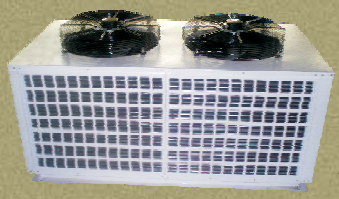
Coolpoint
Manufacturer of Air Conditioners & Coils

A Subsidiary of WAVES

Condensing Unit

Models: CWCU 106-270



Pakistan's Largest
Manufacturers of
Air-Conditioners

Coolpoint

A Subsidiary of WAVES

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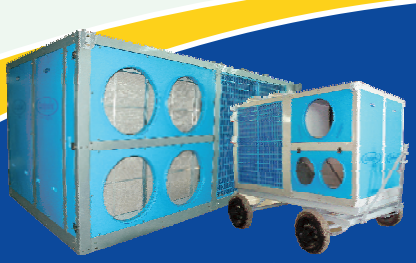
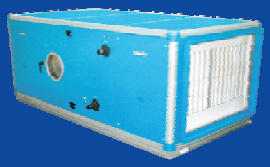
- Heat Load Calculation
- HVAC System Concept & Design
- Supply of HVAC Equipment
- Installation
- Testing & Commissioning
- Operation & Maintenance



Package Mobile AC Plant

Package Type Unit



Double Skinned AHU

Concealed Type AHU

Floor Standing Split AC

Vertical Type AHU

Air Cooled Water Chiller

Floor Standing Cabinet (DX/CW)

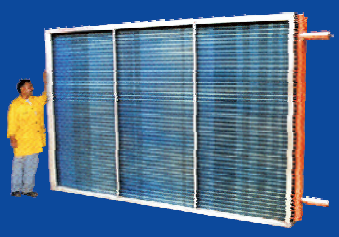
Universal Type Split AC

Cassette Type Split AC

Cold Rooms & Reefer Containers

Air Handling Units

Duct Type Split AC Unit



Tube Size 3/8"OD, 1/2"OC, 5/8"OD

COOL POINT (Pvt.) Ltd. Introduces new phenomenon of Water Cooled Air Conditioning System in small capacity units (1-Ton, 1.5-Ton, 2-Ton and 2.5-Ton

Legend

AFR	Air Flow Rate
BPF	By-pass Factor
C.Cap.	Cooling Capacity
CFM	Cubic Feet per minute
EER	Energy Efficiency Ratio
Hz	Hertz
In.Wg	Inches of Water Gauge
KW	Kilowatt
Kg	Kilogram
lbs	Pound weight (British Units)
L/S	Liters per second
MBH	BTUH x 1000
PH	Phase
Pa	Pascal
PD	Pressure Drop
PI	Compressor Power Input in KW
RPM	Rotations per minutes
TR	Ton of refrigeration = 12 MBH
V	Volts

Introduction

COOL POINT Condensing Units are designed and manufactured especially for use in systems with indoor units connected to remote condensing units located out doors.

The feature of the CWCU is the extreme flexibility available with COOL POINT in modifying and adapting these condensing units to meet almost any application requirement for a DX split system in this size range.

Flexibility in the operating range, adaptability for various environmental usages, customizing for specific applications are all unique features exclusive to COOL POINT and the CWCU. No other manufacturer can provide the wide variance of possibilities in this tonnage range of products.

Available in 13 basic sizes covering a range from 5.0 to 50.0 nominal TR (1887 kW) in 50Hz, the CWCU can be designed to operate in a wide ambient range from 25°F (4°C) to 125°F (52°C).

Most designers prefer the standard operating design range of 60°F (15°C) to 125°F (52°C). With a few standard options available from COOL POINT, as described, the units can be made to operate satisfactorily for lower design conditions. A choice of single or double refrigerant circuits makes the CWCU additionally attractive to suit the site requirement.

Matching COOL POINT Air Cooled Condensing Units with COOL POINT Air Handling Units, single or double skinned , horizontal or vertical, results in a completely flexible system ideal for apartments, schools and other commercial buildings where the designer wishes to provide an economic standard solution but has stringent requirements to match that are not available from most major manufacturers.

CWCU are rated as per principle of ARI 365/94 and ARI 210 240/94 standards.

COMPONENT FEATURES

Compressor

Compressors used in COOL POINT CWCU Air Cooled Condensing Units are fully hermetic / semi hermetic type. The compressors incorporate a builtin muffler and are mounted on springs within a heavy guage steel housing to give a low noise level. All compressors are provided with built in protection for long life quiet operation. A Klixon internal overload device for electrical protection and an internal pressure relief valve for safety are standard features.

The compressors are provided with crankcase heaters as standard and are mounted on springs to minimize noise and vibration. The compressors conform to internationally recognized standards like NF, VDE, CSA & UL. Compressors are refrigerant gas cooled and designed for extremely heavy duty use.

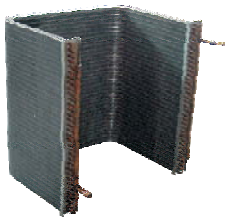
Screw Compressors

The compressors are selected for their extremely high energy efficiency and heavy duty industrial/commercial usage with economy of operation.

Semi-Sealed Compressros

Condenser

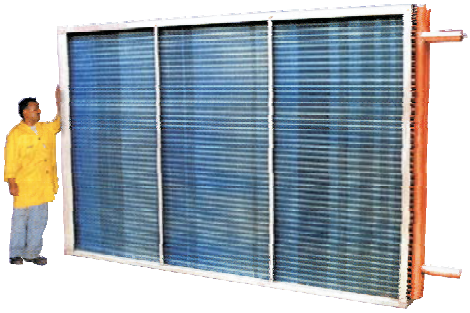
Condenser coils are air cooled and manufactured from seamless copper tubes mechanically bonded to wavy plate type aluminium fins to ensure optimum heat transfer. All coils are tested against leakage by nitrogen pressure of 450 psig (3100 KPa) under water.



