



ISO-flex[®]

**5KV MOTOR
CONTROLLER**



SQUARE D COMPANY

ISO-flex[®]

5KV MOTOR CONTROLLER

Square D—A Leader in Medium Voltage Control

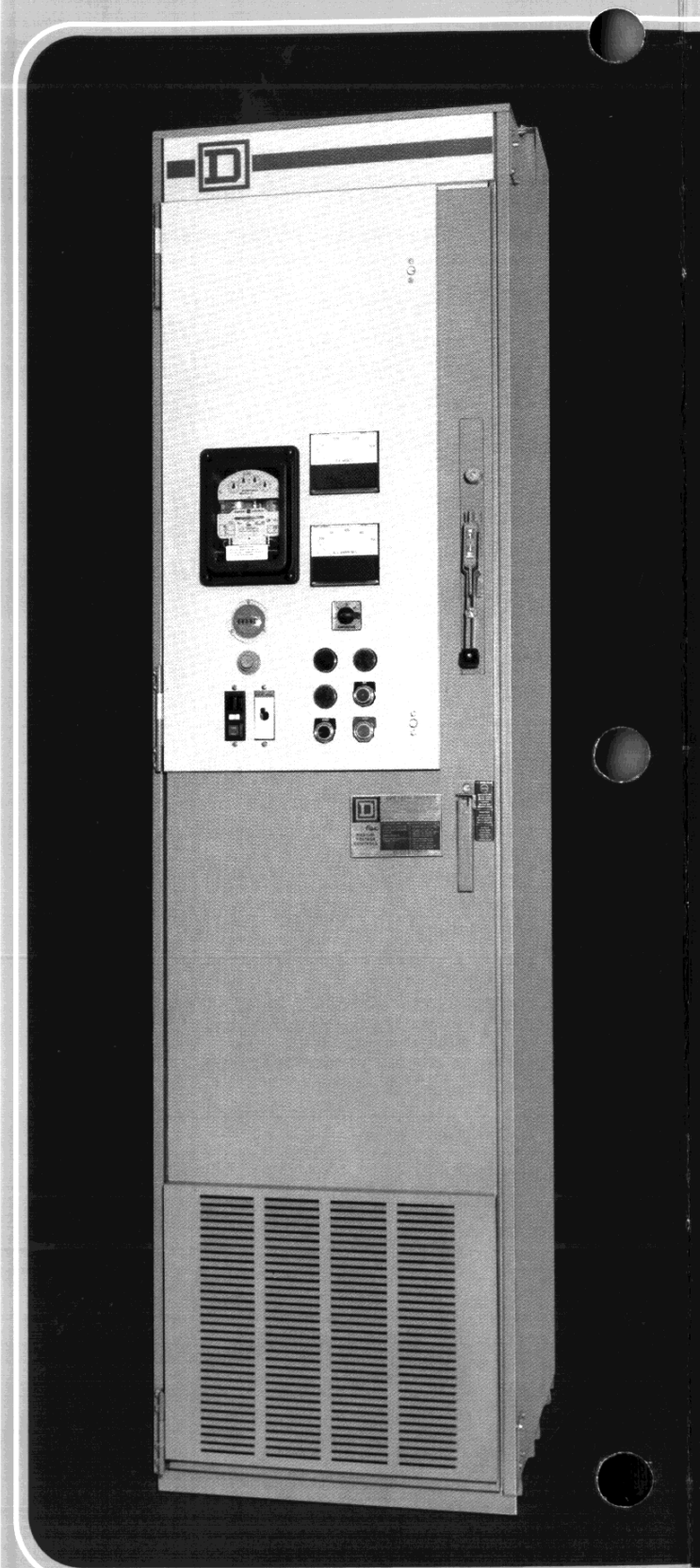


The Square D Company, an international manufacturer of electrical and advanced technology products, was one of the first manufacturers to develop air break, 5KV motor controllers in the early 1950's. Prior to that time, motor controllers above 600 Volts utilized switchgear circuit breakers or oil-immersed contactors. Since then, Square D has pioneered in the introduction of air break, 5KV controllers with front-accessibility, draw out contactors, isolated compartments and stacked arrangements.

