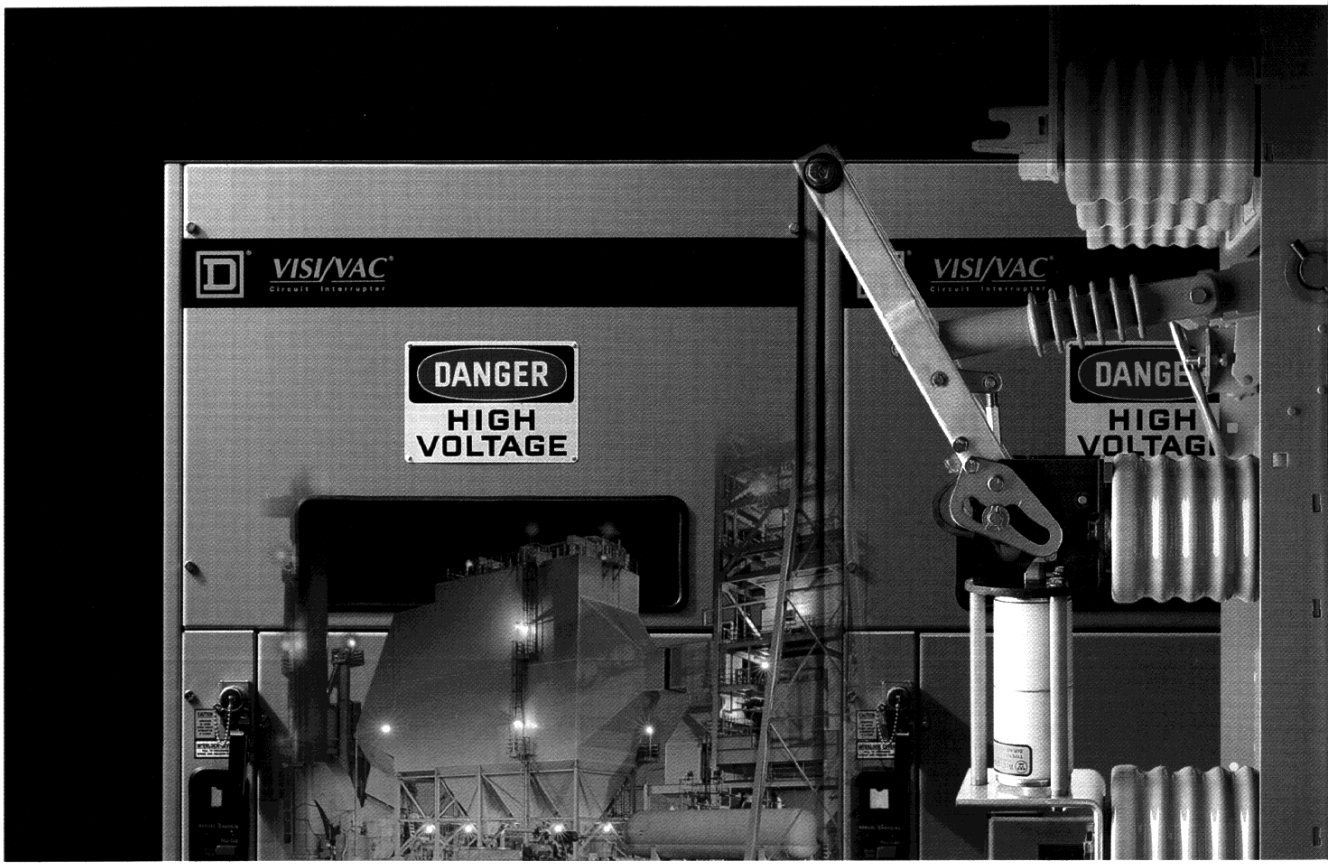
