CONTEG DATA SHEET

version: 08-04-2011

TOTAL SOLUTIONS FOR DATA CENTERS

MODULAR SIDE CLOSED LOOP

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MODULAR SIDE CLOSED LOOP

Modular Side Closed Loop architecture offers the ability to achieve up to 36kW per rack of cooling power in one specific assembly. This type of architecture can be especially useful when planning to install a few very high power racks into a facility as the racks do not release any heat out 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 the cooling becomes an issue because of high density applications housed there.

Illustrative image only

The Modular Side Closed Loop architecture is based on side mount cooling units from Targeted Cooling portfolio and RSF racks. Cool air is generated by the side mount cooling unit(s) and delivered into the cold zone at the front part of rack(s) where it is close to the equipment cooling intake. The hot exhaust from the equipment is then removed from the hot zone at the rear part of rack(s) by the side mount cooling 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 hot-spots forming in the high density zones.

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

MODULAR SIDE CLOSED LOOP — 42U+

The modular architecture is pre-designed for 1200mm deep, 600 or 800mm wide and 42, 45 or 48U high RSF racks and for 1200mm deep, 300mm wide and 42, 45 or 48U high side mount cooling units.

The module can consist of virtually unlimited number of RSF racks and cooling units. 6 racks (252 – 288U) could be understood as a limit where standard data center layout's application should be considered. 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 needed passive airflow management installed.

Both cooling unit versions, chilled water (CW) as well as direct expansion (DX), are available to provide the module with needed cooling power up to 36kW per rack. The module can be easily designed in fully redundant mode.

Modular Side Closed Loop can be configured according to needs of any individual customer and can be anytime in the future modified and completed with additional racks and cooling units.

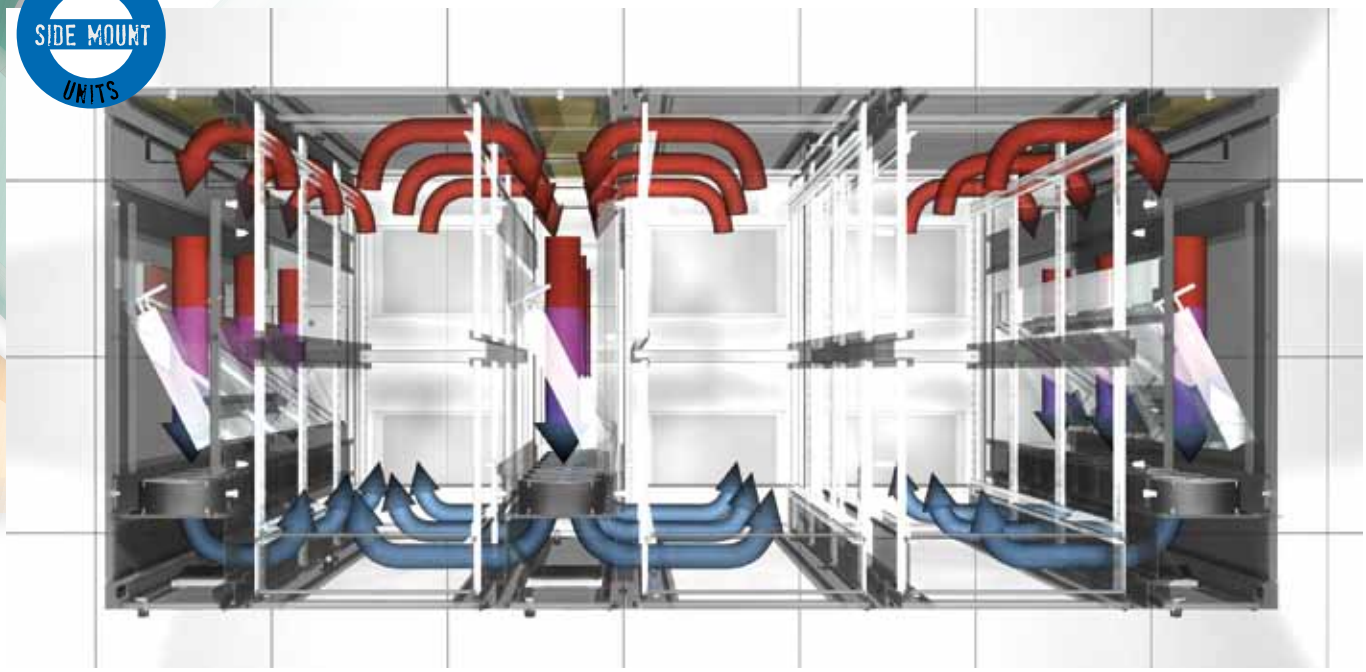
Modular Side Closed Loop RACKS		
Middle rack's code	**End-of-the-row rack's code**	**Description**
RSF-42-60/12T-GWSWM-MCL	RSF-42-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 600 x 1200
RSF-42-80/12U-GWSWM-MCL	RSF-42-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 42U x 800 x 1200
RSF-45-60/12T-GWSWM-MCL	RSF-45-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 600 x 1200
RSF-45-80/12U-GWSWM-MCL	RSF-45-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 45U x 800 x 1200
RSF-48-60/12T-GWSWM-MCL	RSF-48-60/12T-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 600 x 1200
RSF-48-80/12U-GWSWM-MCL	RSF-48-80/12U-GWSWN-MCL	RSF Modular Closed Loop Rack 48U x 800 x 1200

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

Protection class IP54, load rating RSF – 1000kg, color black RAL 9005 (optionally light gray RAL 7035). Separation frame and sealing. For detail technical information on RSF racks please refer to page 28. Side cooling unit with bottom piping (upper piping upon request). Piping and outdoor chiller are not a standard part of this product. For more information on side cooling units please refer appropriate data sheets.

Modular Side Closed Loop COOLING UNITS [1]	
Cooling unit's code [2]	**Description**
AC-SM-DX/A2-42-30/120	Direct Expansion, 12kW, 42U x 300 x 1200 [3]
AC-SM-DX/A8-42-30/120	Direct Expansion, 20kW, 42U x 300 x 1200 [3]
AC-SM-CW/C4-42-30/120	Chilled water, 36kW, 42U x 300 x 1200
Add -T in the end of the closed loop's code for top connection of water piping (bottom connection as standard); drain pump is standard part of delivery; available for models using CW cooling units only	
Add -EC in the end of the closed loop's code for having EC fans in your cooling unit; available for models using CW cooling units only	

[1] Plinth is not a standard part of delivery
[2] Modular Side Closed Loop cooling units in 45 and 48U height available upon request
[3] Outdoor unit AC-DX-xxxxxxxx required (not part of delivery)



Top view – air flow detail – closed air-loop architecture with side coolers

RELATED PRODUCTS

Emergency Opening System automatically opens the front and rear doors of the racks in the module in the case of an eventual cooling failure occurs and the inside environment begins to heat up. The problem is detected by the **RAMOS monitoring system** (not standard part of Emergency Opening System), which sends an alarm to the Emergency Opening System. Thanks to this function the possible equipment damage is prevented. However this function cannot compete with protection provided by 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 IP30 or higher. It offers a very efficient and effective solution for servers, telecommunication and control racks/cabinets. LES-RACK-M consists of a fully equipped automatic system of fire detection, control, evaluation, communication and extinguishing unit.

MODULAR CLOSED LOOP DESIGN GUIDELINES

- Typically for heat loads up to 36kW 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 in cabinet environmental conditions
- Protection class IP54
- Solutions is applicable outside the clean Data halls

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