

معرفی برخی از جداگرهای لرزه ای

SEISMIC ISOLATION AND VIBRATION CONTROL FOR BRIDGES

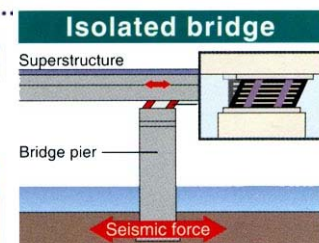
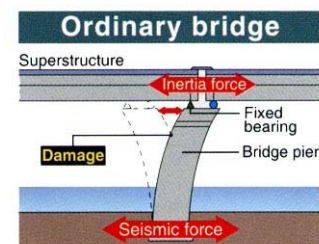
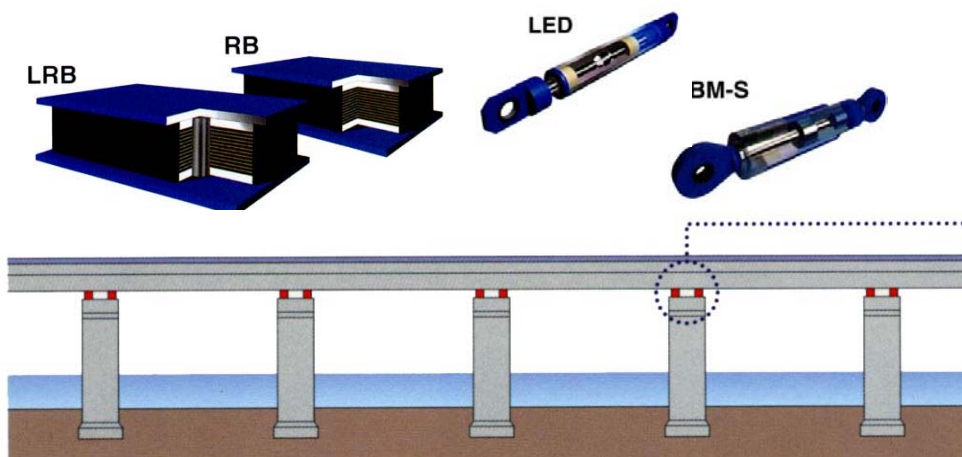


Load-Dispersing Bridge

The RB/LRB units disperse horizontal force during an earthquake to all bridge piers. LRB produces even better earthquake protection.

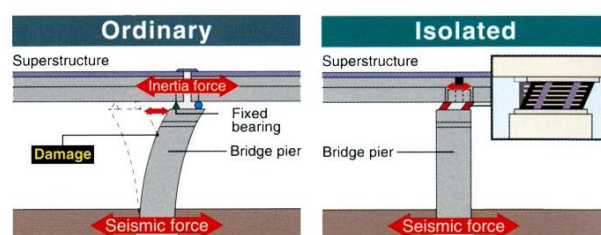
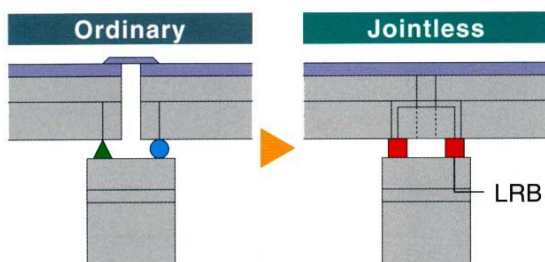
Seismic Isolation Bridge

The LRB units dampen earthquake motion by increasing the cyclic period of motion induced in a structure.



Jointless Construction Method

The need to reduce traffic vibration and noise as well as improve driving comfort in recent years has increased the popularity of the jointless construction method, whereby conventional simple girder bridges are linked together to create a multiple-span connected structure. The LRB absorbs girder movement due to thermal expansion elongation (and contraction), disperses and dampers forces acting on the girders during an earthquake, and minimizes the associated displacement.

