# COMPUTER AIDED DESIGN OF SHAFTS USING CONCURRENT ENGINEERING PRINCIPLES

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To fully achieve the benefits of concurrent engineering approach several techniques and methods can be employed., One very effective tool in applying concurrent engineering in the product design activity is called Modeling/Design by features.
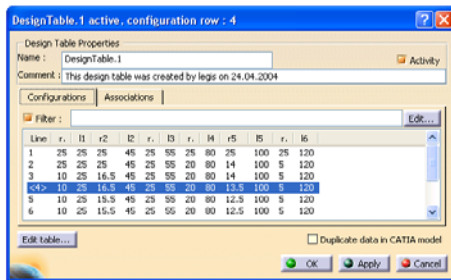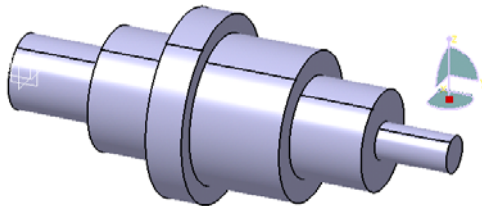


The proposed CAD-CAM system is an original product, realized as a development of the constructive and technological parametrical design process with the supplementary uses CATIAV5R9 and Excel software (figure 1). The paper proposes a parameterized modeling for the parts from shafts family, using CATIA modifier and the tables Excel with geometrical characteristics. In order to realize this, a CAD modeling based on technological constructive entities was used.

The graphic model of the shaft is obtained using these entities in a convenient way and the real object results by assembling the selected entities.

The information about the manufacturing operation succession, operation outlines, operation contents and the necessaries of the technological system are obtained from the

*Fig. 3. The link between the entity and the EXCEL table*

Excel table reading line by line. the rows there are presented the operations from the optimal technological process. On column there are presented the constructive, technological entities that are components of the shaft family.

Every constructive entity is characterized by dimensions, dimensional precision, surface quality and the description in the same coordinative system

The proposed system is based on the technological, constructive entity concept that allows models defined in a parametric way. This approach is in our view a step toward an integrated Windows-based software for computer-aided design of technological processes for shafts execution. This is an important contribution in order to achieve the new software products to enable an integrated approach to the activities of conceptual design, technological design and manufacturing, using nowadays concepts concurrent engineering and modeling/design features.

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