



ADD
No.19 Putaoshan Road,Liuzhou,
Guangxi 545005,P.R.China
TEL
+86 772 314 2698
FAX
+86 772 314 2698
WEBSTE
www.ovm.cn www.lzdfxj.com
E-MAIL
lzdfxj@ovm.cn



STRUCTURE VIBRATION ISOLATION & ABSORPTION PRODUCTS



LIUZHOU ORIENT ENGINEERING RUBBER PRODUCTS CO., LTD.

CHINA.LIUZHOU

BRIEF

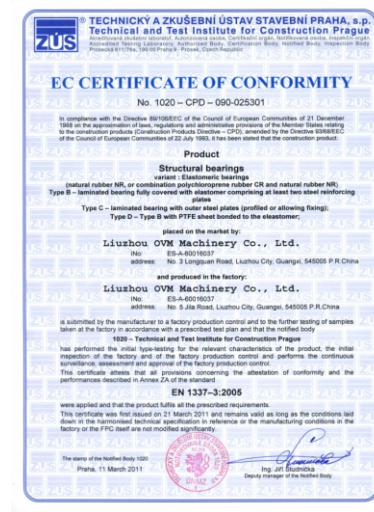
Liuzhou Orient Engineering Rubber Products Co., Ltd.

Liuzhou Orient Engineering Rubber Products Co., Ltd., established in 1993, is a wholly-owned subsidiary of **Liuzhou OVM Machinery Co., Ltd.** belongs to Liugong Group. The Company is located at No.19, Putaoshan Road, Luwei Industrial Park, Liuzhou City, the registered capital of RMB 110 million, and covers an area of 15 hectares, including over 70,000 sqm factory area. There are about 400 employees in the Company, including over 120 technical and managerial staffs.

We are specializing in the R&D, production, sales and services of bridge and building bearings, expansion joints, seismic bearings, dampers and other related products. The performance of our products have reached the advanced technical level at home and widely applied in the construction of important infrastructure. We are a well-known system solution provider for bearings, expansion joints, structural seismic (vibration) technologies.

Thanks to the full implementation of the ERP management, strong technical research capacity and complete testing equipment, the Company has won the honorary titles of "National Enterprise Technology Center" and "Hi-tech Enterprise". In 1994, the Company took the lead among its counterparts in passing the ISO9001 quality system certification, obtained CE and BSI certificate, achieving a perfect quality control system. In addition, the Company has spread its marketing and service network over large and middle cities in China including Hong Kong SAR, and set up branches at Vietnam, the Middle East and North Africa, achieving an efficient marketing system.

Through rapid innovation, we are committed to provide reliable products and considerate services to domestic and foreign customers.



Contents

Brief 01

Elastomeric Bearing 04

Pot Bearing Gpz 05

Pot Bearing Qpz 06

Spherical Bearing Type Qz 07

Isolation Rubber Bearings 08

Viscous Fluid Damper For Building 09

The Buckling-restrained Brace 09

Permanent Magnet Adjustable Magnetorheological Damper 10

Eddy Current Tuned Mass Damper 10

Rubber Expansion Joints 11

Strip Seal Expansion Joints System 11

Finger Expansion Joint 12

Prestressed Multidirectional Displacement Expansion Joints 12

Modular Expansion Joints 13

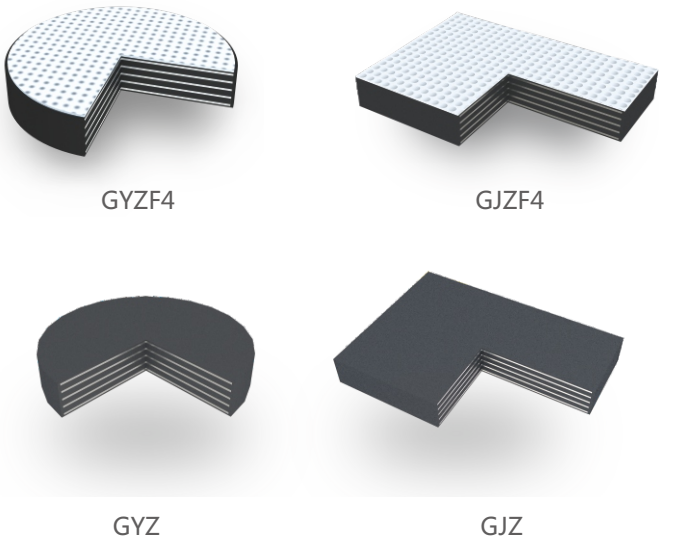
Job Reference 14

ELASTOMERIC BEARING

A laminated elastomeric bearing is a rubber block vulcanized elastomeric rubber with inner reinforced steel plates. This bearing is a kind of connection between upper structure and lower supporter. It has advantages as followings:

