Maxi Data Center Solutions

CANOVATE® GROUP

Cold & Hot Aisle Containment System

- Enables isolation of hot and cold aisles to maximize cooling system efficiency and minimize cooling energy requirement
- Highly modular, scalable, expandable, and retrofitable
- Optimum cooling solution for big and medium scale Data Centers coupled with CRAC units to increase efficiency of cooling system
- Provides moderate efficiency, energy saving and free cooling capabilities

✔ Advantages:

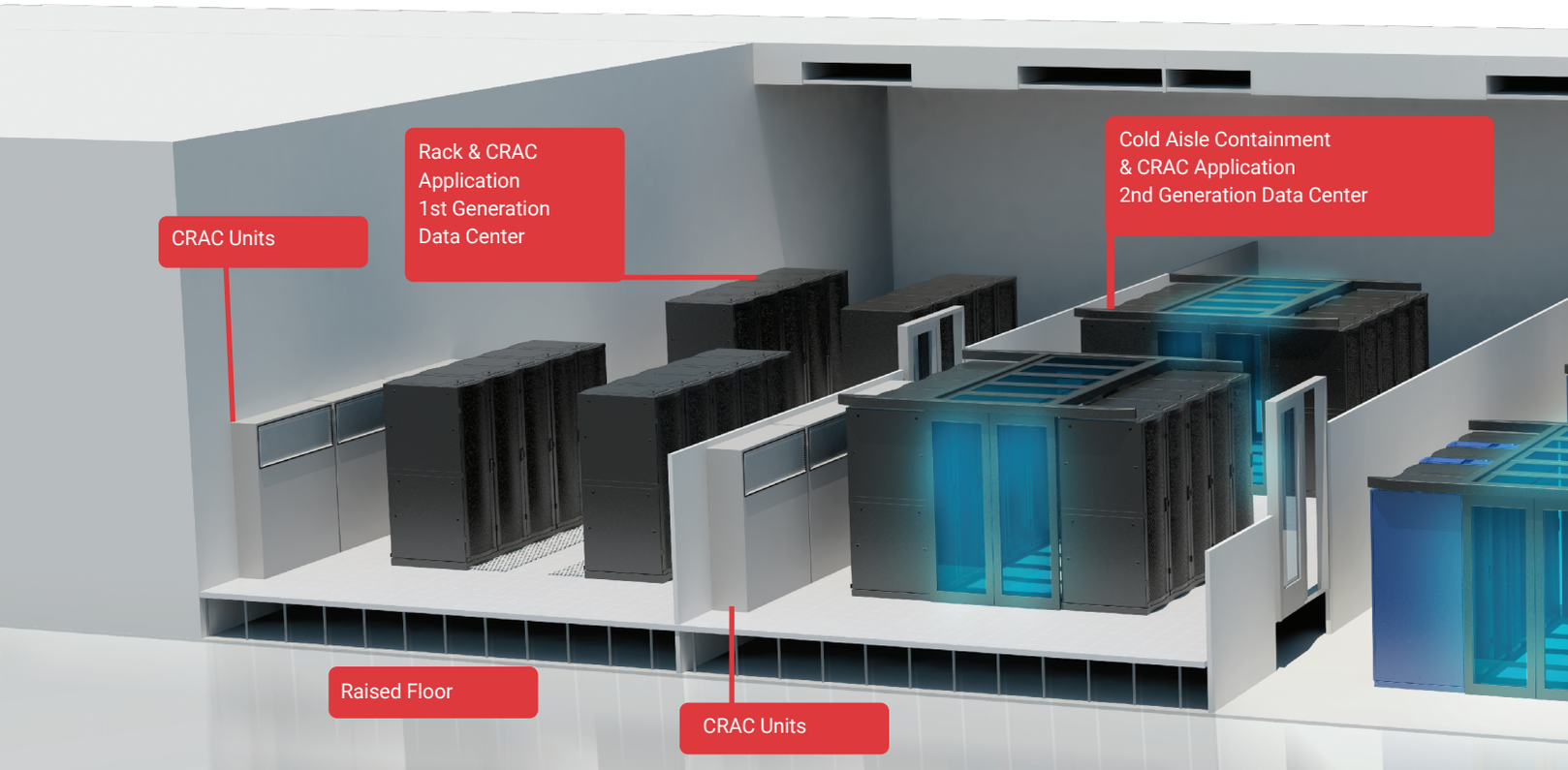
- More efficient than traditional central CRAC cooling technologies up to 50% energy savings
- Modular, scalable, expandable, retrofitable

