

Motorcycle Rider Liquid Chiller System
Model: COMP-MLCS-12200
Rev: A

Operation Manual



Compcooler, keep your body cool and comfortable in harsh conditions.

COMP cooler Introduction:

Comp cooler Technology specializes in working for personal cooling & heating systems for harsh conditions. Comp cooler has established its resume as a manufacturer for Military, Electronic, Medical cooling equipment. The employees at Comp cooler's state of the art manufacturing facility have been producing liquid heating & cooling systems over 15 years. Quality system: ISO9001 and AS9100 registered facility. Certifications for major items: CE, FCC, UL, PSE, CB, FDA.

Product Categories

1. ICE Water Circulation Systems
2. Micro Refrigeration Chiller Units
3. Liquid Heating Systems
4. Liquid Cooling & Heating Garment and Pad
5. Customized Cooling Systems
6. Industrial Chiller or Cooling Module

Certifications for major items



Quality System for facility



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Motorcycle Rider Liquid Chiller System

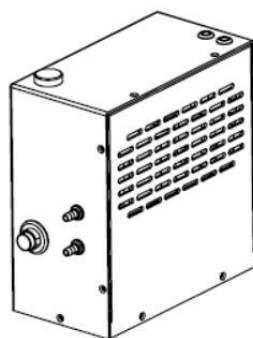
Model: COMP-MLCS-12200V

Description:

Compcooler Motorcycle Rider Liquid Chiller System (MLCS) was designed for the body cooling of riders. MLCS uses 12V DC rotary compressor refrigeration system to cool the liquid, pump circulates the cold liquid to cooling vest, then flow back to reservoir after heat exchanged. MLCS delivers 400W cooling capacity, power by DC12V vehicle power or rechargeable battery. temp control -5°C to 30°C (23°F to 86°F), accuracy $\pm 1^{\circ}\text{C}$ (2°F), once circulation liquid reaches to set point temperature, system intellectually control the cooling capacity to that temperature. User may pre-cool the unit and get the coldest liquid as he needs, iceless cooling unit, maintain free.

Components List:

Item	Part number	Description	Quantity
1	COMP-HLCU	Handcarry Liquid Chiller Cooling Unit	1
		DC Connection Power Cord EC5	1
2	COMP-ET1M	Extension Tubing 1 meters	1
3	COMP-MLCV-BK	Mesh liquid cooling vest black	1
4	COMP-RB1210	12V 10A rechargeable battery with vehicle power charging and AC charging	Optional
5	COMP-RB1220	12V 20A rechargeable battery with AC charging only	Optional
6		Operation Manual	1



