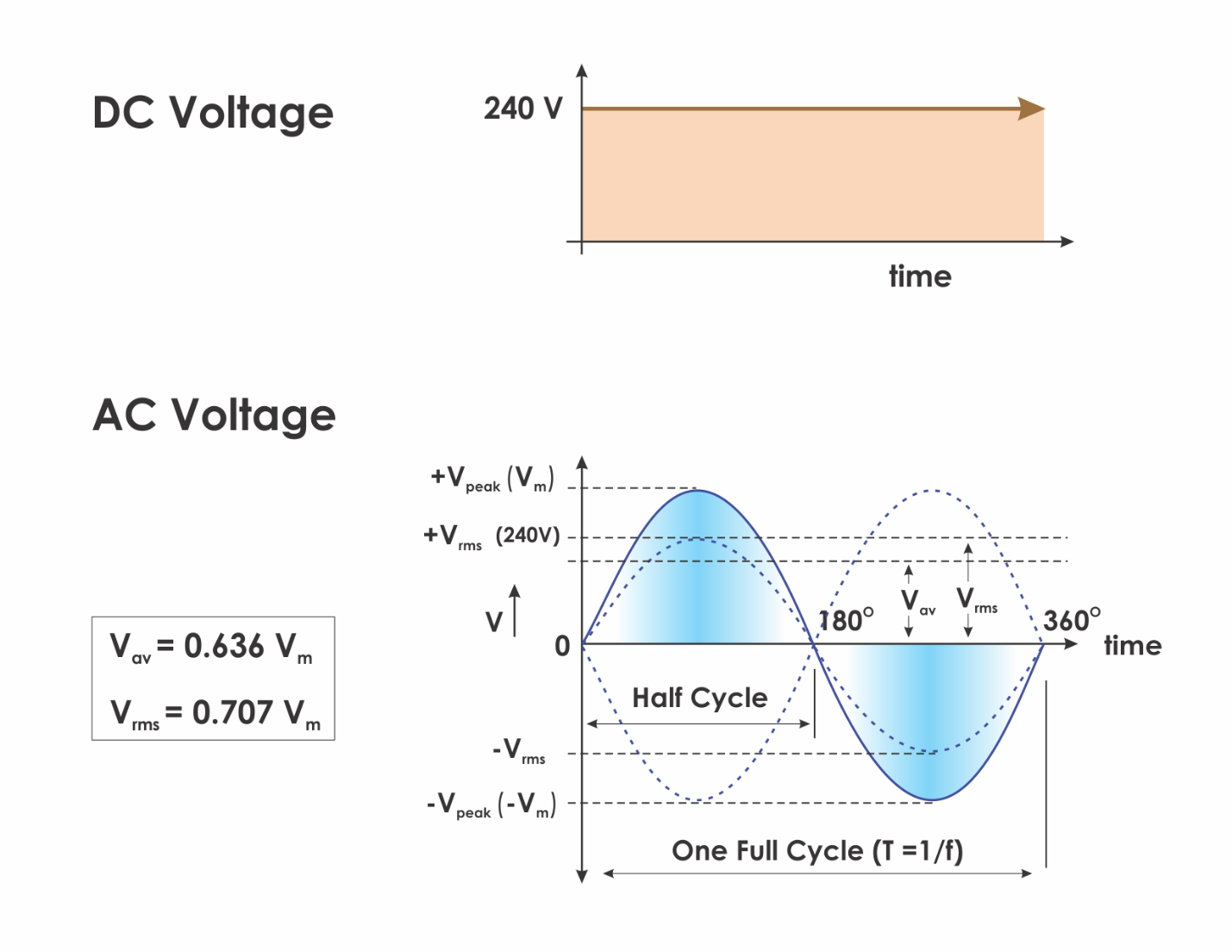
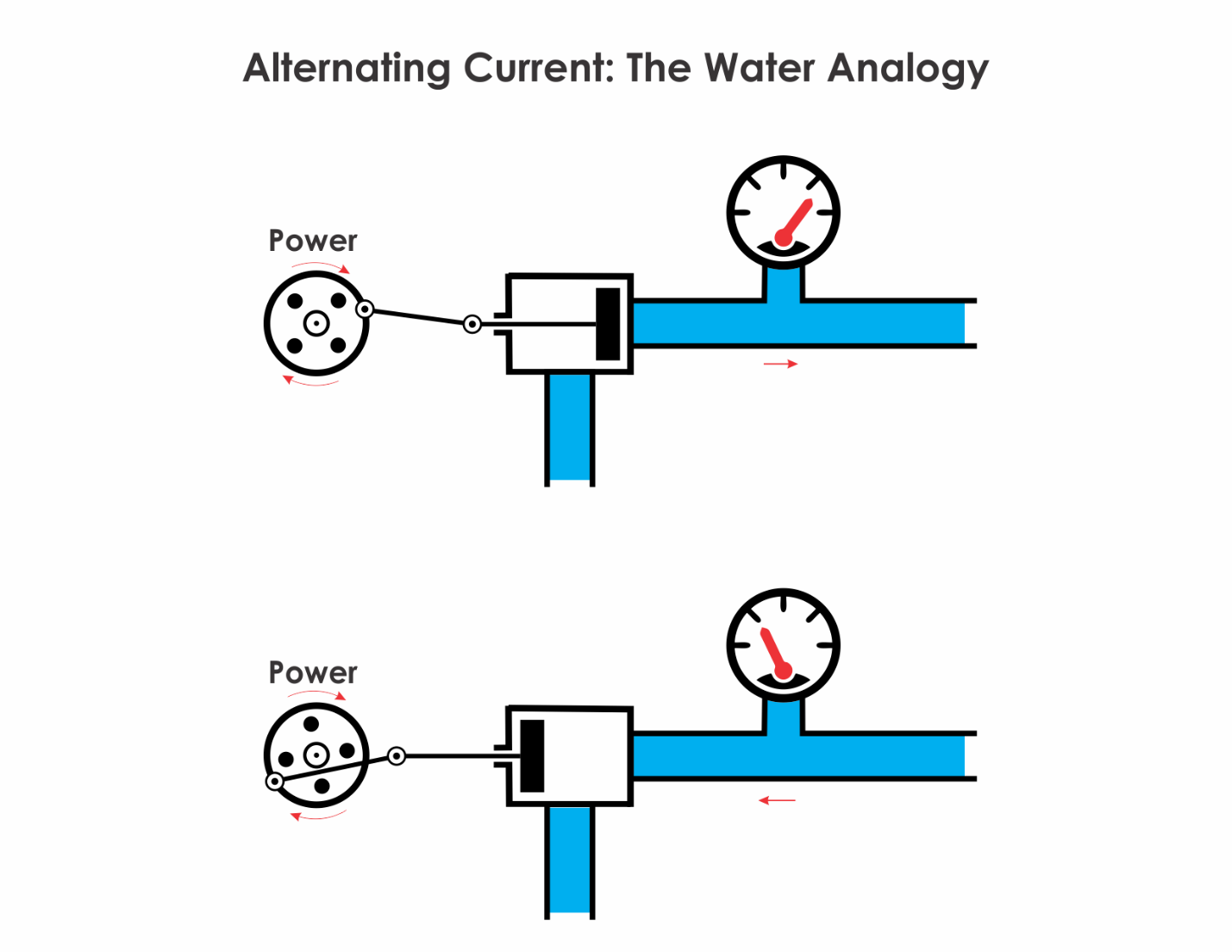