Cold Aisle Containment + In-Row Cooler

- Cold & Hot Aisle Containment System coupled with In-Row Cooler system ensures ultimate cooling capacity enabling highest levels of energy efficiency
- Optimum solution for medium to large scale Data Centers
- A chilled-water based technology bringing cold air right to the server racks where heat dissipation is maximum, eliminating raised floor requirement in contrast to CRAC cooling systems.

✔ Advantages:

- Eliminates raised floor requirement
- Ultimately more efficient than traditional CRAC based cooling
- Industry leading cooling capacity enabled by 60kW In-Row Cooling System
- Water based cooling – A totally Green IT Solutions
- Free-cooling capability is significantly higher than CRAC cooling systems, for ambient temperatures below 14°C



CANCool - FC
In-Row Cooler (Front Cooler)

- In-Row Cooler is an ultimate solution for medium to large scale data center applications
- A chilled-water based technology bringing cold air right to the server racks where heat dissipation is maximum, eliminating raised floor requirement in contrast to CRAC cooling systems
- Integration into Cold & Hot Aisle Containment Systems yields industry leading cooling efficiency performance

✔ Advantages:

- Significantly more efficient than traditional CRAC based cooling
- Free-cooling capability is considerably higher than CRAC units (≤ 14°C)
- Eliminates raised floor requirement
- Water based cooling – Totally Green IT
- Industry leading cooling capacity up to 60kW

W: 600 mm

W: 300 mm

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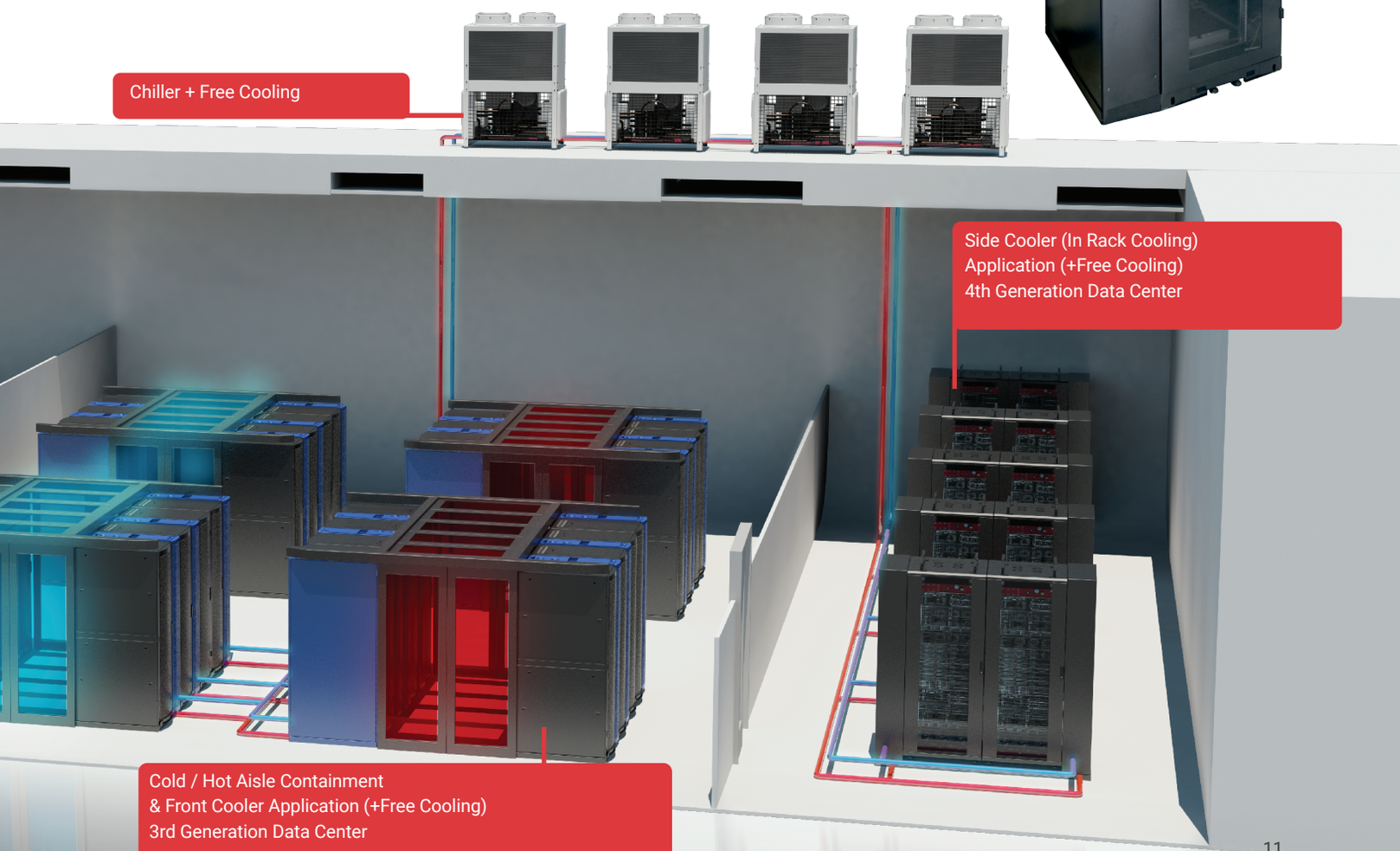
CANCool - SC Side Cooler

