

Table 1 Ratings of RF701 Type Air Blast Circuit Breakers

| Type | Ratings | | | | | | | | | | No-load closing time (s) | Operational duty time (No.) | Air tank capacity (l) | Air consumption (Atmospheric pressure conversion) (l) | | Control current (amp) | | operating pressure Rated (kg/cm ²) | Weight (kg) | Number of series breaking units | Breaking capacity for voltages other than the rated voltage | | Dimensions (mm) | | |
|-----------------|--------------|-------------|-------------------------|----------------------|------------------------------|-------------------------|----------------------|-------------------|------------------|--|--------------------------|-----------------------------|-----------------------|---|---------|-----------------------|-------------------------|--|-------------|---------------------------------|---|-------|-----------------|------|--|
| | Voltage (kv) | Current (A) | Breaking capacity (Mva) | Insulation class No. | Restriking voltage No. (kHz) | Short-time current (ka) | Closing current (kA) | Breaking time (s) | Opening time (s) | Closing | | | | Tripping | Closing | Tripping | Breaking capacity (Mva) | | | | Height | Width | Depth | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| RF701d/10/1200D | 12 | 1200 | 500 | 10B | II 15 | 24.1 | 65.5 | 3 | 0.025 | A (CO-15 or A (CO-15 minutes-CO) or A (CO-15 seconds-CO) | 110 | 50 | 600 | 5 | 5 | 15 | 420 | 1 | 7.2 14.4 | 500 1200 | 1668 | 1000 | 884 | | |
| RF701d/10/2000D | | 2000 | | | | | | | | | | | | | | | | | | | 1668 | 1000 | 985 | | |
| RF701h/10/2000D | | 2000 | 10A | 48.1 | | 131.3 | 5 | 0.03 | 230 | | 60 | 1200 | 2071 | | | | 1220 | | | 1118 | | | | | |
| RF701h/10/4000D | | 4000 | | | | | | | | | | | 2071 | | | | 1220 | | | 1160 | | | | | |
| RF701h/20/1200D | 24 | 1200 | 1000 | 20B | II 9 | 24.1 | 65.5 | 3 | 0.025 | | 135 | 50 | 700 | 5 | 5 | 15 | 600 | 1 | | | 1863 | 1220 | 971 | | |
| RF701h/20/2000D | | 2000 | | | | | | | | | | | | | | | | | | | 1872 | 1200 | 1055 | | |
| RF701h/20/4000D | | 4000 | | | | | | | | | | | | | | | | | | | 1863 | 1200 | 1087 | | |
| RF701j/20/2000D | | 2000 | | | | 36.1 | 98.5 | 5 | 230 | | 60 | 1200 | 2071 | | | | 1220 | | | | 1118 | | | | |
| RF701j/20/4000D | | 4000 | | | | | | | | | | | 2071 | | | | 1220 | | | | 1160 | | | | |
| RF701B/20/2000D | | 2000 | | | | | | | | | | | 420 | | | | 70 | | | | 2400 | 2009 | 1440 | 1620 | |
| RF701j/30/1200D | 36 | 1200 | 1500 | 30B | II 7 | 24.1 | 24.1 | 3 | 0.03 | | 195 | 60 | 900 | | | | 660 | | | | 2051 | 1360 | 1071 | | |
| RF701j/30/2000D | | 2000 | | | | | | | | | | | | | | | | | | | 2051 | 1360 | 1108 | | |
| RF701B/30/2000D | | 2000 | | | | | | | | | | | | | | | | | | | 2069 | 1440 | 1700 | | |

The air tank capacity is enough for 1 "CO" without air supply.

