

# ASCO® Froment 8300 Load Bank

As well as the 8300 described here, an extensive range of resistive, inductive, capacitive or combined load banks are also available. This combined load bank (resistive/inductive), will allow non-unity load testing, which is usually specified at 0.8pf. Sigma load control also allows fully variable power factor loading.



## Construction

The load bank equipment is housed within a 10ft ISO style container.

Container structure is made from carbon steel, the roof from 4.5mm and the floor from inverted 6mm MS chequer plate.

To minimise condensation the roof is internally lined with 50mm, 45kg/m<sup>3</sup>, mineral wool, held in place with 22SWG pre galvanised perforated sheet.

Fitted with standard ISO lifting points and supplied with the CSC certification for top-loading shipping. Optional Padeye type lifting points can be provided (without certification) in the roof.

The resistive load is located in the top and the inductive in the bottom.

Formed from 2mm Galvatite steel the double skinned, vertical discharge duct with aluminised steel heat shield contains the resistive load elements and cooling fans below equipped with hot-dipped galvanised air inlets to provide protection to IP1X.

Roof mounted stainless steel mesh screens for hot air discharge provide protection against hazardous parts to IP1X.

Side and end louvers with steel mesh grills allow air inlet and protection to IP1X.

The side personnel door allows entry to the

walk-in control room where full access can be gained to the control and switchgear cabinets and if specified the power circuit breakers.

Internal cabinets are manufactured from 2mm 'Zintec' steel.

The power termination enclosure forms a convenient table-top for PC software operation.

All electrical enclosures are to IP54.

Full height end double doors and small access doors on the sides provide easy access for routine maintenance.

## Finish

All surfaces are degreased and shot blasted to S.A. 2.5 for excellent paint adhesion.

All surfaces excluding the floor are applied with a primer to 75 microns D.F.T. and top coat two-pack epoxy/acrylic 40 microns D.F.T.

Standard top coat colour is grey (RAL7042). Other colours are available on request.

The floor is painted internally with Red Oxide 50 microns D.F.T. and the exterior underside with Mercasol 3ART4 100 microns D.F.T.

## Internal Control Room Cabinets

High quality two-pack industrial acrylic paint system applied to an electro-plated zinc base and low-bake finish.

Standard colour is white (RAL9001). Other colours are available on request.

## Airflow and Noise Level

Forced-air cooling is by axial metal-bladed aerofoil fans, giving vertical discharge. Two fans are fitted to the 8300 load bank.

Typical noise level for the 8300 is 85dBA at 50Hz. Measurements are taken 3 metres from the load bank and at 90° to the airflow direction.

Noise readings are subject to a tolerance of ±3dBA.

## Ambient Temperature and Humidity

Standard load banks are rated at 35°C, when protected from solar radiation. Load banks rated at 50°C are also available.

Ambient humidity may be up to 90% RH, non-condensing.

For more information on the 8300 or any other 8000 series load bank please contact a member of our sales team at sales@froment.co.uk or +44 (0) 1780 480033.

### Power Terminals, Entry Cable and Earthing

Power terminals are located behind a dedicated door. A neutral terminal is fitted for instrumentation purposes only. The Protective Earth (PE) point is also located in this area.

M12 earth bonding points are located externally adjacent to all four corners.

Static load banks are fitted with a blank non-ferrous gland plate(s).

Moveable load banks are fitted with a pre-punched, non-metallic gland plate(s) with a flexible PVC cable sock, to enable safe temporary power connections to be easily made in a controlled test environment. A blank non-ferrous gland plate is also supplied to enable a fully compliant installation to IP54 if necessary.

The side opening to access the gland plate is 450 x 280mm.

There is one gland plate side access point. The size of these openings is 450 x 280mm.

There is additional plate under the floor of the terminal area measuring 610 x 213mm.

### Three Phase Auxiliary Supply

The fan and control circuit may be powered from an external auxiliary supply or from the supply on test, provided it is of the correct voltage and frequency. Lower voltages and other frequencies must be tested using the external supply.

