COOL PORTABLE AIR CONDITIONING®

Thermoelectric Air Conditioner
CLT110~240-0340

340W, TEU Type, 6-12U Sizes

- 340W cooling
- Heating provides climate control
- NEMA 4 and NEMA 4X construction standards
- 110-240V AC and 24V DC power options
- Variable mounting orientation
- For 6U and larger rack sizes

Description

Designed to cool 19-inch rack mounted electronic and electrical equipment, COOL Portable Air Conditioning units deliver a robust solution to keeping computer servers, telecom and satcom equipment, recording instrumentation and other systems working at their optimum, providing a convenient method of delivering cooling and heating in extreme environments and remote locations.

The Thermoelectric Unit (TEU) design utilises solid-state Peltier-effect cooling and heating and provides a complete climate control transit solution that is both efficient and highly reliable.

CP Cases COOL units deliver air conditioning and climate control for use in 19-inch racks and can be applied either as a COOL-COLLAR™ or as an integrated unit, providing a one-stop-shop for rack mount cases to maintain equipment's optimal operating conditions. All offerings can be fitted with accessories including stowage pouches, wheel kits, pressure relief valves and humidity indicators, and are designed to meet NEMA 4 and NEMA 4X standards for indoor and outdoor applications.

COOL-COLLAR™

COOL-COLLAR™ is an air conditioning option for 19-inch racks that utilises patented sealing systems to create an airtight and weatherproof fit to allow the unit to function in extreme conditions. The unit is attached to an existing rack to maintain an optimum operation temperature for equipment.

Where a greater cooling requirement is needed, two

COOL-COLLARs™ with AC units can be fitted to both the front and rear of the rack. Units are available up to 340W that can be fitted to 6U, 8U, 10U or 12U racks and collars.

Integrated Units

Built directly into the rack system, these climate control units provide cooling (and heating, when required), automatically when temperature perimeters are met.

Normally end-mounted, CP Cases offer the capability to integrate in a range of orientations to fit client requirements.

CP Cases Limited, Unit 11 Worton Hall Industrial Estate, Worton Road, Isleworth, Middlesex TW7 6ER, United Kingdom
Tel +44 (0)20 8568 1881 | Fax +44 (0)20 8568 1141 | Email info@cpcases.com | www.cpcases.com

Specifications

Cooling Capacity	340W
Type	Through-mount thermoelectric climate control unit
Power	110V to 240V AC at 50Hz to 60Hz 22DC to 24DC optional
Power Requirements	3.6A (initial) 2.8A (after 8 mins) AC 30A (initial) 23A (after 8 mins) DC
Power Cable	AC; IEC C14 connector socket DC; 1m flying lead, no plug
Operating Range	-10°C to +50°C
Housing	Aluminium powdercoat finish
Colours	Desert Sand as standard, other colours are available on request
Size	330mm H X 506mm W x 254mm D, body only
Weight	19.5kg
Warranty	1 year, return to factory UK.

Performance Graph

Thermoelectric air conditioning units (TEUs) are generally rated in watts; this is a measure of the energy that is removed by the system.