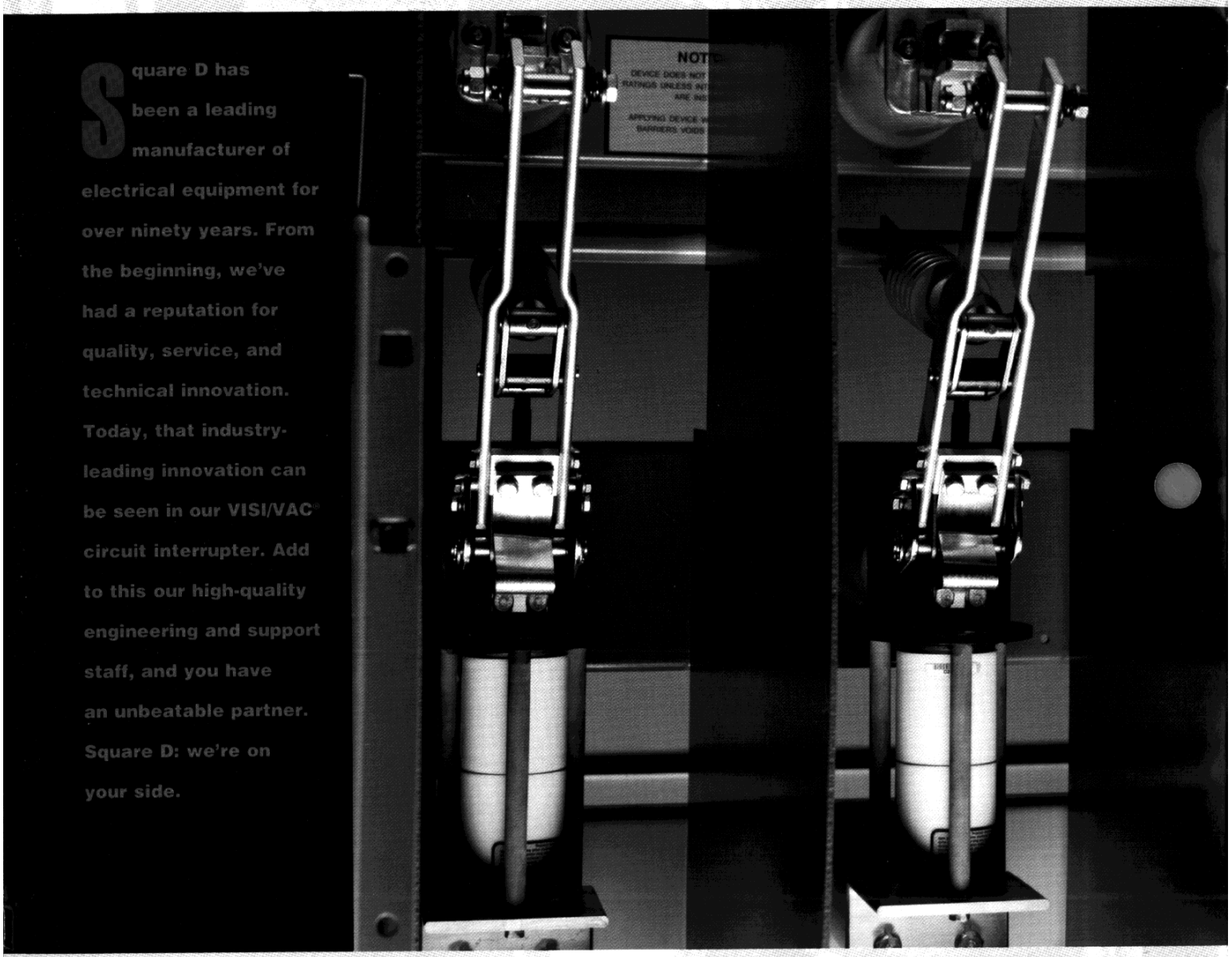
VISI/VAC®