Chiller Unit Technical Datasheet

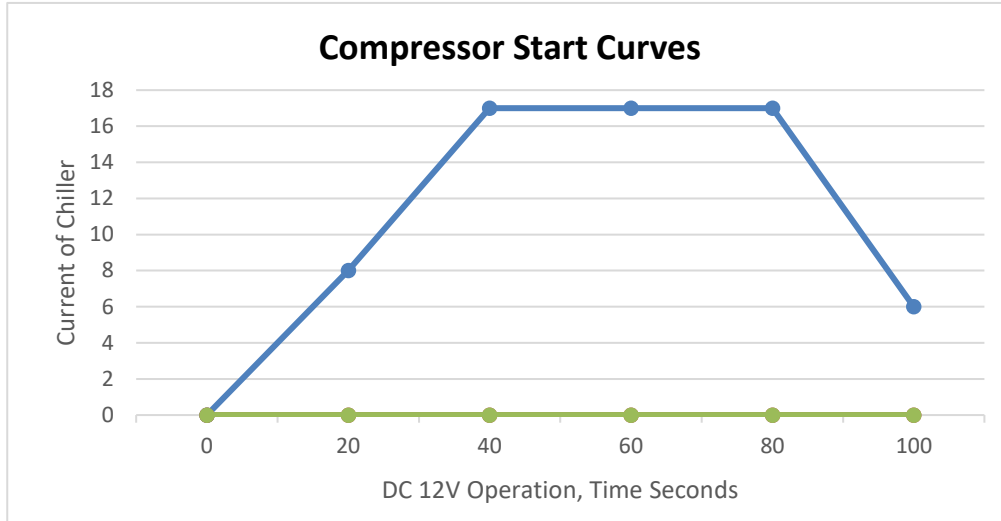
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Cooling Capacity (Ambient Temp. 40°C)		W	200
Cooling Capacity (Ambient Temp. 104°F)		Btu	682
Max Cooling Capacity		W	300
Power Supply		Rated Voltage V	12
		Operation Voltage Range	12-16V
Operation Current		A	12
Max Current		A	15
Max Power Consumption		W	200
Refrigerant	Type		R134a
Temp Control		°C	-5 to 30
		°F	23-86
Coolant	Anti-freeze liquid		Yes
Rotary Compressor (Samsung)	Qty	PC	1
	Voltage	V DC	12
	Discharge	CC	1.9
	Speed	RPM	2000-6500
Fan	Qty	PC	2
	Voltage	V DC	12
	Air Flow	CFM	30
Pump	Voltage	V DC	12
	Water flow	L/Min	1
	Lift	M	2
Power Connector	Type	DC	EC5
Operation Ambient	Max	°C	-10 to 60
Storage Temp		°C	-20 to 70
Noise	Max	dBA	58
Color			White or Black
Dimension	L x W x H	mm	220x180x100
		Inch	8.6x7.1x3.9
Weight		KGS	4
		LBS	8.8

Compressor Start Curves:

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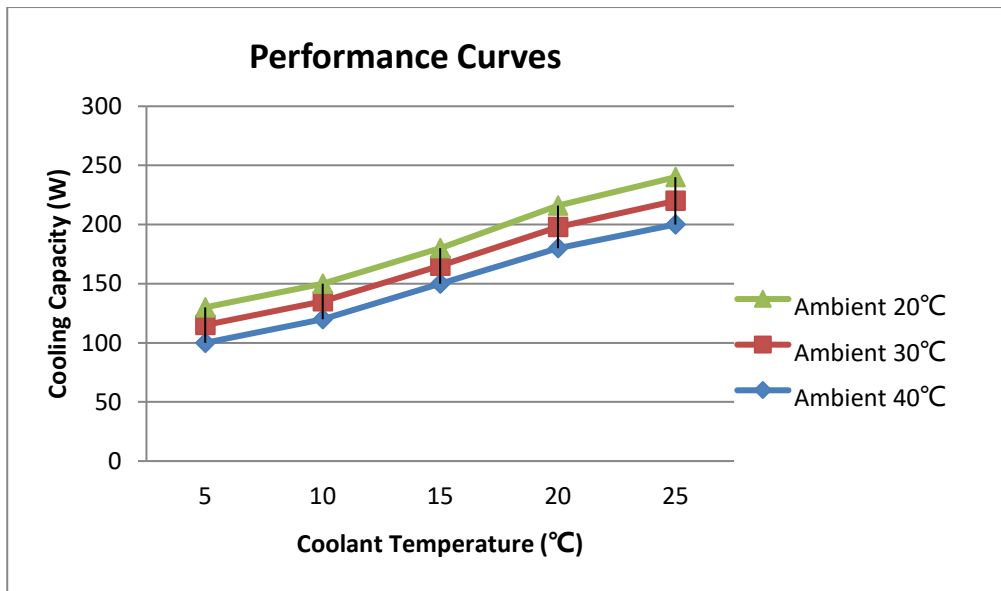
System Operation Control: Chiller unit will intellectually control the cooling capacity (compressor speed) to setting temperature. Power consumption or operation current may be changed for different ambient.



