U.S. Marine Corps Rapid Deployment Kitchen (MRDK)

What It Is:

Two Meals a Day... The Rapid Deployment Kitchen was developed to prepare both perishable and shelf-stable rations — known as A, B, and Tray ration meals — for Marine Corps forces. This new, highly mobile kitchen (known as the MRDK) can be used to feed two meals daily to a minimum of 650 Marines. The kitchen uses a heating technology known as "**Thermal Fluid Heat Transfer**."

Why It's Needed:

Users of military kitchens need a clean, quiet and safe work environment. In the Rapid Deployment Kitchen, users are exposed to less heat and are isolated from the by-products of burner combustion. The kitchen also provides a necessary bridge between the heating system used for tray rations and a fully operational field mess.

How It Works:

A nontoxic "thermal fluid" — such as mineral oil — is continuously circulated by a pump through a central heater. The heater normally supplies hot oil at a controlled temperature of 450° F; this is adequate for heating water and all cooking appliances. Each appliance is connected in parallel across constant-pressure supply and return lines. The thermal fluid passes through a heat exchanger in the appliance and returns to the heater at a lower temperature. The appliance temperature is controlled by a thermostat acting in conjunction with a solenoid valve.

Some key features of the Rapid Deployment Kitchen:

- The shelter is an 8×8×20-foot ISO container that expands to 24 feet wide and 20 feet long.
- The burner is a residential oil burner that will burn No. 2 heating oil, any diesel fuel and JP8 fuel.
- The appliances include two convection ovens, a griddle, a skillet, one 20-gallon and two 30-gallon kettles, and a tankless water heater.

Benefits:

Efficiency... Thermal fluid heat transfer responds quickly with more heat (up to 350,000 BTU/hour vs. 15,000 BTU/hour) and is very fuel efficient (75% vs. 25%) compared to conventional burners.

Safety... The MRDK generates less noise than other kitchen systems (less than 70 dB vs. over 80 dB), uses no open flames and vents combustion products safely.

Maintenance... The kitchen is very reliable and easy to maintain.

Point of Contact:

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