

OPTIMISING THE GEARS WITH ASYMMETRIC INVOLUTE TEETH BY MODIFICATION THE GENERATION GEAR RACK ANGLES

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Abstract: Involute gears are the most frequent because of the already known advantages. Using asymmetrical involute teeth profiles can be obtained better active flank functional parameters. In the method used by the paper authors, to determine the geometrical parameters of the asymmetrical gears, for a given centre distance, number of teeth, as initial data, the designing engineer choose, as designing variables, the pressure angle for the direct profile, the pressure angle for the inverted profile and implicitly the coefficient of asymmetry of the tooth. Another designing variable is the angle of the gear rack profile for generating the direct profile of the tooth, which, with the established coefficient of asymmetry, determines the second gear rack angle. The paper presents studies on the influence of choosing the value of the angles of the asymmetrical gear rack upon some functional parameters of the gears, in order to optimising the design.

Key words: optimal, gear design, asymmetric gear, rack angles.

