DATASHEET

Chilled water cooling units CoolTeg Plus CW

CONTEG

TARGETED COOLING AND AIRFLOW MANAGEMENT

COOLTEG PLUS COOLING UNITS

CoolTeg Plus equipment represents a family of precision cooling in-row units specifically designed for easy integration between IT racks. These air-conditioning units—with various cooling principles, sizes and capacities—are CONTEG's main product line for effective targeted cooling, from server rooms to large data centers.

MAIN ADVANTAGES

- Small occupied floor area
- Brings chilled air directly to server rack
- Raised floor unnecessary for air distribution
- Very low power consumption, due to EC fans and control software
- Modern "server-friendly" control system
- Flexibility of room arrangement
- Perfect compatibility with CONTEG IT racks
- Wide range of accessories

SUITABLE FOR

- Open aisle
- Contained cold aisle
- Contained hot aisle
- Modular Closed Loop (MCL)—high capacity cooling system, where air is recirculated inside the rack and no heat is released into the environment

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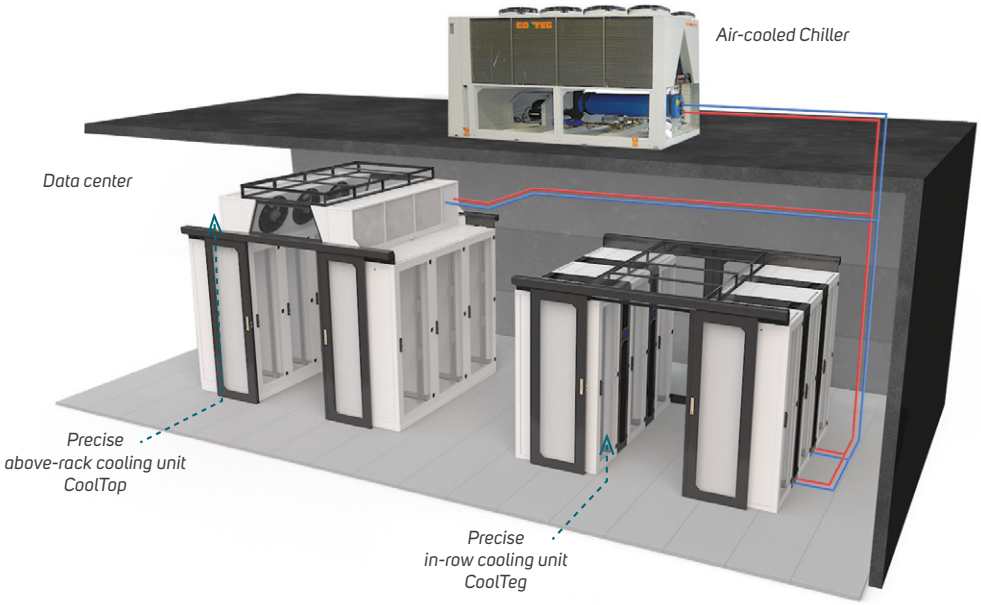

DESCRIPTION

- 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 CoolTeg 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 in both cold and hot zones
- Humidification and dehumidification mode in each unit
- Four temperature sensors per unit
- Four cooling systems:
  1. CW—chilled water system
  2. DX—direct expansion system with compressor (in outdoor unit)
  3. XC—direct expansion system with compressor (within CoolTeg Plus unit)
  4. DF—hybrid Dual Fluid system

CHILLED WATER COOLING UNITS

COOLTEG PLUS CW

CoolTeg Plus CW30

CoolTeg Plus CW60

CoolTeg Plus CW chilled water in-row cooling units are designed to be connected to any system with chillers producing cold water.

