

Method for locally strengthening working surfaces of parts involves placing part in the field of permanent magnet, mechanically exciting it with broadband signal via piezoelectric transducer, and recording the vibrational response with piezoelectric sensor. After the initial identification of resonant frequencies through spectral analysis of the response to white noise in the 1-20 kHz range, system switches to harmonic excitation at the identified frequency to utilize the resonant amplification effect, wherein during processing, the drift of the resonant frequency is continuously monitored, and a preemptive correction of the generator frequency is performed.