- Sufficient vertical rigidities to bear and transmit normal loads;
- Good flexibilities for rotation in any direction;
- Considerable shear deformation to satisfy horizontal movement;
- Perfect anti-vibration to reduce the impact of dynamic load.

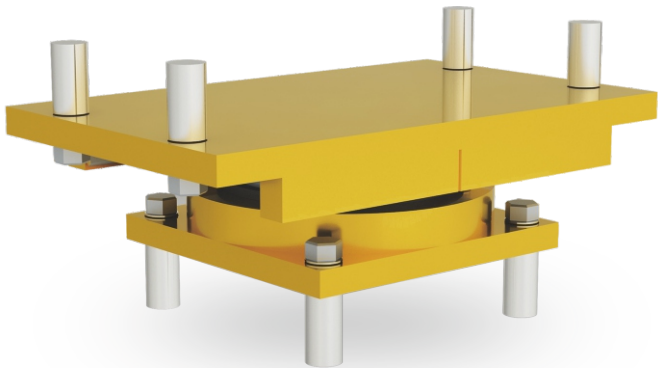
An Elastomeric bearing can also be bonded with PTFE plate to satisfy large horizontal movement in one or two directions.



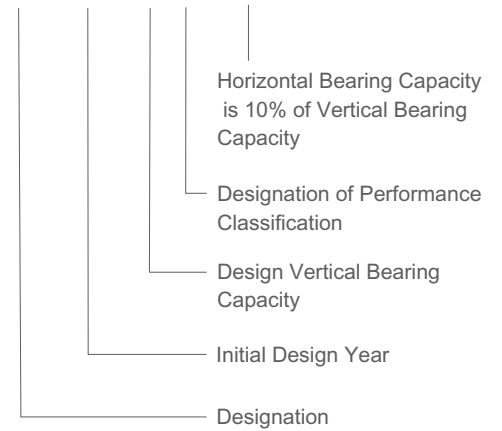
POT BEARING GPZ

Pot bearings can satisfy the requirements of large load capacity in three directions, great horizontal displacement and big rotation angle. Pot bearing can be designed and manufactured according to AASHTO, EN1337 as well as BS5400 Standards.

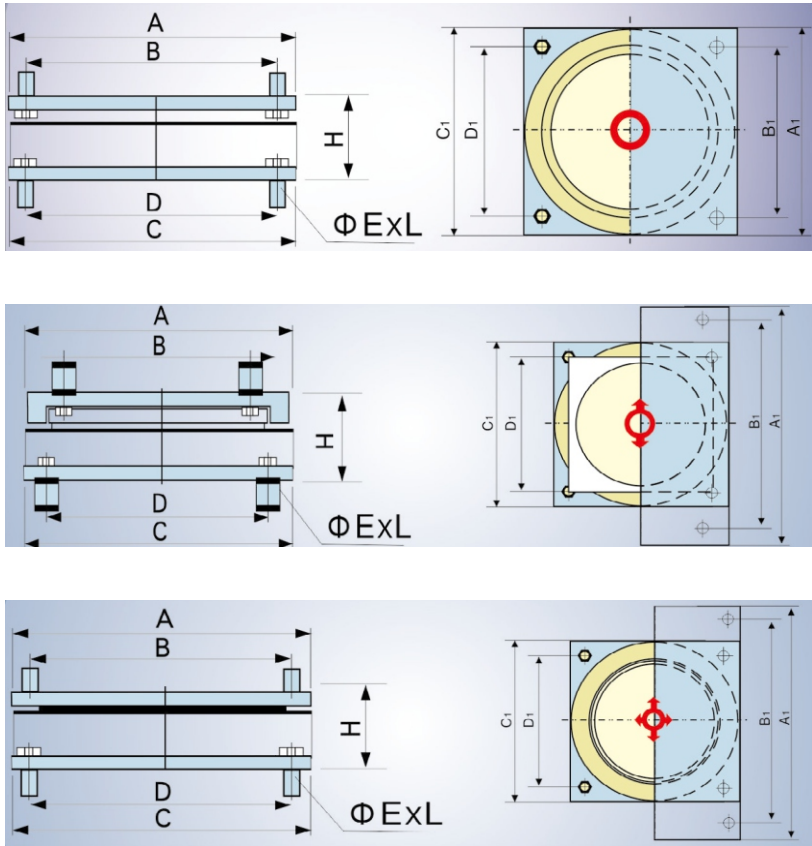
Normally, the horizontal load for fixed pot bearing and sliding guided pot bearing is no more than 10% of vertical load. We can design the horizontal load as to 20% of vertical load or above as requested.



