The Strength Analysis of Crank Shafts

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ABSTRACT

An automobile has five systems, most importantly dynamic system, in system including engine and its respective installment. The engine performance quality directly affects the automobile the whole performance, therefore in the engine each components all have its importance, crankshaft is the most important part, because of the crankshaft withstanding circulation intermittence heavy load, can have the possibility which destroys. Therefore the present paper establishes with the actual size suitable crank three-dimensional model, analyzes the crank in the same working condition, whether symbol nuclear intensity demand. First uses the entity to construct the construction model SolidWorks software, precisely establishes the piston link motion gear the full-scale mockup, and using the COSMOS/Motoin software to the system, carries on the circulation ; intermittence load dynamics analysis, in application limited ultimate analysis software COSMOS/Works, carries on the static analysis to the piston link motion gear essential components, final this article the data which will obtain to each kind of simulation process in carries on the comprehensive generalized analysis. Attempts in the analysis process the connectional of crank shaft pin and the crank shaft arm fillet, reduces the stress concentration value, and uses the size different fillet, can have the different size to the crank fillet stress maximum value the influence. This paper proposed suggested to the fillet change, makes the exhaustive analysis to the different fillet stress distribution, and the suggestion crankshaft most suitable fillet size of. At the same time the analysis result also indicated the entire dynamic analysis simulation flow is suitable, definitely may use in other similar systems analyses and the simulation.

Keywords : engine, piston link motion gear, crankshaft, simulation, static analysis

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