

Elastomeric Bearing Pads & Strips



Trelleborg Elastomeric Bearing Pads & Strips

Trelleborg elastomeric structural bearing pads and strips are manufactured from premium quality natural rubber.

The compounds comply with AS5100.4 Bearings. Alternative compounds are available in Neoprene.

A range of hardnesses are available from IRHD 50 to IRHD 70 to suit special applications.

The pads nominated in the following tables have been designed using the parameters as specified in AS5100.4.

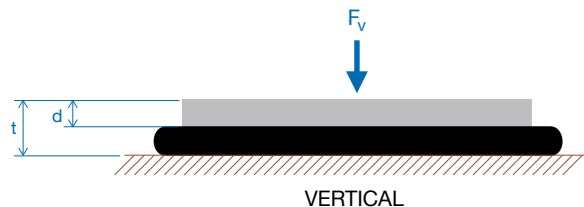
Pads are also able to be designed and offered in accordance with BS5400 and NAASRA Highway Bridge Specification(1976).

Vertical Loads

Loadings shown in the table are the maximum recommended working loads. At these 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 of the contact surfaces.

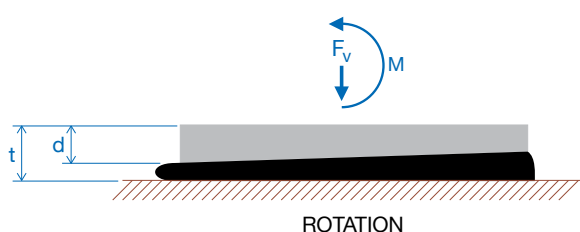
Care should be taken as holes or cut outs in the pads/strips may have a substantial effect by reducing the load carrying capacity and increasing the deflection of the pad or strip.



Rotation

Tilting of the load bearing surfaces relative to each other causes a “rotation” of the bearing pad/strip.

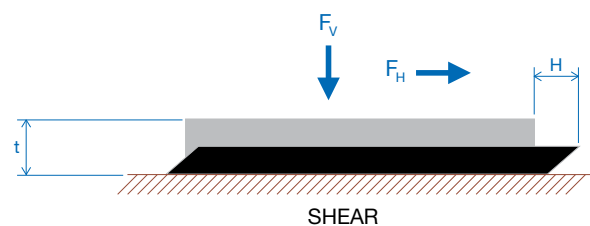
The basic limiting criterion is that no gap occurs between the structure and the pad/strip. The rotational capacity tables include the 0.0035 radians that should be allowed to accommodate design tolerances.



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.

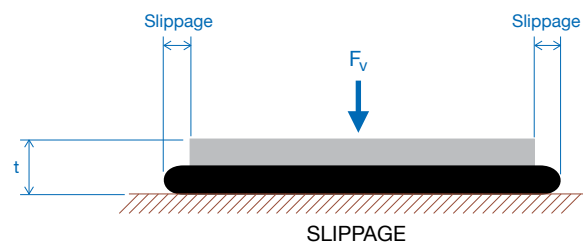
Shear deflections of up to 70% may be considered but careful consideration must be taken of possible slippage due to the frictional coefficient of the rubber to structure mating surfaces.



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 structural surfaces mating with the rubber pad/strip.

It is important to allow clearances around the pad/strip to allow for this slippage once the structure 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 mating surfaces to have a rough texture without lubrication, particularly oils and hydrocarbons.

Due to bearing strip expansion and 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**

Rubber Specification

AS 5100.4 specifications for elastomeric strip bearings (Hardness = IRHD 60)

Part No.	Thickness (mm)	Width (mm)	Max. Mean Compressive Force (kN/m)	Comp. Stiffness (kN/mm/m)	Shear Stiffness (kN/mm/m)	Shear Deformation Limit +/- mm	Rotational Limit (radians)
Values are given for 1 metre strip							
Type O 10 x 50	10	50	125	125	4.50	5.0	0.060
Type O 10 x 75	10	75	281	281	6.75	5.0	0.040
Type O 10 x 100	10	100	500	500	9.00	5.0	0.030
Type O 10 x 125	10	125	625	750	11.25	5.0	0.020
Type O 10 x 150	10	*150	750	1050	13.50	5.0	0.014
Type O 10 x 200	10	*200	1000	1800	18.00	5.0	0.008
Type O 15 x 75	15	75	188	125	4.50	7.5	0.060
Type O 15 x 100	15	100	333	222	6.00	7.5	0.045
Type O 15 x 125	15	125	521	347	7.50	7.5	0.036
Type O 15 x 150	15	150	750	500	9.00	7.5	0.030
Type O 15 x 200	15	200	1000	844	12.00	7.5	0.018
Type O 20 x 75	20	**75	141	70	3.38	10.0	0.080
Type O 20 x 100	20	100	250	125	4.50	10.0	0.060
Type O 20 x 125	20	125	391	195	5.63	10.0	0.048
Type O 20 x 150	20	150	563	281	6.75	10.0	0.040
Type O 20 x 200	20	200	1000	500	9.00	10.0	0.030
Type O 20 x 250	20	250	1250	750	11.25	10.0	0.020
Type O 25 x 100	25	100	200	80	3.60	12.5	0.075
Type O 25 x 125	25	125	313	125	4.50	12.5	0.060
Type O 25 x 150	25	150	450	180	5.40	12.5	0.050
Type O 25 x 200	25	200	800	320	7.20	12.5	0.038
Type O 25 x 250	25	250	1250	500	9.00	12.5	0.030
AS5100.4 Clause			12.6.2(b)	12.6.8(9)	12.7.2	12.6.3	12.6.4(3)

Other sizes available upon request

NOTES:

1. Parameters for Rubber are : Hardness IRHD 60, Shear Modulus (MN/m²) = 0.9
2. Maximum Rotation = Rotation as stated in table at Max Working Load
3. Calculations based on bearing strip mounted between float finished concrete surfaces
4. Strip marked * do not meet the AS5100.4, Clause 12.5.2 as having shape factor 4
5. Strip marked ** does not comply with AS5100, Clause 12.6.5 as having a thickness > a quarter of the width
6. Pads and strips are vulcanized in a pressure moulding process
7. Compressive Stiffness is indicative only and derived from AS5100.4 empirical calculations.

TOLERANCES:

- # On calculated stiffness value is: +/- 20%
- # Hardness IRHD 60 Duro +/- 5 Points
- # Length +/- 2mm for Pads, +/- 10mm for Strip
- # Width +/- 2mm
- # Thickness +/- 1mm



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