Analisis tegangan roda gigi miring pada transmisi kendaraan roda empat berdasarkan agma dan ansys

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Abstrak

Two kinds of stresses in the gear teeth are root bending stress and tooth contact stress. These two stresses results in the failure of gear teeth. The root bending stress results in fatigue failure and contact stress results in pitting failure at the contact surface. The stress analysis used to minimize gear failure in the design of helical gear. It is also optimize the design of helical gear on the transmission system of the truck motor vehicle, where the power transmission is required at heavy loads with smoother and noiseless operation. In this paper bending stress and contact stress estimated using analytical method while modeling of gears used the numerical solution. Method of beam strength based on modified Lewis calculation used to predict the bending strength of helical gears. Contact stress was estimated using related method of AGMA contact stress. Stress modeling of helical gears is done by ANSYS 14.5, which is a finite element analysis package. The results are then compared with both AGMA and ANSYS procedures. The values of bending strength and contact stress determined using AGMA method found to be compatible with ANSYS simulation.