

Using the Generator Sizing Worksheet

The first row of the worksheet is used to list the total resistive load that the generator will have on it while the motor loads are being started. Resistive loads are loads such as lights and heaters. Total the wattage requirements for all the lights and heaters and enter the same number in the first row, columns 12 and 13 (the kVA and kW values are equal for purely resistive loads). Example: If there will be 15, 100 watt light bulbs and one 5000 watt heater the value that would be entered in columns 12 and 13 would be 6.5 kW. $(15) \times (100) = 1500 \text{ watts} = 1.5 \text{ kW}$ in lights. 1.5 kW in lights plus 5 kW in heat = 6.5 kW .

Column 1: Motor Horsepower (HP)

Motor horsepower ratings are found on the nameplate of the electrical motor. This rating will typically correspond with values listed on the Starting kVA Values chart under the HP column.

Column 2: Motor Code Letter (Code)

The code letter is a value that is also listed on the nameplate of the electrical motor. This letter designates a specific starting kVA per horsepower and will correspond with one of the column headings on the Starting kVA values chart under Code Letter. If the code letter is unable to be determined, use a default code of G.

Column 3: Phase

For reference purposes only, list whether the motor is a single phase (1 ϕ) or three phase (3 ϕ) motor.

Column 4: Voltage (Volts)

List the voltage of the motor that is to be started. If the voltage is unknown, leave this column blank.

Column 5: kVA (Starting kVA)

Starting kVA is found on the Starting kVA Values chart under the appropriate Code letter corresponding to the horsepower of the motor to be started. This value is not dependent on the speed, voltage, or phase of the motor.

Column 6: PF (Starting Power Factor)

The typical starting power factor is listed on the Starting kVA Values chart. The value corresponding to the horsepower and phase of the motor that is to be started should be listed here.

Column 7: kW (Starting kW)

Starting kW is determined by multiplying the starting kVA (column 5) by the starting power factor (column 6).

Column 8: kVA (Motor Running kVA)

The kVA requirement of a running motor indicates the apparent power required by the motor. The Starting kVA Values chart lists values for a motor running at 100% load and for running at 75% load. Enter the value that most closely approximates the load at which the motor will be running.

Column 9: kW (Motor Running kW)

The kW requirement of a running motor indicates the real power required by the motor. The Starting kVA Values chart lists values for a motor running at 100% load and for running at 75% load. Enter the value that most closely approximates the load at which the motor will be running. If the amount of load is unknown or questionable use the 100% value.

Column 10: Max kVA (Maximum Surge kVA Value)

Enter the sum of column 5 (starting kVA) and column 12 (Continuous kVA) from the previous row. This value will give the maximum kVA surge that the generator will see.

Column 11: Max kW (Maximum Surge kW Value)

Enter the sum of column 7 (starting kW) and column 13 (Continuous kW) from the previous row. This value will give the maximum kW surge that the generator will see.

Column 12: Cont. kVA (Continuous kVA)

Enter the sum of column 8 (motor running kVA) and column 12 (Continuous kVA) from the previous row. This value will give the maximum continuous kVA that the generator will see.

Column 13: Cont. kW (Continuous kW)

Enter the sum of column 9 (motor running kW) and column 13 (Continuous kW) from the previous row. This value will give the maximum continuous kW that the generator will see.

Determine the largest value in column 10 (Max kVA) and enter it on the line marked Largest value in column 10 (Max kVA) which is located below the worksheet table.

Determine the largest value in column 13 (Cont. kW) and enter it on the line marked Largest value in column 13 (Cont. kW) which is located below the worksheet table.

Select a kWiet Power generator that has an SkVA rating larger than the largest value in column 10 and a kW rating larger than the largest value in column 13.

Enter the selected model on the Generator Model Selected line. This is the appropriate kWiet Power generator to use for starting the designated motor loads.