Chiller Unit Performance Curves

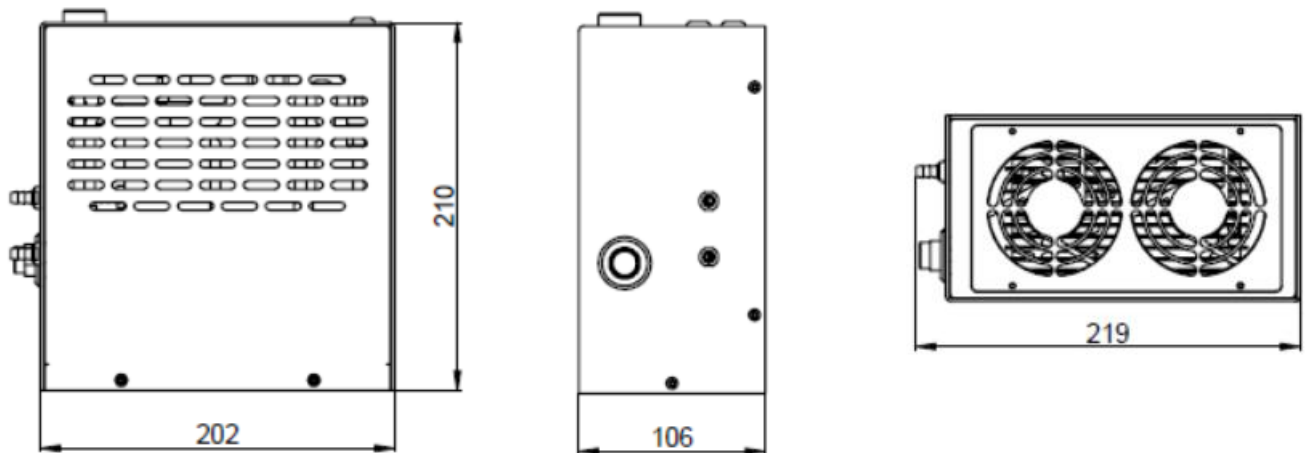
Operation ambient for chiller unit is -10 to 60°C

Cooling capacity could be difference based on ambient and liquid temp setting.



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Dimension of Chiller Unit

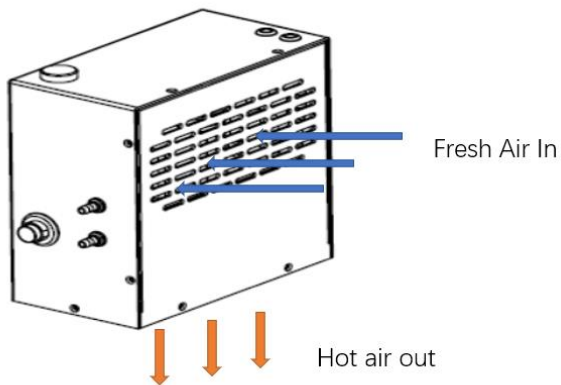


Operation Instruction

Preparation

Chiller Unit Installation:

Unit could be fixed on the rear or side of motorcycle, make sure it is a well-ventilated area, no blocks for fresh air inlet and outlet.



Power Connection

Vehicle Power connection

One DC power cord EC5 was provided with chiller, user may connect it with Vehicle power 12-16V.

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DC Battery Connection

User may connect EC5 connector with rechargeable battery.

COMP-RB1220, 12V 20A battery can support 2 hours operation

COMP-RB1210, 12V 10A battery can support 1hour operation, connect with vehicle 12V charging will extend the cooling time.

Power Adapter Connection

User may connect it with Power adapter COMP-PA280-11012, powered by AC110V wall plug.

Cooling Garment Connection

User may connect the chiller with Compcooler Cooling Vest or Cooling pad by quick release fittings. One extension tubing was provided with chiller.

