



Figure 5(a): AM1



Figure 5(d): AM4

Figure 5: Installation of accelerometer for gearbox condition monitoring.



Figure 5(b): AM2



Figure 5(c): AM3

In the above figure 5 shows the location of the accelerometer in the gearbox which almost covers all gearbox system. The mounted accelerometer notation given in figure 5. These 4 accelerometer transducers are mounted on gearbox one for planetary in radial direction AM1 or AM2 and one for each stage of gearbox AM3 and AM4.

The time domain parameter used to monitor the trend of overall vibration level over time a specific measurement location. For measurement of vibration we used one triggering mechanisms like a time interval based or vibration level based can be install in time domain parameter overall trending process. Whenever we use this trigger mechanisms, got a discrete frequency analysis snapshot. To evaluating these snapshots we identify the gearbox health & condition and also measure the amplitude & meshing frequency of gears.

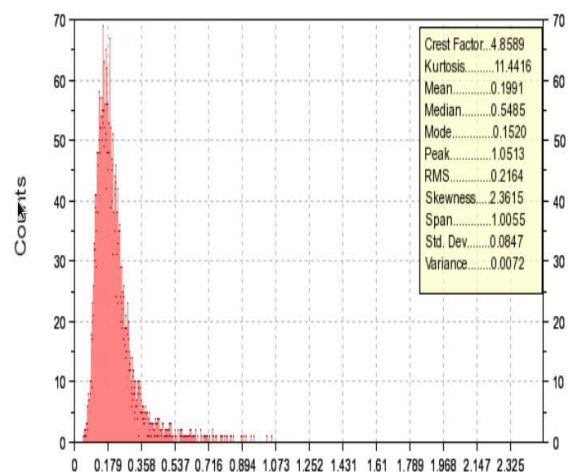


Figure 6(a): Healthy amplitude histogram.

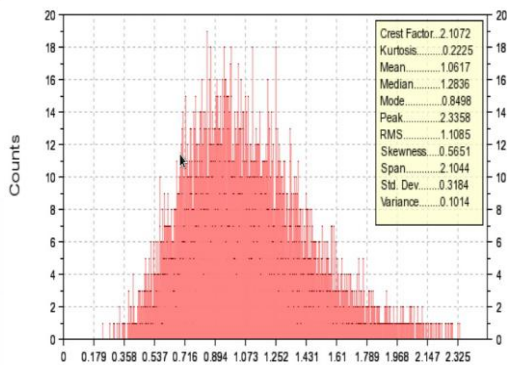


Figure 6(b): Abnormal amplitude histogram.

Line vibration analysis is another popular condition monitoring technique used by wind turbines. This line vibration analysis also known as stress wave analysis. The stress wave signals are come through friction and strike event in monitored structure. The results gives the stress wave technique is knows as amplitude histogram. In figure 6(a) and 6(b) stress wave amplitude shows. Figure 6(a) shows the healthy condition of helical gear and figure 6(b) shows the abnormal condition of helical gear.

5. Conclusion

Condition monitoring is effective method to evaluating the condition of machine or any other component. This paper condition monitoring technique applies in gearbox of wind turbine and analysis the health of gearbox. Vibration monitoring is one of the important methods of condition monitoring, here vibration monitoring method used to measure the fault and damage in gearbox. In gearbox we mounted some accelerometer and stress wave transducers which gives the vibration signal and vibration patterns. Time domain and Frequency domain two type of signal produce by sensors as per our requirement we choose any of them. This vibration signals gives the information about machine health and condition. It also helps to avoid the unnecessary maintenance of gearbox with considerable saving of resources.

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