CALCULATE SHORT CIRCUIT CURRENT OF TRANSFORMER

Formally, calculating short circuit currents for a given transformer is a complex task, because of the many variables involved in it. For this reason, many engineers use computer programs to calculate the short circuit current of a transformer. However, one can use a simplified method to approximate the short circuit currents for high voltage 3-phase power distribution systems. Power distribution systems are driven by 3-phase transformers and one can use the data on the nameplates of the transformers to calculate short circuit currents.

1. **Locate the nameplate on the transformer associated with the power distribution system, find the kilo-volt ampere (KVA) rating of transformer, the secondary voltage (V secondary) and percentage of impedance (Z percent). As an example take for instance the KVA rating is 1200 KVA, Secondary voltage is 480 volts, and Z percent is 7.25%.**
2. **Calculate the Secondary Load Current of the transformer by the formula :**
   SLC = (KVA / Vsec) X 1000) X 1.73
   SLC = (1200 / 480) X 1000) X 1.73
   SLC = 2500 X 1.73
   SLC = 4325 ampere
3. **Calculate the Short Circuit Current of Transformer :**
   SCC = SLC X 100 / Z impedance
   SCC = 4325 X 100 / 7.25
   SCC = 59655 ampere

In this way one can calculate the approximate short circuit current of a system and can self decide for the type and numbers of earthing electrodes to be installed for a given system to be earthed, this formula by courtesy from *Sri Jigu Parmar, Senior Electrical Engineer, Gandhinagar, Gujarat*.