

dynaMITE*400

Portable Load Bank

Description

The Simplex **dynaMITE*400** is a high capacity, low profile, compact-design Portable Load Bank especially well suited for field use where it is easily transported by a service truck.

The Simplex **dynaMITE*400** is a large capacity, high performance Portable Load Bank designed to provide the manufacturers, distributors and users of large AC generators and UPS systems with sophisticated testing capability.

The **dynaMITE*400** provides 410KW of resistive load at both 240V and 480V, 3-phase. It can be applied at any AC voltage to 480V AC, 50-60-400 Hertz, single or 3-phase. Load step resolution is 5KW.

The **dynaMITE*400** is a totally self-contained testing system. It includes all resistive load elements, load control devices, load element circuit protective devices, connection cable set, cooling system, malfunction detection system, control power supply and test instrumentation.

Principal Sub-Systems

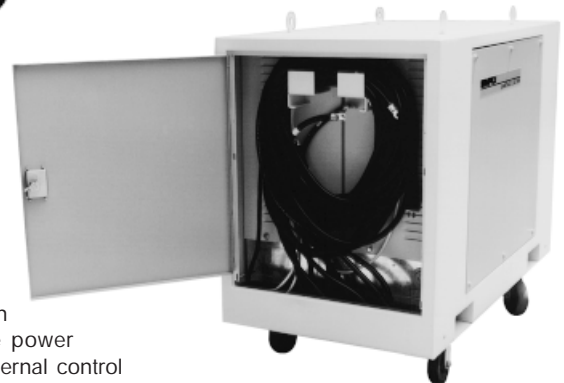
Load Elements: Simplex "Powr-Web" chromium alloy, open wire, continuously supported, power resistor. See page 2 for details.

Load Control: 3-Pole magnetic contactors.

Load Element Circuit Protection: Branch circuit fuses. One set of fuses each 50KW branch. Fuses are current limiting type, 200,000 AIC, 600V, enabling safe use of the Load Bank with large generating systems.

Cooling System: 3-phase, direct-drive fan, 8,400 CFM or 10,400 CFM. Cast aluminum air foil type, shrouded propeller fan.

Malfunction Detection System: Protection against fan failure, high exhaust air temperature, high intake air temperature, over-voltage and fan reversal.



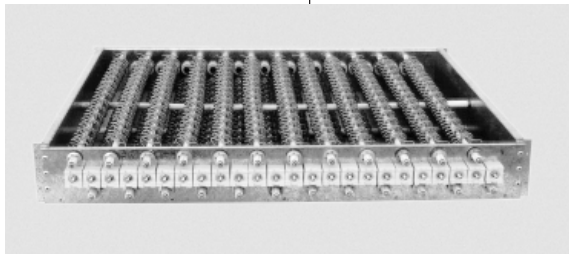
Control Power Supply: Dual voltage control power transformer with supply power switchable to internal (generator) or external.

Test Instrumentation: 3½", ±2% accuracy panel meters.

Connection: 12' connection cable set including 3-phase power cables, ground cable and external control power cord, stowed behind hinged door in rear compartment.

SIMPLX®

Powr-Web Resistive Load Element

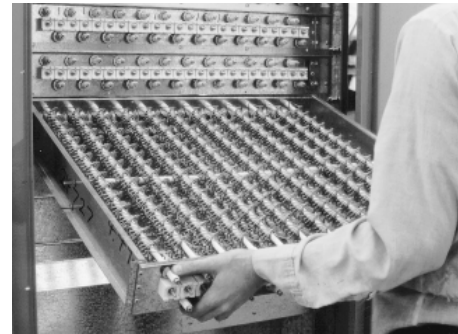


Description

Simplex Load Banks utilize "Powr-Web" load elements. The "Powr-Web" is an advanced design, air-cooled power resistor specifically designed for application to load bank systems. The "Powr-Web" is conservatively operated at half the maximum temperature rating of the alloy and features a short-circuit-safe design based on continuous mechanical support of the element by high temperature, ceramic clad stainless steel rods. The "Power Webs" are assembled into discrete trays which are assembled in a vertical "stack." Each tray in the "stack" is independently serviceable without disturbing adjacent trays.

