
# Dräger Atlan® A100/A100 XL Anaesthesia Workstation

Atlan A100/XL has been developed as a safe, robust and easy-to-use anaesthesia machine. The high precision piston ventilator supports lung protective ventilation measures while the gas mixing unit with mechanically controlled flow tubes enables a convenient and intuitive application of minimal- and low-flow anaesthesia. A variety of hard- and software options enhance its capabilities to suit your immediate needs.

Dräger

Technology for Life

# Dräger Atlan® A100/A100 XL


D-3063-2023

# Benefits

## Lung Protective Ventilation

The electronically controlled and electrically driven piston ventilator technology of the Atlan A100/XL anaesthesia machine helps to deploy lung protective ventilation measures that may improve outcomes.

- Synchronised piston movement with patient's expiration flow reduces the expiratory resistance to ease work of breathing
- Maintained set PEEP even in case of small leakage and during spontaneous breathing to reduce risk of atelectasis development
- High trigger sensitivity helps to detect weak spontaneous breathing efforts of patient
- AutoFlow* ensures the delivery of the set tidal volume with the lowest possible pressure to avoid pressure peaks and unintentional high tidal volumes
- High accuracy in tidal volume delivery even of very small VTs down to 10 ml (VT setting in VC)
- Pre-set VT and RR based on patient's ideal body weight support lung protective ventilation
- Trends and Loops option helps to assess the ventilation quality and to adapt the ventilation settings accordingly:
  – display of patient lung compliance with trend
  – P-V and V-Flow loops
- Highly accurate APL valve with a nearly linear increase and decrease in pressure pattern
- Compilation of relevant ventilation and haemodynamic patient data in one view display to assess therapeutic effects of lung recruitment manoeuvre**
- Guidance for optimised and patient oriented anaesthetic agent delivery in combination with Dräger's SmartPilot® View***

* Only with ventilation mode option
** Only with Dräger Infinity® Acute Care System (IACS) patient monitoring
*** Software requires Medical Grade PC

## Application of Minimal- and Low Flow Anaesthesia

To achieve optimal patient outcomes while minimising costs and environmental impact, our Atlan A100/XL is designed to deliver minimal- and low-flow anaesthesia seamlessly.

- Integrated active warming of breathing system reduces condensation
- Compact breathing system architecture to enable fast changes in fresh-gas and agent concentrations even with low fresh-gas flows
- Sample-gas recirculated back to the breathing system to eliminate gas loss
- Fresh-gas decoupling to ensure fresh-gas flow independent delivery of set tidal volume and ventilation pressures

## Workflow Efficiency & Ease of Use

The design architecture of the Atlan A100/XL anaesthesia machines allows customer-tailored configurations, ergonomic and user-friendly workstations for nearly every size of OR.

- Scalability of workstation set-ups:
  1. Compact trolley for small ORs
  2. Large trolley with more storage and writing surface
  3. Trolley version combined with media head of Dräger Ambia® ceiling supply unit:
     – enables cable-free floors
     – ensures secure connection when system is repositioned
     – offers additional mounting possibilities

# Benefits

4. Software upgrades for additional features
5. Hardware scalability
   – with integrated patient gas module or with only integrated $FiO_2$ measurement
   – with various mounting positions for patient monitors and IV pumps

- Standardised Dräger user interfaces and operating principles across the Dräger anaesthesia machines to reduce training efforts
- Compatibility with Dräger accessories and consumables to enhance performance and inventory management
- Graphically illustrated walk-through pre-test checklist to enable fast and intuitive preparation of the machine for self-test
- Fully automated system self-test* (no user interaction needed) to enable operational efficiency and to save staff time for other tasks
- Ex- and import of machine configuration via USB to save manual effort and time
- Workplace illumination to improve readability during minimally invasive surgery cases
- Cable management channels to reduce cable clutter, connection failures and cleaning efforts (optional)
- Automatic flow correction** to compensate the effect of gas composition on the flow measurement accuracy and to deliver precise inspiratory and expiratory values
- Monitoring mode offers capnography and $O_2$ nasal canula during regional anaesthesia***

* The pre-use checklist has to be performed by the user prior to the self-test. Machines with only inspiratory $O_2$ measurement require weekly calibration of $O_2$ cell (not applicable for PGM).
** Prerequisites for automatic flow correction on machines equipped with inspiratory $O_2$ measurement: The anaesthetic gas monitor (Dräger Vamos or Dräger Scio) must be connected to the COM 2 serial port.
*** Only with integrated patient-gas measurement module.

