

# Mediclean®

## Complanate Ultra Clean Ventilation



### **complanate**

adjective com·pla·nate \ˈkɑmplənˈtɪ\ : made level : in one plane, flattened to a level surface : Latin complantus

### Brandon Medical

Brandon Medical is a British company established in 1946 to design and manufacture world-leading technology for healthcare. We specialise in reliable and innovative medical equipment for operating theatres, critical care, imaging suites and emergency departments.

### Heritage

We are proud to say, when Prof John Charnley developed the first UCV systems to reduce infection rates from hip replacement surgery, he came to Brandon Medical to develop operating lights that didn't obstruct the flow of clean air. We have over 50 years experience working with leading UCV manufacturers to provide the best solutions for aseptic theatres.

### Weiss Klimatechnik

Weiss Klimatechnik and Brandon Medical have worked together since 2006 to deliver UCV operating theatres in the UK and overseas with over 8,000 installations completed Worldwide.



## “Why choose Mediclean® UCVs?”

The latest Mediclean® UCVs improve patient safety and surgical outcomes by providing unique benefits to hospital designers, surgical staff, estates and maintenance engineers.

### Complanate & Screen-Less

We recommend complanate systems for new operating theatres that fit completely flush to suspended ceilings without the need for air deflectors or side screens. This makes it easy to position operating lights, pendants and imaging machines without obstruction or collision damage.

Mediclean® uses proven pharmaceutical industry air curtain technology, to separate the ultra clean air from the surrounding “dirty air” and to control entrainment.

### Mediclean® makes “the Invisible Visible”!

Our patented Continuous Particle Monitoring (CPM) measures airborne particles in real-time and uses simple visual alarms. Clinical staff can “see” when the air isn't clean due to entrainment or surgical smoke and can take steps to protect themselves and their Patients.



CPM is a Mediclean® option or available as a stand-alone system.

### Real-Time Automatic Optimisation of Air Quality

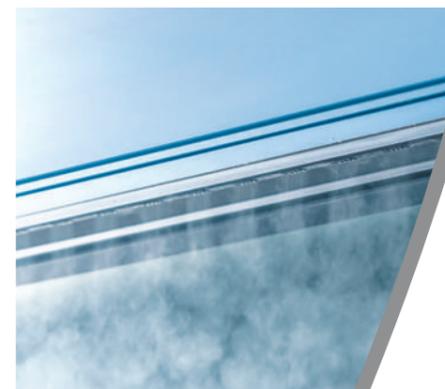
Mediclean® CPM automatically increases airflow to quickly flush out airborne particles and surgical smoke as soon as they are detected.

Alarm thresholds can be set by the user and the system includes data logging to record the air quality during each surgical operation.

## Complanate & Screen-Less

**Complanate** means, “to make level” or “to put into a single plane” which describes perfectly how Mediclean® UCVs fit flush with the operating theatre ceiling.

Mediclean® uses a unique air curtain technology to constrain the flow of clean air within the clean zone and to separate it from entrainment by the surrounding “dirty air” in the rest of the room.



“No Side Screens,  
No Coanda Air Deflectors,  
No Protruding Enclosure”

The diffuser surface is completely flush with the suspended ceiling, without any protrusion from the UCV unit into the room. The air curtain eliminates the requirement for side screens and coanda effect air flow deflectors that would normally protrude below the ceiling.

The clear advantage is that Mediclean® does not obstruct the movement and positioning of operating lights, medical pendants or medical imaging equipment.

It is easier for Designers to design ergonomic equipment layouts, easier for staff to position equipment during surgery and damage from collisions with the UCV side screens and air deflectors is eliminated.



“Making the Invisible Visible”

It's impossible to see clean air with the naked eye, so CPM samples the air to accurately measure the number of particles present during surgery and displays the results as visible signals. CPM supplements the annual UCV validation tests done in empty theatres to indicate that the UCV is working efficiently during real live operating conditions. Mediclean® CPM is the first system in the World that allows staff to “see” how clean the air is during surgery.

**Automatic Optimisation of Air Quality**

When particles are detected, Mediclean® CPM systems automatically increase the air flow from the UCV to quickly flush the contamination away from the safety critical area, protecting both patients and surgical staff. The system automatically returns to normal operation when safe operating conditions are restored.



**Safer for Staff**

Smoke from electro-surgery is known to be hazardous. It can contain as many as 72 harmful contaminants including known carcinogens and intact viable DNA.

CPM detects harmful particles of smoke as well as dirty air. Mediclean® reacts with a visual warning of the risk to the surgical team and by increasing the airflow to clear the smoke away from the clean zone, protecting surgeons and staff from inhaling smoke.

**Improving Patient Outcomes**

When surgical staff can “see” reductions in the air cleanliness, they can adapt their working to protect the Patient. Staff can also see which activities cause loss of air cleanliness and learn to avoid them, improving their working practices to maintain cleanliness in the clean zone and reduce the risk of infection for the patient.