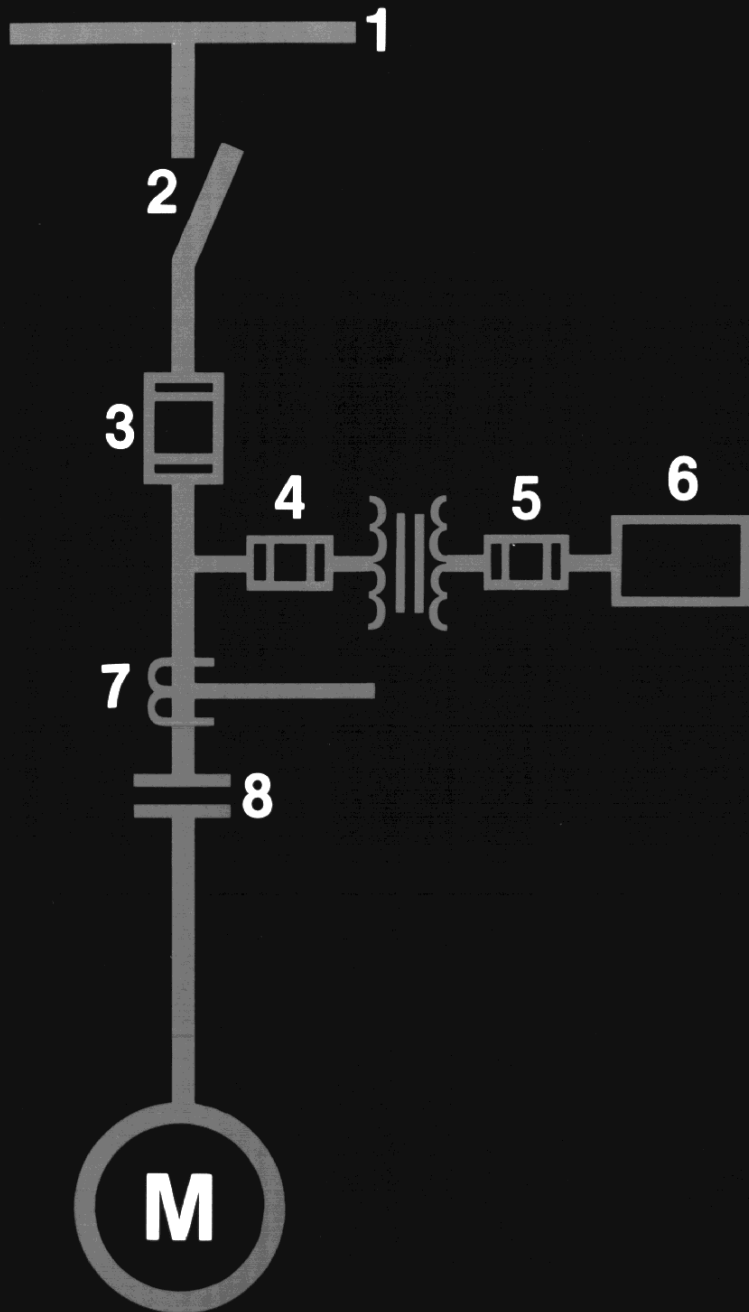
The Class 8198 ISO-flex Controller is now designed to provide even more flexibility than previous designs to satisfy application requirements. The design is efficient and compact, yet amply spacious, for a single, fully isolated, 5KV motor controller. This has been accomplished with the design of a compact vacuum contactor that is readily interchangeable with a Square D air break contactor, within the same motor controller. The air break contactor has the same efficiency as the vacuum contactor and is approximately the same size and weight without the arc chutes. The vacuum contactor is ideally suited for corrosive or high duty cycle applications, or an air break contactor can be used when preferred.

