

Vehicle Microclimate Cooling System

OPERATION MANUAL



Model No.: COMP-VMCS-24350B



COMP COOLER

Compcooler Technology

Compcooler Technology (CT) specializes in working for Personal Cooling & Heating System and Micro Refrigeration Cooling System for harsh conditions. Compcooler has established its resume as a manufacturer of Military, Electronic and Medical cooling equipment for use by the Army, Navy, Marine Corps as well as foreign militaries. The employees at Compcooler's state of the art manufacturing facility have been producing Cooling Systems over 15 years. Compcooler has established a well-managed supply chain for any needed outside services and is an ISO 9001 and AS9100 registered facility.

Products Categories

- Personal Ice Water Circulation System
- Microclimate Compressor Cooling System
- Personal Liquid Heating System
- Graphene Heating Garment
- Cold and Heat Therapy

Customize Cooling and Heating System, MOQ 50 sets
Micro Refrigeration Cooling System
Please contact : simonsun@compcooler.com

Compcooler, Keep your body cool in extreme hot conditions!

Portable Chiller Cooling System

Description

Compcooler Vehicle Microclimate Cooling System (VMCS) is made up of Vehicle Chiller Unit, Quick Release Aero absorber and Liquid Cooling Vest. VMCS is a vehicle-based cooling system operated by 20VDC to 32VDC vehicle power, miniature compressor refrigeration cooling system cool the circulation liquid to 15°C (59°F), pump circulated the chilled water to liquid cooling vest, once circulation liquid reaches to set point temperature, system intellectually control the cooling capacity to that temperature. Vehicle chiller unit delivers 350W cooling capacity for up to 3 persons cooling.

Key Features:

<p><u>Vehicle Power Operated System</u> Compact and rugged design with quick release Aero absorber base</p>	<p><u>Liquid Cooling Garment</u> Up to three persons body cooling, quick release fitting</p>
<p><u>Intelligent System Control</u> Pre-set temperature control by one touch operated,</p>	<p><u>Quick Cooling Performance</u> High cooling capacity with less power consumption.</p>
<p><u>Extreme hot Ambient</u> EEV refrigerant control for extreme hot ambient operation</p>	<p><u>MIL Specs</u> System designed as per MIL-STD810 and MIL-STD1275 specs</p>

Components list

Item	Description	Quantity
1	Vehicle Chiller Unit	1
2	Power Cord	1
3	Controller with 2 Meters(6 foot)	1
4	Camouflage Liquid Cooling Vest	3
5	Extension Hose 3 Meters (6foot) with 3 persons connection	1
6	Manual	1

Vehicle Microclimate Cooling System



Vehicle Chiller Unit Controller



Camouflage Liquid Cooling Vest



Controller with 3 Meters(6 foot)

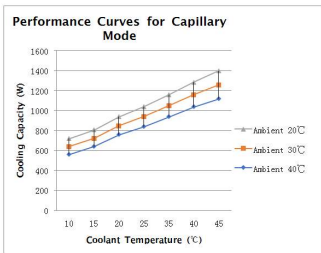


Power Cord

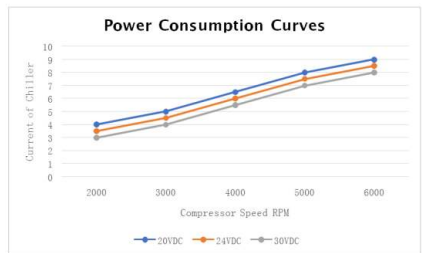
Vehicle Chiller Unit Specifications

- Compressor: DC 24V Miniature Rotary Compressor
- Voltage Range: 20-32VDC
- Operation Current: 3-8A (10A max)
- Cooling Capacity: 350W
- Refrigerant Control: Electric Expansion Valve
- Temperature control: 5°C to 30°C(41°Fto 86°F)
- Pump: 24V centrifugal pump, 5L/Min
- Fan: 2pcs 24V fans
- Unit Case: Aluminum machining
- Color: Desert Tan
- Quick fitting: CPC Medical Grey fitting 1/4"
- Noise: 55dBA
- Dimension: 36x20x26cm (14.2x 7.9x10.2")
- Weight: 6KG (13.2lbs)

2.3 Performance Curves



2.4 Power consumption curves



Refrigerant Control: Capillary Tube

Testing Standard: NMB-MAT 4715KL-05W-B50

Cooling capacity (watts x 3.41) = BTU/hour.

Performance specifications determined at ambient temperature of 20°C (68°F).

Chiller Control:

- System start: Full speed to start chiller operation
- Temperature setting: Slow speed when temperature close to setting
- Lower temperature: liquid temperature lower than 3 °C (6°F), compressor will stop
- Restart: liquid temperature 1 °C (2°F) higher than setting, compressor will restart.

Camouflage Liquid Cooling Vest Specifications

- Material: Military Camouflage Water Proof Fabric
- Interlayer: 3D Fabric
- Liner: soft mesh 85% Nylon, 15% Spandex
- Cooling Channel: four zones silicon tubing
- Adjustable device: Stretch strap with Velcro
- Quick release: Right shoulder
- Manifold fitting: 1 to 4, Aluminum
- Quick fitting: CPC Grey Medical Fitting 1/4"
- Weight: 800g
- Vest Size: XS/S, M/L, XL/2XL, 3XL/4XL

Garment Size

Item	XS / S	M / L	XL / XXL	3XL / 4XL
Chest	84cm/33.1"	100cm/39.4"	108cm/42.5"	123cm/49.6"
Length	64cm/25.2"	68cm/26.8"	70cm/27.6"	73cm/28.8"

Note: Garment size has 30% expansion stretch by fabric (10cm/4"Max) or adjustable device (15cm/6" Max)

