



Aisle Cocooning



- Cold Aisle Containment
- Self Closing Sliding Doors
- Active Roof Panels
- Passive Roof Panels
- Accessories
- Within Row Cooling (WIRC) Units
- CannonGuard Security
- Aisle Cage
- Free Form Aisle Cocooning
- Cocooning Chimney
- Vertical Aisle Cocooning

Cannon Aisle Cocooning is a component of
Cannon T4 Data Centre Solutions

Golden Bullets



Containing the Cold Aisle can save 40% of cooling energy

Aisle cocooning of the Cold Aisle locks out hot exhaust air from the hot Aisle and stops cold air escaping into the data hall. The result is that cold air can flow only through the 'IT' Equipment for which it is intended.

Customers report a 40% reduction in cooling energy usage and improved cooling effects for servers.



Cold Aisle Cocooning or Hot Aisle Cocooning?

Both Cold Aisle and Hot Aisle Cocooning improve efficiency. However as experience grows Cold Aisle Cocooning is increasing by being specified, for a number of critical reasons;

e.g., Cold Aisle Cocooning enables a much faster cooling response to sudden increases in heat load because the air in the Cold aisle is not spread into the general surroundings of the data hall but closely contained in the Cold Aisle, directly at the server inlet zone. This enables an exceptionally rapid cooling response to increased heat load.

Hot Aisle containment allows critical cold air to spread into the general data hall which can negatively dissipate cooling energy, slowing the effective cooling response, taking longer to reduce server temperature and consuming more energy.



Cold Aisle Cocooning does not cause excessive Hot Aisle Temperatures

By cocooning the Cold Aisle and leaving the Hot Aisle uncontained the hot exhaust air can beneficially mix with the general areas of the data centre on route to the air cooling units. This avoids excessive Hot Aisle temperature. (Excessive Hot Aisle temperatures can pose health and safety dangers and raise legal issues)



Cold Aisle Cocooning reduces the work load of the main chilling plant, saving energy and improving efficiency

Because Cold Aisle air is contained and focussed closely on servers and associated 'IT' equipment as opposed to being wasted by cooling the general volume of the data hall, the duty of the chiller plant is substantially reduced as is electrical power consumption.



Active Cocooning assists fire suppression practice

Fixed (passive) overhead Aisle Cocooning panels necessitate alternative fire suppression solutions to traditional building fire suppression usually installed in the roof void.

By installing active overhead Aisle Cocooning panels, which automatically open in instances of fire, the traditional fire suppression system for the building can be used to protect personnel or equipment in the cocooned aisle. This can provide important cost savings.



Active Cocooning panels can provide a safety valve for cooling system failure

Should the unlikely event of a total cooling system failure occur, sensors can be set to automatically open the Cold Aisle Cocooning panels to allow data hall ambient air to flow into the Cold Aisle for temporary cooling. This normally allows considerable extended operation below critical temperature limits. (Depending on the air status and volume of the data hall)



Positively control access to Aisles for improved security

Aisle Cocooning can beneficially be augmented with 'Cannon Guard' access control systems.

These can include any of a selection of:-

- Electronic key pads
- Biometric readers
- Remote access control
- Monitoring and auditing

*High level security can be provided for remarkably little cost



Use "Cannon T4 Data Centre Manager" with Aisle Cocooning to gain total control of, power, cooling and security

"Cannon T4 Data Centre Manager" is a state of the art software and hardware solution which enables remote and local control of your mission critical infrastructure, including access control, security cameras, power monitoring and switching, cooling and a whole host of sensing and automatic control functions, as well as Aisle Cocooning elements, such as door locks and active Aisle Cocooning activation.

Add intelligence to your Aisle Cocooning!



Walk by observation makes local management highly efficient and less time consuming

The Aisle Cocoon door can be equipped with an information screen (LCD), combined with the smart electronic key pad, which enables critical information to be called up and viewed at the touch of a button, showing power and temperature information. This facilitates rapid walk-by monitoring improving awareness of operational conditions within the Cocooned Pod. The system can provide added sophistication by being programmed to open selected rack doors with 64 separate groups, at the same time as opening Aisle Cocooning doors.



"Aisle Cage" upgrades for all round security

Aisle Cocooning not only manages highly efficient cooling air flow but adds the opportunity to control access security to the co-cooned cold aisle. In addition Cannon offers an 'Aisle Cage' system which is similar to orthodox Aisle Cocooning but comprises open security mesh panels and aisle and doors which allow hot air to vacate the hot aisle but prevent access, accept by authorised personnel.

Aisle Cocooning

By combining orthodox Cold Aisle Cocooning with "Aisle Cage" and "Cannon Guard" / "Cannon T4 Data Centre Manager" crucial benefits are readily achieved i.e.

- Improved cooling effectiveness
- Lower cooling energy cost
- Fire suppression capability
- Power and cooling control
- Physical protection against unauthorised access
- Remote and walk by local management and monitoring
- Security of operational auditing and history trail
- Audio / video, integrated security
- Maximised density on the data hall floor

"Aisle Cage" avoids the considerable negatives of old fashioned security cages which reduce data hall density, complicate efficient cooling, increase costs, confuse efficient floor plans and cause difficulty with cleaning and look agricultural.



Combine Aisle Cocooning with High Density Cooling and power for more processing power per unit area

By combining Aisle Cocooning with 'Cannon Cool' Within Row Cooling units (DX or chilled water), high density installations can be readily achieved.

Cannon can provide turnkey solutions with full power distribution, UPS, cooling, containment, racks and integrated "Cannon T4 Data Centre Manager" software which achieves the highest density and equipment capacity.



"Free Form Aisle Cocooning" allows 'Rack Removal' or 'Rack change' within an active row

The modern data centre, particularly 'Co-Locate' facilities can require rack exchange within a row. Cannon offers a unique free form Aisle Cocooning Solution, combined with free form Cannon Cable Raceway which spans the rack row, enabling rack removal and rack exchange without complex interference of the Aisle Cocooning or Raceway installation.



Add low voltage LED lighting within Cocooned Aisles

Optional LED Lighting Kits can be specified within the Aisle, providing low cost, efficient lighting where it's needed avoiding expensive ceiling installation and saving considerable electrical energy.

Cannon provides Cocooning for every type of cooling concept

Data Centres Vary!

So Cannon offers a range of Cocooning concepts to maximise cooling efficiency in all situations, these include:-

- Single Rack Cocooning Chimneys
- Vertical Cocooning
- Cold or Hot Aisle Cocooning
- Active or Passive Overhead, Aisle Cocooning Panels
- Legacy Cocooning of old mixed type rack rows
- 'Aisle Cage' and within rack air management

*of course add within rack air management, components to fully manage efficient cooling air flow.

Cannon Aisle Cocooning is one component within the Cannon T4 Data Centre Solutions range

Cannon provides turnkey data centre solutions and a total infrastructure package at competitive prices but with cutting edge technology.

Cannon Offers More for Less

Cannon T4 Data Centre Solutions:

- Reduces Capital Expenditure
- Reduces Operating Expenditure
- Enhances return on capital employed
- Increases processing density
- Maximises uptime of PUE
- Boosts your green credentials.



Aisle Cocooning

See the Aisle Cocoon video online



See the
Aisle Cocoon
video online

Visit:
[www.cannontech.co.uk/
cannon_videos.html](http://www.cannontech.co.uk/cannon_videos.html)
and see
the full picture



See the T4
Modular Data Centre
video online

Visit:
[www.cannontech.co.uk/
cannon_videos.html](http://www.cannontech.co.uk/cannon_videos.html)
and see
the full picture

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Cannon T4 Data Centre Solutions

Overview

Cannon Aisle Cocooning & Accessories provide the Cold Aisle/Hot Aisle segregation for Cannon T4 Data Centre Solutions

Cannon T4 Data Centre Solutions enable a fully managed eco system providing active and passive life support for mission critical IT equipment.

Cannon has developed multiple types of solution to meet the needs of every type of IT infrastructure, from single rack communication rooms to large data centres.

T4 Data Centres

Complete Turnkey data centre solutions from design through to support created in client buildings.

T4 Mini Data Centres

A Single Rack data centre with all infrastructure components within a single enclosure.

T4 Modular Data Centres

A modular room with power and cooling for multiple racks or large system components.

T4 ISO Data Centres

ISO Containerised data centre solutions for high density loads and mobile applications.

T4 Data Centre POD's

Aisle containment POD solutions for new or existing data centres.

T4 Data Centre Components

Component products to enhance existing non T4 solutions.