## Safety and Backup Functions

To enhance the safety of patients and clinical staff, the Atlan A100/XL offers you a wide range of functionalities.

- Backup manual mode (in case of ventilator, touch screen, or gas mixer failure) to allow manual ventilation while maintaining fresh-gas and anaesthetic agent delivery as well as ventilation monitoring to continue the case
- Fresh-gas and anaesthestic agent delivery is still possible even when the machine is switched-off
- Intuitive start in emergency case to reduce waiting time in critical situations
- Automatic xMAC monitoring* to notify an unintentional change in concentration of volatile anaesthetics to avoid awareness
- In case of central gas supply failure, missing or empty gas cylinders, mechanical ventilation is continued with ambient air
- Automatic self-test, which includes integrated pre-use checklist with illustrated step-by-step instructions helps to comply with national guidelines, such as DGAI (Germany), ASA/APSF (USA), AAGBI (UK)
- Piston ventilator technology to ensure accurate tidal volume delivery even in case of flow sensor failure
- Alarm– Cause– Remedy help function displays potential causes and solutions of current alarms on the screen to enable quick remedy

* Only with integrated patient-gas measurement module

# Benefits

## Infection Prevention and Control

Breaking the chain of infection and complying with your hospital's hygiene protocols is critical in today's clinical environment. The Atlan A100/XL anaesthesia machines, were designed with infection prevention regulations in mind to support hygiene measures in the OR.

- Tool-free and quick disassembly of breathing system with few parts to support adherence with infection prevention regulations
- Smooth and rounded surfaces to ease cleaning/wipe disinfection
- Cable ducts and channels to reduce number of potential contamination sources
- Compatibility with original Dräger single-use consumables to support hygiene standards
- Compliant with ISO 17664 (processing of healthcare products)

## Data Analytics & Digital Services*

Networked Atlan A100/XL anaesthesia machines, in conjunction with Dräger Connect, our innovative cloud-enabled digital platform, can offer digital valuable insights via data analytics and digital services to streamline workflows for efficiency and cost-optimisations in ORs:

OR Companion: Checks the live status (online, offline or in use) of the connected Atlan workstations to support effective management of ORs.

Upgrade the solution with the Self-Test Tracker option:

- Enables remote check of the system test results of all Atlan workstations across departments to optimise and streamline workflows for nursing staff and biomedical engineers
- Provides a centralised overview of the machine self-test results to streamline workflows for self-test procedures and to reduce start-up time
- Acts as an assistance system and immediately provides staff with troubleshooting steps

Device Utilisation Analytics: Consolidates all relevant information on the utilisation of your networked Atlan workstation fleet:

- Provides insights of the utilisation and the performance of the connected machines, avoids operational malfunction to improve efficiency
- Provides real-time online network status and operational state of each machine
- Saves costs through utilisation analyses and optimisation of the workstation fleet with fundamental data basis
- Provides a comprehensive data basis to support purchase decision making
- Improves the transparency of software status and updates to avoid security gaps

Connected Maintenance: Supports the uptime of your anaesthesia workstations - keeping them updated, safe and secure:

- Help Ticket: Delivers fast expert help for technical issues and a higher first-time fix-rate by sending technical device data information regularly or with a click of a button
- Software distribution: Manages software updates efficiently and securely with minimal disruptions to clinical workflows

* Both are optional and subject to applicable/licence terms of use. Require compatible medical devices and additional IT infrastructure.

