

Limitamp^{*} AR

Arc Resistant Medium Voltage Motor Control
Application Guide



imagination at work

Limitamp* AR - Arc Resistant

Introduction

Limitamp AR is the Arc Resistant version of the Limitamp, providing a solution for flash conditions, increasing the safety and protection defined in the applicable IEEE standards. The new Limitamp AR Medium Voltage Motor Controllers meet the safety requirements of the market, offering more reliable operation and control of Medium Voltage installations. This new construction includes a complete product offering of 400A/800A starters and other controllers.

The Limitamp AR is designed to provide a reliable solution to the growing demand for Arc Resistant equipment in the market place.

The uniquely designed Limitamp AR products have passed a rigorous testing program as specified by the IEEE/ANSI C37.20.7-2007 Type 2B safety standard. They are designed to provide personnel protection on the front, rear and sides of the enclosure in the event of an arc flash occurrence. This means that when the medium voltage doors are properly secured, the service technician can access the interior of the low voltage compartment, and the Limitamp AR provides the protection from a potential arc flash event.

Limitamp AR keeps the same basic design, features and general applications of the CR194 Limitamp control and the vacuum contactor, meeting UL347 and all other requirements.

Technical Data

- System voltage: up to 7.2kV
- Main bus: 1200A, 2000A, 3000A
- 50kA short circuit at 0.5 seconds
- Enclosure type: Indoor NEMA 1 gasketed
- Arc Resistant Type 2B per IEEE/ANSI C37.20.7-2007 standard

Product Offering

- 1-high and 2-high 400A FVNR (full voltage non-reversing starters)
- 1-high 800A FVNR (full voltage non-reversing starters)
- 1-high 800A FVR (full voltage reversing starters)
- 1-high 400A FVR (full voltage reversing starters)
- RVAT (reduced voltage autotransformer starters)
- RVPR (reduced voltage primary reactor starters)
- 2S1W (two speed, single winding starters)
- 2S2W (two speed, dual winding starters)
- 400A MVSS (medium voltage solid-state starters)
- IC-1074 load break switches
- SYNC excitation starters
- Main, Feeder and Tie sections
- Incoming line cable sections
- Auxiliary sections



Front view Limitamp AR



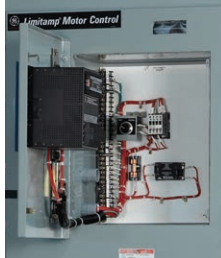
2-High Limitamp AR with medium voltage door open

Construction

The low voltage door on the front of each unit includes pilot lights, switches and relays. This compartment provides easy access to the secondary devices while the main medium voltage front door is closed. It is isolated from the live parts of the unit, providing increased safety under arc flash conditions.



2-High Limitamp AR with low voltage door open



Detail of low voltage compartment when medium voltage door is closed

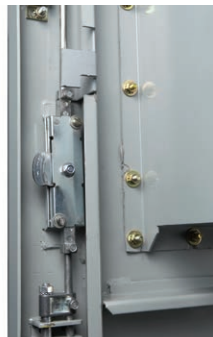
When the main door is open, an extra glass-reinforced polyester barrier is provided in the back of the low voltage compartment for protection, as shown in photo below.

Each cubicle is provided with reinforced doors that incorporate special hinges, gaskets, handles and latches to ensure proper sealing in front of the section.

The Limitamp AR – Arc Resistant Medium Voltage Motor Controls are manufactured using heavy duty reinforced side panels in a 1/8" thick (11 gauge) welded steel construction which, in conjunction with other mechanical features and special bolted pieces provide additional safety for arc flash conditions.



Rear of low voltage box with medium voltage door open



Special lock system in the medium voltage door to ensure protection

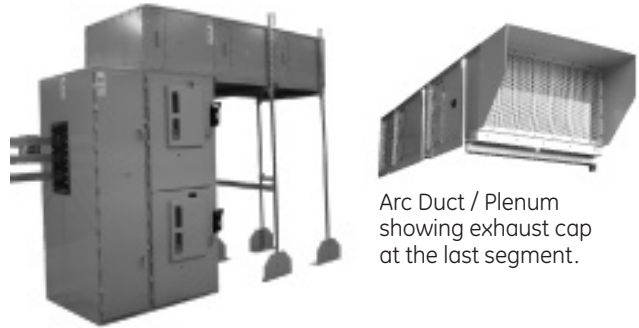
In the case of an internal arc fault inside the vertical section, all the gases and other materials produced as result of the fault are directed to the upper part of the vertical section.

