KANTA

KANTA RUBBER PRIVATE LIMITED

Product Catalogue & Technical Data Sheets

Expansion Joints

Manufactured & Tested as per Indian Standards

IRC:SP:69 | IRC:6 | IS:3400 | MORTH Specifications

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2. Expansion Joints

2.1 Small Opening Joints

2.1.1 Filler Joint



Filler joint is the simplest form of expansion joint as per IRC:SP:69-2011, using a compressible filler material in the gap between deck ends. Suitable for very small movements, it provides a basic seal against water ingress and a smooth riding surface at the joint location.

Parameter	Specification / Typical Range
Movement Capacity	± 5 – 20 mm
Filler Material	Bitumen-impregnated fibreboard, conforming to IS 1838
Top Seal	Polyurethane sealant conforming to IS:11433
Service Temperature	-20°C to +70°C

Key Features

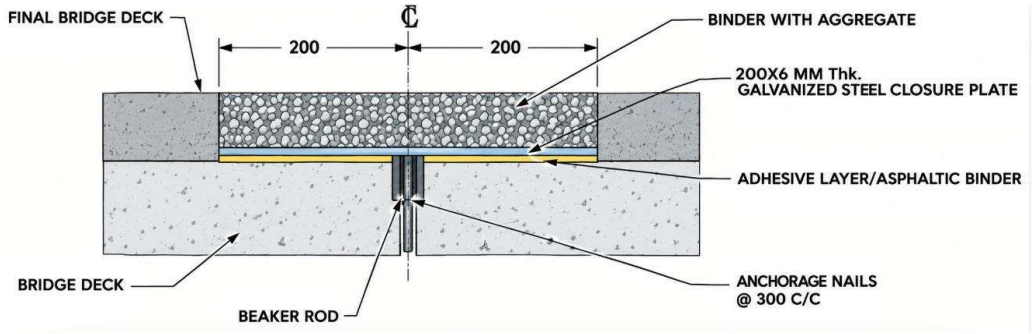
- Simple, economical installation
- Minimal maintenance for small-movement joints
- Conforms to IRC:SP:69-2011

Typical Applications

- Minor bridges and culverts with small thermal movement

2.1.2 Asphaltic Plug Joint

Standard Diagram





Applicable Standard: *MoRT&H Specification Cl. 2608.2*

Asphaltic plug joint (APJ) is a simple, general-purpose bridge expansion joint made of polymer-modified bitumen binder and graded aggregate, laid over a galvanized steel closure plate. It is used for expansion sealing on asphalt concrete overlay and cement concrete decks, and provides a watertight, continuous riding surface across the joint.

Parameter	Specification / Typical Range
Movement Capacity	Up to 25 mm
Service Temperature	-5°C to +50°C
Binder	Polymer-modified bitumen (thermoplastic polymeric-modified asphalt)
Aggregate	Crushed, washed and dried; basalt / granite / grit stone / gabro group
Closure Plate	200 x 6 mm mild steel (IS 2062 Gr. E-250 Gr. B0), galvanized with 100 micron coating
Anchorage Nails	Galvanized 16 d column nails or larger, at 300 mm c/c
Backer Material	Closed-cell foam expansion joint filler / backer rod
Binder Heating Temperature	210°C (safe heating temperature)

Key Features

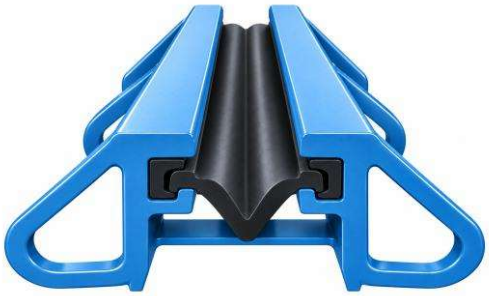
- Simple, general-purpose expansion joint for bridge decks
- Watertight junction below the closure plate
- Continuous, seamless riding surface across the joint
- Galvanized 200 x 6 mm closure plate (100 micron) bridges the gap
- Movement capacity up to 25 mm
- Binder and aggregate as per MoRT&H Specification Cl. 2608.2

Typical Applications

- Bridge decks with asphalt concrete overlay
- Cement concrete bridge decks
- Bridges with movement up to 25 mm

2.2 Medium Opening Joints

2.2.1 Strip Seal Joint



Applicable Standard: *IRC:SP:69-2011*

A gland-type elastomer seal mechanically locked into a pair of rolled or extruded steel edge rails, which are anchored into the deck slab on either side of the joint gap. The monolithic edge-rail detail improves stability and service life, and accommodates moderate movement ranges typical of medium-span bridges.

