



Finding the Right Generator

To select an engine-driven generator, you'll need to determine the power (kilowatt) requirements that 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 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:

Amps x Volts = Watts

(Ex. 12.5 Amps x 120 Volts = 1500 Watts)

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

1000 Watts = 1 Kilowatt

(Ex. 1500 Watts/1000 Watts = 1.5 kW)

Charts 1, 2, and 3 will help you select 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 a guide for selecting the proper size of insulated copper wire when extension cords are used. We recommend the use of outdoor-rated (UL) cable, recognized type SJTW-A.

Chart 1: Home applications - approximate wattage requirements

EQUIPMENT	WATTAGE
Air conditioner (10,000 BTU)	2000–3000
Blanket, electric	150
Broiler	1400
Clothes dryer, electric	5000–10000
Coffee maker	850
Dishwasher	1500–2500
Fan, attic	375
Fan, furnace	800–1200
Fan, window	200
Freezer, food	300–500
Heater, radiant	1300
Hot plate	1250
Refrigerator/freezer	600–2000
Sump pump	400–3000
Toaster	1100–1700
TV, color	100–350
Water heater	3000–4500
Water pump	1000–3000

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	900–1100
Concrete vibrators, ¾-hp	840	Sanders, belt	600–1500
Concrete vibrators, 1-hp	1080	Sanders, disc	1200
Concrete vibrators, 2-hp	1560	Sanders, orbital	250
Concrete vibrators, 3-hp	2400	Saws, chain	800–1500
Drain cleaners	250	Saws, circular, 6-inch	1000–2500
Drills, ¼-inch	250–600	Saws, cutoff	2500
Drills, ⅜-inch	300–600	Saws, jig	200–800
Drills, ½-inch	350–1200	Saws, masonry	2–5 hp
Drills, 1-inch	1000	Saws, radial arm	1–5 hp
Grinders, bench	¼–1 hp	Saws, table	1–3 hp
Grinders, portable	1000–2500	Screwdrivers	550
Hammers, demolition	1260	Shears, metal-cutting	750
Hammers, rotary	1200	Wrenches, impact, ½-inch	600
Heaters, space	¼–2 hp	Wrenches, impact, ¾-inch	720
Lights	check wattage on bulb	Wrenches, impact, 1-inch	1200

Chart 3: Motor starting requirements

MOTOR (HP)	RUNNING WATTS	WATTS REQUIRED TO START MOTOR		
		REPULSION INDUCTION	CAPACITOR	SPLIT PHASE
1/8	275	600	850	1200
1/6	275	600	850	2050
1/4	400	850	1050	2400
1/3	450	975	1350	2700
1/2	600	1300	1800	3600
3/4	850	1900	2600	–
1	1100	2500	3300	–

Chart 4: Insulated copper wire size

CURRENT IN AMPS	LOAD IN WATTS		#4 WIRE	#6 WIRE	#8 WIRE	#10 WIRE	#12 WIRE	#14 WIRE	#16 WIRE	#18 WIRE
	@ 120V	@ 240V								
2.5	300	600	–	–	–	1000	600	375	250	150
5.0	600	1200	–	–	–	500	300	200	125	75
7.5	900	1800	–	–	–	330	200	125	80	50
10.0	1200	2400	–	625	400	250	150	100	50	35
15.0	1800	3600	650	400	265	165	100	50	–	–
20.0	2400	4800	500	300	200	125	80	–	–	–
25.0	3000	6000	400	250	150	100	–	–	–	–
30.0	3600	7200	325	200	125	–	–	–	–	–
35.0	4200	8400	275	175	100	–	–	–	–	–
40.0	4800	9600	250	150	–	–	–	–	–	–
45.0	5400	10800	225	–	–	–	–	–	–	–
50.0	6000	12000	200	–	–	–	–	–	–	–