

**MODEL VD-425
CAPACITIVE
VOLTAGE
DIVIDER**

Maximum Pulse Voltage, in oil	425 kV
Nom. Max. Short Period Test Voltage	450 kV
Voltage Division Ratio, in oil	10,000:1
Frequency Range, into 1M Ω load	25 Hz to 3 MHz
Droop Rate, into 1 M Ω load	0.015 % / μ second
Usable Rise-time	150 nanosecond
Capacitance added to circuit	30 pF (approx.)

The Model VD-425 capacitive voltage divider is intended for the measurement of voltage amplitude and wave-shape of AC signals at high potential. It has a nominal division ratio of 10000:1, and the exact measured ratio is printed on the name-plate. This ratio is measured in insulating oil at 35°C, and is accurate to $\pm 5\%$. The division ratio is temperature compensated to $\pm 1\%$ over the range of 20° to 80°C. The ratio is measured using a 46 foot (14 m) long RG-58 coaxial cable.

The unit consists of two capacitors connected in series. The high voltage center electrode forms a capacitor with a guarded pickup ring located in the lower metal cylinder. This pickup ring is connected to the center conductor of the output connector via a 50 Ω resistor. The low-voltage capacitor connects the pickup ring to the outer conductor of the connector. The output voltage is thus a fraction of the input voltage determined by the ratio of the capacitances.

Typically, the divider is placed in high-voltage insulating oil, such as Shell Diala AX, along with other components of the high-voltage circuit being measured. The case has drain holes to allow oil to enter or drain out as the unit is inserted or removed from the oil bath. The standard calibration is for use in oil, which has a dielectric constant of about 2.3. The specified working voltage is for 8 microsecond pulse duration.

The conductor connecting the high voltage to the voltage divider should be free of sharp points or edges, and of sufficient diameter to avoid corona and arcs. The outer conductor of a standard coaxial cable, such as RG-58, works well. The conductor should be located as far as possible from the acrylic chimney and any grounded conductors such as the case or the output cable.

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