

CATERPILLAR® GENERATORS

Generator Rating 3 Phase Amperes – 80% Power Factor

kVA	kW	208V	240V	380V	480V	4160V
6.3	5	17.5	15.2	9.6	7.6	
9.4	7.5	26.1	22.6	14.3	11.3	
12.5	10	34.7	30.1	19.2	15.1	
18.7	15	52	45	28.8	22.5	
25	20	69.5	60.2	38.2	30.1	3.5
31.3	25	87	75.5	48	37.8	4.4
37.5	30	104	90.3	57.6	45.2	5.2
50	40	139	120	77	60	7
62.5	50	173	151	96	76	8.7
75	60	208	181	115	91	10.5
93.8	75	261	226	143	113	13
100	80	278	240	154	120	13.9
125	100	347	301	192	150	17.5
156	125	433	376	240	188	22
187	150	520	451	288	225	26
219	175	608	527	335	263	31
250	200	694	602	384	301	35
312	250	868	752	480	376	43
375	300	1042	903	576	451	52
438	350	1215	1053	672	527	61
500	400	1390	1203	770	602	69
625	500	1735	1504	960	752	87
750	600	2084	1803	1150	902	104
875	700	2430	2104	1344	1053	121
1000	800	2780	2405	1540	1204	139
1125	900	3126	2709	1730	1354	156
1250	1000	3473	3009	1920	1504	174
1563	1250	4342	3765	2400	1881	218
1875	1500	5210	4515	2880	2258	261
2188	1750		5268	3350	2634	304
2500	2000		6020	3840	3010	348
2812	2250		6774	4320	3387	392
3125	2500		7526	4800	3765	435
3750	3000		9032	5760	4516	522
4375	3500		10537	6700	5269	610
5000	4000		12042	7680	6021	695

800.835.1166
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Carter



LET'S GET
TO WORK.

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Application Formulas and Useful Tables

Desired Data	Single Phase	Three Phase
KVA	$\frac{\text{Volts} \times \text{Amps}}{1000}$	$\frac{1.73 \times \text{Volts} \times \text{Amps}}{1000}$
KW	$\frac{\text{Volts} \times \text{Amps} \times \text{P.F.}}{1000}$	$\frac{1.73 \times \text{Volts} \times \text{Amps} \times \text{P.F.}}{1000}$
Power Factor (P.F.)	$\frac{\text{KW}}{\text{KVA}}$	$\frac{\text{KW}}{\text{KVA}}$
Amperes – When KW is Known	$\frac{\text{KW} \times 1000}{\text{Volts} \times \text{P.F.}}$	$\frac{\text{KW} \times 1000}{1.73 \times \text{Volts} \times \text{P.F.}}$
Amperes – When KVA is Known	$\frac{\text{KW} \times 1000}{\text{Volts}}$	$\frac{\text{KW} \times 1000}{1.73 \times \text{Volts}}$
Required Prime Mover HP	$\frac{\text{KW}}{\text{Alternator Efficiency} \times 0.76}$	
Frequency (Hertz)	$\frac{\text{Number of Poles} \times \text{R.P.M.}}{120}$	

Temperature Control Calculations

Chillers: 15 Tons – 1000 Tons

Water Cooling: $\text{Tons} = \frac{\text{GPM} \times \Delta T}{24}$ $\text{GPM} = \frac{\text{Tons} \times 24}{\Delta T}$ $\Delta T = \frac{\text{Tons} \times 24}{\text{GPM}}$

Glycol Cooling: $\text{Tons} = \frac{\text{GPM} \times \text{Sp. Ht.} \times \text{Sp. Gr.} \times \Delta T}{24}$

Heating & Air Conditioning: AC Units 1 Ton – 80 Tons

$Q = \frac{u \times a \times \Delta T}{12,000}$ $Q = \text{Tons}$ $a = \text{Surface Area (sq. ft.)}$
 $u = \text{U Factor (1/R Value)}$ $\Delta T = \text{Change in } ^\circ\text{F Outside to Inside}$

1 Ton = 12,000 BTUs

1 KW = 3,413 BTUs

Air Conditioning a Tent

Approximately 1 Ton/100 sq. ft.
 People Load = 600–800 BTUs/person

Heating an Air Stream

BTUs/Hr = CFM x 1.08 x ΔT