# Benefits

## Fully-Integrated Workstation Solution

Together with Dräger Patient monitoring solutions (e.g. Infinity Acute Care System and Vista Patient Monitoring System), the Atlan A100/XL anaesthesia machine comprises a fully integrated anaesthesia workstation. This provides ventilation parameters, gas measurements and vital signs data on a single interface for a complete clinical view at the point of care to support decision making for enhanced patient care and efficiency during perioperative care. The workstation can also be connected to the hospital information system (HIS) and/or an electronic medical record via HL7 protocol to serve as a data source*.

* Subject to applicable/licence terms of use. Requires compatible medical devices and additional IT infrastructure.

## Cybersecurity

The Atlan A100/XL anaesthesia machine was designed with data protection in mind to combat dangerous and damaging cyber-attacks.
Atlan was developed as to our secure development lifecycle encompassing:

- Threat analysis to identify vulnerabilities during the development phase
- Independent 3rd party penetration testing to discover residual vulnerabilities
- Automatic code analysis along software development
- A secure boot ensures the integrity of the software running on the machine
- Continuous vulnerability monitoring along the lifecycle of the product
- Release of patches if relevant vulnerability is detected

# System Components

D-28736-2015

## Dräger Vapor® 2000 and D-Vapor®

As all other Dräger vaporisers, the Dräger Vapor 2000 series and D-Vapor deliver remarkable performance when it comes to precise agent delivery, safety, robustness, quality, and durability which may result in improved workflow efficiency, staff satisfaction, and clinical outcome.

# System Components

D-13374-2016

## Vista 120 S

Dräger understands the growing need for a patient monitor with built-in connectivity that provides essential monitoring at a good value. The Vista 120 S supports adult, paediatric and neonatal patients and can be used on its own or with a Dräger therapy device as a fully integrated workstation.

D-6829_2014

## Vista 120

Hospitals around the world share a common challenge– to provide the best possible care in locations with growing populations, stricter financial regulations and caregivers that are increasingly overloaded. The Vista 120 was engineered to meet your clinical needs and stay within your budget, allowing you to deliver efficient and high-quality patient care.

# Accessories

D-32542-2011

## Disposable breathing circuits

Reliably protect your patients and increase patient safety. As the interface between the patient and the anaesthesia or ventilator, our disposable breathing circuits are a central component of the medical system.

# Accessories

MT-4205-2008

## ComfortStar® - Anesthesia face masks

During anaesthesia-induced surgical procedures, every breath your patient takes is critical. With its unique teardrop or round-shape design, our ComfortStar® anaesthesia face masks provide a superior anatomical fit and seal performance. Comfortable to wear and easy to use, it is also compatible with all Dräger anaesthesia devices. ComfortStar® supports every patient age to breathe easier.

D-14348-2017

## WaterLock 2

Protects your patient, protects your gas measurement systems. Designed to give you reliable gas measurements, the Dräger WaterLock 2 helps you to effectively filter humid and contaminated exhaled air thanks to our advanced membrane technology. Keeping your patients and investments safe from water, bacteria, and potential viruses.

D-6414-2018

## Drägersorb 800+ – Soda Lime

Click and connect with 100% reliability. As one of the leading manufacturers of anaesthesia equipment, we believe in leading the way to producing high-quality soda lime that ensures your patients' and staff's safety to the highest degree. Drägersorb is more than just a formula, it is absorption efficiency — you can trust.

# Related Products

D-3390-2019

## Dräger Atlan® A300/A350 Ceiling and Wall

Imagine the flexibility to have one anaesthesia device platform with high-class safety in every OR. The comprehensive set of clinical features and proven ventilation quality makes Atlan the ideal anaesthesia workstation for all patients and surgical procedures. The platform design gives full flexibility for most spatial conditions. This flexibility is completed with dedicated Atlan variants mounted to a ceiling supply unit or a wall mount.

D-4252-2022

## Dräger Polaris® 600

Our OR light is state of the art: The Dräger Polaris® 600 makes your working day a lot easier– with intuitive controls and versatile configuration options. The future-proof system concept remains true to the philosophy of the product family providing you with simply good light.

