



CONTEG DATA SHEET

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TOTAL SOLUTIONS FOR DATA CENTERS

HOT / COLD AISLE

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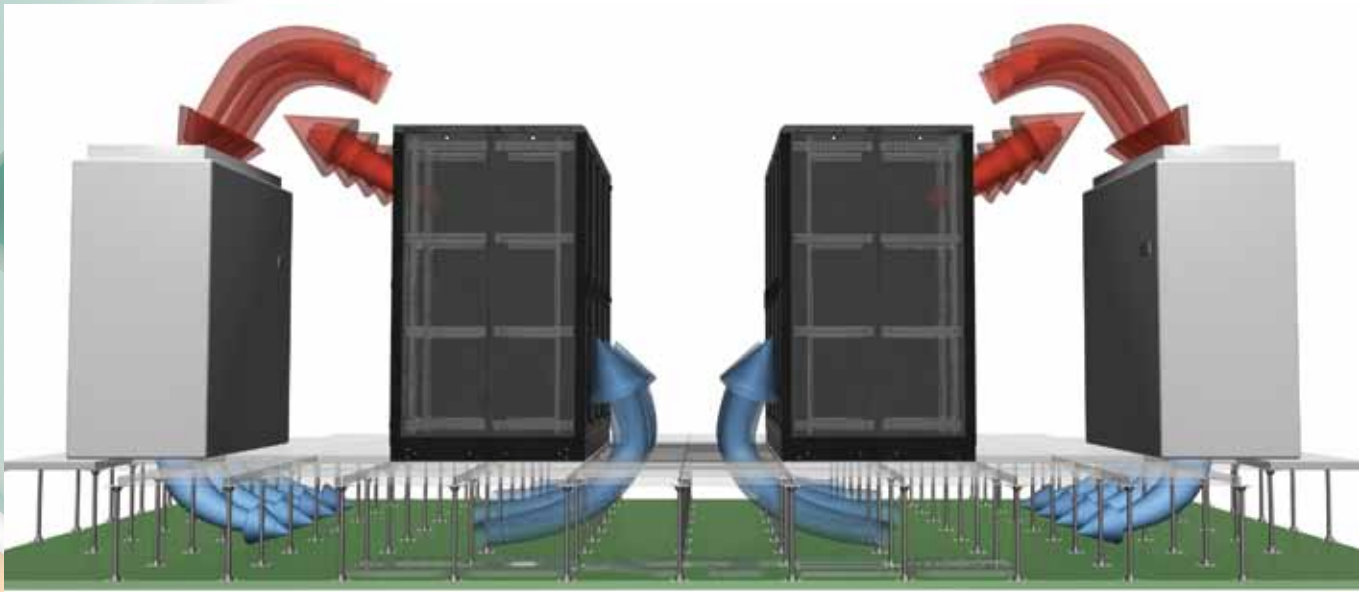
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HOT / COLD AISLE



The Hot / Cold Aisle approach is considered to be the "norm" for data center designs. Racks are aligned front to front and cold air is delivered using the raised floor as a cold air handling space (plenum).

The ANSI/TIA/EIA-942-A (data center) standard recommends a cold aisle width of 1.2 meters (which is equivalent to two floor tiles) to allow a perforated tile to be placed in front of each cabinet which allows for cold air to be delivered to the cabinet front.

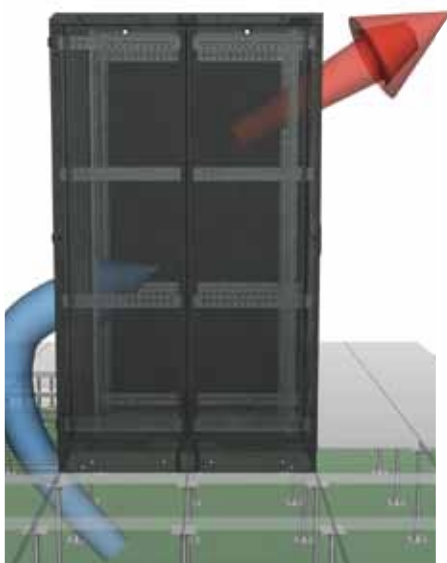
RSF, RDF, RHF and ROF rack series are strongly recommended to be used in hot / cold aisle data center design. For maximum efficiency, highly perforated doors are required; CONTEG test data shows a significant improvement to airflow in the case of 83% super-vented doors being used over standard perforated door types. In order to make the best use of available cold air it is

recommended to blank-off any unused space within the rack by using standard blank panels. Additionally, using an air separation frame at the front of the rack will help to block unwanted cold air by-pass around the mounting profiles leading to an improvement in efficiency and therefore an operational cost saving on equipment that uses front to back airflow.