5 and 15kV Circuit Interrupter Switchgear
Class 6046

SQUARE D
GROUPE SCHNEIDER

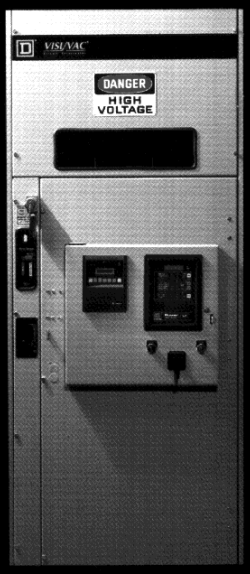
MEDIUM VOLTAGE CIRCUIT INTERRUPTER



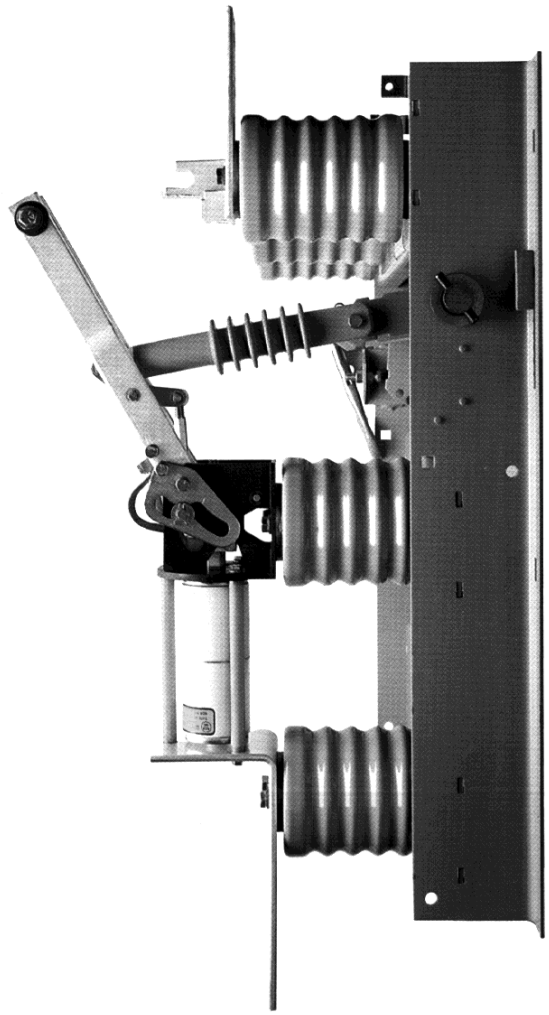
Square D has been a leading manufacturer of electrical equipment for over ninety years. From the beginning, we've had a reputation for quality, service, and technical innovation. Today, that industry-leading innovation can be seen in our VISI/VAC® circuit interrupter. Add to this our high-quality engineering and support staff, and you have an unbeatable partner. Square D: we're on your side.

S O L U T I O N S

When an established $350-million battery manufacturer decided to expand its operations, they realized they would need a new main substation. Because of the nature of their manufacturing processes, they required electrical equipment that could meet the highest standard of performance. A visit to the Square D plant convinced their engineers to go with a lineup of 15kV class switchgear, which included metal-clad switchgear with vacuum circuit breakers and eight VISI/VAC metal-enclosed feeder switches.



Price-performance, high-speed vacuum operation, automatic visible circuit isolation, and compact enclosure were all key factors that played a role in their decision. As a long-standing customer of Square D, they also knew they could count on the exceptional quality of Square D equipment and support.



VISI/VAC Circuit Interrupter Side View Showing Patented Cam

Introducing the VISI/VAC® Circuit Interrupter

The VISI/VAC medium voltage circuit interrupter is a unique, cost-effective device that provides superior load interruption and/or ground-fault protection in a compact metal-enclosed enclosure. Users looking to reduce their power costs by purchasing medium voltage equipment (5 to 15 kV) traditionally had only two choices: metal-enclosed load interrupters and metal-clad switchgear. The new concept provided by VISI/VAC circuit interrupter state-of-the-art technology ensures a high degree of service, selectivity, continuity, and protection in a metal-enclosed switchgear assembly. VISI/VAC circuit interrupters are available for various applications and configurations, including:

- Individual service entrance bays
- Multiple bay lineups incorporating VISI/VAC circuit interrupters
- Substation primaries
- Main-Tie-Main VISI/VAC circuit interrupters with HVL load interrupter switches as feeders

Square D metal-enclosed switchgear, a prime component in medium voltage power distribution systems, has become an industry standard because of its better system performance, lower maintenance cost, easier system expansion, and reduced system expense.