Strip seal joint consists of a preformed elastomeric sealing element mechanically locked into steel edge rails anchored on either side of the gap, as per IRC:SP:69-2011, accommodating movement while providing continuous waterproofing at the deck joint.

Parameter	Specification / Typical Range
Movement Capacity	± 40 - 80 mm (single seal)
Sealing Element	CR / EPDM elastomer as per IRC:SP:69 material requirement
Edge Rail	Structural steel conforming to IS:2062, hot-dip galvanized
Anchorage	Studded / loop anchors cast into deck concrete
Watertightness	100%, tested as per IRC:SP:69-2011

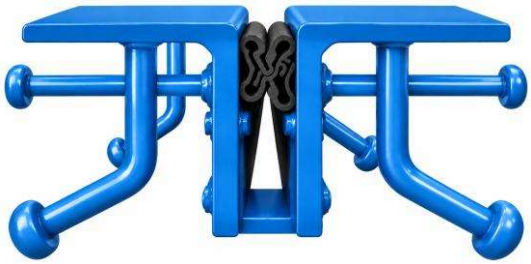
Key Features

- Continuous watertight seal
- Low road noise under traffic
- Seal element replaceable without deck breakout

Typical Applications

- Highway bridges and flyovers with moderate movement

2.2.2 Compression Seal Joint



Applicable Standard: *IRC:SP:69-2011*

Consists of steel armored nosing anchored to the deck concrete at both edges of the joint gap, with a preformed elastomer seal held in permanent compression across the gap using a special adhesive/binder.

Compression seal joint uses a preformed cellular elastomeric seal held under compression between vertical steel edge armor on either side of the gap, as per IRC:SP:69-2011, sealing the joint against water ingress while permitting the design movement.

Parameter	Specification / Typical Range
Movement Capacity	20- 40mm
Seal Material	Elastomeric Sealing Profile
Edge Armor	Steel angle / plate conforming to IS:2062, galvanized
Compression Range	20% of nominal seal width

Key Features

- Simple installation with lubricant-adhesive
- Reliable watertightness at moderate movement
- Conforms to IRC:SP:69-2011

Typical Applications

- Highway bridges with moderate movement joints

2.2.3 Reinforced Elastomeric Slab Joint



Applicable Standard: *IRC:SP:69-2011*

A steel-reinforced elastomeric slab unit fixed directly to the deck using bolt anchors, recommended for simply supported or continuous spans, right or lightly skewed (under 20°), moderately curved decks.

Reinforced elastomeric slab joint is a single-piece elastomeric slab reinforced with internal steel plates, bolted to the deck and spanning the gap, flexing to accommodate movement while providing a smooth, low-profile trafficable surface as per IRC:SP:69-2011.

Parameter	Specification / Typical Range
Movement Capacity	Maximum 40mm
Material	Reinforced Elastomer Block
Fixing	Bolted with anchor studs, epoxy grouted
Load Rating	As per IRC:6 loading, Class A / Class 70R

Key Features

- Low profile, surface-mounted installation
- Smooth continuous riding surface

Typical Applications

Bridges requiring a low-profile surface-mounted joint

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2.3 Large Opening Joints

2.3.1 Modular Strip Seal Joint



Applicable Standard: *IRCSP:69-2011*

For large-opening joints, multiple strip-seal elements are combined into a modular system, with each neoprene strip seal held mechanically between steel edge and separation beams. Every separation beam is carried on independent support bars welded to the beam, allowing the system to accommodate large total movement while distributing it across several smaller gaps.

Modular strip seal joint comprises multiple strip seals supported on transverse steel centre beams travelling on support bars and control springs, distributing large total movement across several smaller gaps, as per IRC:SP:69-2011.

Parameter	Specification / Typical Range
Movement Capacity	Recommended for higher movements
Centre Beams	Steel structures are confirming to latest specs of BIS 2062
Seal Elements	Sealing element specifications is same as strip seal joint sealing element
Support System	Elastomeric bearing with PTFE sliding bearing and control springs are designed to accommodate large opening movements
Watertightness	As per IRC:SP:69-2011 test requirement

EXPANSION MOVEMENT DATA

No. of seals	Min opening (mm)	Max opening (mm)
1	40	80
2	80	160
3	120	240
4	160	320
5	200	400
6	240	480

Key Features

- Accommodates very large total movement
- Modular construction permits individual seal replacement

Typical Applications

- Long-span bridges, major river bridges, high-movement structures

2.3.2 Finger Joint



Applicable Standard: *IRC:SP:69-2011*

Finger joint consists of interlocking cantilevered steel fingers projecting from each side of the gap, overlapping without contact to accommodate large movement, typically combined with a drainage trough beneath, as per IRC:SP:69-2011.

