# The Mechanical Properties of Bearing Pads 200x200x103 – Type C

*To be announced to Hexa consulting co related to sample bearings to be tested*

**Basic Design Parameters:**

$a$= 200 mm (width) (Aligned with longitudinal direction)

$b$= 200 mm   (length) (Aligned with transverse direction)

$n$= 7   (number of internal elastomer layers where the number of internal reinforcement layers is n+1 for bearings of type B and n-1 for bearings of type C)

$t_{s_i}$ = 3 mm (thickness of internal steel reinforcements, for type B, C, E, F)

$t_i$ =5 mm (thickness of each internal elastomer layer, or the overall thickness for bearing strips)

$g$= 0.75 N/mm² (G modulus or Shear modulus)

$\mu$= 0.35 (friction coefficient)

$msf$ = 1.20 (Manufacturing Safety Factor)

**Mechanical Properties:**

$V_{x,d}$=±24.5 mm (Maximum Vectorial Shear Deflection)

$F_{z,design}$ = 350 KN (Maximum Vertical Load Combined with Full Shear Deflection and Rotation)

$F_{z,max}$ = 690 KN (Maximum Vertical Load With no rotation and full shear deflection, ==considering buckling stability criteria==)

$F_{z,min}$ = 84 KN (Minimum Vertical Load to prevent slipping of the bearing pad when in maximum shear deflection)

$\alpha_{a,d}$ = 0.016 Rad (Maximum Rotation along the width in Full Vertical Load and Shear Deflection)

$\sum v_{z,d} = v_c$ = 1.3 mm (Maximum Vertical Deflection)

$R_{xy}$ = 25.2 KN(Maximum horizontal load exerted by the bearing on the foundation to resist translatory movement, or equivalently maximum tolerable horizontal load due to upper surface movements caused by temperature changes and other external loads, _to be considered on structural design_)

# The Mechanical Properties of Bearing Pads 200x200x103 – Type C

**Tests Being Conducted:**

- This bearing pad is tested up to the load of 360 KN based on standard test format of compression test level-3 in EN-133-3 Annex G. The bearing pads have been visually tested and observed when being under the mentioned load and they have remained free of any kind of cracks, deformations, splits, bonding failure or misplaced reinforcements which are considered to be defects based on EN-1337-3-4.3.3.3.
- 10% of samples of bearing pads will be tested under shear force in case of buyer's request. The bearing pads have been tested under standard format of EN-1337-3 shear modulus test method (Annex F). Based on this test the G modulus of Assamrof Elastomer and bearing pads is calculated and given in official documents. In this test enough force to deform bearing pad up to maximum vectorial shear deflection and the bearing pad samples should remain defect free based on the definitions of defect for this type of test mentioned in EN-1337-3-4.3.1.1.

**General Notes:**

- *All the given values are only valid for AssaFlex products where the mechanical properties of their ingredients and special manufacturing procedures completely make changes in calculations and their results*.
- Vertical Deflection any assumption made in the procedure of calculations are mentioned for each type of bearing. The Modulus of Elasticity is considered to be 2000MPa for all type of bearings and the plan area of steel reinforcements for each bearing is deemed to be (a-30)*(b-30) mm$^2$ which means that in each bearing a side-Elastomer-cover with 15 mm thickness is considered.
- All the technical data and graphs provided by Assamrof in this report are based on outputs of Assamrof Bearing design program which its compliance with BSEN-1337-3 is accepted by Isfahan University through a research program granted by Assamrof co.
- Total Vertical Deflection of a bearing may vary minus or plus 15% of the Estimation which is given above and where this parameter is critical to design of the structure, the stiffness of the bearing should be ascertained by tests.
- The Friction Coefficient in calculations is considered to be 0.3. This value can be varied where the sitting material of the bearings are some material other than steel or concrete.
- Maximum allowable rotation in the above table is calculated to avoid the uplift even in the minimum permitted vertical load.
- AssaFlex Engineering Department will be pleased to tailor Bearings to meet your needs and requirements in a more cost effective manner, if it has access enough details of your project.