

KINEMATICS OF TRANSVERSAL MOBILE COUPLING, AS FIVE MOBILE BODIES MULTIBODY SYSTEM

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Abstract: Mechanical systems definition as multibody systems is a modern way of modeling aiming to the real time simulation of complex product's dynamic behavior, using computer performing programs. For a company, it saves time in product developing, reduces the number of physical prototypes and experiments, reduces the prices and also, increases the quality of product.

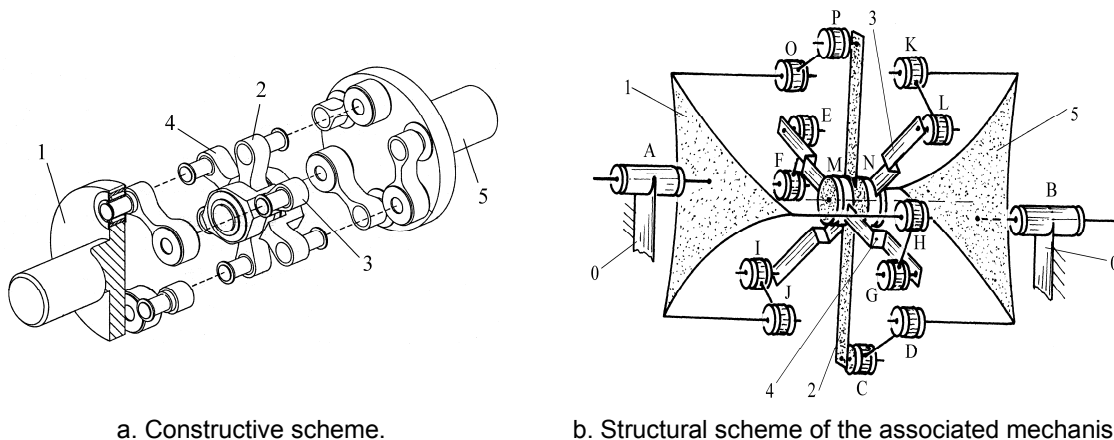


Figure 1. The transversal mobile coupling.

The paper presents aspects regarding the kinematics of the transversal mobile coupling as five mobile bodies' multibody system. First it is presented the structural scheme of the analyzed mobile coupling (figure 1). Then are defined: the parts of the multibody system associated to the mobile coupling (input and output semicouplings, intermediary element and basis); the body reference frames and also the general reference frame; the geometrical and cinematic constraints. Finally, there are determined the cinematic equations, useful to found the optimal geometrical configuration of the coupling, depending by the initial requests of a mobile coupling (cinematic and constructive conditions) and also to obtain a new constructive variant, presented in the final part of the paper.

In the future researches, the authors intend to analyze the new particular case and also to find its optimal shape configuration, in the design process.

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