MAIN ADVANTAGES

- Unlimited number of units connectible to any single chilled water system
- Free-cooling system saves significant amount of power
- Variable chiller types fulfill any requirements (outdoor noise level, extreme ambient temperatures, etc.)
- Water temperature variable during the year, saving energy while controlling humidity level
- Unlimited piping length between indoor and outdoor unit
- Operation water temperature between 6 °C and 30 °C

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CoolTeg Plus CW				
		CW30	**CW30 Super C**	**CW60**
Indoor unit code	Unit	AC-TCW-42-30/XX-XXX	AC-TCW-42-30/XX-XXX	AC-TCW-42-60/XX-XXX
Connected outdoor unit code		Chilled water system (Chiller)		
Basic data				
Cooling system	–	Chilled water		
Architecture [1]	–	Open or closed	Open or closed	Open
Nominal cooling capacity [2]	kW	28.5	38.5	61.0
Nominal net cooling capacity [3]	kW	27.5	36.0	58.1
Power supply	V/ph/Hz	230/1/50-60		400/3/50-60
Running current	A	6.2	10.8	4.2
Maximum current	A	7.2	11.8	5.2
Nominal power consumption	W	850	2 450	3 000
Nominal airflow [4]	m^3/h	4 000	6 000	10 500
Number of fans	ks	5	5	3
Motor fan technology	–	EC		
Water flow	l/h	3 900	5 500	8 800
Filter class [5]	–	G4		
Dimensions				
Height [6]	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)		
Width	mm	300	300	600
Depth [7]	mm	1 000 or 1 200		
Weight—depth 1 000 mm, height 42/45/48U	kg	163/168/173	164/169/174	248/256/264
Weight—depth 1 200 mm, height 42/45/48U	kg	173/179/185	174/180/186	260/270/280
Piping connection				
Supply pipe diameter and type	–	5/4" female	5/4" female	6/4" female
Return pipe diameter and type	–	5/4" female	5/4" female	6/4" female

[1] CoolTeg units can be used either independently (in rack rows) or integrated in Modular Closed Loop (MCL)—closed architecture rack systems and cooling units. Code changed as per ordering matrix. [2] Cooling capacity is changed by controller; nominal cooling capacity is calculated at return hot air temperature of 35 °C without condensation (heat exchanger's temperature above dew-point), chilled water temp. 6/12 °C (for CW). [3] Net cooling capacity is the cooling capacity minus fan heat load—the actual unit cooling capacity available to IT equipment. [4] Airflow is changed by the controller; nominal airflow matches nominal cooling capacity. [5] Units in Modular Closed Loop architecture (MCL) are delivered without filters. [6] Without plinth or transport trolley. [7] Units for Modular Closed Loop architecture (MCL) are available in 1 200 mm depth only.

CHILLED WATER COOLING UNIT

COOLTEG PLUS CW30

CoolTeg Plus CW30

CoolTeg Plus CW30 chilled water in-row cooling units are designed to be connected to any system with chillers producing cold water.

MAIN ADVANTAGES

- Unlimited number of units connectible to any single chilled water system
- Free-cooling system saves significant amount of power
- Variable chiller types fulfill any requirements (outdoor noise level, extreme ambient temperatures, etc.)
- Water temperature variable during the year, saving energy while controlling humidity level
- Unlimited piping length between indoor and outdoor unit
- Operation water temperature between 6 °C and 30 °C

COLOR: RAL 9005 RAL 7035

CoolTeg Plus CW30		
Indoor unit code	Unit	AC-TCW-42-30/XX-XXX
Connected outdoor unit code		Chilled water system (Chiller)
Basic data		
Cooling system	–	Chilled water
Architecture [1]	–	Open or closed
Nominal cooling capacity [2]	kW	28.5
Nominal net cooling capacity [3]	kW	27.5
Power supply	V/ph/Hz	230/1/50-60
Running current	A	6.2
Maximum current	A	7.2
Nominal power consumption	W	850
Nominal airflow [4]	m^3/h	4 000
Number of fans	ks	5
Motor fan technology	–	EC
Water flow	l/h	3 900
Filter class [5]	–	G4
Dimensions		
Height [6]	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)
Width	mm	300
Depth [7]	mm	1 000 or 1 200
Weight—depth 1 000 mm, height 42/45/48U	kg	163/168/173
Weight—depth 1 200 mm, height 42/45/48U	kg	173/179/185
Piping connection		
Supply pipe diameter and type	–	5/4" female
Return pipe diameter and type	–	5/4" female