The Inside Story On ISO-flex Controllers

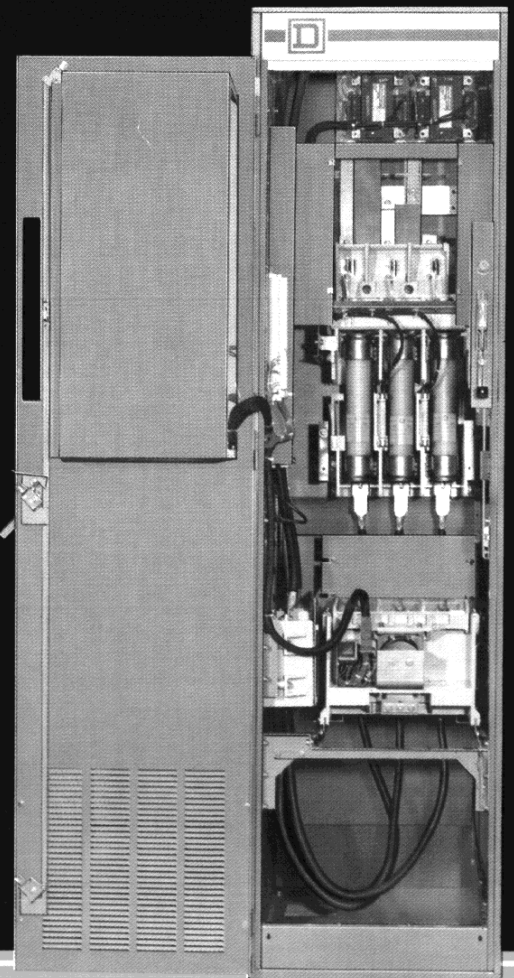
- Simple "straight-through" design
- Each controller in a dedicated enclosure
- 60KV BIL rated
- Interchangeable contactors—vacuum or air break
- Layout arranged for compact design contactors
- High operating efficiency
- Full front barrier to medium voltage
- Complies with UL, NEMA and CSA standards.

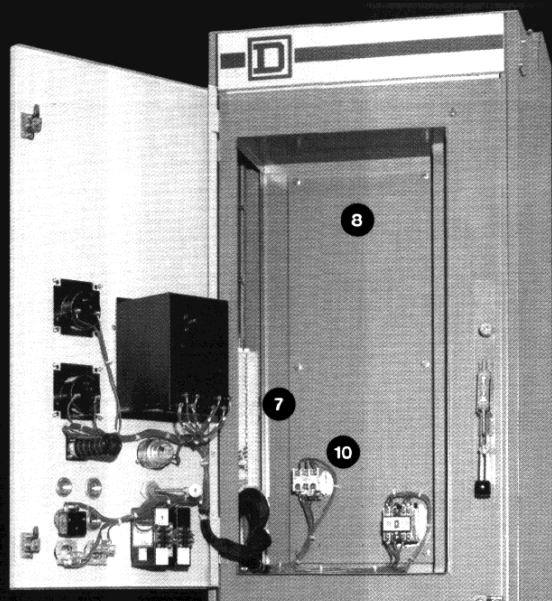


System Component Arrangement— As Simple as a One-Line Diagram



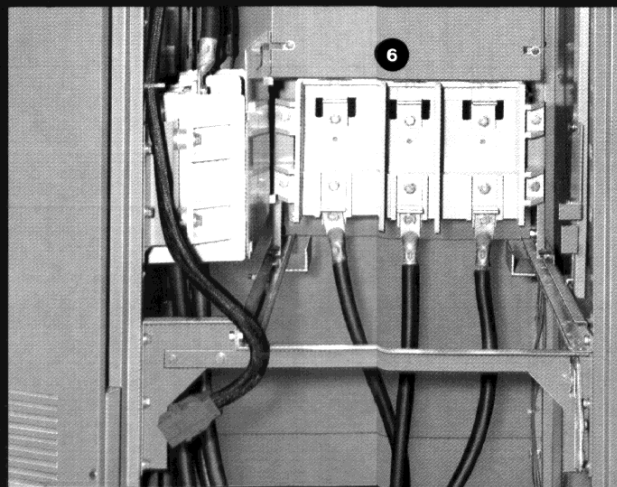
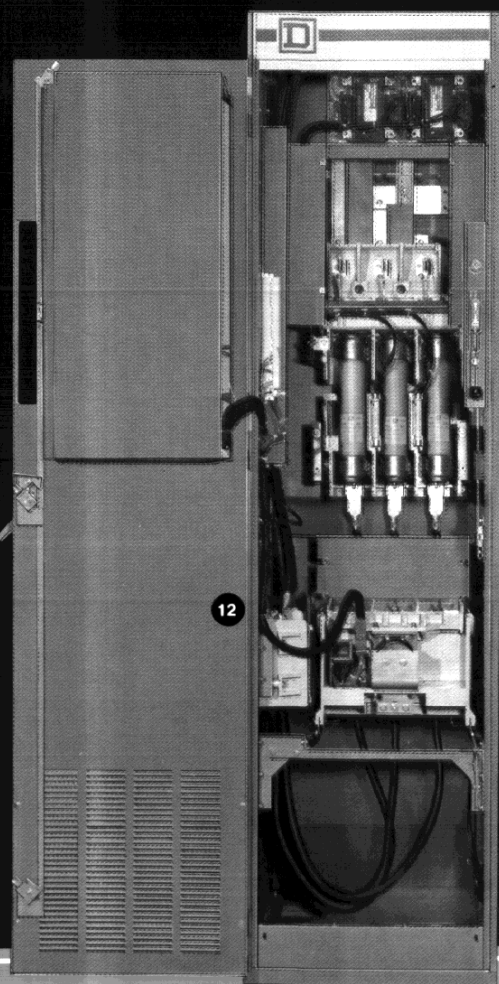
1. 1000 or 2000 Ampere bus (optional)
2. Isolating switch
3. Power current limiting fuses
4. Control transformer primary fuses
5. 120VAC control transformer
6. Low voltage compartment
7. Current transformers
8. 5KV contactor
9. Motor cable terminal box (optional)

