

## The Mechanical Properties of a Small-Size Seismic Isolation Rubber Bearing for Bridges

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**Abstract :** Taking a novel type of bridge bearings with the diameter being 100mm as an example, the theoretical analysis, the experimental research as well as the numerical simulation of the bearing were conducted. Since the normal compression-shear machines cannot be applied to the small-size bearing, an improved device to test the properties of the bearing was proposed and fabricated. Besides, the simulation of the bearing was conducted on the basis of the explicit finite element software ANSYS/LS-DYNA, and some parameters of the bearing are modified in the finite element model to effectively reduce the computation cost. Results show that all the research methods are capable of revealing the fundamental properties of the small-size bearings, and a combined use of these methods can better catch both the integral properties and the inner detailed mechanical behaviors of the bearing.

**Keywords :** ANSYS/LS-DYNA, compression shear, contact analysis, explicit algorithm, small-size

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