

Diamond Tank Rental, Inc.

Horse Power, KW and KVA Conversion Chart

Some Notes for Sizing Generators

Too small of a generator will cause voltage fluctuations and damage to the generator or equipment windings.

Too large of a generator will cause engine to glaze and carbon up, due to engine loading.

Rule of Thumb

Note 111011- - Direct On line starting (high current starting).

Note 2 S.D. - Star Delta (smooth starting med-high current).

Note 3 - A dummy load or extra load will need to be applied to avoid glazing once running.

1. One horse power (1 hp) equals 0.75 kilowatt i.e. $20\text{hp} \times 0.75 = 15\text{kW}$
2. Warm generator up before applying load
3. Always engage load from largest to smallest
4. Have an electrician balance the load across all phases for single phase loads
5. When motor is operating, after start, requirement will be 1kva for 1hp i.e. 20hp - 20kva used when running.
6. Size the generator to run between 60-80% full load rating of generator
7. Amps available on a generator per phase = $\text{kva} \times 1.39$. i.e. $20\text{kva} = 28\text{amps/phase}$ over 3 phases.

Electric Motor Size		Minimum Generator Required		Run Power
		(KVA) by Starting Method		
HP-	KW	D.O.L to KVA"	S.D to KVA	KVA Used When Running
		Size (Note 1)	Size (Note 2)	(Note 3)
1	0.75	2.5	2	1
1.5	1.1	3.75	3	1.5
2	1.5	5	4	2
3	2.2	7.5	6	3
4	3	10	8	4
5	3.7	12.5	10	5
6	4.5	15	12	6
7.5	5.5	18.75	15	7.5
10	7.5	25	20	10
12.5	9.3	31.25	25	12.5
15	11	37.5	30	15
20	15	50	40	20
25	19.6	60.5	50	25
30	22	75	60	30
40	30	100	80	40
50	37	125	100	50
60	45	150	120	60
75	55	187.5	150	75
100	75	250	200	100
125	90	312.5	250	125
150	110	375	300	150
175	130	437.5	350	175
200	150	500	400	200
250	185	625	500	250
300	225	750	600	300
400	300	1000	800	400

POWER (kW to kVA) CONVERSION TABLE

(Assumed power factor of approximately 0.8 lagging)

kW	kVa
30	38
40	50
50	63
60	75
70	88
80	100
90	113
100	125
110	138
125	156
135	169
150	188
165	206
175	219
200	250
225	281
250	313
275	344
300	375
325	406
350	438
375	469
400	500