

Current Transformers: Standards and Ratings

Standard Features	Voltage Ratings				
<p>Current Ratings</p> <p>Most Polycast current transformers are available as single, double or multi-ratio units. Five amp secondaries are standard, but one amp secondaries are available for most styles. Maximum and minimum primary ratings depend upon the style selected.</p> <p>Accuracy Ratings</p> <p>For most applications the simplicity and high mechanical withstand capability of window type and bar type CTs makes them preferable for most applications. Wound primary CTs are recommended where very high accuracy at lower ratios (5-5A through 300-5A) is required.</p> <p>Testing</p> <p>Polycast testing capabilities include polarity, ratio and phase angle, saturation, temperature rise, open circuit, induced, power factor, hipot, impulse, partial discharge, low temperature withstand and other physical and mechanical testing.</p> <p>Note: All Polycast current transformers are individually tested. Routine and type test reports are available upon request.</p>	Polycast Standard Designation	Nom. Voltage Class kV	Low Freq. Dry kV	Impulse (BIL) kV Crest 1.2x50µs	Chopped Wave kV Crest (µs)
	0.6	0.7	4	10	12 (1.0)
	05	5.0	19	60	69 (1.5)
	08	8.7	26	75	88 (1.6)
	15	15.0L	34	95	110 (2.0)
	18	15.0H	36	110	130 (2.0)
	25	27.5L	50	125	145 (3.0)
	28	27.5H	60	150	175 (3.0)
	<p>The above values are based upon, and are intended to meet the most stringent requirements of, the following standards: ANSI/IEEE C57.13, CSA-C60044-1 and IEC 61869-2</p>				

Material Standards

- Cores are grain-oriented silicon steel (M4 or higher), annealed after forming, to provide maximum accuracy.
- Core insulation is electrical grade pressboard and kraft paper, or epoxy.
- Secondaries coils are 200°C rated copper magnet wire with silver soldered connections to terminals or leads, and high quality electrical grade kraft or nomex interlayer insulation.
- Primaries (where provided) are electrolytic copper, electroplated with silver.
- Cast indoor units are manufactured from Bisphenol-A epoxy.
- Cast outdoor units are manufactured of cycloaliphatic epoxy, and are complete with weatherproof terminal boxes.
- All have nameplates and prominent polarity markings

Standard Terminology

Turns Ratio	The ratio of the secondary turns to one.
Current Ratio	The ratio of the primary current to the secondary current in amps
Transformer Correction Factor (TCF)	The correction for the overall error due to both ratio and phase angle error for a specified primary circuit power factor.
Ratio Correction Factor (RCF)	The ratio of the true ratio to the marked ratio (excitation & other losses result in ratio error)
Rated Burden	The maximum load which may be placed on the CT secondary without causing an error greater than that allowed by the stated accuracy (in ohms impedance, e.g. B0.1, B0.9, B2 or corresponding volt-ampere values of 2.5, 22.5, 50 VA).



Polycast International
 965 Sherwin Road
 Winnipeg, Manitoba
 Canada R3H 0T8

T (204) 632 5428
 F (204) 697 0314
 Toll-free 1 800 665 7445
 www.polycast.ca

2 | Current Transformers: Standards and Ratings

Accuracy Class	Metering Accuracy: The TCF shall be within specified limits at 10%, 100%, and CCRFx100% at a given power factor with a specified burden Relaying Accuracy: The composite error shall not exceed a specified percentage error at a specified secondary terminal voltage based on a maximum fault level of secondary current
Continuous Current Rating Factor (CCRF)	The factor by which the rated current of the CT can be multiplied to obtain the maximum continuous current that the CT can carry without exceeding the temperature rise or accuracy requirements
1 Second Thermal Withstand	The maximum RMS symmetrical primary current that can be carried for one second with the secondary short circuited without exceeding the limiting temperature
Mechanical Withstand	The maximum RMS asymmetrical primary current that a CT can carry with the secondary short circuited without any damage which would render it incapable of meeting other standard accuracy and transformation requirements

Special Considerations

- Current Transformers should never have primary current applied with the secondaries open-circuited. This is especially true at higher current ratios (1200-5A and above) where the open circuit voltage may exceed the open circuit standard test voltage limit of 3500 Volts.
- The test standard and any special requirements for each current transformer ordered should be specified on the purchase order.
- Because the conditions of use of any current transformer is beyond the control of the supplier, it is always the responsibility of the user to ensure that the current/voltage ratings and the accuracy of the transformer used is adequate for his application.