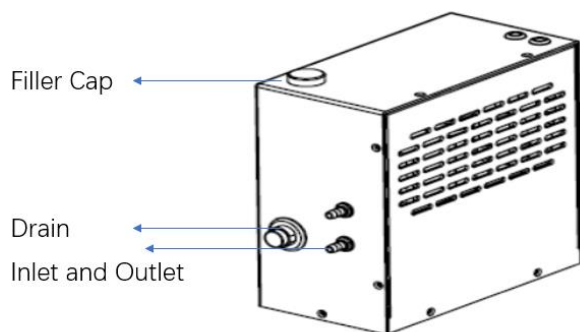
Chiller unit is compatible with all Compcooler garment, if you want to try other brand garment, please remove the quick fitting from extension hose and replace the new fittings to compatible with other cooling garment.

Circulation Liquid

User needs to fill circulation liquid by twice.

The first time, remove the filler cap from top side, add liquid to full by funnel, connect the cooling garment, turn on the pump and circulates the liquid from reservoir to cooling garment.

The second time, keep running and allow the liquid cooling garment fill with water for 30-60 seconds (without cooling), refill again to full (maybe couple times, be patient), then tight the filler cap.



Clean or distilled water is fine if ambient more than 1°C

Deionized water for isolation request.

Anti-freeze liquid for ambient below 0°C.

DO NOT use salt water, caustic, corrosive or flammable fluids!

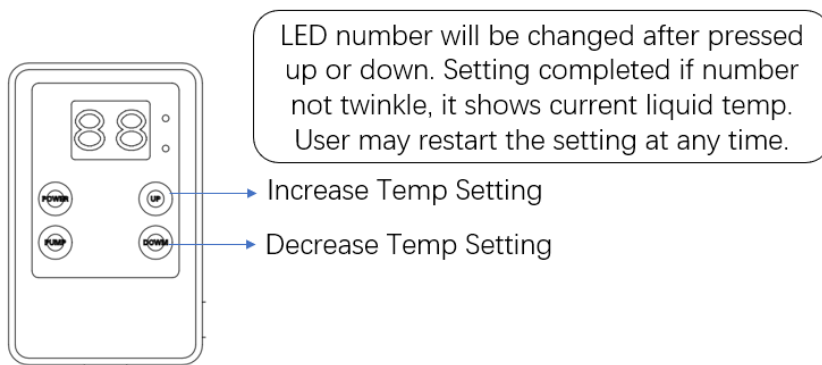
Refrigeration or Pre-cool Testing

User may turn on the system and start refrigeration, no pump circulation, temperature will down in minutes. Cooling unit will be in standby mode once liquid temperature reaches to setting point.

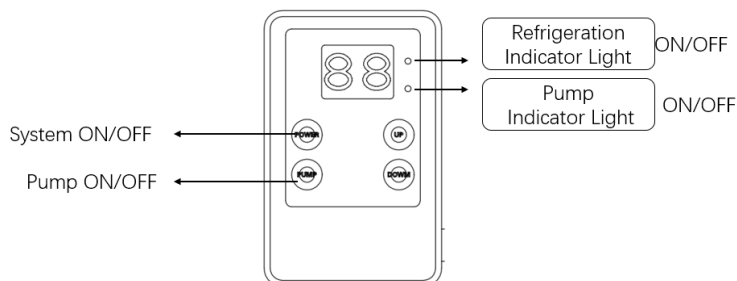
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Operation Processes

1. Garment or Pad connection: Connect the extension tubing with liquid heating unit. Connect the liquid cooling garment or pad from the other end.
Once you hear a click, it's in position.
2. Power Connection: connect with power EC5 connection, light the controller
The cooling unit will be in standby mode.
3. Start cooling: user may press ON/OFF to start chiller, liquid temperature will go down to set point in minutes.
pump is not working at this time.



4. Temp setting: user may press up and down to set up the temp for circulation liquid as need.
5. Start circulation:
User may press the pump to start or stop circulation. Please make sure the tubing is connected (no kinks) before circulation.



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Clean and Maintenance

Chiller Unit:

Unplugged the power, use a clean damp cloth to clean the outside of chiller unit.
Use compressed air to remove dust and debris.

Reservoir cleaning

Please disconnect the extension tubing from chiller unit.
Empty the remain water or liquid from drain cap on the bottom, and open for dry.

