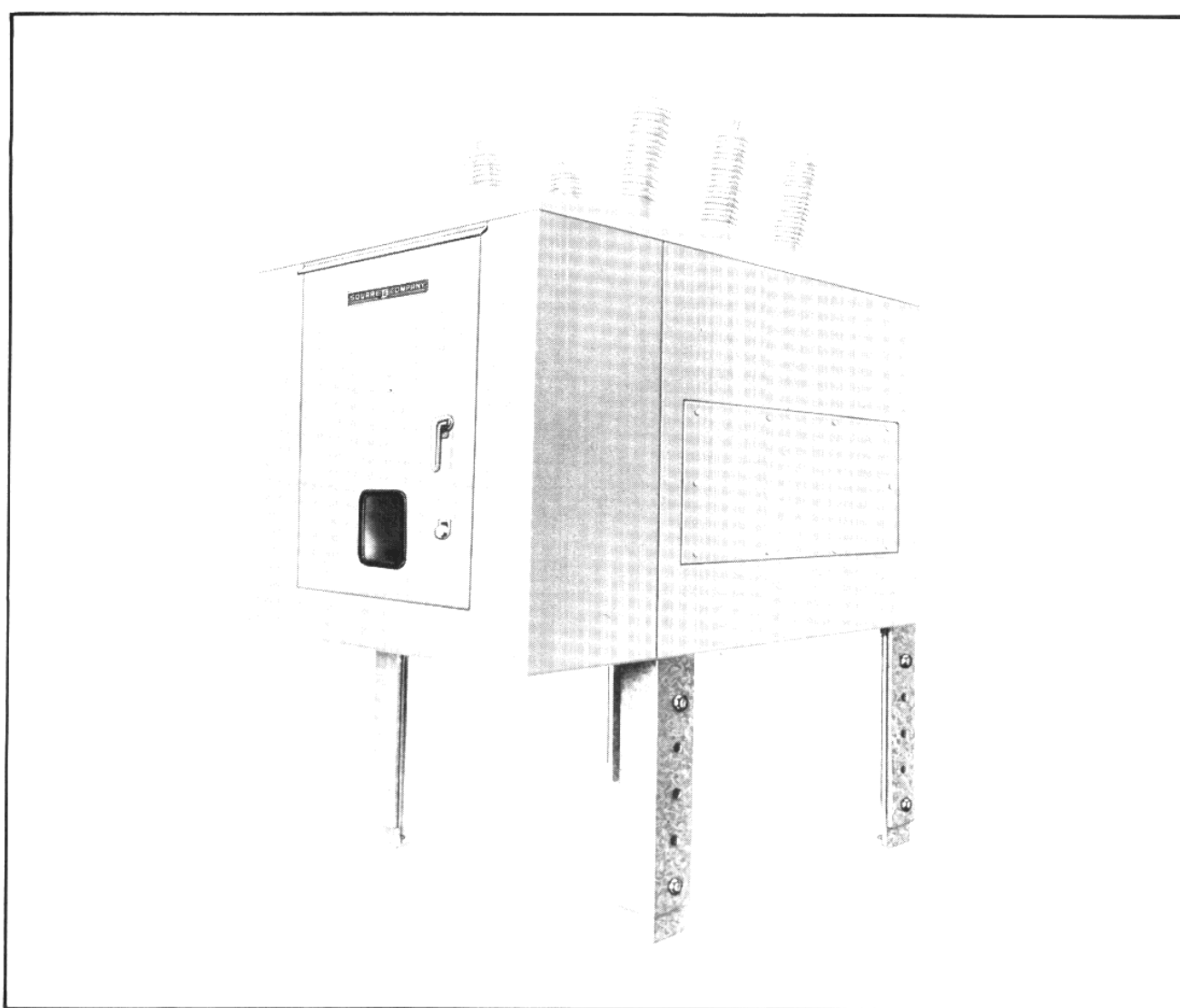


SQUARE D COMPANY

MIDDLETOWN HEADQUARTERS SALES DEPARTMENT

15.5kV, 25.8kV and 38kV FLUARC SF₆ CIRCUIT BREAKERS



Prototype of SF₆ unit breaker shown at the APPA-TVPPA Engineering and Operations Workshop and IEEE Power Engineering Exposition

The first Square D product utilizing the SF₆ circuit breaker, a 3 pole outdoor unit breaker, was introduced to the utility industry at the APPA-TVPPA Engineering and Operations Workshop in Nashville on March 13-15, 1979, and the IEEE

Power Engineering Exhibition in Atlanta on April 2-6, 1979.

Reactions to the prototype were quite encouraging.