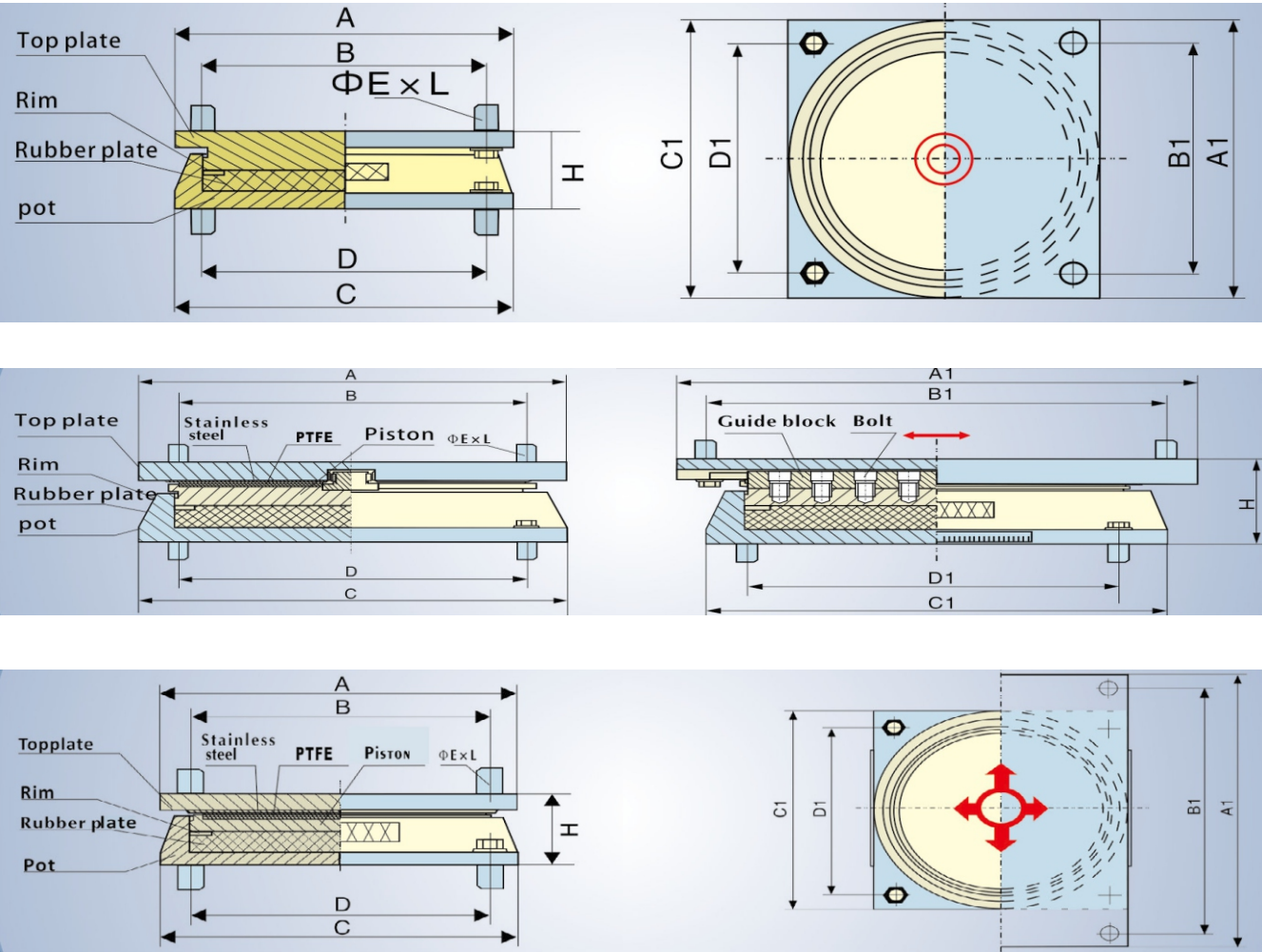
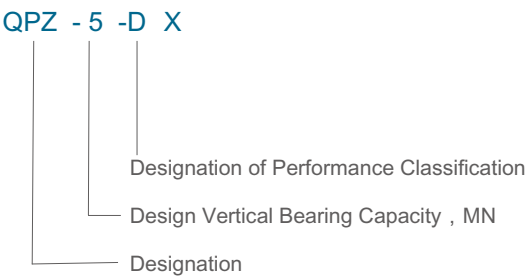
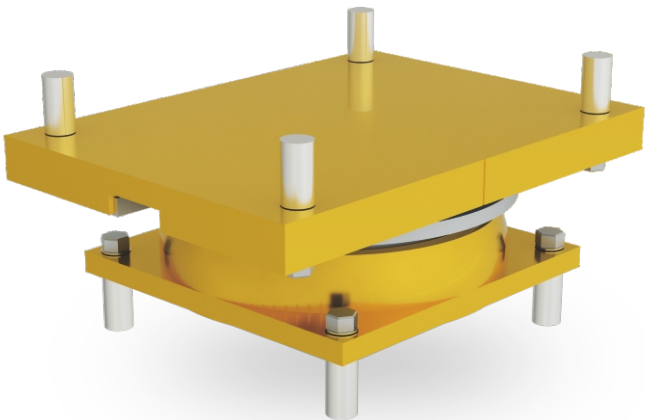
GPZ (2009) 5 DX (M1)



