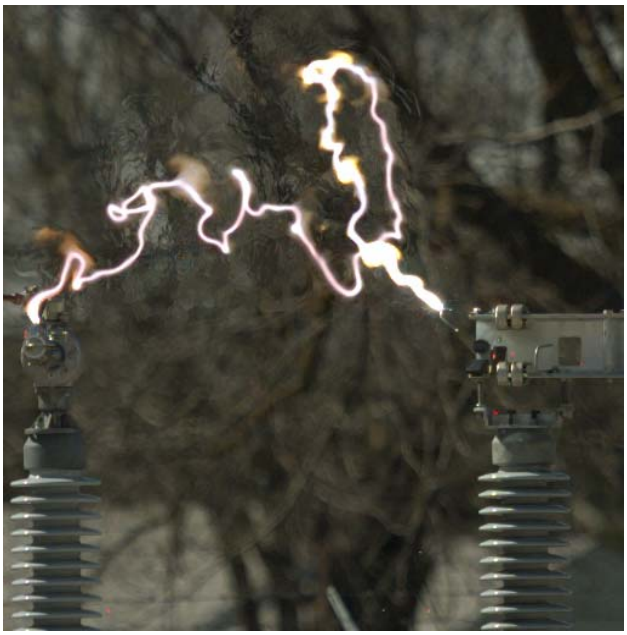
Transmission-Class Capacitive Switching

Hubbell Laboratories now offers transmission-class capacitive switching test capabilities at transmission voltages per IEEE 1247-2005 at the high power test laboratory located in Centralia, Missouri.

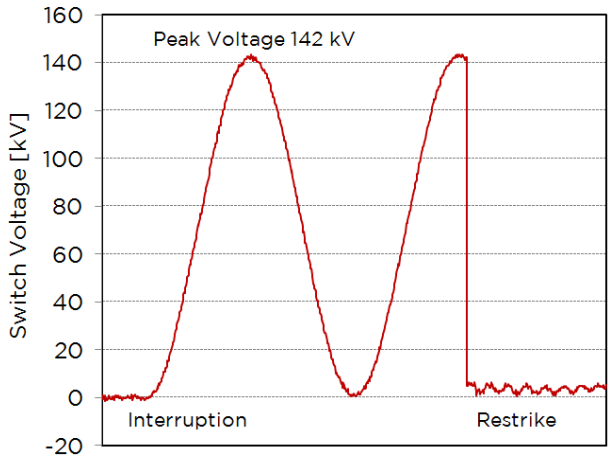
Capacitance accumulates on long transmission lines, resulting in a natural capacitive load to ground. While breakers interrupt the 1000-5000A load current at the load end of a line, the transmission lines remain energized with up to 100A of capacitive current flowing through the source side switchgear. Switchgear rated for line-charging or cable-charging switching must be able to interrupt their rated capacitive current. Due to the physics of interrupting current to capacitive loads, lines remain energized with a DC voltage equal to the peak of the AC line voltage prior to interruption. The recovery voltage across the switch is the summation of the AC system voltage and the DC load voltage, equal to twice line voltage.



Transmission switchgear rated for any form of capacitive switching must be designed to safely interrupt the natural capacitive current and withstand the peak recovery voltage without flashover. If a flashover occurs, the restrike results in high amplitude, high frequency voltage/current oscillations and an open air power arc. These oscillations can have detrimental effects on power transformers, metering equipment (PTs and CTs), and smart grid devices. The high temperature power arc can cause severe damage to substation and transmission equipment, especially if the arc reaches a grounded structure. Damage to transmission equipment can result in prolong system outages.

Hubbell Laboratories located in Centralia, Missouri and Wadsworth, Ohio are available to third party manufacturers, utilities, and inspection agencies on a contract basis. For quotations or to schedule a tour, please contact either Hubbell Laboratories management, or contact your local Hubbell Power Systems representative.

Voltage Class [kV]	Line Charging Test Voltage [kV]	Peak Recovery Voltage [kV]	Installed Current Capability [A]
38	32	90	100
48	41	116	100
72	50	142	100
123	85	240	100
145	100	282	100
170	117	330	100



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