

A fresh start.



■ Innova E Series with Channel Monitoring System

From clinics to CSSD's,
Innova E series is the perfect
solution for your endoscope
reprocessing needs

Atherton

 **BHT**
Disinfection Technology
A SciCan Group Company

Your partner in **endoscope reprocessing.**



Choosing the right partner for your endoscope reprocessing needs is an important decision, affecting the health of patients and staff.

BHT, a SciCan Group Company has been manufacturing flexible endoscope reprocessors since 1978, providing technological leadership and research in this important field. Located in the heart of Bavaria, BHT manufactures high quality equipment which is exported around the world.

In 2005, BHT was awarded the Frost and Sullivan Innovation award for its innovative channel monitoring system for AER's. BHT is ISO 13485 certified and holds a CE certificate. In 2008, the long awaited ISO 15883 part 4 standard for flexible endoscope reprocessors was released. All the BHT Innova E series machines have been designed in accordance with this new international standard, assuring hospitals and patients of the highest standard of care.

In the UK the additional requirements for HTM 2030 are met.

Designed without compromise

Quality

- The Innova line embodies Quality in its design and workmanship. Made in Germany to the highest standards, machines are constructed of CrNi 1.4301 (AISI 304) stainless steel, with double walled chambers.
- Designed for effective cleaning and disinfection of flexible endoscopes, the Innova line employs high-quality endoscope adapters which assure good connection between the endoscope and the machine. This results in reliable fluid flow through channels, and the resulting cleaning and disinfection efficacy.
- The combination of mechanical action from the powerful wash arms and an effective enzymatic detergent assures that the external surfaces of the endoscopes have also been thoroughly cleaned prior to entering the disinfection stage of the cycle. Built to meet the toughest challenges, such as the removal of Browne's test soil that has been dried for 24 hours, the Innova meets and even exceeds some national requirements.

Flexibility

- The Innova line ranges in size range from small under-counter machines for one or two flexible endoscopes to double-door units with a capacity of up to 4 endoscopes.
- The choice of single or double-door configurations offers a range of solutions for private offices, clinics, hospitals and CSSD's.
- The Innova line is compatible with endoscopes from major manufacturers.

Safety and compliance

- Designed according to ISO 15883-1 and -4 and HTM 2030, assuring the best standard of care for patients.
- The reduction in handling of the contaminated endoscopes improves safety of staff and may help to reduce damage to endoscopes.
- Barcode scanning of operator ID and endoscopes significantly reduces the chance of error.
- Effective drying of endoscope channels helps to prevent microbial growth.
- The self-draining design prevents microbial growth that can occur in residual water.
- Thermal disinfection cycle for the chamber and associated pipework.

Ease of Use

- The endoscopes are attached to the machines with colour coded tubing for easy identification and attachment of adapters.
- Throughout the process, the display prompts the operator and indicates cycle information and errors.
- The glass door allows the operator to view the cleaning process and endoscopes.
- On the E5, vertical sliding doors allow good, clear access to the chamber.



Double Door Machines

INNOVA E4&E5



Innova E5 machines offer pass-through convenience and four-scope capacity.

- The Innova E series includes two double door (pass-through) models, the E4 and E5.
- The E5 chamber is slightly larger, and it has vertical sliding doors on both the clean and dirty sides. An endoscope trolley allows the operator to load and unload the endoscope carrier from the machine and move it to a comfortable working height to attach and detach the adapters.
- In contrast, the hinged door of the Innova E4 serves as the working surface for the lower endoscope carrier, and the upper carrier has extendable rails to access the load.
- The Innova E5 offers unique, unparalleled flexibility. For hospitals expecting future procedural growth, the E5 can be initially installed in the two-scope configuration and expanded to four-scope configuration when required. No additional footprint or utilities are necessary.
- The Channel Monitoring System (CMS) is a standard feature on both Innova E4 and E5, providing barcode scanner control and visual indication of the cycle progress on the computer screen.
- The endoscopes being processed, as well as the pressure in each channel of the endoscopes, are clearly identified on the screen.



Innova E5 chamber with two endoscope capacity on each of the load carriers.