Continued

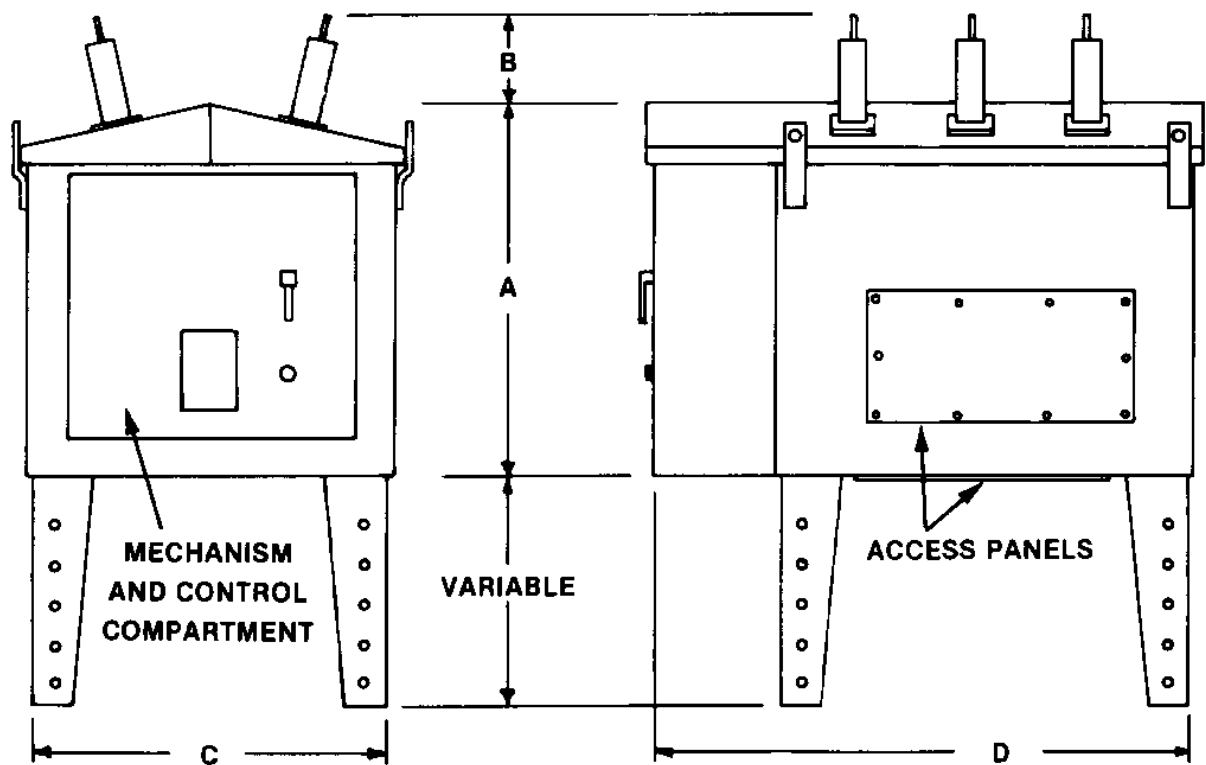
THE FLUARC SF₆ CIRCUIT BREAKER

The FLUARC SF₆ Circuit Breaker is now available in a unit breaker configuration for substation applications. SF₆ has been used for many years as an arc interrupting and insulating medium for high and extra high voltage applications. This technology is now available between 10kV and 38kV, offering advantages over conventional oil and vacuum breakers.

The table on Page 3 of this Product News lists ratings available. The outline drawings below apply to all breakers using the FLUARC FB interrupters. Adjustable legs are standard permitting installation in existing substations. Incoming and outgoing cables or bus are connected to track resistant cycloaliphatic epoxy condensor bushings. A maximum of two multi-ratio current transformers per pole can be ordered on both line and load side of the breaker. There is space for relays within the basic enclosure. External relay enclosures are available for additional controls and relays.

Sulfur hexafluoride has a unique combination of qualities which makes it ideally suited as a dielectric and arc extinguishing medium. These well known and experience proven properties permit a compact breaker, requiring only one interrupter unit per pole for the wide range of currents and voltages. The gas is non-hazardous and under low pressure. The result is a simple dependable breaker requiring minimum maintenance over an extended number of operations.

This unit breaker can be used as a substation main, tie or feeder suitable for switching capacitors, transformers and distribution circuits. In addition, reclosing capability is standard. The electrically operated stored energy mechanism is similar to the 5kV and 15kV SOLENARC air circuit breaker. Fixed and drawout configurations for indoor use will be available in the future.



