



CREW SUSTAINMENT FOR FUTURE COMBAT SYSTEM

WHAT IT IS:

The Thermoelectric Water Chiller Heater (TEWCH) provides a lightweight, compact device for heating water for dehydrated compressed rations/hot beverages and cooling water for cold beverages to maintain operational readiness for mounted Warfighters.

WHY IS IT NEEDED?

There is a need for a lightweight alternative to the Mounted Water Ration Heater (MWRH) to attain the weight requirements for current and future combat vehicles and allow the crew to quickly heat/cool water with minimum power consumption. Cooling the Warfighter has become a priority objective based on the climate of SWA and OIF/OEF feedback.



TECHNOLOGY:

Thermoelectric modules provide a lightweight, solid-state means of pumping heat from one surface to another. In combination with thermosyphon technology this provides for an efficient, low-maintenance heat transfer mechanism. By design, the use of bottles allows the device to operate with all military water systems.

KEY FEATURES / BENEFITS:

- **Performance:** Simultaneously heats water to 140°F and cools water to 60°F. At ambient temperature (76°F), heating and cooling occur within 20 mins.
- **Weight:** Current prototype is 8.5 lbs. A 50% reduction versus MWRH. A final weight of 6.5 lbs. is projected.
- **Power:** Operates at 24V. Uses 320W at full power draw, and 250W during nominal operation.
- **Maintenance:** No pumps/compressors. Two fans are the only moving parts.
- **Capacity:** Holds two 16 oz bottles.

12"



COMMENTS:

The TEWCH was successfully demonstrated in the Stryker Brigade and transitioned to Product Manager-Force Sustainment Systems for final engineering development.

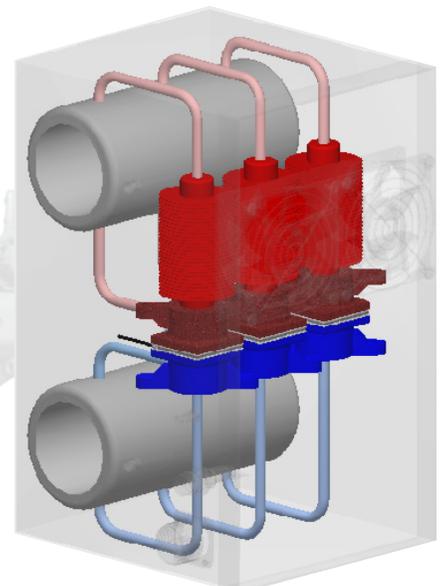
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