



Manufacturer of Bridge Components

Elastomeric Expansion Joints with Reinforcement - CAST-IN (RE Type)

Design Principal

FOREWORD

Elastomeric in metal runners - cast-in expansion joints must be designed to fulfil the design requirements of BD33-94 (British Standard) and be structurally robust to withstand the traffic load. In particular, the safe transmission of traffic loads from the unit (edge beam) into the structural concrete via anchors connected to the edge beam.

Low resistance to extension, compression and articulated movement is provided by the pre-formed elastomer / neoprene strip seal, which also providing a watertight connection. Under the Highways Agency, Highways and Traffic Departmental Standard BD33/94 Mechanical Expansion Joints must be capable of accommodating the following:

1. - Loads - Vertical

The nominal load shall be taken either as a single wheel load of 100kN or 200kN axle with a 1.8 metre track. The load of each wheel shall be uniformly distributed over a circular area assuming an effective pressure of 1.1N/mm² (i.e. 340mm diameter).

2. - Loads - Horizontal

The nominal traffic load shall be taken as a uniform distribution load of 80kN run of joint.

3. - BSEN5400 should be used to determine the accumulative range of movements imposed by:

Expansion and contraction caused by temperature cycles as per BSEN5400 Part 2 as implemented by BD37.

Residual shrink and creep and its relationship with the setting dimensions at the time of installation, using BSEN5400 Parts 4 and 5 as implemented by BD24 and BD16.

4. - Rotation caused by deflection under loading.

5. - Braking forces transmitted to the deck structure.

6. - Elastic shortening due to compression following expansion of structure.

7. – Good ride quality is the second most important factor of design after the technical issue

Additional design item;

Anti Skid achieved by the design of the pattern unique in way of direction and angle of cuts to plane (surface) of the module.