

LIQUID COOLED RACK SYSTEM (LCRS)

Model 3321



Product description

The Liquid Cooled Rack System (LCRS), manufactured by Parker Meggitt Defense Systems, contains and controls the environment for a set of Circuit Card Assemblies (CCA) for use in military aircraft.

Current systems utilize several rack structures containing multiple individual Line Replaceable Units (LRU), cabled together to perform the necessary electronic functions.

The LCRS provides thermal management, structural support and EMI shielding for the CCA housing. The thermal management function is performed by a fluid distribution manifold assembly and the chassis assembly containing the CCA's, with fluid circulating in the chassis walls. The LCRS incorporates a thermal control valve to provide precise temperature control to the chassis containing the CCA's.

The LCRS has been designed to provide thermal management to CCA's with a maximum heat generation of 3400 watts while maintaining the chassis wall temperature of 20° C to 50° C during normal operations.

The LCRS chassis, with its modular design, can easily be adapted for use in airborne or ground military applications.

Key features and benefits

- Provides thermal management, structural support and EMI shielding for the CCA housing
- Thermal control valve provides precise temperature control to the chassis containing the CCA's.
- Modular design

Applications

- Airborne or ground military platforms



Parker Meggitt Defense Systems
9801 Muirlands Blvd.
Irvine, CA 92618
+1 (949) 465 7700
www.meggittdefense.com

LIQUID COOLED RACK SYSTEM (LCRS)

Model 3321

Specifications	
Electrical power	At fluid temperature of -16.7° C, 3 ϕ , 400 Hz, 115 vac power, 2700 watts Pump- 300 watts max, Heater- 2400 watts max, 28 vdc signal power
Heat removal	Heat exchanger type - Plate/ fin Heat load: 3500 Watts (Includes 300 watt pump load)
Air supply	70,000 ft: -22° C inlet temperature (0.65 psi), 2.2 in H2O static pressure. Heat exchanger inlet with full dump loss at 8 lbs/min flowrate
Sea level	25° C inlet temperature (14.7 psi) 2.6 in h2o static pressure. Heat exchanger inlet with full dump loss at 56 lbs/min flowrate
Fluid flow	4.0 gpm (min) PAO entering heat exchanger at 45° C (max)
CCA slot temperature	50° C average across card slot
Wet weight	90.3 lbs. maximum
Purge/fill parameters	Total system fluid volume : 176 cu. in. (0.76 Gal.) Fill pressure vs temperature at sea level TEMP (° C) PSIG 0 28.5 10 29.5 20 31.0 30 32.5 40 34.0 50 35.0 60 36.5
Thermal control	Fluid temperature is maintained between +20° C and +35° C via heat exchanger fluid bypass
Status sensors	Fluid temperature transducers: Resistance type High temperature switch: 48.3° C max on increasing temperature 37.8° C min on decreasing temperature. Low temperature switch: -16.7° C max on increasing temperature -27.2° C min on decreasing temperature
Fluid heater	2400 watts, 3 phase, 115V, 400Hz