# Technical Data

## Operating characteristics

| | |
|---|---|
| Atlan is available in two sizes of trolley, machine with small trolley for environments of use with constricted space, machine with large trolley for normal OR environments with adequate space. | |
| Weight of the compact trolley | Approx. 135 kg (298 lbs), basic setup |
| Weight of the large trolley | Approx. 160 kg (353 lbs), basic setup |
| Dimensions of the compact trolley (may deviate with hardware options) | (W x H x D) 74.5 cm x 140.3 cm x 69.2 cm<br>(29.3 in x 55.2 in x 27.2 in) |
| Dimensions of the large trolley (may deviate with hardware options) | (W x H x D) 93.3 cm x 140.3 cm x 72.4 cm<br>(36.7 in x 55.2 in x 28.5 in) |
| Dimensions of the work surface of the compact trolley | (W x D) 47 cm x 38 cm (18.5 in x 15.0 in) |
| Dimensions of the work surface of the large trolley | (W x D) 71 cm x 38 cm (28.0 in x 15.0 in) |
| Storage space and work surface | 1 lockable drawer, size (W x H x D) 37.9 cm x 15.4 cm x 36.4 cm (14.9 in x 6.06 in x 14.3 in), volume approx. 20 litres, large version with 2 additional drawers |
| | Work surface extension, foldable (W x D) 30 cm x 42.5 cm (11.8 in x 16.7 in), option |
| | Side shelves (option) |
| Material of the main housing parts | ABS |
| Power consumption | <95 W, during mechanical ventilation, maximum 400 W |
| Mains voltage | 100 to 240 V AC at 50/60 Hz |
| Internal battery backup time | At least 45 min, typically 120 min (with fully charged battery) |
| Data interfaces | 2 x serial ports (RS232) (MEDIBUS.X protocol), 1 x USB port, 1 x LAN |
| Connectivity, interoperability | Support of Data Analytics and Digital Services via Dräger Connect; compatible with Dräger Connectivity Converter CC300 to comply with ISO/IEEE 11073 SDC interoperability principles |
| Auxiliary power socket (option) | 4 country-specific power sockets, individually fused with 2 fuses per socket |
| Intended patient population | Adults, paediatric patients, and neonates |

## Gas supply

| | |
|---|---|
| Available as a 2-gas version ($O_2$/AIR) or a 3-gas version ($O_2$/AIR/$N_2O$), monitoring of supply pressure and electronic measurement of cylinder pressures (when using optional Dräger pressure reducer) | |
| Central gas supply, supply pressure for $O_2$, AIR, $N_2O$ | 2.7 to 6.9 kPa x 100 (39 to 100 psi) |
| Gas supply with gas cylinders ($O_2$, AIR, $N_2O$) | 1 or 2 standing gas cylinders (option) |
| | 2 or 3 suspended gas cylinders with pin-index connector (option) |
| | Park holder for 1 additional standing gas cylinder (option) |

# Technical Data

## Fresh-gas delivery

| | |
|---|---|
| Gas mixer technology | Mechanically controlled gas mixer with flowtubes |
| Fresh-gas flow (FG flow) | Off to at least 10.0 L/min ($O_2$, Air, and $N_2O$) |
| $O_2$ flush | 25 to 75 L/min at 2.7 to 6.9 kPa x 100 (39 to 100 psi; 0.27 to 0.69 MPa) supply pressure |
| $O_2$ flow with external flowmeter (Aux. $O_2$) | Off to 15 L/min |

## Ventilator and setting parameters

Electronically driven piston ventilator (E-Vent plus), fresh-gas decoupled, ventilation without drive gas i.e. no medical gases are consumed in operating the ventilator (regardless of gas supply). Adaptive piston control for optimised gas exchange times and fresh-gas utilisation, piston volume automatically adjusted according to patient category setting and ventilation parameters.