DIMENSIONS (inches) APPROXIMATE — NOT FOR CONSTRUCTION

DIM.	15kV	25.8kV	38kV
A	42	48	55
B	11	14	16
C	43	45	55
D	70	74	81

FB & FC THREE POLE SF₆ CIRCUIT BREAKERS

TYPE BREAKER	FB-2 200	FB-3 80	FB-3 125	FB-3 160	FC-3 250	FC-3 400	FB-4 80	FB-4 125	FC-4 315
RATED MAXIMUM VOLTAGE (L-L) (KV)	12	24	24	24	24	24	36	36	36
MINIMUM OPERATING VOLTAGE (L-L) (KV)	10	15	15	15	15	15	20	20	20
RATED CONTINUOUS CURRENT (A)	600 1200	400 600 1200	400 600 1200	600 1200	1200 2500	1200 2500	400 600 1200	400 600 1200	1200 2500
RATED SYMMETRICAL INTERRUPTED CURRENT (KA)	20	8	12.5	16	25	40	8	12.5	31.5
MVA AT MAXIMUM VOLTAGE	410	330	520	660	1040	1660	500	780	1950
MVA AT MINIMUM VOLTAGE	350	210	330	415	650	1000	280	430	1000
CLOSE & LATCH CURRENT (KA PEAK)	55	50	50	50	63	100	50	50	100
3-SECOND MOMENTARY CURRENT (KA RMS)	20	8	12.5	16	25	40	8	12.5	31.5
RATED RAPID RECLOSING 0 - .3 SEC. - CO - 15 SEC. CO	YES	YES	YES	YES	NO	NO	YES	YES	YES
DIELECTRIC BIL (KV) AT PRESENT FUTURE	95 —	125 150	125 150	125 150	125 150	125 150	170 200	170 200	170 200
RATED CAPACITOR SWITCHING CAPACITY CURRENT (A) CONTINUOUS RATING									
400		300	300				300	300	
600	500	500	500	500			500	500	
1200	600	600	600	600	700	700	600	600	700
2500					700	700			700

Ratings according to IEC Test Standards.

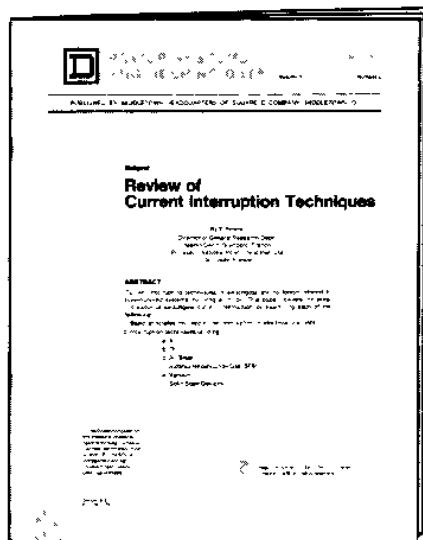
To explain more of the details of SF₆ equipment, three issues of our new Power Systems Engineering Data are now available. Titles and a brief abstract of these publications are listed below:

VOL. 1, NO. 2 — Review of Current Interruption Techniques

ABSTRACT:

Current interrupting techniques in switchgear are no longer limited to time-honored systems involving air or oil. This paper reviews the present status of switchgear current interruption by examining each of the following:

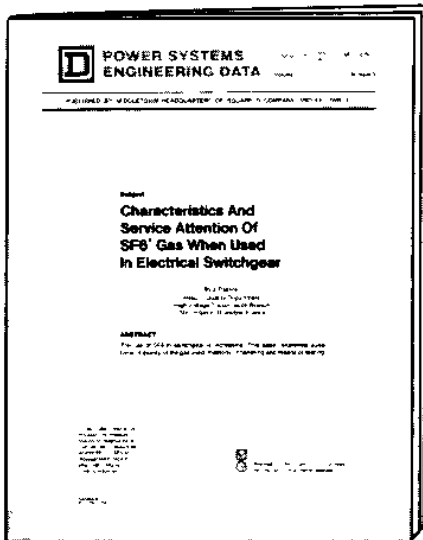
1. Basic principles involved in the interruption of electrical currents.
2. Interruption techniques utilizing:
 - a) Air
 - b) Oil
 - c) Air Blast
 - d) Sulphur Hexafluoride Gas (SF_6)
 - e) Vacuum
 - f) Solid State Devices



**VOL. 1, NO. 3 — Characteristics and Service Attention
of SF₆ Gas When Used in Electrical Switchgear**

ABSTRACT:

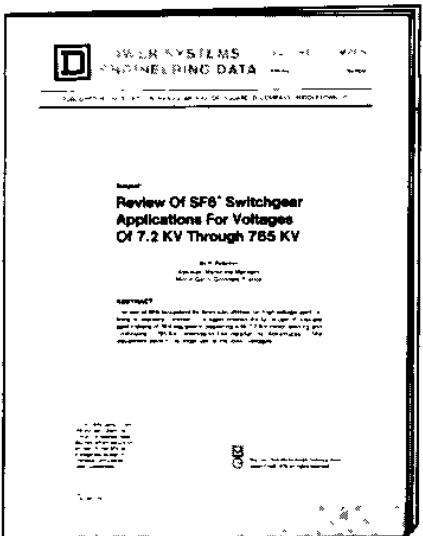
The use of SF₆ in switchgear is increasing. This paper examines questions of quality of the gas used, methods of handling and means of testing.



**VOL. 1, NO. 4 — Review of SF₆ Switchgear Applications
for Voltages of 7.2kV through 765kV**

ABSTRACT:

The use of SF₆ equipment by American utilities for high voltage applications is relatively common. This paper reviews the full scope of possible applications of SF₆ equipment beginning with 7.2kV motor starting and continuing to 765kV transmission line installations. Advantages of SF₆ equipment point to its wider use at the lower voltages.



B. F. Lindholm

**Copies of these publications are available from
Dept. SA, Square D Company, P. O. Box 558,
Middletown, Ohio 45042.**