 60 °C)
Power supply (rating non-configurable)	100 to 240 VAC, 50/60 Hz, 70 VA
Battery (supports ventilator and integrated monitor)	> 45 min
Operating modes	Standard: Manual / Spontaneous Volume Control (VC) Pressure Control (PC) Pressure Support (PS) Synchronized Volume Controlled Ventilation w/PS (SIMV/PS)
Breathing frequency	4 to 60 bpm
Positive end-expiratory pressure (PEEP)	0 - 20 cmH ₂ O
Inspiration/expiration ratio (Ti:Te)	4 : 1 to 1 : 4
Pressure limiting (Pmax)	15 to 70 cmH ₂ O
Tidal Volume (VT)	20 to 1400 mL in Volume Control 20 to 1100 mL in SIMV/PS
Inspiratory pause (Tip:Ti)	0 to 50 %
SIMV inspiratory time (T _{insp})	0.3 to 4.0 sec
Inspiratory pressure (P _{insp})	(PEEP + 5) to 65 cmH ₂ O
Inspiratory flow (InspFlow)	10 to 75 L/min in Volume and Pressure Control 10 to 85 L/min in Pressure Support
Pressure Support Level (ΔPPS)	PEEP +3 to 20 cmH ₂ O

Min. frequency for apnea-ventilation (Freq. Min.) Trigger	3 to 20 bpm and "OFF" 2 to 15 L/min
Integrated safety functions	Sensitive Oxygen Ratio Controller (S-ORC) guarantees a minimum O ₂ concentration of 23% in an O ₂ / N ₂ O mixture. N ₂ O cut-off if O ₂ fresh gas valve is closed or if O ₂ flow is less than 0.2 L/min. Audible and visual (flashing red LED) indication in case O ₂ pressure drops below 20 psi (1.38 bar) ± 4 psi (0.27 bar). In case of electricity and battery failure, manual ventilation, gas delivery and agent delivery are possible. Positive pressure relief valve opens at 75 ± 5 cmH ₂ O. Negative pressure relief valve opens at -7.5 to -9 cmH ₂ O.
Range of fresh gas flow indicators	0.00 to 12.0 L/min
Total fresh gas flow meter	0 to 10 L/min, calibrated with a mixture of 50% O ₂ and 50% N ₂ O mixture
O ₂ flush (bypass)	at 55 psi (3.8 kPa x 100): max. 50 L/min at 50 psi (3.4 kPa x 100): max. 35 L/min
Vaporizer Mount Monitoring	1 position Dräger mount Continuous monitoring of inspiratory O ₂ concentration, breathing frequency, tidal volume, minute volume, mean or plateau pressure, peak airway pressure as well as PEEP. In addition, all fresh gas flow information is displayed as virtual flow tubes.
Serial interface	1 x RS 232 (standard)
Protocols	Vitalink and Medibus
Data available for export	All fresh gas flow, ventilation and O ₂ data, flow curves and pressure curves
Volume of CO ₂ absorber	1.5 Liter, Option: Dräger Medical's prefilled CLIC absorber
Volume of entire compact breathing system	2.8 Liter + bag

HEADQUARTERS

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The quality management system at Dräger Medical GmbH is certified according to ISO 13485, ISO 9001 and Annex II.3 of Directive 93/42/EEC (Medical devices).