- denotes Fixed bearing
- ◐ denotes sliding guided bearing, and the direction of arrow is the slide direction;
- ◑ denotes free sliding bearing, and the long arrow is the main sliding direction, while the short arrow is theminor sliding direction. The above three symbols will be marked on the top plate of bearing correspondingly.



POT REARING QPZ



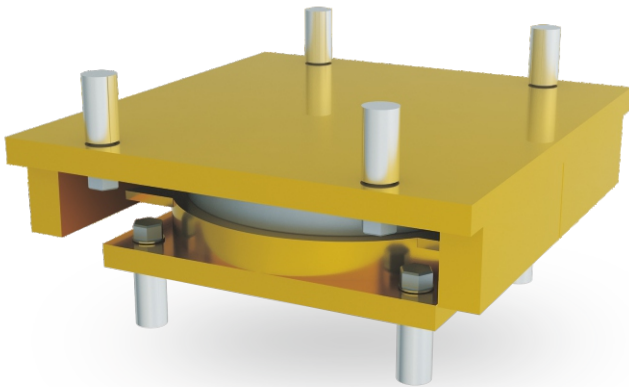
SPHERICAL BEARING TYPE QZ

The spherical bearing not only has great capacity, large displacement, but also suitable for projects required large turning angle of 0.05rad or more in all directions, which is suitable for wide and curved bridges.

The spherical bearing transfers force through spherical surface, no contraction of load will be occurred, and the reacting force on concrete is relatively even.

Normally, the horizontal load for spherical bearing for fixed type and sliding guided type is no more than 10% of vertical load.

Customized design can be provided as per any specific



QZ - 5 -DX
Designation of Performance Classification
Design Vertical Bearing Capacity
Designation



Five-hundred-meter Aperture Spherical Telescope

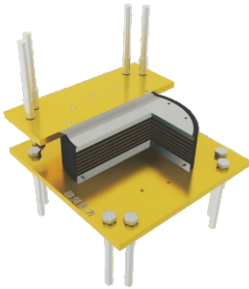


Wuhan Two-Seven Yangtze River Bridge

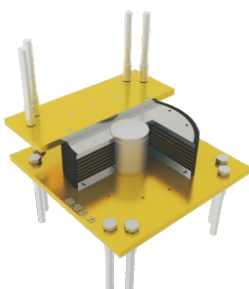
ISOLATION RUBBER BEARINGS

Isolation rubber bearings are mainly divided into horizontal force dispersed rubber bearings, lead rubber bearings and high damping rubber bearings, which is composed of compounded rubber layer, stiffening steel plate or lead bar. Isolation rubber bearings combines the characteristics of good vertical bearing capacity, excellent energy-dissipating capacity and great durability.