Extension Hose for 1-3 persons connection Specifications

- Hose: 1/4" silicon tubing with insulation
- Manifold Fitting: Aluminum machining
- Quick Fitting: 1/4" CPC Grey Medical fitting
- Length: 3 meters (9 foot)

System Performance

- Vehicle Power Supply: 20-32V DC
- Cooling Capacity: 350W
- Temperature Control: 5°C to 30°C (41°F to 86°F)
- Operation Ambient: 0°C-60°C (32°F-140°F)
- Body Cooling: up to 3 persons

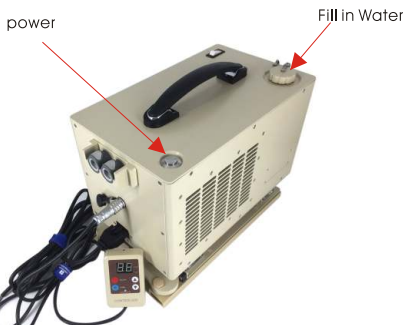
Operation Processes

Preparation

1. Connect vehicle power 20-32V DC, Rated Voltage is 24V DC, Please DO NOT connect power out of range, it may damage the system.
(TIPS: user may have a trial to run the system by 24V to 110-220V DC/AC power supply before assemble with vehicle.)



2. Fill in Water from Filler cap
(TIPS: Clean water is fine for circulation.)



3. Connect with vest, Plug-in power, start circulation, second time to fill in water. Turn on switch, start pump circulation, water flow from reservoir to cooling vest, you will need to fill in water again.

Operation

4. Put on cooling vest, adjust sides body fit device

(TIPS: Camouflage Cooling Vest has a quick velcro release device on the right shoulder. You may adjust the size to comfortable range, A little tight of Cooling Vest will provide better cooling performance, but not too tight, comfort is a key point.)

5. Connect the vest and Chiller Unit, set up temperature by controller, compressor will start to work.

Intelligent control system will operate micro refrigeration system, once temperature get to that point, system will slow compressor speed and control cooling capacity output, keep liquid temperature to that point.

6. Start Pump Circulation, press pump button from controller

Pump circulates the chilled water from reservoir to liquid cooling vest, enjoy the cooling now!

(TIPS: User may start or stop pump circulation at any time.)



Cleaning and Maintenance

1. Case cleaning: user may use wet clothing to clean chiller case directly.

2. Filter clean: User need to use clean circulation water to run the system, there is a filter inside of filler cap prevent something into reservoir. User may disassemble the filter and clean it every 3 months.

3. Vest clean: prefer to clean by hand wash then hang dry.
Machine washable with laundry bag,

NOTE: NO IRON, NO DRYER

Storage:

1. Empty the circulation water from chiller.
Disconnect the Ruhr fitting from extension tube, start pump circulation, circulation water will go out from outlet of chiller. User may lean the chiller to empty remaining water. Open the filler cap, dry over 12 hours, then pack for storage.
2. Empty liquid cooling vest
Connect quick fitting with Ruhr fitting on the end, make sure inlet and outlet of vest are open, use compressed air to empty the water from cooling channel.
3. Restart system: Restart System: after long term storage, please fill in clean water with less degerming liquid, run the system over 10 minutes, then empty the system and re-circulate with pure clean water.

Caution:

1. Please DO NOT turn ON/OFF to run or stop system frequently within a short period, it may damage the compressor system, and significant enhance power consumption, reduce cooling time.
2. Please make sure vest be connected well before start pump,
3. Please DO NOT block air inlet and outlet, it may cause compressor overheat or less cooling capacity.
4. Please use clean water for circulation, less antibiotic is fine, but no salt or corrosion liquid.
5. Please DO NOT use other power supply to run the system, compressor start has peak current 15A 20ms.
6. Please DO NOT run the system close to fire or under water.

FAQ (Frequently Asked Question)

Item	Description	Trouble Shoot
1	Chiller Unit not work	<p>Please check the power,</p> <ol style="list-style-type: none"> 1. Check the Power connection loose or not. 2. Check switch status ON/OFF 3. Check Front Panel ON/OFF
2	No Cooling or Insufficient Cooling	<ol style="list-style-type: none"> 1. Check Air flow blocked or not 2. Circulation water enough or not, easy check from filler cap. 3. Condenser works or not, easy check hot air by hand. 4. Compressor works or not, easy check by sound and vibration of chiller unit. 5. Check inlet of chiller be blocked or not 6. Check the controller temperature setting 7. Check connection between control board and compressor drive
3	No pumping	<ol style="list-style-type: none"> 1. Pumps works or not, easy check liquid flow wave from filler cap. (liquid flow back inlet be placed top side of reservoir, user can see the wave by eye.) 2. Check controller, pump ON or OFF 3. Check the tubing kinked or not

Item	Description	Trouble Shoot
4	Compressor drive guide	<p>Compressor not running: yellow Slow flash 1 per second</p> <p>Compressor running: yellow Fast flash 5 per second</p> <p>Compressor stall or lock rotor: 1 red flash repeating</p> <p>Voltage low: 4 red flashes repeating</p> <p>Board overheated: 8 red flashes repeating</p> <p>Compressor overheat: 16 flashes repeating</p>
5	Condensate water on Vest Channel	<p>Mesh liquid cooling vest was designed for under jacket application. Vest channel may occur some condensate water if cooling vest run at exposed conditions (high humidity and hot temperature). It is a condensation physical phenomenon, not a system defect or vest leaks.</p>

Customer Support:
If you have any questions, please feel free to contact:
info@compcooler.com

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Keep you body cool and comfortable in harsh conditions!



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