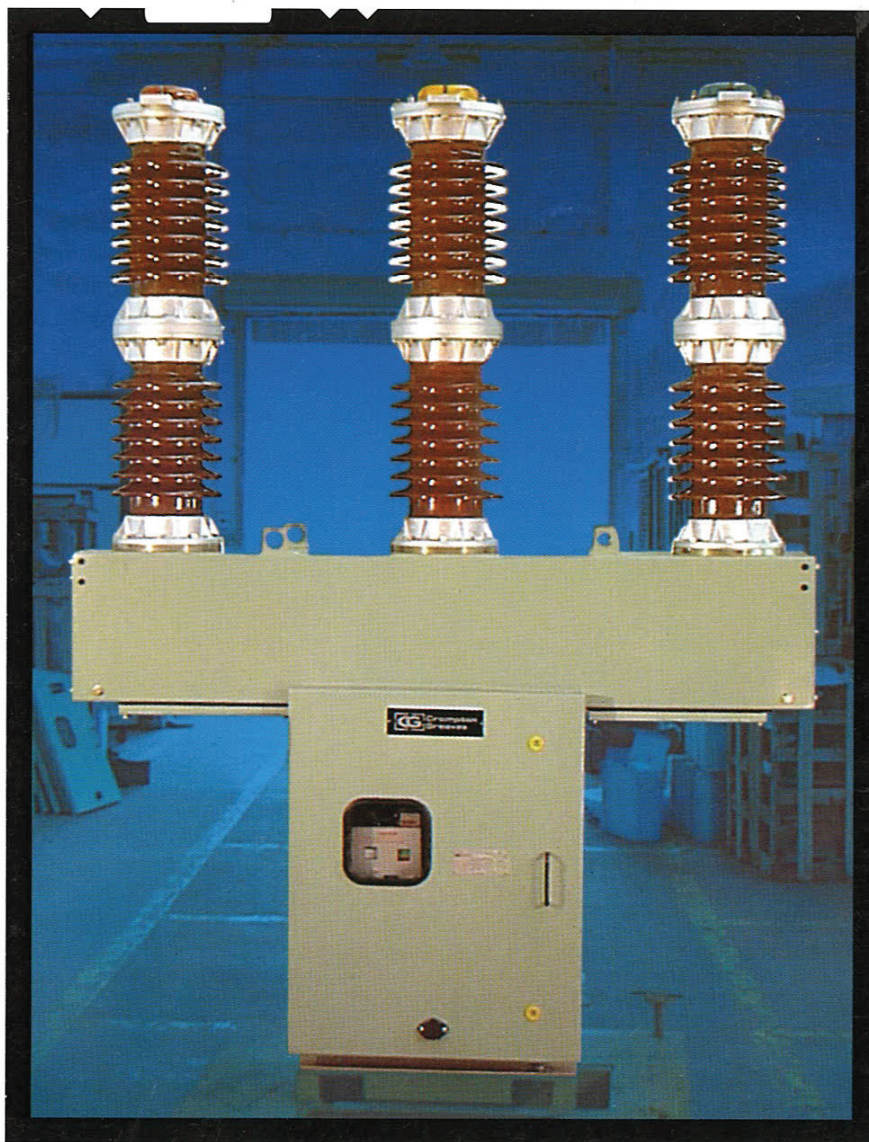


TECHNOLOGY TO THE FORE



SWITCHGEAR
COMPLEX

VACUUM CIRCUIT BREAKERS FOR OUT-DOOR USE UPTO 36kV



**Crompton
Greaves**

CG Switchgear and Control
A Business Unit of Crompton Greaves Ltd.