The robust design of the enclosure, bottom plate and medium voltage doors prevents front, bottom and side exhaust. Particles and gases are directed to the upper part of the vertical section, through the vent flaps and plenum to an external area determined by the customer, away from the gear and personnel.

Every vertical section includes a plenum fabricated of 0.105" thick (12 gauge) sheet steel, and along with others in adjacent sections, form a duct along the top of the Limitamp AR.

The plenum system is not installed at the factory. It is supplied for field installation. Extra segments can be ordered, depending on the particular characteristics of the installation site.

The last segment of the duct is provided with a cap to direct the arc flash particles and gases away from the gear and the operator.

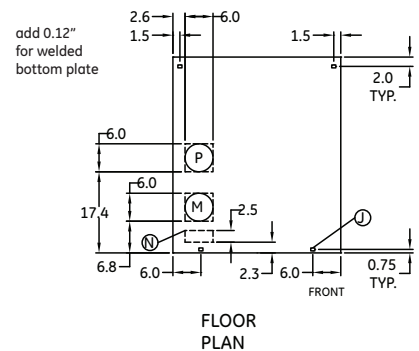
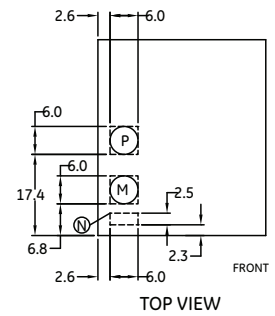
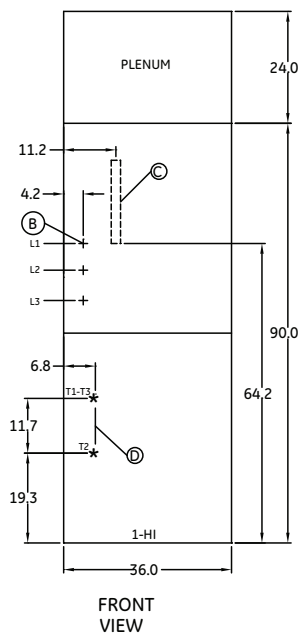
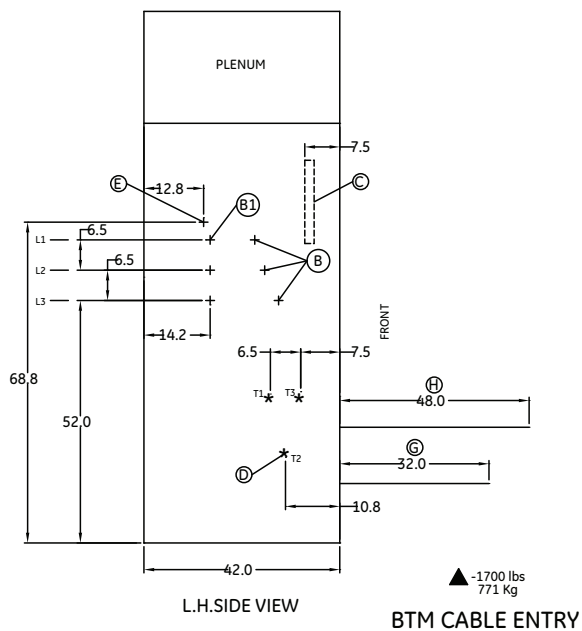


Front view Limitamp 2-High with extension main bus and extension of the duct/plenum