Connecting the CMS adapter.

Single Door Machines

INNOVA E2&E3

- The Innova E2 and E3 single door models offer compact and cost-effective reprocessing for clinics, surgery centres and hospitals.
- The Innova E3 has the capacity for two full-length endoscopes, and can be installed under-counter or free standing. An optional base is available, providing an ergonomic working height for the load carrier and space for the chemical bottles.
- The Innova E2 is the smallest machine in the line, with capacity for one full-length endoscope. Facilities that have varying workloads from day to day may opt for two E2 machines rather than one E3, in order to optimise their throughput and minimise costs.
- The E3 is available with CMS, whereas the E2 is available only in the standard version.



Innova E2 offers compact single scope capacity.

Loading an endoscope into an Innova E3-CMS.



Channel Monitoring System



One of the core functions of an AER is the cleaning, disinfection and drying of the endoscope channels. Given the increasing complexity of endoscopes, it is vital that each channel be

separated from the others when monitoring for blockages and disconnection. The channel adapters must also have secure connections, as this is essential for assurance of precise pressure measurements in each channel. BHT's answer to this challenge is the Channel Monitoring System (CMS).

The CMS is a modular system; one CMS is installed for every endoscope position in the Innova AER monitoring up to six channels per endoscope. Nozzles of various sizes are designed to provide a known flow to each endoscope channel.

When an endoscope is first used, the "scope setup" cycle is run. This characterises the baseline flow for this particular endoscope.

Every time this endoscope is processed thereafter, the CMS compares the pressure readings in each channel to those in the baseline.

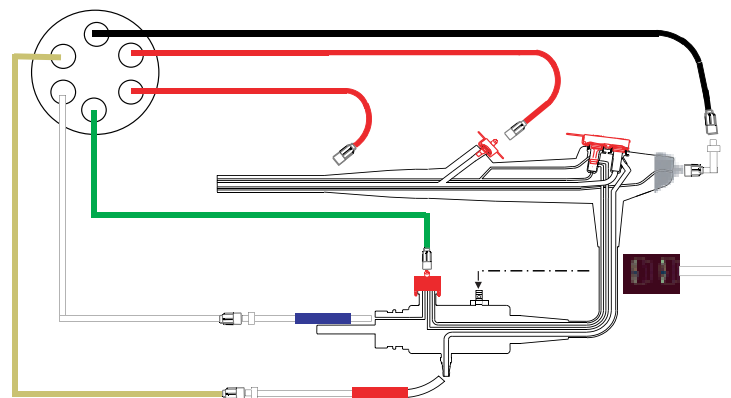
On the Innova screen, the user can see the exact pressure measurements in each channel as the cycle progresses. The pressures used in the CMS are carefully controlled to ensure that maximum pressures recommended by the endoscope manufacturers are not exceeded. These measurements are recorded in the database, and can be reviewed later if required.

Each CMS monitors the endoscope channels and alarms if a channel is blocked or if an adapter is loose or disconnected. The location of the problem is specified. The sensitivity of the system can be adjusted according to the requirements of the hospital. This permits the user to detect partial blockages which may be caused by patient debris or biofilm build-up. In this way, the CMS provides early warning of possible problems, enabling the user to take corrective action. Competitive systems providing a simple indication of complete blockage do not provide the user with the same level of confidence.

Connection Diagram

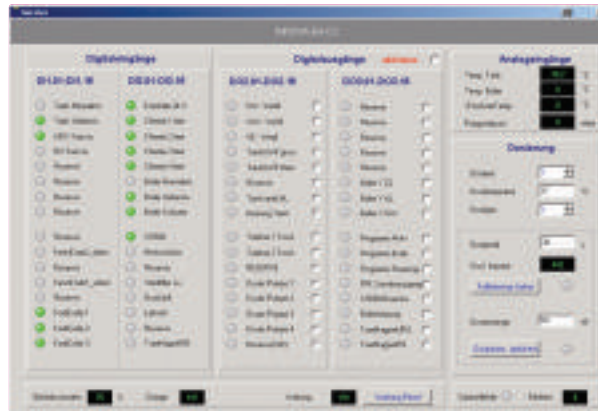


CMS connection point on the chamber wall.



