ASPECTS REGARDING THE FINITE ELEMENT ANALYSIS OF THE HERMETIZED HARMONIC DRIVES WITH TRUNCATED CONE SHAPE FLEXIBLE GEAR WHEEL

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Abstract

Hermetized harmonic drives (HHD) were developed to work in sealed spaces. The sealing of the working areas with the help of the HHD is possible by means of the constructive shape of the flexible gear wheel.

Actually, in this paper, that shape is raising interest because of the deformation and oscillation in the wall of the flexible gear wheel. The elastic gear wheel was modelled in 3D as shown in figure 1.

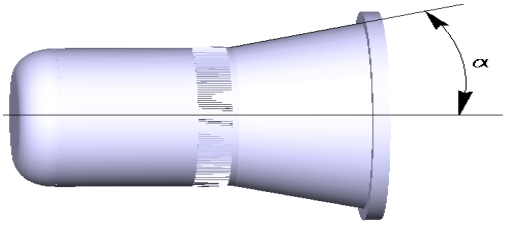

Fig.1 Constructive variants of the elastic gear wheel

Measured deformations were made according to the flexible gear wheel angle of the truncated cone shape.

An image of the FEA of a HDD flexible gear wheel is presented in figure 2.

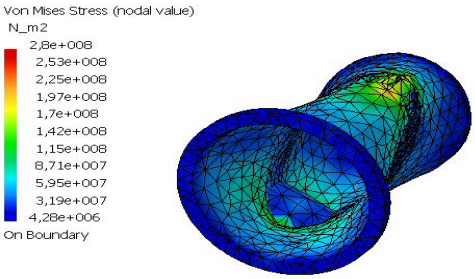

Fig. 2 Flexible gear wheel stressed by a two arms wave generator

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