Standard coils are 3 or 4 rows deep, 12 fins per inch, 3/8" OD tubes and provided with a sub cooling circuit to increase the split system capacity without adding to operating costs.

Depending on the application, the following optional materials and coatings can be provided on request.

- Copper tubes / copper fins.
- Copper tubes with precoated aluminum fins.
- Copper tube / copper (aluminium) fins with special BronzeGlow® coating.



Condenser Fan & Motor

Condenser fans are propeller type with aluminium alloy blades and are directly driven by electric motors. Motors are Totally Enclosed Air Over (TEAO) six pole with Class "F" insulation and minimum IP55 protection. The TEAO and Class "F" insulation features ensure long life and are unique to COOL POINT.

Fan with Motor

The condenser fans are individually statically & dynamically balanced at the factory. Complete fan assembly is provided

with suitable acrylic coated fan guard. Motors are factory wired to the unit control panel where the motor contactors are located to control the operation of these motors. Condenser fan motors can be provided with IP55 protection and/or with anticondensation heaters builtin.

Refrigerant

Air Cooled Condensing units CWCU are designed and rated to be used with R-22. For other refrigerants please consult COOL POINT.

Casing / Structure

The unit casing used in CWCU condensing units is made of zinc coated galvanized steel sheets conforming to JISG 3302 and ASTM A525 which is phosphatized and baked after an electrostatic powder coat of approximately 60 microns. This finish and coating can pass a 1000 hour in 5% salt spray testing at 95°F (35°C) and 95% relative humidity as per ASTM B11795.

The entire assembly comes complete with lifting holes to ease rigging for installation. Access panels are provided for easy service and maintenance.

Refrigerant Piping

All internal piping provided in the CWCU are made from copper tubes.

The refrigeration piping in the units is fabricated from copper piping. The piping connection comes as standard terminated with sealed and soldered copper pipe ends. Normal installation requires the cutting off of the ends using roller type tube cutters prior to connections being soldered and connected to the field sup plied refrigerant pipe work

Refrigerant specialties including factory correctly sized expansion valves, filter drier, solenoids, shutoff valves can be provided as a kit for field installation.

Electrical Hook-Up

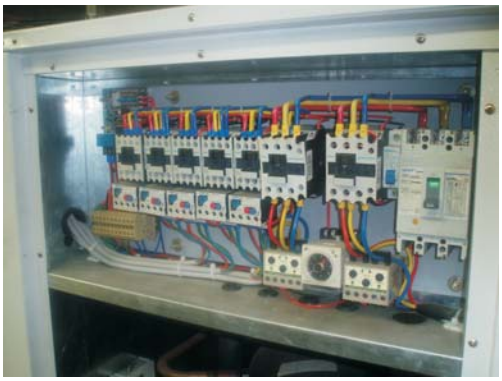
Every COOL POINT CWCU requires at most field installed fused disconnect switch or circuit breaker, fan interlocks and a temperature control thermostat.

Refer to the Typical Wiring Diagram shown in this catalog for a schematic representation of required field electric hookups.

Electrical Control Panel

The unit mounted control panel enclosure, comprises all starting, operating and safety controls. A dead front panel cover screwed onto the enclosure prevents unauthorized personnel from tampering with controls. Safety and operating controls are arranged for easy accessibility. All wiring is sized as per NEC regulations. Wiring is fully ferruled enabling ease of proper identification. The control panel is factory wired for 240V/1PH/50Hz control power supply. The following are other standard components used in all CWCU air cooled condensing units.

- Individual compressor and condenser fan motor contactors.
- Individual condenser fan over current protection.
- Antirecycle timer to prevent rapid cycling and short cycling of compressors.
- Low pressure safety switch and high pressure safety switch, one per compressor.
- Control disconnect toggle switch.
- Control circuit fuses.
- Volt free contact or terminals for indoor fan motor starter interlock.
- Power and control circuit terminal blocks.



OPTION FEATURES

Factory Installed

Microprocessor Based Control (MCP) The controller consists of a display unit and relay boards. The display is mounted in a space / room and the relay card / s are mounted in the unit control panel. The sensor is directly connected to the relay board and is placed in the return air path.

Main features of the controls are :

- Built in anti recycle timer to prevent compressor short cycling.
- Auto leadlag of the compressor.
- General alarm volt free contact is available for any remote indication use.
- Remote START/STOP of the unit is available through a volt free contact.

Following main indications are available on the controller display:

- Digital indication of return air / room temperature.

Low Ambient Operation Kit
LAO option provides operation down to lower than normal winter ambients. Required only for special applications.

Alternative Condenser Material
Made of copper tubes and alternative fin material and/or protective coating.

- For Copper Fins specify FC.
- For precoated aluminum fins specify FAP

Galvanized Frame
Hot dip galvanized after manufacture, steel frame and base.

Condenser Coil Guard
Coil wire mesh guard, in painted or galvanized finish for condensers. Recommended for ground level installations where coil needs to be protected against vandalism.

Run Hour Meter(s)
To monitor operating hours of each compressor.

Hot Gas Bypass System
With solenoid to enable operation of a large sized unit at very low loads, during low ambients due to application requirements.

Voltage Monitoring Module
To prevent condensing unit operation in the event of phase burnout, phase reversal or under voltage on the incoming line voltage.

IP55 Control Panel
The standard control panel replaced by an IP55 enclosure for extra protection against the elements.

Pressure Gauges
Suction and discharge pressure indication of each refrigerant circuit. Gauges are mounted outside the Control Panel.

Condenser fan motors with builtin anti condensation heaters where application so requires.

Isolated Condenser Fan Motors
For elimination of extraneous noise and vibration from condenser fan motor, the motors are isolated from the frame.

Rotalock Valves on Compressors. For additional facilitation of maintenance of unit.

Circuit Breaker for Compressor
For those electrical specifications which require additional protection.

Manual Reset Type Hi Pressure Switch
Can be used to replace the factory set nonadjustable, standard hipressure switch.

