Shape Inspection of Gear Prototypes Using Reverse Engineering Method

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Reverse engineering is a technology that enables acceleration of data collecting for CAD, CAM, CAE systems, which also means shortening time of development, construction and components production. It is a transfer process of a physical component to a digital format. Generally, the technology of reverse engineering means a conversion of analogue data to digital data that are further processed. Every single industry branch rising their requirements on accuracy, dimension, quality, etc. Therefore, digitisation is applied in many production fields such as an automotive industry, aircraft or shipping, medicine, industrial design, design, etc.
An article deals with an analysis of prototype models of gears in various stages of production. The realized inspection of a shape of prototype gears lied in uploading of a digitised referential CAD model (the gear after heat treatment and machining), subsequent setting up of digitised prototype gears (the gear after the machining, gear after heat treatment) in respect of this referential CAD model, a control of their dimensions and forming a colour map of deviations in chosen points.

Keywords: Gears, Prototype Models, Digitisation, Component Inspection, 3D Scanner, Reverse Engineering, Technology

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