As an alternative to the cabinets, open frames can be used to house all the equipment. CONTEG has developed a special high-load open frame series called RSG. It is the best choice when unlimited access to the installed equipment is required while safe free-dust environment can

be guaranteed. Because the raised floor is being used to deliver the cold air it is essential that all openings within the floor, such as for the passage of cables, are well sealed using double brush grommets. This helps to maintain static pressure within the floor and minimizes the amount of air that can escape the floor in unintended or undesired locations.

Hot / Cold Aisle design can be modified in various ways to meet today's requirements for higher efficiency. It can be easily improved e.g. by separating the cold and hot air streams – making the solution Contained. See next chapter to learn more.



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 hot aisle



Rack design in hot cold aisle arrangement requires front vented (83%) & rear vented (83%) door to easily enter the rack



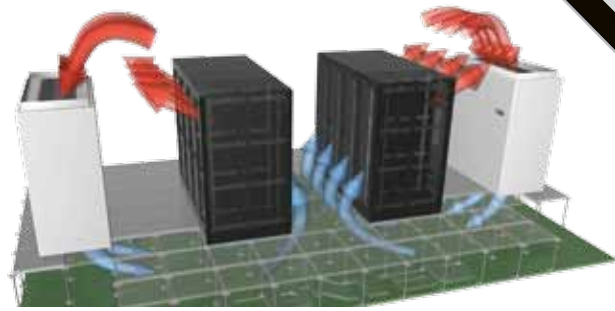
RSG open frame series (two and four posts) is a racks' alternative which gives you unmatched access to installed equipment

hot / cold aisle



COOLING

In the Hot / Cold Aisle design the airflow is managed at the racks level only. Within the data center / server room no barriers are applied to separate hot and cold air streams. This makes this solution very simple, but creates potentially future problems when high density applications are housed in the cabinets. However for traditional Hot / Cold Aisle design a central room cooling with perimeter positioned close control units is recommended. Such units are not presented in this catalog, however we are ready to supply you also with this product as we collaborate with a global leader in precision cooling.



hot/cold aisle

RECOMMENDED RACK / OPEN FRAME SERIES

Rack / open frame series	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
RSG4 series 19" four post open frames	Alternative to racks for housing equipment, load rating up to 1500kg

- 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-48-60/10T-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-48-80/10U-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-48-80/10C-WWWWA-2H5-H
RDF-42-80/12C-WWWWA-2H5-H

Code ¹
RHF-42-60/100-WWWWA-2EF-H
RHF-42-80/10P-WWWWA-2EF-H

Code ¹
ROF-42-60/100-WWWWA-205-H
ROF-45-60/100-WWWWA-205-H
ROF-48-60/100-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-48-80/10C-WWWWA-205-H
ROF-42-80/12C-WWWWA-20A-H

Code ²
RSG4-42-19/50-LF
RSG4-42-19/74-LF
RSG4-42-19/92-LF
RSG4-45-19/50-LF
RSG4-45-19/74-LF
RSG4-45-19/92-LF
RSG4-47-19/50-LF
RSG4-47-19/74-LF
RSG4-47-19/92-LF

¹ All racks in black; for gray – simply change H in the end of the code for B
² All open frames in black

RELATED PRODUCTS

Related products	Description
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 HOT/COLD AISLE DESIGN GUIDELINES

- Typically for heat loads of 4.5kW to 6kW 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
- 83% super vented front and rear door
- 1200 mm or 1800 mm aisle spacing
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in racks

Note: Recommendations based on room conditions compliant with TIA-942 standard. All the recommendations indicated in this brochure are typical guidelines to be used as a starting point for planning. Results may vary dependant on the specifics and related variables for each design. Guidance is available from Conteg product specialists to resolve unique design challenges.