EARTHINGS CALCULATIONS GENERAL

No. of copper-bonded rod earth electrodes require for earthing of 3 phase,415V Alternators

Soil Resistivity	Generator Capacity KVA	Full Load Current A	Size of Copper-bonded rod	No. of Rods
30 Ωm	Upto 10 KVA	14 A	14.2mm dia x 1.5m long	3
	15 KVA	21 A	14.2mm x 1.5m long	3
	15 KVA to 63 KVA	88 A	17.2mm x 1.5m	3
	63 to 82.5 KVA	115 A	17.2mm x 2.0m	3
	100 KVA	140 A	17.2mm x 2.5m	3
	125 KVA	175 A	25.0mm x 2.5m	3
	160 KVA	224 A	20.0mm x 2.5m	3
	200 KVA	280 A	25.0mm x 2.5m	3
	250 KVA	350 A	25.0mm x 3.0m 32mm x 3.0m	4
50 Ωm	Upto 10 KVA	14 A	14.2mm dia x 1.5m long	3
	15 KVA	21 A	14.2mm x 1.5m long	3
	15 KVA to 63 KVA	88 A	17.2mm x 1.5m	3
	63 to 82.5 KVA	115 A	17.2mm x 2.0m	3
	100 KVA	140 A	17.2mm x 2.5m	3
	125 KVA	175 A	25.0mm x 2.5m	3
	160 KVA	224 A	25.0mm x 3.0m	3
	200 KVA	280 A	32.0mm x 3.0m	3
	250 KVA	350 A	32.0mm x 3.0m	4
70 Ωm	Upto 10 KVA	14 A	14.2mm dia x 1.5m long	3
	15 KVA	21 A	14.2mm x 1.5m long	3
	15 KVA to 63 KVA	88 A	17.2mm x 2.0m	3
	63 to 82.5 KVA	115 A	17.2mm x 2.5m	3

EARTHINGS CALCULATIONS GENERAL

	100 KVA	140 A	20.0mm x 2.5m	3
	125 KVA	175 A	25.0mm x 2.5m	3
	160 KVA	224 A	25.0mm x 3.0m	3
	200 KVA	280 A	32.0mm x 3.0m	3
	250 KVA	350 A	32.0mm x 3.0m	4
100 Ωm	Upto 10 KVA	14 A	14.0mm dia x 1.5m long	3
	15 KVA	21 A	14.0mm x 1.5m long Or 14.0mm x2.0m long	3
	15 KVA to 63 KVA	88 A	17.2mm x 2.0m	3
	63 to 82.5 KVA	115 A	20.0mm x 2.5m	3
	100 KVA	140 A	20.0mm x3.0m Or 25.0mm x 2.5m	3
	125 KVA	175 A	25.0mm x 3.0m	3

	160 KVA3	224 A	25.0mm x 3.0m	4
	200 KVA	280 A	25.0mm x 3.0m Or 32.0mm x 3.0m	5 4
	250 KVA	350 A	25.0mm x 3.0m Or 32mm x 3.0m	6 5

EARTHINGS CALCULATIONS GENERAL

For 250 Kva.415V Alternator,rated current=250 x 10^3 /√3*415 =350A

Sub-Translent reactance =0.12 p.u therefore max.fault

current=350/12=350 *8.3=2900A

From the above the maximum fault current of an Alternator will be 8.3 times its rated current