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CHILLED WATER COOLING UNIT

COOLTEG PLUS CW30 SUPER C

CoolTeg Plus CW30 Super C

CoolTeg Plus CW30 Super C chilled water in-row cooling units are designed to be connected to any system with chillers producing cold water.

MAIN ADVANTAGES

- Unlimited number of units connectible to any single chilled water system
- Free-cooling system saves significant amount of power
- Variable chiller types fulfill any requirements (outdoor noise level, extreme ambient temperatures, etc.)
- Water temperature variable during the year, saving energy while controlling humidity level
- Unlimited piping length between indoor and outdoor unit
- Operation water temperature between 6 °C and 30 °C

COLOR: RAL 9005 RAL 7035

CoolTeg Plus CW30 Super C		
Indoor unit code	Unit	AC-TCW-42-30/XX-XXX
Connected outdoor unit code		Chilled water system (Chiller)
Basic data		
Cooling system	–	Chilled water
Architecture[1]	–	Otevřená nebo uzavřená
Nominal cooling capacity[2]	kW	38.5
Nominal net cooling capacity[3]	kW	36.0
Power supply	V/ph/Hz	230/1/50-60
Running current	A	10.8
Maximum current	A	11.8
Nominal power consumption	W	2 450
Nominal airflow[4]	m^3/h	6 000
Number of fans	ks	5
Motor fan technology	–	EC
Water flow	l/h	5 500
Filter class[5]	–	G4
Dimensions		
Height[6]	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)
Width	mm	300
Depth[7]	mm	1 000 or 1 200
Weight—depth 1 000 mm, height 42/45/48U	kg	164/169/174
Weight—depth 1 200 mm, height 42/45/48U	kg	174/180/186
Piping connection		
Supply pipe diameter and type	–	5/4" female
Return pipe diameter and type	–	5/4" female

[1] CoolTeg units can be used either independently (in rack rows) or integrated in Modular Closed Loop (MCL)—closed architecture rack systems and cooling units. Code changed as per ordering matrix. [2] Cooling capacity is changed by controller; nominal cooling capacity is calculated at return hot air temperature of 35 °C without condensation (heat exchanger's temperature above dew-point), chilled water temp. 6/12 °C (for CW). [3] Net cooling capacity is the cooling capacity minus fan heat load—the actual unit cooling capacity available to IT equipment. [4] Airflow is changed by the controller; nominal airflow matches nominal cooling capacity. [5] Units in Modular Closed Loop architecture (MCL) are delivered without filters. [6] Without plinth or transport trolley. [7] Units for Modular Closed Loop architecture (MCL) are available in 1 200 mm depth only.

CHILLED WATER COOLING UNIT

COOLTEG PLUS CW60

CoolTeg Plus CW60

CoolTeg Plus CW60 chilled water in-row cooling units are designed to be connected to any system with chillers producing cold water.

MAIN ADVANTAGES

- Unlimited number of units connectible to any single chilled water system
- Free-cooling system saves significant amount of power
- Variable chiller types fulfill any requirements (outdoor noise level, extreme ambient temperatures, etc.)
- Water temperature variable during the year, saving energy while controlling humidity level
- Unlimited piping length between indoor and outdoor unit
- Operation water temperature between 6 °C and 30 °C

