

**NUMERICAL ANALYSIS FOR SHOCK ABSORPTION  
PERFORMANCE OF ACCUMULATED SEMI-ACTIVE  
HYDRAULIC DAMPER**

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ABSTRACT. The semi-active control does not consume a huge quantity of electricity because its controlling force comes from the oscillation of the structure system. Furthermore, it is adaptable that the control over the structure can be changed. Therefore, the optimum solutions are available to resolve the problems of the electric power system conditions and the adaptability of the controlling force, commonly found in other control methods. The damper used in this research is the Accumulated Semi-Active Hydraulic Damper, ASHD, developed on the basis of the Displacement Dependent Semi-Active Hydraulic Damper by means of installing the accumulator. The damper and the bracing series are connected together to the structure; the displacement of structure can drive the bracing series distortion to engender the action power of ASHD. When the action power passes through ASHD, the energy dissipation behaviors occur, which can form the fullest hysteresis loop. This research establishes the mathematical analysis model to analyze its energy dissipation capability based on the hysteresis loop of ASHD, obtained from the experiment. The analysis results show that no matter what energy dissipation period, ASHD perform high energy dissipation capability.

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