

# Dräger Atlan® A350/A350 XL Anaesthesia Workstation

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 make Atlan the ideal anaesthesia workstation for all patients and surgical procedures. The platform design gives full flexibility for most spatial conditions. The A350/A350 XL is equipped with an electronic gas mixer with automatic fresh-gas composition control.

Easy and convenient operation with a standardised user interface and nomenclature implemented into many Dräger devices across the OR and ICU

Lung-protective, ICU-like quality ventilation capabilities for each patient's individual needs

Flexible and transportable monitoring solutions ensures continuous patient monitoring (optional)



Ergonomic, compatibility-tested workstation combinations with patient monitoring, IT screens and third-party components, such as IV pumps

Enhanced safety functions allow manual control especially in emergency situations

Two different trolley size versions to meet spatial conditions of different OR areas

Atlan® A350 XL workstation incl. Infinity® Delta patient monitoring, C700 for SmartPilot® View

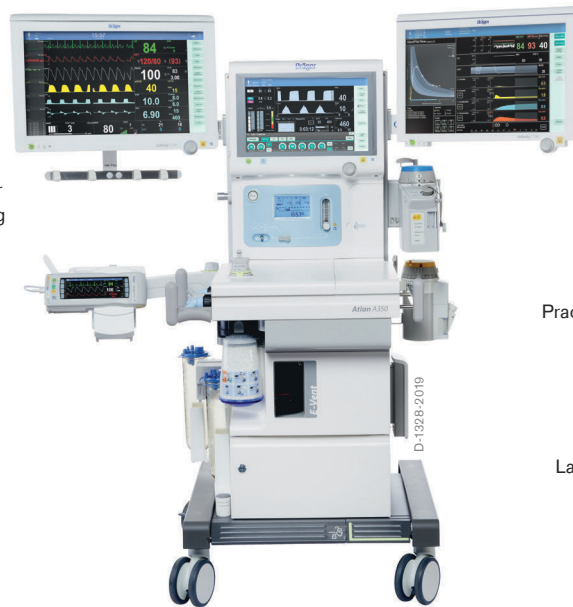
## Dräger Atlan® A350/A350 XL

Image-guided pre-use checklist and comprehensive, fully automatic self-test

Tool-free and quick disassembly of breathing system; designed for effective cleaning and disinfecting

Heated breathing system, optimised for low- and minimal flow anaesthesia

High-performance E-Vent® plus piston ventilator for precise VT delivery, active PEEP control and high trigger sensitivity



Large touch screen with configurable screen layouts and context-sensitive operating concept

Backup manual mode for manual control in emergency situations

Practical hooks, handles and brackets support tidy workplace set-up with e.g. hose and cable guidance

Large work surface, lockable drawer and additional shelves (optional) for optimal working conditions and supplies storage

Atlan® A350 workstation incl. Infinity® ACS patient monitoring, C700 for SmartPilot® View

## Benefits

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### Patient Safety

Atlan offers a wide range of functionalities to help make the anaesthesia process safer for patients and clinical staff. First, customisable screen layouts in combination with Dräger monitoring provide a quick to grasp overview of the patient status just the way you need it. Additionally, decision-support tools assist in making informed and safe decisions.

RFID safety features help avoid the incorrect connection of breathing hoses with the anaesthesia device leading to the inability to ventilate the patient. They also remind you of exchanging expiring accessories in time. Smart safety backups, such as the backup manual mode provide fallback safety in critical situations ensuring full control over the system at any time.

### Flexibility

Atlan is the "can do all" anaesthesia workstation for all your patients, procedures and spatial conditions. The workstation set-up can be tailored to your specific needs and upgraded later, if features could not be afforded upon initial purchase. This results in the ability to have the same anaesthesia workstation with a unified user interface in all rooms, thus reducing the need to continuously re-train staff (learn-one-know-all) and the efforts for biomed to manage the fleet.