| | |
|---|---|
| Standard ventilation modes | Manual/Spontaneous (Man/Spon) |
| | VC - CMV |
| Optional ventilation modes | VC - CMV / AutoFlow |
| | VC - SIMV / AutoFlow |
| | VC - SIMV / PS / AutoFlow |
| | VC - SIMV |
| | VC - SIMV / PS |
| | PC - CMV |
| | PC - SIMV |
| | PC - SIMV / PS |
| | CPAP / PSV (with adjustable RR for backup ventilation) |
| | External fresh-gas outlet for use with non-rebreathing systems |
| Respiratory rate (RR) | 3 to 100 /min |
| Inspiratory time (Ti) | 0.2 to 10.0 s (resulting ratio I:E 1:49 to 49:1) |
| Ratio of inspiratory time to expiratory time (I:E) | 4:1 to 1:10 (setting parameter I:E) |
| Tidal volume (VT) at VC modes (setting parameter) | 10 to 1500 mL |
| Tidal volume monitoring, lowest detectable VT | ≤3 mL for the "Paediatric patients" and "Neonates" patient categories |
| | ≤20 mL for the "Adults" patient category |
| Trigger threshold (Trigger) | 0.3 to 15 L/min |
| Peak inspiratory flow | 180 - 220 L/min |
| Inspiratory pressure (Pinsp) | PEEP +5 to 80 hPa ($cmH_2O$)<br>(7 to 80 hPa ($cmH_2O$) when PEEP = Off) |
| Pressure limitation (Pmax) | PEEP +5 to 80 hPa ($cmH_2O$)<br>(7 to 80 hPa ($cmH_2O$) when PEEP = Off) |
| Pressure support above PEEP (ΔPsupp) | Off, 3 to (80 - PEEP) hPa ($cmH_2O$)<br>(Off, 3 to 78 hPa ($cmH_2O$) when PEEP = Off) |
| Positive end-expiratory pressure PEEP | Off, 2 to 35 hPa ($cmH_2O$) |

# Technical Data

## Breathing system

Heated breathing system for low-flow and minimum-flow applications, disassembly without tools, design optimised for easy and effective hygienic reprocessing. All patient-gas leading components are autoclavable.

| | |
|---|---|
| Total volume without $CO_2$ absorber | 2.18 L when applying the maximum VT of 1500 mL, typically lower volume acc. to patient category setting and ventilation parameters |
| Filling volume of the $CO_2$ absorber | Reusable $CO_2$ absorber: 1500 mL ±50 mL |
| | Disposable $CO_2$ absorber CLIC absorber 800+: 1300 mL ±50 mL |
| | Disposable $CO_2$ absorber CLIC absorber Free: 1200 mL ±50 mL |
| Reprocessing | Cleaning, disinfection, replaceable without tools, less than 13 reprocessing relevant components (depends on the machine configuration) |

## Anaesthetic gas scavenging system (AGS)

Available as active or passive anaesthetic gas scavenging system for operation with or without adequate scavanging system infrastructure; detection of excessive suction flows, with connector for sample gas disposal when using third-party patient gas measurement modules.

| | |
|---|---|
| Active AGS | For connection to an anaesthetic gas scavenging system<br>With a control valve (option) or an ejector (option) |
| Passive AGS | For connection to a disposal system with low or no suction flow<br>With overpressure valve and underpressure valve |

## Displays and monitoring systems

| | |
|---|---|
| Main screen | 15.3" (38.9 cm) TFT LCD touchscreen, configurable screen contents, smart alarm management with extensive support system |
| Screen configuration | Depending on the machine configuration, simultaneous display of 2 or 3 real-time colour-adjustable waveforms for: airway pressure, inspiratory and expiratory flow, $CO_2$, $O_2$, and anaesthetic agents; tabular trends; quick access to 3 configurable views |
| Front panel | Flow tubes for display of the set fresh-gas flow, pressure gauges for gas supply from central supply and display for mains power supply and internal battery |
| Trends and Loops (option) | Display of graphical trends and loops (Volume-Pressure and Flow-Volume); additional data export functions via USB storage device |
| Ventilation monitoring | Minute volume (MV) and tidal volume (VT and ΔVT); respiratory rate (frequency); peak inspiratory pressure (PIP), plateau pressure (Pplat), mean airway pressure (Pmean), PEEP; dynamic compliance (Cdyn), resistance (R), elastance (E), external pressure gauge (optional) for indicating the pressure in the internal breathing system |