Condenser clean

To keep the system at optimum cooling capacity, the condenser should be kept free of dust and dirt, user may check and clean it if necessary.

Open the side panel and remove the fans, use 50-100psi compressed air to clean the contamination.

Charging Refrigerant

(not recommend for uncertified operator)

If cooling capacity was decreased because of lack of refrigerant, user may vacuum the unit and recharge 150g R134a refrigerant.

Liquid Heating & Cooling garment:

Prefer to clean by hand wash then hang dry.

Machine wash by Laundry bag: wash liquid heating and cooling vest using a front-loading wash machine with cold water on a gentle/delicate cycle.

Note: DO NOT BLEACH, NO IRON, NO DRYER, TUMBLE DRY ON LOW

Chiller Unit Storage:

1. Turn off chiller unit, disconnect the power cord.
2. Disconnect the extension tubing.
3. Empty the circulation water from chiller unit by open bottom drain cap, then clean and disinfect the reservoir, then tight the cap after open dry.
4. Pack the unit for storage.

Restart: after long term storage, please fill in clean water with less degerming agent, run system over 10 minutes with cooling vest connection. Then empty the system and re-fill in the liquid as need.

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Fault Code

Item	Code	Description
1	E1	Wrong Polarity or reverse connection from power input
2	E2	Low voltage protection, less than 11V
3	E3	High voltage protection, more than 18V
4	P1	No liquid temp signal from sensor

Trouble shoot

Item	Problem Description	Root Cause	Trouble Shoot
1	No Cooling Performance	Compressor locked, Overheat protection, Low Voltage	Check the compressor drive, yellow light means normal, red light means abnormal.
		No liquid circulation	Check if cooling garment be connected, check if pump be turned on
		Power connection	Check if power connection loose or not.
2	Less cooling capacity	Less heat exchange rate for evaporator	Check if circulation water inside reservoir is enough or not?
		Lack of refrigerant	Check if hot air out from condenser air outlet
		Low compressor speed	Check compressor speed setting
		Low voltage	Check unit input voltage
3	No pumping	Pump ON/OFF	Check if pump be turned on
		Quick fitting connection	Check quick fitting connection loose or not
		Pump blocked	Check if pump be blocked
4	Remote controller can't operate	Connection loose	Check if the connection loose or not
		Controller LED vague or twinkle	Check the unit input voltage
5	Temp sensor	No feedback, P1 on the panel	Check if the connection loose or not

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Cautions:

1. Please confirm vehicle voltage is 12-16V before operation.
2. Please make sure vehicle power can stand 200W before operation.
3. Please do not turn ON/OFF to run to stops system frequently within a short period, it may affect the refrigeration system, and significant enhance power consumption.
4. Please do not block air inlet and outlet, it may cause the problem of compressor overheat or less cooling capacity.
5. Please make sure cooling garments or vest be connected before start pump circulation, it may cause unit leak because of pump pressure.
6. Please use anti-freeze liquid if temperature setting lower than 0°C
7. Please do not run the system close to fire or under water.
8. Max operation temp is 60°C, unit could be overheated protection in hot ambient.
9. Please stop operation and disconnect the power if high vibration or abnormal noise.

Safety:

It is important to become thoroughly familiar with the manual and operating characteristics of the unit. It is the owner's responsibility to assure proper operator training, installation, operation and maintenance of the unit. Observe all warning can result in injury to the operator and severe mechanical damage to the unit.

Warranty:

Compcooler Warrants to the original Purchaser that products sold shall be free from defects material and workmanship for warranty period not exceed one year from the date of shipment. Compcooler agrees to correct for the original user of this product, either by repair, or at the manufacturer's election by replacement. This warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, or other causes not arising out of defects in material or workmanship. The manufacturer's sole obligation under this warranty is limited to the repair or replacement of a defective product and shall not in any event be liable for any incidental or consequential damages of any kind resulting from use or possession of this product.

**COMPCOOLER**

Personal Thermal Technology,
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