

Insulators: Standards and Ratings

Standard Features	Voltage Ratings			
<ul style="list-style-type: none"> Polycast insulators consist of a solid mass of epoxy, usually with imbedded UNC threaded metallic inserts on standard bolt circles to permit attachment. All bolt hole patterns consisting of three or more inserts, and 95 kV BIL or greater, have these inserts tied (common), to allow selective use, without floating those not used. Creepage distances are maximized by the addition of skirting (petticoats). PII20A, PII30A and PII50A insulators have the same electrical characteristics when mounted upright or inverted, obliquely or horizontally. Mechanical strength may vary with application. During the past 40 years, Polycast has designed, and now manufactures, a wide range of electrical insulators to meet North American and International standards. We have welcomed the opportunity to engage in the development of new insulating devices for special applications, and new designs have been carefully type tested according to the appropriate standards. <p>Note: Type testing is done to confirm the adequacy of our designs for specified conditions, but because the conditions of use of any of our insulators is beyond our control, it is always the responsibility of the user to ensure that the insulator they select is suitable for their application.</p>	Polycast Voltage Rating	Nominal Voltage Class kV	Dry Low Frequency kV	Impulse kV Crest 1.2x50µs
	0.6	0.6	4	10
	01	1.2	10	30
	02	2.5	15	45
	05	5.0	21	60
	08	8.7	30	75
	15	15.0	35	95
	18	15.5	50	110
	25	18.0	42	125
	28	25.0	60	150
	35	36.0	70	170
	38	34.5	80	200
	46	46.0	105	250

Technical Standards

Polycast has designed and manufactures a variety of insulators for switchgear and other power applications to meet North American and International Standards. Mechanical type testing includes tension, cantilever (deflection), torsion, and compression. Thermal type testing includes thermal withstand and thermal cycling. Electrical type testing includes lightning impulse withstand, power frequency withstand and partial discharge testing.

Mechanical Withstand

The mechanical withstand values stated in our literature are 80-90% of ultimate test values. Working loads up to 50% of these stated values are considered safe for all insert options, but maximum loading will vary with the application and the conditions under which the insulator will be used.

Ambient Working Temperatures

Indoor Insulators:	Ambient -5°C to +55°C
Outdoor Insulators:	Ambient -55°C to +55°C

These ambient temperatures are considered safe for all insulator applications.

Please consult catalog pages for recommended maximum continuous operating temperatures, or contact Polycast for any special requirements.

Materials

Indoor insulators are manufactured using a EC-A (Bisphenol-A) epoxy material. The EC-A epoxy is satisfactory for most indoor applications where UV, heavy pollution, or condensation are not factors.

Outdoor insulators are manufactured from a cycloaliphatic epoxy. Cycloaliphatic epoxy has superior arc track resistance and excellent weathering and UV resistance characteristics.

Metallic inserts are typically zinc plated steel or brass. Aluminum inserts are also available on most designs. Standard inserts are UNC, but metric options are available.



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