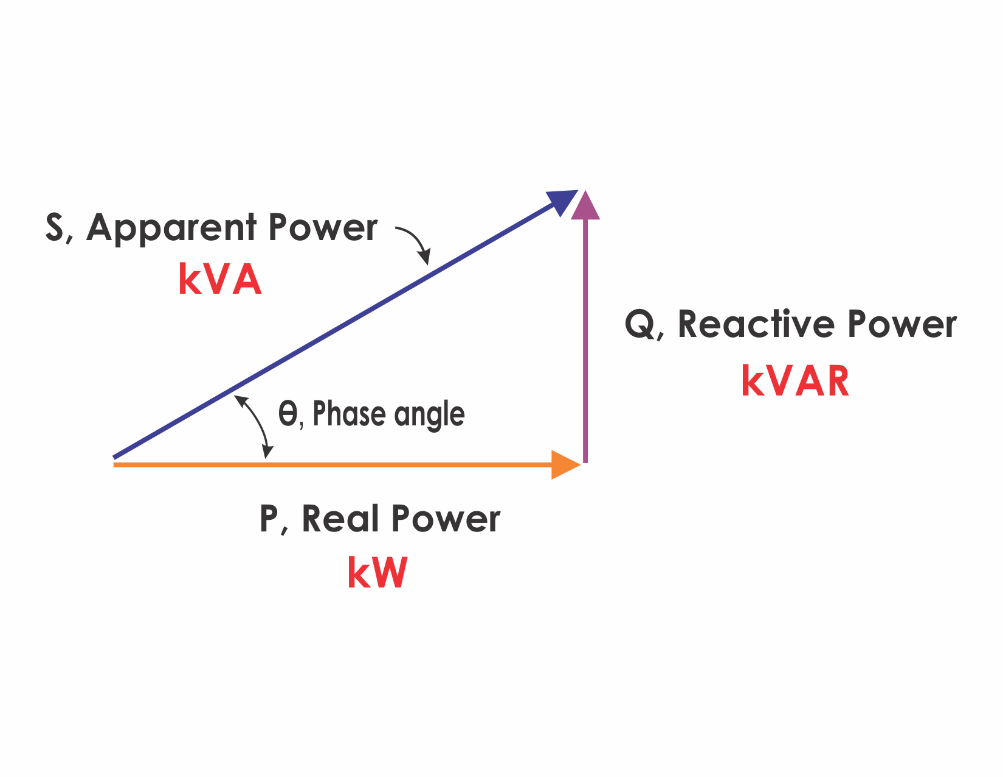
**Figure 1. DC Analogy of pressure (voltage) and current.**