T4 Data Centre Manager

A state-of-the-art, remote or local management, monitoring and alarm system for controlling:

- System configuration and management
- Personnel Access
- High capacity cooling
- Environmental Conditions
- Power Management, Metering & Recording

Easy to configure and manage but highly versatile and adaptable, allowing local operation or remote control via a network.

Every T4 solution can offer:

- Advanced environmental and power management software
- High density cooling systems
- Uninterruptible Power Supply (UPS)
- Traditional or modular
- A main power distribution unit (PDU)
- Power & data cable routing
- State-of-the-art rack enclosures
- Monitored, high density power distribution strips
- Physical infrastructure support services
- Fire protection, lighting, physical security, access control
- Comprehensive service and support



Cannon T4 Data Centre Solutions

Overview

T4 Data Centres



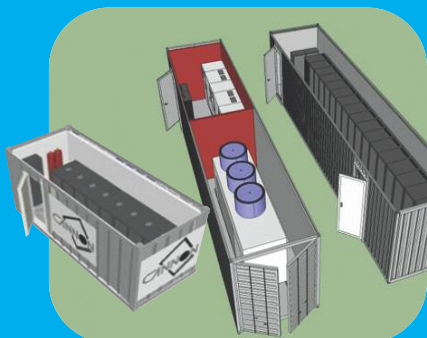
T4 Mini Data Centres



T4 Modular Data Centres



T4 ISO Data Centres



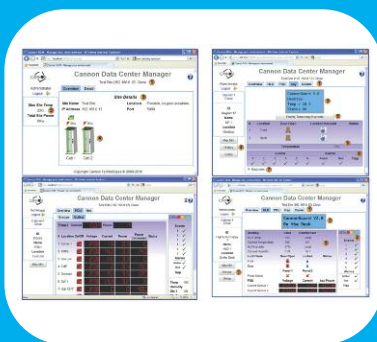
T4 Data Centre POD's



T4 Data Centre Components



T4 Data Centre Manager



T4 Plant & Machinery



For further details on the Cannon T4 Data Centre's range, please request a brochure

www.cannontech.co.uk

Aisle Cocooning

Cold Aisle Containment

The Cannon Aisle Cocooning System

provides segregation of cold aisle air flow from hot aisle exhaust air in Datacentres. By preventing the contamination of cold air by hot air, the full effect of this cooling resource is available to servers and other power hungry equipment contained in 'IT' enclosures, ensuring effective cooling. Servers mounted at the upper levels of a cabinet are particularly prone to overheating due to the combined effects of:

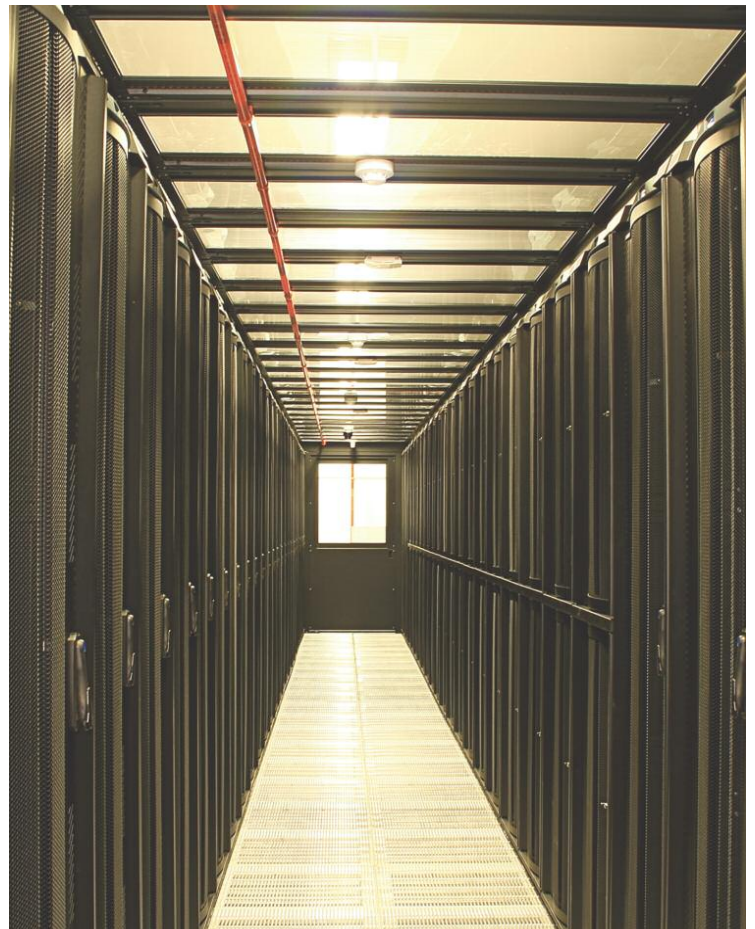
- Upwards heat convection and radiation, from equipment below
- Heat gradient up the vertical height of the computer room
- But in particular undesirable air recirculation, in which hot exhaust air is pulled to the front of the enclosure, re-entering the server with damaging effect.

Aisle Cocooning, usually of the cold aisle, dramatically lowers the cold air temperature available to the servers by preventing contamination of the cold air by hot/exhaust air. This protects equipment against damage, prolongs equipment life, reduces the load on the computer room air conditioning and saves energy, reducing carbon footprint.

Aisle Cocooning Features and Benefits

- Segregated cold aisle air flow from hot aisle air flow
- Maximises cooling effect of cold aisle
- Reduces workload of computer room air conditioning
- Reduces energy cost
- Reduces carbon footprint
- Passive cocooning versions
- Active cocooning versions with automated roof panel opening for instances of fire/smoke
- Totally integrated with cabinet infrastructure
- Not connected to the building
- Can be quickly installed
- Easily relocated
- CannonGuard remote management upgrades
- Can be retrofitted to existing bays of enclosures with the use of customising kits
- Within aisle lighting upgrades

**Cannon Aisle Cocooning
can be retro-fitted to other
manufacturers cabinets
if required**



Specification

- Fully compatible with Cannon Smart Cab range
- Modular overhead cocooning panels, with Quick-Fit mounting pins
- High transparency polycarbonate glazing in panels
- Standard aisle widths include 1200mm and 1800mm; alternative aisle widths available
- Cocooning panels to match cabinet widths (600mm, 700mm and 800mm)
- Alternative cocooning panel widths available
- Self closing sliding aisle end doors
- Half glazed end doors for increased damage resistance
- Remote temperature monitoring of various aisle points using CannonGuard (optional upgrade)
- Active cocooning panels opened by electronic actuators for gas/fog/sprinkler water ingress in the event of fire/smoke
- Will fit any cabinet size
- Can be extended to form a complete Cannon T4 Data Centre POD for disaster recovery development or temporary use

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Cold Aisle Containment

How does it work?

The Aisle Cocooning concept is technically elegant. Stated simply, all significant air pathways from the hot aisle to the cold aisle are blocked. The Cannon Aisle Cocooning solution provides a system of overhead aisle panels and aisle end doors which effectively seal off, usually the cold aisle. This ensures that the cold air emitted from the floor is sealed in a cocoon and is therefore unaffected by hot exhaust air. The cooling air can only exit through the equipment for which it is intended.

All Aisle Cocooning components such as overhead panels and aisle end doors are fixed to the cabinet bay structure alone and not connected to the room structure.

The whole infrastructure is:

- Modular
- Quick-Fit
- Effective
- Re-locatable
- Inexpensive

The Cannon Aisle Cocooning solution is available in two versions: Passive or Active

Passive Aisle Cocooning

In the passive version, the overhead panels which cocoon the aisle are mounted with Quick-Fit spring pins which fix the panel to the edge beam on the cabinet top cover. These modular panels can be fixed in position or manually demounted in seconds.

Active Aisle Cocooning

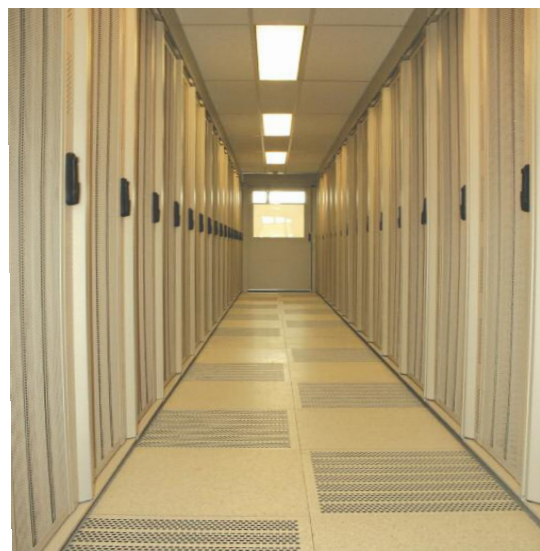
In the active version, the panels are electrically controlled by BMS* Control Panel and will automatically and instantly open in the case of fire/smoke, to allow gas suppressant or water from an overhead sprinkler system to pass through to the aisle. Remote control and monitoring is available with this version.