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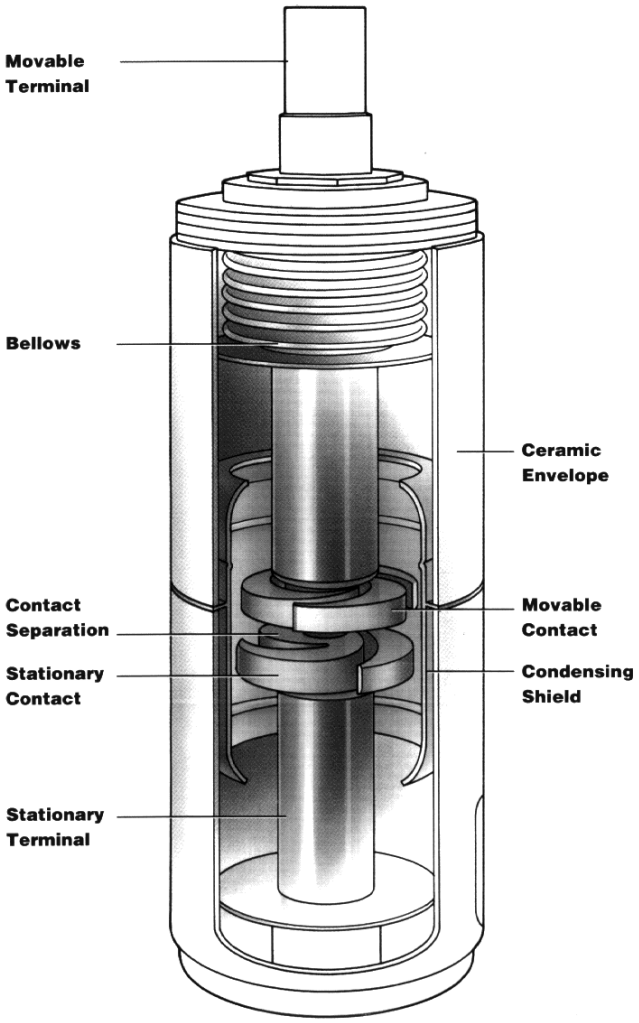
REGISTERED TO ISO 9001
CERTIFICATE NO. A2211

Square D VISI/VAC Circuit Interrupter Switchgear is designed and manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories, Inc. to ISO 9001.

VISI/VAC Vacuum Circuit Interrupter



Unique Design

The VISI/VAC circuit interrupter has a design unique to the industry. It combines the economical construction and visible disconnect blades found in metal-enclosed switchgear with protective relaying generally associated with metal-clad switchgear.

The design incorporates automatic, visible isolating blades in series with vacuum interrupters. When the circuit is opened, the resulting arc is extinguished within the vacuum interrupter but before the isolation blades open. On closing, the isolation blades make, before the vacuum interrupter contacts. This technically unique design results in several important benefits:

- **Maximized protection**
  No external arcing. Critical for applications in environments with explosive gases.
- **Maximized safety**
  Automatic visible isolation of the circuit.
- **Fault interruption**
  Fault currents up to 12,000 amperes without fuses.
- **Protective relaying**
  POWERLOGIC® 50/51 with integral ammeters Type DR 1005 (communication card optional).
- **Long life**
  Vacuum interrupter rated for 2,500 full-load operations.
- **Installation flexibility**
  Requires no more space than conventional metal-enclosed switchgear.

