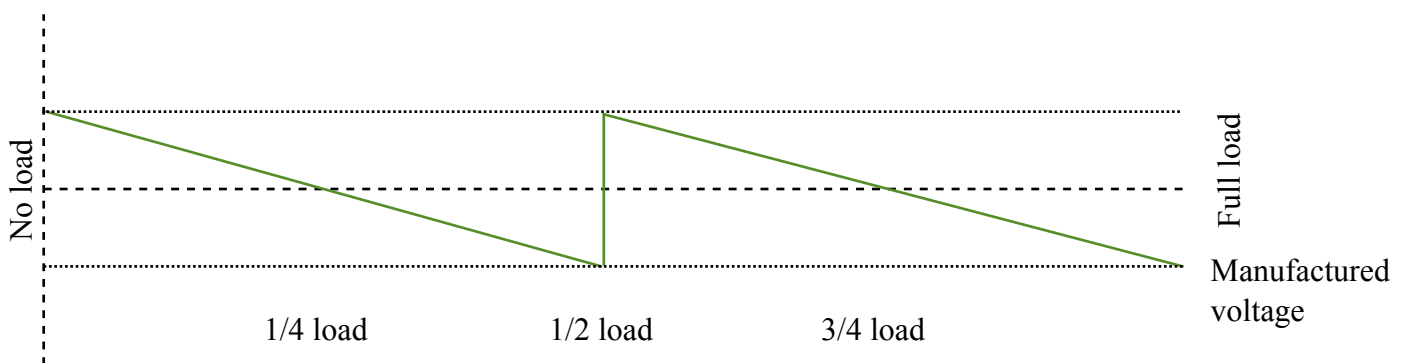


For low cost single to three-phase converters with balanced voltages. Using an idler motor make this a rotary converter for a wide range of different loads. The Twin controller S (Start) and R (Run) control the manufactured phase. S engages the Start capacitor each time it senses a starting motor. It delivers high boost currents until a motor reaches full speed.

Two Run capacitor, a fixed and a switched one. Controller R switches the second capacitor for voltage symmetry (F controllers switch three different run capacitors for very precise eight stage balancing):



Find the right start cap for best motor acceleration. Lower the capacitance should a motor pulse during the acceleration. Find the best run capacitors:

The manufactures voltage should be about 5% higher than the single phase reference voltage (about 12V in a 240V and about 20V in a 415V system). Voltage is too high: Lower the fixed capacitance.

At about 1/4 motor load, the voltages should be about symmetrical. Tune this by changing the value of the fixed capacitor.

At about half load the manufactured voltage will be about 5% below the supply voltage. At this point the second Run capacitor is added, the manufactured voltage is 5% above the supply voltage.

There will be voltage symmetry at about 3/4 load.

At full load the manufactured voltage will be about 5% below supply (reference).

There may be an increasing difference between the voltage when a generator or idler motor is too small. Two-pole motors are the best idler motors. Use an idler motor the size of the converter's kW capacity or a bit larger.

Motor shaft loads can be simulated by using a free running load motor and heater elements between the phases in the combined kW rating of the intended load.