

MICROCLIMATE COOLING SUBSYSTEM (MCSS)



- Mitigates heat stress conditions
- Compact, lightweight design
- Utilizes ECS Air Platform
- Water-glycol based cooling medium

Application:

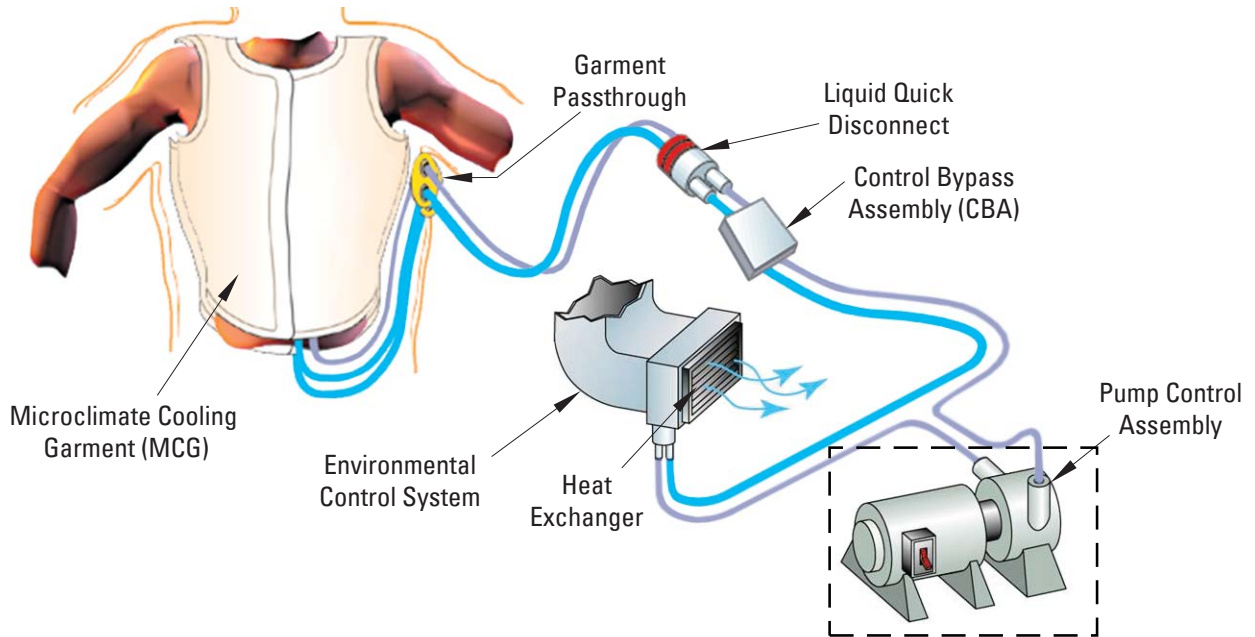
The Microclimate Cooling Subsystem (MCSS) is a variant of the flight qualified US Army Air Warrior Microclimate Cooling System (MCS). The MCSS consists of two heat exchangers connected to the PCA (Pump Control Assembly) integrated into the aircraft or ground vehicle's Environmental Control System ducts. Cold air flows through the fins of the heat exchangers chilling the pumped water-glycol fluid through the umbilical and into the Microclimate Cooling Garment. This personal cooling system further mitigates heat stress in individuals subjected to elevated temperature or wearing thermally restrictive clothing.

Features:

The MCSS uses a 28 VDC pump/controller assembly that circulates the water-glycol based cooling medium through a heat exchanger, providing approximately 230 watts of system cooling capacity in ambient temperatures as high as 105 deg F. The MCSS accommodates two users each having an umbilical mounted control potentiometer allowing the user to individually select the amount of cooling desired. Between the Microclimate Cooling Garment is a low pull force breakaway connector to facilitate "hands free" emergency egress.

SPECIFICATIONS

Microclimate Cooling Subsystem



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		
MCCS Heat Exchanger	~ 1.2 lbs	(0.5 kg)
MCG	~ 2.0 lbs	(0.91 kg)
CBA	~ 0.3 lb	(0.14 kg)
Pump/Controller	~ 6.1 lbs	(2.8 kg)
Umbilical Assy	~ 0.3 lb per ft	(0.45 kg per m)

Electrical Characteristics

Voltage	22 to 30 VDC
Power	2.5 amps @ 28 VDC
Specifications	MIL-STD-461, MIL-STD-704

Component Ref Numbers

MCCS Heat Exchanger	B44819-1
MCG	NSN 8415-01-508-1512 (large)
CBA	NSN 1680-01-513-5918
Pump/Controller	B44820-1
Umbilical Assy	consult factory

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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