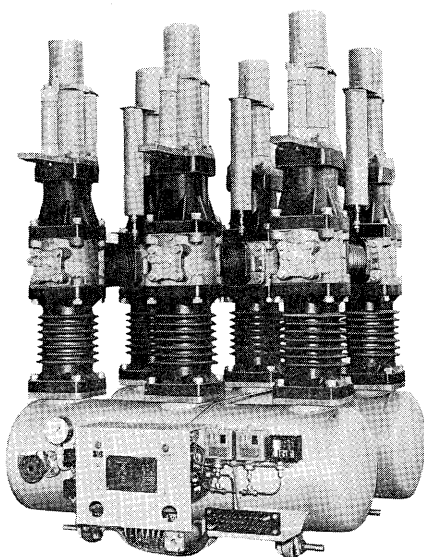


Fig. 3 Air blast circuit breaker 36 kv, 2000 amp, 1500 Mva

Short-circuit tests were conducted on 36 kv, 2500 Mva breakers at the High Voltage Power Laboratory Takeyama Laboratory.

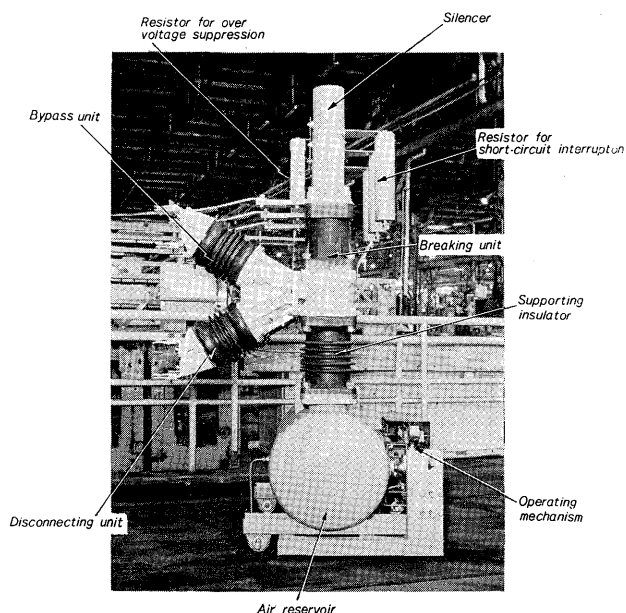


Fig. 4 Side view of air blast circuit breaker 12 kv, 4000 amp, 1000 Mva

FUJI V-TYPE DISCONNECTING SWITCH

(Indoor-type, for 3/6 kv circuit) (Single pole, single throw, hook operation)

Introduction

Fuji Electric is now producing a standard line of disconnecting switches for a wide range of voltages from low ratings of 600 v and below up to ultra-

high voltages of 500 kv. These switches include Fuji's unique V-type series, the pantograph series etc. These switches are now widely used and have proven highly satisfactory.

Recently, Fuji Electric started to manufacture a V-type disconnecting switch (indoor-type) for 3/6 kv circuits which incorporates a new concept based on the company's excellent technological background. This new type switch possesses many features. It is especially useful since it can be employed in both distribution systems and compartment systems due to the fact that it can be installed in all types of main circuit conductors.

Features

1. Compact, lightweight, easy to handle

As can be seen from Fig. 2, this new switch is much more compact than previous type disconnecting switches. This switch, rated at 7.2 kv, 200 amp, weighs only 1/4 of the old type switch of the same rating. These features insure easy handling.

2. Epoxy resin support insulators used

These epoxyresin support insulators are not only compact and lightweight but also possess excellent electrical and mechanical characteristics.

3. Price is very low

4. Connection on the rear side is easy because the switch is based on the V-type construction

There is no insulating tube used as in the old models so that easy rear connection is possible in very small spaces simply by bending the conductor. (Refer to Fig 3.)

5. Blade will not be sprung due to electromagnetic force

As can be seen from Fig. 3, the safety clutch is omitted in Fuji's unique terminal construction. However, the electromagnetic force applied to the blade is directed downwards which effectively prevents automatic opening during short-circuits.