Unique Functionality

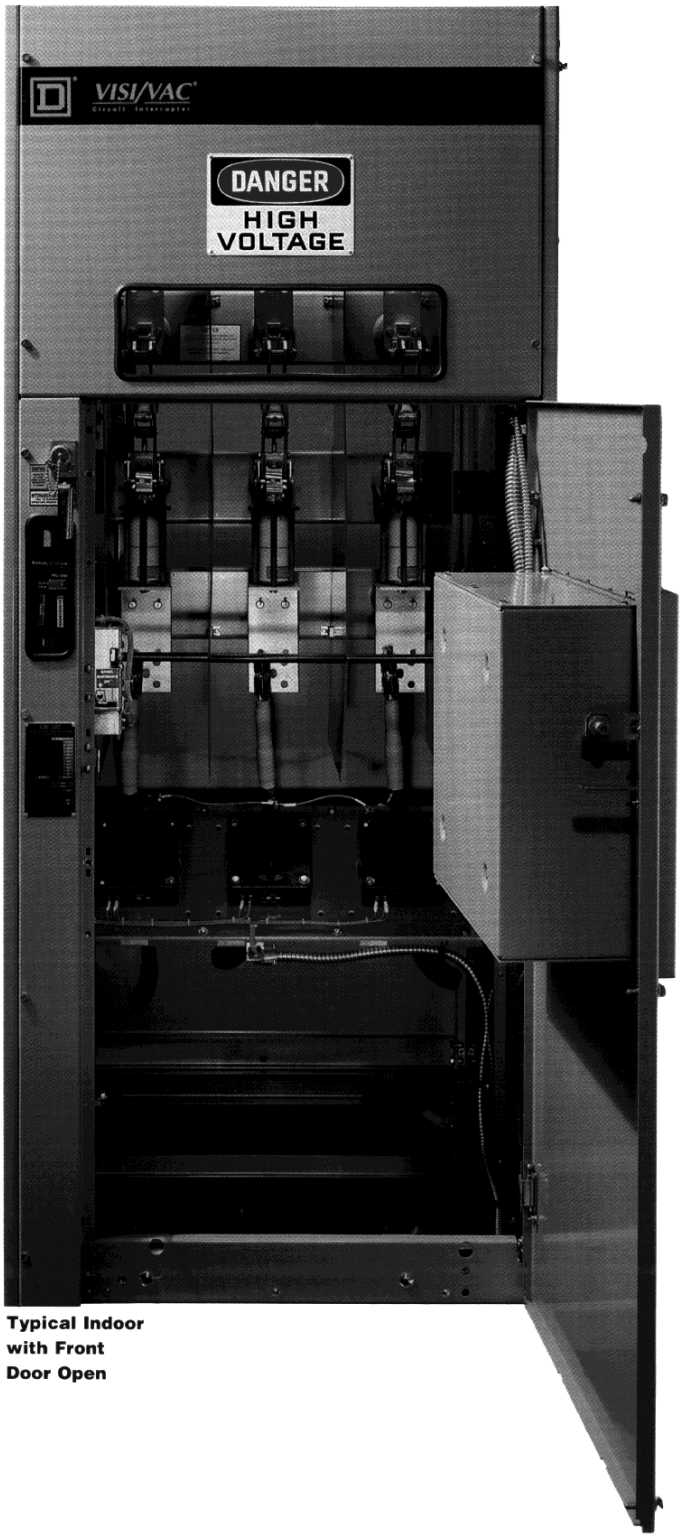
In its unfused version, the VISI/VAC circuit interrupter can carry continuous load currents up to 800 amperes. As a protective device, it can be used in three-phase and ground-fault applications up to 12,000 amperes, symmetrical at 15.5 kV. For fault currents exceeding 12,000 amperes, current limiting fuses can be added to provide an integrated interrupting rating up to 63,000 amperes, symmetrical.

The VISI/VAC circuit interrupter can be used as a primary device in unit substations, functioning as the main protective device. It can also be equipped with overload, ground-fault, and/or transformer differential protective relaying to give an extra degree of protection along with the advantage of high-speed operation.

Unique Configuration

The enclosure for the VISI/VAC circuit interrupter is as carefully designed as the interrupter itself. It features the same rigorous engineering that goes into all Square D switchgear products. In fact, it's the same compact enclosure that's used for HVL switchgear. This common construction allows standardization of the cubicle and its associated components. It also permits the integration of the VISI/VAC circuit interrupter and the HVL load interrupter into a continuous, modular, space-efficient switchgear lineup.

Typical Indoor Front View



Typical Indoor with Front Door Open

The enclosure containing the VISI/VAC circuit interrupter is available in single- or multiple-bay configurations. Common enclosure options include compact indoor (NEMA Type 1) and outdoor (NEMA Type 3R) configurations.

