DATASHEET

CoolRAC XC

Direct expansion room cooling units
with an integrated compressor

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TARGETED COOLING AND AIRFLOW MANAGEMENT

COOLRAC ROOM COOLING SYSTEM

CoolRAC units represent a family of precision cooling units specifically designed for easy integration into new and renovated data centers. These cooling units—with different cooling principles, sizes and outputs—are still the most widely used system for efficient targeted cooling from smaller server rooms to large data centers.

↳ Main advantages

- ✓ Cooling capacity from 25 up to 104 kW
- ✓ Variable installation options for the unit with fan module and air outlet in the double floor or above the floor
- ✓ Option to equip the unit with one or two fans
- ✓ Very low energy consumption thanks to EC fans and control software
- ✓ User-friendly and modern control system
- ✓ Flexibility of spatial layout
- ✓ Option to place the unit outside the data center room and connect the unit to the air duct
- ✓ Wide range of accessories

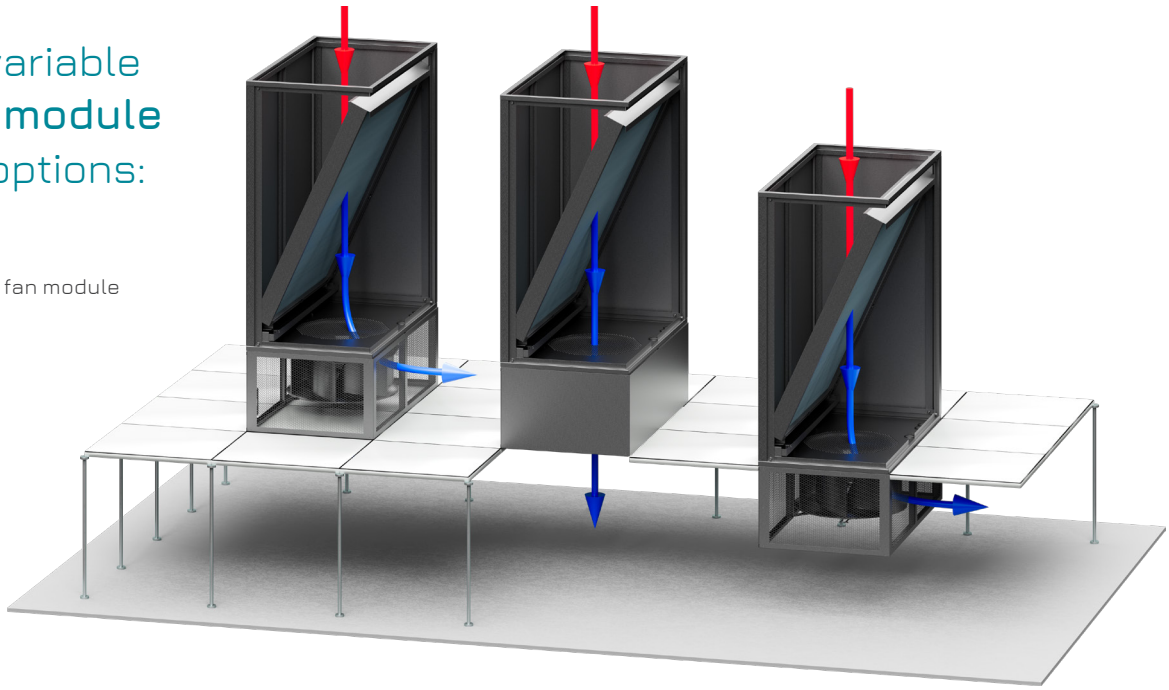
↳ Suitable for

- ✓ Open aisle
- ✓ Contained cold/hot aisle
- ✓ Data center of any size

COLOR: RAL 9005 RAL 7035

Examples of variable air outlet **fan module installation** options:

- ✓ Above the double floor
- ✓ Into the double floor
- ✓ With installation of the fan module inside the double floor