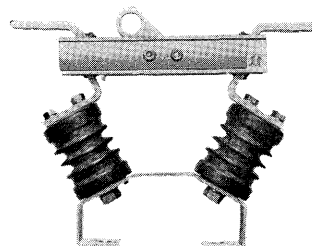


Fig. 1
External view of
V-type disconnect-
ing switch (7.2 kv,
600 amp)

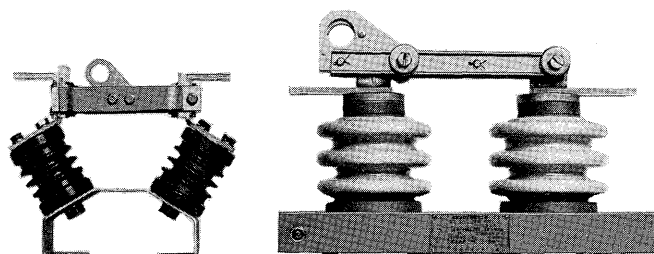


Fig. 2 External views of new-type (left) and old type (right) disconnecting switches (Rating 7.2 kv, 200 amp)

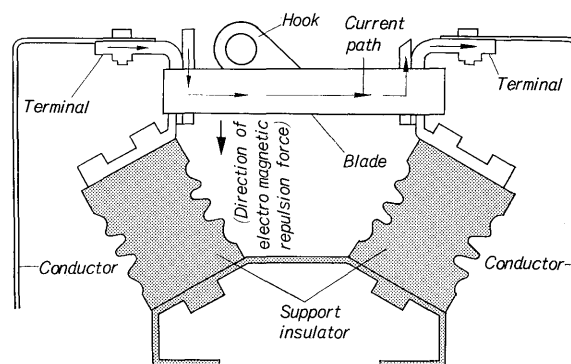


Fig. 3 Rear connection method and direction of electromagnetic force due to short-circuit current

Standard Specifications

| Specifications | Type | Indoor or Outdoor Type | Rating | | | Insulation | | | | Weight (kg) |
|---|-----------|---------------------------------|-----------------------------|----------------------|--|---|--|--|--|--------------------------------------|
| | | | Voltage (kv) | Current (amp) | Short- time Current (2 sec) (ka) | Ground | | Interpole | | |
| | | | | | | Usual mains freq. (1 min) (kv) | Impulse wave (1×40 μs wave) (kv) | Usual mains freq. (dry, 1 min) (kv) | Impulse wave (1×40 μs wave) (kv) | |
| Japanese Specifications (JEC-165) 1964 | VD-6/200 | Indoor | 7.2 | 200 | 10 | 22 | 60 | 35 | 70 | 3 |
| | VD-6/600 | | | 600 | 27 | | | | | 4 |
| | VD-6/1200 | | | 1200 | 32 | | | | | 5.5 |
| German Specifications (VDE 0670) 1965 | VD-6/400 | Indoor | 6N • 6S | 400 | 20 | 27 | 60 (6N) 50 (6S) | 27 | 60 (6N) 50 (6S) | 4 |
| | VD-6/630 | | | 630 | | | | | | |
| | VD-6/800 | | | 800 | | | | | | |
| | VD-6/1250 | | | 1250 | | | | | | 30 |
| International Specifications (Pub. 129) 1961 | VD-6/200 | Indoor | 7.2 (European series) | 200 | 10 | 27 (European series) | 60 (European series) | 35 (European series) | 70 (European series) | 3 |
| | VD-6/400 | | | 400 | 27 | | | | | 26 (America/ Canada series) |
| | VD-6/630 | | 630 | | | | | | | |
| | VD-6/800 | | 800 | | | | | | | |
| | VD-6/1250 | | 1250 | 32 | 5.5 | | | | | |
| American Specifcatons (NEMA SG-6) 1966 | VD-6/400 | Indoor | 7.2 | 400 | 20 ※ | 26 | 75 | 26 | 75 | 4 |
| | VD-6/600 | | | 600 | 40 ※ | | | | | |

※ : Momentary current