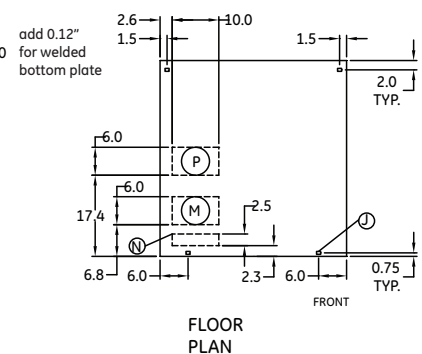
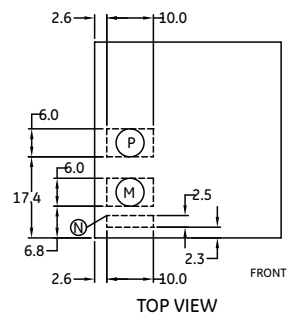
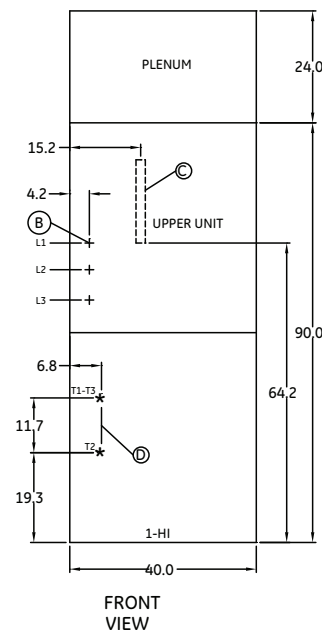
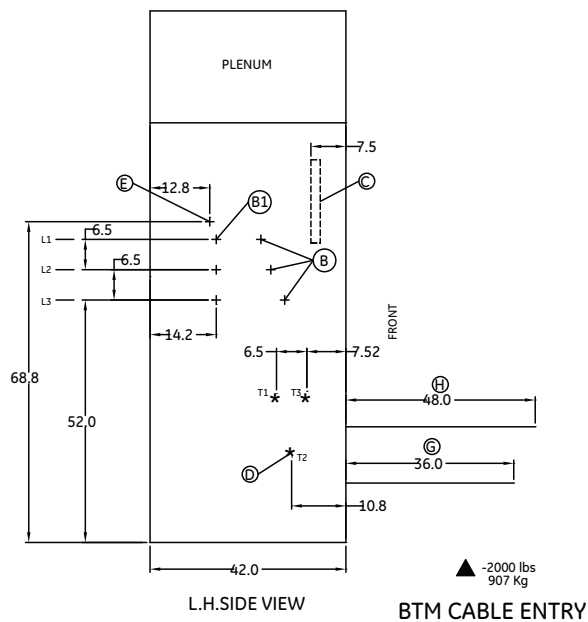
Arc Duct / Plenum showing exhaust cap at the last segment.

Limitamp AR Medium Voltage Motor Control
CR194 AR 400A, Stationary or Draw-out,
Outline Dimensions 2400-7200 Volts, One-High, Bottom Cable Entry

1 High, 36" Wide



1 High, 40" Wide



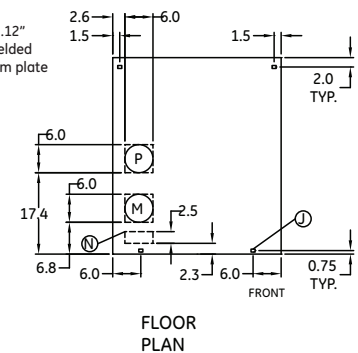
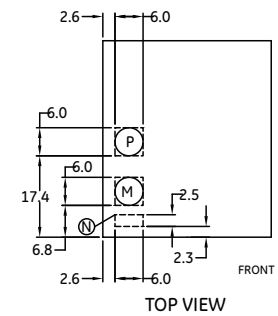
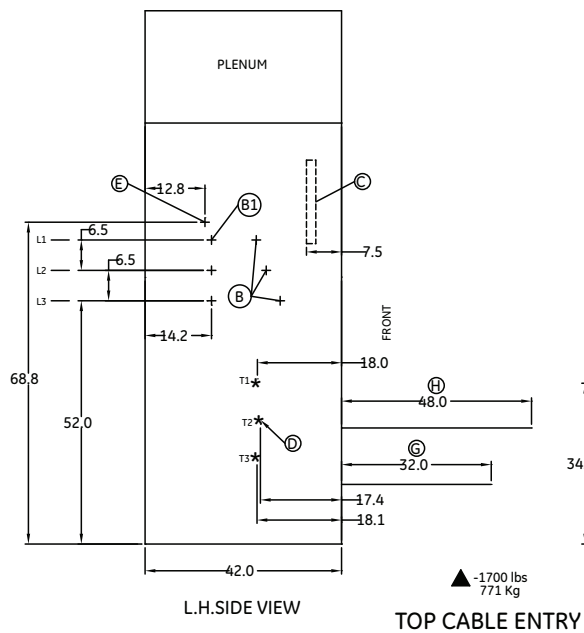
Notes:

- B — Incoming Power Terminal Connection
- B1 — AC Power Bus
- C — Control Lead Terminal Board
- D — Motor Lead Terminal Connection
- E — Ground Bus Terminal Connection
- F — Ground Terminal Connection (If Ordered)
- G — Space Required to Open Doors 135°

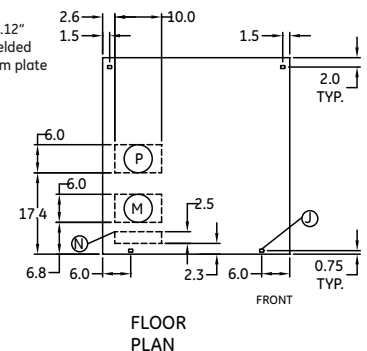
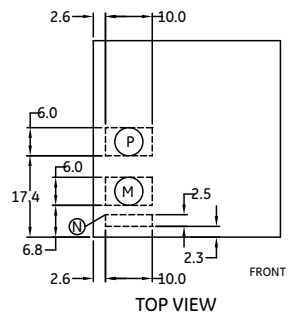
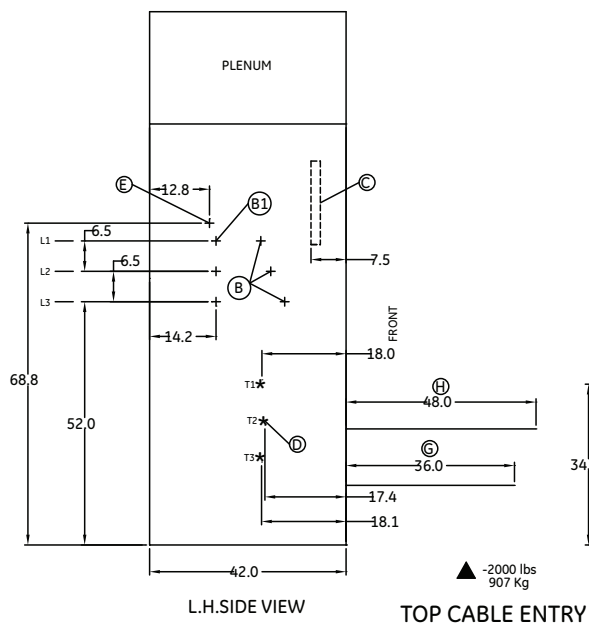
- H — Four-foot Aisle for Contactor Removal
- J — Mounting Holes for 1/2" Diameter Anchor Bolts
- M — Recommended Position for Incoming Motor Conduit
- N — Recommended Position for Incoming Control Conduit
- * — Indicates Terminal Location - Approximate for Cable Length
- ▲ — Approximate Weight

Limitamp AR Medium Voltage Motor Control
CR194 AR 400A, Stationary or Draw-out,
Outline Dimensions 2400-7200 Volts, One-High, Top Cable Entry