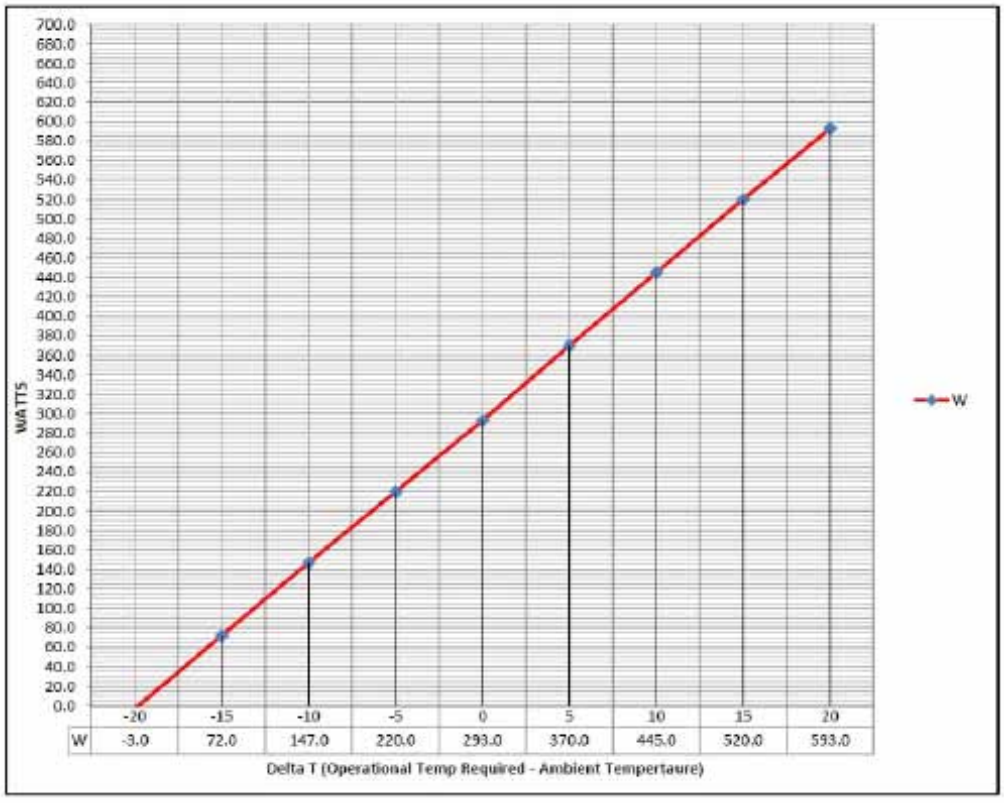
However, this rating is particular to the performance of the unit under a specific set of conditions:

- Ambient temperature: The temperature of the air external to the enclosure.
- Delta temperature (delta T): The maintained difference in temperature between ambient air and the return air in the cooled enclosure.

For example, COOL Portable Air Conditioning unit has a rating of 340W. This has been measured in a controlled ambient temperature of 30°C, with a delta T of +3°C.

The published manufacturers rating for TEUs is a useful guide to cooling performance, but direct comparison between units is often not straight-forward. For complex mission-critical applications professional advice should be taken.

E.g.
If the ambient temperature is +35°C and the equipment to be cooled is required to run at +25°C, Delta T is -10. Therefore 150W is required for cooling, well within the unit's operating perameters.



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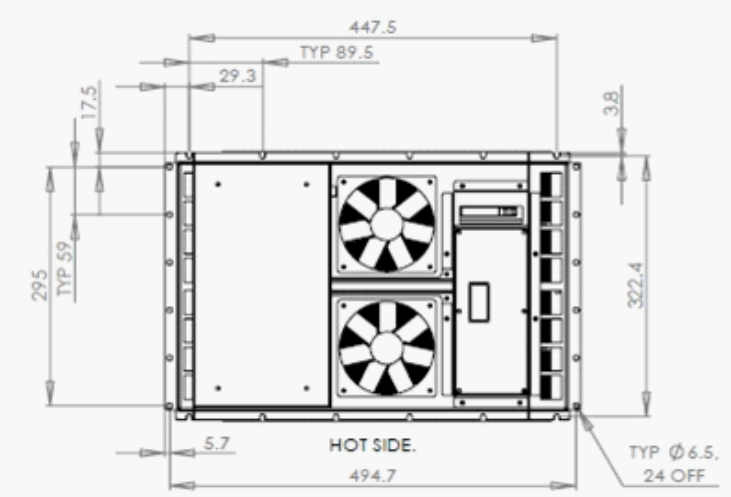
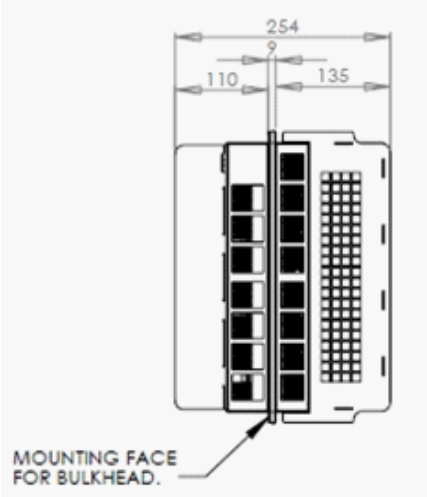
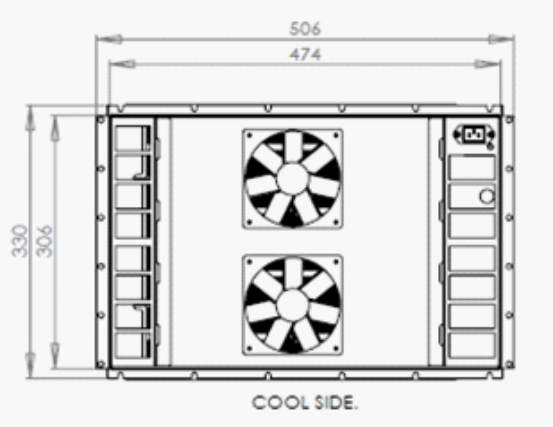
Drawings