↳ Description

- Radial fans (with EC motors) for lowest energy consumption and precise control of airflow to servers
- High-efficiency copper-aluminium heat exchangers; also useful for Free-cooling systems
- Controller with special CONTEG software, based on long-term experience from worldwide data centers
- 4.3" color touch-screen display for user-friendly communication
- One display operating up to 16 units per group
- Independent unit control as well as CoolRAC group control functions for entire row of racks
- Wide range of settings adjust performance to specific project
- Communication through TCP/IP protocol (standard)
- Easy ModBUS and remote management from any computer connected to Internet (via integrated Webserver)
- Other protocols available
- Humidity sensors integrated into units
- Possibility of humidification and dehumidification mode integration in each unit
- Four temperature sensors per unit

THREE COOLING SYSTEMS:

1. CW — chilled water system
2. XC — direct expansion system with compressor (within CoolRAC unit)
3. DF — hybrid Dual Fluid system

DIRECT EXPANSION ROOM COOLING UNITS WITH AN INTEGRATED COMPRESSOR

COOLRAC XC

CoolRAC XC M

CoolRAC XC S

CoolRAC XC room cooling units are based on the direct expansion principle. A compressor is integrated into the indoor unit, which is connected to its outdoor condenser.

Main advantages

- Cooling capacity up to 46 kW
- Operating temperature range –40 °C up to +55 °C
- Remarkable energy efficiency and stepless cooling capacity control
- No water in data center
- Compressor safely positioned inside the data center
- Low level of outdoor unit's noise
- R410A refrigerant

COLOR: RAL 9005 RAL 7035

CoolRAC XC			
Indoor unit code	Unit	AC-CRXC-00S	AC-CRXC-00M
Connected outdoor unit code		AC-CONDx-xx-xx	
BASIC DATA			
Cooling system	–	Direct expansion	
Architecture	–	Down-Floor / Under-Floor / Front-Floor	
Nominal cooling capacity *	kW	24,7	45,8
Nominal net cooling capacity	kW	23,3	45,2
Power supply	V/f/Hz	400/3/50-60	
Running current *	A	13,5	18,1
Maximum current	A	21	25,9
Fan power consumption *	kW	1,4	1,3
Compressor power consumption *	kW	7,2	11,7
Nominal airflow *	m^3/h	5 000	10 300
Maximum air flow	m^3/h	10 400	13 040
Number of radial fans	pcs	1	1 or 2
Motor fan technology	–	EC	
Refrigerant type	–	R410A	
Filter class	–	G4	
Dimensions			
Height	mm	2 025	
Width	mm	714	1 353
Depth	mm	763	
Weight	kg	290	330
PIPING CONNECTION			
Piping diameter—liquid line	mm	12	16
Piping diameter—gas line	mm	16	22

Inlet air parameters (nominal conditions): 35 °C at 30 % RH. Condensing temperature 45 °C.

* Values under nominal conditions.

FOR COOLRAC XC ROOM COOLING UNITS

OUTDOOR AIR-COOLED **CONDENSERS**

Outdoor air-cooled condensers dissipate the data center heat-load to the ambient. Indoor unit is designed so it's able to cooperate with the widest field of condensers. It allows customer to select the type which perfectly fits the requirements.

Recommended **condensers for CoolRAC XC** are listed in the table below. They are sorted according to the maximum ambient temperature.

AIR-COOLED FINS AND TUBES											
Indoor unit	Max. temp.	CONTEG P/N	Sound pressure level		Number of fans	Power supply			Length (mm)	Width (mm)	Height (mm)	Weight (kg)
			Lw(A)	Lp(A) 10m		ph/V/Hz	A	kW				
CoolRAC XC	35 °C	AC-COND2-03-35	87 dB	56 dB	2	3/400/50-60	4,2	2,59	1 884	888	957	158
CoolRAC XC	45 °C	AC-COND2-02-45	93 dB	61 dB	2	3/400/50-60	6,2	4,02	2 484	1 088	961	236
CoolRAC XC	55 °C	AC-COND2-03-55	96 dB	64 dB	2	3/400/50-60	8,6	5,77	2 484	1 088	961	267

FOLLOW THE STEPS FOR DETERMINING THE CODE OF THE REQUIRED **COOLRAC** UNIT

AC	–	CR	1.	–	2.	3.	4.	–	5.	–	6.	7.	–	8.	9.	10.	11.	12.	13.	14.	15.	16.

