ROTARY CONVERTER APPLICATION NOTES:

Sizing a Rotary Phase Converter is important and can be confusing at times. The information below should be used as a guideline when sizing your next project. Please feel free to consult our sales team for additional sizing needs.

Motor loads should be broken down into 4 separate categories due to their starting characteristics. Typically a motor will require 5-6 times its full load amp rating (FLA) to reach full speed on startup. EIM recommends sizing our converter a minimum of 50% larger than the load motor being applied. By using are conservative guidelines below you will achieve maximum performance from your converter and possibly have extra capacity to add additional loads in the future.

MOTOR LOADS

1. **Light / Easy Loads: Light/Easy loads require little rotating force, low starting torque, and typically do not start under a load. These loads typically draw 2 times the Full Load Amp rating (FLA) of the motor. EIM recommends sizing the converter 1.5 times larger than the motor being applied in these applications. I.e.: Mills, table saws, some pumps, drill press, wheel balancers, sewing machines, lathes with a clutch, dough mixers, meat grinders, air conditioners, etc.**

2. **Moderate Loads: Moderate loads are typically loaded upon startup, resulting in a moderate amount of force. These loads will typically require 4-5 times the FLA rating to reach full speed on startup. EIM recommends sizing the converter 2 times larger than the load being applied.**
   I.e.: Air Compressors, Fans, Wide belt sanders, all pumps starting under a load, Mexican, Chinese, Taiwanese, or Brazilian motors, and Design E motors (higher starting currents).

3. **Heavy Loads: Heavy loads typically start under a significant load, have high inertia, have heavy rotational force, or go well beyond there FLA rating for short periods of time while running. These loads will require 5-6 times the FLA or more to reach full speed on startup or even after the load is running. EIM recommends sizing the converter 2.5-3 times the size of the load being applied. Consult our sales staff for more info.**
   I.e.: Screw Air compressors, elevators, hoists, laundry extractors, bailers, compactors, shears, paper cutters, etc.

MULTIPLE LOAD APPLICATIONS:

Multiple motor loads can be run from a rotary phase converter. When sizing for multiple loads always start with the largest motor being started. This may be one motor by itself of multiple motors starting at the same time. After you have identified the largest motor starting, then simply add the smaller motors and make sure they don't exceed the converters total HP requirements. I.e.: 5hp air compressor, 2hp grinder, 2hp lathe, 2hp drill press = 5hp largest motor starting at one time. Total motors that could run at a given time= 11hp (this is up to the customer) EIM recommends our Model # M015 Rotary Converter which is good for 15 total running HP and or 40A at 240VAC.

RESISTIVE LOADS:

Resistive loads can also be run from a Rotary Style Phase Converter. Typically resistive loads will not give you a HP rating so you will have to do some math. Find the total amperage rating of the machine and divide it by 2.6 for 240VAC applications and 1.3 for 480VAC applications. This number will give you the equivalent HP rating and you can now size your converter to the correct total output current. I.e.: Welder that has a maximum rating of 40A at 240VAC. 40 / 2.6= 15.38 HP. EIM would recommend our model # M020.

Note: EIM Rotary Phase Converters have a Delta Output. Applications such as CNC loads that require a 4 wire Wye Input will require an isolation delta-wye transformer to be installed between the phase converter and the load motor, resulting in equal voltages to ground on all three lines.

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