

Effect of Sedimentation on Torque Transmission in the Larger Radius Magnetorheological Clutch

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Abstract : Sedimentation of magnetorheological (MR) fluid affects its working. MR fluid is a smart fluid that has unique qualities such as quick responsiveness and easy controllability. It is used in the MR damper, MR brake, and MR clutch. In this work effect of sedimentation on torque transmission in the shear mode operated MR clutch is investigated. A test rig is developed to test the impact of sedimentation on torque transmission in the MR clutch. Torque transmission capability of MR clutch has been measured under two conditions to confirm the result of sedimentation. The first experiment is done just after filling and the other after one week. It has been observed that transmission torque is decreased after sedimentation. Hence sedimentation affects the working of the MR clutch.

Keywords : clutch, magnetorheological fluid, sedimentation, torque

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