

Water
Cooled

LBW-Series
5KW-600KW

REQUEST QUOTE

LBW-Series Load Bank

The **LBW-Series** Load Banks are completely self-contained, freestanding units which include all resistive load elements, load control devices, load element branch circuit fuse protection, main load bus and terminals, water cooled system, control power supply, unit controller and malfunction detection system.

Simplex **LBW-Series** Load Banks are suitable for use with fresh or saline cooling water or cooling tower water. Freshwater sources include utility water or lake/river/stream water. Saline/sea water cooled units are supplied with Monel and bronze construction.

Simplex **LBW-Series** Load Banks are available for 180PSI test pressure for utility water systems and most pump fed systems or designed for high pressure systems typical of cooling tower supplies. The corrosive impact of cooling tower water additives must be considered. High capacity pump sets are available as an option.

Simplex **LBW-Series** Load Banks provide the advantage of compact size and low temperature operation making them ideal for indoor installation well within the interior of a building or ship. Unlike an air cooled Load Bank which must exhaust a very high volume of hot air to the outdoors and, as a result, is limited when installed indoors, a water cooled Load Bank only needs two pipes (water in and water out) and produces no significant heat radiation to the interior space. In many cases, this will allow installation of the Load Bank nearer to the power source or in otherwise unused space. Anti-condensation systems which monitor and control the humidity level in the load cell compartment are also available.

Principle Systems and Components

Load Elements

Water immersion type, NiCr conductor, incolloy clad, screw plug mounting (individually replaceable)
Monel or stainless steel cladding available



Capacity

5KW-600KW;
Resistive, 1.0 power factor

Voltage

to 600V AC, 1-phase or 3-phase
to 350V DC

60 Hertz:

120V, 240V; 1-phase
208V, 220V, 240V, 440V, 450V, 460V,
480V, 575V, 600V; 3-phase

50 Hertz:

100V, 110V, 220V; 1-phase
190V, 200V, 208V, 220V, 380V, 400V,
420V; 3-phase

400 Hertz:

120V, 200V, 208V, 416V; 3-phase

DC:

48V, 60V, 90V, 125V, 180V, 250V,
350V

Frequency

50, 60, 400 Hertz; DC

Load Steps

25KW, 50KW, 100KW standard.
1-5-10KW resolution available.

Duty Cycle

Continuous

Load Control

Branch circuit magnetic contactors, each load step circuit

Short Circuit Protection

Branch circuit fuses, each load step circuit. Fuses are 200KAIC, current limiting type

Power Wiring

150°C silicone insulated, color coded

Control Wiring

105°C insulated, numbered and/or color coded

Power Connection

Power distribution block with line side pressure terminals

Malfunction Detection System

Sensors, lockout circuits and alarms for: high water temperature, low water level/loss of flow, high pressure

**Water Flow Control**

Inlet supply solenoid valve; manual isolation ball valves on inlet and outlet
Drain ball valve

Coolant

City water, closed-loop heat exchanger, natural water (river, lake, etc.), brine, or sea water

Minimum Coolant Flow

10GPM per load cell (100KW)

Water Connection

1", 2" or 4", as required by flow

Control Panel

Local or remote, includes:

1. Control power on-off pushbuttons
2. Load step switches, and total load master control switch
3. Neon indicators: Normal Operation, Control Power Available, and alarm indicators - High Temp, Loss of Low/Low Level, Over Pressure

**Specifications****Cooling Requirements**

The standard design is for use with an external pressure source. Pump sets are available either for installation within the Load Bank for a suction feed or for freestanding remote installation.

Supply water to limit outlet temperature to less than 180°F.

$$\begin{aligned} KW &= GPM \times \text{Temp. Rise (F)} \times .16 \\ GPM &= KW / (\text{Temp. Rise} \times .16) \\ \text{Temp. Rise (F)} &= KW / (GPM \times .16) \end{aligned}$$

Standard unit accepts water to 180PSI. Optional designs accept higher pressures.

Pressure drop across Load Bank approximately 5PSI.

Standard units accept fresh water.

Optional designs accept sea water. Consult Simplex for acceptability of water additives.

Particulates must be less than 150 microns or a filter is required.

Control Power

Internal or external source
All control circuits operate at 120V, 1-phase, 60 Hz
Isolation transformer supplied when line voltage greater than 120V, 120/240V or 120/208V

Local Ambient Temperature

120°F max.

Load Cell Test Pressure

180PSI standard

Higher pressures available

Options

Automatic load leveling and load regulation to maintain total generator load within a preset band width. Solid state controller senses generator load and automatically adds/subtracts Load Bank steps in order to maintain total generator load at a desired level. Controller senses either amperes or kilowatts. Adjustable level and delay.

Anti-condensation system

Monel and bronze construction for saltwater cooling

Very high pressure operation, greater than 180PSI

Instrumentation, 3.5" panel meters; 4.5" switchboard meters; digital meters

Main input disconnect/circuit breaker

LBW-Series Dimensions and Key Features Drawing, click [here](#).

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