An example of a correct code:

AC	–	CR	DF	–	0	0	M	–	04	–	1	D	–	1	3	A	2	0	0	2	0	3

Explanation of an example of a correct Code: CoolRAC cooling unit based on the principle of dual-fluid technology (with integrated indirect free-cooling function), medium-sized W × H × D = 1 353 × 2 025 × 790 mm. Cooling capacity 45 kW. With perforated bottom cover for air distribution into the double floor. With integrated 4.3'' LCD touch screen. Integrated humidifier 3 kg/h steam. Powerful condensate pump. Dual power supply. pCO web communication card for SNMP communication. With two fans. Heating coils for electric reheating of air up to 1 200 W.

1. UNIT TYPE	
Code	Model
CW	Chilled water
XC	Direct expansion with an integrated compressor
DF	Free-cooling water cooling with an integrated compressor

2. EMPTY POSITION	
Code	Options
0	

3. EMPTY POSITION	
Code	Options
0	

4. UNIT DIMENSIONS	
Code	W × H × D (mm)
S	Small. 714 × 2 025 × 763mm
M	Medium. 1 353 × 2 025 × 790 mm

5. COOLING CAPACITY	
Code	Options
02	25 kW
04	45 kW
06	60 kW
08	80 kW
10	100 kW

6. AIR DISTIBUTION	
Code	Options
0	All perforated
1	Perforated bottom
2	Perforated front
3	Perforated front and sides
4	Perforated front and one side
5	No perforation (for air-outlet installation)

7. DISPLAY POSITION	
Code	Options
D	Display in the door
W	Without display

8. HUMIDIFIER	
Code	Options
0	No humidifier
1	Standard humidifier
2	Humidifier for low conductivity
P	Preparation for humidifier

9. CONDENSATE	
Code	Options
0	Standard drain
1	MiniBlue
2	Flood rope
3	MegaBlue
A	MiniBlue + flood rope
B	MegaBlue + flood rope

10. POWER SUPPLY	
Code	Options
0	Standard
A	Dual

11. COMMUNICATION	
Code	Options
0	Standard
1	Modbus RS485 card
2	pCO WEB card

12. REGULATION	
Code	Options
0	Standard

13. EMPTY POSITION	
Code	Options
0	

14. FANS	
Code	Options
1	One fan
2	Two fans

15. SPECIAL MODIFICATIONS	
Code	Options
	Logo, color etc

16. ELECTRIC REHEATING OF AIR	
Code	Options
0	Without
1	600 W
2	900 W
3	1 200 W

FOR COOLRAC COOLING UNITS

BASIC ACCESSORIES

TOUCH SCREEN

- For more user-friendly communication with the unit's regulator, you can use a 4.3" color touch screen.
- A single touch screen can control up to 16 cooling units. For quick communication and full functionality of BMS, we recommend using a maximum of 8 units.
- RS485 port and Ethernet port enable remote control and monitoring using various master systems. The USB is used primarily for quick and easy software updating and downloading of historical data.
- The touch terminal has a number of functions: connection to a customer network, remote control, ModBus communication and many more.
- The screen can be placed directly onto a CoolRAC unit, on the side of a rack or onto a wall in the data room.

CONDENSATE PUMP

- All CONTEG units can be connected to the sewerage system via gravity feed.
- If there is no sewerage connection in the room, the water can be conducted away using a condensate pump.
- Each unit includes a water detector that activates the pump, and a level sensor that turns off the unit in case of increased water levels.

DUAL POWER SUPPLY

- Electrical PDU for two power branches. The device allows powering the unit from two independent sources.

STEAM HUMIDIFIER

- The steam humidifier maintains the set relative humidity of the air in the data center.
- The humidifier can output 3 kg of steam per hour
- The steam humidifier of the CoolRAC unit is powered separately.
- You can choose from 2 boiling vessels depending on water hardness.

pCO WEB COMMUNICATION CARD

- Accessory compatible with CoolRAC regulators.
- Enables additional individual communication (monitoring and control).
- Communication via Ethernet network protocols.
- Functions: web server, e-mail, FTP, SNMP, BACNet, ModBus TCP/IP and more.