In all other respects, the two versions are identical.

Features

- A fully integrated infrastructure, end-to-end compliant
- Overhead, modular panels of Quick-Fit design to cocoon the aisle (usually the cold aisle)
- Ideally panel widths match the widths of supporting cabinets providing matched modules (these can be of mixed width if required) i.e. 600mm, 700mm or 800mm wide cabinets and panels
- The cocooning panels can be mounted to non-matching cabinet widths, if required, by installing an adjustable edge beam (customising kits)
- Active system upgrades to provide automatic panel opening, to allow gas suppressant or water from sprinklers to pass-through in case of fire/smoke (avoids the need to modify and extend room sprinklers)
- Panel options: transparent or opaque polycarbonate
- Panel mounting height options to suit room constraints and headroom needs
- Optional cocooning panel spans, to suit aisle widths
- Within-aisle lighting upgrades to supplement or replace room lighting
- Sliding Aisle end doors of various widths, single or pairs.
- A sliding door may be specified to "auto close" when not manually held open, to instantly preserve cocooning
- Cannon Aisle Cocooning is compatible with all Cannon enclosures
- Cannon Aisle Cocooning is compatible with Cannon overhead cable raceway
- Special adaptor kits can be provided where non-Cannon enclosures are required to be included in Cannon enclosure bays with Aisle Cocooning
- CannonGuard upgrades to enable temperature mapping of aisles (hot and cold), remotely monitored and alarmed
- Aisle Cocooning retrofit service for any installed cabinet range

*BMS = Building Management Systems



Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Self Closing Sliding Doors

Self Closing Sliding Door: Non-Locking

Features & Benefits

- Non-intrusive sliding action
- Solid construction and geometry for maximised security
- No frail door butting negatives
- Wide opening capability
- Filler panel options for variable aisle widths
- Self-closing options
- Electronic lock options
- Security upgrades for local and remote control
- See through panel
- Solid lower area anti-kick panels

Specification

- A single flat sliding door with top hung hanger rail system
- Half glazed self closing, manual slide to open door
- Viewing window 960mm x 760mm, 4mm clear toughened glass
- Standard aisle width 1200mm - alternative aisle widths available
- 1000mm door aperture
- 880mm maximum door opening
- Right hand or left hand opening option
- 47U high door (independent of Rack height)
- **Non-Locking**
- Electronic Key-pad, Biometric and RFID upgrades available

Finish: Standard: Powder painted Velvet Black to RAL 9005 or Chameleon (Grey White) to RAL 9002. Other colours available on request.



Locking Upgrades Include...

- Electronic Key-pad
- Biometric scanner (fingerprint or retinal scan) and Key-pad
- Radio-Frequency Identification (RFID) and Key-pad

1200mm Aisle Door - Order Codes

Order Code	Description
COLD 471210SCNLRH	A Self Closing, Non-Locking Sliding Door, Right Hand Opening
COLD 471210SCNLLH	A Self Closing, Non-Locking Sliding Door, Left Hand Opening

Blank End Panel

Aisle Cocoons that require only one door can have a Blank End Panel fitted instead of a second door at the opposite end of the aisle.

- 42U, 45U or 47U high blank end panel
- Standard aisle width 1200mm - alternative aisle widths available

Finish: Standard: Powder painted Velvet Black to RAL 9005 or Chameleon (Grey White) to RAL 9002. Other colours available on request.



For Blank End Panel with viewing window please add the prefix 'G' to the order code ie. GBEP4212

1200mm Blank End Panel - Order Code

Order Code	Description
BEP4212	1200mm Blank End Panel (42U)
BEP4512	1200mm Blank End Panel (45U)
BEP4712	1200mm Blank End Panel (47U)



Blank End Panel



Blank End Panel with window

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Self Closing Sliding Doors

Self Closing Sliding Door: Electro-Magnetic Locking with Secure Keypad Entry

Features & Benefits

- Non-intrusive sliding action
- Solid construction and geometry for maximised security
- No frail door butting negatives
- Wide opening capability
- Filler panel options for variable aisle widths
- Self-closing options
- Electronic lock
 - The electronic lock provides increased security against unwanted access, keeping mission critical systems protected
 - Additionally all access events into the protected aisle can be controlled from the NOC or by local control at the door by electronic key pads or biometric devices
 - All entry events can be recorded, whether failed or successful
- Security upgrades for local and remote control
- See through panel
- Solid lower area anti-kick panels

Specification

- A single flat sliding door with top hung hanger rail system
- Half glazed self closing, manual slide to open door
- Viewing window 960mm x 760mm, 4mm clear toughened glass
- Standard aisle width 1200mm - alternative aisle widths available
- 1000mm door aperture
- 880mm maximum door opening
- Right hand or left hand opening option
- 47U high door
- **Electro-Magnetic Locking with Secure Keypad Entry**
- Biometric and RFID upgrades available

Finish: Standard: Powder painted Velvet Black to RAL 9005 or Chameleon (Grey White) to RAL 9002.
Other colours available on request.



1200mm Aisle Door - Order Codes

Order Code	Description
COLD 471210SCELRH	A Self Closing, Electronic Locking Sliding Door; Right Hand Opening
COLD 471210SCELLH	A Self Closing, Electronic Locking Sliding Door; Left Hand Opening

Locking Upgrades Include...

- Biometric scanner (fingerprint or retinal scan) and Key-pad
- Radio-Frequency Identification (RFID) and Key-pad



High Security Keypad and Electro-Magnetic Lock

Features

- Push button exit from Aisle
- A five second unlock time before auto-relock
- Failsafe mode and if power fails the door can be opened but rests in the closed position
- Four digit entry codes
- Up to 64 different entry pin codes of between 4 & 8 digits (remote option)
- Local or remote alarms for door status
- Aisle temperature display on keypad
- Cannon Data Centre Manager for full remote control and monitoring option including entry code changes or remote activation of lock



For details please see the
Cannon T4 Data Centre Infrastructure Brochure



Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Sliding Double Doors

Sliding Double Doors

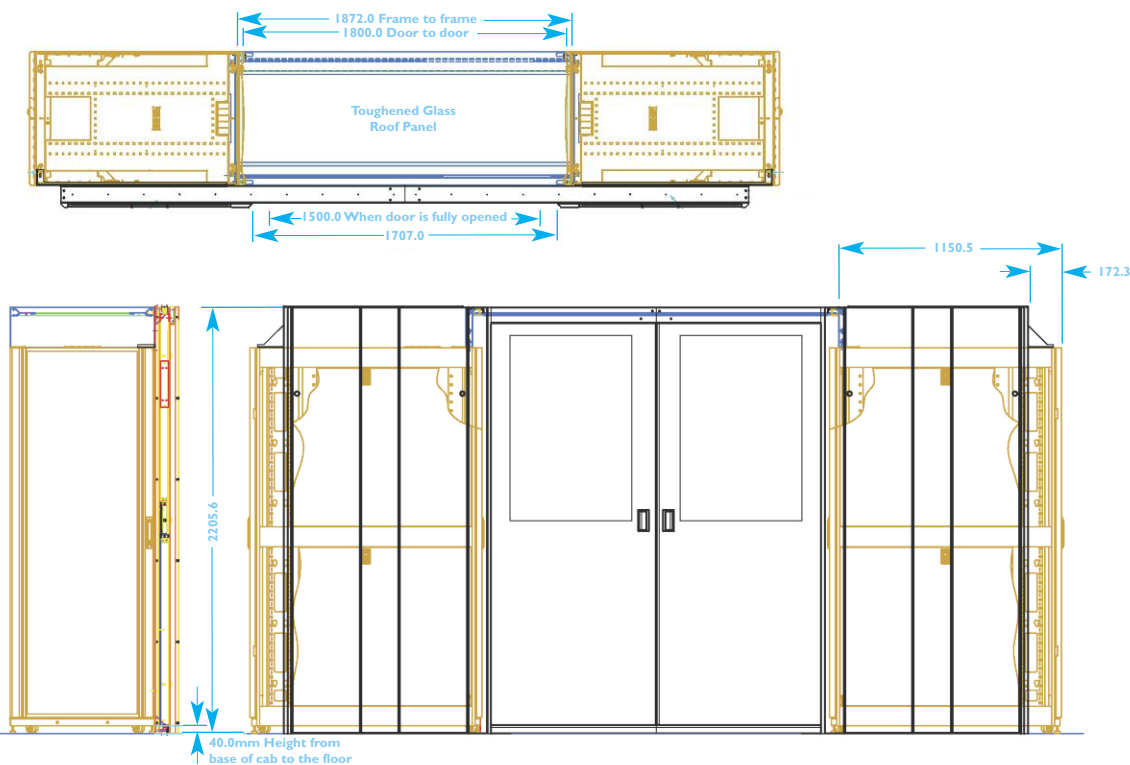
Double Sliding Doors provide an optional solution for exceptionally wide aisles, if an infill panel combined with a single sliding door is not acceptable.