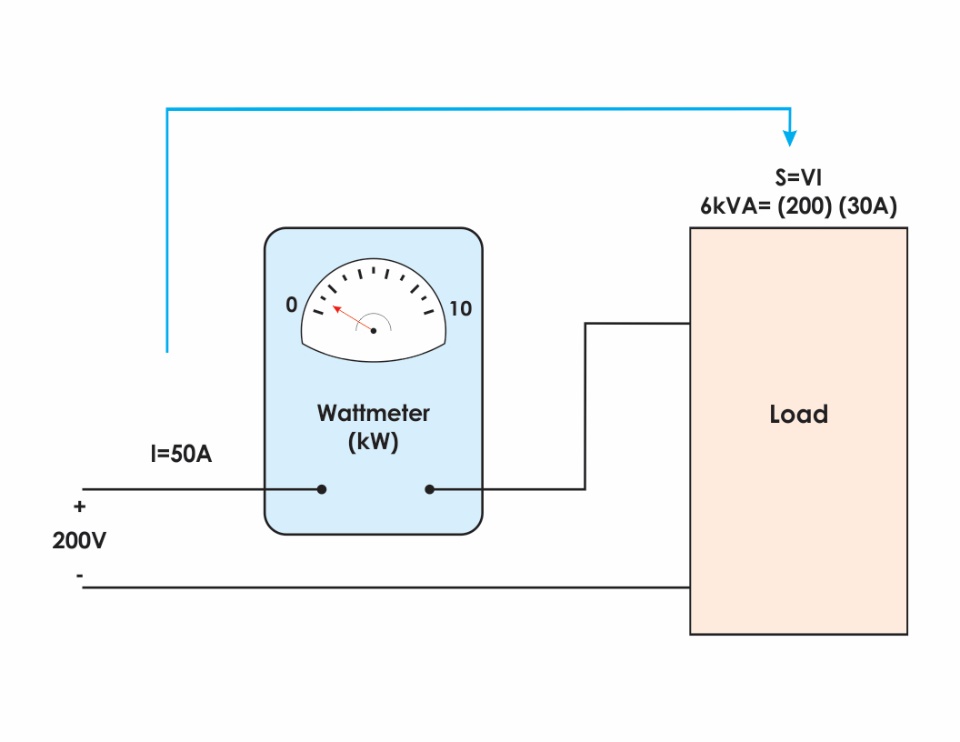
**Figure 2. Comparison of DC and AC voltage.**



