CONTEG DATASHEET

TOTAL SOLUTIONS FOR DATA CENTERS

MODULAR CLOSED LOOP

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1.1 MODULAR CLOSED LOOP

Modular Closed Loop offers the ability to achieve up to 35 kW of cooling power per rack per assembly. This type of architecture can be especially useful when planning to install a few very high-power racks into a facility since the racks do not release any heat into the data center environment. It is also an ideal solution when limited rack space (for example, in atypical server room of a mid-size company) is required, but cooling becomes an issue because of the high-density applications housed there.

Illustrative image only

Modular Closed Loop architecture is based on CoolTeg units from the Targeted Cooling range and racks from the PREMIUM Server portfolio. Cool air is generated by the CoolTeg unit(s) and delivered into the cold zone in the front part of rack(s), where it is close to the equipment cooling intake. The hot exhaust air from the equipment is then removed from the hot zone in the rear part of the rack(s) by the CoolTeg unit(s), cooled and delivered back into the cold zone, forming a closed recycling air loop. This architecture ensures that heat generated within the cabinet is removed at the point of production and not released into the data center or server room environment, thereby minimizing the chances of localized hotspots forming in high-density zones.

Closed Loop architecture is available in a modular design, where virtually an unlimited number of racks and cooling units can be combined into a closed module. The modular design is fully flexible and accommodates any combinations of cooling units and racks to meet the required levels of cooling and redundancy.

It is pre-designed for PREMIUM Server racks that are 1200 mm deep, 600 or 800 mm wide and 42, 45 or 48U high as well as for CoolTeg units that are 1200 mm deep, 300 mm or 400 mm wide and 42, 45 or 48U high.

The Modular Closed Loop solution is very energy efficient, especially when CoolTeg Plus units are connected to chiller with free-cooling technology.

MODULAR CLOSED LOOP DESIGN GUIDELINES

The Closed Loop can include a virtually unlimited number of PREMIUM Server racks and cooling units. However, six racks (252 – 288U) should be the limit when considering the standard layout of data center applications. The configuration of the rack differs according to its position in the module – please be aware of it when planning the module. All racks are delivered fully assembled with the requested passive airflow management already installed (separation frames). Both cooling unit versions, chilled water (CW) as well as direct expansion (XC, DX), are available to provide the module with needed cooling power of up to 35 kW per cooling unit. The module can be easily designed in fully redundant mode. The Modular Closed Loop can be configured according to the needs of any customer and can be anytime in the future modified and fitted at a later date with additional racks and cooling units.

- Typically for heat loads of up to 35 kW per cabinet
- 42U to 48U – 600 mm or 800 mm wide cabinets – 1200 mm deep
- Air separation frames – 200 mm deep
- Front glass door
- Solid rear door
- No raised floor required
- Double brush grommets for cable entries
- Blanking panels for all vacant equipment mounting locations in cabinets
- Monitoring of cabinet's interior environmental conditions
- IP54 protection recommended
- Solution is also applicable outside the clean data halls

Protection rating IP54, load rating PREMIUM Server – 1500 kg, color black RAL 9005 (optionally light gray RAL 7035). Separation frame and sealing. For detailed technical information on PREMIUM Server racks please refer to page 36. CoolTeg Cooling Unit with top or bottom piping. Piping and outdoor chiller are not a standard parts of this product. For more information about CoolTeg cooling units please refer to page 102.
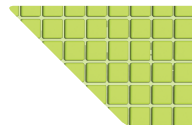
Modular Closed Loop RACKS		
Middle rack code	**End-of-the-row rack code**	**Description**
RSF-42-60/12T-GWSWM-MCL	RSF-42-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 600×1200
RSF-42-80/12U-GWSWM-MCL	RSF-42-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 800×1200
RSF-45-60/12T-GWSWM-MCL	RSF-45-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 600×1200
RSF-45-80/12U-GWSWM-MCL	RSF-45-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 800×1200
RSF-48-60/12T-GWSWM-MCL	RSF-48-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 600×1200
RSF-48-80/12U-GWSWM-MCL	RSF-48-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 800×1200

Add -E at the end of the rack's code for having emergency opening system (EOS) pre-installed; EOS includes 4 electronic latches, specially reinforced door with multipoint lock, gas struts; RAMOS Mini unit recommended for operation (not part of delivery)

