

POWER LOAD

LB500i

Introducing the 500kW Load Bank Solution LB500i



OVERVIEW

Powerload is proud to introduce a breakthrough in load bank technology — a single compact, high-performance unit designed to meet the rigorous demands of colocation data centres. Delivering consistent, reliable, and safe testing capacity, Powerload ensures that your infrastructure operates at peak performance with the highest levels of protection and operational control.

COMPACT POWER, BUILT FOR DATA CENTRES

The Powerload unit delivers a guaranteed heat output of 500kW while maintaining an impressively low operating weight of under 1000 kg. When drained, it is safely movable at less than 750 kg - ideal for raised floor systems within existing data centre infrastructure.

The compact design enables seamless integration within server rack cages and narrow access pathways, setting Powerload apart from bulkier competitors.

TECHNICAL SPECIFICATIONS

Parameter	Value
Load Bank Capacity (kW)	500kW
Step Load Increment (kW)	10 x 50kW steps, 1 x 20kW steps (Any combination up to 500kW)
Inlet / Outlet Temperature (°C)	Min Inlet 14 degrees C / Maximum Inlet 35 Degrees C. Maximum Outlet 50 Degrees C
Max Liquid Capacity (kW)	500kW
Hydronic Flow Rate (LPM)	Minimum Flow Rate 357 LPM, Maximum Flow Rate 900 LPM
Allowable Pressure Drop (Kpa)	100 kPa - Adjustable
Pipe Size (mm)	4 inch from load bank, From CX manifold either 1 or 2 inch
FD 83 Connection Size (mm)	1 or 2 Inch
Power Connection Type (Socket/Amps rating)	2 sets in parallel of Power lock 3P + E - 400A each = 800A total load
Dimensions of Load Bank (L x W x H)	L = 1500mm x W = 1055mm x H = 1930mm
Flow Meter Make / Model	IFM SU2030 Ultrasonic flow meter (CX Manifold)
Temperature Sensor Make / Model	IFM
Control Interface (Modbus/BACnet)	RJ45 Ethernet over IP web browser Network connection to each 500kW load bank, simultaneous operation.
Master-Slave Control Logic	Master Only in each 500kW load bank
Delta T Range	10 -30 Degrees C
Filling Capacity	200L

ENGINEERED SAFETY PROTECTION

1. Sub-750 kg mobile weight ensures safe handling without exceeding floor load limits.
2. Unit-mounted electrical isolation switch with lock-off functionality.
3. Premium Powerlock electrical connectors rated up to 1000A.
4. Integrated locking wheel system for stable positioning.
5. Dual-channel CE-approved emergency stop buttons directly on the unit.
6. Protective steel cover doors for HMI and electrical connections.
7. End-frame protection for fluid connections to prevent accidental damage.
8. Pressure monitoring with dual fail-safes: **i)** Control transducers **ii)** Mechanical cut-out
9. Thermal safety cut-out with mechanical reset.
10. High Pressure, High temperature, Water Leak and Low flow rate protection pressure.
11. Independent electrical circuit breaker protection for each resistor bank.
12. Real-time fluid flow monitoring and safety shutdown.
13. Current monitoring and diagnostics built in.
14. Electrical panel temperature regulation and active air cooling for diverse environments.
15. Pressure relief valve with blow-off chamber to safely capture fluids in emergencies.
16. Optional split-load electrical connections are available to accommodate multiple data centre tap-offs, eliminating the need to source a single 800A supply.

17. Mains Power Isolator with Off position lockable handle.
18. Short circuit power protection and contactor for each resistor.
19. CE and UL Certified.
20. Up to 5.0bar working pressure, 6.0bar pressure relief, 10.0bar test pressure temperature.
21. Up to 30c delta T control.

OPERATIONAL VERSATILITY

The LB500i is compatible with a wide range of liquid cooling networks, including:

- General HVAC chilled water systems
- Softened or deionized water SFN networks
- PG25 direct-to-chip SFN systems — made safe and clean through a fully stainless-steel fluid path.

Its stainless-steel heat exchanger with 4" DN100 PN16 flow / return connections and integrated temperature control system ensures PG25 fluids stay below 45°C, preserving fluid integrity and avoiding common thermal degradation seen in competitor systems.

INTELLIGENT CONTROLS & CONNECTIVITY

Designed with user flexibility in mind, Powerload features a colour touchscreen 10.1" HMI with user-specific access levels and secure login. Larger display options are also available.

- Guaranteed 500kW output even under lower-end power supply tolerance.
- Multi-unit networking for large-scale, synchronised load testing.
- Sim card for remote diagnostics and support where no wireless or web access is available.
- Engineered for modern data centres.
- Web control connectivity for remote diagnostics & support from the PowerLoad technical team.

OPTIONAL EXTRAS

PowerLoad are known for customising products for their clients' specific needs, where we understand a lot of these will be on request and as project lessons learnt the current additional extras are:

- Upgrade Marechal single 400mm power connection points with disconnection interlock.
- Split-load electrical connections to accommodate multiple data centre tap-offs, eliminating the need to source a single 800A supply.
- Advanced Fluid distribution connection points – Bespoke manifold.
- Multi point commissioning trolley to allow simulation of flow and pressure drop of AI ready server racks.
- Lifting eyes for simplified overhead lifting and positioning.
- Bespoke prestart up inspections and maintenance agreements.
- Solid-State Switching.