Comparation

First topology is the controlled full wave bridge rectifier .In this topology our output voltage can be negative . That mean our peak to peak voltage difference is high. We could get a waveform which is less DC. We can use that topology if we need control the our system more sensitive. We can control better. But average output voltage is lower cause of negative cycle of V out.

Second topology is the half controlled full wave bridge rectifier.Output voltage can not be negative.So peak to peak voltage is lower than full controlled FWBR. This topology has higher average output voltage.But the control of the rectifier work with only two thyristor so the control of the FWBR is different than full controlled one.If we need to use more average voltage and also we want to control the output voltage we should use that topology.