



Core Size vs Accuracy and Burden

Product Bulletin HV-12-PB005r2

Core specifications have a major impact on the size and cost of a CT. The following guidelines can be used to assist the substation engineer in keep costs to a minimum while ensuring dependable performance parameters. Areva custom designs each CT core to meet our customers needs, however, significant over specification of the core accuracy and burden requirements results in unnecessarily high unit cost. The impact of the most important core specifications that affect the size of any given core can be best understood by analyzing the following simplified relationship between the Burden, Primary current, and Ratio:

$$Ac = \frac{B}{I \cdot N \cdot E} \cdot Kc$$

Where Ac = Core cross sectional area

B = Burden in VA

E = Error or accuracy requirement

I = Primary Current

N = Number of turns on the core (Ratio)

Kc = Constant determined by materials, core diameter, and system frequency.

As this formula illustrates the core size (Ac) is directly affected by the Burden and inversely affected by the Primary Current, Number of Turns (ratio), and error or accuracy level. Simply put, the higher the burden the larger the core, the lower the primary current, ratio, or error the larger the core. Larger cores lead to larger head housings and higher costs per unit. Careful selection of these parameters can optimize the performance and reduce costs for a given application.

Areva's Engineering staff is utilizing over 40 years experience in the design and construction of High Voltage Current Transformers for applications throughout the world. If you have a special application that requires a special understanding please contact us and let us design for you an economical high performance solution.

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