GENERATORS **Sizing**

*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:*

*Amps x Volts = Watts*
*(Ex. 12.5 amps x 120 volts = 1,500 watts)*

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

*1,000 Watts = 1 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*

| | | Watts required to start motor | | |
|---|---|---|---|---|
| Motor (hp) | Running watts | Repulsion induction | Capacitor | Split phase |
| ⅛ | 275 | 600 | 850 | 1,200 |
| ⅙ | 275 | 600 | 850 | 2,050 |
| ¼ | 400 | 850 | 1,050 | 2,400 |
| ⅓ | 450 | 975 | 1,350 | 2,700 |
| ½ | 600 | 1,300 | 1,800 | 3,600 |
| ¾ | 850 | 1,900 | 2,600 | — |
| 1 | 1,100 | 2,500 | 3,300 | — |

**Chart 4:** *Insulated copper wire size*

| | Load in watts | | Maximum allowable cable length | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Current in amperage | 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 | 35 |
| 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 | — | — | — | — | — | — | — |

sales@fleetcleansystems.com 401.356.4156 www.fleetcleansystems.com