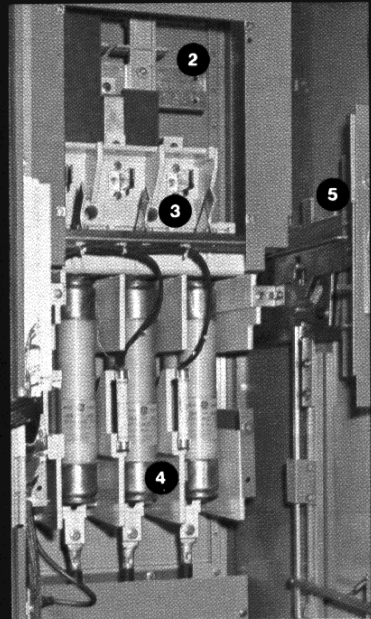
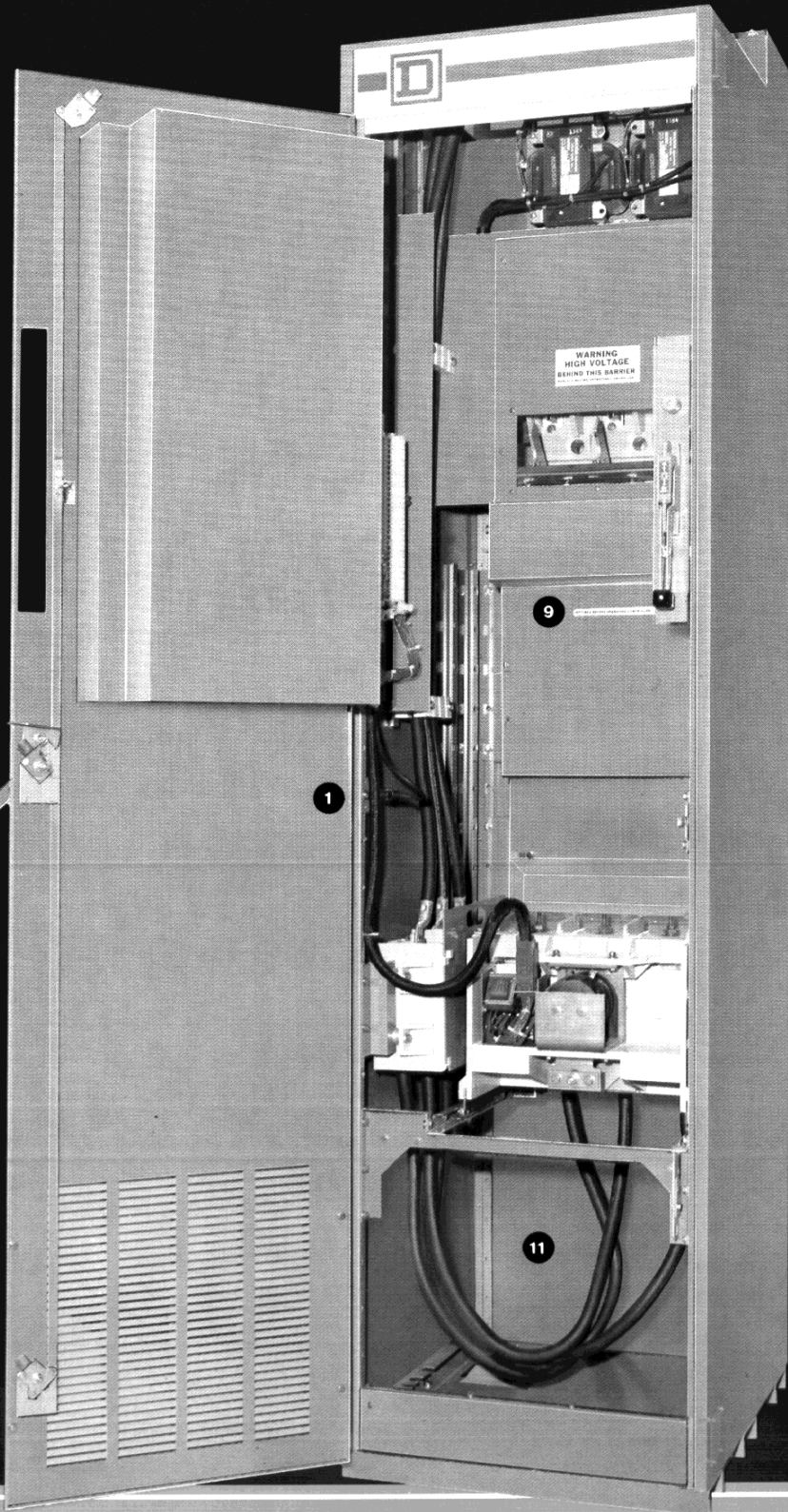