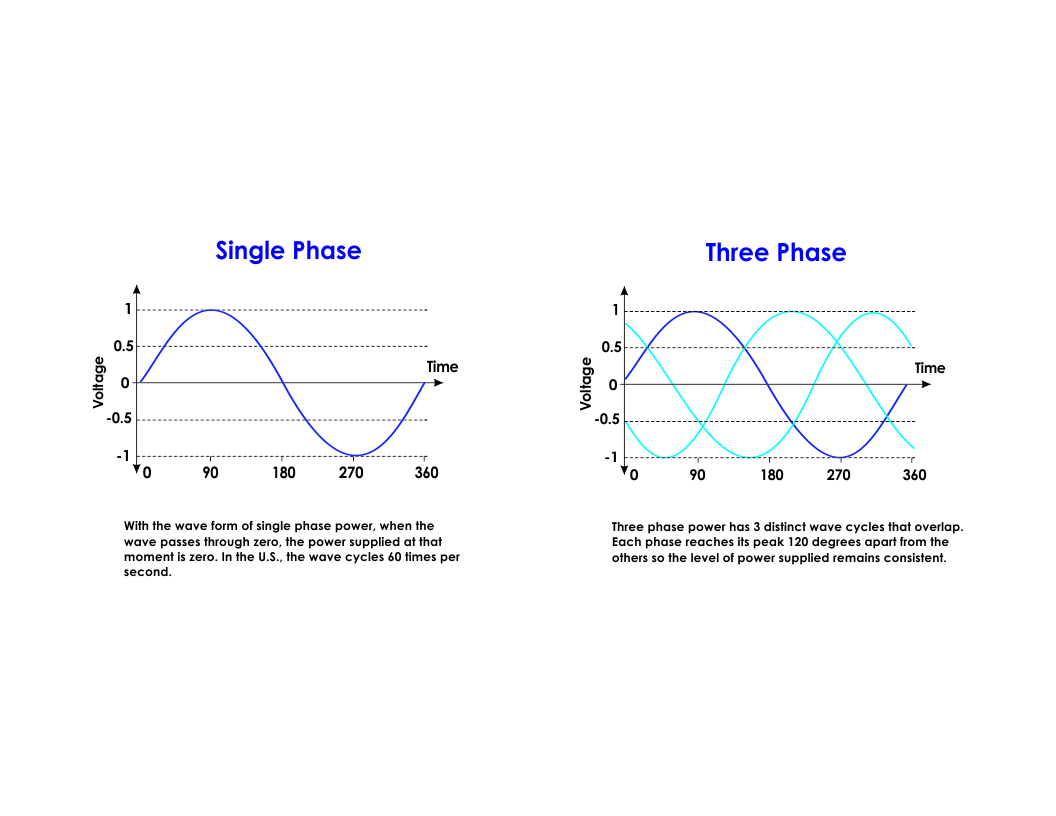
**Figure 3. AC Analogy of pressure (voltage) and current.**



