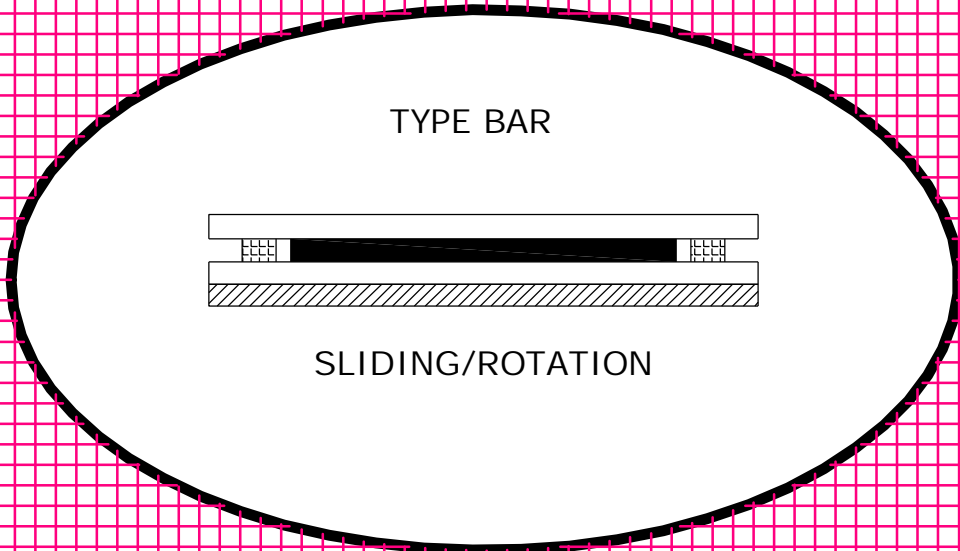


BEARINGS FOR FOOTBRIDGES TYPE BAR





BEARINGS FOR FOOTBRIDGES

General

In most concrete and steel structures accommodation must be made for relative movement between structural members in order to avoid the build-up of dangerous stresses. The source of this movement may be:

- ❑ Thermal expansion and contraction
- ❑ Permanent creep and shrinkage
- ❑ Post tensioning strain
- ❑ Live load deflections
- ❑ Earth movement

It is usually desirable to minimize the resistance forces and moments resulting from these movements and this is the primary function of Structural Bearings.

BEARING TECHNOLOGIES range of Structural Bearings provide this function by the most efficient method using well-proven concepts combined with modern manufacturing technology and advanced materials.

Footbridges-a special case

Footbridges often present a somewhat unusual combination of relatively low loads with large movements, especially where a single span structure crosses a freeway.

Laminated rubber bearings are often used in these applications but they do not provide the optimum solution in all cases. This is because in order to provide large movements the bearings need to be relatively thick but only require small plan dimensions due to low vertical loads (normally 50-200kN).

A condition of instability occurs where the least plan dimension is less than 4 times the bearing height (BS5400 Pt9.1.10.8.1) and in these cases the problem is usually addressed by selecting a larger (plan size) bearing than would normally be required. This approach often raises other issues including higher shear stiffness and the possibility of slippage.

BAR series bearings

To address this particular problem *BT* has developed a range of cost effective bearings for footbridges and other structures that provide large movements with low reaction forces.

This is achieved by the use of low friction PTFE/Aluminium alloy sliding surfaces in combination with an elastomeric layer to accommodate rotation. The bearings are low in height, corrosion and maintenance free and simple to install. Virtually any amount of movement can be accommodated. The tables attached are for +/-10mm movement.

BAR type (free)

These comprise a corrosion-free aluminium alloy top plate which slides on a PTFE surface. The PTFE is secured to an aluminium alloy base plate which is bonded to a natural rubber layer.