1 High, 36" Wide



1 High, 40" Wide

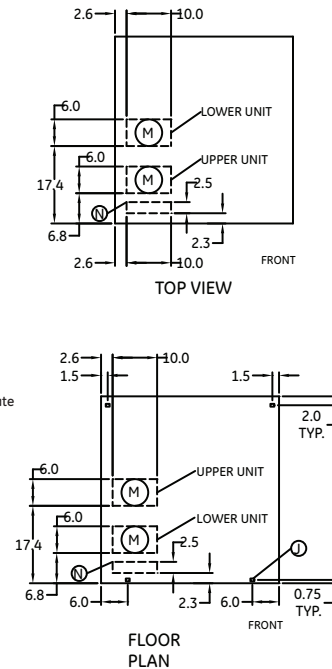
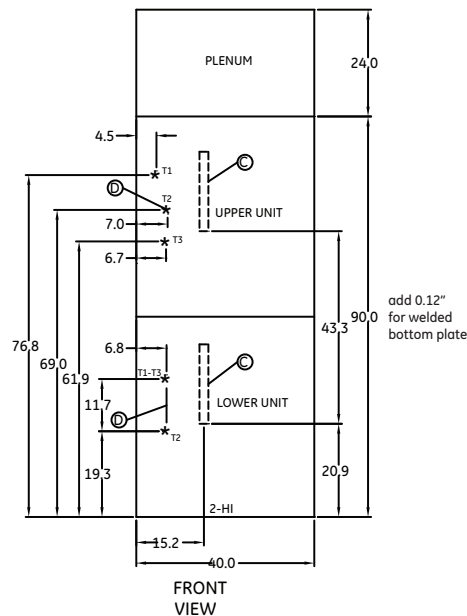
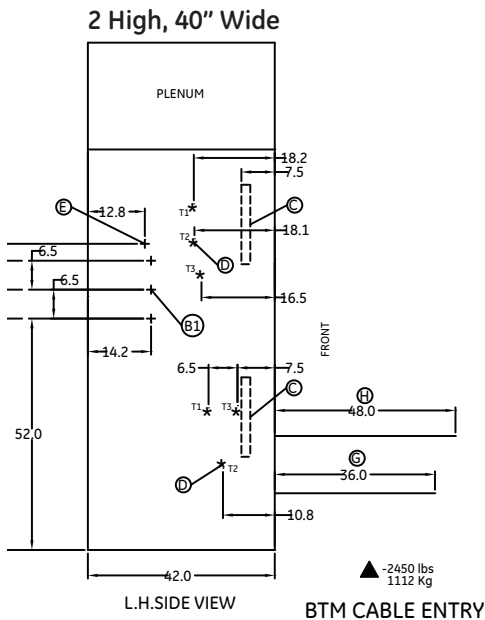
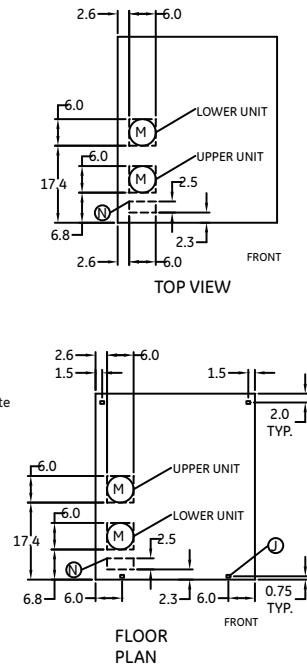
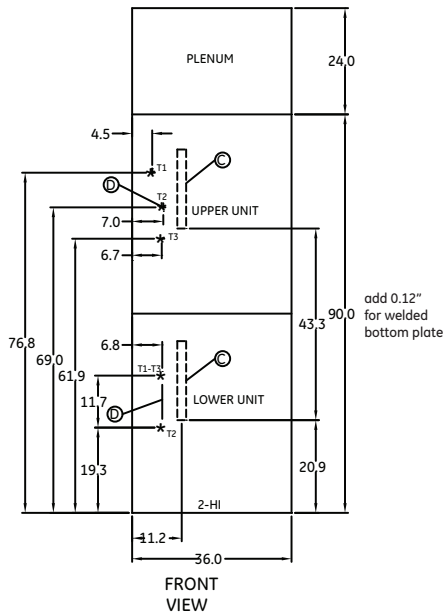
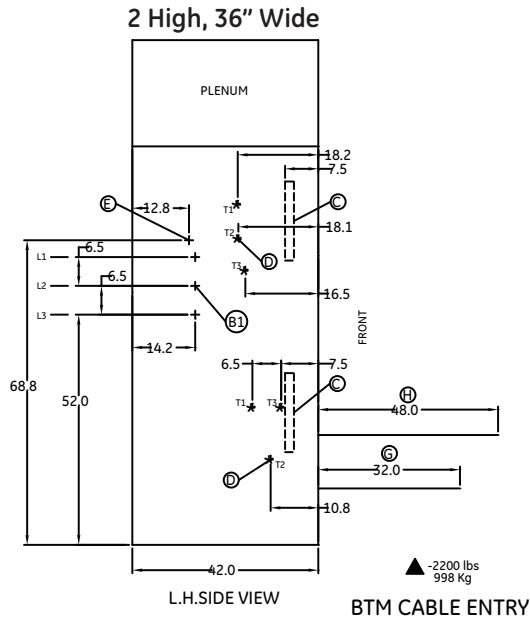


