

VSL CTT POT BEARINGS



DESIGN
ENGINEERING

TECHNICAL
SUPPORT

BEARING
FABRICATION

CE

VSL-CTT BEARINGS

Worldwide references in specialised bridge construction and experienced engineering

VSL-CTT Pot Bearings benefit of the VSL Expertise in structural engineering and construction methodologies. VSL Pot Bearings have been used worldwide on various prestigious projects for their innovative user-friendly design, reliability and quality.

The company

Subsidiary of the VSL Group, CTT-Stronghold is a leader in the field of post-tensioning and related engineering in Spain. In conjunction with VSL R&D teams a wide range of technically proven structural products have been developed over many years.

Structural bearings are important elements of structures, most notably in bridges, providing a connection between the superstructure and substructure.



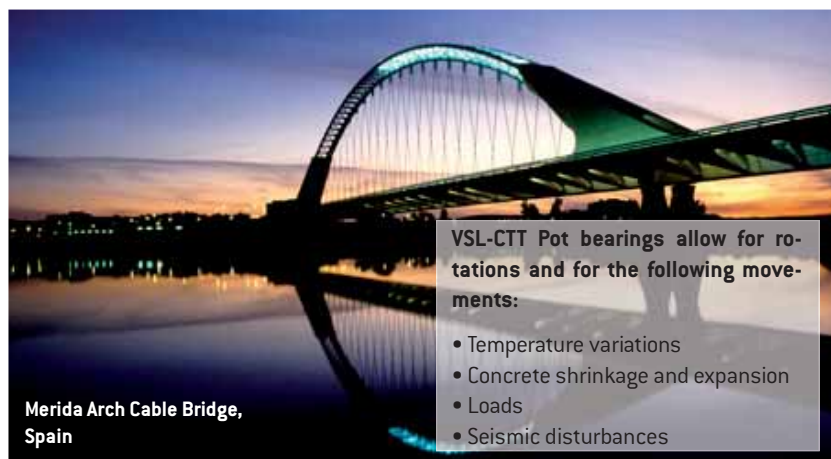
VSL-CTT Bearing Technology

There are different types of bearings; one of the most widely used is the pot bearing due to its versatility and ingenious design.

Pot bearings are capable of transmitting forces while absorbing the structures deformations and rotations.

The strength of the bearing elastomer is maximized by encasing it in a pot and placing a piston on top.

Under vertical load, the elastomer behaves like a viscous fluid, allowing rotations around the horizontal axis.



VSL's scope

Continuously trained VSL engineers propose tailor-made solutions within VSL's wide range of POT bearings to match the project's individual needs. As production processes for POT bearings are not standardized, the products will always be adapted to the even most challenging cases. At the factory, the quality of both factory production and testing are one of the main issues. Besides that VSL is the leader in short production time and fast delivery to the jobsites. – Depending on each country VSL's scope may include all steps from project consulting and installation of the bearings on site.



VSL-CTT Pot Bearings are made only from high-quality materials and designed to meet various codes and specifications.

COMPONENTS SPECIFICATIONS

High quality engineered solutions for every project

STAINLESS STEEL AND TOP PLATE

Transfers the vertical and horizontal load from the superstructure to the remaining parts of the bearing.

P.T.F.E. ¹

Transfers the vertical load from the top plate to the piston and provides a low-friction surface against the sliding surface of the upper plate during movement.

EXTERNAL SEALING RING

Prevents moisture and debris from entering the gap between the piston and the pot.

GUIDE² AND PISTON OF DU METAL

Transfers the horizontal load from the recess of the top plate to the pot and the vertical load to the elastomer.

A recess on the surface of the piston confines the PTFE.

INTERNAL SEALING RING

Prevents the extrusion of the Elastomer.

ELASTOMER PAD

Transfers the vertical load from the piston to the pot and allows the bearing to rotate.