Double Sliding Doors operate with the same range of virtues as Single Sliding Doors.

Cannon Double Sliding Doors maybe opened singularly with only one hand for quick personal access. Both doors can be opened wide to allow carts etc. to pass through. They automatically close with the same smooth two speed action as the single doors and can be electronically locked if desired.



Order Codes	
Order Code	Description
COLD4712SCI288SCNLDD	Double Sliding Doors, Non-Locking
COLD4712SCI288SCELDD	Double Sliding Doors, Electronic Locking



Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Passive Aisle Cocooning

Passive Aisle Cocooning

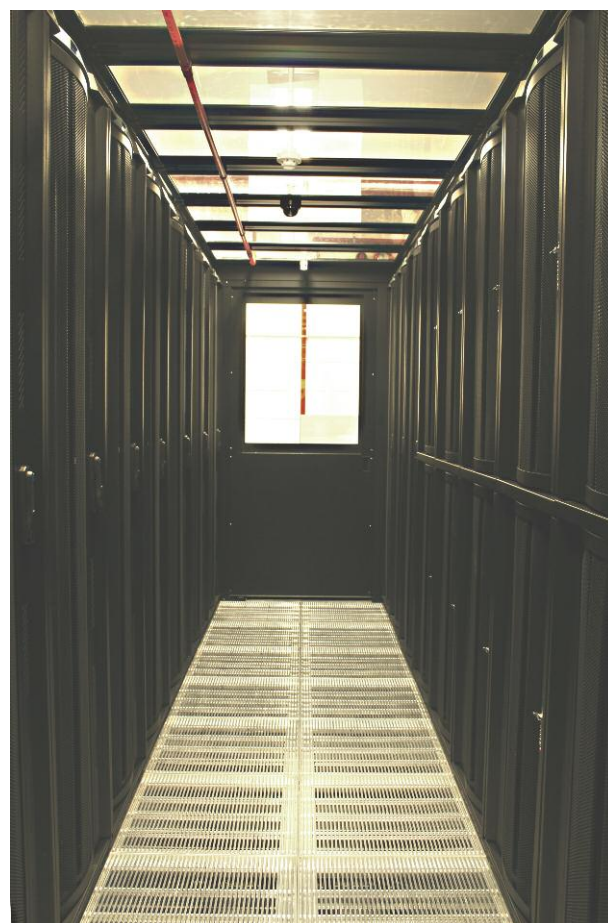
Roof Panels: Passive

In the passive version, the overhead panels which cocoon the aisle are mounted with Quick-Fit spring pins which fix the panel to the edge beam on the cabinet top cover. These modular panels can be fixed in position or manually demounted in seconds.

Specification

- **Fixed version roof panel**
- Fully compatible with Cannon Smart Cab range
- Modular overhead cocooning panels, with Quick-Fit mounting pins
- High transparency polycarbonate glazing in panels
- Opaque polycarbonate glazing in panels optional
- Ideally panel widths match the widths of supporting cabinets providing matched modules (these can be of mixed width if required) i.e. 600mm, 700mm or 800mm wide cabinets and panels are standard
- The cocooning panels can be mounted to non-matching cabinet widths, if required, by installing an adjustable edge beam (customising kits)
- Panel options: transparent or opaque polycarbonate
- Panel mounting height options to suit room constraints and headroom needs
- Standard aisle width 1200mm

Finish: Standard: Powder painted Velvet Black to RAL 9005 or Chameleon (Grey White) to RAL 9002. Other colours available on request.



Passive Roof Panels (42U) - Order Codes

Order Code	Description
PAS426012	600mm wide Passive Roof Panel
PAS427012	700mm wide Passive Roof Panel
PAS428012	800mm wide Passive Roof Panel

Passive Roof Panels (45U) - Order Codes

Order Code	Description
PAS456012	600mm wide Passive Roof Panel
PAS457012	700mm wide Passive Roof Panel
PAS458012	800mm wide Passive Roof Panel

Passive Roof Panels (47U) - Order Codes

Order Code	Description
PAS476012	600mm wide Passive Roof Panel
PAS477012	700mm wide Passive Roof Panel
PAS478012	800mm wide Passive Roof Panel



Fixed overhead Aisle Panel and fixed Edge Beam

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Active Aisle Cocooning to Aid Fire Suppression

Active Aisle Cocooning

Roof Panels: Active

In the active version, the panels are electrically controlled by the BMS* control panel and will automatically and instantly open in the case of fire/smoke, to allow gas suppressant or water from an overhead sprinkler system to pass through to the aisle. Remote control and monitoring is available with this version.

Specification

- **Automatic opening version roof panel, to allow gas suppressant or water from sprinklers to pass through in case of fire (avoids the need to modify and extend room sprinklers)**
- Fully compatible with Cannon Smart Cab range
- Modular overhead cocooning panels, with Quick-Fit mounting pins
- High transparency polycarbonate glazing in panels
- Opaque polycarbonate glazing in panels optional
- Ideally panel widths match the widths of supporting cabinets providing matched modules (these can be of mixed width if required) i.e. 600mm, 700mm or 800mm wide cabinets and panels
- The cocooning panels can be mounted to non-matching cabinet widths, if required, by installing an adjustable edge beam (customising kits)
- Panel options: transparent or opaque polycarbonate
- Panel mounting height options to suit room constraints and headroom needs

Finish: Standard: Powder painted Velvet Black to RAL 9005 or Chameleon (Grey White) to RAL 9002.
Other colours available on request.



Active Roof Panels (42U) - Order Codes

Order Code	Description
ACT426012	600mm wide Active Roof Panel
ACT427012	700mm wide Active Roof Panel
ACT428012	800mm wide Active Roof Panel

Active Roof Panels (45U) - Order Codes

Order Code	Description
ACT456012	600mm wide Active Roof Panel
ACT457012	700mm wide Active Roof Panel
ACT458012	800mm wide Active Roof Panel

Active Roof Panels (47U) - Order Codes

Order Code	Description
ACT476012	600mm wide Active Roof Panel
ACT477012	700mm wide Active Roof Panel
ACT478012	800mm wide Active Roof Panel



- Roof panels are able to rotate about their centre point when a fire alarm is raised to allow external (to the Cold Aisle) Fire Suppressant Systems to extinguish a fire in the aisle or cabinets
- Activation devices may be smoke and fire detectors or call points
- Actuators are magnetic holding solenoids as per standard fire doors
- System will normally be power on to hold panels shut and automatically open on fire/smoke or power loss (same as a retained fire door in a corridor).
- Voltages - normally 24VDC SLEV

Cannon temporarily pre-wire the active roof system to prove its operation and allow access to the area above the aisle and cabinets. Any fixed wiring, PSU, alarm, actuator or detection installation may have to comply with the BS/EN requirements of an insurer or specified use of the space in the country of use. Cannon recommends a certified fire installations company be employed to interface these systems with a customer's fixed fire /BMS installation and ensure compliance with relevant legislation.