The front-accessible standardized enclosures are constructed of 11-gauge steel and have the toughest finish in the industry—Square D TGIC polyester powder paint. TGIC resins offer excellent mechanical properties, corrosion and exposure protection, edge coverage, and are also environmentally friendly. TGIC polyester powder paint has proven to be superior to any other paint system available today.

For increased safety, the enclosure door of the VISI/VAC circuit interrupter cannot be opened unless the VISI/VAC circuit interrupter is tripped. Consequently, there's no need to specify a screen to prevent operating personnel from accidentally coming into contact with live parts when the lower compartment door is open.

For additional safety, the isolation blades can be viewed through the Lexan safety window mounted in the permanently attached upper panel.

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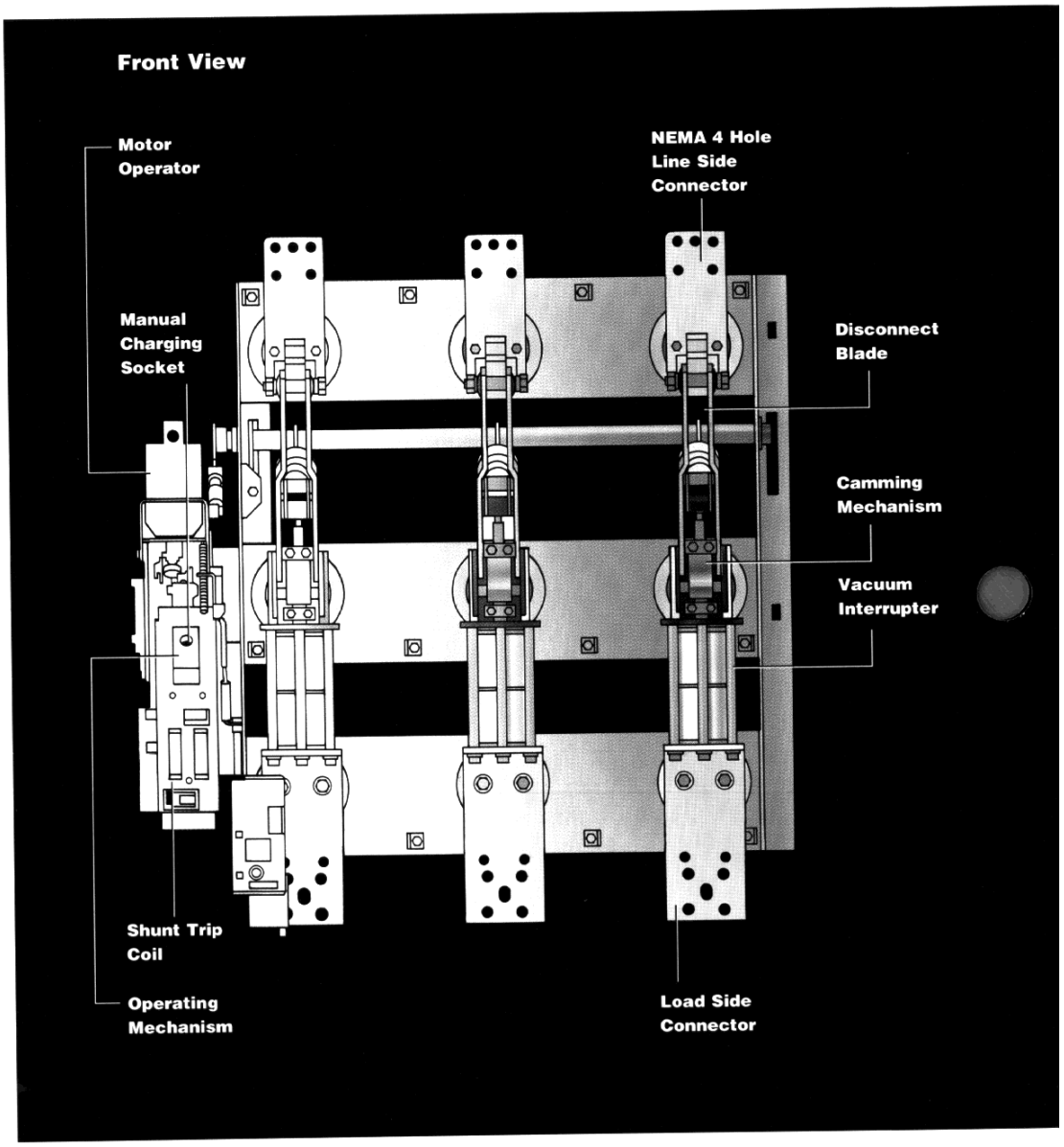
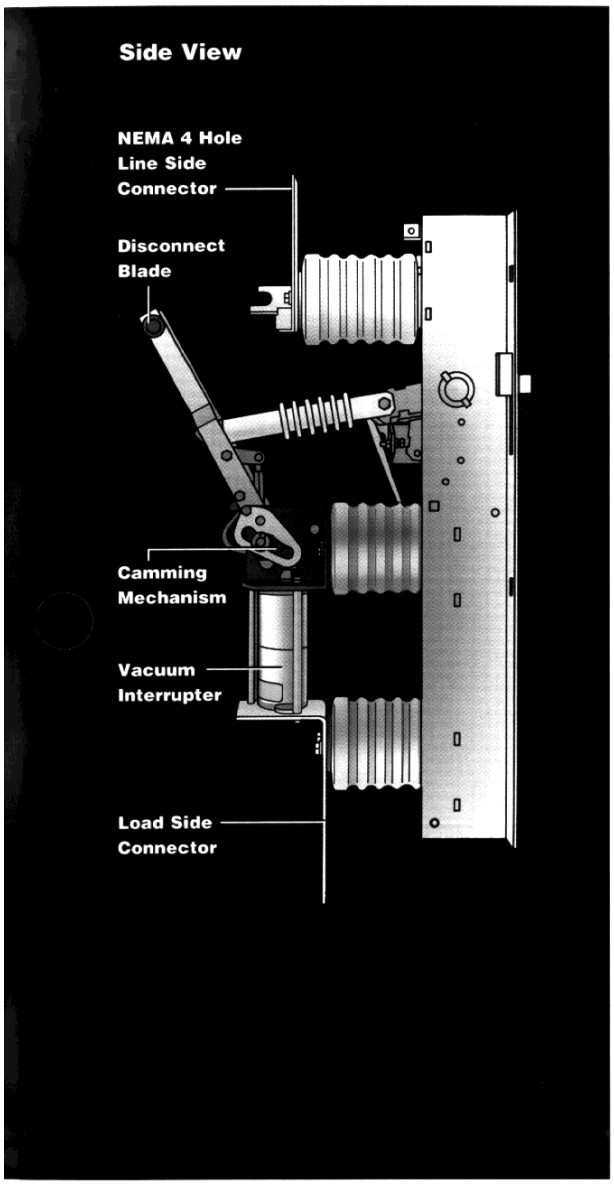
Unique Operation

