PROSPECTIVE FAULT CURRENT

When you choose the amperage of a circuit breaker, you need to give consideration to the kA rating (AS/NZS 3000:2000) CL 2.4.4.2.

A quick approximate method of determining the kA rating (fault level in thousands of amps) of a three phase transformer is to read the kVA (kilo volt amps) on the side of the transformer (often labeled with 100mm high black numbers).

Multiply the kVA by 1.4 to obtain the full load available per phase in amps. Now multiply the amps by 20 (5% impedance) for transformers above 630 kVA and 25 (4% impedance) for transformers below 630 kVA to obtain the fault level in amps. Now divide the answer by 1000 for the kA.

Recent Amendments (August 2003) to S.I.R.'s CL 4.3 state:
'The magnitude of the prospective fault current that is available at the consumers terminals may be obtained, upon written request, from the distributor.'

630kVA> **kVA X 1.4 X 20 = Fault level in amps**
630kVA< kVA x 1·4 x 25 =

Example: A1000 kVA sub
1000 X 1.4 X 20 = **28000A or 28 kA**
(for phase to phase shorts)

The full method is:

$$\frac{\text{kVA} \times 1000}{\sqrt{3} \times \text{Rated volts}}$$

$$\frac{1000 \times 1000}{1.73 \times 415}$$

1392.8 amps of full load current per phase

$$\frac{1392.8 \times 100}{\text{Transformer impedance}} = \frac{139280}{5}$$

=27857 amps or 27.86 kA
(for phase to phase shorts)

Approximate figures for 3ϕ transformers are:

KVA	Amps per phase	Impedance %	Fault level in kA *
500	700	4	**17.5**
1000	1400	5	**28** (phase to phase shorts)