Options for Field Installations

Antivibration mounts
Recommended for roof mounted units or other locations in the vicinity of occupied spaces, where noise may be objectionable.

Liquid Line Controls
Comprises of correctly sized thermostatic expansion valve, filter drier, sight glass and shutoff valve per circuit.

Extra Shut Off Valve
To isolate filter drier on field pipework. Must be ordered, if required, with CRSP option.

Hi and Lo Pressure Gauges
Supplied loose for field installation.

Electrical Data

Model	Unit Chracterist		Compressor				Condenser Fan Motor		
CWCU	MFA	MCA	Qty.	MRC Each	RLA Each	LRA Each	Qty.	FLA Each	LRA Each
106	32	15.0	1	15.0	10.7	67.0	1	1.4	4.7
108	40	19.3	1	18.0	12.9	68.0	1	2.2	8.7
110	50	24.0	1	22.0	15.7	78.5	1	3.4	14.4
212	63	27.0	2	15.0	10.7	67.0	2	1.4	4.7
215	80	34.3	2	18.0	12.9	68.0	2	2.2	8.7
220	80	43.2	2	22.0	15.7	78.5	4	3.4	14.4
225	125	57.6	2	30.0	21.4	115.0	4	4.2	18.7
230	125	67.3	2	36.0	25.7	130.0	4	4.2	18.7
235	125	75.0	3	29.0	27.0	129.0	6	4.2	18.7
240	160	87.0	2	64.0	58.0	304.0	6	4.2	18.7
245	160	89.0	2	81.0	74.0	304.0	6	4.2	18.7
250	160	101.0	2	42.0	38.0	199.0	6	3.4	14.4
270	250	149.0	2	64.0	58.0	304.0	8	4.2	18.7

Legend:

MFA : Maximum Fuse Amperes.
MCA : Maximum Circuit Amperes (for wire sizing).
MRC : Maximum Running Current corresponding to the cutout amperes of internal "KLIXON" motor protection at any operation conditions.
RLA : Rated Load Amperes.
LRA : Locked Rotor Amperes.
FLA : Full Load Amperes.

Specifications - 50 Hz

Model CWCU				106	108	110	212	215	220	225
Cooling Capacity-1			TR	5.1	6.4	7.6	10.2	12.8	15.2	22.6
			kW	18.0	22.6	26.7	36.0	45.1	53.5	79.3
Cooling Capacity-2			TR	4.4	5.6	6.5	8.9	11.1	13.0	19.1
			kW	15.4	19.6	22.9	31.2	39.2	45.9	67.3
EER			Btu/W	10.8	10.6	10.7	10.8	10.8	10.7	9.8
Compressor	Type		-	Fully Hermatic Reciprocating / Scroll						
	Quantity		-	1	1	1	2	2	2	2
	Oil Charge per Compressor		US Gallon	0.5	0.5	1.1	0.5	0.6	1.1	0.9
			Liter	1.9	1.9	4.2	1.9	1.9	4.2	3.4
Condenser	Coil	Type	-	Air Cooled Copper tubes aluminum fins						
		Face Area	ft2	9.7	12.2	12.2	19.4	24.4	24.4	29.4
			m2	0.9	1.1	1.1	1.8	2.3	2.3	2.7
	Fan	Type	-	Propeller direct dirve aluminum balde						
		CFM / Qty	-	900 / 1	900 /1	900 /1	900 / 2	900 / 2	900 / 4	900 / 4
		Air Flow Rate	cfm	4530	6720	7450	9060	13440	14900	17580
			I/s	2138	3171	3516	4275	6342	7031	8296
	Motor	Type	-	Totally enclosed air over class F insulation IP 54						
		Power Input	kW	0.37	0.75	1.10	2 x 0.37	2 x 0.75	4 x 1.1	4 x 1.5
Refrigerant Operating Charge R-22			lbs	5.0	6.2	6.6	10.0	12.4	13.2	20.0
			kg	2.3	2.8	3.0	4.5	5.6	6.0	9.1
Number of Refrigerant Circuits			-	1	1	1	2	2	2	2
Capacity Steps			%	100-0	100-0	100-0	100-50-0	100-50-0	100-50-0	100-50-0
Machine Operating Weight (approximate)			lbs	458	541	625	854	1017	1177	1376
			kg	208	246	284	388	462	535	625

Model CWCU				230	235	240	245	250	270
Cooling Capacity-1			TR	24.7	29.5	32.1	36.2	42.7	62.6
			kW	86.8	103.7	113.1	127.4	150.1	220.2
Cooling Capacity-2			TR	21.0	25.9	28.2	31.8	37.5	54.8
			kW	73.9	91.2	99.0	112.0	131.8	192.6
EER			Btu/W	10.5	11.6	11.8	12.1	12.2	11.7
Compressor	Type		-	Fully Hermatic Reciprocating / Scroll					
	Quantity		-	2	2	1	1	2	2
	Oil Charge per Compressor		US Gallon	1.1	2 x 1.0	1.1	1.1	2 x 1.1	2 x 1.1
			Liter	4.2	2 x 3.8	4.3	4.0	2 x 4.0	2 x 4.3
Condenser	Coil	Type	-	Air Cooled Copper tubes aluminum fins					
		Face Area	ft2	34.4	40.0	40.0	53.3	64.0	72.0
			m2	3.2	3.7	3.7	5.0	5.9	6.7
	Fan	Type	-	Propeller direct dirve aluminum balde					
		CFM / Qty	-	1400 / 4	823 / 3	823 / 3	829 / 3	823 / 4	829 / 4
		Air Flow Rate	cfm	18260	26820	25620	32790	37160	42160
			I/s	86174	12656	12090	15474	17536	19895
	Motor	Type	-	Totally enclosed air over class F insulation IP 54					
		Power Input	kW	4 x 2.0	2.02 / 3	2.02 / 3	2.02 / 3	1.5 / 4	2.02 x 2
Refrigerant Operating Charge R-22			lbs	23.0	2 x 11.1	26.7	16.4 + 10.2	2 x 15.8	2 x 23.5
			kg	10.5	2 x 5.0	12.1	7.5 + 4.6	2 x 7.2	2 x 10.7
Number of Refrigerant Circuits			-	2	2	1	2	2	2
Capacity Steps			%	100-50-0	100-50-0	100-50-0	100-50-0	100-50-0	100-50-0
Machine Operating Weight (approximate)			lbs	1484	2060	1926	2330	2636	3100
			kg	675	936	876	1058	1198	1410

