

Hydrodynamic Lubrication in Hydrostatic Extrusion of a Work-Hardening Material

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Abstract: *The presence of high pressure fluid in hydrostatic extrusion could result in hydrodynamic lubrication between the die and the deforming metal. The possibility of hydrodynamic lubrication becomes strong when the speed of extrusion and the viscosity of the fluid used are large. There are various theories of hydrodynamic lubrication for rigid plastic and work-hardening materials. In this paper, an analysis for hydrodynamic lubrication in hydrostatic extrusion of a work-hardening material is presented. A refined stress-strain relationship, which matches closely the stress-strain characteristics of the material is used.*

Keywords: *Hydrodynamic lubrication, stress-strain characteristics, work-hardening, material*