

Speed regulation by connected planetary gear drive systems

Assoc.Prof.Dr. Ferenc Apró

Ph.D. student Levente Czégé

University of Miskolc, Department of Machine Elements

ABSTRACT

A large number of types of stepped and continuously variable drives are known and widely used in various fields of industry.

The study deals with the selection of the powerflow and the expedient placement of the one degree-of-freedom stepped or continuously variable drive to achieve the proper regulability and the optimal efficiency of connected drive systems. For the sake of this object we show the determination of the possible powerflows of the one degree-of-freedom connected planetary drives having one closed circle.

The connected drive systems having two or more degree-of-freedom, consisting of normal drives, differential gear drives, free-wheels, and occasionally control mechanisms (brakes, clutches) are also considered in the study. Applying these systems the continuous shifting can be realized by self-regulation without a built-in variable drive. Also the growing number of patent annunciations signs the justification of these infinitely variable drives. The determination of laws, working conditions and ranges of these connected systems as well as the questions of the optimal system's selection are problems to be solved.