### Lung Protection

Perioperative lung-protective ventilation approaches have been demonstrated to reduce the risk for postoperative pulmonary complications. Atlan offers numerous features to support the anaesthesiologist to protect the patient's lungs during surgery. Among others, ICU-like ventilation performance comes as a standard, including precise tidal volume delivery (even independent from fresh-gas flow), active PEEP and high trigger sensitivity for spontaneous breathing. Atlan also supports the safe and efficient application of low- and minimal-flow anaesthesia by using its Econometer to make the user aware of fresh-gas flow deficits and surpluses. Moreover, it provides a very leak-tight breathing system as well as a sample-gas recirculation function. Last but not least, Atlan comes with a heated breathing system to reduce condensation.

### Decision Support

In general, anaesthesia workplaces offer a wealth of information and data which are often not well contextualised and can thus be of limited use. Atlan provides meaningful support to help clinicians make informed decisions quickly. From the Econometer which provides you with graphical information on whether fresh-gas flow is sufficient or not during minimal-flow anaesthesia, to the monitoring of oxygen and anaesthetic agent uptake. In addition, Dräger's IACS patient monitoring allows the user to analyse the efficacy of recruitment manoeuvres while SmartPilot® View supports anaesthetic drug titration providing additional safety in complex clinical decisions. Some of the afore mentioned functionalities are optional and may require additional hardware.

## Benefits

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### Infection Prevention

Atlan was designed with easy yet effective cleaning in mind. Tool-free disassembly of the breathing system as well as smooth and rounded surfaces ease the cleaning process and enhance compliance with cleaning standards. Parts and materials were designed to be cleaned effectively with standard procedures while ensuring material durability. In addition, the broad range of tested Dräger consumables provide an effective way to further facilitate infection prevention while ensuring the best performance of your Atlan anaesthesia workstation.

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### Connected Technologies

Continued, networked monitoring with Dräger Infinity® Acute Care System (IACS) allows for uninterrupted surveillance of the patient with a customised, well-organised view of relevant parameters. Data can get continuously transferred into the hospital information system (HIS).

RFID technology provides advanced safety features such as alarm on wrongly connected breathing hoses (mismatch control) and alarms upon expiry of critical accessories, such as soda lime cartridges and water traps.

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### Cybersecurity

Cyber attacks are an increasing threat for hospitals negatively impacting care and hospital finances. Atlan comes well-protected from cyber attacks with a hardened system architecture and hardware-based separation of critical and non-critical processes. This, for example, allows the continuation of ventilation, if the network interface should get attacked. Dräger has implemented cybersecurity deeply into R&D processes also deploying external, professional penetration tests to make sure relevant security flaws are identified and fixed prior to market release. Dräger cybersecurity whitepapers provide comprehensive information for hospital IT managers.

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### Comprehensive Services

#### **360° Services for the complete product lifecycle**

Dräger offers a wide range of service solutions. As the designer and manufacturer of high-quality medical equipment, we have the exclusive knowledge, experience and skills to install and maintain your Dräger systems to perform at their best along the entire lifecycle.

We at Dräger are committed to provide services tailored to the specific needs of your hospital in order to best support your efforts to drive clinical outcomes and to achieve your business goals.

Therefore, our offering goes way beyond classical device maintenance. It encompasses comprehensive services prior, during and after the installation of your purchased devices:

- Product Service: i.e. device maintenance
- Professional Service: e.g. IT consulting and system integration
- Training on our products and services: e.g. application training

## Benefits

- Multivendor Service: maintenance for your entire medical equipment regardless of the manufacturer
- Digital Services: e.g. network-based services and analysis of device data

## System Components



### Dräger Vapor® 2000 and D-Vapor®

Dräger vaporisers have been the benchmark for quality for over 50 years. Quality trusted by doctors and nurses around the world: to date, over 400,000 Vapor units have been sold to hospitals around the world.



### Infinity® Acute Care System

Transform your clinical workflow with Infinity® Acute Care System. Its multiparameter monitor integrates with its networked medical-grade workstation, giving you real-time vital signs, access to clinical hospital systems and data management applications for a comprehensive range of patient information and powerful analysis tools at the point-of-care.