- The perfect fit to high density standalone racks where thermal load exceeds 30 kW or for small computer server rooms where infrastructure is limited for necessary expansions
- Highly efficient for small to medium size enterprises, institutions and branch offices
- Side cooling system is a chilled-water based solution that is fully integrated to one or either side of IP protected racks and provides individual or standalone rack cooling up to 30 kW
- One side cooling system can serve up to three server cabinets with 10kW thermal load each

✔ Advantages:

- Ideal for high density server racks and small Data Centers
- Individual and standalone rack cooling capacity up to 30kw
- Water based cooling – A totally Green IT
- Eliminates raised floor requirement
- Free-cooling capability is significantly higher than CRAC cooling systems, for ambient temperatures below 14°C



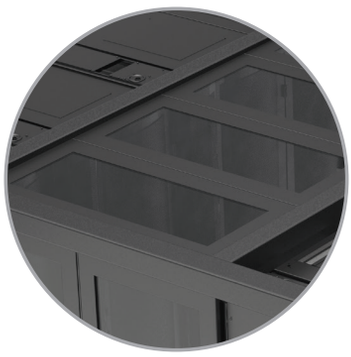
Chiller + Free Cooling

Side Cooler (In Rack Cooling)
Application (+Free Cooling)
4th Generation Data Center

Cold / Hot Aisle Containment
& Front Cooler Application (+Free Cooling)
3rd Generation Data Center

Cold & Hot Aisle Containment

- Increase server performance and cooling efficiency in Data Centers
- Energy savings up to 50%
- Modular Concept
- Retrofitable
- Cooling capacity of up to 10kW per rack
- Green IT
- Complete system solution:
  - Power management
  - Monitoring
  - Cooling
  - Security
- Efficient energy management
- Return on investment within 30 months



Top Cover

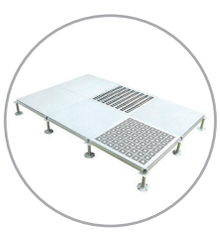
Easily removable tempered glass panel to maximize the available light and reduce fire risk.

Skirt Type Blanking Panel

Closes the gap between 19” mounting rails and side panels. Enables zero U patch panel fitting and cable management.