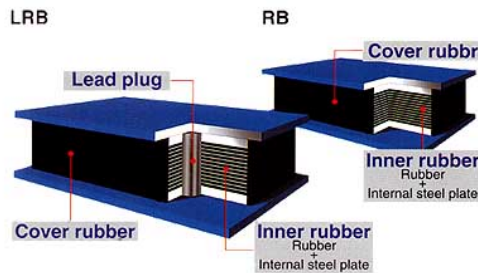


LRB/RB

Lead Rubber Bearing

The LRB is a seismic isolation device which is made of laminated layers of rubber and steel to support the weight of the structure, with a lead core for absorbing energy (damper).

The RB is made of laminated layers of rubber and steel to support the weight of the structure.



LED

Lead Extrusion Damper

The LED is a vibration damping device that makes use of the resistance to deformation of lead. Relative movement of a shaft with a bulge through a lead casing, causes deformation of the lead, thereby absorbing vibration energy.



BM-S

Bingham Material-Stopper

The BM-S is a vibration damping device that makes use of the resistance of the special filled material. Relative movement of a shaft with piston through the special filled material casing, causes force like properties of bingham body, thereby adsorbing vibration energy.



Stopper

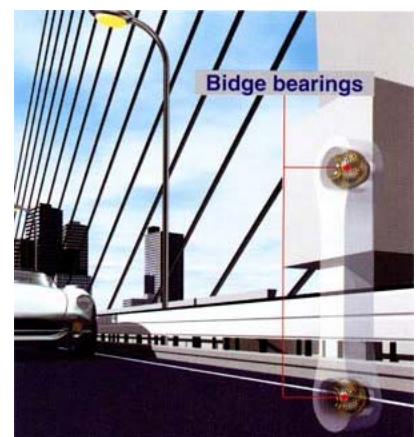
The Stopper have two different function. Type of the KK and the KU are for resistance of falling bridge, type of the KP and the MS stopper are for dissipation of earthquake energy by viscous resistance.



Bridge Bearings

Oiles 500SP

Oiles 500SP is a high-load capacity, oil-less bearing, consisting of high-strength brass alloy base and solid lubricants embedded therein. This bearing provides superior resistance to chemicals and corrosion, while providing for maintenance – difficulty areas and parts. In the case of bridge, this is used to large – scale bridge as tower link and cable hanger bearing mainly.



SEISMIC ISOLATION AND VIBRATION CONTROL FOR BUILDINGS



Seismic isolation

By installing seismic isolation devices between a building and its foundations, the forces induced in a building by earthquakes can be greatly reduced.



Vibration control

A vibration control device can function without failure in response to all kinds of vibration, not only vibration from an earthquake, but also any other types of vibration by strong wind, traffic and other vibrating sources, offering an effective means for limiting vibration of a building and increasing the comfort of occupants.

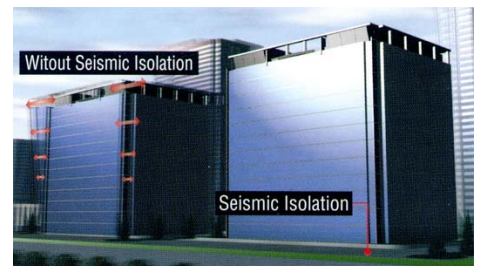


LED



MSD

VWD



Force and Vibration Control of Large Span Roof

Seismic isolation and vibration control devices can let sagging of a large span roof due to its own weight or its moderate expansion/contraction due to temperature changes freely escape to eliminate structural stress, generate resisting force against the vibration of earthquake, and distribute horizontal force to each supporting point.



Seismic isolation floor / isolation units system

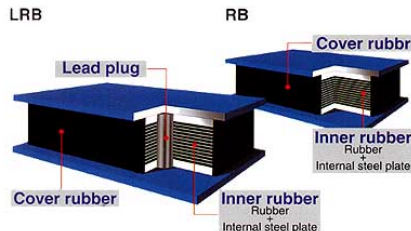
Seismic isolation floor and CRS isolation units system can be used to isolate internal floors to protect building contents from vibration. This technology is applicable to a range of facilities including computer centers, hospitals, semiconductor factories, museum displays, etc.