Notes:

- B — Incoming Power Terminal Connection
- B1 — AC Power Bus
- C — Control Lead Terminal Board
- D — Motor Lead Terminal Connection
- E — Ground Bus Terminal Connection
- F — Ground Terminal Connection (If Ordered)
- G — Space Required to Open Doors 135°

- H — Four-foot Aisle for Contactor Removal
- J — Mounting Holes for 1/2" Diameter Anchor Bolts
- M — Recommended Position for Incoming Motor Conduit
- N — Recommended Position for Incoming Control Conduit
- * — Indicates Terminal Location - Approximate for Cable Length
- ▲ — Approximate Weight

Limitamp AR Medium Voltage Motor Control
CR194 AR 400A, Stationary or Draw-out,
Outline Dimensions 2400-7200 Volts, Two-High, Bottom Cable Entry

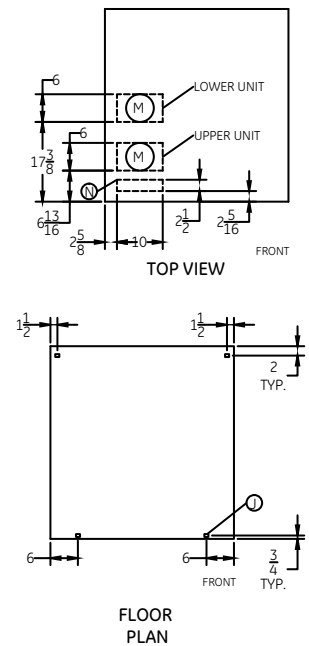
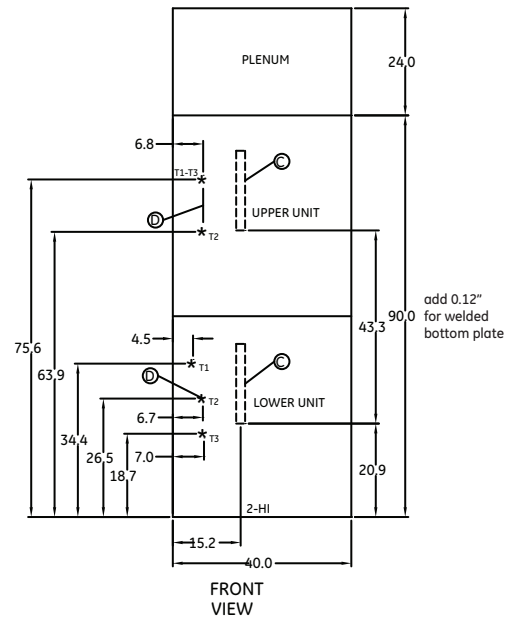
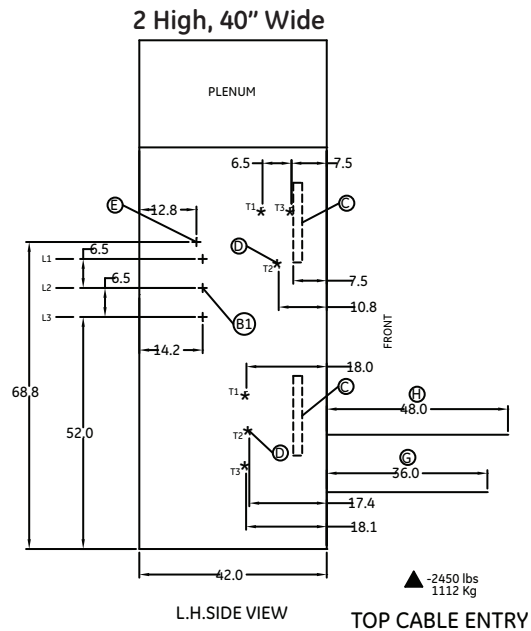
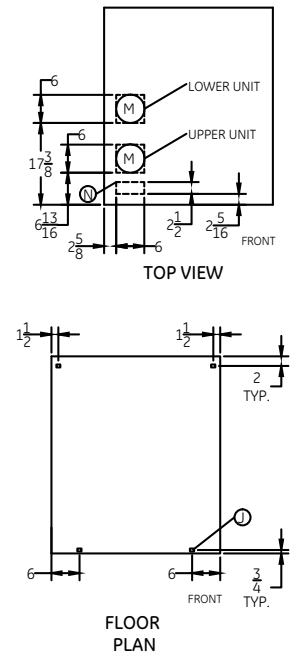
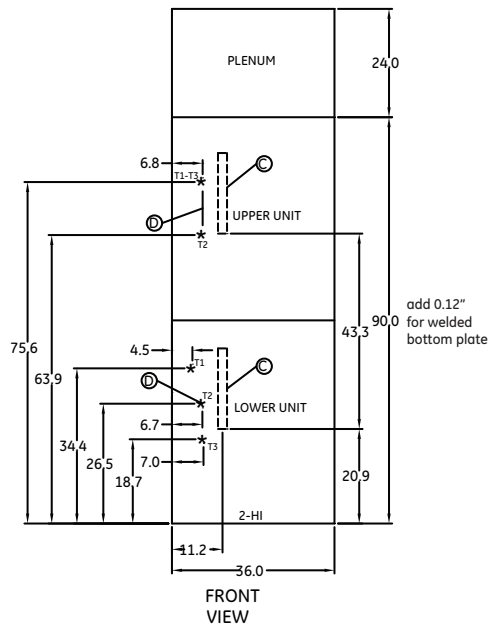
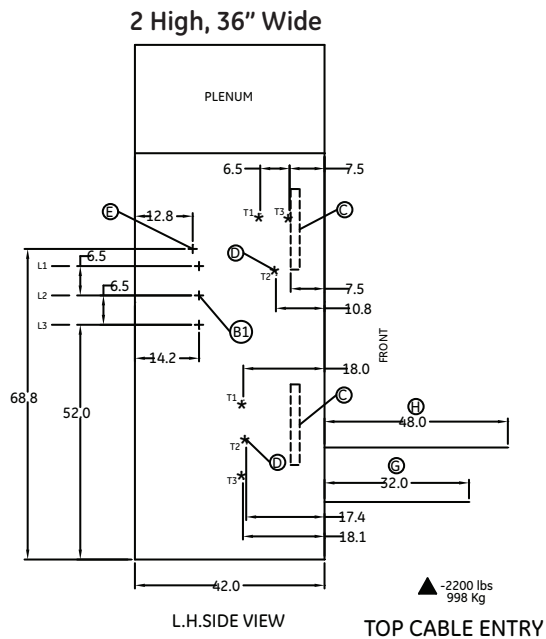


