

# CIRCLE DIAGRAM METHOD FOR THE ESTIMATION OF VOLTAGE TRANSFORMER ACCURACY CLASSES.

The accuracy of a voltage transformer is a function of the algebraic and vectorial summation of the no load (or excitation) losses and the burden voltage drop. The elements of these losses at rated voltage can be conveniently estimated by means of a circle diagram, drawn with axes expressed in 0.001 unit steps vertically to represent Ratio Correction Factor and 3.44 minutes of arc horizontally to represent Phase Angle. To use the diagram for a specific voltage transformer, it is necessary to ascertain the elements of RCF and phase angle for no load and with one burden of known volt-ampere rating and power factor. When these elements are plotted on the diagram with a line joining them, the errors for any other burden VA and power factor can be estimated, within the scale of the diagram, by scaling volt-amperes from the distance between the two loci and the power factor in angular measurement difference. It is more convenient to construct a unity power factor line, drawn from the no load error locus, at an angle equal to the power factor angle of the known burden. All the other power factor angles can be constructed from this line. The example below indicates the construction of the diagram and lists the burdens used in the Instrument Transformer Standard, ANSI C57.13