On static load banks, connection is by internal terminals.

On movable load banks, a IEC 60309-2 plug and socket with a three-position switch enables quick and easy connection.

### Single Phase Auxiliary Supply

This provides power for the anti-condensation, internal lighting and single phase sockets detailed below.

On static load banks, connection is by internal terminals.

On movable load banks, an IEC 60309-2 plug and socket with a three-position switch enables quick and easy connection.

International load banks require a 220-240V 1ph 50Hz supply. Load banks to North America require 120V 1ph 60Hz supply.

### Anti-condensation Heaters

Anti-condensation heaters are fitted within the control and switch gear cabinets and controlled by thermostats.

An additional heater is located in the control cabinet and powered from the isolated 110-120V control circuit supply.

### Internal Lighting

Bulkhead fittings are provided to give illumination inside the containers. Lights are



sited in the control room, behind service access doors and the main power connection area.

As this equipment is often utilised for hire and often night-time working the supplied lighting makes the working environment user friendly.

Power for the lighting is supplied from either the single-phase auxiliary supply or from the fan and control circuit supply. A three-position switch enables quick and easy selection on moveable load banks and an on/off switch is fitted to static.

### Internal Single-phase Socket Outlets

The control room is equipped with single-phase socket outlets. These may be used to power a PC to operate the load bank.

International load banks are fitted with two sockets. One is a 13 amp square pin, the other a European round pin socket. One 5 amp RCD protection device backs both units.

Load banks to North American specification are supplied with one US type 2 flat blade and earth socket backed by a RCD protection device.

### Resistive Element Specification

Froment load banks use replaceable, non-finned sheathed elements. The outer sheath is made from stainless steel to give good corrosion resistance. The heating element is an 80/20 nickel-chrome wire embedded in compacted magnesium oxide powder, giving good thermal and insulation properties.

The elements are very conservatively rated and there is no need for cooling fins to dissipate the heat into the airflow. This ensures that foreign matter or a loosely fitting fin cannot possibly cause hot spots and therefore ensures high reliability.

The elements are designed to operate continuously at up to 800°C (red/orange). The actual temperature is below 500°C (dull red). This gives a wide margin of safety and very long life.

Load tolerance is within 2½ % of total capacity.

### Inductor Specification

Three phase inductors are used that will also allow single-phase operation.

Fuse failure of one phase only leaving the inductor energized by two phases will not cause any damage to the load inductor.

All inductors are iron cored and vacuum impregnated with insulating varnish. Each inductor is fitted with a thermal trip device to protect against overheating.

Froment inductive load banks will operate continuously without ill effects, when absorbing power with the voltage harmonics generated by typical AC generators complying with current standards.

Load tolerance is within 3% of total capacity.

### Voltage Rating

Resistive elements and inductors are continuously rated at the specific voltage and frequency stated on our quotation document.

Short-term tests with fluctuations up to 10% above rated voltage are permissible.

Tests at lower voltages, with a corresponding reduction in overall rating, may be carried out. Power is proportional to voltage squared.

Inductors rated at 50Hz can also be used on 60Hz, but not vice versa. Resistive elements are suitable for both 50 and 60Hz operation.

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## Protection

An emergency stop/disconnect switch gives full isolation of the fan and control supply.

A 110 Volt AC control circuit transformer provides isolation and operator safety.

Stop/start buttons ensure the load bank will not automatically restart. On static load banks provision is also made for the connection of remote stop/start buttons.

The fan motor is fully protected with fuses and a thermal overload. Movable load banks are also fitted with phase rotation detection to automatically ensure correct airflow direction. Single phasing protection is provided by the overload.

Thermal detectors are fitted to protect against overheating in the resistive ducts, inductors and switchgear compartments.

Over voltage protection for the control and load circuit is provided by Sigma load control.

Each element group and its associated contactor are protected by an HRC fuse. This is very important when testing large capacity power supplies, due to the possible high fault currents.

