TECHNICAL SPECIFICATIONS
PME - 9, DEAD FRONT, PAD MOUNTED SWITCHGEAR

1. Scope

1 This specification covers the general requirements for Dead Front pad-mounted switchgear.

1.2 The pad-mounted gear shall consist of a single self-supporting enclosure, containing interrupter switches and power fuses with necessary accessory components, all completely factory-assembled and operationally checked.

2. Applicable Documents

2.1 Unless otherwise indicated all pad-mounted gear shall conform to or exceed the applicable requirements of the following standards and code:

a) All portions of ANSI C57.12.28, covering enclosure integrity for pad-mounted equipment.

b) All portions of ANSI, IEEE, and NEMA standards applicable to the basic switch and fuse components.

3. Ratings

3.1 Ratings: The ratings (@ 60 hertz) for integrated pad-mounted gear shall be certified by the manufacturer as follows:

a) Nominal (kV) - 14.4
b) Max. Design (kV) - 17.0
c) B.I.L. (kV) - 95
d) Main Bus continuous (amperes) - 600

e) Fuses with Integral Load Interrupter:
max. (amperes) - 200E
load dropping (amperes) - 200
two-time duty-cycle fault closing, capability, (amperes, RMS asymmetrical) - 14,000

f) Three Pole Interrupter Switches:
continuous (amperes) - 600
load dropping (amperes) - 600
two-time duty-cycle fault closing, capability, (amperes, RMS asymmetrical) - 14,000

g) Short Circuit Ratings:
(amperes, RMS Sym.) - 14,000
Mva three phase symmetrical at rated nominal voltage - 350

4. Design

4.1 General - Enclosure

(a) The pad-mounted gear enclosure shall be of unitized monocoque (not structural-frame-and-bolted-sheet) construction to maximize strength, minimize weight, and inhibit corrosion.

REV. (b) The basic material shall be 11-gauge *304 Stainless Steel*. ~~hot-rolled, pickled and oiled steel sheet.~~

(c) All structural joints and butt joints shall be welded, and the external seams shall be ground flush and smooth. The gas-metal-arc welding process shall be employed to eliminate alka-line residues and to minimize distortion and spatter.

(d) To guard against unauthorized or inadvertent entry, enclosure construction shall not uti-lize any externally accessible hardware.

(e) The base shall consist of continuous 90-degree flanges, turned inward and welded at the corners, for bolting to the concrete pad.

(f) The door openings shall have 90-degree flanges, facing outward, that shall provide strength and rigidity as well as deep overlapping between doors and door openings to guard against water entry.

(g) Polyurethane self-adhesive bumpers shall be placed on the left-hand door channel to prevent the right-hand door from abrading the paint, and on the center door divider to prevent the left-hand door from rubbing against the center door divider.

(h) Enclosure top side edges shall overlap with roof side edges to create a mechanical maze which shall allow ventilation to help keep the enclosure interior dry while discouraging tampering or insertion of foreign objects.

(i) A heavy coat of insulating “no-drip” compound shall be applied to the inside surface of the roof to minimize condensation of moisture thereon.

(j) Insulating interphase and end barriers of NEMA GPO3-grade fiberglass-reinforced polyester shall be provided for each interrupter switch and each set of fuses where required to achieve BIL ratings. Additional insulating barriers of the same material shall separate the front compartments from the rear compartments and isolate the tie bus (where furnished).

TECHNICAL SPECIFICATIONS
PME - 9, DEAD FRONT, PAD MOUNTED SWITCHGEAR, Cont.

(k) Full-length steel barriers shall separate side-by-side compartments.

(l) Interrupter switches shall be provided with dual-purpose front barriers. These barriers, in their normal hanging positions, shall guard against inadvertent contact with live parts. It shall also be possible to lift these barriers out and insert them into the open gap when the switch is open. These barriers shall meet the requirements of Section 381G of the National Electrical Safety Code (ANSI Standard C2).

(m) Interrupter switches shall be provided with window panels to allow viewing of the switch position without removing the dual-purpose front barriers. Window panels shall be removable to facilitate phasing and shall be secured to the enclosure with stainless-steel or zinc-nickel-plated hardware.

(n) Each fuse shall be provided with a dual-purpose front barrier. These barriers, in their normal hanging positions, shall guard against inadvertent contact with live parts. It shall also be possible to lift these barriers out and insert them into the open gaps when the fuses are in the disconnect position. These barriers shall meet the requirements of Secction 381G of the National Electrical Safety Code (ANSI Standard C2).