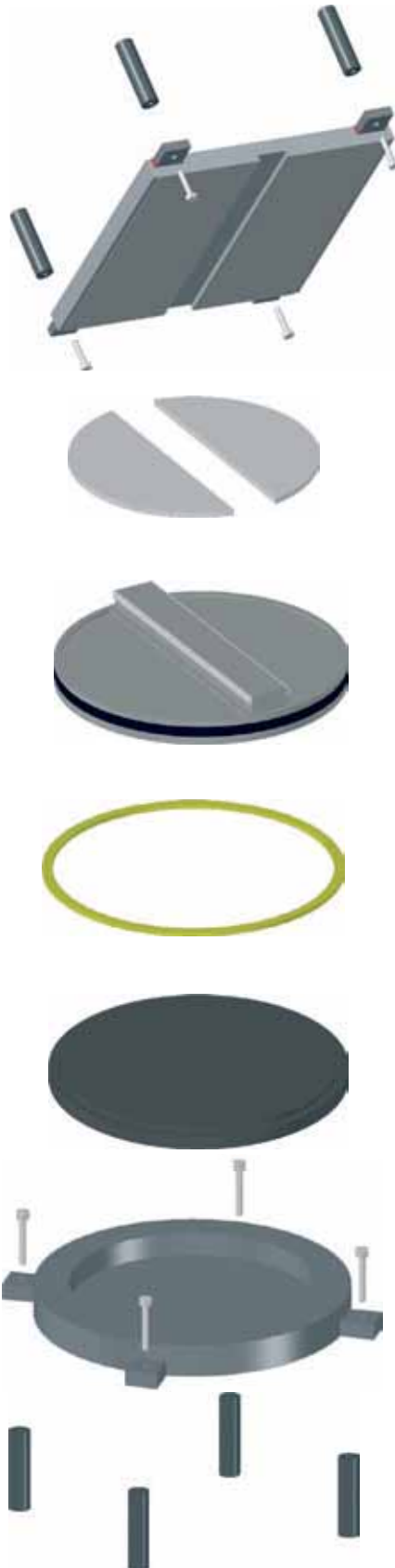
POT (STEEL RING + BASE PLATE)

Confines the elastomer and eventually transfer vertical and horizontal loads to the substructure and bolts, respectively.

BOLTS AND SOCKETS

Resist horizontal loads.

1. For free and guided bearings only
2. For guided bearings only



VSL-CTT Pot Bearings meet the industry's highest quality requirements.

CE MARK



VSL-CTT Pot bearings are CE approved.

The quality of the materials and workmanship are ensured by Quality Control Plans regularly audited and revised to meet any particular specification.

CORROSION PROTECTION



Steel areas exposed to the atmosphere are protected with a corrosion protection system in accordance with projects requirements and / or relevant international standards.

TESTING



The quality and conformity behaviour of VSL-CTT Pot Bearings are regularly checked at accredited test laboratories with:

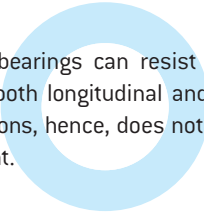
- Vertical load tests
- Combined vertical and horizontal load tests
- Friction tests

STANDARD VSL-CTT POT BEARINGS:

Providing the best solutions to meet the client's requirements



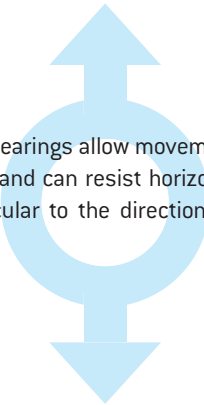
PF Type bearings can resist horizontal loads in both longitudinal and transverse directions, hence, does not allow any movement.



High Speed Railway Bujaraloz, Spain



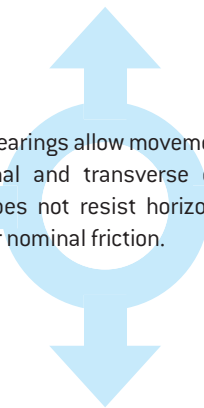
PU Type bearings allow movement in one direction and can resist horizontal loads perpendicular to the direction of movement



Pont de Lully, Switzerland



PL Type bearings allow movement in both longitudinal and transverse directions, hence, does not resist horizontal loads except for nominal friction.