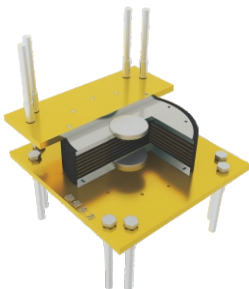
It is suitable for various kinds of structures in seismic intensity area of 7 degrees and above, and suitable temperature is range of - 25 °C ~ + 60 °C.



Horizontal Force Dispersed Rubber Bearings



Lead Rubber Bearings



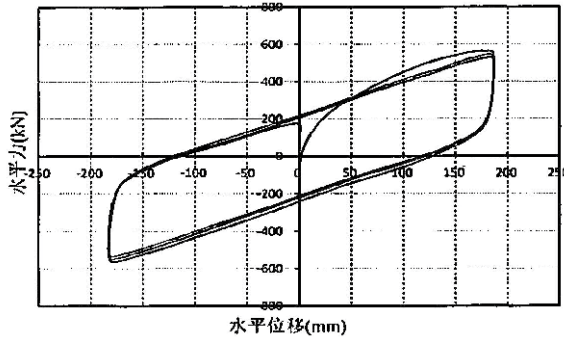
High Damping Rubber Bearings



Hong Kong-Zhuhai-Macao Bridge



Sinopec Tianjin LNG Project



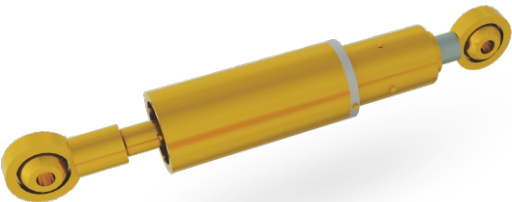
VISCOUS FLUID DAMPER FOR BUILDING

The core part of viscous damper is a kind of hydraulic device, including connecting parts, piston rod, piston, damping hole, working cylinder, sealing device and damping material (damping medium).

Under the action of earthquake (or wind) force, the piston rod of the viscous damper is pushed to move, then the high viscous damping medium on both sides of the piston produces pressure difference, which makes the damping medium pass through the damping hole and produces damping force. The damping force can dissipate some of the structural vibration energy, and then reduce the structural vibration response.

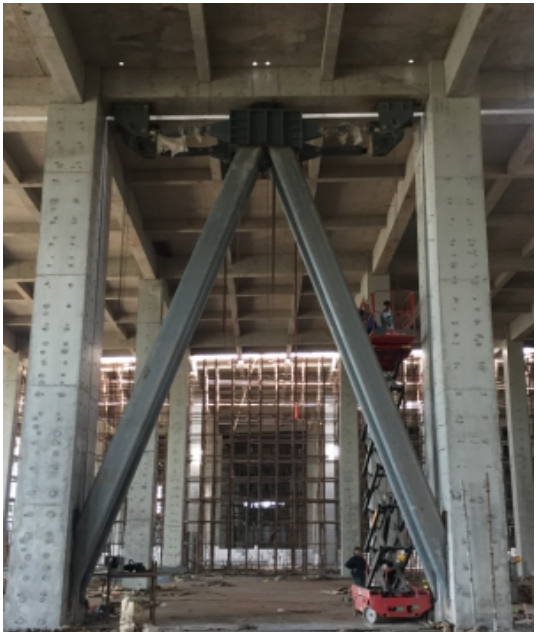
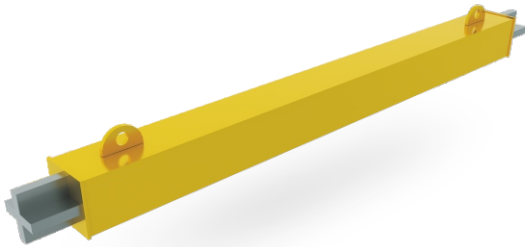
Viscous flow dampers have no initial stiffness and no additional internal force to the beam, so it will not affect the structure's period, vibration mode, etc. But for rapid deformation cause by earthquake, it can rapidly consume energy and reduce the acceleration and displacement of the beam.