(o) The enclosure shall be provided with an instruction manual holder.

(p) Lifting tabs shall be removable. Sockets for the lifting-tab bolts shall be blind-tapped. A resilient material shall be placed between the lifting tabs and the enclosure to help prevent corrosion by protecting the finish against scratching by the tabs. To further preeclude corrosion, this material shall be closed-cell to prevent moisture from being absorbed and held between the tabs and the enclosure in the event that lifting tabs are not removed.

4.2 General - Doors

REV. a) Doors shall be constructed of 11-gauge *304 Stainless Steel.* ~~hot-rolled, pickled and oiled steel sheet.~~

b) Door-edge flanges shall overlap with door-opening flanges to discourage tampering or insertion of foreign objects.

c) Doors shall have a minimum of two extruded-aluminum hinges with stainless-steel hinge pins, and interlocking extruded-aluminum hinge supports for the full length of the door to provide strength, security, and corrosion resistance. Mounting hardware shall be stainless steel or zinc-nickel-plated steel, and shall not be externally accessible to guard against tampering.

d) Doors shall be hinged at the sides to swing open with minimum effort. Doors hinged at the top requiring significant effort to lift open shall not be allowed.

e) In consideration of controlled access and tamper resistance, each door (or set of double doors) shall be equipped with an automatic three-point latching mechanism.

(1) The latching mechanism shall be spring loaded, and shall latch automatically when the door is closed. All latch points shall latch at the same time to preclude partial latching.
(2) A pentahead socket wrench or tool shall be required to actuate the mechanism to unlatch the door and, in the same motion, recharge the spring for the next closing operation.
(3) The latching mechanism shall have provisions for padlocking that incorporate a means to protect the padlock shackle from tampering and it is not possible to unlatch the mechanism until the padlock is removed, and it is not possible to insert the padlock until the mechanism is completely latched closed.

f) Doors providing access to solid-material power fuses shall have provisions to store spare fuse units or refill units.

g) Each door shall be provided with a zinc-nickel-plated steel door holder located above the door opening. The holder shall be hidden from view when the door is closed, and it shall not be possible for the holder to swing inside the enclosure.

j) Pull-length steel barriers shall separate adjoining termination compartments.

4.3 General - Switch

a) The design shall incorporate stored-energy 600-ampere external handle-operated S&C Mini-Rupter® Switches provide three-pole live switching of three-phase source circuits. A folding switch-operating handle, secured inside the switch-operating-hub pocket, is provided with each Mini-Rupter Switch.

b) 200 ampere hookstick operated S&C type SME-4Z fuses for single-pole live switching of all single phase and three phase load circuits.

TECHNICAL SPECIFICATIONS
PME - 9, DEAD FRONT, PAD MOUNTED SWITCHGEAR, Cont.

4.4 General - Fuse Mounting

a) "TransFuser Fuse Mountings" shall be enclosed in an inner steel compartment and shall be provided with bushing wells rated 200 amperes continuous for elbow connection.

(1) Each "TransFuser Fuse Mounting" shall be an integral part of a fuse handling mechanism that does not allow access to the fuse until the elbow for that fuse has been disconnected.

(2) A mechanical interlock will unlock the fuse-access panel. This interlock will not disengage before the elbow is moved.

(3) The fuse-access panel will pivot to electrically isolate the fuse so that it can be removed from the fuse mounting (holder) with a hookstick.

(4) The opening into the component compartment shall be covered by the fuse-access panel in both the open and closed positions to help prevent inadvertent access to high voltage.

b) To protect the fuse handling mechanism from corrosion, all mechanism parts shall be painted or made of corrosion resistant materials, or otherwise be protected from corrosion. All latches and pivots shall be stainless steel or zinc-nickel plated steel with nylon or plastic bushings.

c) Cable guides shall be provided in each termination compartment for a set of fuses, to prevent cables from interfering with rotation of the fuse-access panel.

d) 200 ampere hookstick operated S&C type SME-4Z fuses for single-pole live switching of all single phase and three phase load circuits.

5. Enclosure Coating System

a) The enclosure coating system shall conform to the requirements of ANSI C57.12.28-1999.

b) The finish coat shall be Munsell-7GY 3.29/1.5 padmount green. The paint thickness shall be a minimum of 2.5 mils.