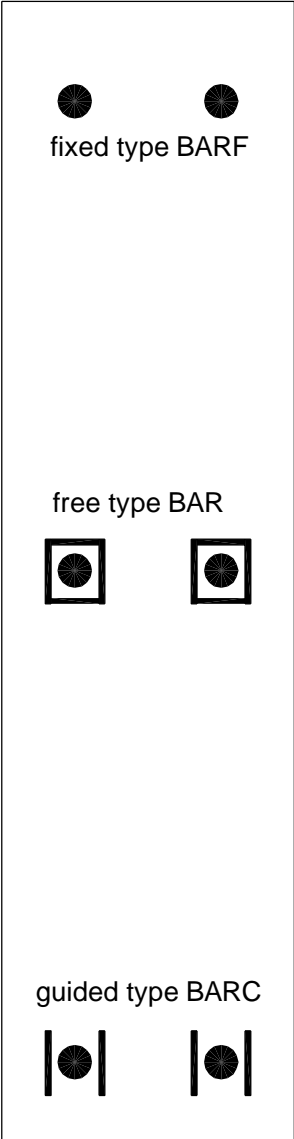
BARC type (guided)

These are the same as BAR type but with side restraints capable of resisting transverse forces

BARF type (fixed)

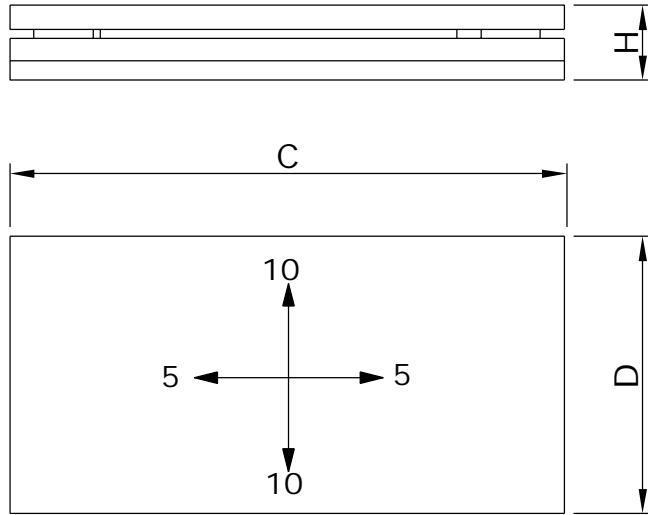
These are simple natural rubber pads designed to BS5400 requirements that provide rotation only.

TYPICAL BEARING LAYOUT OF FOOTBRIDGE



Notes:

- 1. No special fixing of lower surface is necessary where horizontal force <20% of simultaneous vertical load.
- 2. Mating surfaces should be smooth and clean.
- 3. Epoxy paste adhesive can be used for fixing if desired.
- 4. The fixed end of the deck should be loosely dowelled to the abutment.

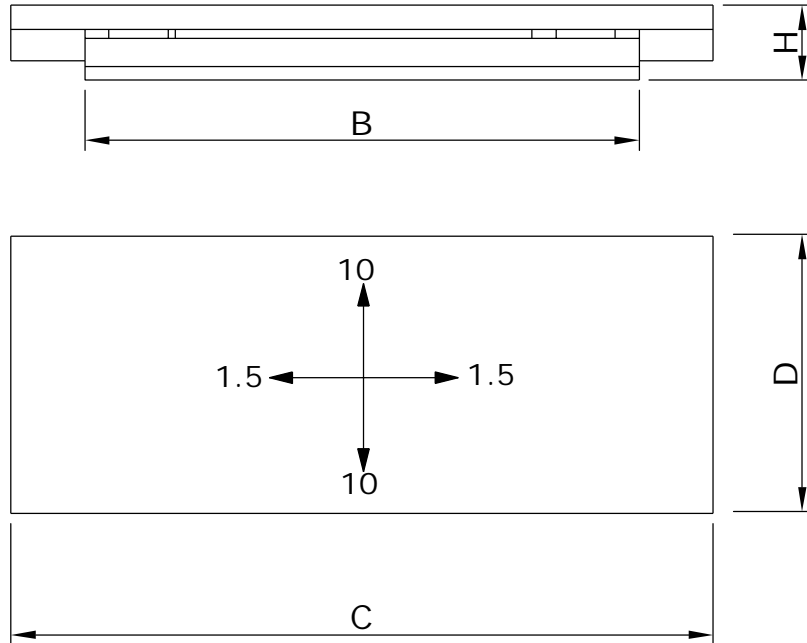
FREE BEARINGS- Type BAR


Brg ref.	Max load kN	C plate mm	D plate mm	H height mm	Rotation radians
BAR3/10/5	30	115	70	25	0.006
BAR5/10/5	50	140	80	25	0.007
BAR7/10/5	70	165	85	30	0.005
BAR12/10/5	120	195	105	30	0.004
BAR18/10/5	180	250	125	35	0.003
BAR25/10/5	250	300	150	40	0.003