Modular Closed Loop COOLING UNITS [1]	
Cooling unit code [2]	**Description**
AC-TDX-42-30/120-BCD	Direct Expansion, 20 kW, 42U x 300×1200 [3]
AC-TCW-42-30/120-BCD	Chilled Water, 35 kW, 42U x 300×1200
AC-SM-XC/B4-42-40/120	Integrated compressor, 26 kW, 42Ux400×1200

Drain pump can be mounted and connected to the unit to remove condensate out of the unit in case of no raised floor

[1] Plinth is not a part of delivery
[2] Modular Closed Loop cooling units in 45U and 48U heights available upon request
[3] Different cooling power available depending on the type of outdoor unit AC-DX-XXXXX (ordered separately)
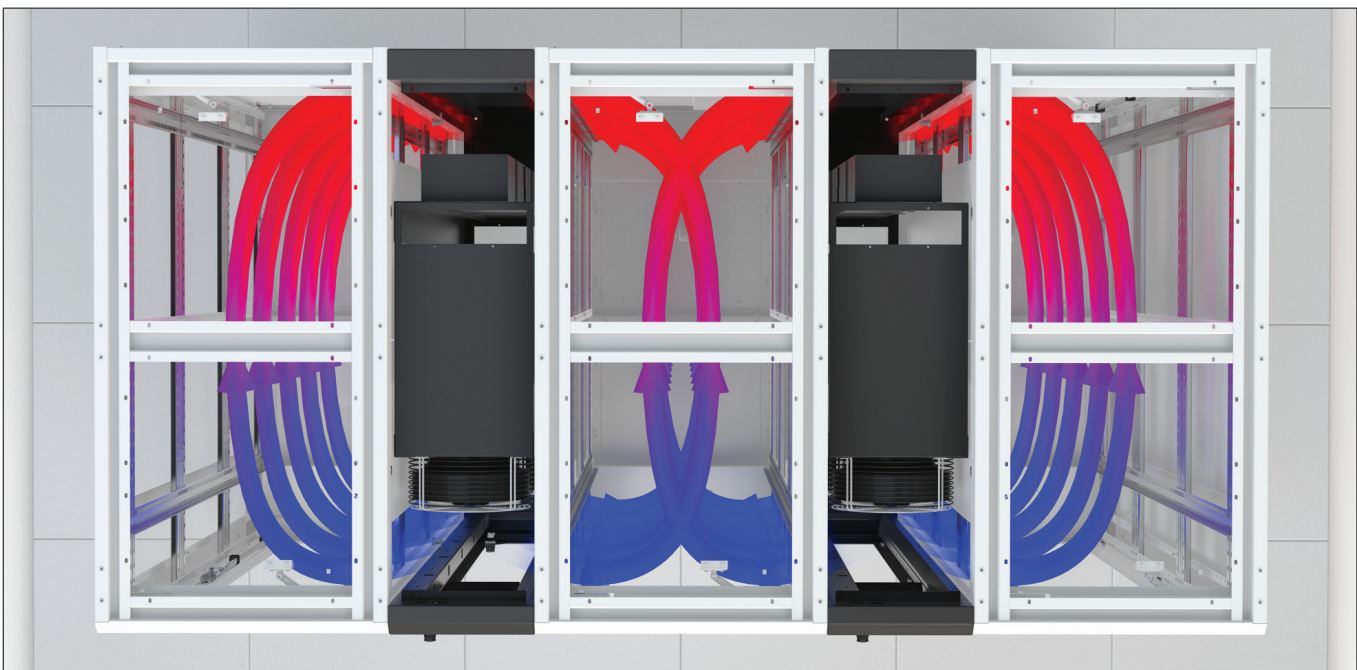
RELATED PRODUCTS

Emergency Opening System automatically opens the front and rear doors of the racks in case the cooling unit fails to prevent the overheating of equipment inside the rack. The problem is detected by the **RAMOS monitoring system** (not a standard part of the Emergency Opening System) which sends an alarm message to the Emergency Opening System to prevent possible damage to the equipment. However, the best protection is provided by having a fully redundant module configuration.

Local Extinguishing System

LES-RACK is a self-contained, fully automatic fire detection and protection system. Designed for installation directly into 19" racks with protection rating IP30 or higher. It offers a very secure and effective solution for server, telecommunication and control racks/cabinets. LES-RACK-M comes with a fully equipped automatic system of fire detection, control, evaluation and extinguishing unit.

Note: Cooling capacity for this configuration can reach higher values, depending on how many variables there are, including capacity and other features of the precision computer room cooling unit, like the ratio of supply air space to return plenum space and the amount of air obstructions in the supply and return air spaces.