Parameter	Specification / Typical Range
Movement Capacity	Depends on requirement
Material	Cast / fabricated steel conforming to IS:2062, hot-dip galvanized
Drainage Trough	EPDM / stainless steel gutter provided beneath the joint
Load Rating	As per IRC:6 loading, Class A / Class 70R

Key Features

- Very large movement capacity
- Robust construction for heavy traffic loading

Typical Applications

- Long-span bridges, large movement structures

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2.3.3 Reinforced Coupled Elastomeric Slab Joint



Applicable Standard: *IRC:SP:69-2011*

Reinforced coupled elastomeric slab joint consists of multiple reinforced elastomeric slab joint modules coupled together through a central steel coupling beam, providing greater total movement capacity than a single slab joint, as per IRC:SP:69-2011.

Parameter	Specification / Typical Range
Movement Capacity	± 80 - 160 mm
Material	Coupled reinforced Neoprene / CR modules with steel coupling beam
Fixing	Bolted with anchor studs

Key Features	Typical Applications
• Higher movement capacity than a single slab joint • Modular, low-profile construction	• Medium to large span bridges

2.3.4 Copper Strip Expansion Joint



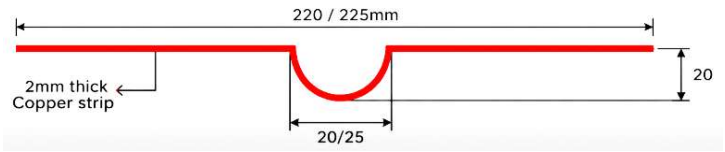
A watertight joint of long service life in which the expansion medium is a formed copper strip, profiled to flex through the full design movement range while maintaining a continuous waterproof barrier across the joint gap.

Manufactured and supplied with reference to IRC:SP:69 requirements for expansion joints; movement range and profile size are confirmed with our design team against the project's specified gap and deck detail.

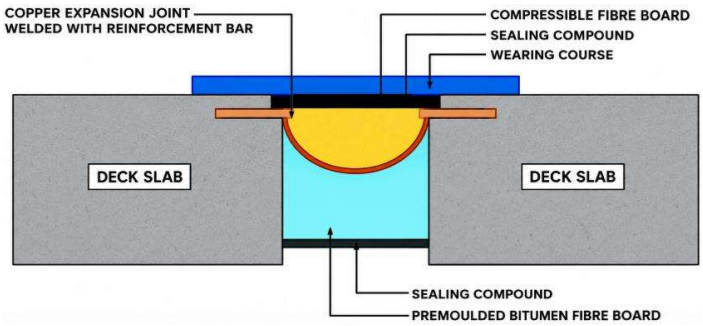
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Copper Strip Expansion Joint with Filler Joint Specification with Installation Diagram

Standard Diagram



Installation Diagram



Applicable Standard: *MoRT&H Section 2600, Clause 2605*

Filler joint is a simple expansion joint recommended for 20 mm joint width. It consists of a single corrugated copper plate placed slightly below the wearing coat, with premoulded bitumen fibre filling the deck gap below and a sealing compound at the top, finished to the level of the wearing course.

Parameter	Specification
Design	Single corrugated
Thickness	2 mm
Material	Copper strip
Width	220 mm for 20 mm gap & 225 mm for 25 mm gap
Below Copper Plate	Premoulded bitumen fibre board
Edge Protection	Compressible fibre board protecting the edges of the copper plate
Top Seal	Sealing compound filled up to the level of the wearing course

Key Features

- Simple and economical expansion joint for 20 mm joint width
- Single corrugated copper plate, 2 mm thick, placed slightly below the wearing coat
- Available in 220 mm (20 mm gap) and 225 mm (25 mm gap) widths
- Premoulded bitumen fibre board fills the deck gap below the copper plate
- Compressible fibre board protects the edges of the copper plate
- Sealing compound at the top, finished to wearing course level
- Installed as per MoRT&H Section 2600, Clause 2605

Typical Applications

- Minor bridges and culverts with small thermal movement
- Bridge decks with a 20 mm expansion gap (up to 25 mm)
- Slab and girder decks with a wearing course over the joint