# TEST REPORT

## STRUCTURAL ENGINEERING LABORATORY

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|---|---|---|
| **PROJECT** | : | **REPORT ON K2, FIXED TYPE POT BEARING TEST** |
| **CLIENT** | : | **M/S UNITECH COUPLERS INDIA PVT LTD, COIMBATORE.** |
| **CONSULTANT** | : | **AMLAN K. SENGUPTA<br>PROFESSOR & HEAD OF LABORATORY** |
| **ASSISTED BY** | : | **BALAMURUGAN. G<br>JUNIOR TECHNICAL SUPERINTENDENT** |
| **WITNESSED BY** | : | **ARVIND SINGH RAGHUWANSHI<br>MANAGER (QA/QC)<br>BEARING DIVISION** |

**STRUCTURAL ENGINEERING LABORATORY**
**DEPARTMENT OF CIVIL ENGINEERING**
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**CHENNAI – 600 036**

**DATE: 10-05-2018**

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Title: REPORT ON TESTING OF FIXED TYPE POT BEARING
Client: M/s Unitech Couplers India Pvt Ltd, Coimbatore.

## INTRODUCTION

M/s. Unitech Couplers India Pvt Ltd, had requested Structural Engineering Laboratory, IIT Madras, to carryout vertical load and rotation test on the fixed type pot bearing. Accordingly two tests were carried out in accordance with IRC 83 (part III) specifications. This report deals with the details of the test, observations made and the result obtained from the test.

### Details of test

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|---|---|
| Design Vertical Load | : 220 Tonnes |
| Test Load | : 275Tonnes (1.25 times of Design Vertical Load) |
| Specification | : IRC 83 (Part-III)-2002 (Clause 928.6.2.3) |
| Date of Testing | : 16-04-2018 |

### Test setup

Fixed Type Pot Bearing consist of Pot, Elastomeric disc (Pad), Sealing ring and Piston. The vertical load was applied under a compression testing machine. Typical test setup for vertical load & rotation tests are shown in figures 1 & 2 respectively.

### Test procedure

### 1. Vertical load test

The bearing was placed centrally and aligned well under a compression testing machine. Initially the load was applied upto a load of 1.25 times the design vertical load (Test load) under a compression testing machine. The corresponding deflection was noted. This load was held for 30 minutes. The deflection was again measured after 30 minutes. Four number of dial gauges were placed at four corners of the sample for measuring deflection. The vertical deflection under sustained load shall be not more than 4 % of the thickness of elastomeric pad. After complete unloading the bearings were visually verified for cracks, scoring or any other defects.



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**2. Rotation test**

The rotation test was performed on the bearings for design rotation under minimum design vertical load. The vertical load was applied under a compression testing machine till it reaches the design vertical load. The permissible deflection shall not exceed 15 percentage of thickness of elastic pad. The corresponding deflection was noted and bearings were removed off for visual verification after unloading.

**Testing equipment and measurement devices**

The axial load was applied through a Compression Testing Machine of capacity 6000 kN and the horizontal load was applied using jack with reaction frame. All the measuring devices were well calibrated at the time of testing as per standards. The observations were tabulated.

**Test results:**

**One sample of fixed type pot bearing**

**1. Vertical Load Test**

Thickness of elastic pad = 22 mm
Permissible vertical deflection = 0.88 mm
Increase in vertical deflection under sustained load = 0.022mm
Visual verification - O.K.

| S.No | Load ( T ) | Average Deformation (mm) |
|---|---|---|
| 1 | 275 | 0.882 |
| After 30 minutes, the reading was taken under same load | | |
| 2 | 275 | 0.904 |

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## 2. Rotation Test

Thickness of elastic pad = 22 mm
Permissible value of deflection = 3.3 mm
Deflection at rotation under test load = 0.873 mm
Visual verification – O.K.

| S.No | Design Load(T) | Average Deformation (mm) |
|---|---|---|
| 1 | 0 | 0.873 |
| 2 | 220 | |

## CONCLUSION

The tests conducted on bearing samples are found to yield Satisfactory results, meeting the relevant acceptance criteria specified in IRC 83 ( part III ) - 2002.

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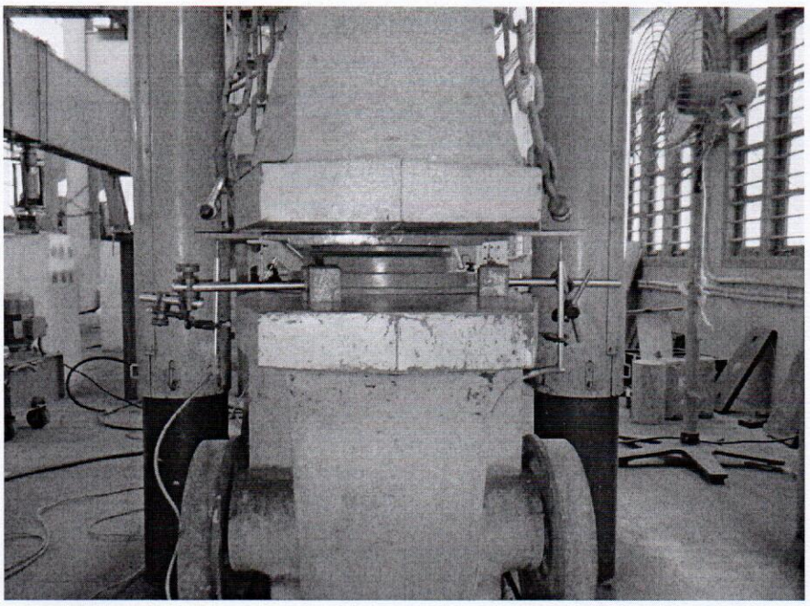

**Figure 1. Test set up for vertical load test**

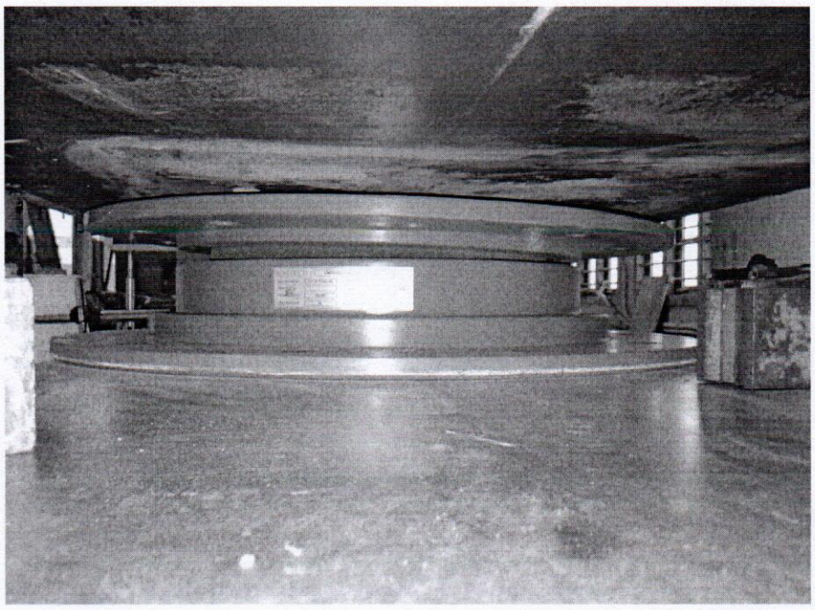

**Figure 2. Test set up for rotation test**