*BMS = Building Management System

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Accessories

Aisle Cocoon Lighting

LED Strip Light (White) Kit

Comprising of 10 of the following:

- Average Bulb Life: 50000h
- CCT: 5000K
- Current Rating: 500mA
- LED Colour: White
- Power Rating: 6VA
- Supply Voltage: 12V
- External Depth: 16mm
- External Length/Height: 520mm
- External Width: 16mm
- Illumination Colour: Pure White
- Length: 520mm
- Depth: 16mm
- Light Source: 56 x LED

2M LED Flexible Strip Light (Blue)

Comprising of the following:

- Flexible LED strips
- 2m in length
- Available with white or blue LEDs
- Self adhesive backing
- Easy to install
- 12V
- 72D high powered LEDs per strip
- 50,000 hour life



Lighting - Order Codes

Order Code	Description
405E-LIGHTKIT-CA-10	LED Strip Light (White) Kit
CA224	2M LED Flexible Strip Light (Blue)



**Visit the Cannon website to view
past Aisle Cocooning case studies**

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

CCTV

CCTV

- High performance CCTV system managed via the CannonGuard rack management Data Centre Manager
- Integrated with the CannonGuard electronic locking systems provides a high security solution with access event audits
- Overt and Covert camera's combine to cover a large visual range within your facility
- Cost-effective security for use in co-hosted or enterprise data centres as well as larger corporates
- In/on rack covert camera system that records every access as well as live audio/video on demand
- Full, easy to access audit trail linking events with video and instant playback
- Alerts by; SNMP, Email, Cannon Data Centre Manager.
- Overt cameras: HD IP cameras can be used to monitor large area's and entry's
- Tiny, Covert analogue cameras can be fitted inside cabinets and aisles to provide viewpoints tailored to your needs
- An integrated Digital Video Recording system runs 24/7
- Still pictures and video clips are triggered from access events within the aisle or cabinet. Stills may be sent via Email / SMS
- Live video can be viewed at any time over your network or the internet as desired
- Available with 4,8, or 16 cameras per DVR with 1 to 4 TB HDD gives weeks of recording and stills. 2 Way Audio option and easy remote control with a simple interface
- Quick deployment on site, plug and play



HD versions use Highline Displays to trigger audits and stills on Cabinet access

Order Codes

Order Codes	Description
405E-CAMERA-4-HD	4 x Camera Covert System, 1TB, Highline Display version
405E-CAMERA-8-HD	8 X Camera Covert System, 1TB, Highline Display version
405E-CAMERA-16-HD	16 X Camera Covert System, 1TB, Highline Display version

The 405E-CAMERA-(4, 8 or 16)-HD is a 4, 8 or 16 Camera Covert System, 1TB comes with cables and connectors, plugs into optional Highline Display or Rack Monitor (405ELIMPITMC) for triggering alarms

Order Codes

Order Codes	Description
405E-CAMERA-4-SA	4 X Camera Covert System, 1TB, Stand Alone version
405E-CAMERA-8-SA	8 X Camera Covert System, 1TB, Stand Alone version
405E-CAMERA-16-SA	16 X Camera Covert System, 1TB, Stand Alone version

The 405E-CAMERA-(4, 8 or 16)-SA is a 4, 8 or 16 Camera Covert System, 1TB comes with cables and connectors, stand alone system. (Does not require any other CannonGuard modules such as Highline Display or Rack Monitor to function)

405E-CAMERA-AV 2 way Audio option plugs into DVR

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Cannon Cool: WithIn Row Cooling (WIRC) Units

Cannon Cool: WithIn Row Cooling (WIRC) Units

Cannon Water Cooling solutions work on the air to water heat exchanger principle:-

Warm air from a cabinet, room or aisle is forced through a heat exchanger fan coil by high efficiency fans.

The heat exchanger has chilled water at between 7° and 20°C circulating within it's coil, the chilled water is supplied by an external main system water chiller(s) (not included).

The heat in the warm air will naturally dissipate into the fins of the coil as they are colder than the air; by this process the heat is 'exchanged' with the cold water circulating counter currently in the coil.

The now cold air is carried out of the coil and blown into the cold aisle or cabinet.

The water that has been warmed by the heat exchanger coil is returned to the main system chiller loop though a variable flow control valve (optional automatic).

Performance of the system is dependant on many climatic and environmental conditions:-

The Computer room should be sealed from outside heat sources and fresh air minimised within reason.

Any open spaces to the sides of the 19-inch racks should be blanked and all wiring taken to the sides of equipment to keep the airways to and from the equipment fans open.

The equipment within the the cabinet rack spaces should have it's airflow maximised.

All unused rack space should be blanked off.

Cannon computer rack cabinet/aisle water cooling systems are not traditional air conditioners, they do not regulate humidity. In humid atmospheres they will remove water vapour as condensate when the humidity level is high.

The condensate drain should be run to a normal gravity drain sump. An optional condensate pump may be fitted if required. In some situations the room humidity may be too low, and static electricity may cause a hazard to persons and equipment.

The climate inside a data centre should meet the standards set by ASHRAE. For further details visit the Cannon website.

Cannon equipment is designed and built to comply with BS EN60950 and the low voltage directive/SELV where appropriate.

Any installations must meet local building and electrical supply regulations where applicable.



Order Code

Order code	Description
WIRC42209930KW	WithIn Row Cooling Unit 42U x 200w x 1000d 30KW

Aisle Cocooning

Cannon Cool: WithIn Row Cooling (WIRC) Units

Cannon WIRC Control Module

The integrated monitoring system for Cannon Water Cooled WithIn Row Cooler

Specifications

- Controlling upto 6 PWM, Low noise, high capacity radial blower fans 3000cfm (5100 m³/h) total air flow
- Varies the speed of the fans and optionally the water flow through the system dependent on heat load, this ensures optimal conditions and maximum cooling efficiency
- 16 x temperature sensor inputs, 4 each side of the heat exchanger, 4 water and 4 customer configured all viewable on the display
- 1 x humidity sensor input with remote monitoring via Cannon T4 Data Centre Manager and SNMP
- 4 x dry alarm relay outputs (1A @ 30Vdc)
- Over temperature alarms on cabinet Highline display or via Cannon T4 Data Centre Manager and SNMP
- Fan & Sensor fail alarms on cabinet or Cannon T4 Data Centre Manager and SNMP
- Class II SELV Power isolation



Cannon Variable Cooling Fan Unit

Specifications

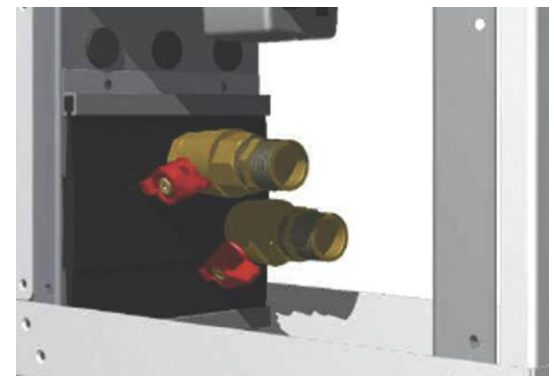
- 6 Fans in each WithIn Row Cooling Unit
- Hot Swappable 48v DC PWM Fan Units
- Soft Start: The motor is fitted with a soft start feature to prevent current surges being drawn from the power supply
- Variable Speed: The fan is fitted with a control circuit which varies the speed of the motor dependant upon temperature
- Overcurrent & Lock-rotor protection: The motor is designed to self protect in the event of an overcurrent condition which might cause damage
- Low Noise Radial blower fan system noise level at normal running conditions are 70db'A'



Water Connection

Specifications

- 1-inch full bore shut valve as standard on flow & return
- Customer supply: Return connection 1" BSPm manual flow control valve full bore & meter: Flow connection 1" bspm shut valve full bore
- Condensate Pump max flow rate 20 l/h, max discharge head 6m supplied with 3m 11mm o/d 8mm I/D pvc tube
- Optional flexible hose 3m st/st braided 1-inch (32mm o/d) full bore with 1-inch BSPf for connection to chilled water supply flow and return
- Optional: Automatic flow control/by-pass valve & leak detection/shut down