1). Cooling capacity and EER are at 95°F (35°C) condenser entering air temp. & 45°F (7.2°C) SST.
2). Cooling Capacity at Pakistani conditions : 115°F (46.1°C) condenser entering air temperature & 45°F (7.2°C) SST.
3). The approximate operating charge required for the unit when connected to a DX cooling coil. Units are shipped with holding charge only.

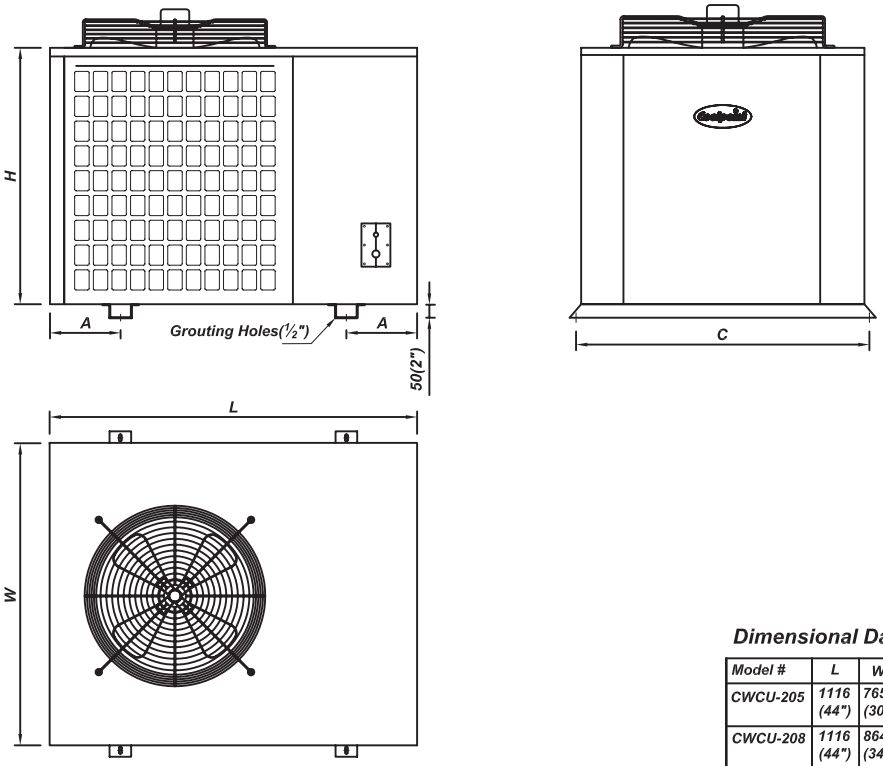
Dual circuit units with equal compressors. Other dual circuited units have unequal split and DX coil should be selected accordingly.

