



## Condition assessment of in situ elastomeric bearings

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### Abstract

Elastomeric bearings used as seismic isolation devices are key elements in the protection of constructions against earthquakes. They enable structures to exhibit very high performances when subject to extreme events, preventing damage both to structural and non-structural components. Their characteristics, however, are prone to change with time due to long term effects such as aging. Regular inspection and monitoring of their state are thus fundamental activities needed to ensure the required performances. The present work reviews the most common strategies adopted for such purpose, including visual inspections, Operational Modal Analysis (OMA), and quick release tests. An innovative characterisation method is also presented. Such method, with the use of a nanoindenter, enables testing of a small rubber sample (3 mm in diameter) cored from a device. Its suitability is confirmed through a comparison of the same device tested in a traditional setup.

**Keywords:** elastomeric bearings; seismic isolation; mechanical testing; nanoindentation; condition assessment.