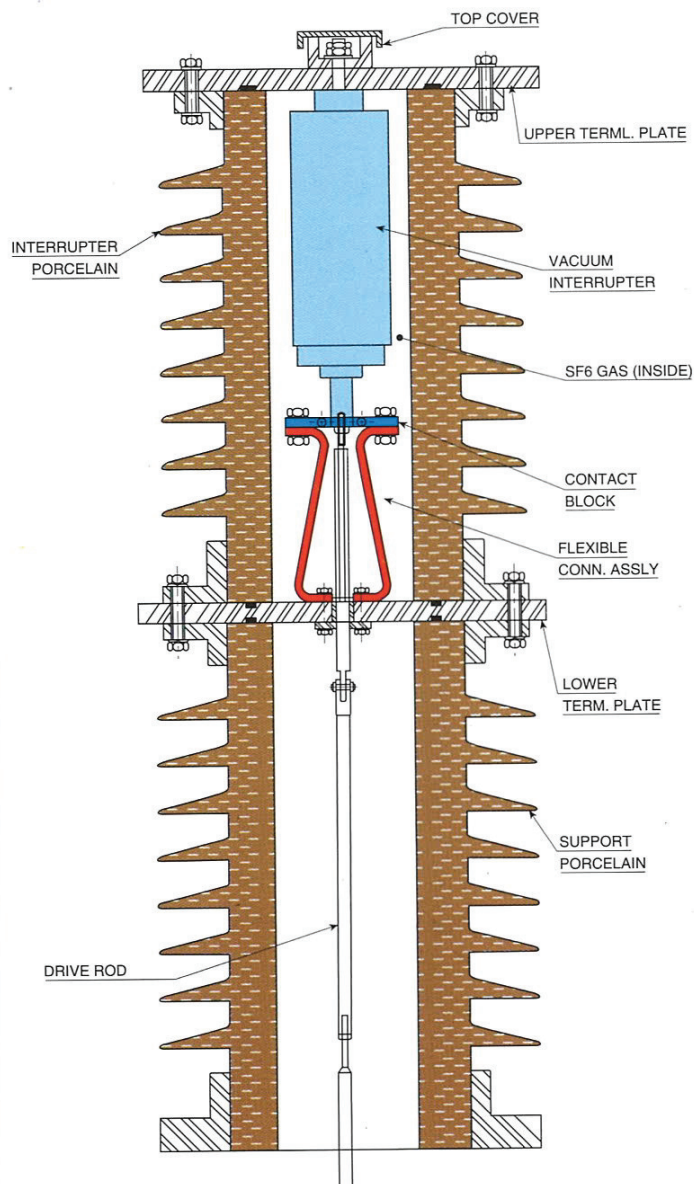
INTRODUCTION

More than 2000 Crompton Greaves outdoor type Vacuum Circuit Breakers have been put into service in various environments in many countries since 1995 where they are operating satisfactorily. Porcelain Clad Vacuum Circuit Breaker is an outdoor type Circuit Breaker with minimal maintenance, high reliability & completely free from menace of vermins. It is specially designed for outdoor applications with adequate clearances, sufficient creepage to suit polluted atmosphere & there is no communication between inside of pole unit and the atmosphere. The Vacuum Circuit Breakers are of live tank type with rated voltage of 12 to 36 kV. Each breaker consists of three Porcelain enclosed vacuum type interrupters, providing a high insulation as well as an excellent breaking capability & a spring operating mechanism ensuring high operational reliability. All our Vacuum Circuit Breakers adhere to the requirements of the quality standards and scope of supply of ISO 9001, 1994.

FEATURES

- These Vacuum Circuit Breakers are extremely simple & compact in design.
- Vacuum has superior dielectric properties therefore, recovery is faster & hence the arc quenching is accomplished within 8 to 23 mm of contact gap depending on the rating.
- There is no deterioration of the quenching medium. The vacuum integrity is ensured by the design & manufacturing technology of the interrupter.
- The contact erosion is minimal due to short arc duration. This makes the interrupter a highly reliable switching device with very long contact life.
- These Circuit Breakers require very little maintenance except periodic lubrication of mechanism parts.
- The interior of each pole has inert atmosphere & is filled with SF₆ gas. This ensures that there is no trace of humidity in the pole by breathing.
- The individual pole is independently filled with inert gas & there are no interconnecting

POLE UNIT ASSLY - CROSS SECTIONAL VIEW



pipelines. Hence, the number of gas joints is considerably reduced, which automatically reduces the probability of leakage.