Viscous flow damper has many advantages, such as smaller size, convenient for installation and maintenance, great durability, and less affected by ambient temperature.



THE BUCKLING-RESTRAINED BRACE

The buckling-restrained brace is composed of core element, constraint element and sliding mechanism element. It has the characteristics of high bearing capacity, good ductility and hysteretic performance, and it's yield capacity is definitely. It can be used to protect the main structure from yielding or serious damage under the earthquakes, especially for bridges and buildings whose seismic intensity is 7 degree and above.



PERMANENT MAGNET ADJUSTABLE
MAGNETORHEOLOGICAL DAMPER

Permanent magnet adjustable magnetorheological damper is an assembled vibration damper that use magnetorheological fluids to provide damping forces and use permanent magnets for regulation. It is mainly composed of connecting earring, attached cylinder, piston, inner tube, magnet, magnetorheological fluid and sealing device.

It is stable and reliable between the temperature of -45 °C and 150 °C, and is very suitable for vibration structure with high frequency and small displacement, such as bridge cable's damping control.



EDDY CURRENT TUNED MASS DAMPER

The tuned mass damper is a vibration system composed of mass block, elastic element and damping element which dissipates the vibration energy of the structure. It is usually supported or suspended on the structure. When the structure vibrates under external excitation, the mass block will vibrate dissimilar to the main structure, and then producing opposing forces back to the structure to reduce the vibration response.

We cooperate with hunan university to research and develop the ECD, by using eddy current damping technology instead of the traditional fluid viscous damping. It has the characteristics of ideal linear viscous damping, definite damping coefficient, no additional stiffness and no abrasion.



RUBBER EXPANSION JOINTS

Features and benefits

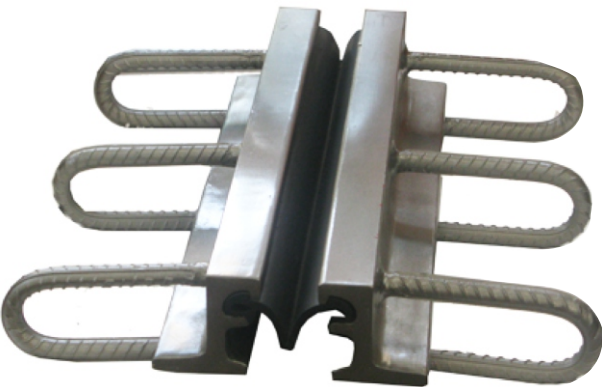
- Low shear module of rubber
- Convenient installation
- Smooth driving
- Light in weight
- Excellent waterproof function
- Applications with maximum movement of 260mm



STRIP SEAL EXPANSION JOINTS SYSTEM

OVM strip seal expansion joint system is mainly consisted of three parts: the hot-rolled special -shaped steel profile, rubber strip seal and reinforcement bar. This kind of joint has features in simple structure, easy installation, excellent durability and reliability.

Because of its small height and simple structure, OVM strip seal expansion joint is not only suitable for replacement for old expansion joint on existing bridges, but also for new bridges with small movement.



FINGER EXPANSION JOINT

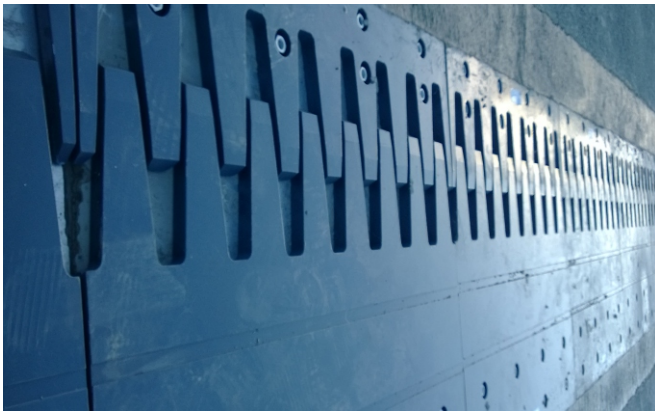
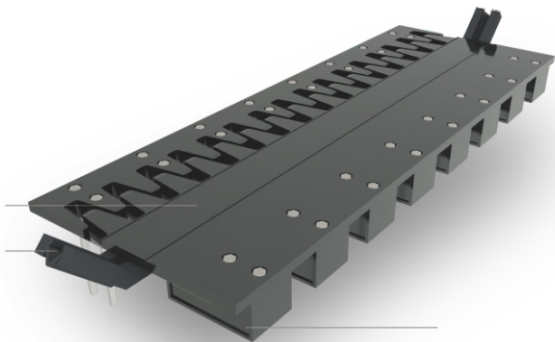
Features and benefits