Specifications

- Alloy: FeCrAl
- Maximum continuous temperature rating: 1920°F



- Maximum operating temperature as applied in load bank: 1080° F
- Cool down time from operating to ambient temperature is 10 seconds.

Construction

- Precision calibrated to specific ohmic value
- Welded lugs each end
- All load elements are continuously supported by vibration resistant, ceramic clad, stainless steel through-rods.

Branch Circuit Fuse Protection



The load of a resistive load bank consists of a dense array of open, uninsulated power resistors mounted within a cooling air stream. Since the elements are electrically live, it is possible for a foreign object to penetrate the element array and create a short circuit of adjacent elements or a short to ground. Since the elements are densely packed, it is possible for a short circuit, once started, to rapidly propagate through the entire element array. As a load bank represents a relatively large amount of power concentrated within a relatively small volume, a self-propagating, cascading short circuit would have catastrophic results.

Simplex virtually eliminates the dangers of short circuit through the use of branch circuit fuse protection of the load elements. Per NEC 110-10, protective devices shall clear a fault without "extensive damage" to the circuit components. A Simplex Load Bank is divided into branch circuits of not more than 50 KW each.

Each branch circuit is then individually fused. In a load bank, a developing short circuit can be current limited, initially, by the unaffected portion of the shorted load element. Closely scheduled branch circuit fuse protection as applied by Simplex can sense a low level developing fault, clear the fault and isolate the failed elements before propagation occurs. Since the load of a load bank is fixed in value and is either full-on or full-off, any excursion from rated current represents a fault. For this reason, Simplex Load Banks utilize closely scheduled, very fast acting, single-element fuses. In order to permit the application of a load bank to high capacity systems having a high available short circuit current, Simplex utilizes current limiting fuses which have the maximum U.L. interrupting rating of 200,000 amperes. This rating affords compliance with NEC sections 110-9 and 240-VI in today's large capacity systems and meets the requirements of future system expansion.

The dynaMITE*400 includes an integral operator's control panel which consists of the following:

1. AC instrumentation, 3½", ± 2% accuracy panel meters:
 - AC voltmeter with 3-phase transfer switch
 - AC ammeter with 3-phase transfer switch
 - Frequency meter
2. Load step control toggle switches
3. Master load control toggle switch

4. Control power switch
 5. Control power voltage selector switch
 6. Operational indicator lights:
 - Normal operation
 - Overvoltage
 - Fan failure/overtemperature
- ▣ Optional instrumentation and controls available - see option list on page 4

Control Panel

- Low profile, compact design
- High capacity, dual voltage
- Fine load step resolution
- Toggle switch load control
- Comprehensive branch circuit fuse protection of load elements
- "Powr-Web" load elements
- Totally self-contained
- Fan/control power-source is operator selectable:
Internal power: Fan and control circuits powered internally, does not require external power
External power: Fan and control circuits powered from external 3-phase outlet or other external source

- Integral high capacity cooling fan
- 3-phase connection cable set stowed in cable compartment
- Compact, rugged, portable enclosure
- Double wall construction for cool exterior
- Control compartments thermally insulated from load elements
- Hinge-open control panel doors
- Comprehensive automatic malfunction detection system with alarm lights
- Test instrumentation
- Optional remote control

Features

Capacity Detail

Volt. (AC)	480V,3ø	416V,3ø	380V,3ø	240V,3ø	208V,3ø	240V,1ø
KW(1.0pf)	410	308	257	410	308	273

Load Step Detail

KW Each Step (1.0 p.f.)						
Qty.	480V,3ø	416V,3ø	380V,3ø	240V,3ø	208V,3ø	240V,1ø
1	5	3.75	3.1	5	3.75	3.3
1	10	7.5	6.3	10	7.5	6.7
1	20	15	12.6	20	15	13.3
1	25	18.75	16	25	18.75	16.7
1	50	37.5	31	50	37.5	33.3
3	100	75	63	100	75	66.7

Voltage:

- Dual Voltage: 240/480V AC, 3-phase.
Operational at any voltage to 480V AC maximum, single or 3-phase

