



- **Compact, lightweight design**
- **High efficiency vapor cycle chiller**
- **Water-glycol based cooling medium**
- **Mil qualified**

Application:

A microclimate cooling system is used to provide personal cooling and mitigate heat stress in individuals subjected to elevated temperature or wearing thermally restrictive clothing. The microclimate cooling system is liquid based (water-glycol mixture as cooling medium) and consists of a vehicle mounted cooling unit, under-garment cooling vest and interconnecting umbilical with integral control pod.

The cooling unit includes a chiller and pump to deliver chilled water through the umbilical and into the cooling vest. An umbilical mounted control pod allows the user to individually select the amount of cooling desired. Between the cooling vest and umbilical is a low pull force breakaway connector to facilitate "hands free" emergency egress.

The microclimate cooling system was designed and qualified as part of the US Army Air Warrior program for use by helicopter aircrew. The system has successfully completed field testing and is certified for use aboard the Kiowa Warrior (OH-58), Blackhawk (OH-60), Chinook (CH-47), and M9 Armored Combat Earthmover (ACE) bulldozer.

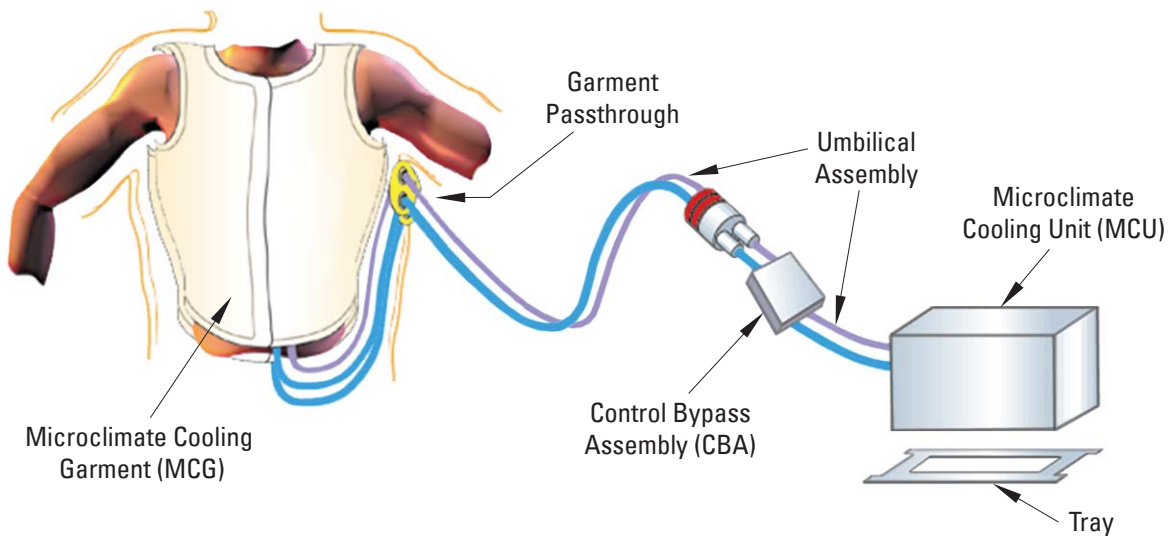
Features:

The microclimate cooling system includes a high efficiency, vapor cycle, chiller to deliver 325 watts of system cooling capacity in ambient temperatures as high as 125°F. Physiological tests performed by the US Army have demonstrated that this system significantly reduces fatigue among NBC equipped aircrew and allows mission durations to be safely extended by 35%.

The cooling system has been designed to accommodate permanent or temporary installation with aircraft interfaces limited to an MS-style power electrical connector and liquid quick disconnects to interface with the interconnecting umbilical. The system is powered from a 28 VDC supply with maximum steady state power draw of 280 watts. The system has been environmentally qualified to MIL-STD-810 and certified for aircraft use.

SPECIFICATIONS

Microclimate Cooling System



Specifications:

Cooling Medium	Water-Glycol Mix	
Cooling	325 watts at 125 deg F (52 deg C)	
Water Temperature	65 to 68 deg F	(18 to 20 deg C)
Water Flow Rate	10 to 12 gph	(38 to 45 lph)
Weight		
MCU	13 lbs	(4.9 kg)
MCG	~ 2.0 lbs	(0.91 kg)
CBA	~ 0.3 lb	(0.14 kg)
Tray	~ 1.7 lbs	(0.77 kg)
Umbilical Assy	~ 0.3 lb per ft	(0.45 kg per m)

Electrical Characteristics

Voltage	22 to 30 VDC
Power	12 ADC max @ 28 VDC
Specifications	MIL-STD-461, MIL-STD-704

Component Ref Numbers

MCU	NSN 8415-01-508-6626
MCG	NSN 8415-01-508-1512 (large)
CBA	NSN 1680-01-513-5918
Tray	LSF00254-001

Operating Environment:

Temperature	55 to 140 deg F	(13 to 60 deg C)
Humidity	95% max at 140 deg F	(60 deg C)
Altitude	0 to 20,000 ft	(0 to 6,100 m)
Shock	consult factory	
Vibration	consult factory	
Crash Safety	20 g each axis	

Non-Operating Environment:

Temperature	-65 to 160 deg F	(-54 to 71 deg C)
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Product Interfaces:

Power Cable Connector	Mil-Style D38999/24WD5PN
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