Engineering Specifications - 50Hz

Model CWCU	SST		Condenser Entering Air Temperature											
			95 °F (35 °C)			105 °F (40 °C)			115 °F (48 °C)			125 °F (52 °C)		
	°F	°C	Total Capacity		PI	Total Capacity		PI	Total Capacity		PI	Total Capacity		PI
			M B H	kW	kW	M B H	kW	kW	M B H	kW	kW	M B H	kW	kW
106	35	1.7	50.0	14.7	4.8	46.7	13.7	5.1	43.3	12.7	5.4	40.0	11.7	5.6
	40	4.4	55.6	16.3	5.1	51.9	15.2	5.4	48.2	14.1	5.7	44.4	13.0	6.0
	45	7.2	61.4	18.0	5.3	57.3	16.8	5.6	53.2	15.6	6.0	49.1	14.4	6.3
	50	10.0	67.5	19.8	5.5	63.0	18.5	5.9	58.6	17.2	6.2	54.1	15.9	6.6
108	35	1.7	63.2	18.5	5.9	59.0	17.3	6.3	55.0	16.1	6.7	50.9	14.9	7.2
	40	4.4	69.9	20.5	6.2	65.3	19.1	6.6	60.8	17.8	7.1	56.2	16.5	7.5
	45	7.2	77.0	22.6	6.5	71.9	21.1	7.0	66.9	19.6	7.5	61.8	18.1	7.9
	50	10.0	84.3	24.7	6.8	78.8	23.1	7.3	73.2	21.5	7.8	67.6	19.8	8.3
110	35	1.7	74.6	21.9	6.9	69.0	20.2	7.3	63.6	18.7	7.7	58.2	17.0	8.1
	40	4.4	82.7	24.2	7.1	76.7	22.5	7.6	70.8	20.7	8.1	64.7	19.0	8.5
	45	7.2	91.3	26.7	7.4	84.7	24.8	7.9	78.3	22.9	8.5	71.6	21.0	9.0
	50	10.0	100.3	29.4	7.6	93.2	27.3	8.2	86.1	25.2	8.9	78.7	23.1	9.4
212	35	1.7	100.1	29.3	9.7	93.3	27.4	10.2	86.7	25.4	10.7	79.9	23.4	11.2
	40	4.4	111.1	32.6	10.1	103.7	30.4	10.7	96.3	28.2	11.3	88.9	26.0	11.9
	45	7.2	122.8	36.0	10.6	114.6	33.6	11.2	106.5	31.2	11.9	98.3	28.8	12.6
	50	10.0	135.0	39.6	11.0	126.1	36.9	11.7	117.1	34.3	12.5	108.2	31.7	13.2
215	35	1.7	126.4	37.0	11.8	118.0	34.6	12.6	109.9	32.2	13.5	101.7	29.8	14.3
	40	4.4	139.8	41.0	12.4	130.7	38.3	13.3	121.6	35.6	14.2	112.5	33.0	15.1
	45	7.2	153.9	45.1	13.0	143.8	42.2	13.9	133.8	39.2	14.9	123.6	36.2	15.8
	50	10.0	168.6	49.4	13.6	157.5	46.2	14.6	146.4	42.9	15.6	135.3	39.7	16.6
220	35	1.7	149.1	43.7	13.8	138.0	40.4	14.5	127.3	37.3	15.3	116.3	34.1	16.1
	40	4.4	165.4	48.5	14.3	153.3	44.9	15.2	141.6	41.5	16.1	129.5	37.9	17.0
	45	7.2	182.5	53.5	14.8	169.5	49.7	15.9	156.5	45.9	17.0	143.2	42.0	18.0
	50	10.0	200.6	58.8	15.2	186.4	54.6	16.5	172.2	50.5	17.7	157.4	46.1	18.9
225	35	1.7	222.5	65.2	22.0	204.7	60.0	22.9	187.0	54.8	23.8	167.7	49.1	23.9
	40	4.4	246.2	72.1	23.3	227.0	66.5	24.3	207.9	60.9	25.3	185.8	54.5	25.3
	45	7.2	270.6	79.3	24.6	250.2	73.3	25.8	229.7	67.3	26.9	205.0	60.1	26.7
	50	10.0	295.8	86.7	26.0	274.1	80.3	27.3	252.4	74.0	28.5	225.3	66.0	28.1
230	35	1.7	242.3	71	23	224.4	65.8	24.3	206.9	60.6	25.6	189.1	55.4	26.9
	40	4.4	268.4	78.7	24.1	248.8	72.9	25.5	229.5	67.3	26.9	209.6	61.4	28.3
	45	7.2	296.1	86.8	25.3	274.1	80.3	26.8	252.1	73.9	28.3	230.0	67.4	29.8
	50	10.0	324.8	95.2	26.5	299.4	87.8	28.1	274.1	80.3	29.7	250.0	73.3	31.5
235	35	1.7	297.4	87.2	23.9	279.2	81.8	25.7	261.0	76.5	27.5	242.6	71.1	29.3
	40	4.4	324.9	95.2	24.9	305.2	89.4	26.8	285.4	83.7	28.8	265.5	77.8	30.8
	45	7.2	353.9	103.7	25.9	332.5	97.4	28.0	311.1	91.2	30.1	300.3	88.0	31.2
	50	10.0	384.2	112.6	26.9	361.1	105.8	29.2	338.0	99.1	31.5	326.4	95.7	32.6
240	35	1.7	324.0	95.0	26.0	303.4	88.9	27.9	282.6	82.8	29.6	262.0	76.8	31.5
	40	4.4	354.1	103.8	27.1	331.8	97.3	29.1	309.5	90.7	31.0	287.3	84.2	33.0
	45	7.2	385.8	113.1	28.1	361.9	106.1	30.2	337.9	99.0	32.3	314.1	92.1	34.5
	50	10.0	419.1	122.8	29.2	393.4	115.3	31.4	367.8	107.8	33.7	342.3	100.3	36.1
245	35	1.7	365.3	107.1	29.1	342.7	100.4	31.3	320.1	93.8	33.3	297.4	87.2	35.5
	40	4.4	399.1	117.0	30.4	374.7	109.8	32.6	350.3	102.7	34.9	325.8	95.5	37.2
	45	7.2	434.8	127.4	31.6	408.4	119.7	34.0	382.1	112.0	36.5	355.8	104.3	39.0
	50	10.0	472.2	138.4	32.8	443.9	130.1	35.4	415.5	121.8	38.1	401.4	117.6	39.5
250	35	1.7	430.5	126.2	34.7	403.6	118.3	37.1	376.6	110.4	39.5	349.7	102.5	41.9
	40	4.4	470.2	137.8	36.1	441.2	129.3	38.7	412.1	120.8	41.3	383.3	112.3	44.0
	45	7.2	512.0	150.1	37.6	480.8	140.9	40.4	449.6	131.8	43.2	418.6	122.7	46.1
	50	10.0	555.9	162.9	39.0	522.5	153.1	42.1	489.0	143.3	45.1	472.4	138.5	46.7
270	35	1.7	633.1	185.6	53.4	592.2	173.6	57.0	551.3	161.6	60.5	510.6	149.7	64.2
	40	4.4	690.8	202.5	55.7	646.8	189.6	59.6	602.9	176.7	63.4	559.3	163.9	67.5
	45	7.2	751.4	220.2	58.1	704.2	206.4	62.2	657.1	192.6	66.4	633.7	185.7	68.6
	50	10.0	814.9	238.9	60.4	764.4	224.0	64.8	714.0	209.3	69.4	689.0	202.0	71.8

