

# [There the usage of power electronic devices ,induction](https://assignbuster.com/there-the-usage-of-power-electronic-devices-induction/)

There is a great emphasis about powerquality and in particular the issue of harmonic distortion primarily due to theincorporation of more non-linear loads in a typical industrial plant. Further, power electronic based devices are widely being used for inversion, rectification and other applications. Though these devices are more effective theygenerate and inject harmonics into the power system. Traditionally, efficiency investigationsin power systems consider only distortion-free waveforms, that is, the voltageand current waveforms are assumed to be sinusoidal.

A harmonic is a sinusoidal componentof a periodic wave having a frequency that is an integral multiple of the fundamentalfrequency. The main sources of harmonics in power systems has been the staticpower converter used as rectifiers, adjustable speed drives, switched-modesupplies, frequency changers for induction heating. Since nonlinear loadsrepresent an ever-increasing percentage of the total load of an industrial orcommercial power system, harmonic studies have become an important part ofoverall system design and operation. Fortunately, the available software forharmonic analysis has also grown.      Guidelines for the acceptance of harmonicdistortion are well-defined in IEEE Standard 519-1992. By modeling power systemimpedances as a function of frequency, a study can be made to determine theeffect of the harmonic Contributions from nonlinear loads on the voltages andcurrents in the power system.

The harmoniclevel gets increased by the usage of power electronic devices , inductionfurnace. This leads to the cause of minimization in reliablility and stability. To overcome these problems, it is a needto maintain power quality. These problems arise due to the electricaldisturbance. Most of the disturbances depend on the amplitude orfrequency.  Harmonic causes overheatingof motros, cables, transformers.

And also reduce the life span of many devices. Withthe rapid developments and use of nonlinear loads, the controlling technique isimportant over the harmonic.  . So passivefilter is used to reduce harmonics..