- Long service life.
- Convenient installation.
- Low noises.
- Smooth driving.
- Excellent waterproof function.
- Applications with maximum movement of 320mm.



PRESTRESSED MULTIDIRECTIONAL DISPLACEMENT EXPANSION JOINTS

Prestressed multidirectional displacement expansion joints is with international leading level of bridge expansion joints that has the functions of horizontal, vertical and torsion deformation. It is mainly composed of multidirectional displacement system, tooth plate, waterproof system, stainless steel plate and anchor bolt. And it is suitable for all kinds of highway Bridges.

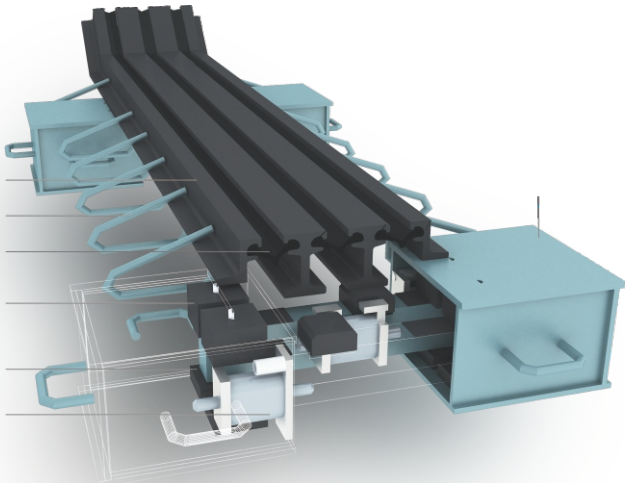


Chengdu Second Ring Viaduct

MODULAR EXPANION JOINTS

OVM Modular Expansion Joint system is developed by combining advantages of domestic and abroad products. It comprises special steel profile, rubber sealers, sliding pad, press pad, spring, displacement box and reinforcement, which is suitable for large movement bridges especially with heavy traffic.

OVM Modular Expansion Joint system has advantages of good water property, large movement, easy installation and maintenance, long service life, smooth and stable for driving, etc.