# Technical Data

## Gas monitoring

| | |
|---|---|
| Available as machine with oxygen cell for inspiratory $O_2$ monitoring or with integrated patient-gas measurement module (PGM) | |
| Machine with inspiratory $O_2$ monitoring | $O_2$ sensor cell with 2 years guaranteed minimum life span and with life span monitoring, electrochemical measurement principle |
| Machine with patient-gas measurement module (PGM) | Inspiratory and expiratory gas concentration of $O_2$, $N_2O$, $CO_2$ and anaesthetic agents, automatic identification of isoflurane, sevoflurane, desflurane, halothane, enflurane, detection of anaesthetic gas mixtures, age-corrected xMAC display; sample gas returned to the breathing circuit |

## Safety functions

- The integrated machine checklist and illustrated step-by-step instructions for daily machine preparation help to comply with national guidelines, such as DGAI (Germany), ASA/APSF (USA), AAGBI (UK)
- Man/Spon ventilation with dosing of fresh-gas mixer and anaesthetic agents possible even when switched off (emergency start-up)
- Backup manual mode allows the direct change to manual ventilation while maintaining gas and ventilation monitoring; anaesthetic agents from the vaporisers can be continuously delivered via the fresh-gas mixer
- Mechanical ventilation with ambient air in case of complete failure of the gas supply, the change to intravenous anaesthetic agents is required

## Comfort functions and other features

- Fully* automatic self-test including calibration of all relevant sensors and checking all valves in the breathing system; normally no user action necessary after start of test
- Autoset function for adjusting alarm limits
- Cardiac bypass mode to avoid unnecessary alarms when using the heart-lung machine
- Breathing bag as an indicator of fresh-gas deficiency and leaks
- Data storage on USB storage device (alarm history, self-test results, screen shots, trends and machine configurations)
- Time-saving transfer of default settings and configurations to other Atlan A100/XL machines via USB storage device
- Integrated, dimmable illumination of working and documentation surfaces
- Free, six-week trial version of all available software options. Trial period expires automatically.

* Device with integrated $O_2$ monitoring requires weekly calibration of the $O_2$ cell (not applicable for PGM)

Not all products, features, or services are for sale in all countries.
Mentioned Trademarks are only registered in certain countries and not necessarily in the country in which this material is released. Go to www.draeger.com/trademarks to find the current status.


**CORPORATE HEADQUARTERS**
**Drägerwerk AG & Co. KGaA**
Moislinger Allee 53–55
23558 Lübeck, Germany
www.draeger.com

**Region Europe**
**Drägerwerk AG & Co. KGaA**
Moislinger Allee 53–55
23558 Lübeck, Germany
+49 451 882 0
+49 451 882 2080
info@draeger.com

**Region Asia Pacific**
**Draeger Singapore Pte. Ltd.**
61 Science Park Road, The Galen
#04-01
Singapore 117525
+65 6872 9288
+65 6259 0398
asia.pacific@draeger.com

**Region Central and South America**
**Dräger Indústria e Comércio Ltda.**
Al. Pucurui - 51 - Tamboré
06460-100 Barueri, São Paulo
+55 (11) 4689-4900
relacionamento@draeger.com

**Manufacturer**
**Drägerwerk AG & Co. KGaA**
Moislinger Allee 53-55
23558 Lübeck

**Region Middle East, Africa**
**Drägerwerk AG & Co. KGaA**
Branch Office
P.O. Box 505108 Dubai, United Arab Emirates
+971 4 4294 600
+971 4 4294 699
contactuae@draeger.com


Locate your Regional Sales Representative at:
www.draeger.com/contact