The load contactors are interlocked with the fan controls to ensure load can be applied only when the fan is running.

Internal access is restricted by key operated door catches. Polycarbonate screens behind the doors prevent accidental contact with live parts.

## Options

### Power Isolation

Power air circuit breakers complying to IEC standard allow the load bank to be fully isolated from the supply on test.

The circuit breakers provide short circuit, overload and earth fault protection.

A shunt trip facility is also fitted to allow tripping from a remote location.

Dual UL/IEC standard circuit breakers are also available.

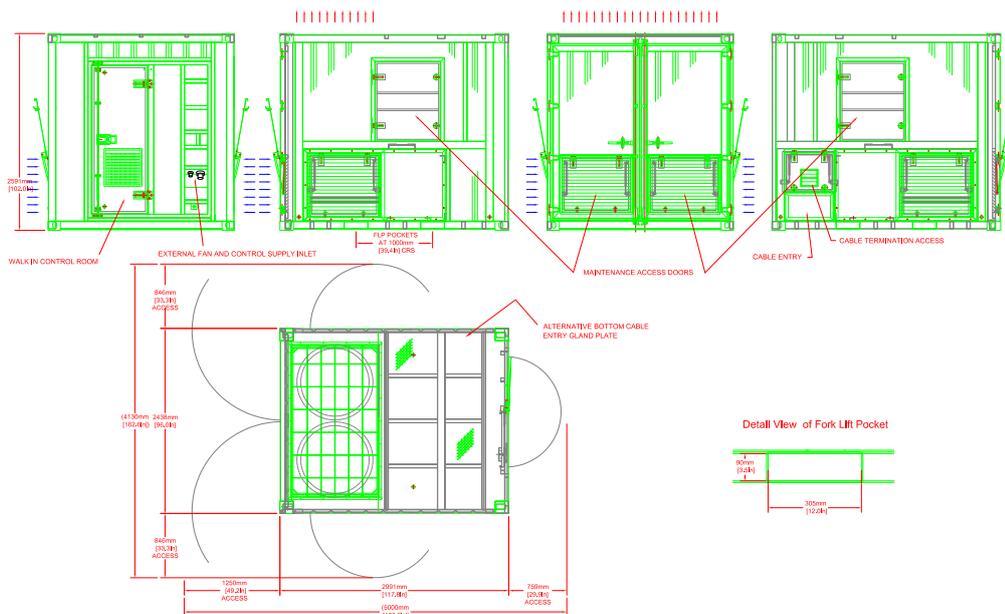
### Air Inlet Louvre Covers

Metal hinged covers may be fitted over the louvers on the sides and ends of the container to prevent rain and road dirt from entering in harmful quantities during long-distance transportation.

Top hinged when closed they are secured shut by key operated latches. For load bank operation all covers must be opened and are held in position by gas struts.

A drop down cover is fitted over the walk-in control room air vent.

The overall dimensions of the standard ISO container are maintained.



## Load Control

The resistive elements and inductors are connected to the supply on test by electromechanical contactors fitted internally within the load bank.

These are controlled by the Sigma load control system.

Sigma allows quick and easy operation without having to resort to lengthy calculations to determine the proportion of resistors and inductors to be connected for a given kVA @ any power factor – for the various voltages and frequencies applied.

For comprehensive information on Sigma control please see separate data sheet and system layout diagram for further details.

## Testing, Standards and Warranty

Functional operation and load tests are completed on all load banks before despatch in line with our ISO 9001:2008 procedures.

Froment load banks comply with international standards and are CE marked to confirm compliance with both the EMC and Low Voltage Directives.

The equipment is covered by a 12-month warranty as detailed in our Conditions of Trade.

## Documentation - Operator Handbook

A comprehensive illustrated operator's manual is supplied. Sections cover safety, installation, commissioning, operation, calibration, maintenance and fault finding.

## Dimensions & Weights

Model		8300
Length	mm	3000
Width	mm	2440
Height	mm	2590
Weight	mm	Dependent on capacity