

Bearing for Earthquake Isolation with Double Sliding Horizontal Surface

During an earthquake, the proposed bearing allows the foundation-soil complex to move in any direction, sliding with respect to a movable mass. In turn, this mass moves in the opposite direction to the motion, sliding between two horizontal and parallel surfaces, with respect to both the movable foundation-soil complex and the overhanging building, which remains almost motionless.

The displacement of the movable mass, which occurs on the basis to the vector composition of the motion components X and Y, is due to movable devices present in opening provided in the building.

The earthquake isolation system, using this bearing, presents the following features:

- the seismic energy in the building amounts to around 1% of the building weight, using bearings with sliding friction (bearings with pure Teflon on sliding level double surface); this energy is negligible, using bearings with rolling friction (bearings with double steel ball on sliding level double surface);
- independence of the system from the seismic frequency, due to the total absence of building natural frequency;
- very financially competitive in comparison with all systems with total and partial absorption of seismic energy;
- substantial decrease in the psycho-physical discomfort in the inhabitants, due to the immobility of the building during an earthquake.