Frequency:

- 50, 60, 400 Hertz

Connection:

- 3-wire plus ground

Control/Fan Power:

- 230/460V, 3-phase, 60 Hertz
- 190/380V, 3-phase, 50 Hertz
- Switchable internal (generator)- external
- 230/460-115V control power transformer internal to Load Bank.
- 15' external power cord

Ambient Air Temp.: 120°F max

Air Temp. Rise: 290°F max

Airflow: 8,400 CFM or 10,400CFM

Time Rating: Continuous

Fault Rating: 200,000 AIC

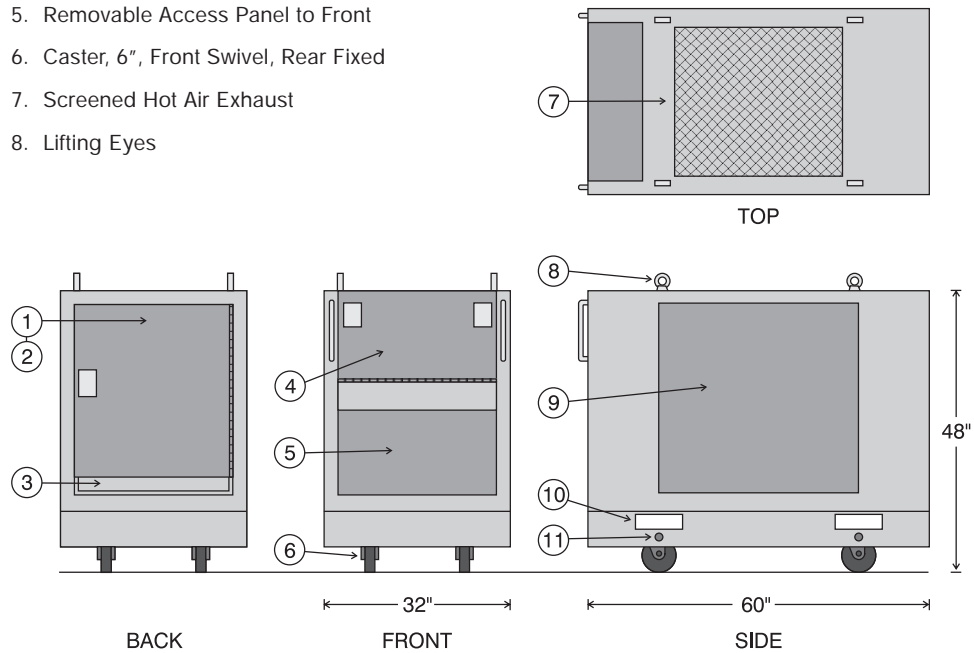
Insulation Rating: 600V, 302°F

Dimensions: 32"W x 48"H x 60"D

General Specifications

Dimensions and Key Features

1. Cable Compartment behind Hinged Door
2. Behind Cable Compartment: Removable Access Panel to Rear Distribution Bus, Fuses, Contactors
3. Cable Exit-Allows Rear Door to Close
4. Instrumentation & Controls behind Doors
5. Removable Access Panel to Front
6. Caster, 6", Front Swivel, Rear Fixed
7. Screened Hot Air Exhaust
8. Lifting Eyes
9. Removable Access Panel, Both Sides, to "Powr-Web" Load Element Trays
10. Fork Lift Channels
11. Alternate Location of Bolt Locations Used for Tie-Down Points



Options

Instrumentation:

- Kilowatt Meter, 3½", 2%, to meter standard instruments
- Consolidated Digital Metering Package
- Discrete Digital Panel Meters
- Data Acquisition System – Digital Power Meter, computer cables and software for use with buyer supplied computer

Four 1KW Load Steps

Remote Control Cables

Auxiliary Load Bank to increase capacity – Auxiliary Inductive Load Bank; 300 KVAR, 3.75 KVAR load step resolution, dual voltage

Weather-Resistant Cover

Weather-Resistant Enclosure. Includes hinge-open protective door with safety interlock over air-exhaust outlet

Highway Trailer and optional cable storage reels, cable connection panels