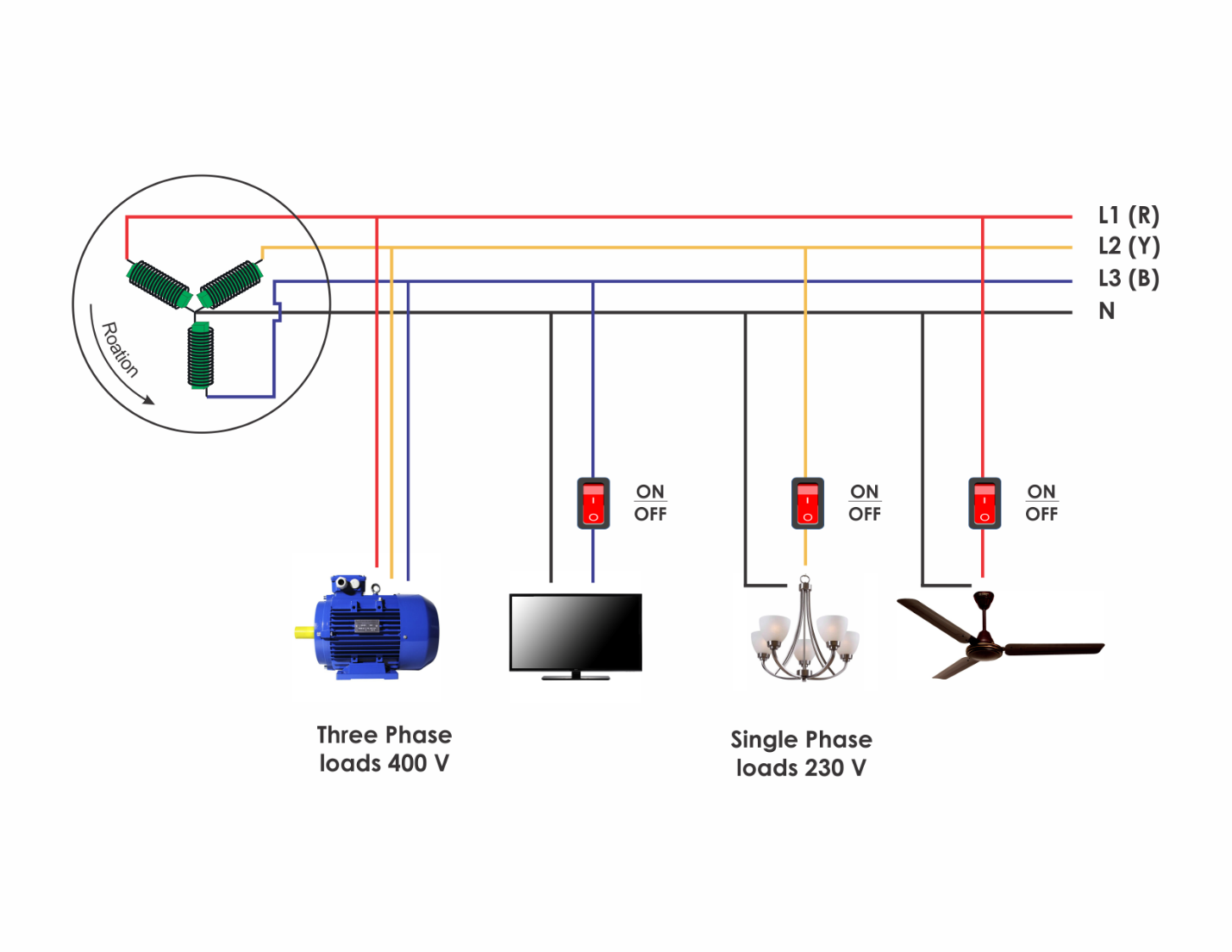
**Figure 4. Relationship between apparent, real, and reactive power.**