Accessories:

Raised Floor



Brush

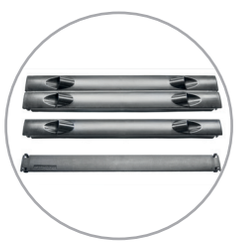
Dust protection

Swing or Sliding Doors

Swing Doors

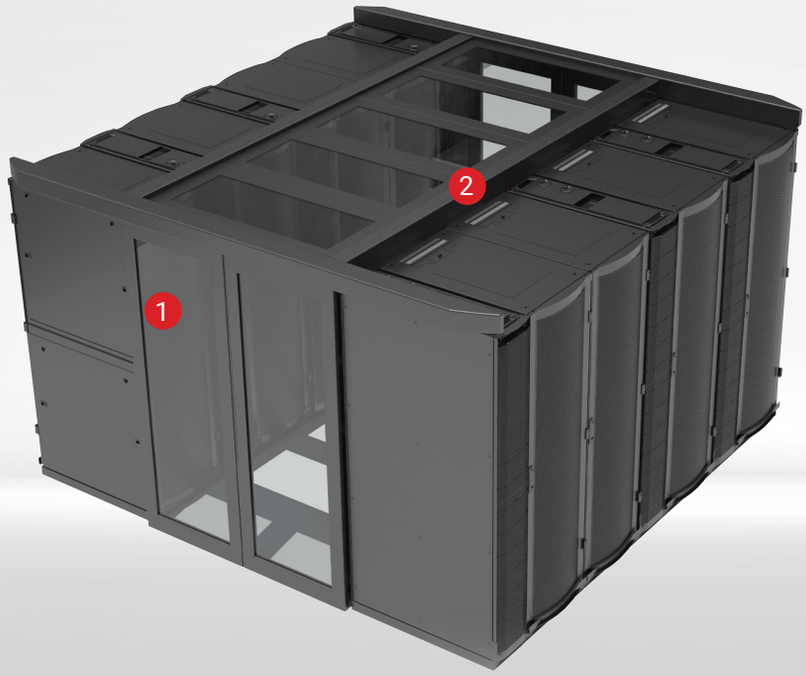
Sliding Doors

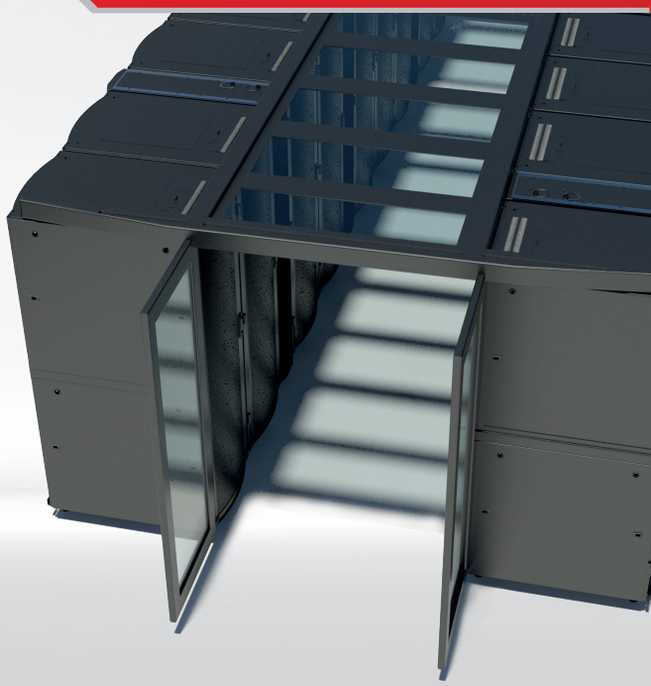
Blanking Panels



Cold & Hot Aisle Containment System must be built on raised floor to maximize cold air intake efficiency.

Manual or electronic locking Sliding Door systems for access management.





