

To select an engine-driven generator, you'll need to determine the power (kilowatt) requirements which must be met under operating conditions.

Undersizing the generator can be avoided by considering all of the loads that will be connected to the generator, and by determining the starting requirements (motor start) of electric motor-operated devices.

Be sure the generator you select is large enough to handle your present requirements and anticipated needs.

To determine the right size generator, add up the total watts of all lights, appliances, tools, or other equipment to be connected to the generator.

Check the nameplates to determine wattage. If wattage is not shown, but amps and volts are given, the following simplified formula may be used:

$$\text{Amps} \times \text{Volts} = \text{Watts}$$

(Ex. 12.5 amps x 120 volts = 1,500 watts)

To determine kilowatts (kW), use the following formula:

$$1,000 \text{ Watts} = 1 \text{ Kilowatt}$$

(Ex. 1,500 Watts/1,000 = 1.5 kW)

Charts 1, 2, and 3 will help you in selecting the proper size generator. With lights, heaters, and small appliances, simply add the nameplate ratings or see Chart 1 for average wattage requirements. For portable electric tools and equipment, check the nameplate rating or use Chart 2 for average requirements. If watts and/or amps are not given and only the horsepower is shown, use Chart 3 to determine the starting and running watts.

Chart 4 is furnished as a guide for selecting the proper size of insulated copper wire when extension cables are used. We recommend the use of outdoor-rated (U.L.) cable, recognized type SJTW-A.

Chart 1: Home applications — approximate wattage requirements

Equipment	Wattage
Air conditioner (10,000 BTU)	2,000–3,000
Blanket, electric	150
Broiler	1,400
Clothes dryer, electric	5,000–10,000
Coffee maker	850
Dishwasher	1,500–2,500
Fan, attic	375
Fan, furnace	800–1,200
Fan, window	200
Freezer, food	300–500
Heater, radiant	1,300
Hot plate	1,250
Refrigerator/freezer	600–2,000
Sump pump	400–3,000
Toaster	1,100–1,700
TV, color	100–350
Water heater	3,000–4,500
Water pump	1,000–3,000

Chart 2: Portable electric tools — approximate wattage requirements

Equipment	Wattage	Equipment	Wattage
Blower, electric	½–3 hp	Pump, electric	½ hp and up
Compressors	¼–3 hp	Routers	900–1,100
Concrete vibrators, ¾-hp	840	Sanders, belt	600–1,500
Concrete vibrators, 1-hp	1,080	Sanders, disc	1,200
Concrete vibrators, 2-hp	1,560	Sanders, orbital	250
Concrete vibrators, 3-hp	2,400	Saws, chain	800–1,500
Drain cleaners	250	Saws, circular, 6-inch	1,000–2,500
Drills, ¼-inch	250–600	Saws, cutoff	2,500
Drills, ⅜-inch	300–600	Saws, jig	200–800
Drills, ½-inch	350–1,200	Saws, masonry	2–5 hp
Drills, 1-inch	1,000	Saws, radial arm	1–5 hp
Grinders, bench	¼–1 hp	Saws, table	1–3 hp
Grinders, portable	1,000–2,500	Screwdrivers	550
Hammers, demolition	1,260	Shears, metal-cutting	750
Hammers, rotary	1,200	Wrenches, impact, ½-inch	600
Heaters, space	¼–2 hp	Wrenches, impact, ¾-inch	720
Lights	check wattage on bulb	Wrenches, impact, 1-inch	1,200

Chart 3: Motor starting requirements

Motor (hp)	Watts required to start motor			
	Running watts	Repulsion induction	Capacitor	Split phase
⅛	275	600	850	1,200
¼	275	600	850	2,050
⅜	400	850	1,050	2,400
½	450	975	1,350	2,700
¾	600	1,300	1,800	3,600
1	850	1,900	2,600	—
1	1,100	2,500	3,300	—

Chart 4: Insulated copper wire size

Current in amperage	Load in watts			Maximum allowable cable length							
	at 120 volts	at 240 volts		#4 wire	#6 wire	#8 wire	#10 wire	#12 wire	#14 wire	#16 wire	#18 wire
2.5	300	600	—	—	—	—	1,000	600	375	250	150
5.0	600	1,200	—	—	—	—	500	300	200	125	75
7.5	900	1,800	—	—	—	—	330	200	125	80	50
10.0	1,200	2,400	—	625	400	250	150	100	50	—	—
15.0	1,800	3,600	650	400	265	165	100	50	—	—	—
20.0	2,400	4,800	500	300	200	125	80	—	—	—	—
25.0	3,000	6,000	400	250	150	100	—	—	—	—	—
30.0	3,600	7,200	325	200	125	—	—	—	—	—	—
35.0	4,200	8,400	275	175	100	—	—	—	—	—	—
40.0	4,800	9,600	250	150	—	—	—	—	—	—	—
45.0	5,400	10,800	225	—	—	—	—	—	—	—	—
50.0	6,000	12,000	200	—	—	—	—	—	—	—	—