River Miño Bridge - Spain

CE MARK

VSL-CTT Pot bearings are designed in accordance to the most important standards worldwide:

- AASHTO – American Association of State Highway and Transport Officials
- BS 5400 – British Standard – Section 9.1 and 9.2
- EN 1337 – European Norm

All bearings designed and manufacturing according to Euronorm are CE Marked.



The flexibility of VSL-CTT Pot Bearings allow a most flexible freedom for design and construction.

SPECIAL POT BEARINGS:

Tailormade for even the most challenging project

VSL-CTT manufactures special tailor-made Pot Bearings designed to fit particular technical specifications and requirements of individual projects.

VSL-CTT offers a wide range of technical solutions for the design of special Pot Bearings.

VSL-CTT technical department has the capability to develop innovative alternatives to standard products.

The wide and elaborated range of VSL Pot Bearings and their advantageous under one roof manufacture make them to be a preference for any demanding bridge project.

ILM POT BEARING

- Bearings with low friction surface for the sliding of structures using the Incremental Launching Method.
- Bearings are temporary and permanent with significant cost saving.

ILM Pot bearing



LOAD CELL POT BEARING

- Bearings with electronic transducers for the monitoring of the vertical load.
- Data loads can be collected manually or automatically (optional).



ACCESSORIES

To meet the most stringent requirements

ANTI-DUST SKIRT

As the name suggests, this device is installed to protect the sliding surfaces of the bearing from dust which could affect the friction coefficient.

This is recommended for both PL and PU bearing types.

The neoprene skirts are attached to the top plate of the bearing through a metal ruler.

BEARING WITH ELECTRICAL ISOLATION

- Bearings with electrical isolation to avoid the pass of the electricity through the bearing.
- Required on some countries for Railway bridges.

MOVEMENT INDICATOR

This apparatus is designed to measure the horizontal movements of the bearing and indicate pre-setting.



DESIGN OF POT BEARINGS

Our Technical Department is available to supply any specific information in order to assist designers from the early conceptual stage.

It should be pointed out that the cost of Pot bearings varies with the changes in design parameters.

For instance, the allowable bearing pressure on the concrete has a major influence. It is advised that bursting reinforcement should be designed and incorporated in concrete bearing seating areas to enhance its bearing capacity.

This will significantly reduce the size of

the bearings, which, in most cases result in savings.

To assess the optimum Pot Bearing dimensions for your application and to carry out a detailed design, please contact your local VSL-CTT office.

TECHNICAL DATA SHEETS

Design of Pot Bearings can be substantially influenced by local codes and projects requirements. VSL-CTT Pot bearings datasheets are available for design according to a variety of International Codes of designs and Practices.

Dimensions given in the following technical data sheets are indicative, representing a pre-sizing of the three different types of Pot bearings. They are given to make the design engineer's work easier and should be used with caution,

bearing in mind that they are calculated from the design assumptions table stated in the relevant Design code Technical datasheet. For other combinations of loadings and movements, please contact a VSL-CTT representative in your area.

VSL can offer the complete package

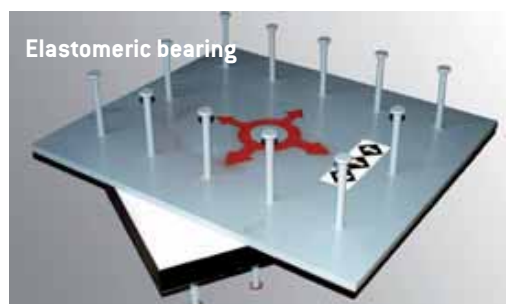
VSL does not only install bearings on new project, but can also advice you on replacement, maintenance and condition evaluation of existing bearings.

When replacing bearings VSL Heavy Lifting has the know-how and experinece to provide an economic and suitable solution. The approach of VSL Heavy Lifting Engineers is flexible and the range of services is tailored to the specific project requirements.

VSL-CTT bearings are also available on other types as elastomeric or spherical



For decades, VSL-CTT Pot Bearings have proven their reliability and durability in hundreds of references throughout the world. VSL-CTT know-how and experience is the best base for future projects.





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