Notes:

Where larger movements are required the bearing reference number is changed to include the movement desired e.g for a 50kN bearing with +/-20mm longitudinal movement the part number would be BAR5/20/5

Rotation is about the axis of the longer side
 Maximum seating pressure is 7 MPa
 Drilled or tapped holes can be provided for attachment

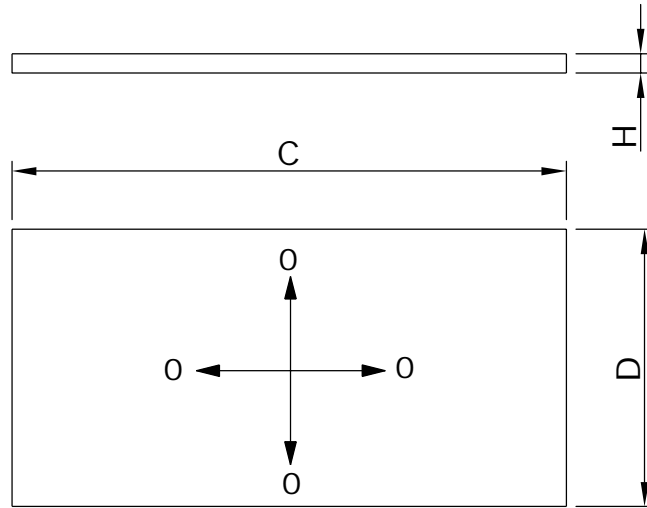
GUIDED BEARINGS- Type BARC


Brg ref.	Max load kN	C plate mm	D plate mm	B base	H height mm	Rotation radians
BAR3/10/C	30	165	70	115	25	0.006
BAR5/10/C	50	190	80	140	25	0.007
BAR7/10/C	70	215	85	165	30	0.005
BAR12/10/C	120	245	105	195	30	0.004
BAR18/10/C	180	300	125	250	35	0.003
BAR25/10/C	250	350	150	300	40	0.003

Notes:

Where larger movements are required the bearing reference number is changed to include the movement desired e.g for a 50kN bearing with +/-20mm longitudinal movement the part number would be BAR5/20/C

Rotation is about the axis of the longer side
 Maximum seating pressure is 7 MPa
 Drilled or tapped holes can be provided for attachment

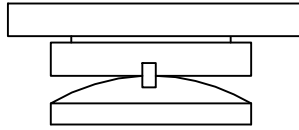
FIXED BEARINGS- Type BARF


Brg ref.	Max load kN	C plate mm	D plate mm	H height mm	Rotation radians
BARF3	30	115	70	4	0.006
BARF5	50	140	80	4	0.007
BARF7	70	165	85	4	0.005
BARF12	120	195	105	4	0.004
BARF18	180	250	125	6	0.003
BARF25	250	300	150	6	0.003

Notes: Maximum concrete pressure is 7MPa

OTHER STRUCTURAL BEARING TYPES AVAILABLE

BD series



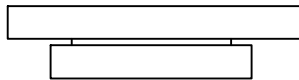
Sliding
High rotation about 1 axis
Up to 5000kN

BT series



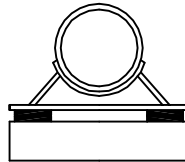
Sliding
Rotation about all axes
Up to 20000kN

BA series



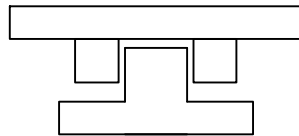
Plain sliding
No rotation
Up to 2000kN

BP series



Pipe support bearings
Rotation up to 0,04 radians
Up to 60kN
Unlimited movement

BV series



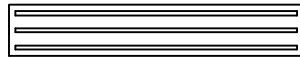
Horizontal guide
No transverse rotation
No vertical load capacity

BK series



Strip bearings
Up to 350kN/meter
Movement <10mm

BR series



Laminated rubber bearings
Limited rotation and movement
Up to 4000kN

These products are supplied by:

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BT is constantly developing these products and reserves the right to change dimensions, specifications and designs at any time without prior notice.