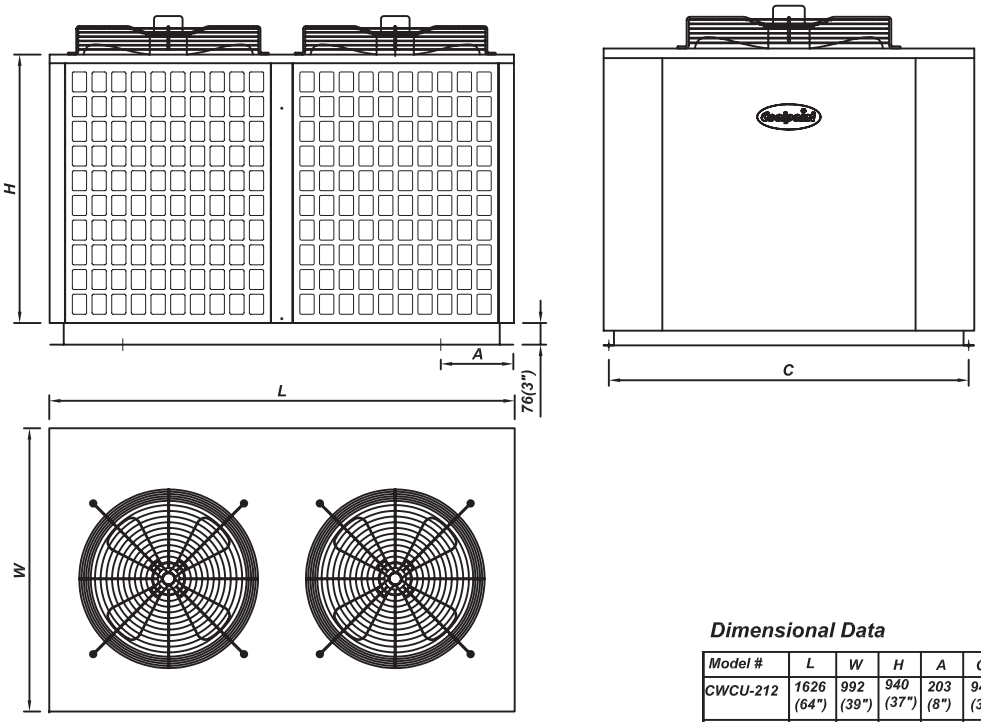
Shaded values are at 125ºF (51.6ºC) condenser entering air temperature.
Units with special specs and are available also.

Dimensional Data



Dimensional Data

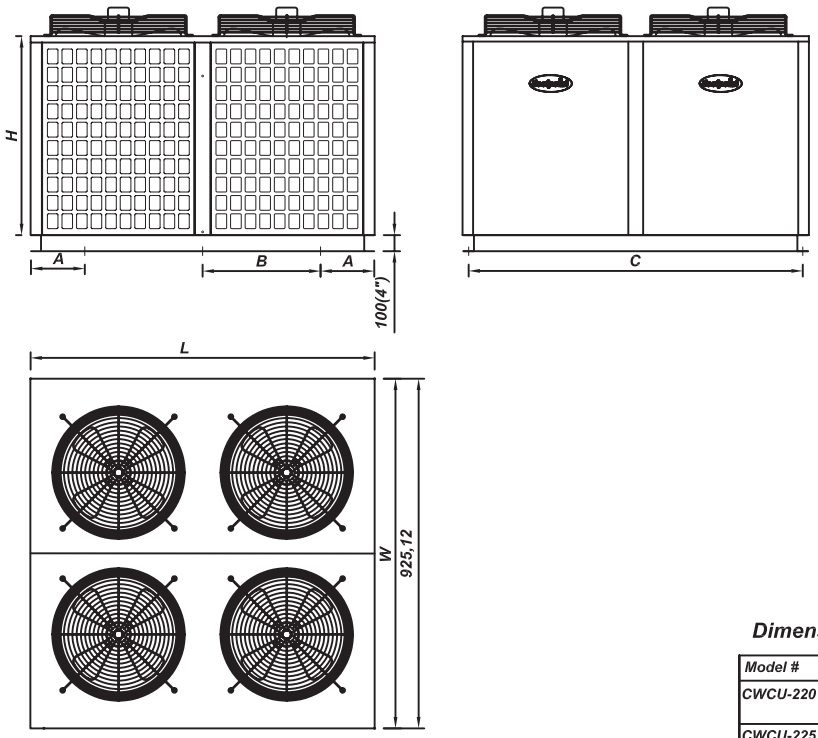
Model #	L	W	H	A	C
CWCU-205	1116 (44")	765 (30")	838 (33")	245 (9.5")	805 (31.5")
CWCU-208	1116 (44")	864 (34")	889 (35")	245 (9.5")	904 (35.5")
CWCU-210	1274 (50")	1168 (46")	889 (35")	245 (9.5")	1208 (47.5")



Dimensional Data

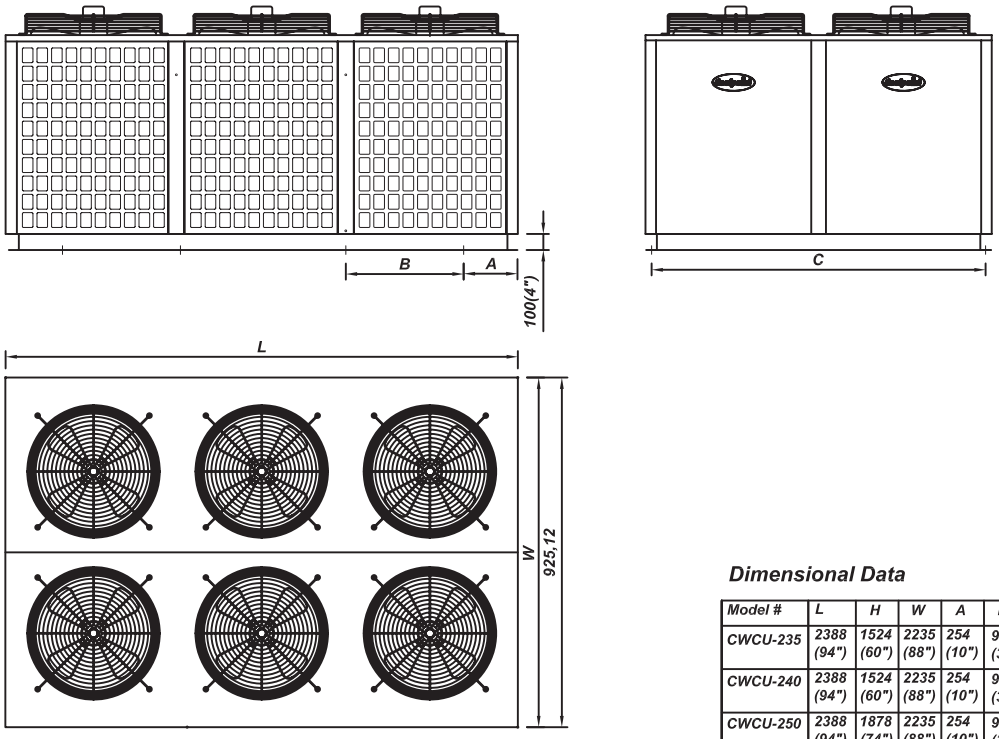
Model #	L	W	H	A	C
CWCU-212	1626 (64")	992 (39")	940 (37")	203 (8")	942 (37")
CWCU-215	1626 (64")	1145 (45")	1092 (43")	203 (8")	1085 (42.7")

