

Vibroacoustical Diagnosis of Planetary Precessional Kinematical Transmission (Part 1)

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Abstract

An ideal dynamical system should not generate any vibrations, because vibrations mean a loss of energy. Vibration in planetary precessional gear box occurs at bearings, gear wheels, misaligned shafts, imbalance rotating parts, couplings. If damage occurs, not only the dynamic processes change, but also the forces that act on system components. Regarding this aspects, regular vibration measurements on machines provide information about any necessary maintenance. Vibration research was made by using GUNT PT500 Machinery Diagnostic System and vibration signals was evaluated by using GUNT PT500.04 software witch allow to perform correct FFT analysis. Data acquisition was made by using two piezoelectric accelerations sensor type IMI603C01 and one reference photoelectric sensor to record the shaft speed. Sound level was measured by using Brüel & Kjær Sound Level Meter Type 2250 Light that has everything needed to perform high-precision, Class 1 measurement tasks in environmental, occupational and industrial application areas. Obtained and measured results was presented in diagrams and tables to be compared with German standard VDI-2058 Limit value for vibration severity and noise level.