

# converter selection

general guidelines for

\* **Selecting a converter model is similar to selecting transformer kVA sizes.** Both starting and running loads must be considered, especially starting loads because amperages are always higher to start. Maxiphase converters offer only one duty rating per model. There are not heavy or super-heavy duty ratings, even though heavy and super-heavy duty needs are found in load applications. Whenever those conditions are present, simply choose one size larger converter for heavy duty needs or two sizes for super-heavy duty (such as, punch presses, direct drive centrifugal blowers, etc.)

\* **Total combined horsepower** ratings on all converters are general ratings. Many applications will have motors operating in varied stages of load conditions (such as metal or woodworking machinery, etc.) from no load to full load. This nameplate rating which is three times the largest horsepower rating of the converter gives a general performance rating.

\* In applications which have **multiple motors operating continuously at full load** use a .66 multiplier to calculate total combined horsepower capacity. For example, an RPC 5-15 has a combined horsepower rating of 15hp. When motors are running continuously in a full load condition, (such as refrigeration compressors, pumps, etc.) multiply 15hp x .66, which results in a combined total horsepower capacity of 9.90 or 10hp for the RPC 5-15 converter.

\* **Air conditioning and refrigeration units** are commonly underrated in horsepower. For example, a refrigeration compressor motor rated at 7.5hp may have a full load amp rating of 33 amps at 230 volts. An amp load of 33 amps at 230 volts is the equivalent of a 12-13 horsepower motor. In that case an RPC 15-45 converter should be used. Always check amp draw and load conditions before making a selection! It is also recommended after true HP is determined to use the next larger HP converter due to high starting current.

\* Due to higher starting currents, **3450 RPM motor applications** may require the next larger rating converter. For example, a 7.5hp 3450 RPM motor on a wood moulder which has heavy cutter heads, may require an RPC 10-30 converter. A safe rule is that 3450 RPM motors require the next larger model converter.

\* If **two or more motors start simultaneously**, the combined total horsepower of those motors would be considered the largest motor horsepower on the converter specification chart. For example, one 1hp and one 2hp motor starting simultaneously would equal one 3hp motor. In this case an RPC 3-9 would be the correct converter to use. NOTE: This applies only when motors start at the same time!

\* A Rotary **Phase Converter must be started before the load is applied.** Starting a converter with the load applied can cause winding failure in the rotary converter.

\* **For resistive loads** (such as heating elements) determine the input amperage and compare it to an equivalent motor horsepower amp draw. For example, a resistive load of 18 amps would be between the amp draw of a 5hp and a 7.5hp motor. Since it is greater than a 5hp and less than a 7.5hp, an RPC 7.5-20 would be the correct converter. A resistive load of 22 amps would be the maximum load for an RPC 7.5-20 converter. No other load could be applied at the same time.

\* **Transformer loads** (such as battery chargers, welders, etc.) are calculated by converting the primary amperage of the welder or charger to an equivalent motor horsepower amperage. For example, a charger with a primary amperage of 26 amps would be similar to a 10hp motor which has an amperage of 28. However, you may multiply the charger amperage by .60 which in this case gives a result of 15.6 amps. This is the equivalent of a 5hp 230 volt 3 phase motor. The correct converter would be an RPC 5-15.

\* For **operation of 460 volt machinery from a 230 volt 1 phase source**, use a step-up transformer between the 230 volt phase converter and the 460 volt application. An alternative is to use a step-up transformer before the converter and choose a 460 volt phase converter.

\* For **extremely hard starting or inertial load applications** (such as metal shears, punch presses, some compactors, etc.) choose a converter model which is twice the largest motor horsepower rating. For example, a metal cutting shears with a large flywheel and a 5hp drive motor, use an RPC 10-30 as the correct size.

\* For **CNC and other computerized applications** use CNC model converters.