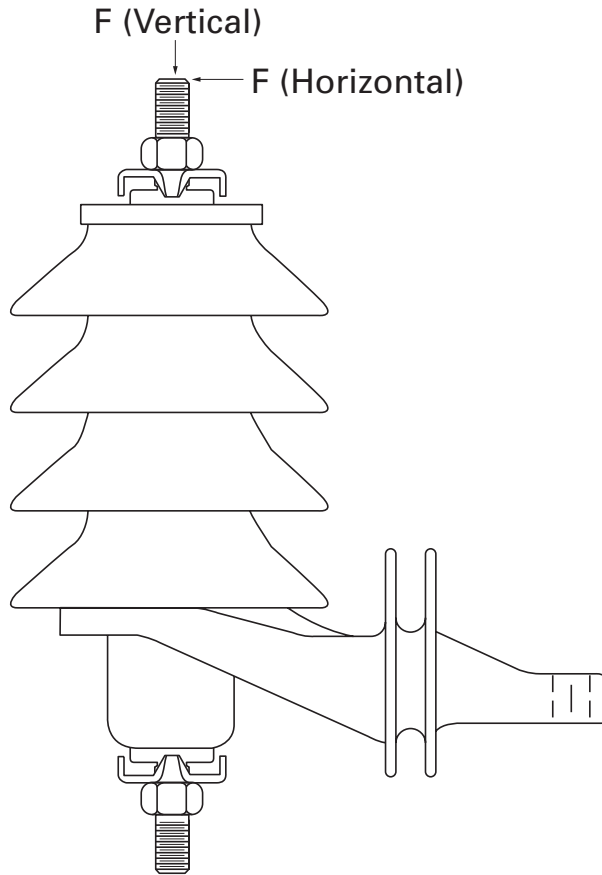


# UltraSIL™ housed distribution class arresters; arrester mechanical tests



## Object

Tests were performed to certify that the mechanical strengths of all UltraSIL housed arrester components are sufficient to maintain integrity over the life of the arrester. Testing included cantilever and mechanical shock tests on the insulated mounting brackets and terminal and isolator torque tests.

## Procedure

### 1. Cantilever strength testing of the insulated mounting bracket

Horizontal and vertical cantilever strength of the insulated mounting bracket was measured using an Instron Universal Testing Machine. Figure 1 demonstrates the location points for the cantilever forces. Several samples of both the small (standard 3-10 kV arrester ratings) and large (standard 12 kV and above arrester ratings) brackets were subjected to forces until the breaking point was reached. Table 1 lists the average cantilever strengths for these brackets.

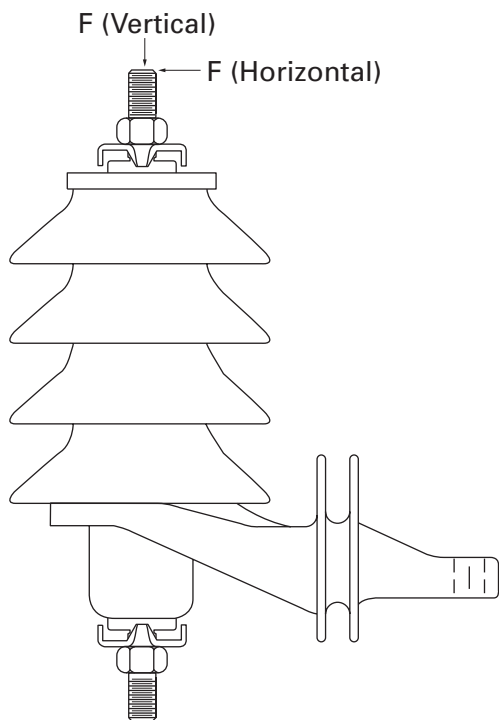


Figure 1. Cantilever test - insulated mounting bracket

Table 1 Average cantilever strengths of insulated mounting brackets

	Average vertical cantilever		Average horizontal cantilever	
	ft-bs	N-M	ft-bs	N-M
Hanger				
Small (3-10 kV)	186	251	68	92
Large (12-30 kV)	270	365	85	115

### 2. Mechanical shock tests on the insulated mounting bracket

Tests were performed on complete arresters to check the mechanical shock strength of the insulated bracket when subjected to a drop from one meter both in and out of a shipping carton. Complete arresters were dropped from a height of one meter. This was repeated three times. Also arresters were placed in individual shipping cartons and dropped one meter three times on each side and end of the carton. Following the testing each arrester was visually examined and electrically tested for elevated RIV discharge. None of the samples exhibited any physical or electrical damage.

### 3. Terminal and isolator torque tests

The terminal and isolator terminals were subjected to torque forces to certify that the isolator and line terminal will not be damaged under rated conditions. Using a calibrated torque wrench 25 foot-pounds (34 N-M) of torque was applied to the line terminal and isolator ground terminal. All samples were able to withstand the applied torques with no visible or electrical damage (the arrester samples were checked for elevated RIV discharge levels).

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