

Performance Evaluation of Low Noise Gears Using H-FCD

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In order to reduce gear noise, it is general to perform a process such as shape correction of the gear contact surface. However, it causes a problem that the processing cost increases. We are developing a method that makes the gears low noise at low cost, by taking advantage of the damping characteristics of the gear material, without changing the shape of the gear contact surface by machining. High strength ferrum casting ductile (H-FCD) has high material damping performance, but the fatigue strength of H-FCD is lower than the steel materials. It is necessary to improve the fatigue strength of H-FCD. In this paper, first, we describe the experimental results of the noise reduction effect compared to conventional gears through the rotation test of H-FCD gears used in a real vehicle. Next, the heat treatment of H-FCD follows. Finally we introduce the effect of nitriding surface treatment on improving fatigue strength.