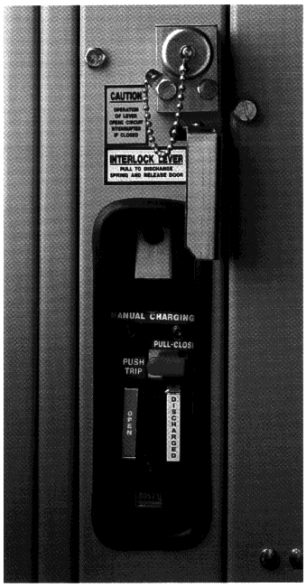
Automatic Visible Isolation. A patented camming mechanism enables the VISI/VAC circuit interrupter to open the circuit and extinguish the arc within the vacuum interrupter prior to the visible blades automatically isolating the circuit. This is accomplished in a single operation. When closing, the camming mechanism automatically closes the isolation blades before the vacuum interrupter contacts close into the circuit.

Vacuum Interrupter Bottle. The state-of-the-art interrupters used in VISI/VAC circuit interrupter products are designed for high-speed operation, rapid dielectric recovery, reduced maintenance, and long life.



VISI/VAC Circuit Interrupter





Operating Mechanism. The standard electrically operated mechanism charges the opening and closing springs. If control power is lost, there is provision for manual spring charging. In the charging operation, the opening and closing springs are charged and latched simultaneously. The operating mechanism can be closed either by a mechanical lever or the closing circuit. It can be tripped in a similar manner. The stored-energy mechanism makes the VISI/VAC circuit interrupter well suited for remote operation as well as for protective relaying and automatic throw-over schemes.

Our Dedication to Customer Solutions

If you're faced with a complex system or equipment application, Square D support is there to assist you. Start-up, troubleshooting, testing, calibration—whatever you need, our staff is there to help you whenever you need it. As the only company in North America to manufacture all the components of a unit substation and the leading supplier of electrical distribution equipment in the country, Square D is in a unique position to provide whatever is required to meet your application needs.

For more information on how we can assist you in your medium voltage applications, contact your local Square D sales office. They are conveniently located in over 200 cities throughout the world to serve you.

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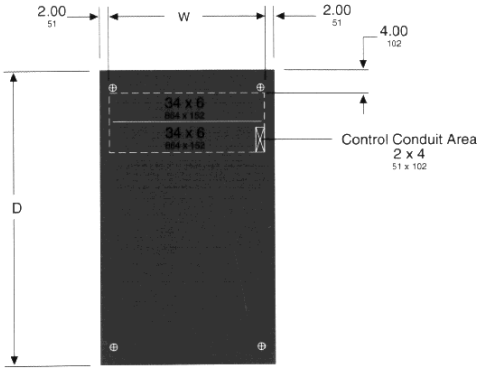
DIMENSIONS

Floor Detail



0.875" (22mm) Mounting Holes (4 places)

Dual Dimensions = Inches / Millimeters

Enclosure Type Dual Dimensions: Inches/Millimeters

kV	Width (W)	Depth (D)	Weight	Height
5/15 Indoor	38.00 / 965	54.50 / 1384	1200 lbs / 545 kg	90.0 / 2286
5/15 Indoor	38.00 / 965	46.50 / 1181	1000 lbs / 454 kg	90.0 / 2286
5/15 Outdoor	38.00 / 965	60.00 / 1524	1400 lbs / 636 kg	92.5 / 2350

Ratings

Nominal Voltage (kV)	4.16				13.8		
Maximum Design Voltage (kV)	4.76				15.0		
BIL (kV)	60				95		
Frequency (Hz)	50/60				50/60		
Switchgear Type	Unfused		Fused		Unfused		Fused
Continuous Amperes	600	800	600		600	800	600
Interrupting Amperes Unfused (kA Symmetrical)	12.5		—		12.5		—
Fault Close Unfused (kA Symmetrical)	12.5		—		12.5		—
Current Limiting Fuse Rating①	—		To 175E②	200E②	250E②	—	To 300E③
Interrupting Amperes Fused (kA Symmetrical)④	—		63	40	25	—	40
Fault Close Fused (kA Symmetrical)④	—		63	40	25	—	40
Momentary Current (kA Asymmetrical 10 Cycle)	20		—		20		—
Capacitor Switching (kVAR Single Bank Only)	Consult Headquarters						
Short-Time Current (kA 2 Seconds)	12.5		—		12.5		—
Dielectric Withstand (kV 1 Minute)	19		19		36		36
Closing Time⑤	5 cycles						
Opening Time⑤	3 cycles						
Endurance (Operations):							
Mechanical (Close-Open)	5000						
Electrical Full Load (600 ampere)	2500						
Electrical Short Circuit (12.5 kA)	30						
Spring Charging Time⑤	6-8 seconds						
Transfer Time (between 2 VISI/VAC circuit interrupters)	8-10 cycles						
Dead Bus Time⑤	6-8 cycles						
Control Voltages	120 and 240 Vac; 24, 48, 125, and 250 Vdc						

① Cannot coordinate with boric acid fuses. ② Square D fuses. ③ Square D fuses to 200E. Other fuses to 300E.
④ An intentional time delay may be required for coordination between relay and fuse. ⑤ At 100% control voltage.

As standard specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

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