

Application

Elgin capacitors provide protection against voltage surges for medium-voltage motors and generators.

Due to their design characteristics, medium-voltage rotating machines have reduced insulation and are therefore more prone to failure caused by surges and voltage than other equipment in the same facility. An analysis of such events shows that the surge wave causes a large potential difference in the windings of the machine coil in the first instance of the event, which constitutes a “peak.”

Thus, the large stress on the dielectric insulating the machines can be observed in the first instance of the surge.

Installing some capacitance of a certain value in the circuit causes the “peak” to be delayed, thus reducing the potential difference in the windings. Using a lightning arrester in parallel to the capacitance completes the effectiveness of the surge protection.

Attention: the capacitor must be installed in a phase-to-ground connection, on the terminal posts of the machine to be protected, and in parallel to the selected lightning arrester.

Fully Tested Equipment

Laboratory testing is performed to conduct the routine, type, and special tests set out in international standards (IEEE 18, IEC 60871, and IEC 60143).

Elgin’s capacitors are manufactured in a state-of-the-art factory in Brazil with ISO 9001, ISO 14001, and ISO 45001 certifications.

Elgin has decades of experience delivering power factor and power quality products.

Design Features

All of our capacitors are manufactured as per the following technical specifications:

- “All-film” technology (dielectric with a polypropylene film) with an aluminum foil and a folded margin.
- Impregnation with WEMCOL II biodegradable oil, providing the best operation at different temperatures.
- Vitrified porcelain bushings as Insulators, welded directly to the tank.
- Capacitance tolerance of 0% to +10%, as per the IEEE standards.
- Discharge resistor: 50V in 5 minutes. (Call us for other ratings and times.)
- Installation altitude up to 3,280 FT above sea level. (Call us for higher altitudes.)
- PCB-free equipment.
- Temperature Class from -40 °C to +50 °C. (Call us for other temperatures.)



Voltage Surge Capacitors

Typical capacitance values for surge protection

GRID VOLTAGE (KV)	MACHINE NEUTRAL WIRE	PHASE-TO-GROUND CAPACITANCE (UF)	NI (KV)
2,4	Grounded/Insulated	0,5	20/60
4,16	Grounded/Insulated	0,5	20/60
4,8	Grounded/Insulated	0,5	20/60
6,9	Grounded/Insulated	0,5	20/60
11,5	Grounded	0,25	34/100
11,5	Insulated	0,5	34/100
13,8	Grounded	0,25	34/100
13,8	Insulated	0,5	34/100

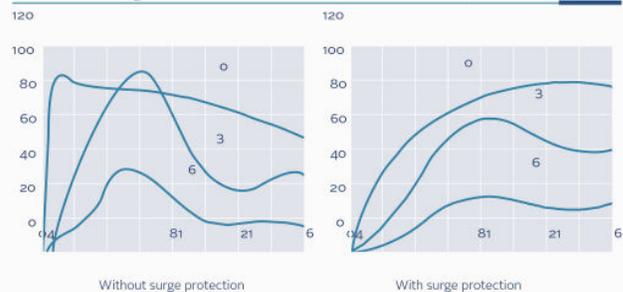
Relative positions of the machine coil



Simplified scheme for connecting the voltage surge protection



Voltage Surge distribution in the winding in various relative positions



CAPACITANCE (uF)	NOMINAL VOLTAGE (KV)	NI (KV)	DIMENSIONS			
			B	C	D	E
0.25	7.2	20/60	4 5/16" (110mm)	8 7/8" (225mm)	4 1/8" (105mm)	7 7/8" (200mm)
0.5	7.2	20/60	5 9/16" (142mm)	10 1/8" (257mm)	4 1/8" (105mm)	7 7/8" (200mm)
0.25	15	20/60	7 1/2" (190mm)	14 3/4" (375mm)	4 1/8" (105mm)	15 3/16" (385mm)
0.5	15	20/60	12 5/8" (320mm)	19 7/8" (505mm)	4 1/8" (105mm)	15 3/16" (385mm)

Technical Drawing