## System Components



MT-8845-2006

### Infinity® Delta XL

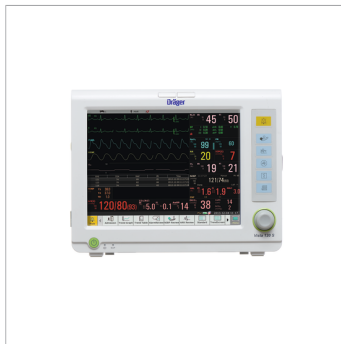
With a 12.2" (310 mm) colour screen, the Delta XL monitor can continuously monitor patients both at the bedside and during transport – thus eliminating the need for separate transport monitors. Supports all patient types and acuity levels throughout the hospital.



D-19709-2015

### Dräger SmartPilot® View

SmartPilot® View provides innovative state-of-the-art modelling technology and a comprehensive visualisation concept of complex drug effects to display current and predicted anaesthesia levels. This intuitive display provides support at all phases of anaesthesia.



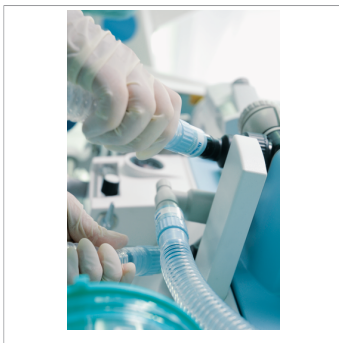
D-13374-2016

### 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, pediatric and neonatal patients and can be used on its own or with a Dräger therapy device as a fully integrated workstation.

## Accessories

D-14586-2009



### Infinity® ID-accessories

Each and every Infinity® ID-accessory has been designed to offer additional functionality, which can help you simplify routine tasks, streamline workflow and increase safety levels.

D-14348-2017



### WaterLock 2

Perfect protection for precise gas measurement. Dräger WaterLock 2 safely stops water from getting into the multi-gas sensor. The measurement system is optimally protected by Dräger's special membrane technology.

MT-2002-2008



### Drägersorb® Soda Lime

High safety and CO<sub>2</sub> absorption capacity. Soda lime is essential for CO<sub>2</sub> absorption in inhalation anaesthesia machines with rebreathing systems. Yet conventional soda lime can produce Compound A and carbon monoxide.

MT-2909-2008



### Breathing Systems and Accessories

Bringing indispensable experience to disposable convenience.

## Related Products



D-3390-2019

### Dräger Atlan® A300/A350 Ceiling Variant

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-6835-2011

### Dräger Perseus® A500

Outstanding ventilator technology meets the latest approaches to ergonomics and system integration in one innovative anaesthesia machine, developed together with experts from all over the world to streamline your anaesthesia workflow.



D-9003-2016

### Dräger Zeus® Infinity® Empowered

The Dräger Zeus® Infinity® Empowered (IE) combines ease of use with innovative technology. Taking the anaesthesia process well beyond present frontiers, the Zeus® IE represents a technological milestone which gives you an outstanding system integration and workflow control. The Dräger Zeus® IE lets you concentrate on your patient, not on your workstation.



D-12287-2011

### Dräger Fabius® MRI

Increase the diagnostic capability of your MRI unit with the help of state-of-the-art ventilation in the Dräger Fabius® MRI anaesthesia system specially designed for use in MRI environments.



## Technical Data

### Operating characteristics (Trolley variant)

Atlan is available in two trolley variants, variant with small trolley for environments of use with constricted space, variant with large trolley for normal OR environments with adequate space.