1 Aisle Entrance Door

Sliding Door Manual System

Product Code	Product Description
DC-D1-X-42220	1200 mm width, For 42U Cabinets
DC-D1-X-47220	1200 mm width, For 47U Cabinets

Sliding Door Automatic System

Product Code	Product Description
DC-D4-X-42220	For 42U Cabinets, 1200 mm width (Button)
DC-D4-X-47220	For 47U Cabinets, 1200 mm width (Button)
DC-D4-X-42220-P	For 42U Cabinets, 1200 mm width (Fingerprint Reader)
DC-D4-X-47220-P	For 47U Cabinets, 1200 mm width (Fingerprint Reader)
DC-D4-X-42220-K	For 42U Cabinets, 1200 mm width (Key Pad)
DC-D4-X-47220-K	For 47U Cabinets, 1200 mm width (Key Pad)
DC-D4-X-42220-C	For 42U Cabinets, 1200 mm width (Card Reader)
DC-D4-X-47220-C	For 47U Cabinets, 1200 mm width (Card Reader)

Swing Door Manual System

1 piece Left Door Panel, 1 piece Right Door Panel

Product Code	Product Description
DC-D3-X-422Y0	For 42U Cabinets, 1200 mm width
DC-D3-X-472Y0	For 47U Cabinets, 1200 mm width

2 Top Cover

Product Code	Product Description
DC-T-X-YY3Y0	For 300 mm width cooler, 1200 mm depth
DC-T-X-YY6Y0	For 600 mm width cabinet, 1200 mm depth
DC-T-X-YY8Y0	For 800 mm width cabinet, 1200 mm depth

* X : Color code = 7: RAL 7035 (Grey); 9: RAL 9005 (Black)

⊕ Accessories:

Skirt Type Blanking Panel

2 pcs Blanking Panel between 19” mounting rail and cabinet profile

Product Code	Product Description
DC-B3-X-428Y0	For 42u 800 width cabinet
DC-B3-X-478Y0	For 47u 800 width cabinet
DC-B3-X-426Y0	For 42u 600 width cabinet
DC-B3-X-476Y0	For 47u 600 width cabinet

Baying Kit 4 pieces in a set

Product Code	Product Description
DC-B5-X-YYYY0	Front&rear Baying kit

Plinth

H (mm)	W (mm)	D (mm)	Part No
60	300	1000	DC-B6-X-YY300
60	300	1200	DC-B6-X-YY320
60	600	1000	DC-B6-X-YY600
60	600	1200	DC-B6-X-YY620
60	800	1000	DC-B6-X-YY800
60	800	1200	DC-B6-X-YY820

Side Panel

Side panels will be installed in 4 different ends of the corridor and both sides of all Frontcoolers along the corridor between all cabinets

H (mm)	D (mm)	Part No
42U	1000	DC-B7-X-42Y00
42U	1200	DC-B7-X-42Y20
47U	1000	DC-B7-X-47Y00
47U	1200	DC-B7-X-47Y20

Maxi Data Center Solutions Field Application Photos

Maxi Data Center Solutions Field Application Photos

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Controller by CAREL

Pressure Controlled EBM-Papst EC Fans

CANCool-FCW

Chilled Water Based Cooling

- Specially developed for cold & hot aisle containment applications
- Modular construction
- In-Row Technology
- No raised floor required
- Variable speed fans
- Modular design: Allows capacity expansion
- 30 kW or 60 kW cooling capacity
- Pressure controlled fans
- Hot-swappable fans
- EC-Technology
- No condenser needed due to 14 °C inlet water temperature
- Increased free cooling capacity enabled by high inlet water temperature 14 °C
- Efficient power consumption: 980 Watt for 60 kW Cooling

Specifications	30 kW Front Cooler	60 kW Front Cooler
Cooling capacity	30 kW	60 kW
Air inlet	38 °C	38 °C
Number of fans	3 x	3 x
Type of fans	Radial	Axial
Air flow	3.800 m³/h	9.600 m³/h
Power consumption	980 Watt	1250 Watt
Currency	4.3 A	5.8 A
Power supply	230 Volt 50/60 Hz.	230 Volt 50/60 Hz.
Water temperature inlet	+14 °C	+14 °C
Water temperature outlet	+20 °C	+20 °C
Water flow	4,8 m³/h	7,11 m³/h
Pressure drop	42 kPa	33 kPa
Water connection	1 1/4 inch.	1 1/2 inch.
Number of airfilter	1 x	3 x
Type of airfilter	G 2	G 2
Noise level in 1 mtr. distance	62 dB(A)	72 dB(A)
Dimensions		
Width	300 mm	600 mm
Depth	1.000/1.200 mm	1.000/1.200 mm
Height	2.000 mm	2.000 mm
Weight	200 kg.	252 kg.
Color	RAL 9005 / RAL 7035	RAL 9005 / RAL 7035

