

Steel Structures and Bridges 2012

Determination and analysis of influence of the hydrodynamic, kinematic and geometric parameters on the motor vehicles hydrodynamic clutch characteristics

R. R. Nikolić^{a,b*}, B. Krstić^a, V. Lazić^a, I. Ž. Nikolić^a,
S. Aleksandrović^a, I. Krstić^c and V. Krstić^d

^a Faculty of Engineering, University of Kragujevac, Sestre Janjić 6, 34000 Kragujevac, Serbia

^b Faculty of Civil Engineering, University of Žilina, Univerzitná 8215/1, 01026 Žilina, Slovakia

^c Faculty of Technical Sciences, University of Kosovska Mitrovica, Kneza Miloša 7, 38220 Kosovska Mitrovica, Serbia

^d Faculty of Transport and Traffic Engineering, University of Belgrade, Vojvode Stepe 305, 11000 Belgrade, Serbia

Abstract

In this paper, a steel structure of a motor vehicle hydrodynamic clutch (HDC) is analyzed in order to obtain the optimal design parameters. Realization of such a steel structure with those parameters enables achieving of the optimal efficiency coefficient. The paper presents large number of data, originated from the past research, which may be used in determination of the meridian cross-section shapes and the position of blade circuits within the operating space of the hydraulic turbo converter. The experimental results concerning the influence of the geometric, kinematic and hydrodynamic parameters on characteristics of the hydraulic turbo converter are presented also. The knowledge about all those relations may be very useful to all dealing with hydraulic torque converters. For conducting experimental investigations an indirect measuring method was used, based on defining the pressure distribution over the speed probes' walls. The original experimental equipment was developed for that purpose.

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Keywords: Hydroelectric power plant, diagnostics, optimization

1. Problem formulation

The hydro-dynamic power transmitter's task is to transform the flow energy of the working fluid, which is circulating through the inter-blades space, into the mechanical work (turbine circuit) or vice versa, to transform the external mechanical work into flow energy of the working fluid. Within the hydrodynamic clutch (HDC)

* Tel.: +421-948-64-2004; fax: +421-41-513-5690.

E-mail address: ruzicarnikolic@yahoo.com.