5KV Motor Controller —Features—

1. **Line or Load Connections**—Ample space for top or bottom feed—including stress cones
2. **Horizontal Power Bus**—1000 Amp or 2000 Amp—copper or aluminum—located in separate compartment within 90" high enclosure
3. **Isolating Switch**—Visible blades
4. **Current Limiting Fuses**—Easily replaced
5. **Mechanical Interlocking**—Simple and rugged design with operating handle, switch and contactor interlocked
6. **Load Terminations**—Choice of connections—directly to draw-out stabs or fixed contactor. Or to motor cable terminal box when specified
7. **Control Circuits**—Single terminal block minimizes number of connections—located for easy access and medium voltage isolation with door closed
8. **Low Voltage Compartment**—Isolated from medium voltage—includes 600 Volt rated components—ample room on door and panel for control, metering and protective devices
9. **Medium Voltage Barrier**—With door open, includes transparent cover for visible isolating switch
10. **Motor Protection**—Standard, melting alloy overload relay with external reset. Optional, many other types of protection available
11. **Modifications**—Ample space for most common power modifications
12. **Door Swing**—Full 180° opening for easy accessibility



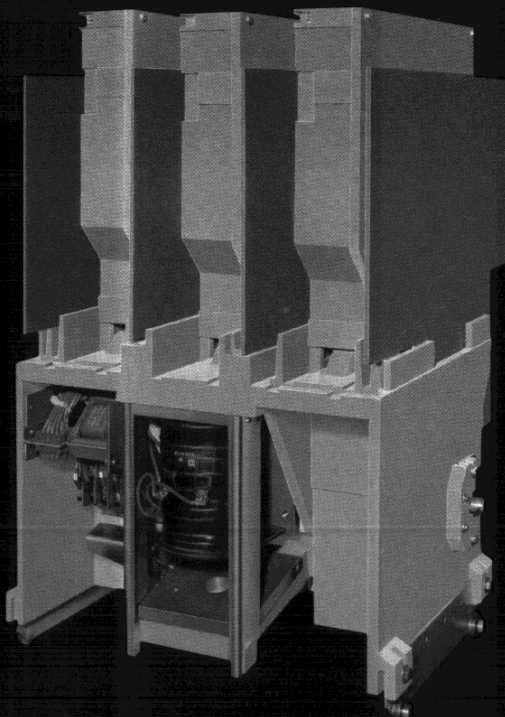




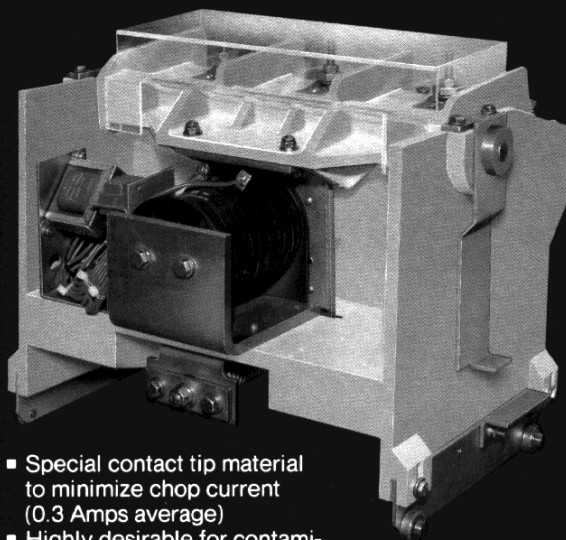
A Choice of Interchangeable Contactors — Vacuum or Air Break —

