STUDY OF 3- PHASE AC TO DC FULL CONTROLLED CONVERTER
AC-DC Converter

- AC-DC converter basically known as a rectifier is a circuit, which converts an ac voltage into a pulsating dc voltage using both half cycles of the applied ac voltage. It uses diodes of which one half conducts during one half cycle while the other conducts during the other half cycle of the applied ac voltage.

- During the positive half cycle of the input voltage, the one half set of diodes becomes forward biased and the other half becomes reverse biased. The load current flows through Diodes and the voltage drop across R will be equal to the input voltage.
Circuit Topology
Waveforms

Input Waveform

Output Waveform
The peak voltage of the output waveform is the same as before for the AC-DC converter provided each have the same rms voltage. To obtain a different DC voltage output different Voltage levels can be used.

A circuit that produces the same output waveform as rectifier circuit a is that of the AC-DC Converter / Rectifier. Three phase rectifier uses six individual rectifying diodes connected in a bridge configuration to produce the desired output wave. The advantage of this bridge circuit is that it does not require a special center tapped transformer, so it reduces its size and cost. Single secondary winding is connected to one side of the diode bridge network and the load to the other side.
The advantages of rectifier is that it has a smaller AC ripple value for a given load and a smaller reservoir or smoothing capacitor than an equivalent half-wave rectifier circuit. The fundamental frequency of the ripple voltage is twice that of the AC supply frequency 100Hz where for the half-wave rectifier it is exactly equal to the supply frequency 50Hz. The amount of ripple voltage that is superimposed on top of the DC supply voltage by the diodes can be virtually eliminated by adding a much improved filter to the output terminals of the bridge. Low-pass filter consists of two smoothing capacitors of the same value and a choke or inductance across them to introduce a high impedance path to the alternating ripple component.
Conclusion

➢ Any AC-DC converter is used to construct DC power supplies.

➢ Three phase AC-DC converter / rectifier uses the diode bridge. Capacitors are used to get rid of ripples. Based on the requirement of D.C voltage.

➢ Thus the three phase rectifier is Implemented using the Solid thinking Activate tool.