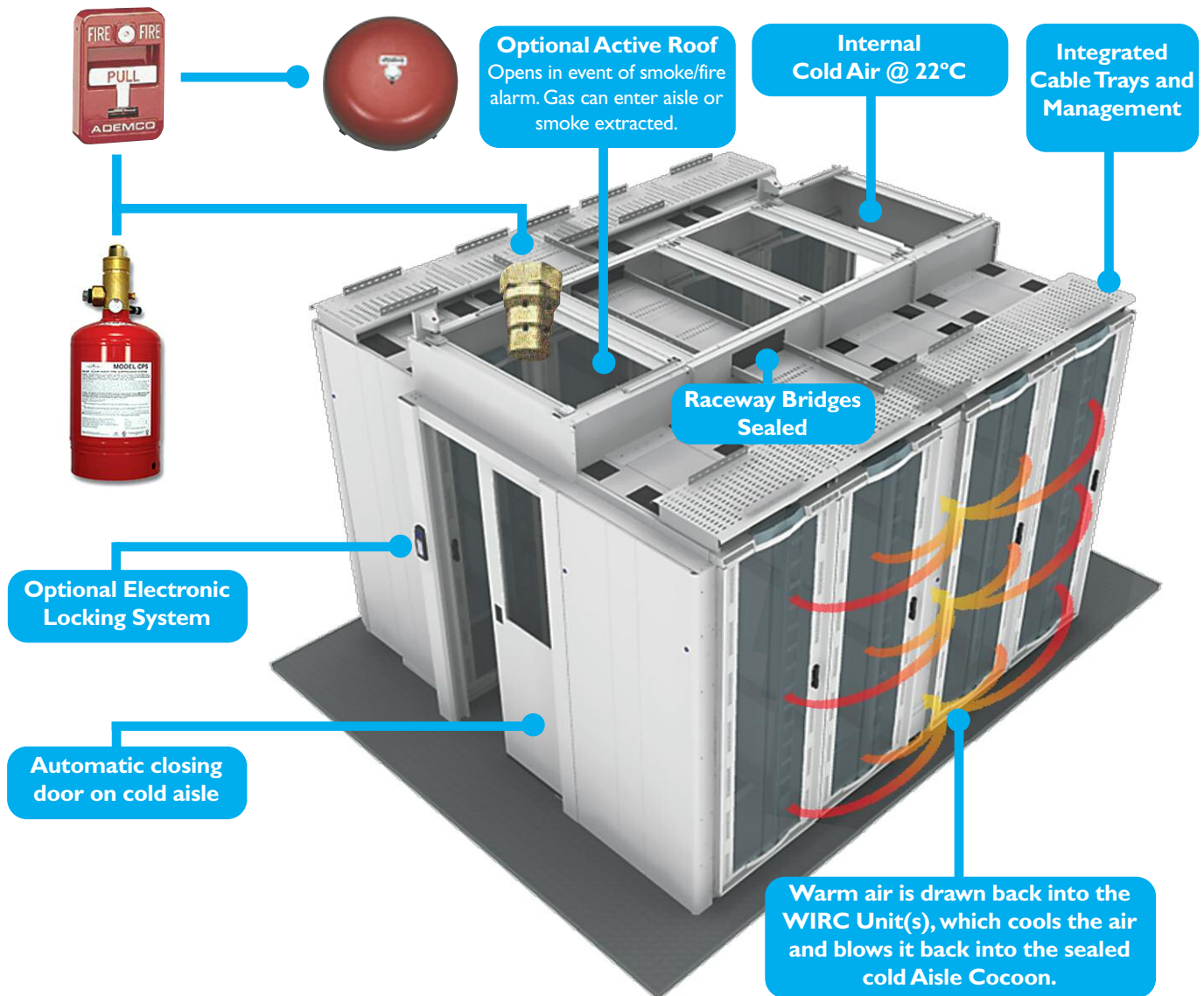


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Aisle Cocooning

WithIn Row Cooling (WIRC) Units

WithIn Row Cooling (WIRC) Units: How it works



Warm air from the servers enters the hot aisles outside the Aisle Cocoon and is drawn through the WIRC Units.

The Unit(s) then cool the air and blow it into the sealed cold Aisle Cocoon.

The cold air is then available throughout the whole height and length of the aisle.

With proper airflow control and professional cable management practices, huge savings can be achieved in air conditioning power consumption.

When correctly employed, Aisle Cocoons may allow floor vents to be reduced and cooling capacity directed toward other floor areas.

Please ask for details of a cold Aisle Cocoon® to suit your data centre needs.

Size conversions: 1U = 44.45mm = 1 3/4" 600mm = 24" 700mm = 28" 800mm = 32" 1kg = 2.2lbs

Aisle Cocooning

Remote Management

Remote Management

- Rack Monitor/Master Controller Module (Network interface Card) is mounted within a Cabinet or Aisle Cocoon to monitor the environmental conditions within that Cocoon/cabinet and/or adjacent cabinets. A maximum of 24 off cabinets to each Master Unit
- This module has been designed to be used as the gateway to a suite of Cannon modules and provides full remote access to in excess of 100 off cabinet door locks, PDUs, temperature sensors etc. **using just one IP address**
- The module is designed to be connected to a standard 10/100 base TX Full Ethernet Network Switch by way of a standard Cat5 patch lead
- Each module is assigned a user configurable static IP address which enables the user to access the installation from anywhere in the world via the standard TCP/IP protocol. Using the provided Cannon T4 Data Centre Manager software allows, along with other actions, the monitoring of any SNMP traps, remotely unlock doors for engineers to enter; remote operator can see any out of tolerance conditions
- All alarms, actions and events to access any site are recorded in a 1000 event history file for audit purposes
- All of the module types configured within the Cocoon/ Cabinet are designed to interface with the Rack Monitor/ Master Controller; which will monitor all of the configured alarm outputs forwarding them to a remote monitoring station via SNMP
- 10/100 to CannonGuard RS485 'modbus'
- Allows up to 240 sub modules to communicate over the CG network using one IP address
- Magnetic or screw mounting, Zero U

Order Code	
Order code	Description
405ELIMPITMC	Master Controller CannonGuard/DCM



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Cabinet Management and Monitoring

*“Wherever you find yourself....
make sure you have total control, total security”*

Have you ever wanted to know who was the last person near those blade servers?

Reboot that switch and lock off those unused PDU outlets.

See who is accessing your cold aisle or IT rooms and data halls?

Check how much power those servers have used this week?

Securely open enclosures to allow access remotely, record entry, use Biometric, Rfid and PIN?

Know if those fans and A/C are working?

Check the data hall climate, see the water cooling system, status, adjust the aisle temperature?

Control access to your equipment and remotely monitor all this from anywhere on the globe with CannonGuard and Data Centre Manager from Cannon Technologies.

CannonGuard is a comprehensive suite of hardware that provides both local and remote control of every aspect of your rack cabinets or outside enclosures and data rooms.

The system is 'plug and play', modules can be used stand alone, or may be daisy chained together into a high security, resilient system with remote control from multiple locations.

The modules can be accessed by a standard web browser or 3G Mobile phone.

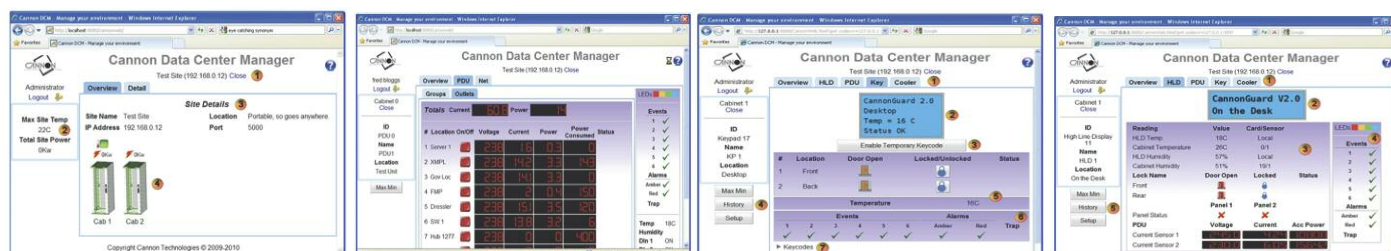
All that's required is a CannonGuard module and a web server that runs our powerful data centre manager software, installed anywhere on your LAN or WAN.

We can also provide this service from our head office if required.

Order Code	
Order code	Description
EA5100-WEB	Cannon Data Centre Manager Software

Features

- Remote data cabinet monitoring and management system
- Simple scalable solution, one to thousands of cabinets and devices
- Easy to use interface, any browser can be used to logon to the system including smart phones
- Multi user roles and permissions, individual users can be given permissions to view and control specific module types and the roles they can perform, for instance Building management can view the cooling performance of a water cooled cold aisle - but not see any power or access devices
- Local and remote audit trail, every action on the browser screen and at the racks is monitored and audited, every access event can be recorded with CCTV, audit trails can be automatically archived to remote or local servers
- Automatic site monitoring & drill down, alarms from sites can be seen as groups of sites and the status viewed as a whole, complete buildings power usage can be shown at the top level of a group. Maximum and minimum temperatures and power are always shown
- Simple point and click interface, any cabinet with a fault shows up red, hover over it for status information and click on it to investigate further
- Easy set up of keypads and biometric access devices, send new codes to all access devices in groups with one menu. Send Biometric templates to thousands of readers across the world
- SNMP viewer; monitor the last 1000 SNMP alarms from a master controller; master controllers monitor 249 devices on the modbus interface they control. Quick CSV export of audits
- A & B Total Power, Max temperature & Humidity, Row status, CCTV and access can all be viewed on one screen, CCTV can be sent to a 2nd monitor if desired
- Cannon Data Centre Manager is a Java web server application, you can install it on a web server yourself or Cannon can provide a 1U server configured to your needs. One web server can monitor many thousands of cabinets