Dimensional Data



Dimensional Data

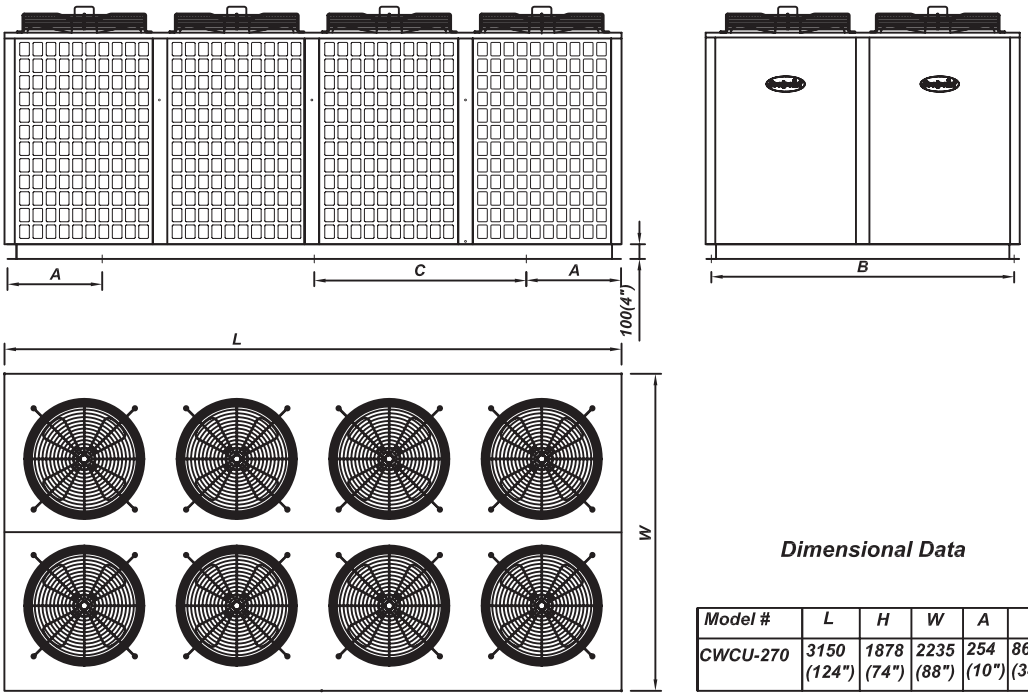
Model #	L	W	H	A	B	C
CWCU-220	1798 (70.5")	1652 (65")	1092 (43")	203 (8")	685 (27")	1600 (63")
CWCU-225	2130 (84")	1652 (65")	1092 (43")	203 (8")	862 (34")	1600 (63")
CWCU-230	2130 (84")	1650 (65")	1195 (43")	203 (8")	862 (34")	1600 (63")



Dimensional Data

Model #	L	H	W	A	B	C
CWCU-235	2388 (94")	1524 (60")	2235 (88")	254 (10")	940 (37")	2184 (86")
CWCU-240	2388 (94")	1524 (60")	2235 (88")	254 (10")	940 (37")	2184 (86")
CWCU-250	2388 (94")	1878 (74")	2235 (88")	254 (10")	940 (37")	2184 (86")
CWCU-260	2388 (94")	1878 (74")	2235 (88")	254 (10")	940 (37")	2184 (86")

Dimensional Data



Dimensional Data

Model #	L	H	W	A	B	C
CWCU-270	3150 (124")	1878 (74")	2235 (88")	254 (10")	864 (34.5")	2184 (86")

GENERAL SPECIFICATION

General

Condensing units shall be composed of compressor(s), condenser coil(s) with fan(s), refrigerant piping, electrical components & enclosing cabinet in one piece. These units shall be factory assembled, internally wired, fully refrigerant charged with R22, tested under strict quality standards & are suitable for use in systems with indoor units connected to remote condensing units located out doors.

Units should be capable to operate from 60°F (15°C) to 125°F (52°C) ambient temperature, and shall be selected in accordance with project requirements and installed as per Installation, Operation & Maintenance Manual.

Compressor

Compressor(s) shall be hermetic reciprocating, refrigerant gas cooled, furnished with internal overload protection device, internal pressure relief valve, crankcase heater & shall be mounted on spring vibration isolators. These compressors conform to internationally recognized standards like NF, VDE, CSA & UL.

Condenser Coil

Coils shall be air cooled with integral sub cooler, constructed of seamless copper tubes 3/8" OD mechanically expanded into wavy plate type aluminum fins with maximum 12 fpi (2.1mm) spacing. These coils shall be tested against leakage by air pressure of 450 psig (3100 Kpa) under water, cleaned & dehydrated at the factory. Coil shall conform to ARI-410/91.

Fan & Motor

Fans shall be direct driven propeller type discharging air vertically upward, equipped with statically & dynamically balanced aluminum alloy blades, inherent corrosion resistant shaft & PVC coated steel wire fan guard.

Condenser fan motor(s) shall be Totally Enclosed Air Over (TEAO), 6 poles with classF insulation, minimum IP55 protection & wired to unit control panel.

