

Design and Development of Involute Gears and Gearing Systems

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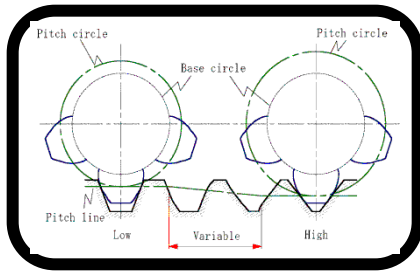


Fig. 1 Variable Gear Ratio R&P

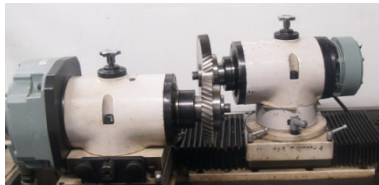


Fig. 2 Tooth Bearing Test of Conical Involute Gears

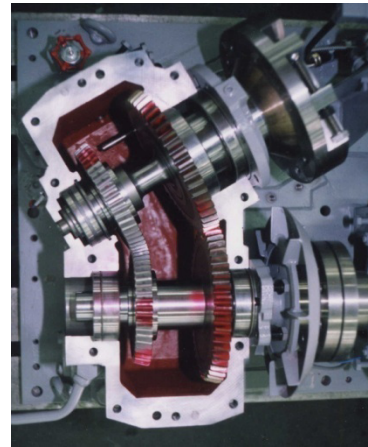


Fig. 3 Fatigue Test of Conical Involute Gear

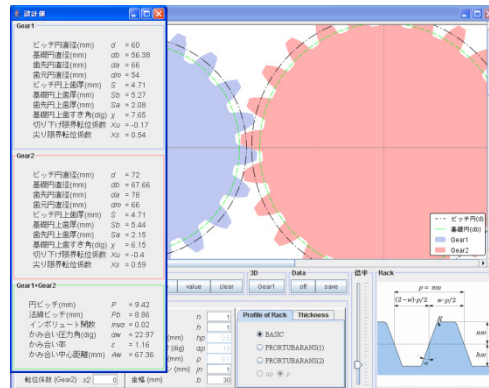


Fig. 4 Gear Design System

Content:

Geometry of involute gears is researched in our laboratory. We obtained the theoretical gear tooth profile exactly. The theoretical profile is used to examine that the gear is accurately produced or not.

Objects of our research are the variable gear ratio rack and the pinion for steering systems of automobiles (Fig. 1), and the conical involute gear that is most general type of the involute gear (Fig. 2).

We also execute the performance test of the variable gear ratio rack and the pinion, and the fatigue test of the conical involute gear for practical design (Fig. 3).

Moreover, the intelligent support system for gear design is developed in our laboratory (Fig. 4). This system is applied knowledge engineering technology. We aim to realize the system that anyone obtains good gear design solution using our developed system.

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