



 DATASHEET

# CoolTeg G XC

In-row cooling unit with direct evaporation  
and integrated compressor

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# TARGETED COOLING AND AIRFLOW MANAGEMENT

## COOLTEG COOLING UNITS



**CoolTeg** 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.

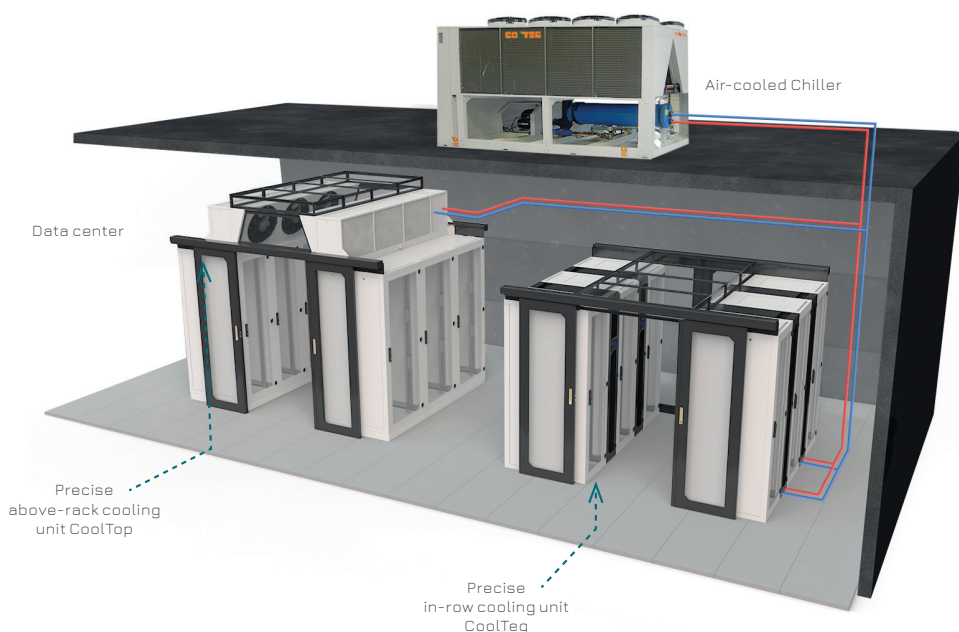
### MAIN ADVANTAGES

- Small occupied floor area
- Brings cooled air directly to the rack
- A raised floor is not required for air distribution
- Very low energy consumption due to EC fans and control software
- User-friendly and modern control system
- Flexibility in spatial arrangement
- Perfect compatibility with CONTEG IT racks
- Wide range of accessories

### SUITABLE FOR

- Open aisles
- Contained cold aisles
- Contained hot aisles
- Mini Data Centers — high capacity cooling systems, where air is recirculated inside the racks and no heat is released into the environment

COLOR:  RAL 9005  RAL 7035



### 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

# DIRECT EXPANSION COOLING UNITS WITH AN INTEGRATED COMPRESSOR


## COOLTEG G XC










CoolTeg Plus XC30



CoolTeg G XC40

 **CoolTeg G XC** in-row 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 22 – 44 kW
-  Operating temperature range –40 to 55 °C
-  Very high energy-efficiency and smooth power regulation
-  No water piping is required in the data center
-  The compressor is safely located inside the data center
-  Low level of outdoor unit's noise
-  R410A refrigerant

COLOR:  RAL 9005  RAL 7035

		CoolTeg Plus XC30	CoolTeg G XC40
Indoor unit code	Unit	AC-TXC-42-30/XX-XXX	AC-TXC-42-40/1XG-XXX
Connected outdoor unit code		AC-CONDx-xx-xx	
BASIC DATA			
Cooling system	-	Direct expansion	
Architecture <sup>1</sup>	-	Open or closed	
Nominal cooling capacity <sup>2</sup>	kW	21,5	43,8
Nominal net cooling capacity <sup>3</sup>	kW	20,7	40,5
Power supply	V/ph/Hz	400/3/50-60	
Running current	A	?	18,1
Maximum current	A	?	25,9
Fan power consumption (maximum)	kW	0,85	3,1
Compressor power consumption <sup>4</sup>	kW	5,45	11,7
Nominal airflow <sup>5</sup>	m³/h	4 000	9 800
Number of radial fans	pcs	5	3
Motor fan technology	-	EC	
Refrigerant type	-	R410A	
Filter class <sup>6</sup>		G4	
DIMENSIONS			
Height	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)	2 005 (42U)
Width	mm	300	400
Depth <sup>7</sup>	mm	1 000 or 1 200	
Weight — depth 1 000 mm, height 42/45/48U	kg	194/199/204	262/270/278
Weight — depth 1 200 mm, height 42/45/48U	kg	204/209/214	274/284/294
PIPING CONNECTION			
Piping diameter — liquid line	mm	12	16
Piping diameter — gas line	mm	16	22

<sup>1</sup> CoolTeg units can be used either independently (in rack rows) or integrated in Mini Data Centers – closed architecture rack systems and cooling units. Code changed as per ordering matrix.