- Each pole is properly sealed at each joint makes the Circuit Breakers absolutely vermin-proof.
- In addition to normal switching duties, the Circuit Breakers are suitable for the auto-closing duty.
- The inspection & replacing of the vacuum interrupter can be done by removing only the upper terminal of the interrupter unit as & when required. This operation does not require the breaker to be dismantled & it takes only a few hours to put the breaker into service again.
- The low operating noise level of the spring charged operating mechanism used in these breakers enables its use near residential areas.
- The breakers have been made extraordinarily simple & light to increase safety in the events of an earthquake.

TESTS AND PERFORMANCE

The performance & reliability of these breakers & their excellent interrupting capability has been verified at renowned testing laboratory like CPRI, India. The breakers are type tested for Short circuit & capacitive current switching test as per IEC: 60056 & IS: 13118 - 1991.

EASE OF INSTALLATION

Since these units are shipped in two parts - namely the pole unit & the mechanism - minimal site preparation is required & setup time is also very low.

DESIGN

- The interrupting unit is indigenously manufactured by Crompton Greaves.
- The vacuum interrupter has contact arrangement that gives efficient arc interruption.
- No separate terminal pad is required for overhead conductor connection.
- No special tools & techniques are required for routine maintenance.
- The operating mechanism has an operating life of 10,000 operations because of the Special Steel components used in it.

GUARANTEED TECHNICAL PARTICULARS PORCELAIN CLAD VACUUM CIRCUIT BREAKERS

| | | UNITS | 12 kV | | 36kV |
|--|---|-------|-------------------------------|-----------------|----------------|
| 1. TYPE REFERENCE | : | - | 12PVE 12 | 12PVE 20/ XL | 36 PV 25 A |
| 2. RATED VOLTAGE | : | kV | 12 | | 36 |
| 3. RATED LIGHTNING IMPULSE WITHSTAND | : | kVp | 75 | | 170 |
| 4. RATED POWER FREQUENCY WITHSTAND | : | kV | 28 | | 70 |
| 5. CREEPAGE DISTANCE (TOTAL) | : | mm | 300 | | 900 |
| 6. APPLICABLE STANDARDS | : | - | IS: 13118, IEC: 60056 | | |
| 7. TYPE OF MECHANISM | : | - | SPRING CLOSING / TRIPPING | | |
| 8. RATED NORMAL CURRENT | : | A | 400/800 | 400/800/1250 | 1250/1600/2000 |
| 9. RATED SHORT CIRCUIT BREAKING CURRENT | : | kA | 13.1 | 18.4/20/25/26.3 | 25 |
| 10. RATED SHORT CIRCUIT MAKING CURRENT | : | kAp | 34 | 47/50/62/67 | 62.5 |
| 11. D.C. COMPONENT | : | - | <50% | | |
| 12. RATED OPERATING SEQUENCE | : | - | 0-0.3 sec-CO-3 min-CO | | |
| 13. RATED FREQUENCY | : | Hz | 50 / 60 | | |
| 14. RATED BREAK TIME | : | ms | <60 | | |
| 15. RATED CLOSING TIME | : | ms | <60 | | <100 |
| 16. RATED CLOSING / TRIPPING VOLTAGE | : | V | 24 / 30 / 110 / 220 V DC | | |
| 17. MOTOR VOLTAGE | : | V | 110 / 220 V AC/DC | | |
| 18. POWER REQUIRED BY TRIP & CLOSE COILS | : | WATT | 450 MAX | | 600 MAX |
| 19. RATED DURATION OF SHORT CIRCUIT | : | sec | 3 | | |
| 20. RATED SINGLE CAPACITOR BANK BREAKING CURRENT | : | A | 550 | 550 | 320 |
| 21. AUXILIARY CONTACTS | : | - | 6 NO & 6 NC | | |
| 22. DEGREE OF ENCLOSURE PROTECTION | : | - | IP 55 (IEC: 60529, IS: 2147) | | |
| 23. WEIGHT (APPROX.) | : | KG | 650 | 650 | 750 |