THE COMPUTER AIDED DESIGN OF THE COULTER DISC FOR NO-TILLAGE MACHINES

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Key words: no-till devices, CAD design

SUMMARY

Direct seeding technology has a different work principles than the classic technology. This technology uses seeding machines which have specific working devices.

The working parts of these machines are totally different than those from the classic seeding machines. The most important device of the machine is the opening disc. This disc works the soil on the seeding row. It opens a gutter for the seed and cuts all the vegetal residues on the soil.

This paper describes a computer assisted design for such a disc. For computing this design it was used the Solid Works software. This software initialized an application which generated the surface of the coulter disc dependent on the geometric parameters imposed. This application can generate very easy, with a machine which has the CAM command, any constructive variant of the coulter disc.

The application “RIFLE DISC” has as the main elements the relations between the angles of the generatrix surfaces: $\alpha$, $\beta$, $\varphi$.

\[
\varphi(\alpha, \beta) = 2\arcsin \left( \frac{\alpha}{\sin \beta} \right) \quad [1]
\]

The application was computed with the Solid Works and Excel software and can generate an opening disc starting from the initial data imposed (diameter, rifle step, rifle amplitude).
BIBLIOGRAPHY

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