

THE MODELING OF THE HELICAL DRILL BACK FACE USING APPROXIMATING BEZIER POLYNOMIALS

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Abstract: The paper deals with a new algorithm for modeling the sharpening of the helical drill using the theory of the enveloping surfaces. The helical drill analysis assumes an ideal form of the abrasive wheel when modeling the back face.

In real world, the active surface of the drill is the result of an enveloping process where the imperfect peripheral surface of the abrasive wheel generates the back face of the drill.

This work presents an algorithm for studying the influence of the shape modification for the abrasive wheel's generating surface of the back face relieving curves using Bezier polynomials.

A Java applet allows the modeling of the back face surface depending on the wear of the abrasive wheel. The paper also presents numerical examples for helical drill sharpening.

Key words: relieving curves, back face, Bezier polynomials.