Plain Rubber Pads & Strip

LT Rubber Manufacturing Sdn Bhd

Introduction

LTR Plain Rubber Bearing Pads and Strips are refer to un-reinforced bearing pads and strips. These products are manufactured from premium quality natural rubber and chloroprene. A range of hardness are available from 50 to 70 Shore A.
LTR Plain Rubber Bearing Pads and Strips are designed using the parameters as specified in BS5400.

Plain Rubber Pads & Strip Bearing

Vertical Loads

At maximum working loads a deflection of up to 15% of the initial pad height could be expected. As these pads are not bonded to the mating surfaces, the actual deflection is determined by the frictional characteristic on the contact surfaces. Holes or cut outs in the pads or strips may have a substantial effect on reducing load carrying capacity and increasing the deflection of the pad and strip.

Shear Deflection/Stiffness

The allowable shear deformation is normally in the order of 30% to 50% of the compressed pad/strip thickness from the neutral position.

Rotation

Tilting of the load bearing surface relative to each other causes a "rotation" of the bearing pad/strip. The rotational capacity of 0.0035 radians is included in calculation to accommodate design tolerances.

Slippage

Non-reinforced bearing pads will "spread" in surface contact area when under load. The amount of "spread" is largely determined by the frictional coefficients of the structures surfaces mating with the rubber pad/strip. It is important to allow clearances around the pad/strip to allow for this slippage once the structures weight is imposed on the pad/strip.

Installation

The mating surfaces should be flat, parallel and free from cavities, gaps or protrusions. It is preferable for the structures surfaces to have a rough texture without lubrication, particularly oils and hydrocarbons. Due to slippage when compressed, a gap around all sides of the pad/strip must be provided. It is recommended that this gap be a minimum of 12mm.

Friction

The bearing is restrained in lateral movement by the frictional coefficient between the rubber and the structure. The ratio of lateral load over vertical load should not exceed the following values :
0.35 Elastomer/wood float finish
0.30 Elastomer/steel float finish
0.25 Elastomer/steel' elastomer/in-situ concrete finish

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Material Specification

Elastomer

Property	Standard	Specified Value				
Natural rubber (NR)	BS1154	NR				
		Z50	Z60	Z70		
Chloroprene rubber (CR)	BS2752				CR	
					C60	C70
Hardness (IRHD)	BS903:Part A26 (method N)	50	60	70	60	70
Shear Modulus, G (N/mm^2)	BS903:Part A14 (Shear Strain=0.25)	0.7 +/-0.09	0.9 +/-0.14	1.2 +/-0.18	0.9 +/-0.14	1.2 +/-0.18
Tensile Strength, (N/mm^2)	BS903:Part A2	Min15.5		Min14.0	Min13.0	
Elongation at break (%)	BS903:Part A2	Min 500	Min 400	Min 300	Min 250	Min 200
Compression set (%)	BS903:Part A6	(24 hours at70°C)				
		Max 30			Max 25	
Ageing resistance	BS903:Part A19	(7 days at 70°C)				
change in hardness (IRHD)		Max +10			Max +7	
change in tensile strength (%)		Max -15			Max -12	
change in elongation at break (%)		Max - 20			Max -20	
Ozone resistance	BS903:Part A43	(25pphm/20% strain 96 hrs at 30°C) No cracks				
Bond of elastomer to metal	BS903:Part A21	Min 7 N/mm				

PRODUCT DESCRIPTION

LT RUBBER STRIP is used for supporting vertical loads as well as absorbing bearing rotations and horizontal displacements. It is commonly utilized for buildings , bridges and other civil engineering constructions because they are easy to install , durable and maintenance free.

LT RUBBER STRIP listed in this brochure are manufactured from natural rubber or neoprene nominal hardness 50 , 60 and 70 IRHD, with physical properties shown below , in accordance with BS 5400 : Section 9.2 : 1983 when tested to BS 903 and BS 5400 : Part : 1983.

MATERIAL SPECIFICATION

Elastomer Properties	Specification
Tensile Strength	15.5 MPa
Elongation at Break , min	400%
Hardness , IRHD	56 - 65
Ozone Resistance (25pphm / 20% strain / 96 hrs / 30 C)	No Crack
Shear Modulus , G	0.9N/mm
Bulk Modulus	2000N/mm
Ageing Resistance (7 days / 70 C in air)	
Change in Tensile Strength	15% Max
Change in Elongation at Break	20% Max
Change in Hardness , IRHD	10
Compression Set (22 hrs / 70 C)	30% Max

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CALCULATION SPECIFICATION

Principal Dimensions		Maximun Load	Maximun Shear	Calculated Shear	Calculated Compression	Rotational
Width (mm)	Thickness (mm)	Capacity (kN/m)	Deflexion (mm)	Stiffness (kN/mm)	Stiffness (kN/mm/m)	Capacity (Rad/100Kn/m)
100	10	194	7.0	7.0	270	0.01111
100	15	129	10.5	4.7	80	0.03749
125	10	303	7.0	8.8	527	0.00455
125	15	202	10.5	5.8	156	0.01536
125	20	151	14.0	4.4	65	0.03640
125	25	121	17.5	3.5	33	0.07109
150	10	437	7.0	10.5	437	0.00219
150	15	291	10.5	7.0	270	0.00741
150	20	218	14.0	5.3	113	0.01755
150	25	175	17.5	4.2	58	0.03429
200	10	700	7.0	14.0	2160	0.00069
200	15	518	10.5	9.3	640	0.00234
200	20	388	14.0	7.0	270	0.00555
200	25	311	17.5	5.6	138	0.01085
300	10	1050	7.0	21.0	7291	0.00014
300	15	1050	10.5	14.0	2160	0.00046
300	20	875	14.0	10.5	911	0.00110
300	25	700	17.5	8.4	466	0.00214
500	10	1750	7.0	35.0	33757	0.00002
500	15	1750	10.5	23.3	10002	0.00006
500	20	1750	14.0	17.5	4219	0.00014
500	25	1750	17.5	14.0	2160	0.00028

* **Other sizes are available according customer design**