COOL Collar Size

Amazon Racks

Part Number	Description	External mm			U-Height	Handles	Latches	Wheels	Weight (kg)
		Height	Width	Depth					
AACC 0624-0707 TEU	COOL Collar 6U 2 x 70 mm lid	402	583	380	6	2	12	N	10.28
AACC 0624-0712 TEU	COOL Collar 6U 1 x 70 mm lid & 1 x 125 mm lid	402	583	435	6	2	12	Y	11.36
AACC 0835-0707 TEU	COOL Collar 8U 2 x 70 mm lid	491	583	490	8	2	16	N	12.82
AACC 0835-0712 TEU	COOL Collar 8U 1 x 70 mm lid & 1 x 125 mm lid	491	583	545	8	2	16	Y	13.85
AACC 1035-0707 TEU	COOL Collar 10U 2 x 70 mm lid	580	583	490	10	2	20	N	14.95
AACC 1035-0712 TEU	COOL Collar 10U 1 x 70 mm lid & 1 x 125 mm lid	580	583	545	10	2	20	Y	16.13
AACC 1224-0707 TEU	COOL Collar 12U 2 x 70 mm lid	669	583	380	12	2	20	N	14.79
AACC 1224-0712 TEU	COOL Collar 12U 1 x 70 mm lid & 1 x 125 mm lid	669	583	435	12	2	20	Y	17.12
AACC 1235-0707 TEU	COOL Collar 12U 2 x 70 mm lid	669	583	490	12	2	20	N	15.74
AACC 1235-0712 TEU	COOL Collar 12U 1 x 70 mm lid & 1 x 125 mm lid	669	583	545	12	2	20	Y	18.07

ERack

Part Number	Description	External mm			U-Height	Handles	Latches	Wheels	Weight (kg)
		Height	Width	Depth					
RRCC 0629-0707 TEU	COOL Collar 6U 2 x 70 mm lid	419	615	416	6	2	8	N	8.79
RRCC 0829-0707 TEU	COOL Collar 8U 2 x 70 mm lid	508	615	416	8	2	10	N	10.29
RRCC 1029-0707 TEU	COOL Collar 10U 2 x 70 mm lid	597	615	416	10	2	12	N	11.59
RRCC 1229-0707 TEU	COOL Collar 12U 2 x 70 mm lid	686	615	416	12	4	12	N	11.99

Weight listed is for COOL-Collar only. Please contact CP Cases for air conditioner