Product Code	Description (230VAC 50Hz/60Hz)
DC-FCWX-4230-E01EU1-R0	CW Front Cooler 30kW 42U 300 x 1000
DC-FCWX-4232-E01EU1-R0	CW Front Cooler 30kW 42U 300 x 1200
DC-FCWX-4260-F01EU1-R0	CW Front Cooler 60kW 42U 600 x 1000
DC-FCWX-4262-F01EU1-R0	CW Front Cooler 60kW 42U 600 x 1200
DC-FCWX-4730-E01EU1-R0	CW Front Cooler 30kW 47U 300 x 1000
DC-FCWX-4732-E01EU1-R0	CW Front Cooler 30kW 47U 300 x 1200
DC-FCWX-4760-F01EU1-R0	CW Front Cooler 60kW 47U 600 x 1000
DC-FCWX-4762-F01EU1-R0	CW Front Cooler 60kW 47U 600 x 1200

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CANCool-FDX

DX (Refrigerant R 410A) Based Cooling

- 28 kW cooling capacity in 42U 300x1000 Cabinet
- Automatically controlled between 11 to 28 kW by
- Inverter technology for maximum energy efficiency
- COP ratio is above 4 for maximum energy efficieny
- External Compressor unit to have better noise level
- Cooling units work 100% sensible (without condensed water)
- Specially developed for cold & hot aisle containment applications
- Modular construction
- In-Row Technology
- Eliminates raised floor requirement
- Variable speed fans - EC-Technology
- Modular design, Allows capacity expansion
- Hot-swappable fans
- The copper pipes can come either from the top or from the bottom of the unit according to the request

Product Code	Description (230VAC 50Hz/60Hz)
DC-FDXX-4230-A01EU0-R0	DX Front Cooler 28 kW 42U 300 x 1000 with refrigent R410A
DC-FDXX-4232-A01EU0-R0	DX Front Cooler 28 kW 42U 300 x 1200 with refrigent R410A
DC-FDXX-4730-A01EU0-R0	DX Front Cooler 28 kW 47U 300 x 1000 with refrigent R410A
DC-FDXX-4732-A01EU0-R0	DX Front Cooler 28 kW 47U 300 x 1200 with refrigent R410A

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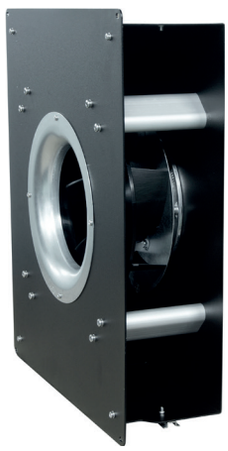
Multipoint Injection system distributing R410 agent more efficiently within the heat exchanger unit



Pressure Controlled EBM-Papst EC Fans

Hot-swappable EC fan Drawer

Outdoor DX Unit-R410A
(Combined Compressor & Condenser)