6. Labeling

6.1 Hazard-Alerting Signs

(a) All external doors shall be provided with “Warning—Keep Out—Hazardous Voltage In-side—Can Shock, Burn, or Cause Death” signs.

b) The inside of each door shall be provided with a “Danger—Hazardous Voltage—Failure to Follow These Instructions Will Likely Cause Shock, Burns, or Death” sign. The text shall further indicate that operating personnel must know and obey the employer’s work rules, know the hazards involved, and use proper protective equipment and tools to work on this equipment.

c) Interrupter switch compartments shall be provided with “Danger” signs indicating that “Switches May Be Energized by Backfeed.”

d) Fuse compartments shall be provided with “Danger” signs indicating that “Fuses May Be Energized by Backfeed.”

e) Barriers used to prevent access to energized live parts shall be provided with “Danger—Keep Away—Hazard-ous Voltage—Will Shock, Burn, or Cause Death” signs.

6.2 Nameplates, Ratings Labels, and Connection Diagrams

a) The outside of each door (or set of double doors) shall be provided with a nameplate indi-cating the manufacturer’s name, catalog number, model number, date of manufac-ture, and serial number.

b) The inside of each door (or set of double doors) shall be provided with a ratings label indicating the following: voltage ratings; main bus continuous rating; short-circuit ratings (amperes RMS symmetrical and MVA three-phase symmetrical at rated nominal voltage); the type of fuse and its ratings include duty-cycle fault-closing capability; and interrupter switch ratings including duty-cycle fault-closing and short-time (momentary, amperes RMS asymmetrical and one-second, amperes RMS symmetrical).

c) A three-line connection diagram showing interrupter switches, fuses with integral load interrupter, and bus along with the manufacturer’s model number shall be provided on the inside of each door (or set of double doors), and on the inside of each switch-operat-ing-hub access cover.

7. Required Options

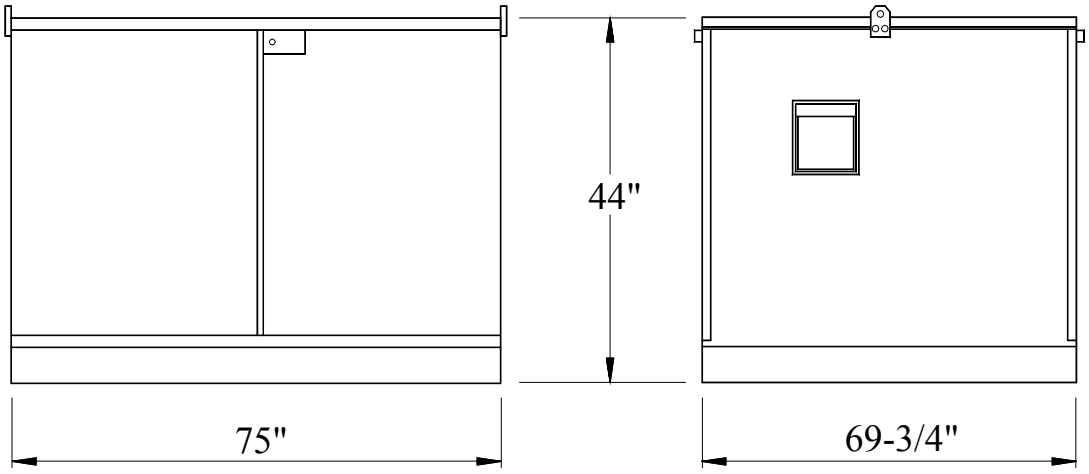
7.1 The following options are required:

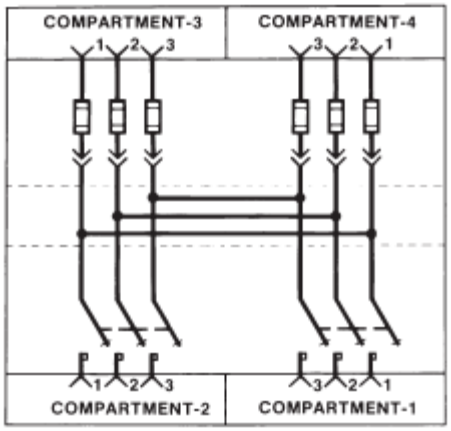
a) SME-4Z Fuse Holder, Cat. No. 90362

TECHNICAL SPECIFICATIONS
PME - 9, DEAD FRONT, PAD MOUNTED SWITCHGEAR, Cont.

8. Approved Manufacturer

8.1 REV. The approved manufacturer shall be S&C Electric Company, model PME-9, Catalog Number *65352R1-A10* ~~*65352R1*~~, with 90362





CONNECTION DIAGRAM