LRB/RB

Lead Rubber Bearing

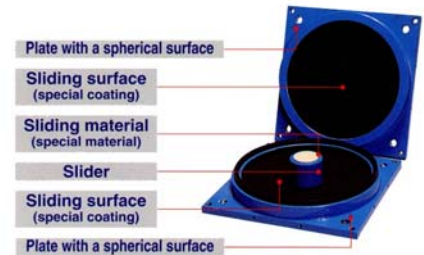
The LRB is a seismic isolation device which is made of laminated layers of rubber and steel to support the weight of the structure, with a lead core for absorbing energy (damper). The RB is made of laminated layers of rubber and steel to support the weight of the structure.



FPS

Friction Pendulum System

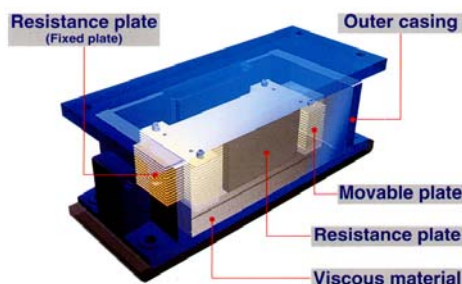
The FPS is a pendulum type isolation which absorbs energy using friction. The sliding component used is a S.O.S.P composite material. Isolation using FPS allows the response frequency to be set regardless of weight of the building. It is a simple and durable system.



MSD

Multiple shear Damper

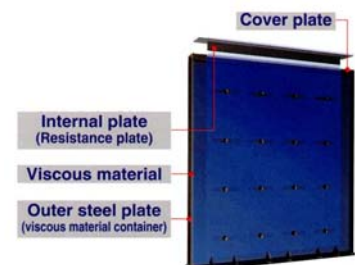
The MSD is a damper that makes use of the viscous shearing resistance of a high viscosity material. During the sudden motion caused by an earthquake it generates a large resisting force to disperse seismic energy.



VWD

Viscous Wall Damper

The VWD is a vibration damper utilizing shear force of a high viscosity material. It is composed of two outer steel plates (viscous material container) filled with viscous material, and an internal steel plate (resistance plate) inserted between them. The VWD is a damper that makes use of the viscous shearing resistance of a highly viscous material. It can disperse seismic forces by generating large resisting force during sudden motion.



BMD

Bingham Material Damper

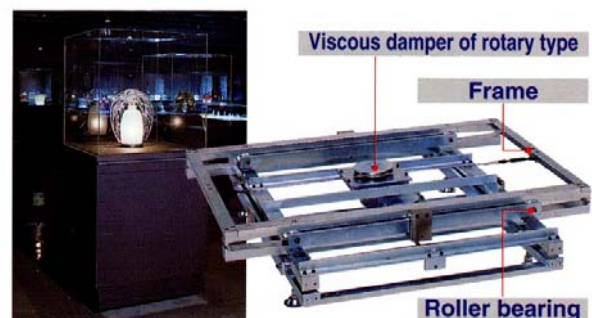
BMD is a vibration damping device that makes use of the resistance of the special filled material. Relative movement of a shaft with piston through the special filled material casing, causes force like properties of bingham body, thereby absorbing vibration energy.



CRS

Cosine Curved Rail System

The CRS are earthquake resistant foundations employing a rolling pendulum structure to prevent dropping and damage to items on display. They help to prevent resonance from various earthquake motions, providing resistance against all magnitudes of earthquakes.



Force and Vibration Control of Large Span Roof

Seismic isolation and vibration control devices can let sagging of a large span roof due to rate expansion/contraction due to temperature changes freely escape to eliminate structural stress, while also reducing earthquake vibration, and distribute horizontal forces to each supporting point.



Seismic Isolation Floor

Seismic Isolation Floor has floating floor construction consisting of a bearing section (ball bearings), damping units (viscous dampers and coil springs) and beams of steel frames.



Products, Achievement, Equipment



- ① **4,000tonne LRB Test Machine**
Vertical Load : +4,000tonne, -1,000tonne
Horizontal Load : $\pm 1,000$ tonne Displacement : ± 700 mm
Velocity : 15mm/sec.
- ② **300tonne Damper Test Machine**
Horizontal Load : ± 300 tonne Displacement : ± 200 mm
Velocity : 200mm/sec.
- ③ **1,500tonne Moulding Press Machine**