<sup>2</sup> 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), outside temp. +35 °C (condensing temp. 45 °C), clean filters.

<sup>3</sup> Net cooling capacity is the total cooling capacity reduced for fan heat load. Useful unit cooling capacity.

<sup>4</sup> Power consumption at condensing temperature of 45 °C and evaporation temperature of 10 °C.

<sup>5</sup> Airflow is changed by the controller; nominal airflow matches nominal cooling capacity.

<sup>6</sup> Units in Mini Data Centers are delivered without filters.


<sup>7</sup> Units for Mini Data Centers are available in 1 200 mm depth only.

# DIRECT EXPANSION COOLING UNITS WITH AN INTEGRATED COMPRESSOR








## COOLTEG PLUS XC30



CoolTeg Plus XC30

 **CoolTeg Plus XC30** in-row cooling unit is 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 22 kW
-  Operating temperature range -40 to 55 °C
-  Regulation between 10 – 100 % cooling capacity
-  No water piping is required in the data center
-  The compressor is safely located inside the data center
-  Low level of outdoor unit's noise
-  R410A refrigerant

COLOR:  RAL 9005  RAL 7035

#### CoolTeg Plus XC30

Indoor unit code	Unit	AC-TXC-42-30/XX-XXX
Connected outdoor unit code		AC-CONDx-xx-xx
<b>BASIC DATA</b>		
Cooling system	-	Direct expansion
Architecture <sup>1</sup>	-	Open or closed
Nominal cooling capacity <sup>2</sup>	kW	21.5
Nominal net cooling capacity <sup>3</sup>	kW	20.7
Power supply	V/ph/Hz	400/3/50-60
Running current	A	?
Maximum current	A	?
Fan power consumption (maximum)	kW	0.85
Compressor power consumption <sup>4</sup>	kW	5.45
Nominal airflow <sup>5</sup>	m <sup>3</sup> /h	4 000
Number of radial fans	ks	5
Motor fan technology	-	EC
Refrigerant type	-	R410A
Filter class <sup>6</sup>		G4
<b>DIMENSIONS</b>		
Height	mm (U)	1 978 (42U), 2 111 (45U), 2 245 (48U)
Width	mm	300
Depth <sup>7</sup>	mm	1 000 or 1 200
Weight—depth 1 000 mm, height 42/45/48U	kg	194/199/204
Weight—depth 1 200 mm, height 42/45/48U	kg	204/209/214
<b>PIPING CONNECTION</b>		
Piping diameter—liquid line	mm	12
Piping diameter—gas line	mm	16

### DESCRIPTION

-  Twin rotary compressor
-  BLDC driven compressor
-  Electronic expansion valve and advanced steering logic
-  Low vibrations
-  Low- and high-pressure safety switches
-  Refrigerant valves for easy maintenance
-  Distance between indoor and outdoor units up to 60 m

<sup>1</sup> CoolTeg units can be used either independently (in rack rows) or integrated in Mini Data Centers – closed architecture rack systems and cooling units. Code changed as per ordering matrix.

<sup>2</sup> 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), outside temp. +35 °C (condensing temp. 45 °C), clean filters.

<sup>3</sup> Net cooling capacity is the total cooling capacity reduced for fan heat load. Useful unit cooling capacity.

<sup>4</sup> Power consumption at condensing temperature of 45 °C and evaporation temperature of 10 °C.

<sup>5</sup> Airflow is changed by the controller; nominal airflow matches nominal cooling capacity.

<sup>6</sup> Units in Mini Data Centers are delivered without filters.


<sup>7</sup> Units for Mini Data Centers are available in 1 200 mm depth only.