CAREL
LCD Screen

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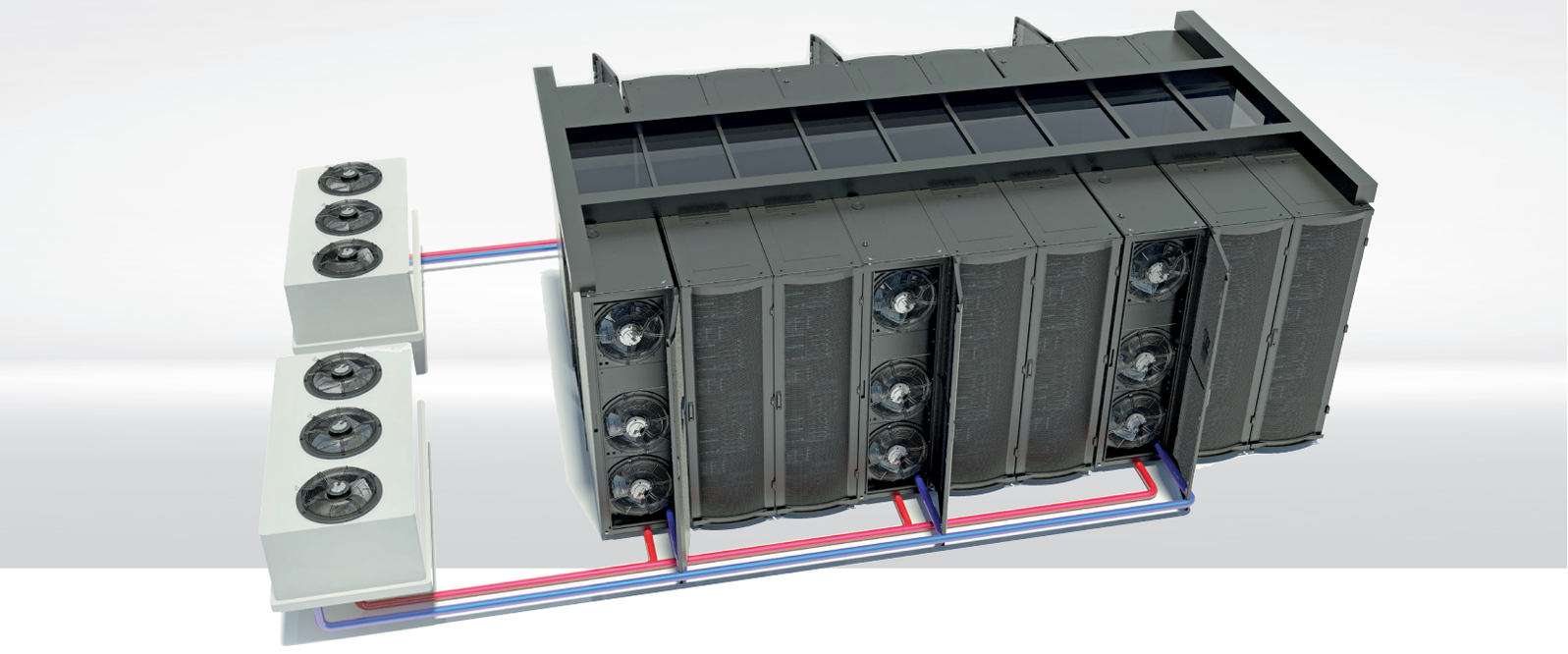
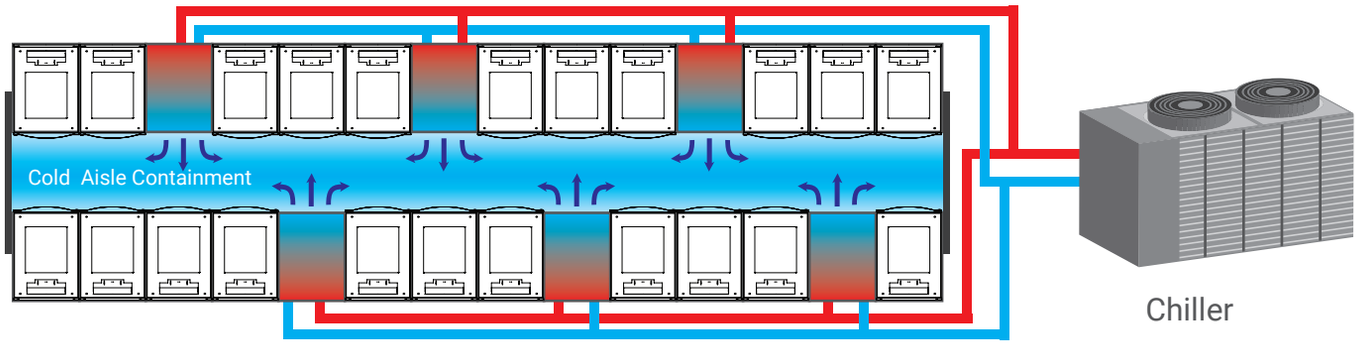
Cold & Hot Aisle Containment + in-Row Cooler