Weight of the compact variant	Approx. 135 kg (298 lbs), basic setup
Weight of the large variant	Approx. 160 kg (353 lbs), basic setup
Dimensions of the compact variant (may deviate with hardware options)	(W x H x D) 74.5 cm x 140.3 cm x 69.2 cm (29.3 in x 55.2 in x 27.2 in)
Dimensions of the large variant (may deviate with hardware options)	(W x H x D) 93.3 cm x 140.3 cm x 72.4 cm (36.7 in x 55.2 in x 28.5 in)
Dimensions of the work surface on the compact variant	Width approx. 47 cm (18.5 in), depth approx. 38 cm (15.0 in)
Dimensions of the work surface on the large variant	Width approx. 71 cm (28.0 in), depth approx. 38 cm (15.0 in)
Storage space and work surface	1 lockable drawer, 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)
Additional pull-out work surface	(Width x depth) approx. 34 cm (13.39 in) x 25 cm (9.65 in), option with large variant
Power consumption	<95 W, during mechanical ventilation, maximum 400 W
Mains voltage	100 to 240 V AC at 50/60 Hz
Maximum power consumption	4 A
Internal battery backup time	At least 45 min, typically 120 min (with new and fully charged battery)
Data interfaces	2 x serial ports (RS232) (MEDIBUS.X protocol), 1 x USB port, 1 x LAN
Auxiliary power socket strip (Option)	4 country-specific power sockets, individually fused with 2 fuses per socket

### Ambient conditions

Temperature	10 to 40 °C (50 to 104 °F)
Ambient pressure	650 to 1,060 hPa (9.0 to 15.3 psi) corresponds to a maximum of 3,500 meters altitude

### Intended patient population

Adults, paediatric patients, and neonates

### Gas supply

Available as a 2-gas version (O<sub>2</sub>/AIR) or a 3-gas version (O<sub>2</sub>/AIR/N<sub>2</sub>O), electronic measurement and monitoring of supply pressure of all connected gases (for gas cylinders with optional Dräger pressure reducer)

Central gas supply, supply pressure for O <sub>2</sub> , AIR, N <sub>2</sub> O	2.7 to 6.9 kPa x 100 (39 to 100 psi)
Gas supply with gas cylinders (O <sub>2</sub> , AIR, N <sub>2</sub> O)	1 or 2 standing gas cylinders (option) 2 or 3 suspended gas cylinders with pin-index connector (option) Holder for 1 additional standing gas cylinder (option)

### Fresh-gas delivery

Gas mixer technology	Electronically controlled gas mixer with manual emergency O <sub>2</sub> delivery
Fresh-gas flow (FG flow)	Off; 0.2 to 15 L/min
O <sub>2</sub> concentration (FG O <sub>2</sub> )	21 to 100 Vol% (carrier gas: AIR); 25 to 100 Vol% (carrier gas: N <sub>2</sub> O)
O <sub>2</sub> 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
Flow for O <sub>2</sub> insufflation (Aux. O <sub>2</sub> )	Off; 2 to at least 10 L/min Flow for O <sub>2</sub> insufflation (Aux. O <sub>2</sub> ) is also passed through the vaporiser when switched off

## Technical Data

### 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). All patient-gas leading components are autoclavable.

Standard ventilation modes	Manual /Spontaneous (Man/Spon) Volume-controlled: time controlled (VC-CMV) Pressure-controlled: time controlled (PC-CMV)
Optional ventilation modes	AutoFlow time controlled (VC-CMV/AF) Volume-controlled, synchronised (VC-SIMV) Pressure-controlled, synchronised (PC-SIMV) AutoFlow, synchronised (VC-SIMV/AF) CPAP / PSV External fresh-gas outlet
Respiratory rate (RR)	3 to 100 /min
Inspiratory time (Ti)	0.2 to 10 s
Ratio of inspiratory time to expiratory time (I:E)	1:50 to 50:1
Tidal volume (VT)	10 to 1,500 mL 5 to 1,500 mL with option for "Advanced neonatal support"
Trigger threshold (Trigger)	0.3 to 15 L/min
Inspiratory flow (Flow)	Minimum 0.1 L/min, maximum $\geq 160$ L/min
Inspiratory pressure (P <sub>insp</sub> )	PEEP +5 to 80 hPa (cmH <sub>2</sub> O)
Pressure limitation (P <sub>max</sub> )	PEEP +10 to 80 hPa (cmH <sub>2</sub> O)
Pressure support above PEEP ( $\Delta$ psupp)	Off, 3 to (80 - PEEP) hPa (cmH <sub>2</sub> O)

### Breathing system

Heated breathing system for low-flow and minimum-flow applications, disassembly without tools, design optimised for easy and effective hygienic reprocessing.