Refrigerant Piping

Refrigerant circuit piping shall be fabricated from ACR grade copper including shutoff valve, filter drier & thermostatic expansion valve. The piping connections shall be terminated with sealed & soldered copper pipe ends, which give much simplicity & ease to the installation.

Casing

Casing shall be made of hot dip galvanized, phosphatized steel sheets which are then electrostatically polyester powder coated to provide an extremely tough, scratch resistance & excellent anticorrosive protection. Casing shall pass 1000 hours in 5% salt spray testing at 95°F (35°C) & 95% relative humidity as per ASTM B11795. Unit casing shall be provided with access panels for easy service & maintenance of all unit parts.

Control Panel

The panel shall be factory wired in accordance with NEC 430 & 440, and conforms to IP54 requirements. Control Panel shall contain individual electrical components' contactors, overload relays, transformer, antirecycling time delay relay, control circuit disconnect switch, power & control circuit terminal blocks & High / low pressure switch. (Please refer to page 4 for detailed information of Control Panel).

Coolpoint

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THE LARGEST MANUFACTURER OF AIR CONDITIONING EQUIPMENT

COMPANY PROFILE

Cool Point (Pvt) Ltd. is a subsidiary of M/s Cool Industries (Pvt.) Ltd, leading manufacturer of Deep Freezers, Refrigerators and Split Air Conditioners in Pakistan of renowned brand

On a modes level, Cool Point (Pvt.) Ltd. has grown into one of the prime Manufacturers of Air Conditioners & Coils in Pakistan. Out professional staff and dedicated management is fully committed to quality and Service of its product. Our system is certified for ISO 9001:2000 Standard.

We possess the latest machinery and technology required for production of high quality products. Our team of professional engineers and technical staff is capable of responding to the market's most expecting demands for that we are continuously struggling to improve our Manufacturing capability and quality to become the leader of the market.

We have efficient network of After Sales Services throughout the country for the entire satisfaction of our customers.

DISPLAY CENTERS

Lahore: Shop No. 13, Ground Floor, Raja Chamber, 35 Fatima Jinah Road. Ph: 042-7534623-4
159-Karim Block, Alama Iqbal Town, Mian Wahdat Road. 042-45-46-47

Karachi: Hashmi Electronics Market, Abdullah Haroon Road. Ph: 021-7727743-4

Faisalabad: Kotwali Road, Opp. Thana Kotwali. Ph: 041-601684

Multan: Mian Market, Hussain Agahi Road.

MAJOR CLIENTS

FOR COMMERCIAL AC UNITS

MCR (Pvt.) Ltd.
Raazee Therapeutics (Pvt.) Ltd.
Nishat Group of Companies
Package Limited
Cool Industries (Pvt.) Ltd.
Dyson Research Laboratories
Shifa International Hospital
Dewan Salman Fibre Ltd.
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Akhtar Textile Industries (Pvt.) Ltd.
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Colgate Palmolive Pakistan Limited
Highnoon Laboratories (Pvt.) Ltd.
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H. Nizam Din & Sons (Pvt.) Ltd.
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Siza International Pharma (Pvt.) Ltd.
Aneeb Pharmaceuticals (Pvt.) Ltd.
PACE Pakistan Limited
Punjab Institute of Computer Science
Olympia Group of Industries
KIDCO (Agro Chemicals (Pvt.) Ltd.)
Gelcaps (Pakistan) Limited
Pakistan Beverage Limited (PEPSI)
Pakistan International Airport (PIA)
Food & Beverages Co. (Pvt.) Ltd.
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Conimpex Hatchery
Peace Engineering Services
Paksol (Pvt.) Ltd.
Ranfro Textiles
Master Textile Limited

A. A. Associates
United Engineering
WAPDA
Organon Engineering Company
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Azgard Nine
Tops Food & Beverages
Doctors Hospitals
Union Fabrics Limited
ILF Pakistan (Pvt.) Ltd.
Allaience Pharmaceuticals (Pvt.) Ltd.
Bentley Pharmaceuticals
Sitara Chemicals Industries Limited
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Toyota Defence Motors
Pakistan Atomic Energy Commission
Pakistan Navy
CMH (Combine Military Hospital
Pakistan Telecommunication Company Limited
International Industries
Angatech International
Darbarwala Industries
Horizon Developers
Bilal Engineering
Frooto Industries (Pvt.) Ltd.
Vetcon Pharmaceuticals
Drug Pharmaceuticals
CHS Pharmaceuticals
Zephyer Pharmaceuticals
Hightech Chemicals
Pakistan Petroleum Limited

Medicraft (Pvt.) Ltd.
Rexo Engineering (Pvt.) Ltd.
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Defence Housing Authority
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Lasania Groups
ICI Kheora
US Capital Textile (Pvt.) Ltd.
Kamal Spinning Mills
Al-Khair Industries
Pak Gulf Constructions
The Layton Rehmatullah Benevolent Trust
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General Electro-Mechanique Company
TELENOR (Pvt.) Ltd.
Stiches (Pvt.) Ltd.
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Zafar Cool Comfort
Luck Traders
Diamonds Paints
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Fedro pharmaceuticals
Festal Laboratories
Ocean Pharmaceuticals
Safina Pharmaceuticals
Hamza Pharmaceuticals
Candid Pharmaceuticals
Cardex Pharmaceuticals
Crescent Bahuman
Star Laboratories (Pvt.) Ltd.

Techno Pak Industries (Pvt.) Ltd.
Pakistan Air Force
Batala Pharmaceuticals
TCS (Pvt.) Ltd.
Asia Tent Services
Telephone Industries Pakistan (TIP)
National Development Complex (NDC)
Pakistan Military Office (PMO)
Pakistan Army
Standard Chartered Bank
Masood Textile
Nazar Sons
Shalimar Hospital
Mobilink GSM Pakistan
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Salt'N'Pepper
Shawn Pharmaceuticals
Glaxo Welcome Pakistan
Frezol (Pvt.) Ltd.
The Monal (Pvt.) Ltd.
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