Notes:

- B1 — AC Power Bus
- C — Control Lead Terminal Board
- D — Motor Lead Terminal Connection
- E — Ground Bus Terminal Connection
- G — Space Required to Open Doors 135°
- H — Four-foot Aisle for Contactor Removal
- J — Mounting Holes for 1/2" Diameter Anchor Bolts

- M — Recommended Position for Incoming Motor Conduit
- N — Recommended Position for Incoming Control Conduit
- * — Indicates Terminal Location - Approximate for Cable Length
- ▲ — Approximate Weight

Limitamp AR Medium Voltage Motor Control
CR194 AR 400A, Stationary or Draw-out,
Outline Dimensions 2400-7200 Volts, Two-High, Top Cable Entry



Notes:

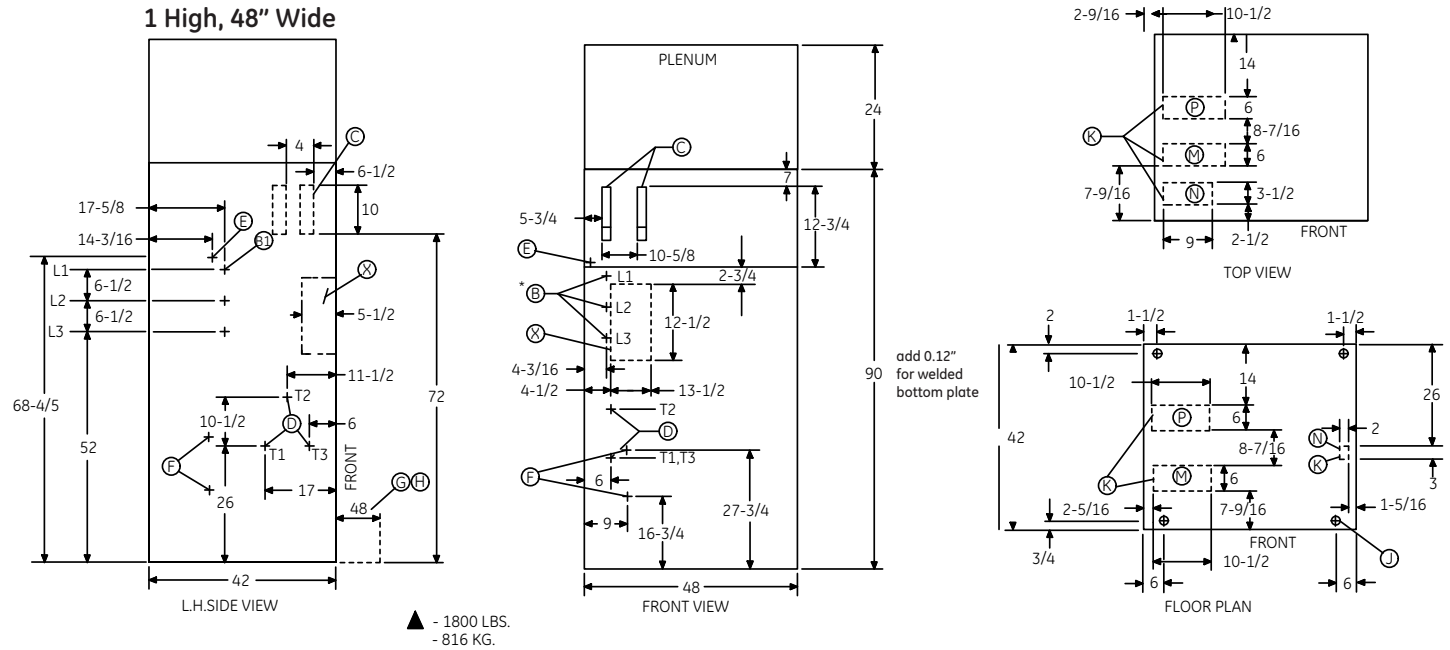
- B1 — AC Power Bus
- C — Control Lead Terminal Board
- D — Motor Lead Terminal Connection
- E — Ground Bus Terminal Connection
- G — Space Required to Open Doors 135°
- H — Four-foot Aisle for Contactor Removal
- J — Mounting Holes for 1/2" Diameter Anchor Bolts

- M — Recommended Position for Incoming Motor Conduit
- N — Recommended Position for Incoming Control Conduit
- * — Indicates Terminal Location - Approximate for Cable Length
- ▲ — Approximate Weight

Limitamp AR Medium Voltage Motor Control

CR194 AR 800A, Stationary or Draw-out,

Outline Dimensions 2400-7200 Volts, One-High, Top/Bottom Cable Entry



Notes:

- B — Incoming Power Terminal Connection
- B1 — AC Power Bus, 800A
- C — Control Lead Terminal Board
- D — Motor Lead Terminal Connection
- E — Ground Bus Terminal Connection
- F — Ground Terminal Connection (If Ordered)
- G — Space Required to Open Doors 90°

- H — Four-foot Aisle for Contactor Removal
- J — Mounting Holes for 1/2" Diameter Anchor Bolts
- M — Recommended Position for Incoming Motor Conduit
- N — Recommended Position for Incoming Control Conduit
- P — Recommended Position for Incoming Power Conduit
- * — Indicates Terminal Location - Approximate for Cable Length
- ▲ — Approximate Weight

Reference Publications

Standard, non-Arc Resistant Limitamp

Vacuum Contactors	GEH-5306
Installation Instructions	GEH-6263
Application and Selection Guide	GET-6840
Load-Break Switches Installation Instructions	GEH-4268
Vacuum Contactors, Renewal Parts Bulletin	GEF-8016

Limitamp AR

Limitamp AR Product Flyer	DEA-527
Limitamp AR Installation Instructions	DEH-6790

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