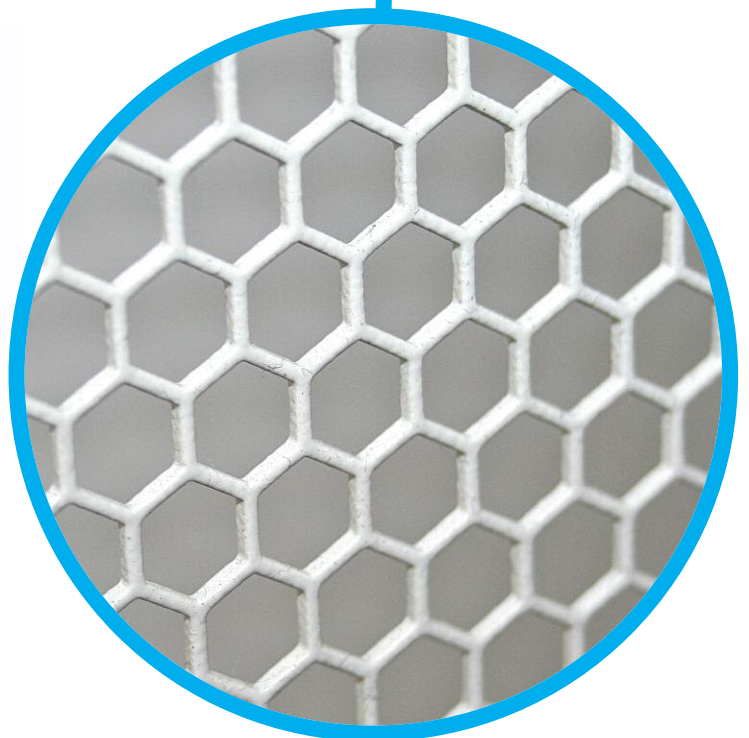
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Aisle Cocooning

Aisle Cage

Aisle Cage

- Totally secure any individual Aisle (Hot or Cold) against unauthorised entry, with high security mesh doors at aisle ends and overhead mesh panels to allow through flow of air.
- Avoid the wasteful space consuming negatives of old fashioned security cages
- Preserve maximum floor space for valuable data processing capacity
- Maximise density and return on capital employed
- Add "Cannon Guard" for positive, controlled security and access control
- Combine electronic key pad entry with biometrics, interactive video surveillance and remote control
- Maintain a full audit trail of all access activity
- Maintain high efficiency cooling and avoid the cooling inefficiencies interposed by outmoded cages
- Combine cold aisle cocooning with "Aisle Cage" mesh cocooning for the hot aisle, to achieve high efficiency cooling and all round security
- Aisle Cage can add 30% - 50% more capacity to your data hall when compared to outdated security cages
- Security can actually be enhanced with Cannon Aisle Cage and CannonGuard Access Control



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Aisle Cocooning

Free Form Aisle Cocooning

Free Form Aisle Cocooning

- Free form Aisle Cocooning enables an installed Rack to be removed from a row of Racks, quickly and easily, within a few minutes
- There is no disturbance to the Aisle Cocooning infrastructure which remains in place and functional
- All rack mounted cable raceway also remains undisturbed
- Replacement Racks can be introduced into the row with similar ease
- Non Cannon Racks or OEM equipment Racks can also be added to or removed from the row, allowing extreme versatility
- All Cannon Aisle Cocooning features and benefits are maintained
- Achieves cost effective cabling containment and air flow containment in one integrated system

Design Principles

■ End to end edge beam

The edge beam which supports the overhead Cocooning panels above the Aisle is a full "end to end" beam, not individually dedicated to any one Rack. It is substantially fixed at each end to the Aisle end frame and Aisle end rack.

■ Moveable, intermediate support jacks

To adjust the edge beam, taking out any slight downward deflection, simple small support jacks can be positioned anywhere along the edge beam.

These small support jacks can be positioned wherever a convenient surface exists, on a rack roof, easily fitting in clear space between glands, vents etc.

■ Jack removal/replacement

Intermediate support jacks can be quickly disengaged to allow removal of the required Racks.

The stiff edge beam design enables the edge beam to span vacant Rack-pockets, between the fixed end racks in the Aisle.

Temporary panels can close off vacant Rack pockets, until Racks are introduced.

■ Spanning, rack mounted cable raceway

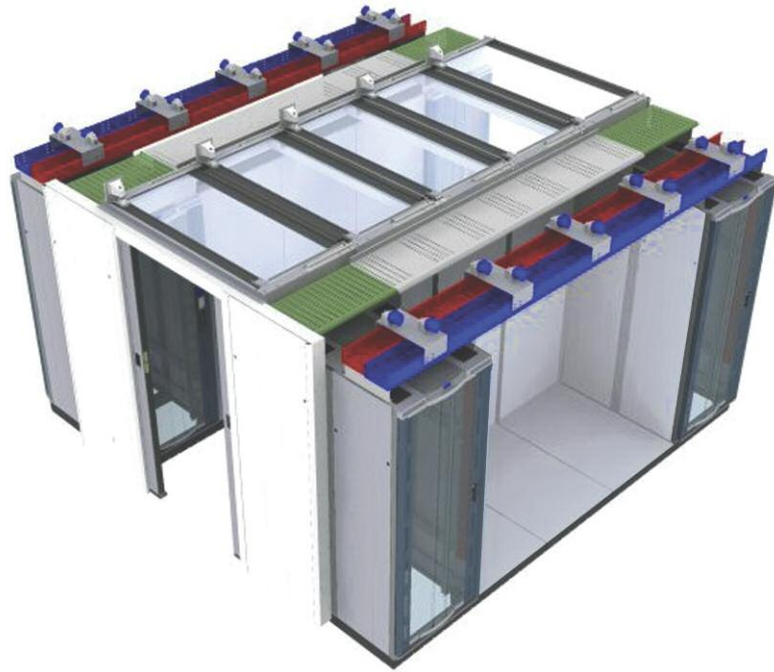
The Cannon cable raceway is also designed to span vacant Rack-pockets (see specification).

■ Vertical closure panels

Quickly adjustable closure panels cover the small vertical space between the edge beam and the Rack roof.

■ Extended vertical closure panels

Where an installation is fed with down flow cold air from the ceiling, the vertical closure panels can be of a type which extend upwards to meet the ceiling, to separate the Cold Aisle, Hot Aisle air flow.



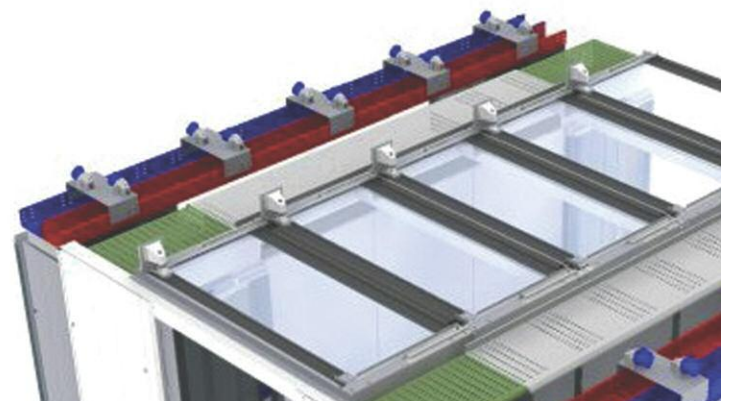
■ All Cannon Aisle Cocooning virtues are retained

All of the usual Active or Passive Aisle Cocooning features are maintained with the Cannon Free Form Aisle Cocooning system.

■ Aisle upgrade of old installations

Where old Rack installations exist, even with mixed Rack types and sizes the Cannon Free Form Aisle Cocooning system provides a cost effective retrofit Aisle Cocooning solution.

- It is good practice to restrict any open span in the row to three rack widths e.g. 3 x 800mm cabinets = 2400mm (7-11") or four rack widths e.g. 4 x 600mm cabinets = 2400mm (7-11")



For further details on Free Form Aisle Cocooning please contact the Cannon Sales Team.

