عنوان مقاله:

CYCLIC LOADING TEST ON HIGH DAMPING RUBBER BEARING (HDRB) ISOLATORS IN COMBINATION WITH FE-BASED SMA DAMPERS

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

تعداد صفحات اصل مقاله: 2

نویسندگان:

Rasoul MORADKHAHI - *M.Sc. Student, Amirkabir University of Technology, Tehran, Iran*

Touraj TAGHIKHANY - *Associate Professor, Amirkabir University of Technology, Tehran, Iran*

خلاصه مقاله:

Seismic base isolations have been developed and used in buildings and bridges as a technique to control their seismic behavior under severe ground motion. Various types of bridge and building isolators have been developed, tested and are in used all over the world as a means of effective earthquake resisting systems. In order to dissipate seismic energy at isolators level, many designers are used hysteretic dampers in combination with isolation systems (Hedayati Dezfuli & Alam, 2017). However, due to residual displacement at base level in this combination, the operating service of structure is interrupted after earthquake. One appropriate solution for this problem is application of shape memory alloy as hysteretic metal in damper. Shape memory alloy is a novel functional material which can be recovered after unloading or upon heating (Song et al., 2006). Due to high cost of Nitinol (as most common types of these smart materials), most of recent researches have been concentrated on finding different types of SMAs with the same quality and lower price (Cladera, 2014). One type of iron-based SMA has been manufactured in Civil Engineering Department of Amirkabir University oftechnology with good super elasticity effect, shape recovery and lower cost (see Figure 1). In other respect, one high damping rubber bearing (HDRB) seismic isolator was manufactured by separated team using local feasibility in AUT (see Figure 2).

کلمات کلیدی:

Fe-based SMA, High damping rubber bearing (HDRB), Re-centering force, Manufacturing and test