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**Zastosowanie podobieństwa konstrukcyjnego  
i modelu kosztów  
w tworzeniu typoszeregów konstrukcji maszyn**

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# **APPLICATION OF CONSTRUCTIONAL SIMILARITY AND COSTS MODEL IN THE CREATION OF MACHINES CONSTRUCTIONS SERIES OF TYPES**

## **Abstract**

The Ph. D. Thesis presents an application of the constructional similarity theory in generation process of families of ordered constructions, mostly series of types. The construction families such as: shafts, couplings, flanges, pneumatic gripper with parallel jaw movement and hydraulic props used in mining were created. The possibility of creation of technical means from assemblies, sub-assemblies and components was analyzed. Another subject of work was the preservation of the constructional similarity theory assumptions in components with variable loads applied.

Important subject presented in this dissertation is the calculation of the relative manufacturing costs based on the number of constructional similarities. This allows to integrate constructional attributes selections process with manufacturing costs. Three main methods of manufacturing costs estimation were presented: method based on constructional similarity, method with CAM simulation use and simplified method. These methods were used to estimate the manufacturing costs of created series of types.

The constructional attributes were verified in reference to constancy of: physical, stereomechanical, simple states and assessed in terms of the relative manufacturing costs. These attributes were enclosed in catalogs of advanced graphical program *Siemens NX*. The computer program was developed to estimate manufacturing costs.