



CONTEG DATA SHEET

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TOTAL SOLUTIONS FOR DATA CENTERS

CONTAINED COLD AISLE



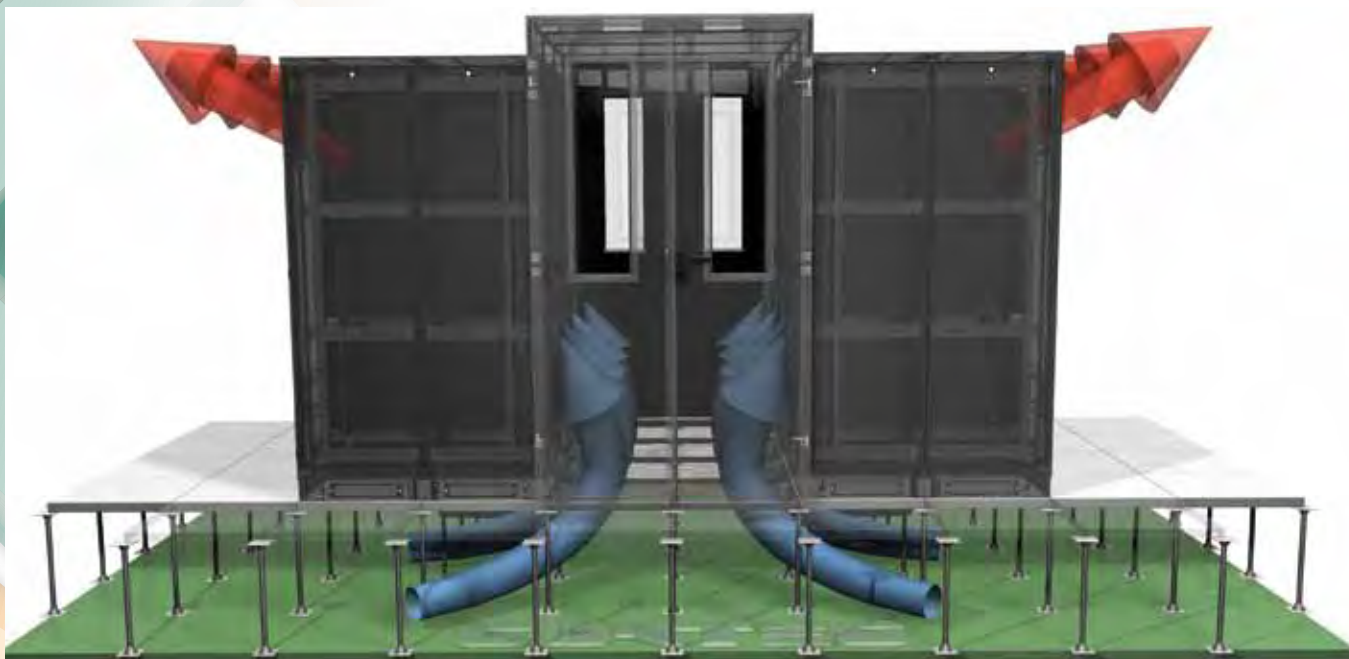
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CONTAINED COLD AISLE

contained cold aisle



One of the potential drawbacks of the Hot / Cold Aisle approach is the possibility of warm air recirculation due to insufficient static pressure within the raised floor or a lower than optimal ceiling clearance preventing adequate stratification of warm air. Of course, whether this actually occurs or not depends on many variables, however when facing this type of design challenge it makes engineering and financial sense to form a physical barrier between cold and warm air streams.

With CONTEG Contained Aisle solution, the modular containment system is used to physically separate cooled air from hot exhaust by forming a cold plenum space and preventing mixing of hot and cold air, thereby eliminating hot-spots. The contained aisle solution can be deployed where higher density loads are collocated to ensure that all available cooling air is directed to the cabinets. It can also be combined with CONTEG Side Mount Cooling Units to produce cold air locally and ensure that all cold air produced passes through the equipment. The system is designed to work with RSF/RDF/RHF/RSB/ROF rack series – the basis of CONTEG’s data center solutions, and it is

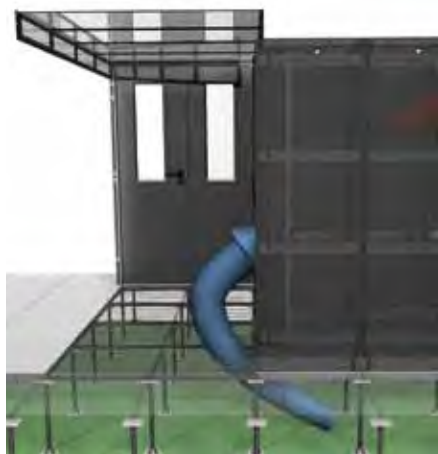
designed to support racks of 42 and 45U heights. The transparent sections are manufactured from clear poly carbonate to ensure that light can pass easily into the contained aisle.

As an option, the Contained Aisle system can be fitted with automatic door handlers and integrated with the access control system, environmental monitoring system and fire alarm to ensure that the doors are opened or closed automatically. For example, in the case of a cooling system failure it would be beneficial to open the doors of the cold aisle to allow environmental air to be available to the equipment for cooling and to limit the rate of equipment temperature increase. However,

should a fire be detected within a contained aisle, you would want to ensure that doors are closed to contain the suppressant within the affected aisle. Obviously, this requires co-ordination with the designers of the access control, building management and fire suppression system but gives you an idea of the flexibility that is available with the CONTEG contained aisle system.