Total volume	Approx. 3.65 L (incl. CO <sub>2</sub> absorber when applying a maximum tidal volume of 1,500 mL)
Absorber volume	Approx. 1.2 to 1.5 L
Reprocessing	Cleaning, disinfection, replaceable without tools, less than 11 individual components during reprocessing

### Anaesthetic gas scavenging system (AGS)

Available as active or passive anaesthetic gas scavenging system for operation with and without adequate scavenging 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 With a control valve (option) or an ejector (option)
Passive AGS	For connection to a disposal system with low or no suction flow Maximum inlet flow 0.5 L/min With overpressure valve and underpressure valve

### Measuring systems and displays

Screen	15.3" (38.9 cm) touchscreen, configurable screen contents, smart alarm management with extensive support system
Screen configuration	Depending on the machine configuration simultaneous display of 2, 3 or 4 real-time curves for: concentration of CO <sub>2</sub> , O <sub>2</sub> , and anaesthetic agents, airway pressure, inspiratory and expiratory flow; display of virtual flow tubes for O <sub>2</sub> , AIR, N <sub>2</sub> O, of tabular trends, quick access to 3 screen layouts.
Device status display	Front Panel with LC display of airway pressure, supply status of battery and gases (CGS + cylinders)

## Technical Data

Advanced trend display (Option)	Display of graphical trends or mini-trends simultaneously with real-time curves and volume-pressure loop; additional data export functions via USB storage device
Ventilation monitoring	Minute volume (MV) and tidal volume (VT and $\Delta VT$ ); 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 for indicating the pressure in the internal breathing system
Advanced ventilation monitoring (Option)	Bar diagram display of volume and tidal volume, simultaneous display of 2 loops: Volume-pressure and flow-volume, reference loop

### Gas monitoring

The device can monitor inspiratory O <sub>2</sub> concentration or use the integrated patient-gas measurement module for O <sub>2</sub> , N <sub>2</sub> O and anaesthetic agents	
Version with integrated inspiratory O <sub>2</sub> sensor cell	O <sub>2</sub> sensor cell with 2 years guaranteed minimum life span and with life span monitoring
Version with integrated patient-gas measurement module	Inspiratory and expiratory gas concentration of O <sub>2</sub> , N <sub>2</sub> O, CO <sub>2</sub> 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
Advanced gas monitoring (Option by PGM module)	Econometer for displaying fresh-gas efficiency (optionally including trend and/or in the form of low-flow wizard), determination of consumption and uptake (determination of uptake only for anaesthetics), fresh-gas and anaesthetics per case and since last zeroing

### Safety functions

- The integrated device checklist and illustrated step-by-step instructions for daily machine preparation help to comply with national guidelines, such as DGAI (Deutschland), ASA/APSF (USA), AAGBI (UK)
- Man/Spon ventilation with dosing of O<sub>2</sub> 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; O<sub>2</sub> and anaesthetic agents from the vaporisers can be continuously delivered
- Mechanical ventilation with ambient air in case of complete failure of the gas supply, the change to intravenous anaesthetic agents is required
- Real-gas O<sub>2</sub> test integrated in automatic machine self-test (option with patient-gas measurement module)

### Comfort functions and other features

- Automatic start-up and self-test of machine including calibration of all sensors and testing of all control valves; normally no user action necessary after start of test
- Autaset function for adjusting all alarm limits, CBM mode (cardiac bypass mode) deactivates the alarms when using the heart-lung machine
- Breathing bag as an indicator of fresh-gas deficiency and leaks
- Pause mode for short-term interruptions of ventilation and fresh-gas flow
- Data storage on USB storage device (alarm history, self-test results, screen shots, trends and machine configurations; optionally: log files)
- Time-saving transfer of device default settings and configurations to other Atlan devices (export and import of configuration data via USB storage device)
- Integrated, dimmable illumination of working and documentation surfaces
- Central brake, smooth running castors with optional cable deflectors
- Free, six-week trial version of all available software options, activated individually by a Dräger representative. Option expires automatically after end of trial period.

## Notes

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