

ADVANCED MICROCLIMATE COOLING SYSTEM (AMCCS)

Battle tank crew deployed in desert ops are subjected to extreme heat stress. The temperature inside the battle tank is reported to be 7-9 degrees higher than the prevailing ambient temperature due to reduced ventilation and radiation from metal. If the personnel have to operate wearing thermally restrictive clothing, the thermal stress will aggravate further. Mitigation of heat stress is essential to enhance mission endurance. Air conditioning of these vehicles leads to added weight and wastage of a lot of energy. Therefore, cooling personnel is the near perfect solution using microclimate cooling system which consists of an active cooling unit and a Liquid Cooled Garment. The AMCCS is comprised of a Liquid Cooled Garment (LCG) and an active Chiller. DEBEL has developed two active cooling systems based on the requirement of MBT cell of CVRDE. The developed systems utilize vapour compression technology (refrigeration technology) and are capable of working in an ambient of 55 Deg C.

The systems developed for MBT are backpack cooling system, capable of providing 200 Watts of cooling [intended for Driver and Loader as individual cooling systems and Twin crew cooling station (intended for Commander and the Gunner as single unit). The latter can provide 400 Watts of cooling and weighs under 6 kgs.



AMCCS with LCG and Chiller Unit



AMCCS chiller Units (backpack and twin crew configuration)