Canovate Cold & Hot Aisle Containment Application

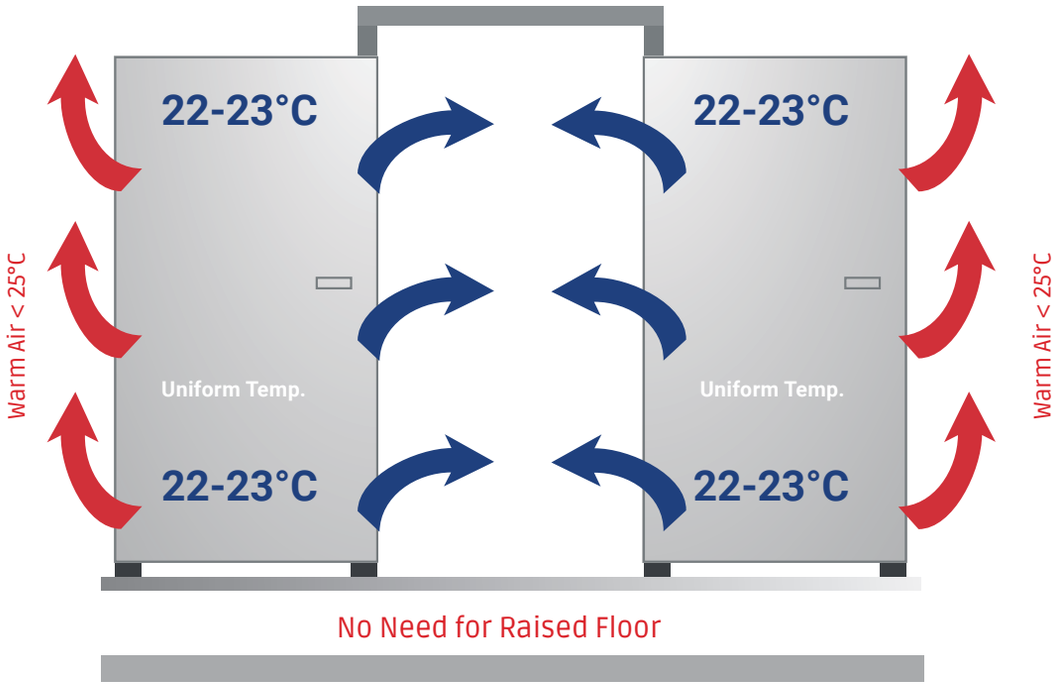


Comparison PUE of different cooling solutions for Data Center with 500 kW IT-load

Free Cooling	No		Indirect		Indirect		Indirect	
Free Cooling 100%			≤ 2°C		≤ 13°C		≤ 15°C	
Methodology	CRAC Standard		Cold Aisle CRAC		Cold Aisle Front Cooler		Side Cooler	
	%	kW	%	kW	%	kW	%	kW
IT Equipment	59,9	500	72,30	500	76,1	500	79,5	500
Cooling	24,0	200	18,80	130	15,2	100	12,7	80
Air Movement	9,6	80	4,30	30	3,8	25	2,7	17
UPS	6,0	50	4,30	30	4,6	30	4,8	30
Lightening etc	0,6	5	0,30	2	0,3	2	0,3	2
Energy Cost (€) (12 cent/kwh)	294.336		168.192		131.400		101.966	
	100%	835	100%	692	100%	657	100%	629
PUE	1,67		1,38		1,31		1,26	
Energy Cost	289%		165%		129%		100%	

ROI (Return of Investment) = 2 Years
PUE (Power Usage Effectiveness)

1-6(n+1)
Inrow Cooler



A Snapshot from In-Row Control & Monitoring System