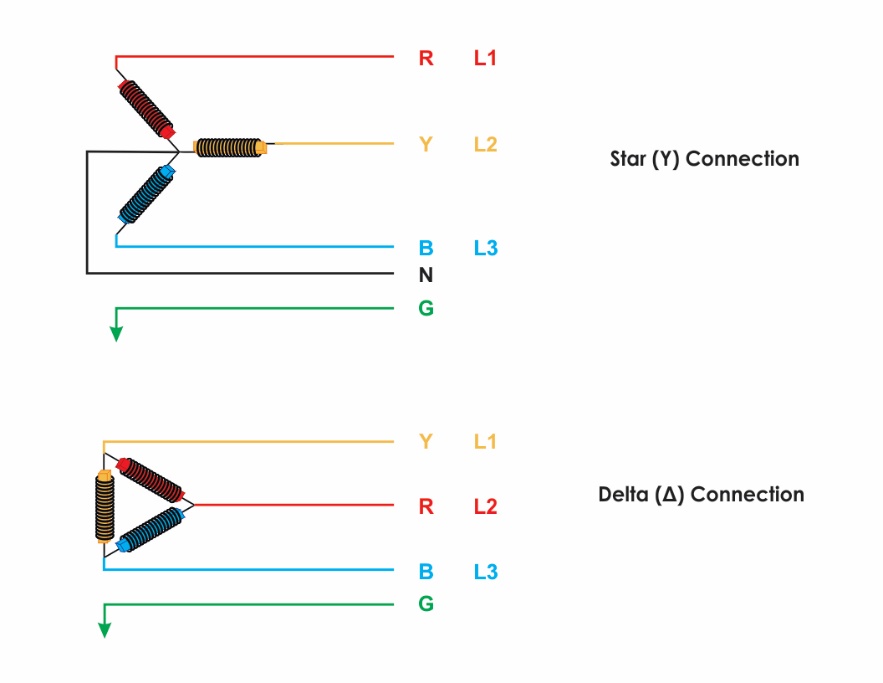
**Figure 5. Illustration of rating a load in kVA versus kW.**



**Figure 6. Single-Phase versus Three-Phase.**



**Figure 6. Single-Phase versus Three-Phase.**



**Figure 7. Wye versus Delta Connection.**

**Table 1. Maximum Load Capacity of Common Circuits [ ].**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Voltage (V) | Current (A) | Phase | Max Power (kVA) |
| North  America | 120 | 15 | 1 phase | 1.4 |
| 120 | 20 | 1 phase | 1.9 |
| 208 | 20 | 1 phase | 3.3 |
| 208 | 30 | 1 phase | 4.9 |
| 208 | 20 | 3 phase | 5.7 |
| 208 | 30 | 3 phase | 8.6 |
| 208 | 60 | 3 phase | 17.2 |
| International | 230 | 10 | 1 phase | 2.3 |
| 230 | 20 | 1 phase | 3.7 |
| 230 | 32 | 1 phase | 7.4 |
| 400 | 16 | 3 phase | 11 |
| 400 | 32 | 3 phase | 22 |

Table 2 shows the continuous power capacity in kW at each amperage [ ]. The shaded portion of the table represents the uncommon power levels that are not recommended by design engineers.

**Table 2. Recommended Continuous Power Capacities (kW) at Each Amperage [ ].**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Single/split phase | | | 3-phase | |
| Whip amps | 120V | 208V | 240V | 208V | 415V |
| 20A | 1.9 kW | 3.3 kW | 3.8 kW | 5.8 kW | 11.5kW |
| 30A | 2.9 kW | 5.0 kW | 5.8 kW | 8.6 kW | 17.3 kW |
| 40A | 3.8 kW | 6.7 kW | 7.7 kW | 11.5 kW | 23.0 kW |
| 50A | 4.8 kW | 8.3 kW | 9.6 kW | 14.4 kW | 28.8 kW |
| 60A | 5.8 kW | 10.0 kW | 11.5 kW | 17.3 kW | 34.5 kW |



**Figure 9. Comparison Between Using Nameplate Ratings and Actual Measurements.**