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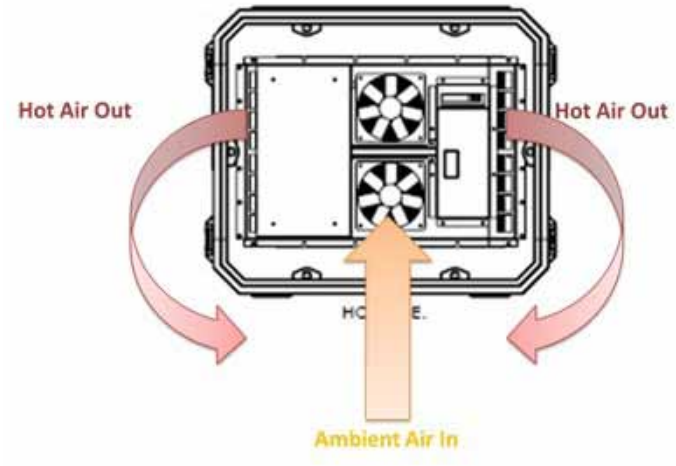
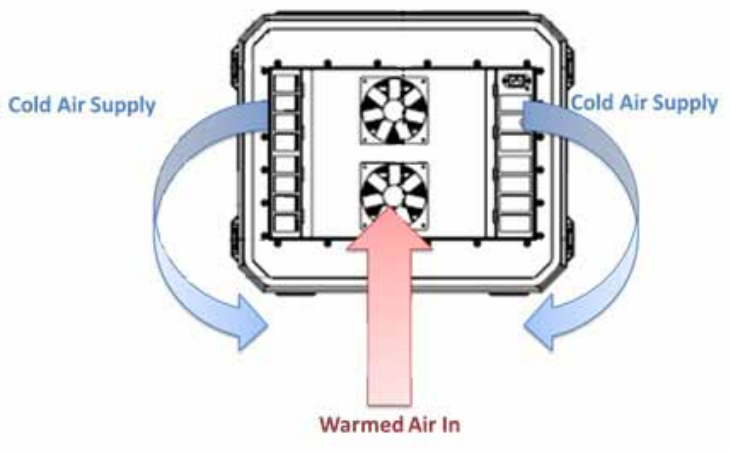
TEU Airflow

The 6U and 12U TEU do not provide a high flow rate of cold air; applications need to be assessed carefully to ensure that the cold air provided by the unit is not:

- Impeded significantly by the arrangement of the equipment;
- In conflict with the airflow created by internal fans of the equipment.

The diagrams below identify the direction of airflow on the hot (ambient) side, and the cold (inside) side.





This configuration is optimised for equipment that has air intakes at the sides, and exhausts hot air from the rear (e.g. the majority of CISCO switches). However, some applications, and in particular bespoke military electronics, have equipment with different intake and exhaust configurations. It is extremely difficult to predict airflow interactions, and the efficacy of the TEU airflow in a complex application environment. It is recommended that if performance is in doubt, testing is conducted with the real equipment. If testing can be conducted, and demonstrates a problem with airflow, the following solutions are available:

Fan flow reversal

The direction of the internal fans can be reversed to provide a supply of cold air from the central fans. This has an impact on the efficiency of airflow over the internal heat sink, resulting in a reduction in performance of 10 – 20%, so should be approached with caution, but may be a solution in a limited number of cases.

Air ducting:

Deflectors and ducting can be introduced into the case to enable cold air to be delivered to the required location, but due to the low airflow rate from the TEU, this should only be implemented as part of a testing and development programme with no guarantee of results.

TEU Heating Mode

The TEU automatically works in reverse to heat the inside of the case when the temperature drops below the dead band around the Set Point. This function is enabled as standard, but can be disabled to suit a customer application.
The TEU heating mode is less efficient than cooling mode, but can provide up to 250W of heating capacity.

Test Standards

The following testing is planned for all variants:
Unit Integrity:

- IP Rating: Testing to prove the IP Rating claims made for each unit – used globally
- NEMA 4 and NEMA 4X: Testing to prove the watertight integrity for each unit – US market driven.
- Military Specifications: MIL-STD 810 and DEF STAN testing, against a range of parameters.

Unit Safety:

- CE Marking (LV directive & EMC directive):
- Analysis and testing required by law for all electrical items for sale in the EU.

Unit Cooling (& Heating) Performance:

- Testing to prove the cooling and heating performance claims for the units.

EMC Shielding Performance:

- Please enquire for EMC sheidling perfomance.

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