Job Reference

YEAR	COUNTRY	PROJECT	PRODUCT
2018	Indonesia	JAPEK II ELEVATED	Isolation Rubber Bearing
	Kazakhstan	FLOODED BRIDGE OVER THE URAL RIVER	Pot Bearing
	Sri Lanka	MIDDLE RAILWAY EXTENSION PROJECT	Elastomeric Bearing
	Sri Lanka	OUTER CIRCULAR HIGHWAY	Pot Bearing
	Kenya	MOMBASA-MARIAKANI HIGHWAY	Pot Bearing
2017	Kingdom of Saudi Arabia	CTW110 PROJECT KM56+317 GONGLI BRIDGE	Pot Bearing
	Kingdom of Saudi Arabia	OIL COMPANY JAZAN PROJECTH EAVY HAUL ROAD BRIDEG	Elastomeric Bearing
	Kingdom of Saudi Arabia	DMM TUNNEL	Pot Bearing
	Egypt	KHATATBA BR. OVER THE NILE BRIDGE PROJECT	Pot Bearing
	Maroc	GUELMIME PROJECT	Elastomeric Bearing
	Vietnam	PHU LONG BRIDGE + VINH HAO BRIDGE	Elastomeric Bearing
	Sri Lanka	SOUTH HIGH SPEED EXTENSION CORD PROJECT FIRST SECTION	Elastomeric Bearing
	Algeria	ALGERIA CHERCHELL 17KM EXPRESSWAY	Isolation Rubber Bearing
	Vietnam	PHU LONG BRIDGE + VINH HAO BRIDGE	Expansion Joints Elastomeric Bearing
	Egypt	CAIRO METRO LINE 3/PHASE 4B	Elastomeric Bearing
	Vietnam	RACH RO BRIDGE	Expansion Joints Elastomeric Bearing
	Indonesia	INDONESIA SEMANGGI FLYOVER	Isolation Rubber Bearing
	Sri Lanka	SRI LANKA OCH PROJECT	Elastomeric Bearing
2016	Algeria	ORAN SHOPPING CENTER	Elastomeric Bearing
	Sri Lanka	SRI LANKA SOUTH RAILWAY	Elastomeric Bearing
	Algeria	ALGERIA NORTH AND SOUTH EXPRESSWAY	Isolation Rubber Bearing
	Indonesia	MEDAN RAILWAY	Pot Bearing
2015	Kuwait	KUWAIT RA212 PROJECT	Pot Bearing
	United Arab Emirates	ABU DHABI INTERNATIONAL AIRPORT MIDFIELD TERMINAL COMPLEX	Pot Bearing
	United Arab Emirates	ALZORAH RESORT INFRASTRUCTURE	Pot Bearings Elastomeric Bearing Expansion Joints
	Egypt	REGIONAL ROAD BRIDGE	Elastomeric Bearing
2014	Egypt	CAIRO-ALEXANDRIA ROAD	Elastomeric Bearing
	Ethiopia	NEKEMP TE - BEDELE UPGRADING ROAD PROJECT DEDESSA - RIVER BRIDGE	Elastomeric Bearing
	Ghana	BUMALUP GHANA ROAD PROJECT	Elastomeric Bearing
	Qatar	EAST CORRIDOR P011 (PACKAGE 2)	Pot Bearing
	Libya	THE NEW CALDWELL BRIDGE AND APPROACH ROAD	Pot Bearings Expansion Joints
	Hong Kong	HONG KONG SUBWAY SHATIAN-ZHONGHUAN CONNECTION PROJECT	Elastomeric Bearing
	Vietnam	HA NOI - HAIPHONG EX5	Elastomeric Bearing Pot Bearing
2013	United Arab Emirates	CITY CENTER BRIDGE	Pot Bearing
	Ethiopia	THE BLUE NILE RIVER BRIDGE	Elastomeric Bearing Expansion Joints
	Pakistan	THE NORTH NATIONAL HIGHWAY ROAD SYSTEM REPAIR PROJECT	Isolation Rubber Bearing
	Lesotho	KOMA KOMA BRIDGE	Elastomeric Bearing
	Kingdom of Saudi Arabia	CONSTRUCTION OF BRIDGE FOR KING ABDULAZIZ ROAD WITH ISMAIL ABU DAWOOD ROAD INTERSECTION	Elastomeric Bearing Expansion Joints& Pot Bearing
	Sri Lanka	OUTER CIRCULAR HIGHWAY TO THE CITY OF COLOMBO PROJECT (SOUTHERN SECTION) BRIDGE NO. 12	Elastomeric Bearing Expansion Joints
	Tanzania	CONSTRUCTION OF KIGAMBONI BRIDGE AND ITS APPROACH ROADS IN DAR ES SALAAM CITY	Elastomeric Bearing Pot Bearing
	Singapore	RD 249 TEMPORARY BUS PARK AT UPPER CHANGI ROAD EAST	Elastomeric Bearing
	Iran	ZANJAN BRIDGE	Elastomeric Bearing
	Vietnam	TRANSPORT SECTOR LOAN FOR NATIONAL ROAD NETWORK IMPROVEMENT PROJECT 20 BRIDGES, STEP 2-PHASE I KINH XANG BRI.	Elastomeric Bearing Expansion Joints
	Vietnam	HANOI - HAIPHONG EX1A	Pot Bearing
	Vietnam	TRANSPORT SECTOR LOAN FOR NATIONAL ROAD NETWORK IMPROVEMENT PROJECT STEP 2-PHASE I PACKAGE:B2-33	Pot BearingsElastomeric BearingExpansion Joints

*Job reference are not limited to the columns in the table.