



USEFUL ELECTRICAL FORMULAE AND TABLES

TYPICAL MOTOR FLC (3PH 50Hz)

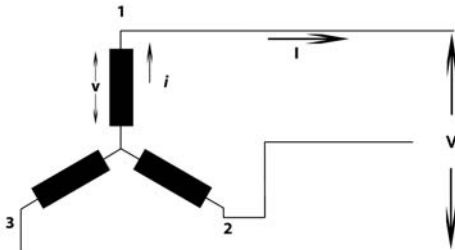
Kw	415v	Kw	3.3kV	6.6kV	11kV
0.55	1.5	100	22		
1.1	2.5	125	27		
1.5	3.5	150	33		
2.2	5.0	175	38		
4	8.4	200	43	22	
5.5	11.0	225	49	25	
7.5	14.4	250	54	27	
11	21.0	300	64	32	
15	28.0	400	83	42	25
22	41.0	500	102	51	31
30	55.0	750	154	77	46
37	69.0	1000	205	103	62
45	80.0	1250	257	129	77
55	98.0	1500	308	154	93
75	136.0	1750	359	180	108
90	164.0	2000	410	205	124
110	196.0	2500		256	154
150	268.0	3000		309	185
200	358.0	4000		412	247
300	525.0	5000			309

3PH TRANSFORMER CURRENT RATINGS

kVA	AMPS AT:			
	433V	3300V	6600V	11000V
50	66.67	18.75	4.37	2.62
100	143	17.50	8.75	5.25
150	200	26.24	13.12	7.87
200	266	35.00	17.50	10.50
250	361	43.74	21.87	13.12
300	400	52.49	26.25	15.75
315	420	55.11	27.56	16.53
400	533	69.98	34.99	21.00
500	667	87.48	43.74	26.24
630	840	110.22	55.11	33.00
750	1000	131.22	65.61	39.37
800	1066	139.97	69.99	42.00
1000	1333	174.96	87.48	52.49
1250	1667	218.70	109.35	65.61
1500	2000	262.44	131.22	78.73
1600	2133	279.94	139.97	83.98
2000	2666	349.92	174.96	104.96
2500	3334	437.40	218.70	131.22
3000	4000	524.88	252.44	157.46

STAR / DELTA TRANSFORMATIONS

STAR or Y

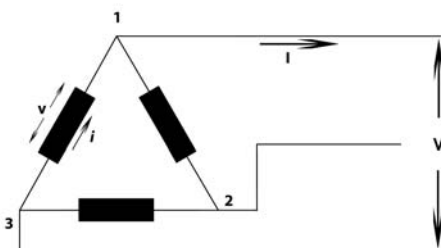


$$V = \sqrt{3}v$$

$$I = i$$

$$W = \sqrt{3}VI \cos\phi$$

DELTA or Δ (MESH)



$$V = v$$

$$I = \sqrt{3}i$$

$$W = \sqrt{3}VI \cos\phi$$

USEFUL FORMULAE

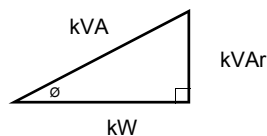
1PH	3PH	DC
$kW = VI \cos \phi$	$kW = \sqrt{3}VI \cos \phi$	$kW = VI$
$kVA = VI$	$kVA = \sqrt{3}VI$	
$R = V/I$		

Reactance of Capacitor $X_c = 1/2\pi fC$

Reactance of Inductor $X_L = 2\pi fL$

Impedance $Z = \sqrt{R^2 + (X_L - X_c)^2}$

Power Triangle



$$kVA = \sqrt{kVAr^2 + kW^2}$$

$$Pf = \cos\phi$$

USEFUL MOTOR INFORMATION

$$HP = Kw/0.746$$

$$Ns \text{ (synchronous speed)} = \frac{60 \times \text{Frequency}}{\text{No. of Pole pairs}}$$



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