**Data Logging**

Mediclean® CPM includes data logging to record air quality during each operation. This information can be correlated with patient data and used to understand the sources of infections and drive improvements in surgical outcomes.



## 1. Flexible Design

Mediclean® is the ultimate in flexibility and can be configured for virtually any application.

- Complanate or side screen systems
- Integral fan or remote fan systems
- Rectangular or square units are available with sizes from 1.4m to 3.5m
- With or without CPM

## 2. Hybrid Theatres

The complanate, single plane design and flexibility of Mediclean® UCVs makes them ideal for Hybrid theatres. Pre-engineered solutions are available for many of the leading imaging systems including those from Philips and Toshiba.

## 3. Low Ceiling Models

Systems are available with unit depths of only 350mm to fit into very low ceilings. We will design bespoke configurations to optimise low ceiling installations.

## 4. CE Marked

Mediclean® is fully CE marked in compliance with current EU Directives.

## 5. Noise

Standard models meet the HTM 03-01 requirements of NR50 or less. Ultra-quiet models with remote fans are also available.

## 6. Lower Weight Aluminium Construction

Super-light aluminium design weighs as little as 800 Kg reducing the load on building structures and building costs.

## 7. Lowest Energy Consumption

Energy consumption is minimised by reducing the load on the fans. Primary and re-circulated air is mixed downstream of the re-circulation fans and air resistance inside the unit is minimised using a single plenum chamber design.

## 8. Triple Filtered Air

Mediclean® uses “Triple Filtered Air” to prolong the life of the filters. An easy to clean mechanical lint filter doubles the life of the pre-filters which in turn protect the HEPA filters.

## 9. Cleanable Diffuser

Blood splashes or stains on the diffuser screen are easy to see and easily cleaned away compared to perforated mesh.

## 10. Anti-Reverse Airflow Dampers

In the event of power interruption, Mediclean® is designed to protect the cleanliness of the Operating Theatre by preventing any reverse air flow back through the HEPA filters and recirculation modules with anti-reverse flow dampers.

## 11. Installation Service

We offer a full pre-site inspection, installation and commissioning service by trained Brandon Medical engineers.

## 12. Independent Validation Testing

Final validation testing is carried out by an independent third party specialist, so you can be assured all units fully comply with HTM03-01.



## Operating Light Integration

Brandon Medical's Quasar eLite operating theatre lights are designed for integration with Mediclean® UCV systems. The lights have been tested to and exceed the DIN 1946 Part 4 (12-2008) standard requirements for operating lights in ultra clean theatres.

## Pendant Integration

Multi-movement pendants can be easily integrated on any of the 4 sides of complanate Mediclean® units, as they are fully recessed with no obstructions to the pendant movements. Pendants can also be mounted much closer to the clean zone so shorter arms can be used, reducing costs and loads on the building structure.

## Side Screen UCV Systems

The Mediclean® range includes a conventional, integral fan and remote fan systems with partial side screens if required. Side screen are with 6mm safety glass.

## Media Bridges

Conventional UCV systems are available with integral media bridges to provide all the services around the clean zone where pendant access is limited by the side screens.

## Background Lighting

LED lighting packages are available to illuminate the clean zone or for the complete operating theatre, with highly uniform light of 1,000 Lux intensity.

## Brandon Equipment Package

Mediclean® UCVs are part of Brandon Medical's equipment package comprising of Isolated Power Supplies, UPS, theatre control panels, PACS stations, operating lights, medical pendants and medical AV solutions.



UCV Size	2.6m x 2.6m	2.9m x 2.9m	3.2m x 3.2m	3.5m x 3.5m
Relevant Standards	CE, HTM 03-01 2007, DIN 1946-4:2008-12, 2009/125/EC, 2014/30/EU, 2006/42/EC, EN ISO 12100:2010, 2014/35/EU, EN60204-1:2006			
UCV Plenum Size (LxWxH mm)	2575x2575x550	2879x2879x550	3185x3185x550	3559x3489x550
Recirculation Air Modules Size (LxWxH mm)	2575x980x690	2879x980x690	3185x980x690	3489x980x690
Min. Overall Length (mm)	4940	5240	5545	5919
Min. Distance Between Modules (mm)	200 Min.			
Total Assembly Weight (Kg)	740	810	870	940
Total Energy Load 4 Fans Clean Filter (kW)	0.7	0.9	1.22	1.22
Total Energy Load 4 Fans Used Filter (kW)	1	1.23	1.52	1.52
Required Total Air Volume (m³/s)	2.5	3.17	3.86	4.72
Min. Fresh Air Volume HBN26 55m² OR (m³/s)	1.15	1.15	1.36	2.22
Additional Air For Air Curtain (m³/s)	0.14	0.17	0.18	0.21
Noise Level (Nr)	<= 50			
Intake Filter Grade	G3			
Pre Filter Grade	F7			
Terminal Filter Grade	H14			

Brandon Medical is certified as an ISO 13485 and ISO 9000 manufacturer, the global standard for medical device manufacturers.





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