Engineering Information

Useful 3-Phase Formulae

Phase current in 3-phase star= Line current

Phase current in 3-phase Delta=Line current/1.732

USEFUL 3-PHASE FORMULAE

Phase current in 3-phase star = Line current

Phase current in 3-phase Delta = Line current/1.732

$$\text{KW - KVA x POWER factor} = \frac{\text{h.p x 746}}{\text{1000 x efficiency}}$$

$$\frac{\text{Line amps x Line Volts; x 1.732 x p.f.}}{1000}$$

$$\text{KVA} = \frac{\text{KW}}{\text{pf.}} = \frac{\text{h.p. x 746}}{\text{1000 x efficiency x p.f.}}$$

$$= \frac{\text{Line amps x Line Volts x 1.732}}{1000}$$

$$\text{Line amps} = \frac{\text{KW x 100}}{\text{Line Volts x 1.732 p.f.}} = \frac{\text{KVA x 1000}}{\text{Line Volts x 1.732}}$$

$$\frac{\text{h.p. x 746}}{\text{Line Volts x 1.732 x efficiency x p.f.}}$$

$$\text{h.p.} = \frac{\text{KW x 1000 x efficiency}}{746} = \frac{\text{KVA x 1000 efficiency x p.f.}}{746}$$

$$= \frac{\text{Line amps x Line Volts x 1.732 x efficiency x p.f.}}{746}$$

$$\text{Single phase Currents} = \frac{\text{h.p. x 746 x 100}}{\text{Line volts x p.f. x efficiency}}$$

Drop in 3-phase circuit = 1.732 x Line amps x Resistance of 1 core

APPROXIMATE POWER CONSUMPTION OF ELECTRICAL APPARATUS

Kettles :		**Toaster :**	
1 Pint	280 W	1 Slice	550 to 550 W
1 Pint	324 to 425 W	3 Slice	1750 W
2 Pints	450 to 650 W	5 Slice	2500 W
3 Pints	750 to 1000 W		
4-8 Pints	1000 to 1500	**Soldering Irons :**	
Iron :		0.5 lb	60 W
3 lb	250 W	1 lb	120 W
4 lb	275 to 300 W	1.5 lb	200 W
5 lb	350 to 450 W	2 lb	275 W
6 lb	450 to 500 W	3 lb	450 W
7 lb	500 to 650 W	**Imersion heaters :**	
12 lb	600 to 700 W	6 in long	200 to 500 W
20 lb	750 to 850 W	7 in long	500 to 750 W
Small motors :		10 in long	800 to 1000 W
Drillling 9/16" hole	200 to 250 W	16 in long	14 to 2000 W
7/8" hole	350 to 400		
1" hole	750 W	**Ovens :**	
1.5" hole	1500 W	14 x 14 x 12 in inside	1500 W
		12 x 12 x 16 in inside	1750 W
		14 x 14 x 16 x in inside	2000 W
Grinding :			
6" x 3/4 " Wheel	750 W		
8" x 3/4 Wheel	1250 W	**Vaccum Cleaner :**	
10" x 3/4 Wheel	2300 W	Domestic	200 W
Hair drier :	550 W	High power	300 to 600 W

In order to get the time required to boil in minutes.

$$= \frac{\text{Pints}}{\text{Watts}} \times 3850 \text{ (approx)}$$