# DIRECT EXPANSION COOLING UNITS WITH AN INTEGRATED COMPRESSOR









## COOLTEG G XC40



CoolTeg G XC40

 **CoolTeg G XC40** in-row 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 44 kW
-  Operating temperature range -40 to 55 °C
-  Very high energy-efficiency and smooth power regulation
-  No water piping is required in the data center
-  The compressor is safely located inside the data center
-  Low level of outdoor unit's noise
-  Automatic oil level control
-  R410A refrigerant

COLOR:  RAL 9005  RAL 7035

#### CoolTeg G XC40

Indoor unit code	Unit	AC-TXC-42-40/1XG-XXX
Connected outdoor unit code		AC-CONDx-xx-xx
<b>BASIC DATA</b>		
Cooling system	-	Direct expansion
Architecture <sup>1</sup>	-	Open or closed
Nominal cooling capacity <sup>2</sup>	kW	43,8
Nominal net cooling capacity <sup>3</sup>	kW	40,5
Power supply	V/ph/Hz	400/3/50-60
Running current	A	18,1
Maximum current	A	25,9
Fan power consumption (maximum)	kW	3,1
Compressor power consumption	kW	11,7
Nominal airflow <sup>4</sup>	m³/h	9 800
Number of radial fans	ks	3
Motor fan technology	-	EC
Refrigerant type	-	R410A
Filter class <sup>5</sup>		G4
<b>DIMENSIONS</b>		
Height	mm (U)	2 005 (42U)
Width	mm	400
Depth <sup>6</sup>	mm	1 000 or 1 200
Weight – depth 1 000 mm, height 42/45/48U	kg	262/270/278
Weight – depth 1 200 mm, height 42/45/48U	kg	274/284/294
<b>PIPING CONNECTION</b>		
Piping diameter – liquid line	mm	16
Piping diameter – gas line	mm	22

### DESCRIPTION

- The most efficient compressor to date
- Inverter-driven compressor built into the internal unit
- Environmentally-friendly R410A refrigerant
- Electronic expansion valve and advanced steering logic
- Stepless cooling capacity control from 17 to 100 %
- Oil separator inside
- Low- and high-pressure safety switches
- Refrigerant valves for easy maintenance
- Operation in outdoor temperatures between -40 °C and +55 °C
- Distance between indoor and outdoor unit up to 60 m

<sup>1</sup> CoolTeg units can be used either independently (in rack rows) or integrated in Mini Data Centers – closed architecture rack systems and cooling units. Code changed as per ordering matrix.

<sup>2</sup> 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), outside temp. +35 °C (condensing temp. 45 °C), clean filters.

<sup>3</sup> Net cooling capacity is the total cooling capacity reduced for fan heat load. Useful unit cooling capacity.

<sup>4</sup> Airflow is changed by the controller; nominal airflow matches nominal cooling capacity.

<sup>5</sup> Units in Mini Data Centers are delivered without filters.

<sup>6</sup> Units for Mini Data Centers are available in 1 200 mm depth only.

FOR COOLTEG G XC 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 CoolTeg G 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				
XC30	35 °C	AC-COND4-01-35	75 dB	55 dB	1	1/230/50-60	2,2	0,45	1284	1088	936	118
XC30	45 °C	AC-COND4-01-45	79 dB	59 dB	2	1/230/50-60	1,65	0,76	1884	888	885	145
XC30	55 °C	AC-COND4-01-55	73 dB	53 dB	2	1/230/50-60	1,15	0,48	2 484	1088	936	217
XC40	35 °C	AC-COND2-03-35	87 dB	56 dB	2	3/400/50-60	4,2	2,59	1884	888	957	158
XC40	45 °C	AC-COND2-02-45	93 dB	61 dB	2	3/400/50-60	6,2	4,02	2 484	1088	961	236
XC40	55 °C	AC-COND2-03-55	96 dB	64 dB	2	3/400/50-60	8,6	5,77	2 484	1088	961	267



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

AC	-	1.	-	2.	-	3.	/	4.	-	5.	-	6.	7.	8.	9.	10.	11.	12.	13.
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An example of a correct code:

AC	-	TDX	-	42	-	30	/	10F	-	BOW	-	0	1	0	2	0	0	0	0
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**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
0	Open
C	Closed (Mini Data Center)

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

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

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



# 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.



## 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.



## 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.



## DUAL POWER SUPPLY

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

## 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.



## 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.





Comparison	CoolTeg				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 <span>Air temperature in hot zone: 35 °C; water temperature of 6/12 °C (for CW units), no condensation.</span>										
7-19 kW	–	DXSmall DX30	–	–	–	–	CoolSeven	–	–	–
20-39 kW	CW30	DX30	XC30	DF	CoolTop2	CoolTop2 CoolTop3	–	CoolRAC XC CoolRAC DF		
40-100 kW	CW30 SuperC 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	✓	–	–	✓	✓	–	–	✓	–	✓