COLOR: RAL 9005 RAL 7035

CoolTeg Plus CW60		
Indoor unit code	Unit	AC-TCW-42-60/XX-XXX
Connected outdoor unit code		Chilled water system (Chiller)
Basic data		
Cooling system	–	Chilled water
Architecture[1]	–	Open
Nominal cooling capacity[2]	kW	61.0
Nominal net cooling capacity[3]	kW	58.1
Power supply	V/ph/Hz	400/3/50-60
Running current	A	4.2
Maximum current	A	5.2
Nominal power consumption	W	3 000
Nominal airflow[4]	m^3/h	10 500
Number of fans	ks	3
Motor fan technology	–	EC
Water flow	l/h	8 800
Filter class[5]	–	G4
Dimensions		
Height[6]	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)
Width	mm	600
Depth[7]	mm	1 000 or 1 200
Weight—depth 1 000 mm, height 42/45/48U	kg	248/256/264
Weight—depth 1 200 mm, height 42/45/48U	kg	260/270/280
Piping connection		
Supply pipe diameter and type	–	6/4" female
Return pipe diameter and type	–	6/4" female

[1] CoolTeg units can be used either independently (in rack rows) or integrated in Modular Closed Loop (MCL)—closed architecture rack systems and cooling units. Code changed as per ordering matrix. [2] Cooling capacity is changed by controller; nominal cooling capacity is calculated at return hot air temperature of 35 °C without condensation (heat exchanger's temperature above dew-point), chilled water temp. 6/12 °C (for CW). [3] Net cooling capacity is the cooling capacity minus fan heat load—the actual unit cooling capacity available to IT equipment. [4] Airflow is changed by the controller; nominal airflow matches nominal cooling capacity. [5] Units in Modular Closed Loop architecture (MCL) are delivered without filters. [6] Without plinth or transport trolley. [7] Units for Modular Closed Loop architecture (MCL) are available in 1 200 mm depth only.

FOLLOW THE STEPS FOR DETERMINING THE CODE OF THE REQUIRED COOLTEG PLUS UNIT

AC	–	1.	–	2.	–	3.	/	4.	–	5.	–	6.	7.	8.	9.	10.	11.	12.	13.

An example of a correct code:

AC	–	TDX	–	42	–	30	/	10F	–	BOW	–	0	1	0	2	0	0	0	0

Description of the example of a correct code: CoolTeg Plus (facelift) in-row cooling unit with EC fans, suitable for connection to an outdoor condenser unit, open loop architecture, 300 mm width; 1 000 mm depth and 42 U height. 4.3" color touch screen, 1× USB, 2× Ethernet port, proprietary CONTEG SW, installed in the front door. Bottom connection. Condensate pump installed in the cooling unit. pCO WEB card for SNMP communication. Prepared for a Mitsubishi Electric outdoor condensing unit. Standard warranty: 2 years.

1. CoolTeg COOLING SYSTEM	
Code	Model
TCW	Chilled water
TDS	Direct expansion (small)
TDX	Direct expansion
TXC	With internal compressor
TDF	Hybrid system

2. HEIGHT	
Code	Options
41	42U (RF1/RB1)
47	47U (RF1/RB1)
52	52U (RF1/RB1)
42	42U (iSEVEN Server)
45	45U (iSEVEN Server)
48	48U (iSEVEN Server)

3. WIDTH	
Code	Width (mm)
30	300
40	400
60	600

4. DEPTH *	
Code	Depth (mm)
10F	1 000
12F	1 200

* F indicates a unit after a facelift. Units before a facelift have a 0 instead of an F.

5.1. PIPE CONNECTION	
Code	Options
B	Bottom connection
T	Top connection

5.2. ARCHITECTURE	
Code	Options
O	Open
C	MCL—modular closed loop

5.3. DISPLAY	
Code	Options
W	Not present
D	With screen

6. HUMIDIFIER	
Code	Options
0	Not present
1	Humidifier (standard)
2	Humidifier (low water conductivity)

7. CONDENSATE PUMP	
Code	Options
0	Not present
1	Condensate pump (standard)
2	Leak detection sensor rope
3	Condensate pump (powerful) *
A	Leak detection sensor rope + condensate pump (standard)
B	Leak detection sensor rope + condensate pump (powerful)

* Used in combination with a humidifier, or if displacement height is over 5 m. Max. height—30 m.