Typical channel adaptation to ensure the individual monitoring of each channel.

Validation & Documentation



Channel monitoring and data screens from the HMS.

Geräte	Kanal	Kategorie	Farbe	Inbetriebnahme	Kno. Identifizierung
SP	1	Wasser	Red	1/18	SP
SP	2	Wasser	Blue	1/18	SP
SP	3	Wasser	Green	1/18	SP
SP	4	Wasser	Yellow	1/18	SP
SP	5	Wasser	Grey	1/18	SP
SP	6	Wasser	Purple	1/18	SP



Barcode scanner on Innova E3.

BHT has undertaken extensive validation of the Innova AER's, Channel Monitoring System, and connectors. Hospitals can use this fully validated system with confidence.

Comprehensive documentation of the cleaning and disinfection process data is accomplished with the Hygiene Management System (HMS). The HMS module independently documents automated cleaning and disinfection process, and correlates this information to the barcode of each specific endoscope.

All essential process data are stored on the HMS server or on the hospital information network. This includes the details of the pressure measurements from each endoscope channel. An optional printer can produce a print-out to go with the processed endoscope.

When multiple Innova machines are networked, endoscope calibration data is centralised on the server and is available to all machines. A single report can be generated to show an endoscope's reprocessing history, regardless of the machines it which it has been processed. With BHT's "open source" philosophy the Innova machines can be connected to various kind of networks.

An integrated leak test is included with each adapter set. The leak test is performed prior to introduction of fluids into the machine and at each subsequent phase change within the cycle, so that potential damage to the scope is prevented.

A Bar code scanner records scope serial number and staff identification; This information, together with cycle data is recorded on the server.

Technical Specifications

	Innova E2	Innova E3	Innova E3 CMS	Innova E4 CMS	Innova E5 CMS
Description	Single door, Free standing or Under-the counter model	Single door, Free standing or Under-the counter model	Single door, Free standing or Under-the counter model	2 doors, manual (Pass through) solution for central reprocessing units with high capacity	2 doors, automatic (Pass through) solution for central reprocessing units with high capacity
Capacity	1 Endoscope	2 Endoscopes	2 Endoscopes	2 Endoscopes	2 – 4 Endoscopes
Channel Monitoring System	No	No	Yes	Yes	Yes
Dimensions WxHxD*	600 x 850 x 600 mm	800 x 880 x 680 mm	1200 x 880 x 680 mm	1300 x 1975 x 750 mm	1400 x 2000 x 840 mm
Wash chamber WxHxD	390 x 495 x 600 mm	540 x 510 x 535 mm	540 x 510 x 535 mm	500 x 625 x 680 mm	650 x 625 x 680 mm
Material of housing and wash chamber	CrNi 1.4301 AISI 304	CrNi 1.4301 AISI 304	CrNi 1.4301 AISI 304	CrNi 1.4301 AISI 304	CrNi 1.4301 AISI 304
Electrical connections	230 V, 50 Hz** 208V, 60 Hz**	3 x 400 V, 50 Hz	3 x 400 V, 50 Hz 3 x 208V, 60 Hz**	3 x 400 V, 50 Hz 3 x 208V, 60 Hz**	3 x 400 V, 50 Hz 3 x 208V, 60 Hz**
Water supply	Cold-, & RO water 3/4", DN 20	Cold-, warm & RO water 3/4", DN 20	Cold-, warm & RO water 3/4", DN 20	Cold-, warm & RO water 3/4", DN 20	Cold-, warm & RO water 3/4", DN 20
Drain	DN 40 40 mm	DN 50 50 mm	DN 50 50 mm	DN 70 70 mm	DN 80 70 mm
Drying	Yes	Yes	Yes	Yes	Yes
Integrated leak test	Yes	Yes	Yes	Yes	Yes
Removable panels for service access	Yes	Yes	Yes	Yes	Yes

Specifications subject to change without notice.

* Dimensions shown are without the optional base

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