

AI LIQUID-COOLING COMMISSIONING

LB500

500kW liquid cooled load bank

A compact 500 kW liquid cooled load bank for data centre commissioning, testing and validation. It provides a controlled heat load during commissioning while integrating safely into existing liquid cooling infrastructure, so project teams can apply load, monitor the cooling network and verify performance before live IT equipment is installed.

500kW
Guaranteed heat output, even at lower-end supply tolerance

<750kg
Drained weight, safe for raised floors

10 × 50kW
Load steps, any combination up to full load

30°C
Delta T control

KEY FEATURES

- Guaranteed heat output of 500 kW for commissioning and testing
- Operating weight under 1000 kg, drained mobile weight under 750 kg
- Integrated flow, pressure and temperature measurement
- Master only in each 500kW load bank
- Compact enough for server rack cages and narrow access pathways
- Hydronic flow rate from 100 LPM to 900 LPM
- RJ45 Ethernet over IP, simultaneous operation across networked units
- Colour touchscreen 10.1 in HMI with secure login

ENGINEERED SAFETY AND HANDLING

- Sub-750 kg mobile weight, within raised floor load limits
- Integrated locking wheel system for stable positioning
- End-frame protection for fluid connections to prevent accidental damage
- Premium Powerlock electrical connectors rated up to 1000A
- Protective steel cover doors for HMI and electrical connections
- Electrical panel temperature regulation and active air cooling

APPLICATIONS

Initial commissioning
Simulate progressive load increases to verify cooling system performance and stability under controlled conditions.

Thermal testing
Run comprehensive heat load tests to find cooling system weaknesses before production deployment.

Performance validation
Verify cooling capacity meets design specification across load profiles and environmental conditions.

Ongoing certification
Maintain compliance with periodic testing and documentation of cooling system performance.

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TECHNICAL SPECIFICATION

Load bank capacity	500 kW
Step load increment	10 × 50 kW steps, 1 × 20 kW step, any combination up to 500 kW
Inlet / outlet temperature	Min inlet 14 °C, max inlet 35 °C, max outlet 50 °C
Max liquid capacity	500 kW
Hydronic flow rate	Minimum 100 LPM, maximum 900 LPM
Allowable pressure drop	100 kPa, adjustable
Pipe size	100 mm / 4 in from load bank; from CX manifold 25 mm / 1 in or 50 mm / 2 in
FD83 connection size	25 mm / 1 in or 50 mm / 2 in (optional CX manifold)
Power connection	2 sets in parallel of Powerlock 3P+E, 400A each, 800A total load
Dimensions (L × W × H)	L 1720 mm (including frame) × W 1055 mm × H 1930 mm
Weight dry / full of PG25	750 kg / 975 kg
Delta T range	8 to 30 °C
Filling capacity	200 L
Master / slave control	Master only in each 500kW load bank
Flow meter	IFM / SA5000
Temperature sensor	IFM / TM5411
Pressure sensor	IFM / PT5404
Control interface	RJ45 Ethernet over IP, web browser, network connection to each load bank, simultaneous operation

PROTECTIONS

- Unit-mounted electrical isolation switch with lock-off functionality
- Dual-channel emergency stop buttons directly on the unit
- Pressure monitoring with dual fail-safes: control transducers and mechanical cut-out
- Thermal safety cut-out with mechanical reset
- High pressure, high temperature, water leak and low flow rate protection
- Independent electrical circuit breaker protection for each resistor bank
- Real-time fluid flow monitoring and safety shutdown

FLUID COMPATIBILITY

- General HVAC chilled water systems
- PG25 direct-to-chip SFN systems, through a fully stainless steel fluid path
- Softened or deionised water SFN networks
- Temperature control keeps PG25 below 45°C to preserve fluid integrity

OPTIONAL EXTRAS

- Marechal single 400 mm power connection points with disconnection interlock
- Split-load electrical connections for multiple data centre tap-offs, removing the need for a single 800A supply
- Advanced fluid distribution connection points, bespoke manifold
- Multi point commissioning trolley to simulate the flow and pressure drop of AI-ready server racks
- Lifting eyes for simplified overhead lifting and positioning
- Bespoke pre-startup inspections and maintenance agreements

CERTIFICATIONS

CE UL

HYDRAULIC ARRANGEMENT

The LB500 is compatible with general HVAC chilled water systems, softened or deionised water SFN networks and PG25 direct-to-chip SFN systems. Its stainless steel heat exchanger with 100 mm / 4 in DN100 PN16 flow and return connections and integrated temperature control keeps PG25 below 45°C, preserving fluid integrity and avoiding the thermal degradation seen in competitor systems.