



YASKAWA

Multiple Motor Operation. Operating multiple motors from a single adjustable frequency drive is possible as long as specific steps are followed to insure proper sizing of the drive to connected motors. The first step is to sum total connected motor horsepower or FLA. Of the two, FLA is the better parameter to use, but is sometimes not available. Once this figure is calculated, selection of the drive based upon total horsepower or FLA can be made. The drive should always be sized equal to or greater than this figure.

Drive operation will enable all motors to accelerate/decelerate and maintain a constant relationship of speed to one another.

Some additional points should be noted:

1. The relative speed of one motor to another cannot be changed when they are connected to a common drive.

$$N = \frac{\text{Freq.} \times 120}{\text{No. of Poles}}$$

2. The drive will require separate thermal protection for each motor.

3. A motor cannot be picked up while other motors are already in operation on the drive, unless the selected drive is sufficiently oversized.

EXAMPLE: 3 motors @ 460 VAC
5HP @ FLA
5HP @ FLA
10HP @ FLA

If all motors were accelerated, decelerated and run in unison, the sum of connected motor FLA allows use of a 20HP drive. If it were necessary to accelerate and run the 5HP motors and then start the 10HP, the sum of FLA must be recalculated. The FLA figures for the 5HP motors would be used, but the Locked Rotor Amps (LRA) for the 10HP must be used. As this motor would not be accelerated from zero frequency and voltage to its running condition, it would look at the drive as a fixed voltage/frequency line starter and would require its full LRA rating to accelerate to drive's output frequency. This effect on sizing is shown below:

5HP 6.2 FLA @ 460 VAC
5HP 6.2 FLA @ 460 VAC
10HP 86.5 LRA @ 460 VAC
98.9 Amps

In this example, a 75HP Yaskawa Adjustable frequency drive with 112 Amp continuous rating would be required.