8. POWER SUPPLY	
Code	Options
0	Standard 230V/1f/50Hz
A	Dual power supply

9. COMMUNICATION	
Code	Options
0	Not present
M	Modbus
W	SNMP

10. REGULATION	
Code	Options
0	Standard
P	Control based on pressure
H	Communication with HMI (Mitsubishi Heavy Industry) units
R	Control based on pressure + communication with HMI (Mitsubishi Heavy Industry) units
E	Control based on pressure in combination with CoolTop units

11. CONTROL VALVES	
Code	Options
0	Standard (3-way valve)
2	2-way valve

12. FANS	
Code	Options
0	Standard
S	Extra powerful fans (only for CW30)

13. SPECIAL MODIFICATIONS	
Code	Options
0	Standard
R	External relay—unit status
6	6-row heat exchanger

FOR COOLTEG PLUS 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 CoolTeg unit, on the side of a rack or onto a wall in the data room.

CONTROL BASED ON PRESSURE

- Each unit can control air flow rate (fan speed) based on differences in temperature between the hot and cool zones or based on pressure differences.
- Flow rate control based on pressure differences ensures that air is supplied to the area in front of the server at the exact same rate as that at which the servers draw the air in.
- Perfect environment for servers (no risk of server damage caused by over- or under-pressure).
- Minimizes power consumption of the entire cooling system due to precise distribution of cooled air.

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 CoolTeg Plus unit is powered separately.
- You can choose from 2 boiling vessels depending on water hardness.

pCO WEB COMMUNICATION CARD

- Accessory compatible with CoolTeg 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.

Comparison	CoolTeg Plus				CoolTop		CoolSeven	CoolRAC		
	CW	DX	XC	DF	CW	DX		CW	XC	DF
Installation										
Between IT racks	✓	✓	✓	✓	–	–	–	–	–	–
On top of IT racks	–	–	–	–	✓	✓	–	–	–	–
Inside of 19" racks	–	–	–	–	–	–	✓	–	–	–
Farther from IT racks	–	–	–	–	–	–	–	✓	✓	✓
Cooling medium										
Water/glycol	✓	–	–	–	✓	–	–	✓	–	–
R410A	–	✓	✓	–	–	✓	✓	–	✓	–
R410A + water/glycol	–	–	–	✓	–	–	–	–	–	✓
Application										
Smaller	✓	✓	✓	✓	✓	✓	✓	–	–	–
Medium	✓	–	✓	✓	✓	✓	–	✓	✓	✓
Bigger	–	–	–	–	–	–	–	✓	✓	✓
Occupied floor area (in data center)										
None	–	–	–	–	✓	✓	✓	–	–	–
Small	✓	✓	✓	✓	–	–	–	–	–	–
Large	–	–	–	–	–	–	–	✓	✓	✓
Nominal cooling capacity	Air temperature in hot zone: 35 °C; water temperature of 6/12 °C (for CW units), no condensation.									
7-19 kW	–	DXSmall DX30	–	–	–	–	CoolSeven	–	–	–
20-39 kW	CW30 CW30 SuperC	DX30	XC30	DF	CoolTop2	CoolTop2 CoolTop3	–	–	–	–
40-100 kW	CW60	–	XC40	–	CoolTop3	CoolTop2 CoolTop3	–	CoolRAC CW CoolRAC XC CoolRAC DF		
Suitable for										
Smaller applications – e.g. Modular Closed Loop	–	✓	–	✓	–	–	✓	–	–	–
High outside temp.	–	–	✓	–	–	–	✓	–	✓	–
Cooling system with a cold-water source	✓	–	–	–	✓	–	–	✓	–	–
No water in a data center	–	✓	✓	–	–	✓	–	–	✓	–
Free-cooling	✓	–	–	✓	✓	–	–	✓	–	✓

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