AUTOMATIC MEASUREMENT OF SHAPE PARAMETERS FOR HYDRAULIC TORQUE CONVERTER

Haining Zhang and Fu Bai

School of Electronics and Information Engineering, Xi'an Technological University, Xi'an, 710021, Shaanxi, China

Email: zhanghn2005@sina.com, baifu2013xa@sina.com

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Abstract- ***In this paper, the automatic measurement method of the Hydraulic Torque Converter shape parameters is studied. Aiming at the defects of the traditional manual measurement method, the solution for measuring the shape parameters of Hydraulic Torque Converter with the automatic measurement system is proposed on the basis of in-depth analysis for the Hydraulic Torque Converter shape parameters' characteristics. Automatic measurement system mainly contains two parts, the Hardware Measurement System and the Software Measurement System. The working principle of the automatic measurement system are as follows: firstly, as system starting, the arm upper Measuring Fixture put the Hydraulic Torque Converter work piece into the Measuring Fixture, and then the Measuring Fixture make the Pump Hub Axle and Cover Hub Axle of the measured work piece fixed; secondly, the measured work piece start to rotate, at the same times, s the work piece is measured by MARPOSS displacement sensor. The measuring stop as soon as the measured work piece completes rotating 360 degrees. Lastly, measurement data is collects by the Software Measurement System based on LabVIEW development platform using NI acquisition card. The Moving Average Filter and Butterworth approximation method is mainly used during processing the measurement data. The tolerance measuring value of each shape parameter can be obtained, after the measurement data processed. The external dimensions of the measured work piece have been qualified by the data obtained. Under practical test, this method fit the industrial production demand very well; it can help to improve the production efficiency greatly used in the industrial production.***

Index terms: Hydraulic Torque Converter; automatic measurement; shape parameters; data acquisition.