Modular Contained Aisle

system is available upon request. This system is the ideal solution when a row of racks with different heights or even with gaps because of missing racks is required to be contained. System is based on self-supporting construction with clear polycarbonate panels on the top of the roof. Vertical side sections of the roof feature PVC foil strips, which can be easily cut to the required length. Flexible Contained Aisle can work with standard aisle door (see above) or with PVC foil strips instead of standard door. Contact us for more information.



Cold air is delivered to the cold aisle using the raised floor as a cold air handling plenum, the hot air is blown out on the back side to the data center room, roof and doors are used to prevent mixing hot and cold air



Dual leaf opening door allow access into the contained aisle, it can be equipped by automatic handling systems optionally



By using the roof the cold air is “trapped” in the contained aisle, the roof also efficiently blocks the hot air to re-enter the aisle



COOLING

In the Contained Aisle design the cold air is produced by central cooling system with perimeter mounted CRAC/CRAH units. The raised floor is used as a cold air handling plenum and the cold air enters the aisle via perforated floor tiles. If, for any reason, the raised floor cannot be used, the cold air can be produced locally by in-row side mount cooling units installed directly in the row of racks. This solution is currently very popular as it can address very high heat loads.



contained cold aisle

RECOMMENDED RACK SERIES

Rack	Description
RSF series 19" distribution racks	PREMIUM rack series, highly configurable with load rating up to 1000kg
RDF series 19" distribution racks	PREMIUM rack series provides maximum compatibility with Targeted Cooling solutions and developed for cabling support; load rating up to 500kg
RHF series 19" distribution racks	PREMIUM rack series provides ultra high load rating up to 1500kg
ROF series 19" distribution racks	OPTIMAL rack series, highly configurable with load rating up to 500kg, for racks deep 1200mm – 1000kg

- Front vented door (83% perf. rate) with multipoint swivel handle lock (universal key)
- Rear vented door (83% perf. rate) with multipoint swivel handle lock (universal key)
- Removable sheet steel side panels with lock (universal key)
- Two pairs of 19" vertical sliding extrusions
- Top and bottom openings for cable entry; (only ROF racks with fixed plates)
- Adjustable feet as standard; recommended plinth or plinth with filter (not included)

Protection class IP20, load rating ROF & RDF – 500kg, RSF – 1000kg, (for ROF racks deep 1200mm – 1000kg), RHF – 1500kg, color black RAL 9005 (optionally light gray RAL 7035). For detailed technical information on RSF, RDF, RHF and ROF racks please refer to appropriate data sheets.

Code ¹
RSF-42-60/10T-WWWWA-2EA-H
RSF-45-60/10T-WWWWA-2EA-H
RSF-42-60/12T-WWWWA-2EA-H
RSF-42-80/10U-WWWWA-2EA-H
RSF-45-80/10U-WWWWA-2EA-H
RSF-42-80/12U-WWWWA-2EA-H

Code ¹
RDF-42-80/10C-WWWWA-2H5-H
RDF-45-80/10C-WWWWA-2H5-H
RDF-42-80/12C-WWWWA-2H5-H

Code ¹
ROF-42-60/100-WWWWA-205-H
ROF-45-60/100-WWWWA-205-H
ROF-42-60/120-WWWWA-20A-H
ROF-42-80/10C-WWWWA-205-H
ROF-45-80/10C-WWWWA-205-H
ROF-42-80/12C-WWWWA-20A-H

Code
RHF-42-60/100-WWWWA-2EF-H
RHF-42-80/10P-WWWWA-2EF-H

¹ All racks in black; for gray – simply change H in the end of the code for B

RELATED PRODUCTS

Related products	Description
In-row side mount cooling	Recommended cooling for very high density contained cold aisles
Contained aisle – door	Encloses cold aisle ends whilst providing access to the cold aisle interior
Contained aisle – roof	To seal top of aisle between opposing racks to prevent cold and warm air from mixing
Automatic door handle	ADH makes the access into the aisle easier as well as it increases the safety
Cable entries	Products for passage of cabling/pipes through raised floor with minimal loss of air pressure
Modular plinths	Replace adjustable feet and are used as stabilizing and aesthetic element
Air separation frames	Prevent by-pass airflow between column and 19" extrusion to optimize cooling of equipment
Brackets	Needed when vertical PDU installation into rack is planned
Blank panels	Prevent cold air by-pass through unused U positions



BASIC AIR CONTAINMENT DESIGN GUIDELINES

- Typically for heat loads of 4.5kW to >15kW per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1000 mm or 1200 mm deep cabinets
- Air separation frames – 150 mm or 200 mm deep
- Air containment system – 1200 mm or 1800 mm standard
- 83% super vented front and rear door (or solid rear door when used with plenum return and chimney)
- 1200 mm or 1800 mm aisle spacing
- Double brush grommets for cable entries

- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring of containment and in cabinet environmental conditions

Note: There are many variations of this configuration to include ones for non-raised floor facilities, hot or cold air containment, and configurations that utilize primary or supplemental in-row cooling units