- **Lightweight Design** Eliminates need for lifting device
- **DC Coil** Positive, quiet operation
- **Economizing Reactor** For dc coil, minimizes heat losses
- **Latching Mechanism, Optional** For transformer feeder

Air Break

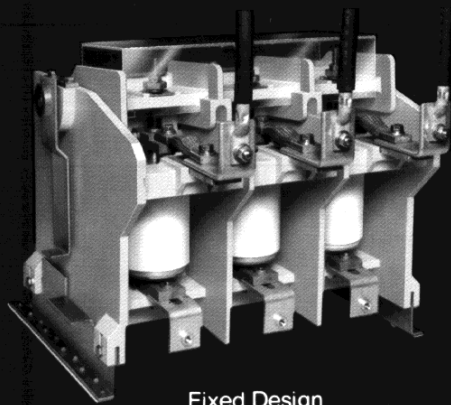


Vacuum

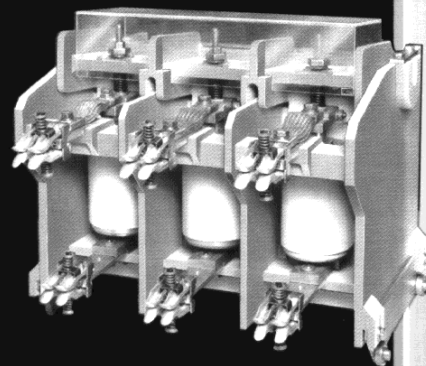


- Special contact tip material to minimize chop current (0.3 Amps average)
- Highly desirable for contaminated atmospheres
- Long life for high duty cycle installations

- Intermittent blowout coil minimizes heat losses, comparable to vacuum contactors
- Arc chutes are easily removed for service inside controller. Tilt and lift-off design minimizes necessity to remove contactor from enclosure.
- Silver-tungsten, carbide-faced, copper contacts to prolong operating life



Fixed Design
Vacuum Contactor
(Rear View)



Draw-Out Design
Vacuum Contactor
(Rear View)

Sample Controller Specifications

Detailed specifications are given in Square D Product Data C-857B.
An abbreviated specification with major features is listed below:

1.0 GENERAL

A (full) (reduced) voltage, 5 KV controller, rated 60KV BIL shall be supplied to start, stop and protect a ___ hp, ___ Volt, (squirrel cage) (synchronous) (wound rotor) motor. The controller shall be the Class 8198 ISO-flex[®] motor controller as manufactured by the Square D Company and shall include the following minimum functions, features and ratings:

2.0 BASIC CONTROLLER

- A. Each full voltage motor controller shall be in an individual 90"H x 30"D x 24"W enclosure. The enclosure shall be in accordance with NEMA standards for Type (1) (12) (3R non-walk-in) (walk-in) enclosures.
- B. The controller enclosure door shall be hinged to allow full 180° swing for maximum accessibility.
- C. An isolating switch shall be supplied. The switch shall have visible blades, shall be externally operated and mechanically interlocked with the operating handle and contactor to prevent opening or closing the switch with the contactor in the closed position.
- D. Power fuses shall be ferrule type, current limiting, with interrupting ratings of 200MVA at 2.5KV and 350MVA at 5KV. These fuses shall be easily accessible.
- E. The contactor shall be 3-pole (vacuum) (air break), with a (fixed) (draw-out) arrangement rated for 5KV, 360 Amperes continuous. The interrupting capacity shall be sufficient to coordinate properly with the current limiting fuses for fault conditions. The air break or vacuum contactors shall be field interchangeable.
- F. A low voltage control compartment, isolated from medium voltage, shall be located in the top half portion of the controller. All electrical connections to the low voltage devices shall be accomplished with a single control circuit terminal block.
- G. Motor overload protection shall be provided by a (melting alloy) (bi-metallic) overload relay, connected to current transformers. The overload relay shall be installed in an isolated low voltage compartment, with external re-set mounted on the door.
- H. Meters, control relays and pilot devices shall be heavy duty, rated for 600 Volts.
- I. The control transformer shall utilize a 120VAC secondary with primary and secondary fuses.



SQUARE D COMPANY

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