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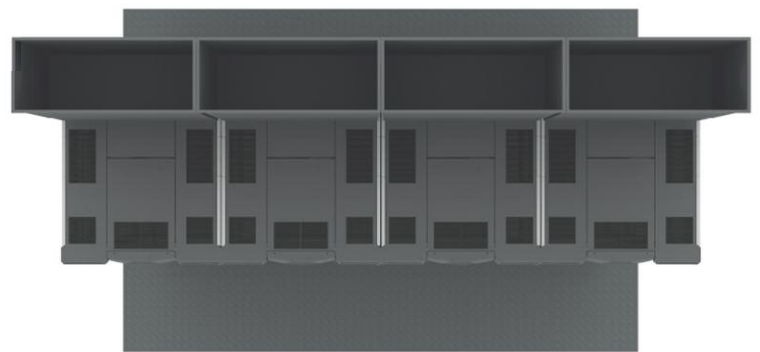
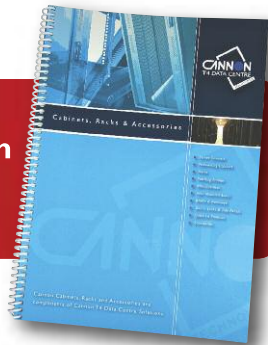
Aisle Cocooning

Cocooning Chimney

Cocooning Chimney

- Cocooning the hot exhaust air via a vertical chimney
- Ensures hot exhaust air from one rack or a row of racks is ducted efficiently to the ceiling plenum, without affecting aisle temperatures
- Passive Cocooning Chimney enables the "IT" equipment fans to provide air movement through the chimney
- Active Cocooning Chimney introduces fan trays to provide forced air flow
- Temperature controlled fan trays are available for Smart Air Management
- Cocooning Chimneys can be of adjustable telescopic design for indeterminate installation heights or single piece construction

For details of Fan Tray options see the **Cannon Cabinets, Racks & Accessories Brochure**



Cannon rack mounted Cable Raceway can be combined with Cocooning Chimney installations



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Aisle Cocooning

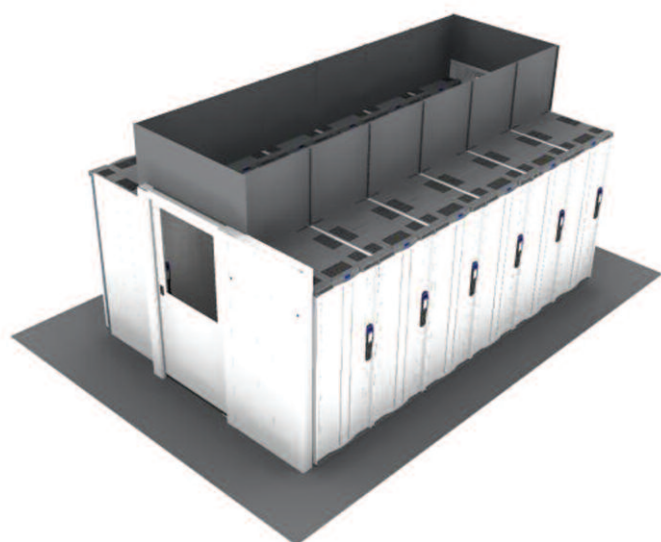
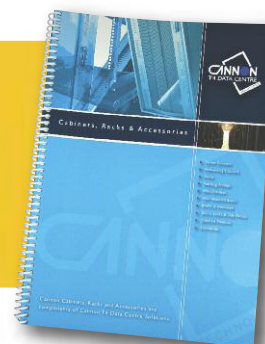
Vertical Aisle Cocooning

Vertical Aisle Cocooning

- Efficiently cocoons aisles for down flow cooling airflow or up flow exhausted hot air
- Ensures segregation of cold air and hot air flow to maximise cooling efficiency in vertical airflow configurations
- Compatible with Cannon Cable Raceway
- Achieves cost effective cabling containment and air flow containment in one integrated system
- Variable height Cocooning panels to accommodate various room heights



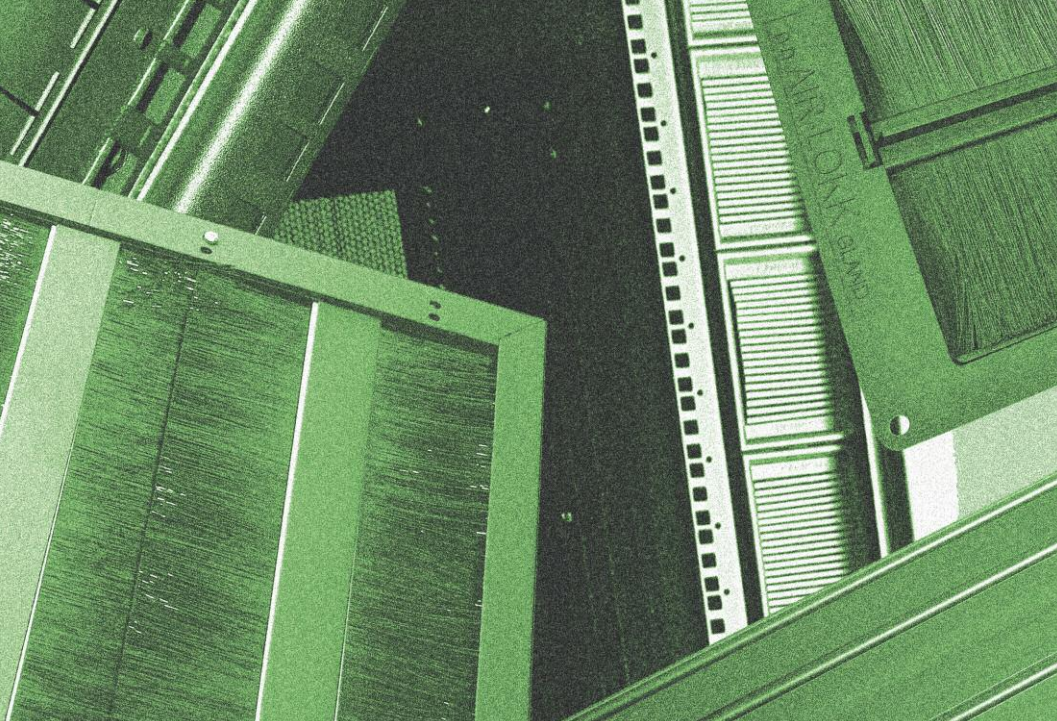
For details of Cable Raceway options see the **Cannon Cabinets, Racks & Accessories Brochure**



Vertical Aisle Cocooning can be combined with Cannon rack mounted Cable Raceway to simplify cable containment and speed installation



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Air Management Solutions

An air flow barrier regime, comprising a range of components which prevent the wasteful escape of cooling air through voids in a 19-inch cabinet.

The Challenge

Even a fully populated cabinet can lose in the region of 50% of cooling air through escape routes which are outside the perimeter of the 19-inch equipment field. This will cause massive wastage of cooling energy, increasing carbon footprint and reducing the cooling effect of the CRAC.

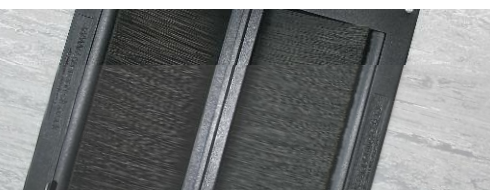
The Solution

Cannon "Air Management Solutions" effectively closes these escape routes ensuring that cooling air flows only through the active equipment present in the cabinet.

Significant energy savings can be achieved and the Computer Room Air Conditioning (CRAC) will be less stressed, improving efficiency.

- Air block mouldings which close apertures in vertical infill panels in 800 wide cabinets
- Air block mouldings can be fully blanked or contain flexible finger brushes for cable entry combined with air blocking
- Air block kits for total cabinet air blocking
- Cabinet blanking base plates, to cover the whole cabinet base area, locking cold air into the floor plenum
- Air-lock raised floor grommets for through tile cabling with improved air blocking
- Brush gland frame a multi configurable large gland assembly covering total raft surface
- Quick fit 19-inch blank panels and quick fit Mikey key buttons

Visit www.cannontech.co.uk/cannon_videos.html and see Cannon's Air Management Solutions video for the full picture



- Air Block Kits for 600 wide and 800 wide Cabinets
- Blank Mouldings for Cabinet Roof
- 19-inch Blanking Panels
- Brush Gland Frames for RAFT™
- Cabinet Blanking Base Plate
- TecSpur AIR-LOKK Floor Gland

For details please see the Cannon Air Management Solutions Brochure



Cannon Air Management Solutions is a component of Cannon T4 Data Centre Solutions

Grey is the New Green

Order Chameleon Grey White to reduce your electricity bill

Reduce your
Electricity Bill
for Lighting
by up to

40%



Customers confirm that our
Grey White (RAL 9002) rack colour has reduced
Data Centre lighting needs by up to 40% when
compared to the lighting needs for
their black racks.

So our **Grey White** is the new **Green**
which is why we call it "**Chameleon**"

(Of course we are happy
to sell "Velvet Black" racks as well)





**Standard Cabinets
& Accessories**



Broadcast Cabinets



Specialist Cabinets



**T4 Data Centre
Infrastructure**



Aisle Cocooning



Power



Cooling



**T4 Data Centre
Solutions**



**Air Management
Solutions**

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brochure please
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For your local distributor please contact:

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